



BOARD OF SUPERVISORS AGENDA ITEM REPORT

Requested Board Meeting Date: November 21, 2017

Title: P17TA00004: 2016 Subdivision and Development Street Standards Revision

Introduction/Background:

This is a revision to Section 4.17 of the Subdivision and Development Street Standards to include additional pavement performance standards. The Pima County Planning and Zoning Commission unanimously recommended approval of this revision at their October 25, 2017 hearing.

Discussion:

On March 15, 2016, the Pima County Board of Supervisors approved a major rewrite of the Subdivision and Development Street Standards (SDSS). Part of this update included several revisions intended to further strengthen the pavement design standards with the intent of extending pavement longevity. Since the approval, staff has utilized the revised standards to evaluate new subdivision and developments throughout Pima County. Staff was guided by the County Administrator to focus on new techniques which would increase pavement durability and reduce roadway maintenance costs. Staff analyzed several additional pavement standards and treatments as outlined in the supplemental documentation included in this report.

Proposed Revision:

Based on evaluation of multiple option and the input from stakeholder groups, staff recommends that the 2016 Subdivision and Development Street Standards be amended as follows:

Section 4.17 Pavement Design. REVISE section by adding a bullet at the end of the section to read as follows:

- New public subdivision local and minor collector streets constructed of asphaltic concrete shall be surfaced with a slurry seal or treatment as follows:
 - The product shall contain fiber-reinforced minimum 3% polymer to asphalt content by weight or the product shall be a high density mineral bond containing a non-ionic emulsion base
 - The product shall contain minimum 50% solid content
 - The product shall be applied at a minimum rate of 0.36 gallons per square yard (dual application) per manufacturer recommendation
 - The product shall be appropriate to the expected traffic load and volume
 - The product shall have an expected performance time frame of at least 5 years
 - The product shall be applied following the construction completion of at least 75 percent of homes impacting the street system in a given development phase or block per manufacturer recommended time frame following pavement construction and prior to County acceptance into maintenance. Alternatively, a performance bond may be provided prior to County acceptance, for an amount 10% greater than the seal or treatment cost estimate. The work covered by the performance bond shall be completed a maximum of 10 months following acceptance into maintenance.
 - The product shall be on an approved list posted to the Pima County website (products believed to meet these criteria should be submitted to Pima County Transportation for approval and inclusion on the approved list)

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Conclusion:

Should this revision be approved, a slurry seal or similar treatment will need to be applied to all streets subject to the Subdivision and Development Street Standards prior to acceptance by the county. This change will increase pavement longevity and reduce long term maintenance costs.

Recommendation:

Staff recommends approval of the attached ordinance.

Fiscal Impact:

No direct short term fiscal impact to the County; long term indirect benefits from increases in pavement longevity are anticipated.

Board of Supervisor District:

- 1
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- All

Department: Transportation Telephone: 520.724.6410

Contact: Jeanette De Renne, AICP Telephone: 520.724.6699

Department Director Signature/Date: *Anant. Olivas* 10/31/17

Deputy County Administrator Signature/Date: *[Signature]* 11/2/17

County Administrator Signature/Date: *[Signature]* 11/2/17



DEPARTMENT OF TRANSPORTATION
201 NORTH STONE AVENUE, FOURTH FLOOR
TUCSON, ARIZONA 85701-1207

ANA M. OLIVARES, P. E.
DIRECTOR

(520) 724-6410
FAX (520) 724-6439

Memorandum

Date: September 28, 2017
To: Honorable Chair & Members, Pima County Planning and Zoning Commission
From: Ana M. Olivares, Director
Subject: Revision to the Subdivision and Development Street Standards, Section 4.17 Pavement Design

On March 15, 2016, the Pima County Board of Supervisors approved a major rewrite of the Subdivision and Development Street Standards (SDSS). Part of this update included several revisions intended to further strengthen the pavement design standards with the intent of extending pavement longevity. Since the approval, staff has utilized the revised standards to evaluate new subdivision and developments throughout Pima County. Staff was guided by the County Administrator to focus on new techniques which would increase pavement durability and reduce roadway maintenance costs. Staff analyzed several additional pavement standards and treatments as outlined in the supplemental documentation included in this report.

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 - **The product shall contain minimum 50% solid content**
 - **The product shall be applied at a minimum rate of 0.36 gallons per square yard (dual application) per manufacturer recommendation**
 - **The product shall be appropriate to the expected traffic load and volume**
 - **The product shall have an expected performance timeframe of at least 5 years**
 - **The product shall be applied following the construction completion of at least 75 percent of homes impacting the street system in a given development phase or block per manufacturer recommended timeframe following pavement construction and prior to County acceptance into maintenance. Alternatively, a performance bond may be provided prior to County acceptance, for an amount 10%**

Ana M. Olivares, P.E., Director

201 N.Stone Avenue, 4th Floor, Tucson, Arizona 85701-1207 • Phone: 520-724-6410 • Fax: 520-724-6439

greater than the seal or treatment cost estimate. The work covered by the performance bond shall be completed a maximum of 10 months following acceptance into maintenance.

- The product shall be on an approved list posted to the Pima County website (products believed to meet these criteria should be submitted to Pima County Transportation for approval and inclusion on the approved list)

ORDINANCE 2017-

AN ORDINANCE OF PIMA COUNTY, ARIZONA; RELATING TO TRANSPORTATION AND ZONING; ADOPTING A REVISION TO THE 2016 SUBDIVISION AND DEVELOPMENT STREET STANDARDS SECTION 4.17 PAVEMENT DESIGN TO INCLUDE ADDITIONAL PAVEMENT PERFORMANCE STANDARDS.

THE PIMA COUNTY BOARD OF SUPERVISORS FINDS THAT:

1. On March 15, 2016 the Board of Supervisors adopted Ordinance 2016-68, which included approval of the 2016 Subdivision and Development Street Standards (Exhibit A to Ordinance 2016-68).
2. Pavement longevity is necessary to lower the long term cost of roadway maintenance.
3. Maintaining the County roadway system in a state of good repair is a goal adopted in the Pima Prospers Comprehensive Plan.
4. County staff worked with stakeholder groups to evaluate pavement design standards.

BE IT ORDAINED BY THE BOARD OF SUPERVISORS OF PIMA COUNTY, ARIZONA:

Section 1. The 2016 Pima County Subdivision and Development Streets standards are amended to delete Section 4.17 and replace it with the following (new text in bold underline):

...

4.17 PAVEMENT DESIGN

These pavement design standards apply to all public or private local and collector street improvement projects designed as part of a development, including off-site improvements. The requirements and methodologies outlined in the Pavement Design section of the Pima County Roadway Design Manual (RDM) shall be used to design pavement structures within Pima County. In addition to the requirements and methodologies outlined in the RDM, roadways subject to the Subdivision and Development Street Standards will also be subject to the following requirements:

- The Pavement Design Report shall also include the following items:
 - Projected average daily traffic (ADT).
 - 18-kip Equivalent Single Axle Loads (ESAL) used.
 - Pavement thickness.
 - Subgrade acceptance chart.

- The latest addition of the Pima Association of Governments (PAG) Standard Specifications for Public Improvements shall be utilized for the required mix design properties. All of these standard properties apply as stated with the exception of those listed below:
 - Effective air voids shall be 3.5% +/-0.2% for local streets and residential collectors
 - Minimum voids in the mineral aggregate (VMA) shall be 16.0%
 - Reclaimed asphalt pavement (RAP) is prohibited in local and residential collector street mix design
 - Minimum compaction of asphaltic concrete (AC) shall be 96%
- Based on the 20 year projected ADT, the following ESAL's will be accepted for pavement design:

Table 4.15 Accepted ESAL's for Pavement Design

20 year ADT	ESAL*
<500	40,000
500-1000	70,000
1000-1500	100,000
1500-2500	150,000

*100,000 ESALs are required for cul-de-sacs

- When the projected 20 year ADT exceeds 2500, or when the engineer desires to calculate their own ESAL's, complete calculations, including a breakdown of the traffic by vehicle type, shall be included in the pavement design report. The ESAL calculations shall be based on the 20-year design period
- The minimum weighted structural numbers (SN) and pavement sections by roadway classification are presented in the RDM and, for cul-de-sacs, in Table 4.16.

Table 4.16 Minimum Weighted Structural Numbers and Pavement Sections

Street Classification	Minimum SN	Minimum AC	Minimum AB
Cul-de-Sac-Local Streets	1.75	3.0"	4.0"

- Roller compacted concrete pavement may be used on local streets (minimum 5 inch thickness). No grinding or grooving is necessary if the placed finish meets the coefficient of friction requirements for 25 mph as noted in Table 4.8. If roller compacted concrete is utilized, a geotechnical report is required to provide the specifications and acceptance criteria that is not part of Pima County standard specifications.
- When existing streets are widened, the new pavement section shall either match the existing pavement section or meet the applicable minimum thickness as required in the RDM and Table 4.16 (for Cul-de-Sacs), whichever is greater.
- When a street is widened, the complete cross section will be subject to pavement replacement and/or surface treatment in accordance with the guidance offered in the Pavement Replacement Standard Details found in the Pima County Procedures for the Issuance of Right-of-Way Permits and Regulations of Work Under Permit.
- When through streets are designed which may ultimately connect to future developments, pavement design and ESAL calculations shall accommodate future wheel loads to account for all future loading.
- **New public subdivision local and minor collector streets constructed of asphaltic concrete shall be treated with HA5, SealMaster Liquid Road, or equivalent, per manufacturer recommendation prior to County acceptance into maintenance. Other materials believed to be of equivalent performance may be submitted to Pima County for approval if the product has a minimum total application rate of 0.36 gallons per square yard (dual application) with minimum 50% solid content and an expected performance timeframe of at least 5 years.**

...

Section 2. This Ordinance is effective 31 days after the date of its adoption.

PASSED AND ADOPTED by the Board of Supervisors, Pima County Arizona, this ____ day of _____,
2017.

Chair, Pima County Board of Supervisors

ATTEST:

Clerk of the Board

APPROVED AS TO FORM



Deputy County Attorney

ANDREW FLAGG



To: Carmine
Yves

Approved
CDP
9/25/17
[Signature]

DATE: September 21, 2017
TO: C.H. Huckelberry, County Administrator
THRU: Carmine DeBonis Jr., Deputy County Administrator - Public Works
FROM: Yves Khawam, Chief Deputy Transportation Director *[Signature]*
SUBJECT: **Increasing Pavement Longevity through Subdivision Street Standards**

This analysis responds to your June 26, 2017 memorandum on updating local subdivision street standards to achieve greater pavement longevity and your September 5, 2017 request on deferring acceptance of new subdivision streets to a year following completion to better identify latent defects.

Background

Subdivision street pavement standards have been revised twice since adoption of the 2006 Subdivision and Development Street Standards (SDSS), which resulted in updated minimum pavement sections of 2.5" of asphaltic concrete (AC) over 4" of aggregate base (AB) for local subdivision streets and 3" of AC over 4" of AB for local collectors. Depending on soil conditions, thicker sections are required when low bearing and resiliency values are present.

Pavement design standards were further strengthened through the adoption of the 2016 SDSS. Following an in-depth analysis of options to extend pavement longevity, it was determined that increasing pavement thickness made sense only for cul-de-sacs where the minimum AC section was changed from 2.5" to 3" to offset issues associated with raveling. Other improvements providing greater pavement longevity included increasing compaction from 95 to 96%, reducing effective air voids on local roads from 4 to 3.5%, increasing voids in mineral aggregate (VMA) from 15 to 16% minimum, and prohibiting recycled asphalt pavement (RAP) for local and collector streets due to its oxidation properties.

Additionally, flexible pavement design was adjusted in 2016 to reflect intended Arizona Department of Transportation methodology. The change better aligned soils correlated R-values with empirical observations in Pima County and required laboratory R-value testing. This adjustment has resulted in approximately 60% of newly constructed local street pavement sections exceeding the 2.5" AC over 4" AB minimum requirement, better assuring that pavement sections meet design traffic loading over the ADOT 20-year design life. It should be noted, however, that to obtain greater structural longevity, the 1989 ADOT 20-year design approach will eventually need to be replaced with newer NCHRP/AASHTO mechanistic-empirical methodology which moves

C.H. Huckelberry, County Administrator

Re: Increasing Pavement Longevity through Subdivision Street Standards

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beyond soils and traffic loads to consider environmental factors and acceptable damage levels over a 40-year period.

Analysis of Additional Pavement Standards and Treatments

Regardless of structural design service-life, AC requires extensive preventative maintenance because it is subject to degradation by multiple factors including solar radiation, wheel loading, drainage and subbase erosion. Rigid pavements such as Portland Cement Concrete Pavement (PCCP) or Roller Compacted Concrete (RCC) require far less maintenance than AC and better resist shearing forces from heavy vehicles in tight turning situations such as cul-de-sacs, which is one of the proposed treatments for cul-de-sacs in your referenced memorandum. However, the cost-benefit of constructing PCCP cul-de-sacs with AC streets segments places the highest cost pavement at the lowest overall system value since cul-de-sacs are traversed at much lower speeds and shorter distances than street segments, thereby providing less overall impact and benefit to users of the street network.

County staff conducted field visits in February 2017 of a representative sample of subdivision streets and cul-de-sacs built within the last 10 years (attached). Of these, the only significant observed pavement failures were cracking and minor raveling associated with oxidation. It is noteworthy that even though County design standards have resulted in stronger sections since these roads were built, the observed failures were not attributable to strength issues and so it is recommended that additional section increases and PCCP cul-de-sacs not be required at this time. Instead, it is proposed that efforts focus on better preserving pavement through treatments.

Your June 26, 2017 memorandum proposed providing developers the option to maintain subdivision streets for five years following initial construction or provide the County with an appropriate monetary contribution to allow each local subdivision street to receive a typical micro-seal surfacing application on the fifth anniversary of completion. While considering this option, County staff also reviewed pavement treatment applications, and based on field observations of different local street treatment types, have concluded that the best protection against oxidation-related raveling and cracking is to employ a pavement sealer immediately following paving. Most pavement oxidative aging occurs within the first four years of service life, so providing an early treatment can defer oxidation up to 10 years. Observed treatments included crack seals, micro-seals, scrub seals, slurries, Polymer Modified Masterseal (PMM), and High-Density Mineral Bond (HDMB). Of these, the HA5 HDMB treatment stood out as having performed exceptionally well following 5.5 years of service with only minor surface marking in areas experiencing heavy truck turning movements (attached).

On August 9, 2017, a letter was sent to the Southern Arizona Home Builders Association, Arizona Transportation Builders Association and the Metropolitan Pima Alliance, soliciting feedback on the option of applying HA5, or equivalent treatment, to new subdivision streets prior to the County accepting the streets into maintenance. The principal concern raised by the industry was shifting of the maintenance responsibility onto the development industry. Additional options were discussed such as escrowing funds for the County to provide future maintenance versus developer provided treatments and the criteria for qualifying treatment materials. A follow-up meeting with the three organizations took place on September 7, 2017, where the

developers indicated a desire for budget certainty and the least possible cost approach. The contractor representatives requested that multiple treatment products be permitted, rather than a sole-source single product such as HA5, and that a warranty-based specification not be applied due to the complexity of determining application-related failures independent of the roadway section warranty.

Recommendation

Based on evaluation of multiple options and the input from homebuilder and contractor representatives, staff recommends that in lieu of further increasing pavement section thickness and constructing PCCP cul-de-sacs, that the *2016 Subdivision and Development Street Standards* be amended as follows:

Section 4.17 Pavement Design. REVISE section by adding a bullet at the end of the section to read as follows:

- New public subdivision local and minor collector streets constructed of asphaltic concrete shall be treated with HA5, SealMaster Liquid Road, or equivalent, per manufacturer recommendation prior to County acceptance into maintenance. Other materials believed to be of equivalent performance may be submitted to Pima County for approval if the product has a minimum total application rate of 0.36 gallons per square yard (dual application) with minimum 50% solid content and an expected performance timeframe of at least 5 years.

This early treatment of the road will result in deferring oxidation at least 5 years thereby allowing the County to forego application of a typical seal treatment until the 10-year interval. The estimated cost savings to the County associated with this modification equates to approximately \$70,400 per mile of newly constructed subdivision street.

Regarding the suggestion to delay acceptance of new streets into maintenance, the current practice is that a County inspection for release of assurance typically occurs 2 to 8 months following road construction, with an additional two months passing prior to the Board of Supervisors accepting the street into maintenance. Additionally, adopted *Pima Association of Government Standard Specifications for Public Improvements*, Section 105—Control of Work, obligates the developer to provide a minimum one-year warranty following roadway acceptance. The County conducts an inspection on all projects near the end of this warranty period to evaluate work and materials, requiring that defects be remedied. The cumulative period of assurance release, acceptance and warranty expiration provides the County with a defect mitigation timeframe of 16 to 22 months post construction, which allows significant latent defects to become visible, especially since heavy vehicles such as trucks delivering concrete for home construction traverse the streets during this period. The County inspection prior to the end of the 12-month warranty period, results in a list of required repairs by the developer on any identified defects. Therefore, additionally delaying acceptance is not recommended since sufficient controls are in place to identify defects, and delaying acceptance would require an additional inspection to be conducted on each project without significant gain.

Finally, it is recognized that better analysis tools are needed to inform decision-making on roadway design, construction and maintenance. To achieve this end, a program will be instituted to better categorize and

C.H. Huckelberry, County Administrator

Re: Increasing Pavement Longevity through Subdivision Street Standards

September 22, 2017

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analyze existing pavement sections to better determine the factors causing failure along with those contributing to longevity. This program will be a component of a larger effort to model and analyze roadway infrastructure from the planning stages through operations and maintenance.

Subject to your concurrence, we will proceed with these recommendations, including preparing the SDSS amendment for Planning and Zoning and Board of Supervisors consideration. Please let us know if additional information is required.

Approved/Denied

C.H. Huckelberry, County Administrator

Date

Attachments:

1. Referenced June 26, 2017 and September 5, 2017 County Administration memoranda
2. Field observation of existing subdivision streets
3. Aerial photography of HA5 application in Continental Ranch Parcel 8

c: Nanette Slusser, Assistant County Administrator for Policy
Ana Olivares, Interim Transportation Director
Carla Blackwell, Development Services Director
Jim Cunningham, Interim Deputy Transportation Director



MEMORANDUM

Public Works Administration

Date: June 26, 2017

To: Priscilla Cornelio, Director
Department of Transportation

From: 
Carmine DeBonis, Jr.
Deputy County Administrator

Carla Blackwell, Director
Development Services

Re: County Administrator Direction to Update Local Subdivision Street Standards

The attached June 26, 2017 memorandum from the County Administrator provides direction on updating local subdivision street standards. This direction concludes discussion on exclusive use of roller compacted concrete. The new guidance continues the focus on increasing pavement durability and reducing maintenance costs, which were part of the concrete evaluation and the most recent update to the Subdivision and Development Street Standards.

Given the lead role performed by Yves Khawam on both of these efforts, it is appropriate that he lead the further updating of the subdivision street standards. I expect technical input from the Department of Transportation on the recommended standards along with any others that achieve the intended result, and input from Finance on the suggested monetary contribution.

Please contact me with any questions.

Attachment

c: C.H. Huckelberry, County Administrator
Tom Burke, Deputy County Administrator for Administration
Nanette Slusser, Assistant County Administrator for Policy, Public Works
Keith Dommer, Director, Finance Department



MEMORANDUM

Date: June 26, 2017

To: Carmine DeBonis, Jr.
Deputy County Administrator
for Public Works

From: C.H. Huckelberry
County Administrator

A handwritten signature in black ink, appearing to read "CHH", is written over the printed name "C.H. Huckelberry".

Re: **Local Subdivision Street Standards**

In our recent meeting with the Southern Arizona Homebuilders Association (SAHBA), there was an inquiry regarding the County's status on utilizing roller compacted concrete for local streets. At this time, I believe the exclusive use of roller compacted concrete can be replaced by significantly improved local pavement structural standards in our subdivisions. If approved, we could forego the option of roller compacted concrete. These standards are as follows:

- a) For any cul-de-sac on a local street that is subject to significant pavement shearing action of heavy vehicles – fire trucks, garbage trucks, etc. – it is appropriate to have the full area of the cul-de-sac paved with Portland cement concrete of an appropriate thickness to withstand the weight loads.

Such will eliminate the difficulties we have experienced in maintaining cul-de-sacs that are continually in disrepair due the heavy loading of large trucks.

It would be appropriate to document all damages caused by these trucks in our cul-de-sacs through detailed written reports and photographs.

- b) The asphalt concrete structural section should be increased from its present 1.5-inch minimum to 3 inches minimum on an appropriately designed aggregate base course; and, if necessary, subbase, all of which are subject to soil support conditions and loading of the subject streets.
- c) Each developer should have the option of either fully maintaining the pavement section and local street for a period of five years after initial construction or providing the County with appropriate monetary contribution or bond that would allow each local subdivision street to receive a typical micro seal surfacing application on the fifth anniversary of completion of the local road.

Carmine DeBonis, Jr.

Re: **Local Subdivision Street Standards**

June 26, 2017

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It would also be appropriate to document all of the failed local roads in the unincorporated area of Pima County where the existing standards have been inadequate and where the local subdivision streets demonstrate significant distress in a short period. I would like to bring these proposals to the various stakeholder groups this summer and conclude our specific recommendation to the Board of Supervisors to alter the subdivision standards such that they can be approved by the Board to be effective on October 1, 2017.

CHH/anc

c: David Godlewski, President, Southern Arizona Homebuilders Association
Shawn Cote, Government Affairs Associate, Southern Arizona Homebuilders Association
Nanette Slusser, Assistant County Administrator for Policy, Public Works
Priscilla Cornelio, Transportation Director



MEMORANDUM

Date: September 5, 2017

To: Carmine DeBonis, Jr.
Deputy County Administrator
for Public Works

From: C.H. Huckelberry
County Administrator

A handwritten signature in black ink, appearing to be "CHH", is written over the printed name "C.H. Huckelberry".

Ana Olivares, Interim Director
Transportation Department

Re: **Acceptance of Subdivision Streets**

Pursuant to a conversation with the County Attorney, the County is obligated to accept streets constructed to our standards within one year of completion. It would be appropriate to notify those subdivisions currently under construction that the County will not recommend their subdivision streets be accepted until nearly one year after completion. Such will allow latent defects to become obvious and require rectification by the developer/owner of the property.

In addition, as we pursue additional standards for the development of public streets, it would be appropriate to require, as discussed, application of appropriate pavement preservation actions based on this delayed street acceptance. Such an application would be required one year after initial construction of the subdivision street at the same time the County accepts the streets for public maintenance.

CHH/anc

c: Nanette Slusser, Assistant County Administrator for Public Works

**Countryside Manor, Public Streets
Lots 1-52, P1204-090**

The streets within this Development are public. Project location is at Camino de Oeste at Lessing Lane, just north of Cortaro Road.

Development construction started in 2007. PCDOT provided inspections for the construction and acceptance of the public improvements. A punch list letter was generated but no pavement deficiencies were noted. PCDOT issued a conformance letter on the completed improvements on October 12, 2010.

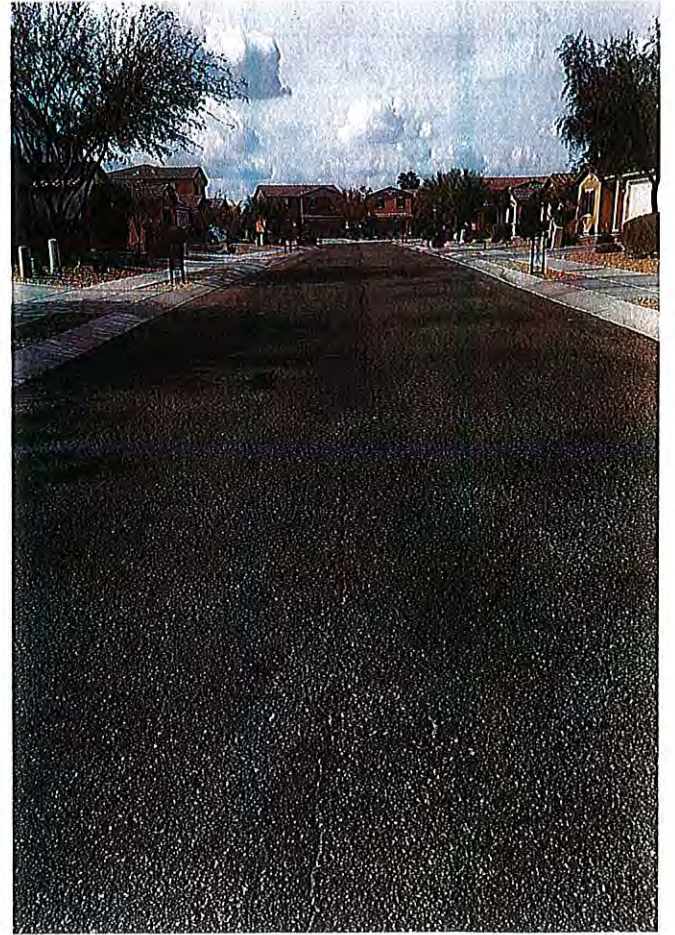
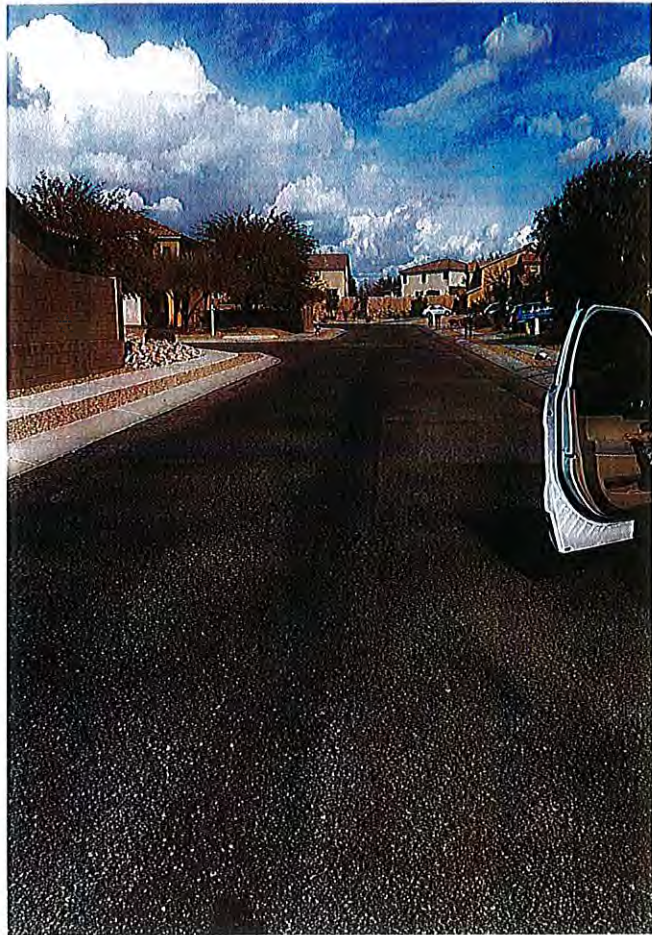
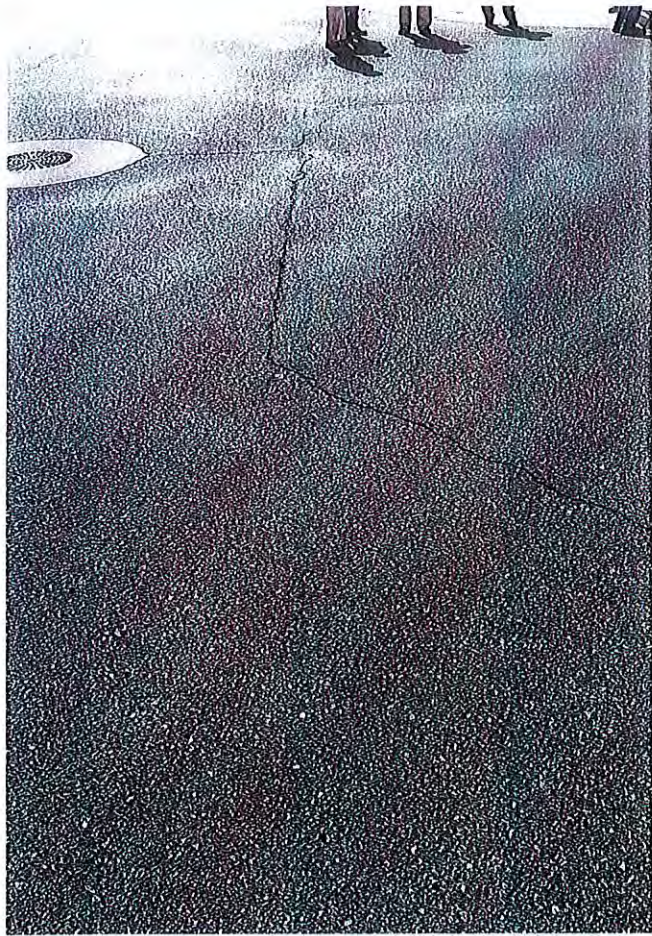
Countryside Manor was accepted into the Maintenance System on January 4, 2011.

Site Visit on February 14, 2017

**Attendees: Martin Landin, Subd./Permit Inspections
Jim Cunningham, Field Engineering
Yves Khawan, Development Services
Joseph Godoy, Development Review
John Norton, Materials Lab
David Cummings, Maintenance Operations**

Project visited to assess the current conditions of the pavement to evaluate any existing or potential failures of the pavement.

- A Master Seal coat was applied prior to the issuance of the 36th house building permit (out of the total 52 lots).
- Some pavement cuts are present but they are not bad enough to require some sort of immediate maintenance at this time.
- Pavement conditions were found to be above average and in good shape.
- Additional research will be necessary for the activity, repairs and plans details for Lessing Lane at later date.





**Las Rocas Subdivision
Lots 1-20, P1208-078**

Las Rocas is a small gated subdivision with private streets off Camino de Oeste between Camino del Cerro and Sunset.

This Development began construction in 2007. PCDOT performed a final inspection on the completed improvements for the Release of Assurances and generated a punch list letter on miscellaneous items on June 2, 2009.

The pavement at the time of the visual inspection did not reveal any major issues typical or associated with this type of work due to problems with any materials or workmanship. PCDOT did not provide any inspections during the actual construction of these improvements as this is a subdivision with private streets.

Upon completion of the corrective work stated in our punch list a conformance letter for the Release of Assurances was issued by PCDOT on June 6, 2011.

Site Visit on February 14, 2017

Attendees: Martin Landin, Subd./Permit Inspections

Yves Khawan, Development Services

Jim Cunningham, Field Engineering

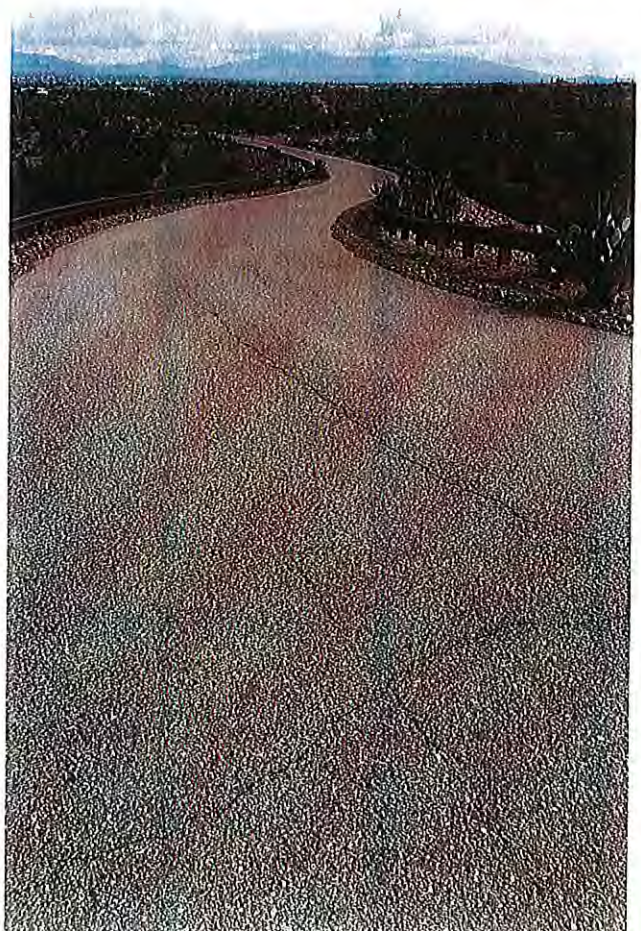
Joseph Godoy, Development Review

John Norton, Materials Lab

David Cummings, Maintenance Operations

Project visited to assess the current conditions of the pavement and evaluate any existing or potential failures of the street pavement.

- Pavement conditions appear to be within the expected conditions for a roadway with no traffic exposure as no homes have been built as of today.
- Some longitudinal and perpendicular cracks are present that could be easily corrected by applying a crack seal material.
- Pavement conditions are not beyond repair, some washout of surface fines was observed on the stepper grade sections.
- Shoulder conditions and edge of pavement are showing very minimal disturbance and no erosion problems were present.





**Mariposa Trails Public Subdivision
Lots 1-117, P1205-032**

All streets in this Development are public. It is located east of Shannon Road, north of River Road.

Development construction began in January 2006. This particular project was built in phases and several partial releases were granted before the completion of the entire project in June 2008. Several letters were issued for the partial releases but no deficiencies in regards to the pavement were noted. PCDOT provided inspections for the construction and acceptance of the public improvements.

Mariposa Trail was accepted into the Maintenance System on August 5, 2008.

The Offsite Improvements on Rudasill Road associated with this development were approved and accepted on January 12, 2009.

Site Visit on February 14, 2017

Attendees: Martin Landin, Subd./Permit Inspections

Jim Cunningham, Field Engineering

Yves Khawan, Development Services

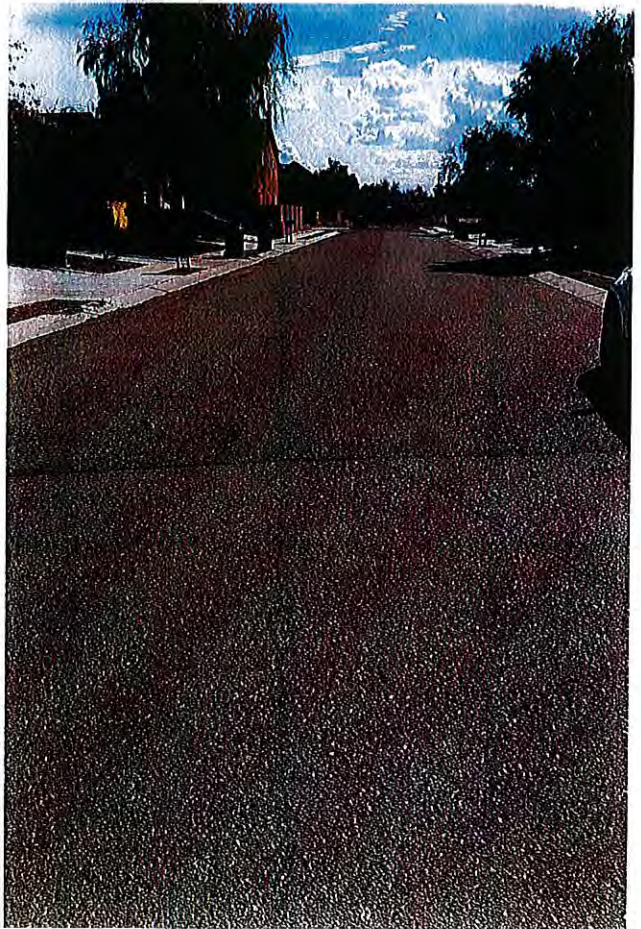
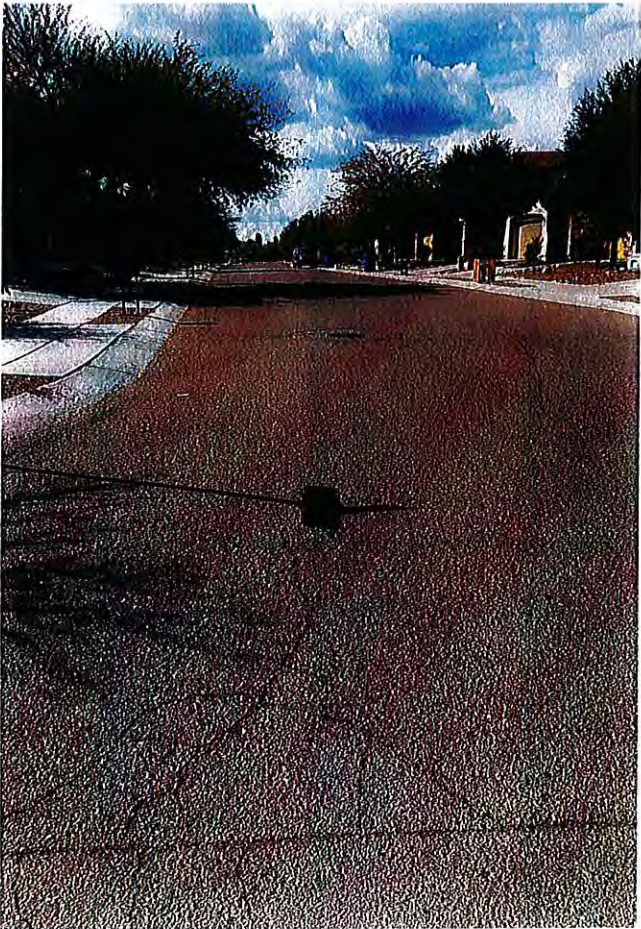
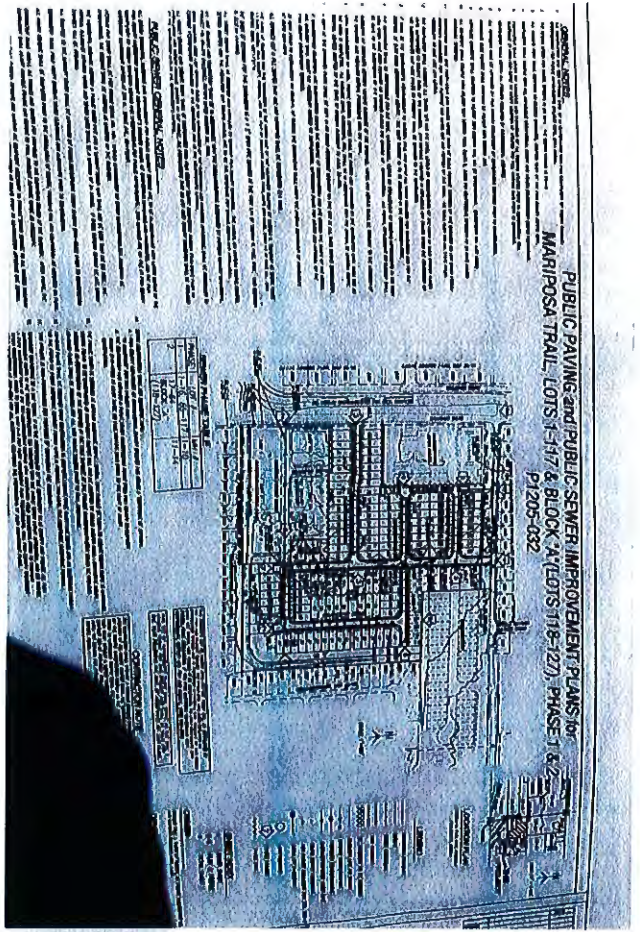
Joseph Godoy, Development Review

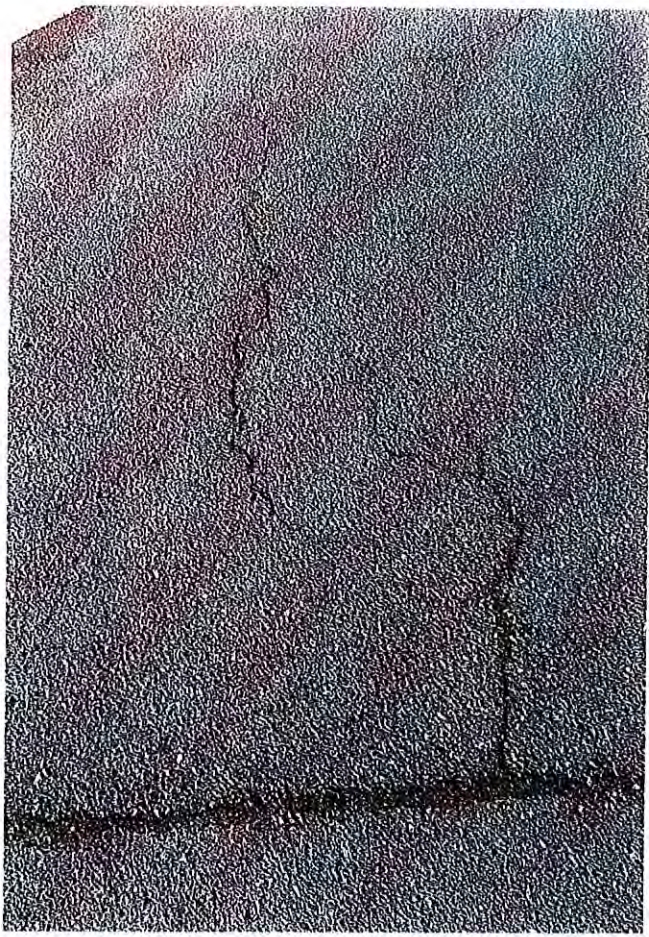
John Norton, Materials Lab

David Cummings, Maintenance Operations

Project visited to assess the current conditions of the pavement to evaluate any existing or potential failures of the pavement:

- Some pavement cracks are present but not beyond what we would consider normal for a surface that has not been exposed to any type of preventative maintenance.
- One pavement section was removed prior to acceptance due to a utility trench failure but it is holding up better than expected for this type of repair.
- Pavement conditions were found to be good overall.





**Riverside Crossing III, Public Streets
Lots 1-122, P1205-135**

The streets within this Development are public. It is located just west of River Road and La Cholla Blvd. on the north side of River Road at San Joaquin.

Development construction began in March 2007 with some of the offsite improvements on River Road and proceeded until 2008. PCDOT provided inspections for the construction and acceptance of the improvements.

A couple partial releases were given with two different punch list letters with no pavement deficiencies noted on the stated letters.

PCDOT received a request for a final inspection on the corrective work for the completed improvements for the Release of Assurances and a conformance letter was issued on September 8, 2008. This Project was accepted into the Maintenance System on November 18, 2008.

The offsite Improvements associated with this development were accepted into the maintenance system on February 17, 2009.

Site Visit on February 14, 2017

Attendees: Martin Landin, Subd./Permit Inspections

Jim Cunningham, Field Engineering

Yves Khawan, Development Services

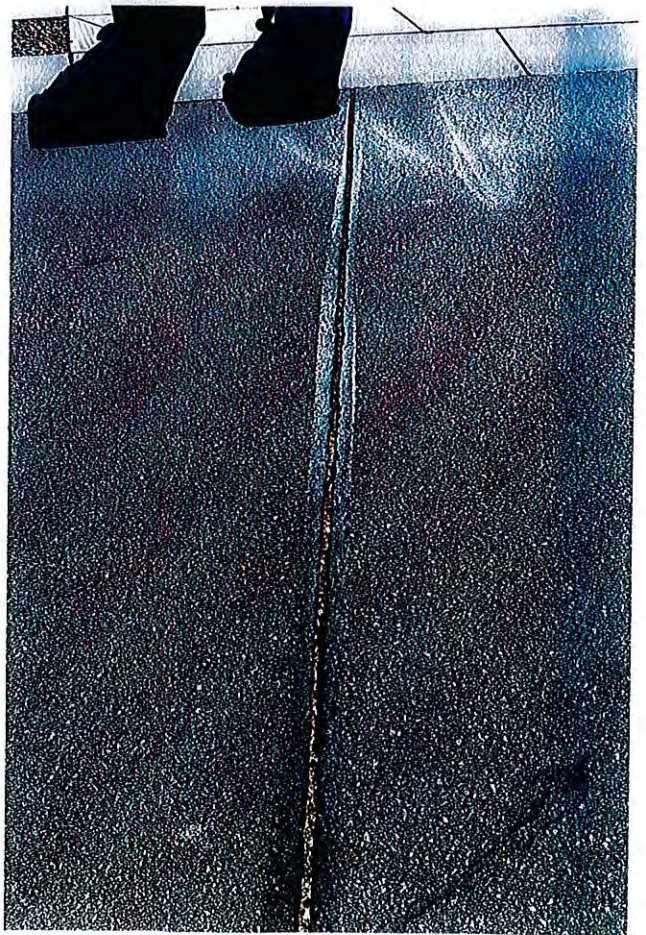
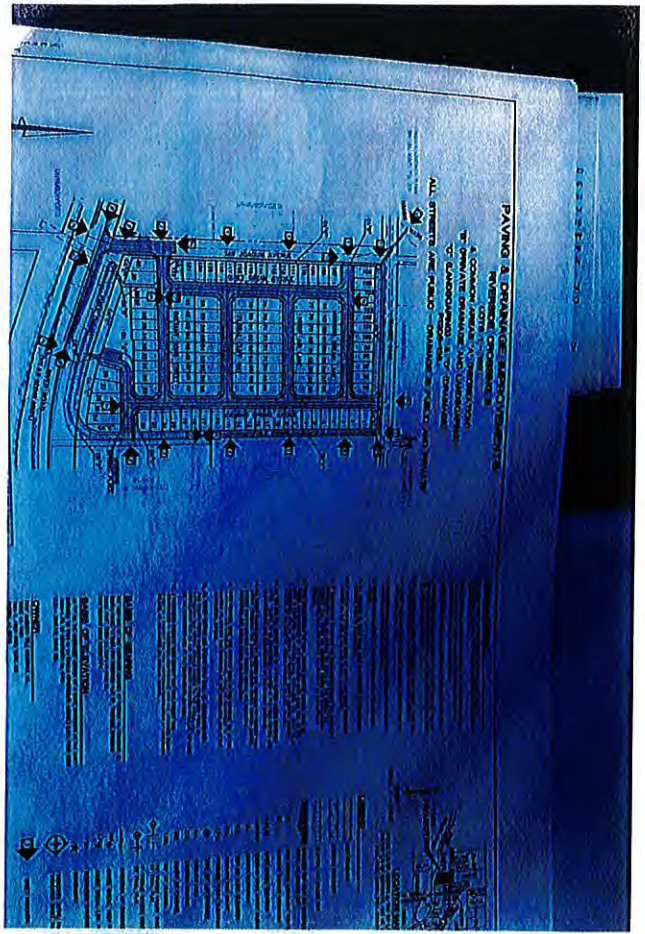
Joseph Godoy, Development Review

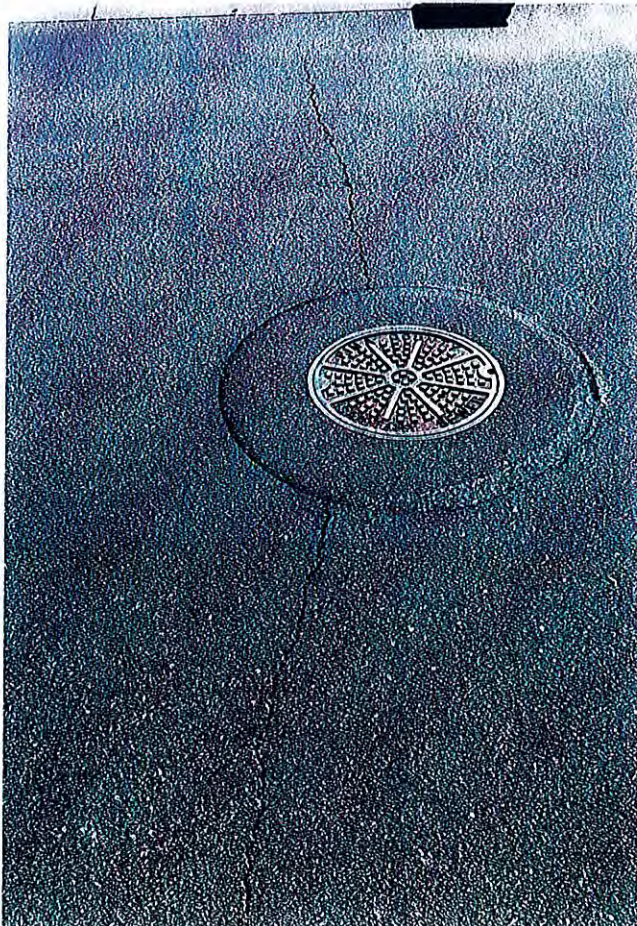
John Norton, Materials Lab

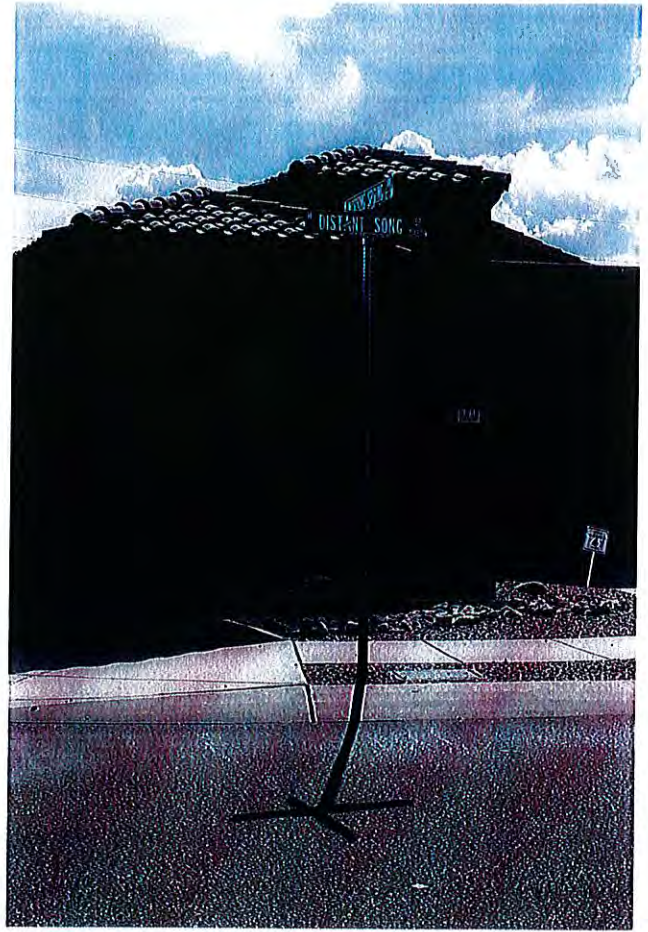
David Cummings, Maintenance Operations

Project visited to assess the current conditions of the pavement to evaluate any existing or potential failures of the pavement:

- On this particular development, our Maintenance Operations Division has been closely involved with the HOA and has provided some assistance to enhance the pavement conditions by applying crack seal. Repairs prior to the application of the surface seal coat sponsored by the HOA was done about 4 years ago.
- Some sporadic perpendicular cracks are present but not big enough that they require any type of maintenance at this time.
- On a side note some of the access ramps are showing some sort of shifting creating a separation between the access ramp and the wedge curb.
- This particular subdivision's overall conditions are above average in part to the maintenance provided approximately 4 years ago.







**Shamrock Center Commercial/Industrial Subdivision
Block I, Lots 1-16, P1201-104**

Shamrock Center is a small commercial/industrial use subdivision off Ruthrauff Road at the old Shamrock Dairy location.

The public streets were constructed around 2006. PCDOT provided inspections for the construction and acceptance of these improvements.

PCDOT received a request for a final inspection on the completed improvements for the Release of Assurances on December 13, 2006. A punch list letter was generated for miscellaneous items but no pavement deficiencies were noted. A Letter of Conformance for the corrective work was issued by the Department on July 10, 2007.

This Subdivision was accepted into the Maintenance System on October 2, 2007.

Site Visit on February 14, 2017

Attendees: Martin Landin, Subd./Permit Inspections

Jim Cunningham, Field Engineering

Yves Khawan, Development Services

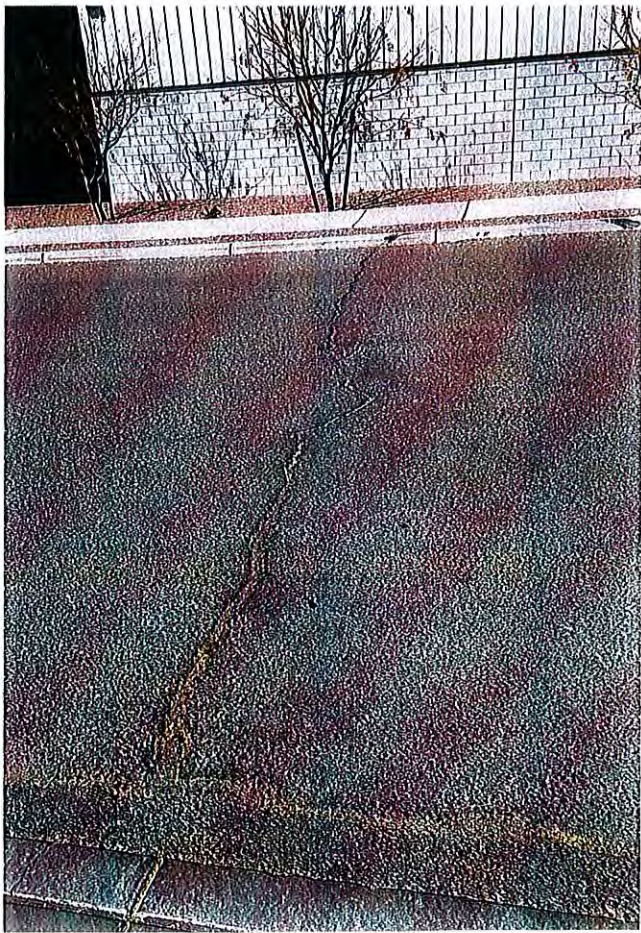
Joseph Godoy, Development Review

John Norton, Materials Lab

David Cummings, Maintenance Operations

Project visited to assess the current conditions of the pavement and evaluate any existing or potential failures of the street pavement.

- Some severe perpendicular cracks are present almost at the same spacing in between.
- Many of the cracks are present at sewer manholes, water valves adjustments and survey monuments at the corners where the pavement was saw cut during the installation of these features upon completion of the pavement.
- Pavement cracks average between 1" to 3" thermal cracks.
- Pavement conditions are not beyond repair and can be easily repaired.
- Pavement cross-section was 3" of AC on 6" of ABC.
- Overall pavement conditions were found to be above average taking into consideration the age of the pavement and that a surface treatment has not been applied since the time of construction.







Continental Ranch Parcel 8 treated with HA5 in 2012 (4 years-old as displayed here)