

Pavement Condition Assessment Report

Developed by ProConsult LLC

The Legends at Santa Rita Springs



Pavement Project Management Consulting and Quality Assurance

Assessing, Planning, Implementing, and Ensuring Project Success

Our Mission

Understanding Expectations, Adding Value, Offering Solutions, and Communicating with Respect

Helping Our Clients Achieve Success in Project Planning and Implementation

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Project Information

Client

The Legends at Santa Rita Springs HOA

Project Location

The Legends at Santa Rita Springs

2359 S Via Massari
Green Valley, AZ 85614

Client Representative

Todd Horness

218-851-5494
Horness@Brainerd.net

Project Management Consultant

Clay Jordan, President at ProConsult, LLC
Institute of Transportation Engineers Member
ASTM International Participating Committee Member
Project Management Institute Member
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ProConsult Pavement Condition Assessment

This assessment documents the indicators of pavement deterioration caused by traffic loading, environmental factors, construction deficiencies, maintenance deficiencies, and a combination thereof. The ProConsult Pavement Condition Assessment utilizes the procedures, technical guidelines, and performance indicators provided by the Governing County Associations of Governments, the ASTM International Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys, the Asphalt Institute's Pavement Distress Summary, and the Pavement Condition Index developed by the U.S. Army Corps of Engineers to determine the condition, maintenance and repair requirements, reconstruction requirements, and life expectancy of asphalt pavement streets and parking lots.

Meet ProConsult

ProConsult

ProConsult is an independent consulting company providing project management consulting and quality assurance services that are key to the successful management of private communities, multi-family housing complexes, and commercial properties. We practice the disciplines of construction, maintenance, remediation, and reconstruction, and apply the science of project management to every project.

President at ProConsult

Clay Jordan, President and Founder at ProConsult, has over 30 years of experience in project management and quality assurance in road construction, asphalt paving, pavement management, pavement maintenance, street reconstruction, and pavement condition assessments; earned his degree at the MLP Corporate University in Heidelberg, Germany; is a participating member of the ASTM Committee on Road and Paving Materials; a participating member of the ASTM Committee on Vehicle Pavement Systems; a member of the Institute of Transportation Engineers; a member of the Project Management Institute; and is a Veteran of the Armed Forces of the United States Military.

Our Project Management Team

Our project management team and partners network are comprised of members with education and experience in engineering and design; the construction, maintenance, repair, and reconstruction of asphalt streets and parking lots; extensive experience in their respective fields; and advanced training in project management. We actively serve residential and commercial property managers, homeowner associations, property owners, and property investment groups.

Our Comprehensive Pavement Project Management Services

- **Pavement condition assessments with written reports and photo documentation.**
- **Twelve-year scope and cost projections for reserve studies and budget planning.**
- **ProConsult Project Scope and Standards Agreement.**
- **Slope erosion assessments and remediation scope development.**
- **Water management system assessments and remediation scope development.**
- **Project initiation, planning, implementation, and testing.**
- **Quality assurance audits and quality control coordination for all stages of project work.**

ProConsult Project Scope and Standards Agreement

The ProConsult Project Scope and Standards Agreement is used to define the project standards, values, scope, procedures, resources, and materials; for identifying, sourcing, and implementing comprehensive project standards and specifications; for issuing requests for proposals; for planning and implementing the project; and for documenting issues and communicating progress.

ProConsult Pavement Condition Assessment

The ProConsult Pavement Condition Assessment utilizes the procedures, technical guidelines, and performance indicators provided by the Governing County Associations of Governments, the ASTM International Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys, the Asphalt Institute's Pavement Distress Summary, and the Pavement Condition Index established by the U.S. Army Corps of Engineers.

ProConsult Project Management

Project management involves initiating, planning, implementing, controlling, and closing the project scope of work to achieve specific goals and meet specific success criteria within a specified timeframe. The primary challenge of project management is to achieve all of the project goals within the given constraints. The primary constraints are scope, time, quality, and budget. The secondary—and more ambitious—challenge is to optimize the allocation of necessary inputs and apply them to meet pre-defined objectives.

The objective of project management is to produce a completed project with an end product which complies with the client's objectives. In many cases the objective of project management is also to shape or reform the client's brief to feasibly address the client's objectives. Once the client's objectives are clearly established, they should influence all decisions made by all parties involved in the project – project managers, contractors, sub-contractors, and suppliers.

A project is a temporary endeavor designed to produce a unique product, service or result with a defined beginning and end undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value. The temporary nature of projects stands in contrast with business as usual, which are repetitive, permanent, or semi-permanent functional activities to produce products or services. In practice, the management of such distinct production approaches requires advanced experience, and the development of particular technical skills and management strategies.



Code of Ethics and Professional Conduct

Advocated by the Project Management Institute

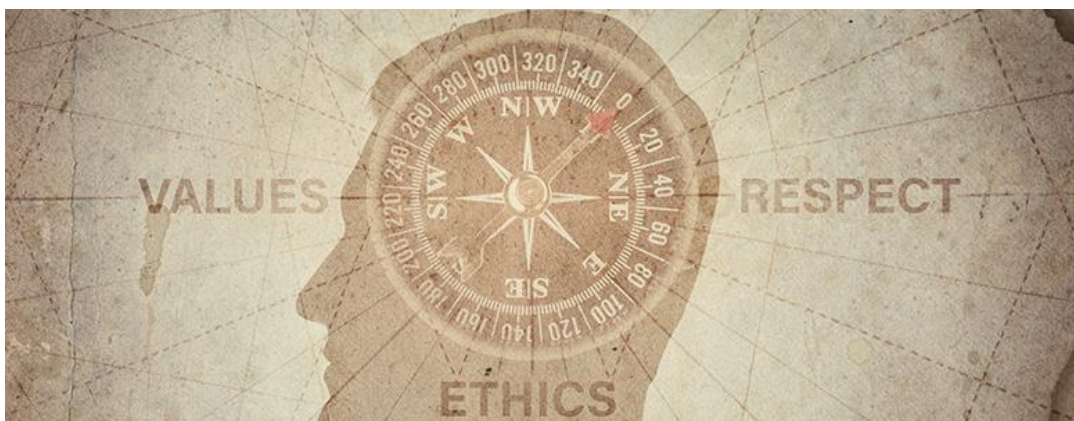
As practitioners of project management, we are committed to doing what is right and honorable. We set high standards for ourselves and we aspire to meet these standards in all aspects of our lives—at work, at home, and in service to our profession.

This Code of Ethics and Professional Conduct describes the expectations that we have of ourselves and our fellow practitioners in the global project management community. It articulates the ideals to which we aspire as well as the behaviors that are mandatory in our professional and volunteer roles.

The purpose of this Code is to instill confidence in the project management profession and to help an individual become a better practitioner. We do this by establishing a profession-wide understanding of appropriate behavior. We believe that the credibility and reputation of the project management profession is shaped by the collective conduct of individual practitioners.

We believe that we can advance our profession, both individually and collectively, by embracing this Code of Ethics and Professional Conduct. We also believe that this Code will assist us in making wise decisions, particularly when faced with difficult situations where we may be asked to compromise our integrity or our values.

Our hope is that this Code of Ethics and Professional Conduct will serve as a catalyst for others to study, deliberate, and write about ethics and values. Further, we hope that this Code will ultimately be used to build upon and evolve our profession.



ProConsult Principles of Asphalt Pavement Management

Asphalt Pavement Management

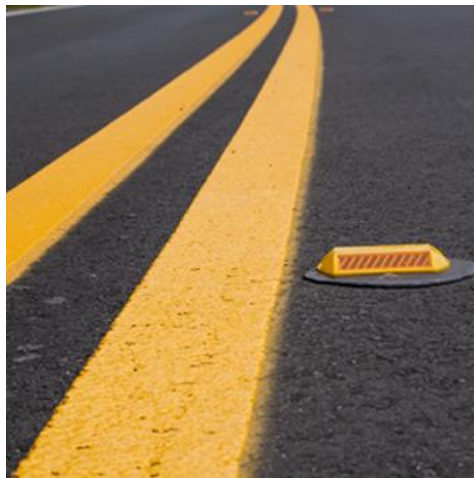
Pavement management is defined as a systematic process of installing, maintaining, upgrading, and replacing pavement assets cost-effectively. The most successful approach combines principles established by the Asphalt Institute, ASTM International, and the National Asphalt Pavement Association with sound business practices and budget planning.

Professional pavement management offers a framework for both immediate and long-term planning with a focus on preserving the asset while maximizing the economic efficiency of the investment. This provides greater value to residential communities and commercial properties, and improves the well-being of tenants, residents, and guests by maintaining a high standard for the appearance and performance of streets and parking lots.

Asphalt Pavement Maintenance

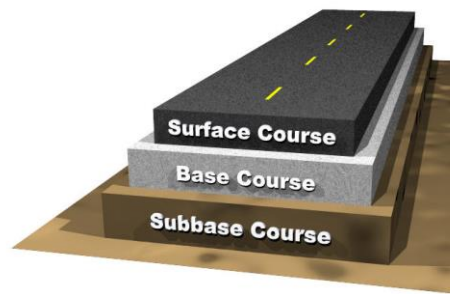
Properly structured pavement maintenance programs address minor deficiencies early, before the defects become major problems, to extend the life of the asset at a relatively low cost. An efficient maintenance program with long-term scope and cost projections is an essential component of successful pavement management.

Pavement maintenance is never about a single treatment, nor is it a one-size-fits-all philosophy. Instead, pavement maintenance is tailored to each property's conditions and each client's goals and budget. This involves using a diversity of treatments and repairs to extend pavement life. Because maintenance activities include many different types of treatments, each pavement maintenance project will require its own set of options to serve its particular requirements.



Pavement Structural Elements and Distresses

Hot-mix asphalt pavements are classified as “flexible” because the total pavement structure deflects and flexes under loading. A flexible pavement structure is typically composed of several layers of material. Each layer receives the loads from the above layer, spreads them out, then passes on these loads to the next layer below.



A standard pavement structure consists of the surface course and the underlying base and subbase courses. Each of these layers contributes to structural support and drainage to protect against deformation of the surface.

The surface course, typically a well-compacted, hot-mix asphalt layer, contributes the most to pavement strength.

The base course is immediately beneath the surface course. It provides additional load distribution and contributes to structural support for the layers above and below. Base courses are usually constructed out of uniform, durable, compacted aggregate.

Deficiencies in any or all of the courses will show on the pavement surface as cracks and distortions.

Several different types of cracks can develop in asphalt pavements. Some cracks are load-related and some are attributable to temperature or environment. Fatigue cracking, for example, is caused by load-related deterioration resulting from a weakened base course or subgrade, too little pavement thickness, overloading, or a combination of these factors.

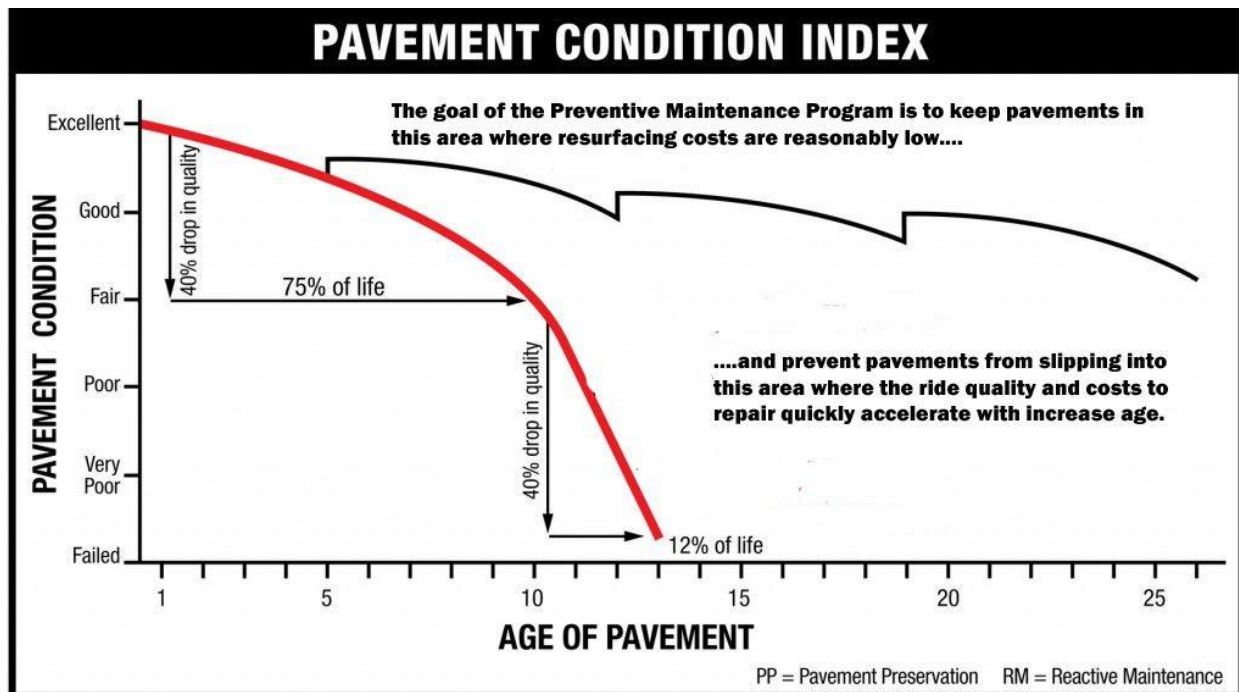
Distortions, defects, and failures in streets and parking lots are caused by instability of the asphalt pavement or weakness of the subgrade layers. These distresses may include rutting, shoving, depressions, swelling and patch failures. These issues can be caused by settlement or other failure in the lower pavement layers, or by poor pavement construction, installation, reconstruction, and maintenance techniques.

Pavement Reserve Fund

The contributions made to the pavement reserve fund are a means to supply for the ongoing maintenance of the pavement, as well as to build funds for the eventual replacement.

Since asphalt surfaces deteriorate at varying rates and the financial capacities typically change on an annual basis, the need to maintain balance between the two is an ongoing process. To maintain this balance, periodic updates to the cost analysis are recommended.

Projected costs are based on industry standard pricing at the time of the assessment. Actual costs may vary depending on inflationary influences, adjustments to the scope of work, material costs, and changes in the industry.



Pavement Condition Assessment

The Legends at Santa Rita Springs

This report documents the results of the Pavement Condition Assessment for the community streets. ProConsult LLC inspected and surveyed the community pavements to identify the conditions indicating subgrade deficiencies, pavement issues, and related distresses. The ProConsult Pavement Condition Assessment offers a pavement index rating of EXCELLENT, GOOD, FAIR, POOR, and FAILED. Pavements, or specified sections, can be assigned one or more of the designations depending on the overall uniformity of the existing condition.

The Noted Pavement Distresses

- Exposed aggregate
- Widespread raveling
- Overlap buildup of crack sealant on the pavement surface
- Spalling edge gaps
- Longitudinal, transverse, and block cracks
- Widespread fatigue cracking.

The extensive cracking is detrimental to the pavement life expectancy, drive quality, and appearance. Given the overall age of the asphalt, cracks are common. However, the high rate of various types of cracking signals potential subgrade structural deficiencies in specific areas, and is allowing further water penetration and damage to the subgrade and pavement.

Good to Fair Condition

- Calle Astorga (Pecan Vista to Via Massari) Via Amerigo, Via Anzavita, Pecan Vista, Via Pompilo, and Via Vespucci.
- Life expectancy of approximately 14 years with appropriate maintenance measures.

Poor Condition

- Calle Astorga (Via Massari to Abrego exit), Via Massari, Via Espinosa, Via Alonso, and Via Tulum
- Life expectancy of 3 years due to widespread surface and subgrade failures.
- Asphalt overlay, slurry, and other restorative surface treatments would not perform well on these pavement areas. The existing issues would reflect through surface treatments within 12 months after installation/application.

The eventual reconstruction of specified streets will require a 3-inch removal depth and a minimum 3-inch replacement with possible subgrade stabilization prior to repaving.

Respectfully Submitted,

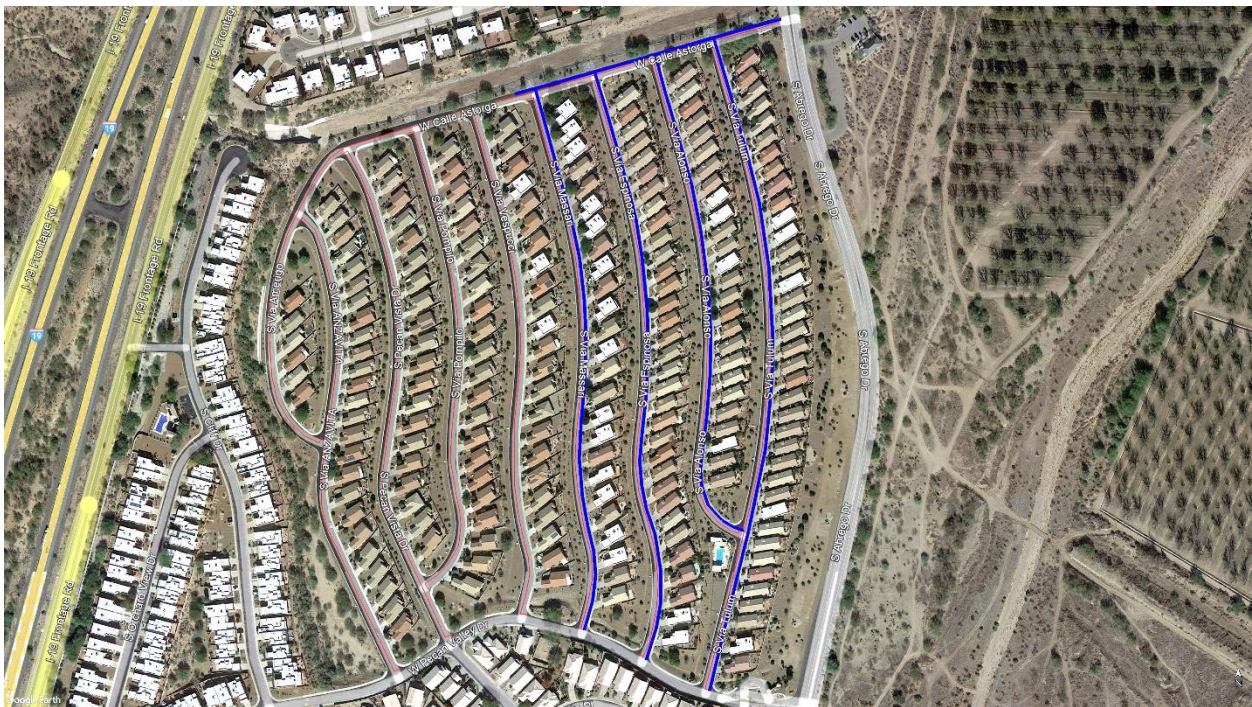
Clay Jordan

President at ProConsult, LLC

Streets Requiring Reconstruction - Blue Markings

Total Reconstruction Square Footage

The community streets recommended for reconstruction total approximately 196,508 square feet.



2023 Scope and Cost Projections

<p><u>Seal Pavement Cracks and Utility Seams</u></p> <ul style="list-style-type: none"> • Approximately 387,556 square feet pavement surface area. • Seal all cracks and seams measuring 0.25 inches or more in width. • Use Crafcro PolyFlex Type 3 crack sealant. 	\$42,630
<p><u>Sealcoat Pavement</u></p> <ul style="list-style-type: none"> • Approximately 387,556 square feet pavement surface area. • 16 days/sections. • Sealcoat with 2 coats of SealMaster PMM polymer-modified sealcoat product. • Total uniform minimum rate of application of 0.035 gallons per square foot. 	\$100,765
<p><u>Traffic Control</u></p> <ul style="list-style-type: none"> • Furnish, install, and maintain traffic control barricades, traffic control signage, safety barricades, and work barricades for all project phases. 	\$12,512
<p><u>Pavement Markings</u></p> <ul style="list-style-type: none"> • Restripe pavement markings per existing layout. 	N/A
<p><u>Blue Reflective Fire Hydrant Markers</u></p> <ul style="list-style-type: none"> • Remove and replace all blue reflective fire hydrant markers. 	\$960
<p><u>Portable Restroom</u></p> <ul style="list-style-type: none"> • Portable restroom in staging area for all project personnel. 	\$760
<p><u>Total Projected Cost</u></p>	<p><u>\$157,627</u></p>

2026 Scope and Cost Projections

<u>Reconstruction - See Blue Sections Above</u> <ul style="list-style-type: none"> • Full-depth pavement removal and replacement. • Approximately 196,508 total square feet. • Mill to a minimum depth of 3 inches to remove full depth of existing asphalt. • Install aggregate base material where needed to achieve proper depth and grade. • Pave replacement to a minimum compacted depth of 3 inches. • Pave using MAG Half-Inch Marshall Asphalt Mix Design with a 0 percent RAP material content. 	\$982,540
<u>Utilities</u> <ul style="list-style-type: none"> • Pre-lower existing utilities. • Reinstall with concrete collars to match new pavement grade and slope. • Pour using 4,000 PSI, 1-inch aggregate mix design. 	\$34,000
<u>Traffic Control</u> <ul style="list-style-type: none"> • Furnish, install, and maintain traffic control barricades, traffic control signage, safety barricades, and work barricades for all project phases. 	\$9,800
<u>Blue Reflective Fire Hydrant Markers</u> <ul style="list-style-type: none"> • 10 units. • Remove and replace all blue reflective fire hydrant markers. 	\$480
<u>Portable Restroom</u> <ul style="list-style-type: none"> • Portable restroom in staging area for all project personnel. 	\$760
<u>Total Projected Cost</u>	<u>\$1,027,580</u>

2027 Scope and Cost Projections

<p><u>Seal Pavement Cracks and Utility Seams</u></p> <ul style="list-style-type: none"> • Approximately 387,556 square feet pavement surface area. • Seal all cracks and seams measuring 0.25 inches or more in width. • Use Crafcro PolyFlex Type 3 crack sealant. 	\$21,015
<p><u>Sealcoat Pavement</u></p> <ul style="list-style-type: none"> • Approximately 387,556 square feet pavement surface area. • 16 days/sections. • Sealcoat with 2 coats of SealMaster PMM polymer-modified sealcoat product. • Total uniform minimum rate of application of 0.035 gallons per square foot. 	\$100,765
<p><u>Traffic Control</u></p> <ul style="list-style-type: none"> • Furnish, install, and maintain traffic control barricades, traffic control signage, safety barricades, and work barricades for all project phases. 	\$12,512
<p><u>Pavement Markings</u></p> <ul style="list-style-type: none"> • Restripe pavement markings per existing layout. 	N/A
<p><u>Blue Reflective Fire Hydrant Markers</u></p> <ul style="list-style-type: none"> • Remove and replace all blue reflective fire hydrant markers. 	\$960
<p><u>Portable Restroom</u></p> <ul style="list-style-type: none"> • Portable restroom in staging area for all project personnel. 	\$760
<p><u>Total Projected Cost</u></p>	<p><u>\$136,012</u></p>

2031 Scope and Cost Projections

<p><u>Seal Pavement Cracks and Utility Seams</u></p> <ul style="list-style-type: none"> • Approximately 387,556 square feet pavement surface area. • Seal all cracks and seams measuring 0.25 inches or more in width. • Use Crafcro PolyFlex Type 3 crack sealant. 	\$21,015
<p><u>Sealcoat Pavement</u></p> <ul style="list-style-type: none"> • Approximately 387,556 square feet pavement surface area. • 16 days/sections. • Sealcoat with 2 coats of SealMaster MasterSeal sealcoat product. • Total uniform minimum rate of application of 0.024 gallons per square foot. 	\$77,511
<p><u>Traffic Control</u></p> <ul style="list-style-type: none"> • Furnish, install, and maintain traffic control barricades, traffic control signage, safety barricades, and work barricades for all project phases. 	\$12,512
<p><u>Pavement Markings</u></p> <ul style="list-style-type: none"> • Restripe pavement markings per existing layout. 	N/A
<p><u>Blue Reflective Fire Hydrant Markers</u></p> <ul style="list-style-type: none"> • Remove and replace all blue reflective fire hydrant markers. 	\$960
<p><u>Portable Restroom</u></p> <ul style="list-style-type: none"> • Portable restroom in staging area for all project personnel. 	\$760
<p><u>Total Projected Cost</u></p>	<p><u>\$112,758</u></p>

2035 Scope and Cost Projections

<u>Asphalt Patching</u> <ul style="list-style-type: none"> • Full-depth pavement removal and replacement. • Approximately 6,200 total square feet. • Sawcut and remove to a minimum depth of 3 inches to remove full depth of existing asphalt. • Install aggregate base material where needed to achieve proper depth and grade. • Pave replacement to a minimum compacted depth of 3 inches. • Pave using MAG Half-Inch Marshall Asphalt Mix Design with a 0 percent RAP material content. 	\$68,200
<u>Seal Pavement Cracks and Utility Seams</u> <ul style="list-style-type: none"> • Approximately 387,556 square feet pavement surface area. • Seal all cracks and seams measuring 0.25 inches or more in width. • Use Crafcro PolyFlex Type 3 crack sealant. 	\$21,015
<u>Sealcoat Pavement</u> <ul style="list-style-type: none"> • Approximately 387,556 square feet pavement surface area. • 16 days/sections. • Sealcoat with 2 coats of SealMaster MasterSeal sealcoat product. • Total uniform minimum rate of application of 0.024 gallons per square foot. 	\$77,511
<u>Traffic Control</u> <ul style="list-style-type: none"> • Furnish, install, and maintain traffic control barricades, traffic control signage, safety barricades, and work barricades for all project phases. 	\$12,512
<u>Pavement Markings</u> <ul style="list-style-type: none"> • Restripe pavement markings per existing layout. 	N/A
<u>Blue Reflective Fire Hydrant Markers</u> <ul style="list-style-type: none"> • Remove and replace all blue reflective fire hydrant markers. 	\$960
<u>Portable Restroom</u> <ul style="list-style-type: none"> • Portable restroom in staging area for all project personnel. 	\$760
<u>Total Projected Cost</u>	<u>\$180,958</u>

Project Site Photos

S Via Amerigo



Project Site Photos

S Via Anzavita



Project Site Photos

S Pecan Vista Dr



Project Site Photos

S Via Pompilo



Project Site Photos

S Via Vespucci



Project Site Photos

S Via Massari



Project Site Photos

S Via Espinosa



Project Site Photos

S Via Alonso



Project Site Photos

S Via Tulum



Project Site Photos

W Calle Astorga



Performance Based Inspection Checklist

The presence or absence of the common performance issues listed below provides an in-depth insight into the condition of existing pavement, base, and subgrade, as well as any previously completed installation or repair work.

These items were included in the assessment of your pavement and have been classified as Not in Compliance (NIC), Not Applicable (N/A), Present (P), or None Present (NP). Specified issues have been rated as Low (L), Medium (M), High (H), Missing (MISS), and Broken (BRK).

- Blue Fire Hydrant Markers - MISS/BRK
On unstriped roadways, blue markers will be set in the center of the roadway. On corners, blue markers will be set on both approaches.
- Traffic Volume Damage - P/M
Caused by site specific traffic volume ranging from standard passenger vehicles to heavy commercial and municipal trucks and buses. May apply to all or limited sections.
- Existing Patch Failures - P/L
Caused by improper installation techniques, inadequate compaction, improper materials, failure of surrounding or underlying pavement.
- Existing Overlay Failures - NP
Caused by improper installation techniques, thin overlay, inadequate compaction, improper materials, failure of surrounding or underlying pavement.
- Existing Slurry/Chip Seal Failures - NP
Caused by failure of bond to existing pavement, improper material specifications, installation techniques, failure of surrounding or underlying pavement.
- Potholes - NP
Caused by poor surface mix, base and subgrade deficiencies, poor drainage, chemical and oil residue.
- Raveling and Weathering - P/H
The wearing away of the asphalt binder and fine aggregate matrix from the pavement surface. Caused by improper mix design, inadequate compaction at installation, improper temperature during installation, lack of protective sealcoat, and frequent exposure to water runoff and overspray.
- Oil and Chemical Residue - P/L
Caused by runoff from existing structures, leaking vehicles, chemical spills.

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- Reflection Cracking - NP
Caused by reflection of cracks from original surface below top layers.

 - Fatigue Cracking - P/H
Caused by excessive loading, thin surface, base and subgrade deficiencies, poor drainage.

 - Longitudinal and Transverse Cracking - P/H
Caused by poorly constructed joint and seam cracks, shrinkage of asphalt layer, improper operation of paver.

 - Block Cracking - P/H
Caused by poorly constructed joint and seam cracks, shrinkage of asphalt layer, improper operation of paver.

 - Edge Cracking - P/H
Caused by lack of lateral support, thinning of pavement and surface treatments near edges.

 - Edge Gap Damage - P/L
Joint seal edge gap damage is any condition that enables soil or rocks to accumulate in the joints and edge gaps or allows significant water infiltration. Accumulation of incompressible materials prevents the slab from expanding and may result in buckling, shattering, or spalling.

 - Slippage Cracking - NP
Caused by lack of efficient bond between top layer and original surface, tack coat was not used before installation, asphaltic concrete mix had a high sand content. Slippage cracks are crescent or halfmoon shaped cracks produced when braking or turning wheels cause the pavement surface to slide or deform.

 - Corrugations and Shoving - NP
Caused by mixtures too high in liquid asphalt, fine aggregate content too high, incorrect asphalt grade.

 - Settlement and Grade Depressions - P/H
Caused by settlement or failure in the lower pavement layers, base and subgrade deficiencies.

 - Rutting - NP
Caused by consolidation or lateral movement of pavement or subgrade under traffic, moisture infiltration, improper subgrade material and compaction.

 - Pavement Upheavals and Swells - NP
Caused by expansive soils which swell in the presence of moisture, frost heave in which ice lenses grow beneath the pavement.

 - Lane and Shoulder Drop-off - NP
Caused by erosion of the pavement lane edge, settlement of the shoulder, or by building up the roadway without adjusting the shoulder level.
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- Bleeding - P/L
Caused by improper seal coat mix design, too much liquid asphalt in mix design during paving, too heavy a prime or tack coat, excessive sealant in the cracks or joints under an overlay.
 - Polished Aggregate - P/L
This distress is caused by repeated sealcoat applications. Polished aggregate is present when close examination of a pavement reveals that the portion of aggregate extending above the asphalt is either very small, or there are no rough or angular aggregate particles to provide good skid resistance.
 - Peeling and Flaking of Sealcoat - NP
Caused by buildup of surface treatment products, improper cleaning procedures prior to sealcoating, oil and chemical residue, sealcoating too frequently.
 - Longitudinal and Transverse Streaking - P/L
Slurry aggregates not spread immediately, improper sealcoat spray bar height causing incorrect overlap of the spray fans, changing spray bar height as the distributor load decreases, spray nozzle issues (incorrect angle, incorrect size, different sizes, plugged or restricted nozzles), inconsistent pump speed or pressure to the nozzles, and varying distributor travel speed.
 - Sunken, Raised, or Damaged Utilities - P/H
Caused by subgrade deficiencies, improperly installed concrete castings, and failure to adjust height of existing utilities to match surface treatment grade and level.
 - Broken or Damaged Concrete Curbing - P/L
Caused by striking with vehicle tires or equipment, improper installation, improper concrete mix design.

General Assumptions

- The pavement will eventually be replaced with like kind unless otherwise noted or directed by a representative of the property to use alternate materials.
- All new installations will comply with current city, state, and local construction code requirements.
- A maintenance program will be implemented to ensure that the pavement will be regularly maintained and repaired.

Expert Analysis

- This study and report are based on observations of the visible and apparent conditions of a reasonable observation and evaluation of the property's pavement at the time of inspection. Although due diligence was performed during the inspection phase, ProConsult makes no representations regarding latent or concealed defects that may exist.
- Judgments in this study are based on estimates of the age and typical useful life of the pavement surface. The predictions of useful life and remaining useful life are based on industry and statistical comparisons.
- The methods of installation, deferral of maintenance, or other unforeseen conditions make it virtually impossible to predict precisely when the pavement will require major repair or replacement. If the property representative has not disclosed any known issues or problems with materials, components, or systems, it is noted that the validity of this study may be impacted.
- This analysis does not purport to all the safety and liability concerns, if any, associated with this property. It is the responsibility of the client to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use of this report.
- This report is intended solely for the use of the client and job site specified on page one and may not be used by any other party for any purpose.

