CITY OF ALBANY

2021 PMP Update
P-TAP Round 22
Final Report
March 2022

Pavement Engineering Inc.

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Executive Summary

EXECUTIVE SUMMARY

The City of Albany currently maintains approximately 30.34 centerline miles of roads representing 5,158,526 square feet of pavement with a replacement value of approximately $111,937,000 as calculated by StreetSaver®.

Pavement Engineering Inc. (PEI) updated all the streets in the City's Pavement Management System, using the Metropolitan Transportation Commission's (MTC) StreetSaver® program. The purpose of a Pavement Management System is to track inventory, store work history and furnish budget estimates to optimize funding for improving the city's pavement system.

INTRODUCTION

A Pavement Management System has several distinctive uses:

- As a budgeting tool, a Pavement Management System uses treatment costs that are based on recently bid projects, by the participating agency, so that budgets reflect historical costs for the area.
- As an inventory tool, a Pavement Management System provides a quick and easy reference for pavement areas and use.
- As a pavement condition record, a Pavement Management System provides age, load-related, non-load related and climate-related pavement condition and deterioration information. The Pavement Management System uses pavement deterioration curves, based on nationwide research, which allow the program to predict a pavement's future condition.

A Pavement Management System is not capable of providing detailed engineering designs for a street. The Pavement Management System instead helps the user identify candidate streets for potential repair and maintenance. Project level pavement analysis and engineering is an essential feature of future pavement maintenance and rehabilitation projects. Additional investigation, or project level analysis, can optimize the City's pavement management dollars. Project level engineering examines the pavements in significantly more detail than the visual evaluation required for the Pavement Management System Update and optimizes designs for all of the peculiar constraints of a set of project streets.

WORK PERFORMED

Pavement Distress Survey and Database Update

For this update, PEI performed inspections on approximately 30.34 centerline miles of road. Field inspections were completed in September 2021.

PEI measured the following distress types as part of our review: alligator cracking (fatigue), block cracking, distortions, longitudinal & transverse cracking, patching & utility cut patching, rutting / depressions, weathering, and raveling. All the collected data was entered into the City's StreetSaver® database.

As part of our field review, all the streets were measured to confirm lengths and widths. Lengths were measured using a vehicle-mounted electronic measuring device and widths were measured using a hand-held measuring wheel. Measurement discrepancies were tabulated and reviewed with the City to determine if corrections were needed.

PEI performed a quality control (QC) check on our work. PEI's QC check consists of performing a field review of any street segment where the PCI showed a decrease of 3 or more points per year, or an increase of 1 PCI without a documented M&R treatment, when compared to the last inspection for the same road segment in the StreetSaver® database. Each segment in the QC process was visually reviewed to determine if the StreetSaver® calculated PCI was representative of the observed overall pavement condition for that road segment. Variations found were re-inspected by a Senior Engineering Technician, or the Project Manager, and the segments' PCI was recalculated.

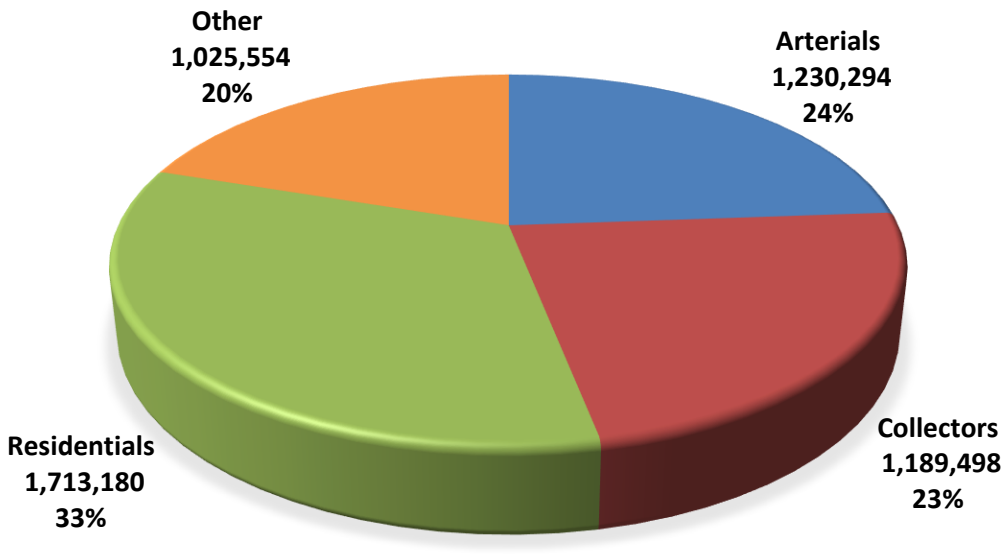
FINDINGS

The updated Pavement Management System showed that the City's overall average PCI is **56**.

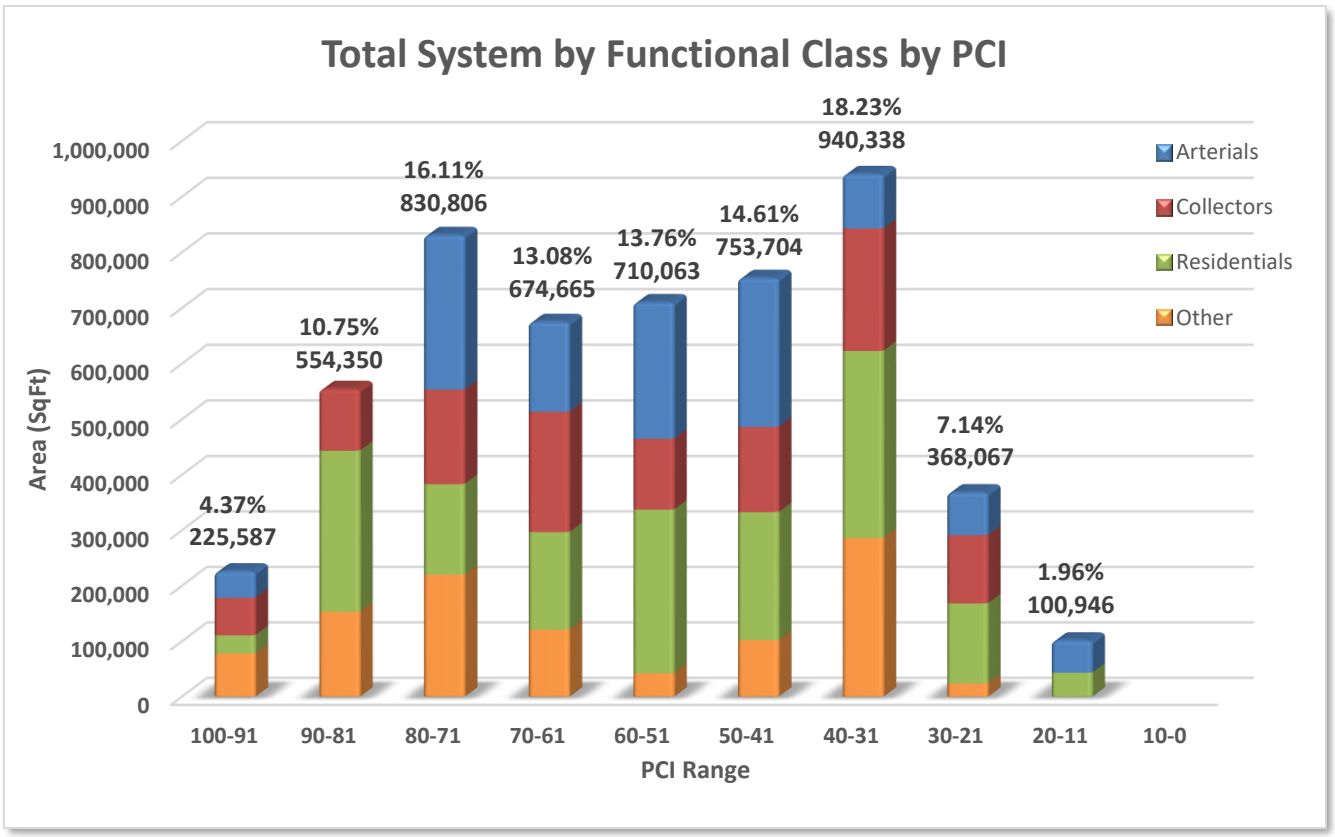
The breakdown by functional classification is as follows:

Functional Classification	Centerline Miles	Lane Miles	Pavement Area (sq. ft.)	Percent of System	Average PCI
Arterial	5.87	12.08	1,230,294	23.85%	54
Collector	6.26	12.52	1,189,498	23.06%	57
Residential	11.53	23.06	1,713,180	33.21%	54
Other	6.68	13.25	1,025,554	19.88%	60
Totals	**30.34**	**60.91**	**5,158,526**	**100.00%**	**56**

The pie graph below shows the percentage of each functional classification, by area.



The bar graph below shows the City's street system broken down into 10-point PCI ranges.



The breakdown by Condition Category and corresponding PCI range is shown below:

Condition Category Breakdown			
Condition	**PCI Range**	**% Of Total**	**Square Feet**
Excellent	100-91	4.37%	225,587
Good	90-71	26.85%	1,385,156
Fair	70-51	26.84%	1,384,728
Poor	50-31	32.84%	1,694,042
Failed	30-0	9.09%	469,013

The analysis shows that **59.68%** of the City's pavement are in **Fair** to **Poor** condition. Details of each street segment are provided in ***Section IV: Reference Reports***.

BUDGET ANALYSIS

StreetSaver® uses a decision tree to model the decision-making process that agencies follow to select a maintenance or rehabilitation strategy. The decision tree contains "branches" for each functional classification, surface type and condition category. Jurisdictions can outline their maintenance and rehabilitation strategy by choosing a treatment for each branch.

The treatments listed in the decision tree are generalized to provide a range of treatments. Typical treatments within each generalized treatment range are listed below. The exact treatment would need to be determined during the design phase of the project.

StreetSaver® assigns a treatment action and estimated cost to each street segment based on the pavement's current PCI.

Treatment Category	Typical Treatment
Light Maintenance	• Slurry Seal or Micro-Surface • Fog Seal or Scrub Seal
Heavy Maintenance	• Chip Seal, Cape Seal • Slurry Seal or Micro-Surface with Digouts • Thin Maintenance Overlay (TMO)
Light Rehab.	• Overlay (2" and under) or Thin Mill and Fill
Heavy Rehab.	• Overlay (greater than 2") or Thick Mill and Fill • Cold-In-Place Recycling • Full Depth Reclamation • Pulverize and Resurfacing
Reconstruct	• Full Section Reconstruction

Decision Tree Unit Prices

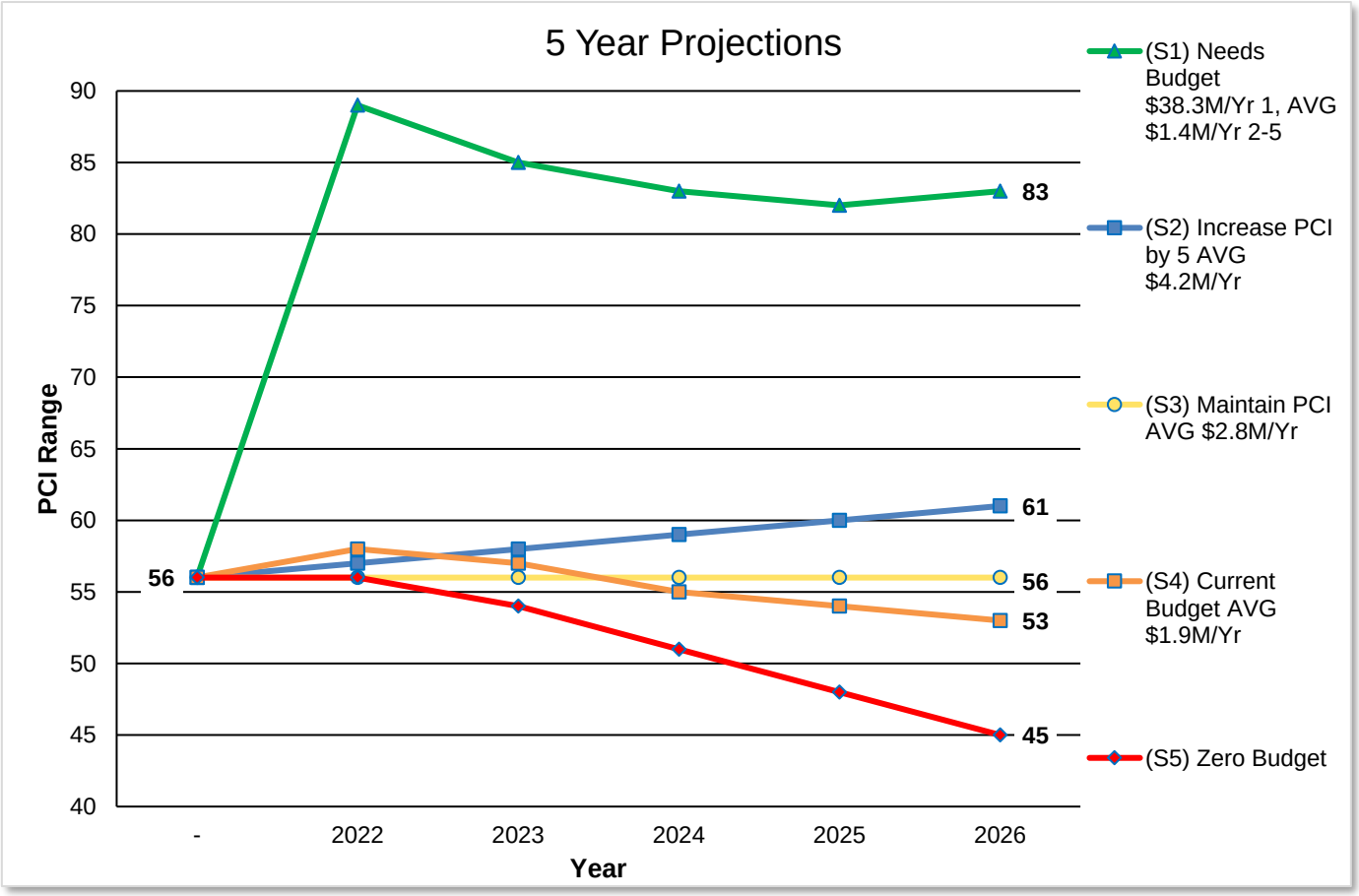
As a minimum, recent bid tabulations should be used to determine the appropriate unit costs. Further, the unit costs include other costs such as design, construction management, contingencies or other related construction costs (ADA ramps, curb & gutters, striping etc.) to form a more comprehensive unit cost for the selected treatments.

For the City of Albany, the unit costs on the following table were used:

Treatment	Arterial	Collector	Residential
Cost/ Sq Yd			
Crack Seal **($$/LF)**	$2.13	$1.75	$1.54
Light Maintenance	$12.75	$10.82	$8.88
Heavy Maintenance	$35.70	$29.01	$24.05
Light Rehab	$119.38	$90.73	$75.41
Heavy Rehab	$153.33	$131.28	$109.16
Reconstruct	$270.01	$197.44	$160.80

For this update, PEI analyzed several scenarios, which are summarized below:

Budget Scenario Projections



PEI generated Five (5) scenario projections which are represented graphically below:

A summary of each of the scenario projections are as follows:

Scenario 1: Unconstrained Budget/ Funds Needed to obtain Optimum PCI ($38.3M for Year 1, $1.4M/Yr Avg. for Years 2-5.)

Scenario 2: Amount of funding to increase PCI by 5 (Avg. $4.2M/Yr.)

Scenario 3: Amount of funding to maintain PCI of 56 (Avg. $2.8M/Yr.)

Scenario 4: Impact of the current funding amount ($1.9M/Yr.) the current PCI would decline from 56 to 53, a 3 point overall drop.

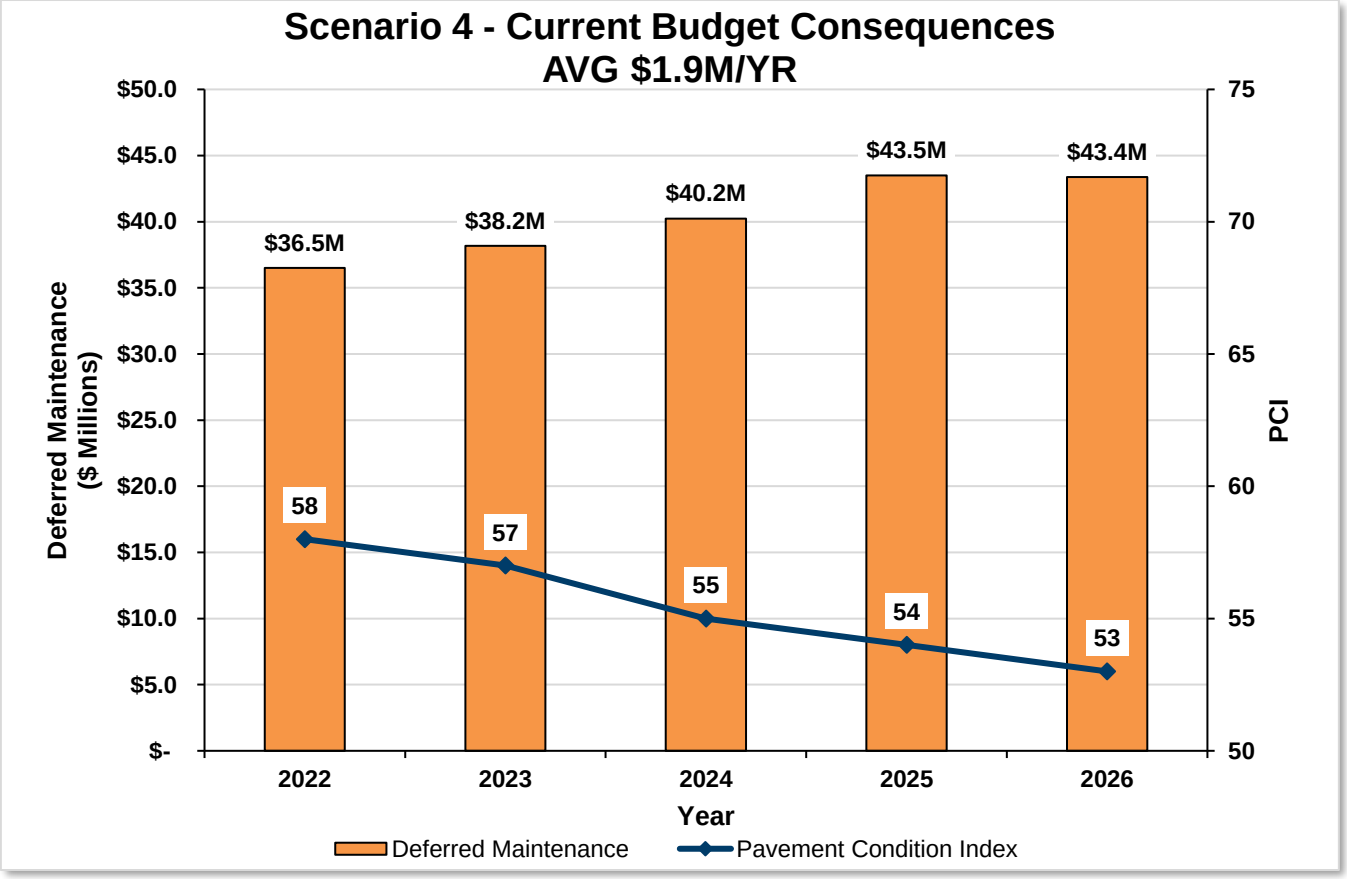
Scenario 5: Represents the impact to the PCI if Zero dollars are spent

The full report for the various budget scenarios can be found in **Appendix B**.

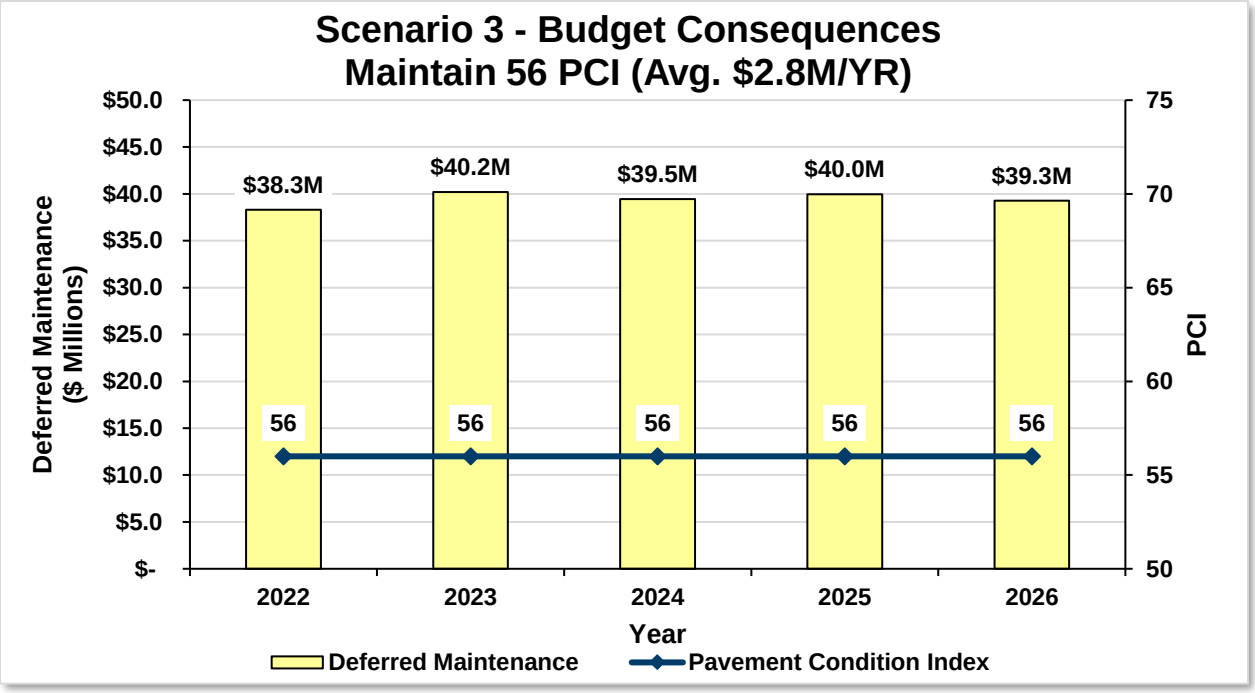
Budget Consequences

The following graphs illustrate the consequences to the City's overall weighted PCI and Deferred Maintenance Amount, based on the scenario projections:

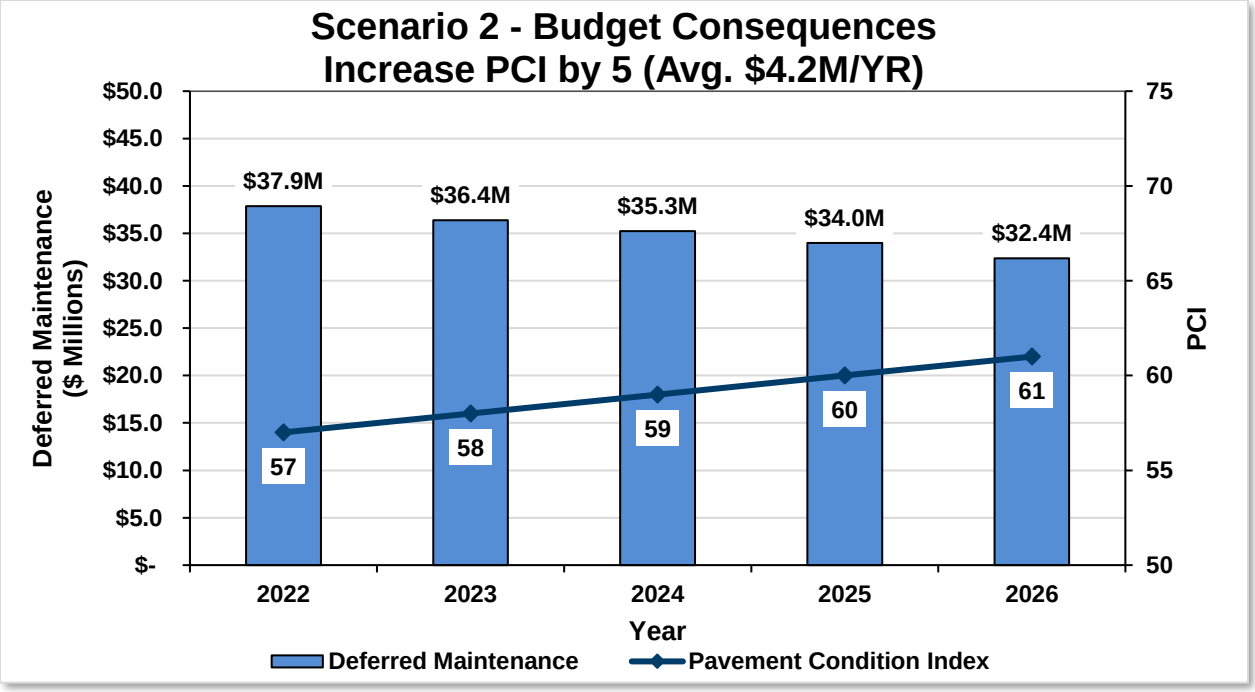
At the current funding level of $1.9M/Yr., the PCI of the entire system will deteriorate from 56 to 53, a 3 PCI point drop over the next 5 years. In addition, the backlog of deferred maintenance grows from $36.5 million to $43.4 million, an increase of 19%.



To maintain the current PCI of 56, it is projected that an average funding level of $2.8M/YR is necessary. At this funding level the backlog of deferred maintenance grows from $38.3 million to $39.3 million, an increase of 3%.



To increase the PCI 5 points from 56 to 61, it is projected that an average funding level of $4.2M/YR is necessary. At this funding level the backlog of deferred maintenance shrinks from $37.9 million to $32.4 million, a decrease of 15%.



CONCLUSIONS AND RECOMMENDATIONS

This Executive Summary provides a review of the 2021 Pavement Management System Update performed by PEI. PEI inspected all road segments in the Albany. The average overall PCI for the City is 56. 59.68% of the City's pavement is in Fair to Poor condition.

To maintain the system at its current overall PCI of 56, the City will need to spend an average of $2.8 million annually over the next 5 years. Maintaining the current funding level of approximately $1.9 Million annually will result in a PCI loss of 3 points in 5 years to a PCI of 53.

A review of the City's street system, by functional classification, shows that the Arterial streets have the lowest average PCI of 54, the Collector streets have an average PCI of 57, and the Residential streets have an average PCI of 54. As a general rule, agencies typically try to keep their arterials in the best condition because they carry the bulk of the traffic and loading, followed by collectors, then the residential/ local streets.

When comparing this report with the previous PTAP report, completed in 2019, there is a significant increase in costs. This is due to a few reasons. The first reason is the 2019 report had an average PCI of 60 whereas the current report has an average PCI of 56. Starting at a 56 PCI vs a 60 PCI already increases the overall budget needs. The second reason are the cost differences. In the 2019 report, the overall costs in the decision tree addressed the construction costs only, whereas the current report not only addresses the construction costs, but also a percentage increase to cover potential ADA Curb Ramp upgrades that are triggered by performing certain maintenance or rehabilitation treatments, soft costs, and a contingency. By accounting for each of these added costs, this will give an "out-the-door" cost. This approach will be beneficial to the city by accounting for all costs associated when budgeting for future paving projects.

Moving forward, PEI recommends the City carefully evaluate the overall annual budget to determine the amount it wants to commit to pavement maintenance and rehabilitation projects. We recommend the City set priorities for each functional classification and perhaps certain streets within each classification.

This Pavement Management System will assist the City in its efforts to monitor treatments and track their effectiveness and help the City in setting future priorities and treatment policies. To ensure the city is evaluating accurate data, PEI suggests the City update its Pavement Management System on a regular basis and review the entire system every three years, this includes a thorough review of the Decision Tree and the unit costs contained within. As the City maintains and updates its Pavement Management System, the program will become a valuable tool in its efforts to maximize performance and minimize the spending for pavements.

Section II

Background

BACKGROUND

This section is intended to introduce important pavement design definitions and calculations as a background for understanding the Pavement Management System (PMS) assumptions.

PAVEMENT DESIGN BASICS

Pavements are a structural support system generally considered to act like a beam. But unlike beams in buildings, which generally have static loads, the pavement structure is flexed many times from traffic loading. Cars and light trucks have little impact on the pavement structure. Larger/Heavier trucks have very significant impacts on the pavement due to the high axle weights. The impact of trucks is measured in equivalent single 18,000-pound axle loads (EALs). The total EALs are converted into a design Traffic Index (TI). As an example, a design TI of 5 is equal to 7,160 EALs. A Design TI of 8 is equal to 372,000 EALs. Therefore, the design TI is the total number of EALs that the pavement will support before it begins to fail, regardless of the passage of time. Normally for a new pavement, the EALs over a 20-year period are used. For rehabilitation treatments such as overlays, 10 years is generally used.

The other element of pavement design is the support of the beam. The support is provided by the sub-grade soils. The support value is designated by the R-value test.

Using the design TI and R-value, the pavement designer chooses various materials to construct the structural section. The most common pavement section is a thin layer of asphalt concrete over aggregate base(s). Many options are available depending on specific project requirements and conditions.

The design methods used in California is based on a 50 percent reliability. This means that the average pavement life of all pavements constructed using the design procedure will last the design life. It also means that about half will not last that long and the other half will last longer. To express this concept, a design life is often expressed in a span of years, such as 17 to 23 years for 20-year design life.

PAVEMENT DETERIORATION

The StreetSaver® Program is setup to track and mimic the deterioration that is occurring on the pavement segments. PEI takes exception to the amount of deterioration (11 PCI points) that StreetSaver® applies within the first year after a pavement has received a rehabilitation treatment. We have found this amount of deterioration to be generally excessive.

Pavement deteriorates from two processes, **fatigue** and **aging.** These processes occur simultaneously. In a well-designed and constructed pavement, the two processes result in the need to rehabilitate the pavement at approximately the same time. This is called the design life. The design life for most new pavements is 20 years. Each deterioration process has its own set of pavement defects, which are related to the process.

Fatigue

The first deterioration process is fatigue from heavy axle loads. As the pavement structure flexes or bends from heavy wheel loads, the asphalt concrete layer's ability to flex is consumed. With enough bending, the asphalt concrete layer begins to break at the bottom. These cracks progress upward until they reach the surface and appear as alligator cracking. These areas are repaired by removal and replacement of the asphalt concrete in the affected areas. These repairs are commonly called digouts.

As the pavement structure, its supporting soils, and the precise loading from wheel loads vary, so does the time it takes for alligator cracking to appear. As alligator cracking appears, the pavement should be repaired with digouts. Generally, when the total quantity of digouts, for a specific section of road, reaches approximately 10 percent, or more, of the total area, the pavement is considered to have reached its service life and will require a major rehabilitation treatment.

Aging

The major element of the pavement structure that ages is the asphalt concrete layer. To a minor extent, aggregate bases can age if contaminated by fine soil particles, which are transported from the subsoil into the aggregate base.

Asphalt concrete is composed of various sized aggregates and asphalt binder. The aggregates used are generally of fair quality and do experience some breakdown over time. Aggregate aging problems need to be addressed with maintenance treatments. The asphalt concrete binder ages as well. As the asphalt binder ages, it loses volume through the loss of volatile components in the asphalt. As the volume decreases, the pavement will progressively crack from the resulting tensile strain in the layer. Normally, these cracks first show up as transverse cracks. They also show up in weak areas, such as paving joints. These cracks widen and increase over time until the pavement has a checkerboard appearance.

The aging process also causes the pavement to become more brittle. The increased stiffness results in additional cracking from loaded vehicles. This load induced cracking from the brittleness of the asphalt concrete is very similar to fatigue cracking in appearance.

The major agent for deterioration of the asphalt binder is oxygen, whose carrier is water. Water enters the pavement either from the surface or as water vapor from underneath.

TYPICAL PAVEMENT DEFECTS

StreetSaver® identifies eight different Asphalt Concrete distresses. These are:

1. Alligator Cracking (Fatigue)
2. Block Cracking
3. Distortions
4. Longitudinal & Transverse Cracking
5. Patching and Utility Cut Patching
6. Rutting and Depression
7. Raveling
8. Weathering

These defects are common to virtually the entire pavement as aging progresses.

For purposes of understanding the levels of these distresses, the condition level descriptions from the rating manual are included herein:

Alligator Cracking (Fatigue)

Description:

Alligator or fatigue cracking is a series of interconnecting cracks caused by fatigue failure of the asphalt concrete surface under repeated traffic loading. Cracking begins at the bottom of the asphalt surface (or stabilized base) where tensile stress and strain are highest under wheel load. The cracks propagate to the surface initially as a series of parallel longitudinal cracks. After repeated traffic loading, the cracks connect, forming many sided, sharp-angled pieces that develop a pattern resembling chicken wire or the skin of an alligator. The pieces are generally less than 0.6 m (2 ft) on the longest side. Alligator cracking occurs only in areas subjected to repeated traffic loading, such as wheel paths. Therefore, it would not occur over an entire area unless the entire area were subject to traffic loading (pattern-type cracking that occurs over an entire area not subjected to loading is called “block cracking,” which is not a load-associated distress).

Severity Levels:

- **L** Fine, longitudinal hairline cracks running parallel to each other with no, or only a few interconnecting cracks. The cracks are not spalled.
- **M** Further development of light alligator cracks into a pattern or network of cracks that may be lightly spalled.
- **H** Network or pattern cracking has progressed so that the pieces are well defined and spalled at the edges. Some of the pieces may rock under traffic.

Block Cracking

Description:

Block cracks are interconnected cracks that divide the pavement into approximately rectangular pieces. The blocks may range in size from approximately 0.3 by 0.3 m (1 by 1 ft) to 3 by 3 m (10 by 10 ft). Block cracking is caused mainly by shrinkage of the asphalt concrete and daily temperature cycling (which results in daily stress/strain cycling). It is not load-associated. Block cracking usually indicates that the asphalt has hardened significantly. Block cracking normally occurs over a large portion of the pavement area, but sometimes will occur only in non-traffic areas. This type of distress differs from alligator cracking in that alligator cracks form smaller, many-sided pieces with sharp angles. Also, unlike block cracks, alligator cracks are caused by repeated traffic loadings and therefore found only in traffic areas (i.e., wheel paths).

Severity Levels: (*See definitions of longitudinal transverse cracking.)

- **L** Blocks are defined by low-severity* cracks.
- **M** Blocks are defined by medium-severity* cracks.
- **H** Blocks are defined by high-severity* cracks.

Distortions

Description:

Distortions are usually caused by corrugations, bumps, sags and shoving. They are localized abrupt upward or downward displacements in the pavement surface, a series of closely spaced ridges and valley or localized longitudinal displacements of the pavement surface. Distortions affect ride quality.

Severity Levels:

L Distortion produces vehicle vibrations, which are noticeable, but no reduction in speed is necessary for comfort or safety and/or individual distortions cause the vehicle to bounce slightly but create little discomfort.

M Distortion produces vehicle vibrations, which are significant, and some reduction in speed is necessary for safety and comfort.

H Distortion produces vehicle vibrations, which are so excessive that speed must be reduced considerably for safety and comfort.

Longitudinal and Transverse Cracking (Non-PCC Slab Joint Reflective)

Description:

Longitudinal cracks are parallel to the pavement's centerline or laydown direction. They may be caused by:

1. A poorly constructed paving lane joint.
2. Shrinkage of the AC surface due to low temperature or hardening of the asphalt and/or daily temperature cycling.
3. A reflective crack caused by cracking beneath the surface course, including crack in PCC slabs.
4. Decreased support or thickness near the edge of the pavement.

Transverse cracks extend across the pavement at approximately right angles to the pavement centerline or direction of laydown. These may be caused by conditions (2) and (3) above. These types of cracks are not usually load-associated.

Severity Levels:

L One of the following conditions exists:
- (1) non-filled crack with a width that is less than 10 mm (3/8".) or
- (2) filled crack of any width (filler in satisfactory condition).

M One of the following conditions exists:
- (1) non-filled crack with a width that is greater than or equal to 10 mm and less than 75 mm (3/8" to 3")
- (2) non-filled crack with a width that is less than or equal to 75 mm (3"), surrounded by light and random cracking, or
- (3) filled crack with a width less than or equal to 75mm (3") where the filler is no longer in satisfactory condition.

H One of the following conditions exists:

(1) any crack filled or non-filled surrounded by medium or high severity random cracking,

(2) non-filled crack with a width that is greater than 75 mm (3”.) or

(3) A crack of any width where approximately 100 mm (4 in.) of pavement around the crack is severely broken.

Patching and Utility Cut Patching

Description:

A patch is an area of pavement that has been replaced with new material to repair the existing pavement. A patch is considered a defect no matter how well it is performed (a patched area or adjacent area usually does not perform as well as an original pavement section). Generally, some roughness is associated with this distress.

Severity Levels:

L Patch is in good condition and satisfactory. Ride quality* is rated as low severity or better.

M Patch is moderately deteriorated and/or ride quality* is rated as medium severity.

H Patch is badly deteriorated and/or ride quality* is rated as high severity. Needs replacement soon.

*Ride quality is defined in the severity levels of distortions.

Rutting and Depressions

Description:

A rut is a surface depression in the wheel paths. Pavement uplift may occur along the sides of the rut, but in many instances, ruts are noticeable only after a rainfall when the paths are filled with water. Rutting stems from a permanent deformation in any of the pavement layers or sub-grades, usually caused by consolidated or lateral movement of the materials due to traffic load. Significant rutting can lead to major structural failure of the pavement.

Depressions are localized areas where the pavement structure is lower than the surrounding area, but the transition is not abrupt enough to be considered a distortion. They are often referred to as “bird baths”.

Severity Levels: (Average Rut or Depression Depth)

L 1/2" to less than 1” (13 to 25mm).

M 1” to less than 2” (25 to 50mm).

H equal to or greater than 2” (over 50mm).

Raveling

Description:

Raveling is the dislodging of coarse aggregate particles. Raveling may be caused by insufficient asphalt binder, poor mixture quality, insufficient compaction, segregation, or stripping.

Coarse aggregate refers to the predominant coarse aggregate size of the asphalt mix, and aggregate clusters refers to when more than one adjoining coarse aggregate piece is missing. If in doubt about a severity level, three representative areas of one square yard each (square meter) should be examined and the number of missing aggregate particles/clusters is counted.

Severity Levels:

M Considerable loss of coarse aggregate greater than 20 per square yard (square meter), and/ or clusters of missing coarse aggregate are present.

H Surface is rough and pitted, and it may be completely removed in places.

Weathering

Description:

Weathering is the wearing away of the asphalt binder and fine aggregates from the pavement matrix.

Fine aggregate refers to the small sized aggregates (generally different types of sand) used in an asphalt mix. Loss or dislodging of coarse aggregate is covered under Raveling. Surface wear is normally caused by oxidation, inadequate compaction, insufficient asphalt content, excessive natural sand, surface water erosion, and traffic. Weathering occurs faster in areas with high solar radiation.

Severity Levels:

L Asphalt surface beginning to show signs of aging which may be accelerated by climatic conditions loss of fine aggregate mix is noticeable and may be accompanied by fading of the asphalt color. Edges of the aggregates are beginning to be exposed (less than 0.05 inches or 1 mm).

M Loss of the fine aggregate matrix is noticeable, and the edges of the coarse aggregate have been exposed up to $1/4^{th}$ of the width (of the longest side) of the coarse aggregate due to the loss of fine aggregate matrix.

H Edges of the coarse aggregate have been exposed greater than $1/4^{th}$ of the width (of the longest side) of the coarse aggregate. There is considerable loss of fine aggregate matrix leading to potential or some loss of coarse aggregate.

PAVEMENT MAINTENANCE TREATMENTS

Pavement maintenance treatments are designed to slow the pavement aging process. Mainly, the treatments are designed to protect the pavement from the adverse effects of water and to some extent vehicle traffic.

Maintenance treatments, which protect the pavement from aging, are crack sealing, digouts, slurry seals, and cape seals. When pavements have extensive cracking and are beyond their design life, interim holding measures including skin patches and thin overlays are used as a stop gap prior to major rehabilitation.

The following outlines some of the more common types of maintenance treatments:

Crack Sealing

Crack sealing prevents surface water from getting beneath the asphalt concrete layer into the aggregate bases. Crack sealing is generally performed using hot rubberized crack sealing material. The procedure includes routing small cracks, cleaning and sealing.

Digouts

Digouts are small areas of deteriorated pavements, which are removed and replaced with new asphalt concrete. Pavement removal is accomplished by cold planning or saw cutting and excavation. New asphalt is installed in at least two lifts. The digout depth should be determined depending on the street type and construction.

Slurry Seals

Slurry seals consist of a combination of fine aggregate and emulsified oil. Slurry seals are used to protect the pavement surface from the oxidizing effects of the sun and water, as well as providing a new wearing surface for the pavement. Slurry Seals are very useful, especially when the existing pavement surface is severely raveled, but is structurally sound. When applied to the correct pavements, a slurry seal can extend the life of a pavement, by five (5) to seven (7) years.

Cape Seals (Conventional & Rubberized)

Cape seals, whether Conventional or Rubberized, are applied in a two-part process. The first part consists of placing a chip seal. The second part consists of coating the chip seal with a slurry seal. A chip seal is an application of small angular rock (chips) approximately 1/4" to 3/8” in maximum size, embedded into a thick application of asphalt emulsion, or rubberized asphalt binder.

Conventional chip seals generally incorporate polymer modified binders into the asphalt emulsion, whereas rubberized chip seals use an asphalt binder that has rubber mixed in solution. The rubberized binder gives the pavement more flexibility and resilience.

Cape seals are used on residential and collector streets to maintain a pavement, which may need an overlay, but there are not sufficient funds available. Cape seals can be placed over low to moderate alligator cracks and block shrinkage cracking. When applied to the correct pavement, a Conventional Cape Seal can extend the life of a pavement by 7 to 10 years, and a Rubberized Cape Seal can extend the life of a pavement by 7 to 12 years.

Interim Holding Measures (or “Stop Gap” in StreetSaver® Terms)

Interim holding measures or stop gap treatments are used to “hold” the pavement together until funds become available for major rehabilitation. The common holding measures used by City include skin patches and thin overlays.

Skin patches are thin lifts of fine asphalt concrete placed over deteriorated areas.

Thin maintenance overlays are placed to hold the surface together. The asphalt concrete layer is generally 1 to 1-1/2 inches thick. A 3/8 inch aggregate is used with a Terminally Blended Asphalt Rubber Binder.

PAVEMENT REHABILITATION TREATMENTS

Pavement rehabilitation consists of treatments used to restore the existing pavement quality or to add additional structural support to the pavement. Rehabilitation treatments include conventional overlays; pulverization and resurfacing; ARHM (asphalt rubber hot mix) overlays; AC removal and replacement (Mill and Fill); and reconstruction.

The following outlines some of the more common types of rehabilitation treatments:

Conventional Overlays

Conventional overlays generally consist of surface preparation, pavement fabric and varying thicknesses of asphalt concrete. Surface preparation can consist of crack filling, pavement repairs of base failures and leveling courses.

Pavement fabric is often used as a water inhibiting membrane and to retard reflective cracking. Care must be used with fabric to avoid intersections with heavy truck breaking, steep grades (generally over 8 percent), and areas where subsurface water might be trapped.

The overlay thickness is determined by the structural requirement of the deflection analysis and reflective cracking criteria. The reflective cracking criteria requires the thickness of the overlay to be a minimum 1/2 the thickness of the existing bonded layers. Pavement fabric can account for 0.10 ft of asphalt for reflective cracking criteria if the structural requirements from the deflection analysis are met.

Conventional overlays have an expected service life of 7 to 13 years if they are designed to meet structural and reflective cracking criteria and are well constructed.

RHMA Overlays

RHMA is the shortened reference for Rubberized Hot Mix Asphalt. This material uses crumb rubber mixed with traditional asphalt binders to produce a more flexible paving material than conventional dense graded hot mix asphalt (HMA).

Caltrans has developed design criteria for use of this material based on accelerated performance testing using its dual wheel accelerated pavement testing equipment. The Caltrans criteria allows RHMA to be used in a one to two ratio to conventional hot mix asphalt. Thus one (1) inch of RHMA is equal to two (2) inches of conventional hot mix asphalt for reflective cracking criteria.

RHMA costs approximately 1-3/4 times as much as conventional asphalt and provides a similar service life to that of conventional hot mix asphalt, 7 to 13 years. RHMA is generally only feasible when vertical constraints such as curb and gutter restrict the thickness of the overlay. RHMA typically has more open surface than conventional hot mix asphalt and is more difficult to obtain a high quality finished product.

Pulverization and Resurfacing

Pulverization and resurfacing is an alternative to conventional overlays for streets that are structurally adequate but exhibit sufficient cracking to warrant improvement to the asphalt surface.

Pulverization and resurfacing is an intermediate step between an overlay and reconstruction. The existing asphalt concrete is recycled into aggregate base and the recycled base increases the total structural section. The surface is re-graded to conform to flush facilities similar to the way the pavement is keycut for overlays. The re-grading allows for some improvement to the cross section and profile. This method eliminates the cracking and stress history of the old asphalt concrete pavement, thus eliminating negative impacts on the new asphalt concrete surface.

Some instability can be encountered when the pulverization method is used. PEI typically recommends budgeting 5 to 10 percent of the pulverized sub-grade area for stabilization. Stabilization can be performed using 6-inch deep lift asphalt concrete.

Pulverization and resurfacing has a life expectancy of 13 to 18 years. The life expectancy is slightly less than full reconstruction because some residual deficiencies in thickness or quality of the unaffected layers may still exist. Additional testing is necessary to determine if pulverization is a viable alternative. This testing includes measuring the existing structural section and testing the native soil for bearing capacity (R-value).

Cold In-Place Recycling (CIR)

CIR is an option when pavements are structurally adequate or slightly structurally deficient. It can be especially useful when pavements are thick (greater than 6 inches). CIR helps reduce crack history in thicker pavement and provides a green approach by using existing materials. CIR consists of either an emulsion process or a foaming process. The cold foam process can include mixing aggregate base with the asphalt.

AC Removal and Replacement (Mill and Fill)

On some thick asphalt concrete pavements, the most economical approach to rehabilitating the pavement is to remove some of the existing asphalt concrete surface, which matches the existing profile. The replacement material can be either conventional hot mix asphalt (HMA) or RHMA, depending on the design criteria.

In other cases, due to drainage or other physical constraints, additional thickness cannot be placed. If the underlying base is sufficient to support anticipated loading, the asphalt layer can be removed and replaced. Depending on existing conditions, this method should have a life of 15 to 20 years.

Reconstruction

When the pavement has severe cross section deficiencies or requires significant structural strengthening, reconstruction may be the only alternative. Generally, existing pavement materials are recycled and incorporated into the new pavement structure.

Reconstruction can consist of various alternatives including Full Depth HMA, HMA over aggregate base, or Full Depth Reclamation (FDR). Full Depth HMA is the fastest for construction but typically has higher costs than other reconstruction alternatives. FDR HMA can be a cost-effective approach but takes much longer to construct than HMA. HMA over aggregate base has a lower cost than Full Depth HMA but has significant impact on the public due to the slower construction process.

Section III

Pavement Management System Specifics

PAVEMENT MANAGEMENT SYSTEM SPECIFICS

This section discusses the characteristics of the Pavement Management System and its application for The City of Albany.

BACKGROUND (STREETSAVER®)

During the early years of Pavement Management software development, many companies developed private software packages focused on management of municipal street systems. Though these programs were versatile and sophisticated, the user was also dependent upon the software vendor for training, program updates, and software servicing. Many of the vendors had difficulty maintaining their software, leaving agencies stranded after making a substantial investment.

In 1982, the Metropolitan Transportation Commission (MTC) completed a study of local road and street maintenance needs and revenue short falls in the San Francisco Bay Area. The results of the study indicated that local jurisdictions were spending only 60 percent of funds required to maintain roads in a condition considered adequate. This indicated a need to improve pavement maintenance and rehabilitation techniques and practices. A committee was formed to evaluate pavement management efforts. At approximately the same time, six public works directors reviewed a proposal to develop a prototype Pavement Management System (PMS); however, it was felt that the proposed system was too complex. This group strongly emphasized that simplicity was the most important objective to be developed in a PMS if it was to be adopted and used by cities and counties.

In 1983, a consultant was retained to assist MTC in determining PMS needs, PMS resources, and problems. In addition, they were to develop three basic elements of a standardized prototype PMS: a pavement condition index (PCI), effective maintenance treatments for the Bay Area, and a network level assignment procedure. The result was the first version of the MTC PMS. Since that time the program has evolved into StreetSaver®.

Today, the Metropolitan Transportation Commission (MTC) for California's San Francisco Bay Area uses StreetSaver® to help local cities and counties better allocate resources, predict the future condition of their pavements at different levels of funding, and demonstrate the effects of underfunded road programs. The Bay Area was one of the first regions in the country to implement a pavement management system that is used by nearly all of its localities. Using StreetSaver®, cities and counties can plan and manage road improvement projects, document budget needs and shortfalls, and use the collected data to build support for additional transportation funding.

StreetSaver® manages a collection of related data organized for easy storage and retrieval. The StreetSaver® program includes a database comprised of several sets of related data ("tables") that contain information about the street network in the jurisdiction. This information includes pavement condition, the available maintenance/rehabilitation treatments and their costs, and the history of the network. Based on this information, budget analyses are performed. A budget analysis allows the user to project network maintenance and rehabilitation needs, and costs to evaluate the consequences of various budget allocation alternatives. Alternatives can be evaluated in terms of maintenance and rehabilitation that can actually be performed, future pavement condition, and deferred costs. For some agencies, use of the StreetSaver® program is cyclical. For others, pavement management is integrated into an ongoing effort to manage their street networks.

Implementation

There are several steps involved in implementing an effective Pavement Management System. These tasks should be completed on a periodic basis. These tasks include:

1. Collect pavement condition and maintenance/rehabilitation data.
2. Enter re-inspection data and/or applied maintenance and rehabilitation information.
3. Check/update maintenance treatment definitions and pavement category definitions.
4. Calculate Pavement Condition Index (PCI)
5. Evaluate system and current Maintenance/Rehabilitation strategies. Determine Budget needs and if necessary develop alternate Budget Summaries.
6. Present analysis outputs to funding bodies.
7. Acquire funds and apply maintenance/rehabilitation treatments.

SYSTEM ASSUMPTIONS

The goal of the Pavement Management System is to furnish budgetary amounts in order to achieve system wide improvements in the overall pavement condition. The goal of project engineering is to obtain the maximum economical affect for a given subset of the system to be maintained. Using the Pavement Management System, management is able to realistically budget for economically maintaining The City's pavement system. Annually updating maintenance activity and costs keeps the system current.

PAVEMENT MAINTENANCE AND REHABILITATION (M&R) UNIT COSTS

The reliability and accuracy of any PMS is based on the information contained in its Decision Tree. The listed treatments in the Decision Tree are generalized to provide a range of treatments. The exact treatment would need to be determined during the design phase of a project.

Typical treatments within each generalized treatment range are listed below.

Treatment Category	Typical Treatment
Light Maintenance	• Slurry Seal or Micro-Surface • Fog Seal or Scrub Seal
Heavy Maintenance	• Chip Seal, Cape Seal • Slurry Seal or Micro-Surface with Digouts • Thin Maintenance Overlay (TMO)
Light Rehab.	• Overlay (2" and under) or Thin Mill and Fill
Heavy Rehab.	• Overlay (greater than 2") or Thick Mill and Fill • Cold-In-Place Recycling • Full Depth Reclamation • Pulverize and Resurfacing
Reconstruct	• Full Section Reconstruction

Based on a street segment's current PCI condition, StreetSaver® assigns a treatment action and estimated cost to perform the suggested treatment. This cost is not just what is paid to the contractor but should include all the "Soft Costs" incurred by The City.

Soft Costs can include the surface preparation, engineering cost, materials testing, and construction inspection. Even if these tasks are done "in-house", the inclusion in combination with the construction costs will tend to show the "true picture" of the cost of a specific project.

The following costs were used to develop the indicated budget numbers for each street segment PEI reviewed. The costs include miscellaneous work such as transitions, striping, dig outs, etc.

The costs are averages. Small systems will have higher unit costs and large systems will have lower unit costs. The larger the annual project size, the better the economies of scale. Timing is also important. Bidding the work in early spring will result in significantly lower prices than bids solicited in the late summer or fall. If small packages are used, costs could be 25 to 50 percent higher.

The unit costs include an increase to account for potential PCC repairs that may be triggered by applying a maintenance or rehabilitation treatment to a street section. 40% for Arterials, 30% Collectors, 20% Residentials. The unit costs also include a 15% allowance to account for engineering design fees and inspection. As well as a 10% contingency. These prices are in today's dollars (2021) and do not account for inflation.

TREATMENT	ARTERIAL	COLLECTOR	RESIDENTIAL
Cost/ Sq Yd			
Crack Seal ($$/LF)	$2.13	$1.75	$1.54
Light Maintenance	$12.75	$10.82	$8.88
Heavy Maintenance	$35.70	$29.01	$24.05
Light Rehab.	$119.38	$90.73	$75.41
Heavy Rehab.	$153.33	$131.28	$109.16
Reconstruct	$270.01	$197.44	$160.80

Decision Trees / Treatment Strategies

The Decision Trees are broken down into two main areas; Preventive Maintenance (PM) and Rehabilitation. StreetSaver® makes preventive maintenance a top priority. The longer a segment can be kept in good condition the lower the overall cost of its treatments. Preventive Maintenance addresses the sections that have a PCI of 71 and greater. This area is further broken down to specific treatments that could be better termed as Crack Sealing, Surface Treating and Restoration Treatments.

The Decision Tree allows the user to program these treatments on a cyclical basis. As part of this cyclical process, once a road has reached the point where it can no longer be maintained by a crack seal or a surface seal the program will shift to a Restoration Treatment. The program uses this treatment to restore the pavement in long term budgeting scenarios to the Very Good category.

The Decision Tree for Preventive Maintenance and Rehabilitation was reviewed with The City of Albany and updated by PEI. The decision tree customizes the logic for how and what maintenance and rehabilitation treatments StreetSaver® selects.

Five general pavement treatment categories were used to account for the various treatments in the decision tree: reconstruction, heavy overlays, light overlays, heavy maintenance, light maintenance and no action. Specifying a general treatment category allows the user to stay focused on a budget level analysis rather than moving to a project level analysis.

The PMS software assumes average construction and material quality. Pavement life is very sensitive to materials and workmanship quality. Poor quality new construction may result in up to a 50 percent loss in the pavement life. In other words, poor quality new construction may last 10 to 15 years, whereas excellent quality construction may last 20 to 30 years. Investing in quality, both in design and construction, provides significant returns in extended pavement life resulting in lowered annual maintenance costs.

The Decision Tree for The City of Albany can be found in **Appendix A** of this report.

ANNUAL PAVEMENT MAINTENANCE / REHABILITATION PROGRAM

The PCI range of 0 to 100 is broken down into five condition categories for budget calculation purposes. StreetSaver® default PCI breakpoints were used during the update of The City of Albany's Pavement Management System.

The new breakpoints are as follows:

PCI BREAKPOINTS

	Arterials		Collectors		Residential	
100	I		I		I	
90	LIGHT MAINTENANCE		LIGHT MAINTENANCE		LIGHT MAINTENANCE	
70	II (Non-Load)	III (Load)	II (Non-Load)	III (Load)	II (Non-Load)	III (Load)
	HEAVY MAINT.	LIGHT REHAB.	HEAVY MAINT.	LIGHT REHAB.	HEAVY MAINT.	LIGHT REHAB.
50	IV		IV		IV	
	HEAVY REHAB.		HEAVY REHAB.		HEAVY REHAB.	
25	V		V		V	
0	RECONSTRUCT		RECONSTRUCT		RECONSTRUCT	

When a pavement section is identified for maintenance or rehabilitation, a user defined network-level cost category for a pavement of that functional class, type and condition is used to determine the needed funds for that section. For sections falling within the preventive maintenance category, or category one (1), a time sequence is used to identify the appropriate treatment and cost.

For those sections falling into a rehabilitation category, or categories two (2), three (3), four (4), or five (5), the PCI is used to determine the repair category for a pavement section.

The repair category is combined with functional classification (as a surrogate for traffic index) and surface type (as a surrogate for structural adequacy) to identify the appropriate treatment and cost. The treatment and cost identified for the section is a network-level budget planning treatment and is generally considered as a cost category for budgeting purposes rather than an actual treatment. Some sections will require more money than

estimated, some will require less. A project-level analysis is used to determine the actual treatment to be used for a given section based on condition, structural capacity and other factors.

The funding needs are summed for all sections needing work for each year of the analysis period to determine the annual budget needs. The needs analysis provides a list of sections needing work over the selected analysis period and an estimate of the funds needed. In StreetSaver®, this analysis period is 5 years. It identifies maintenance and rehabilitation needs without considering funding constraints, i.e. the Needs Analysis is unconstrained by the available budget. StreetSaver® identifies candidate sections and funds needed to provide the level of service to meet agency-defined goals.

When an agency has a considerable backlog of maintenance and repair needs, the first-year needs will include the bulk of sections needing work. From a funding standpoint, this may appear unrealistic; however, the needs analysis is only the first step in planning and programming. The information from the needs analysis is generally best presented to management as the total 5 year needs or the average needs per year of the 5-year period. Few agencies will be able to meet the first year needs as developed by the program.

The StreetSaver® Needs Analysis provides information on the condition of the network over the analysis period with and without application of the treatments. Since the application of treatments assume no limit on funds, this can be considered the upper limit of condition that could be reached by the agency and the condition without treatment can be considered the lower limit.

StreetSaver® uses a ranking process based on cost-effectiveness concepts. Basically, the longer a pavement is in good condition, the more benefit the user gets from the pavement. This can be approximated by the area under the PCI vs Time curve.

The larger that area, the longer the pavement provides the desired level of service. That area is divided by annualized costs per unit area. This ratio is weighted for different usage so that arterial streets are selected for repair before collectors in the same condition, which are selected for repair before residential/locals in the same condition. Sections of pavements that provide the best service for the least money are then selected as those that should be repaired first. StreetSaver® provides a ranked listing based on this cost-effectiveness analysis. StreetSaver® also shows the condition with and without treatment, the estimated costs for each section, the calculations used to determine the ranking, and a listing of sections not recommended for treatment.

VISUAL EVALUATIONS

PEI's technical staff evaluated all of the pavements. The streets were rated based on the StreetSaver® system described in the Background. Once the data was entered into the program, PEI completed a quality assurance review of the system and verified the results in the field. The street inventory was based on visual evaluations.

SYSTEM UPDATES

The Pavement Management System is a dynamic program. It is expected that The City will continue to visually rate the street network and update the database at least every three years. In addition to the visual review, The City should update the database by adding new streets incorporated into The City as well as new maintenance and rehabilitation work performed to any particular street segment.

Section IV
Reference Reports

Street List Alphabetical

City of Albany
Reference Report - Alphabetical

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
ADAMS ST.	10	BUCHANAN ST.	SOLANO AVE	845	26	21,970	O	100
ADAMS ST.	20	SOLANO AVE	WASHINGTON AVE	718	26	18,668	O	65
ADAMS ST.	30	WASHINGTON AVE.	CASTRO ST	668	26	17,368	O	93
ADAMS ST.	40	CASTRO ST	CLAY ST	668	26	17,368	O	93
ADAMS ST.	50	CLAY ST	NORTH END	575	30	17,250	O	89
ALBANY TERR	10	NIELSEN ST.	TEVLIN ST.	230	21	4,830	R	70
BEVERLY PL.	10	VENTURA AVE.	CITY LIMIT (BERKELEY)	358	37	13,246	R	32
BRIGHTON AVE.	10	SAN PABLO AV	EVELYN AVE.	1,246	32	39,872	C	37
BRIGHTON AVE.	20	EVELYN AVE.	KEY ROUTE BLVD.	1,120	32	35,840	C	43
BUCHANAN AVE	10	CLEVELAND AVE (E)	CLEVELAND AVE (W)	160	11	1,760	A	24
BUCHANAN AVE	15	CLEVELAND AVE (W)	CLEVELAND AVE (E)	155	25	3,875	A	65
BUCHANAN AVE	20	CLEVELAND AVE. (E)	E END at PIERCE ST.	218	20	4,360	A	29
BUCHANAN ST EB	10	580 OFF RAMP	START PCC BRIDGE	615	42	25,830	A	80
BUCHANAN ST EB	20	START PCC BRIDGE	OVERPASS/ PCC BRIDGE (ES)	480	30	14,400	A	74
BUCHANAN ST EB	30	OVERPASS/ PCC BRIDGE (ES)	PIERCE ST.	250	30	7,500	A	30
BUCHANAN ST EB	40	PIERCE ST.	JACKSON ST.	1,260	27	34,020	A	50
BUCHANAN ST WB	10	SAN PABLO AV	JACKSON ST	767	24	18,408	A	69
BUCHANAN ST WB	20	JACKSON ST	PIERCE ST	1,260	27	34,020	A	63
BUCHANAN ST WB	20B	PIERCE ST	MADISON ST	1,500	13	19,500	A	67
BUCHANAN ST WB	30	PIERCE ST	OVERPASS/ PCC BRIDGE (ES)	250	30	7,500	A	34
BUCHANAN ST WB	40	OVERPASS/ PCC BRIDGE (ES)	END PCC BRIDGE WS	480	30	14,400	A	74
BUCHANAN ST WB	50	END PCC BRIDGE	580 OFF RAMP	615	35	21,525	A	76
BUCHANAN ST WB	60	580 OFF RAMP	ALBANY TRAIL	1,235	48	59,280	A	57
CALHOUN ST.	10	PIERCE ST.	END	178	35	6,230	R	39
CARMEL AVE.	10	CITY LIMIT (EL CERRITO)	PORTLAND AVE.	981	30	29,430	O	80
CARMEL AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	661	30	19,830	R	66
CARMEL AVE.	30	WASHINGTON AVE.	SOLANO AVE.	762	30	22,860	R	33
CARMEL AVE.	40	SOLANO AVE.	MARIN AVE.	823	33	27,159	R	25
CASTRO. ST.	10	JACKSON ST.	SAN PABLO AV	724	26	18,824	R	51
CERRITO ST.	10	HILLSIDE AVE.	WASHINGTON AVE.	461	23	10,603	R	83
CERRITO ST.	20	WASHINGTON AVE.	SOLANO AVE.	688	30	20,640	R	33
CERRITO ST.	30	SOLANO AVE.	BUCHANAN ST.	700	30	21,000	R	52
CLAY ST.	10	MADISON ST	SAN PABLO AV	500	28	14,000	R	42
CLEVELAND AVE.	10	CITY LIMIT (EL CERRITO)	RAMP ON HWY 80	1,921	30	57,630	A	16
CLEVELAND AVE.	20	RAMP ON HWY 80	PVMNT CHG	770	32	24,640	A	47
CLEVELAND AVE.	30	PVMNT CHG	WASHINGTON AVE	254	32	8,128	A	26
CLEVELAND AVE.	40	WASHINGTON AVE.	JOHNSON ST.	510	34	17,340	A	27
CLEVELAND AVE.	50	JOHNSON ST.	BUCHANAN ST.	188	34	6,392	A	21
CLEVELAND AVE.	60	BUCHANAN AVE	BUCHANAN ST STOP SIGN	366	25	9,150	A	24

City of Albany
Reference Report - Alphabetical

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
CORNELL AVE.	10	PARKING LOT	BRIGHTON AVE	446	26	11,596	R	43
CORNELL AVE.	20	BRIGHTON AVE	GARFIELD AVE	582	26	15,132	R	48
CORNELL AVE.	30	GARFIELD AVE.	PORTLAND AVE.	589	26	15,314	R	28
CORNELL AVE.	40	PORTLAND AVE.	WASHINGTON AVE.	589	26	15,314	R	43
CORNELL AVE.	50	WASHINGTON AVE.	SOLANO AVE.	701	26	18,226	R	31
CORNELL AVE.	60	SOLANO AVE.	MARIN AVE.	1,140	26	29,640	R	30
CORNELL AVE.	70	MARIN AVE.	DARTMOUTH ST.	1,042	26	27,092	R	65
CORNELL AVE.	80	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	494	26	12,844	R	58
CURTIS ST.	10	CITY LIMIT (KENSINGTON)	PORTLAND AVE.	1,318	28	36,904	O	83
CURTIS ST.	20	PORTLAND AVE.	WASHINGTON AVE.	661	26	17,186	R	83
CURTIS ST.	30	WASHINGTON AVE.	SOLANO AVE.	684	26	17,784	R	83
CURTIS ST.	40	SOLANO AVE.	MARIN AVE.	631	31	19,561	R	55
CURTIS ST.	50	MARIN AVE	SONOMA AVE	405	31	12,555	O	56
CURTIS ST.	60	SONOMA AVE	FRANCIS ST	1,207	31	37,417	R	59
CURTIS ST.	70	FRANCIS ST.	CITY LIMIT (BERKELEY)	596	30	17,880	R	59
DARTMOUTH ST.	10	SAN PABLO AV	TALBOT AVE.	1,000	30	30,000	O	41
DARTMOUTH ST.	20	TALBOT AVE.	POMONA AVE.	975	30	29,250	O	57
EASTSHORE HWY LOOP	10	EASTSHORE HWY	END/ UNDER BRIDGE	350	24	8,400	O	76
EASTSHORE HWY.	10	CITY LIMIT (BERKELEY)	1025 EASTSHORE HWY-PAVT CH	1,325	30	39,750	A	43
EASTSHORE HWY.	20	1025 EASTSHORE HWY PAVT CH	BUCHANAN ST(BRIDGE)	600	30	18,000	A	71
EVELYN AVE.	10	BRIGHTON AVE	NORTH END	462	30	13,860	R	90
EVELYN AVE.	20	BRIGHTON AVE	PORTLAND AVE.	1,215	27	32,805	R	93
EVELYN AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	589	30	17,670	R	55
EVELYN AVE.	40	WASHINGTON AVE.	SOLANO AVE.	792	30	23,760	R	58
EVELYN AVE.	50	SOLANO AVE.	MARIN AVE.	1,042	30	31,260	R	47
EVELYN AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,042	30	31,260	R	45
EVELYN AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	620	30	18,600	R	87
FILLMORE ST.	10	SOLANO AVE.	BUCHANAN ST.	557	30	16,710	R	47
FRANCIS ST.	10	SANTA FE AVE.	NIELSEN ST.	475	27	12,825	O	74
FRANCIS ST.	20	NIELSEN ST.	PERALTA AVE.	393	27	10,611	O	74
GARFIELD AVE.	10	SAN PABLO AV	CORNELL AVE.	730	32	23,360	R	76
GARFIELD AVE.	20	CORNELL AVE.	MASONIC AVE.	736	32	23,552	R	75
GATEVIEW AVE.	10	WASHINGTON AVE.	END	941	20	18,820	R	49
HILLSIDE AVE.	10	JACKSON ST	TAFT ST	786	22	17,292	R	30
HILLSIDE AVE.	20	TAFT ST.	SOUTH END	1,375	27	37,125	R	31
JACKSON ST.	10	N END	CASTRO. ST.	1,547	28	43,316	R	20
JACKSON ST.	20	CASTRO. ST.	WASHINGTON AVE.	701	26	18,226	O	35
JACKSON ST.	30	WASHINGTON AVE.	SOLANO AVE.	721	27	19,467	O	32
JACKSON ST.	40	SOLANO AVE.	BUCHANAN ST.	752	40	30,080	C	90

City of Albany
Reference Report - Alphabetical

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
JACKSON ST.	50	MONROE ST	CITY LIMIT (BERKELEY)	350	51	17,850	O	68
JOHNSON ST.	10	CLEVELAND AVE.	PIERCE ST.	429	30	12,870	R	76
KAINS AVE.	10	PARKING LOT	GARFIELD AVE.	963	26	25,038	O	39
KAINS AVE.	20	GARFIELD AVE.	PORTLAND AVE.	589	26	15,314	O	62
KAINS AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	589	27	15,903	O	65
KAINS AVE.	40	WASHINGTON AVE.	SOLANO AVE.	606	26	15,756	O	38
KAINS AVE.	50	SOLANO AVE.	MARIN AVE.	1,235	28	34,580	O	85
KAINS AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,042	30	31,260	O	43
KAINS AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	574	30	17,220	R	55
KEY ROUTE BLVD.	30	SOLANO AVE.	MARIN AVE.	973	26	25,298	R	53
KEY ROUTE BLVD.	40	MARIN AVE.	DARTMOUTH ST.	1,045	26	27,170	R	63
KEY ROUTE BLVD.	50	DARTMOUTH ST.	CITY LIMIT (BERKELEY)/ SANTA F	704	26	18,304	R	39
KEY ROUTE BLVD. NB	60	SOLANO AVE.	PORTLAND AVE.	1,525	27	41,175	C	26
KEY ROUTE BLVD. NB	70	PORTLAND AVE.	CITY LIMIT (EL CERRITO)	1,255	27	33,885	C	29
KEY ROUTE BLVD. SB	10	CITY LIMIT (EL CERRTIO)	PORTLAND AVE.	1,250	31	38,750	C	27
KEY ROUTE BLVD. SB	20	PORTLAND AVE.	SOLANO AVE.	1,525	30	45,750	C	37
MADISON ST.	10	NORTH END	CLAY ST.	404	27	10,908	R	85
MADISON ST.	20	CLAY ST.	CASTRO. ST.	668	30	20,040	R	83
MADISON ST.	30	CASTRO. ST.	WASHINGTON AVE.	668	29	19,372	R	83
MADISON ST.	40	WASHINGTON AVE.	SOLANO AVE.	718	30	21,540	R	82
MADISON ST.	50	SOLANO AVE.	BUCHANAN ST.	793	30	23,790	R	76
MARIN AVE.	20	SAN PABLO AV	CORNELL AVE	775	61	47,275	A	93
MARIN AVE.	30	CORNELL AVE	MASONIC AVE	725	61	44,225	A	55
MARIN AVE.	40	MASONIC AVE.	SANTA FE AVE.	1,286	60	77,160	A	52
MARIN AVE.	50	SANTA FE AVE.	PERALTA AVE.	1,032	63	65,016	A	46
MARIN AVE.	60	PERALTA AVE.	CITY LIMIT (BERKELEY)	930	60	55,800	A	63
MARIN AVE. (EXTENSION)	10	JACKSON ST.	SAN PABLO AVE.	875	56	49,000	A	53
MASONIC AVE.	10	BRIGHTON AVE.	GARFIELD AVE.	590	38	22,420	C	62
MASONIC AVE.	20	GARFIELD AVE.	PORTLAND AVE.	589	38	22,382	C	60
MASONIC AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	589	38	22,382	C	40
MASONIC AVE.	40	WASHINGTON AVE.	SOLANO AVE.	843	38	32,034	C	35
MASONIC AVE.	50	SOLANO AVE.	MARIN AVE.	1,007	38	38,266	C	51
MASONIC AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,042	38	39,596	C	74
MASONIC AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	670	38	25,460	C	54
NEILSON ST.	10	SOLANO AVE	MARIN AVE.	521	32	16,672	R	35
NEILSON ST.	20	MARIN AVE.	SONOMA ST.	610	32	19,520	R	88
NEILSON ST.	30	SONOMA ST.	FRANCIS ST. (N)	1,298	21	27,258	R	51
NEILSON ST.	40	FRANCIS ST. (N)	CITY LIMIT (BERKELEY)	600	21	12,600	R	63
OCEAN VIEW BIKE PATH	10	SAN PABLO AVE	JACKSON ST	875	11	9,625	O	85

City of Albany
Reference Report - Alphabetical

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
OCEAN VIEW BIKE PATH	20	70' W/O JACKSON ST	USDA ENTRANCE	625	8	5,000	O	77
OCEAN VIEW BIKE PATH	30	USDA ENTRANCE	BUCHANAN ST	500	11	5,500	O	83
ORDWAY ST.	10	SOLANO AVE.	MARIN AVE.	594	36	21,384	R	66
ORDWAY ST.	20	MARIN AVE.	SONOMA ST.	711	36	25,596	R	28
ORDWAY ST.	30	SONOMA ST.	POSEN AVE.	1,293	36	46,548	R	31
ORDWAY ST.	40	POSEN AVE	CITY LIMIT	500	36	18,000	R	37
PERALTA AVE.	10	SOLANO AVE	MARIN AVE.	500	34	17,000	C	88
PERALTA AVE.	20	MARIN AVE.	SONOMA ST.	750	37	27,750	C	85
PERALTA AVE.	30	SONOMA ST.	FRANCIS ST.	1,288	43	55,384	C	70
PERALTA AVE.	40	FRANCIS ST.	CITY LIMIT (BERKELEY)	587	43	25,241	C	64
PIERCE ST.	10	CITY LIMIT (EL CERRITO)	404' S/O CITY LIMIT	404	37	14,948	A	69
PIERCE ST.	20	404' S/O CITY LIMIT	1946' S/O CITY LIMIT	1,542	37	57,054	A	79
PIERCE ST.	30	1946' S/O CITY LIMIT	CALHOUN ST.	1,339	30	40,170	A	74
PIERCE ST.	40	CALHOUN ST.	SOLANO AVE.	488	30	14,640	A	67
PIERCE ST.	50	SOLANO AVE.	BUCHANAN ST.	513	30	15,390	A	60
POLK ST.	10	WASHINGTON AVE.	SOLANO AVE.	302	24	7,248	R	49
POLK ST.	20	SOLANO AVE.	BUCHANAN ST.	647	30	19,410	R	40
POMONA AVE.	10	CITY LIMIT (EL CERRITO)	THOUSAND OAKS BLVD.	495	28	13,860	R	77
POMONA AVE.	20	PORTLAND AVE.	WASHINGTON AVE. (S)	723	28	20,244	O	73
POMONA AVE.	30	WASHINGTON AVE. (S)	SOLANO AVE.	752	28	21,056	O	100
POMONA AVE.	40	SOLANO AVE.	MARIN AVE.	915	32	29,280	O	80
POMONA AVE.	50	MARIN AVE.	SANTA FE AVE.	1,245	32	39,840	O	74
PORTLAND AVE.	10	SAN PABLO AV	CORNELL AVE.	730	36	26,280	C	76
PORTLAND AVE.	15	CORNELL AVE.	TALBOT AVE.	259	36	9,324	C	90
PORTLAND AVE.	20A	TALBOT AVE.	MASONIC AVE.	500	36	18,000	C	92
PORTLAND AVE.	20B	MASONIC AVE.	KEY ROUTE BLVD. SB	542	36	19,512	C	71
PORTLAND AVE.	30	KEY ROUTE BLVD. SB	CARMEL AVE.	771	42	32,382	C	68
PORTLAND AVE.	40	CARMEL AVE.	CITY LIMIT (BERKELEY)	1,015	44	44,660	C	65
POSEN AVE.	10	PERALTA AVE.	VENTURA AVE.	825	49	40,425	O	31
POSEN AVE.	20	VENTURA AVE.	CITY LIMIT (BERKELEY)	700	48	33,600	O	39
RAMONA AVE.	10	CITY LIMIT (EL CERRITO)	THOUSAND OAKS BLVD.	362	26	9,412	O	71
RAMONA AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	661	30	19,830	O	81
RAMONA AVE.	30	WASHINGTON AVE.	SOLANO AVE.	791	30	23,730	O	21
RAMONA AVE.	40	SOLANO AVE.	MARIN AVE.	863	31	26,753	O	38
RAMONA AVE.	50	MARIN AVE.	SANTA FE AVE.	808	32	25,856	O	37
SAN CARLOS AVE.	10	CITY LIMIT (EL CERRITO)	PORTLAND AVE.	979	30	29,370	R	84
SAN CARLOS AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	664	30	19,920	R	85
SAN CARLOS AVE.	30	WASHINGTON AVE.	SOLANO AVE.	737	30	22,110	R	30
SAN GABRIEL AVE.	10	BRIGHTON AV	PORTLAND AVE.	1,124	30	33,720	R	85

City of Albany
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Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
SANTA FE AVE.	10	CITY LIMIT (EL CERRITO)	PORTLAND AVE.	1,141	37	42,217	C	48
SANTA FE AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	636	37	23,532	C	59
SANTA FE AVE.	30	WASHINGTON AVE.	SOLANO AVE.	721	37	26,677	C	90
SANTA FE AVE.	40	SOLANO AVE.	MARIN AVE.	753	37	27,861	C	75
SANTA FE AVE.	50	MARIN AVE.	ROMONA AVE.	978	36	35,208	C	50
SANTA FE AVE.	60	ROMONA AVE.	CITY LIMIT (BERKELEY)	1,118	36	40,248	C	50
SOLANO AVE.	10A	CLEVELAND AVE.	FILLMORE ST.	675	33	22,275	A	28
SOLANO AVE.	10B	FILLMORE ST.	POLK ST.	515	33	16,995	A	36
SOLANO AVE.	23	POLK ST.	JACKSON ST.	480	30	14,400	C	33
SOLANO AVE.	25	JACKSON ST.	SAN PABLO AV.	832	44	36,608	C	70
SOLANO AVE.	30	SAN PABLO AV	MASONIC AVE.	1,510	57	86,070	A	71
SOLANO AVE.	40A	MASONIC AVE.	POMONA AVE.	455	54	24,570	A	37
SOLANO AVE.	40B	POMONA AVE.	SANTA FE AVE.	935	54	50,490	A	46
SOLANO AVE.	50A	SANTA FE AVE.	PERALTA AVE	864	56	48,384	A	39
SOLANO AVE.	50B	PERALTA AVE	CITY LIMIT (BERKELEY)	954	56	53,424	A	48
SONOMA ST.	10	CURTIS ST.	PERALTA AVE.	602	36	21,672	O	67
SONOMA ST.	20	PERALTA AVE.	CITY LIMIT (BERKELEY)	874	36	31,464	O	62
SPOKANE AVE.	10	CITY LIMIT (EL CERRITO)	BRIGHTON AVE	150	26	3,900	O	45
SPOKANE AVE.	15	BRIGHTON AVE	PORTLAND AVE	1,136	26	29,536	O	85
SPOKANE AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	623	26	16,198	R	87
STANNAGE AVE.	10	NORTH END	BRIGHTON AVE	370	30	11,100	R	54
STANNAGE AVE.	15	BRIGHTON AVE	GARFIELD AVE	596	30	17,880	R	75
STANNAGE AVE.	20	GARFIELD AVE.	PORTLAND AVE.	591	30	17,730	R	74
STANNAGE AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	586	30	17,580	R	70
STANNAGE AVE.	40	WASHINGTON AVE.	SOLANO AVE.	672	26	17,472	R	47
STANNAGE AVE.	50	SOLANO AVE.	MARIN AVE.	1,189	26	30,914	R	68
STANNAGE AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,044	26	27,144	R	46
STANNAGE AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)/ HARRIS(	558	26	14,508	R	62
TAFT ST.	10	HILLSIDE AVE.	END	1,515	27	40,905	R	36
TALBOT AVE.	10	PARKING LOT	GARFIELD AVE.	1,046	30	31,380	O	39
TALBOT AVE.	20	GARFIELD AVE.	PORTLAND AVE.	589	31	18,259	O	41
TALBOT AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	589	31	18,259	O	33
TALBOT AVE.	40	WASHINGTON AVE.	SOLANO AVE.	743	30	22,290	O	80
TALBOT AVE.	50	SOLANO AVE.	MARIN AVE.	1,093	30	32,790	O	75
TALBOT AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,042	30	31,260	O	38
TALBOT AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	620	30	18,600	O	50
TAYLOR ST.	10	SOLANO AVE.	BUCHANAN ST.	614	30	18,420	R	75
TERRACE ST.	10	NIELSEN ST.	TEVLIN ST.	242	27	6,534	R	87
TEVLIN ST.	10	FRANCIS ST.	END	421	21	8,841	R	71

City of Albany
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Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
TEVLIN ST.	20	TERRACE ST.	N END	568	19	10,792	R	88
THOUSAND OAKS BLVD.	10	KEY ROUTE BLVD. SB	CARMEL AVE.	765	33	25,245	C	75
THOUSAND OAKS BLVD.	21	CARMEL AVE	SANTA FE AVE	510	33	16,830	C	77
THOUSAND OAKS BLVD.	22	SANTA FE AVE	CITY LIMIT (BERKELEY)	400	37	14,800	C	77
VENTURA AVE.	10	SOLANO AVE.	MARIN AVE.	691	36	24,876	R	43
VENTURA AVE.	20	MARIN AVE.	SONOMA ST.	726	36	26,136	R	53
VENTURA AVE.	30	SONOMA ST.	POSEN AVE.	1,014	24	24,336	R	33
VISALIA	10	CURTIS ST.	CITY LIMIT (BERKELEY)	108	26	2,808	R	79
WASHINGTON AVE.	10	CLEVELAND AVE.	PIERCE ST	391	27	10,557	R	40
WASHINGTON AVE.	20	PIERCE ST.	CERRITO ST.	1,192	20	23,840	R	32
WASHINGTON AVE.	30	CERRITO ST.	JACKSON ST.	286	26	7,436	R	30
WASHINGTON AVE.	40	JACKSON ST.	SAN PABLO AV	750	26	19,500	R	58
WASHINGTON AVE.	50	SAN PABLO AV	CORNELL AVE	765	33	25,245	C	100
WASHINGTON AVE.	55	CORNELL AVE	TALBOT AVE	275	33	9,075	C	27
WASHINGTON AVE.	60	TALBOT AVE.	MASONIC AVE.	517	35	18,095	C	60
WASHINGTON AVE.	65	MASONIC AVE	POMONA AVE	700	35	24,500	C	100
WASHINGTON AVE.	70	POMONA AVE.	SANTA FE AVE.	1,016	42	42,672	C	35
WASHINGTON AVE.	80	SANTA FE AVE.	CITY LIMIT (BERKELEY)	508	45	22,860	C	40
WEST PL.	10	POSEN AVE.	END	207	21	4,347	R	88

Street List PCI High to Low

City of Albany
Reference Report - PCI High to Low

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
ADAMS ST.	10	BUCHANAN ST.	SOLANO AVE	845	26	21,970	O	100
POMONA AVE.	30	WASHINGTON AVE. (S)	SOLANO AVE.	752	28	21,056	O	100
WASHINGTON AVE.	50	SAN PABLO AV	CORNELL AVE	765	33	25,245	C	100
WASHINGTON AVE.	65	MASONIC AVE	POMONA AVE	700	35	24,500	C	100
ADAMS ST.	30	WASHINGTON AVE.	CASTRO ST	668	26	17,368	O	93
ADAMS ST.	40	CASTRO ST	CLAY ST	668	26	17,368	O	93
EVELYN AVE.	20	BRIGHTON AVE	PORTLAND AVE.	1,215	27	32,805	R	93
MARIN AVE.	20	SAN PABLO AV	CORNELL AVE	775	61	47,275	A	93
PORTLAND AVE.	20A	TALBOT AVE.	MASONIC AVE.	500	36	18,000	C	92
EVELYN AVE.	10	BRIGHTON AVE	NORTH END	462	30	13,860	R	90
JACKSON ST.	40	SOLANO AVE.	BUCHANAN ST.	752	40	30,080	C	90
PORTLAND AVE.	15	CORNELL AVE.	TALBOT AVE.	259	36	9,324	C	90
SANTA FE AVE.	30	WASHINGTON AVE.	SOLANO AVE.	721	37	26,677	C	90
ADAMS ST.	50	CLAY ST	NORTH END	575	30	17,250	O	89
NEILSON ST.	20	MARIN AVE.	SONOMA ST.	610	32	19,520	R	88
PERALTA AVE.	10	SOLANO AVE	MARIN AVE.	500	34	17,000	C	88
TEVLIN ST.	20	TERRACE ST.	N END	568	19	10,792	R	88
WEST PL.	10	POSEN AVE.	END	207	21	4,347	R	88
EVELYN AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	620	30	18,600	R	87
SPOKANE AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	623	26	16,198	R	87
TERRACE ST.	10	NIELSEN ST.	TEVLIN ST.	242	27	6,534	R	87
KAINS AVE.	50	SOLANO AVE.	MARIN AVE.	1,235	28	34,580	O	85
MADISON ST.	10	NORTH END	CLAY ST.	404	27	10,908	R	85
OCEAN VIEW BIKE PATH	10	SAN PABLO AVE	JACKSON ST	875	11	9,625	O	85
PERALTA AVE.	20	MARIN AVE.	SONOMA ST.	750	37	27,750	C	85
SAN CARLOS AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	664	30	19,920	R	85
SAN GABRIEL AVE.	10	BRIGHTON AV	PORTLAND AVE.	1,124	30	33,720	R	85
SPOKANE AVE.	15	BRIGHTON AVE	PORTLAND AVE	1,136	26	29,536	O	85
SAN CARLOS AVE.	10	CITY LIMIT (EL CERRITO)	PORTLAND AVE.	979	30	29,370	R	84
CERRITO ST.	10	HILLSIDE AVE.	WASHINGTON AVE.	461	23	10,603	R	83
CURTIS ST.	10	CITY LIMIT (KENSINGTON)	PORTLAND AVE.	1,318	28	36,904	O	83
CURTIS ST.	20	PORTLAND AVE.	WASHINGTON AVE.	661	26	17,186	R	83
CURTIS ST.	30	WASHINGTON AVE.	SOLANO AVE.	684	26	17,784	R	83
MADISON ST.	20	CLAY ST.	CASTRO. ST.	668	30	20,040	R	83
MADISON ST.	30	CASTRO. ST.	WASHINGTON AVE.	668	29	19,372	R	83
OCEAN VIEW BIKE PATH	30	USDA ENTRANCE	BUCHANAN ST	500	11	5,500	O	83
MADISON ST.	40	WASHINGTON AVE.	SOLANO AVE.	718	30	21,540	R	82
RAMONA AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	661	30	19,830	O	81
BUCHANAN ST EB	10	580 OFF RAMP	START PCC BRIDGE	615	42	25,830	A	80

City of Albany
Reference Report - PCI High to Low

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
CARMEL AVE.	10	CITY LIMIT (EL CERRITO)	PORTLAND AVE.	981	30	29,430	O	80
POMONA AVE.	40	SOLANO AVE.	MARIN AVE.	915	32	29,280	O	80
TALBOT AVE.	40	WASHINGTON AVE.	SOLANO AVE.	743	30	22,290	O	80
PIERCE ST.	20	404' S/O CITY LIMIT	1946' S/O CITY LIMIT	1,542	37	57,054	A	79
VISALIA	10	CURTIS ST.	CITY LIMIT (BERKELEY)	108	26	2,808	R	79
OCEAN VIEW BIKE PATH	20	70' W/O JACKSON ST	USDA ENTRANCE	625	8	5,000	O	77
POMONA AVE.	10	CITY LIMIT (EL CERRITO)	THOUSAND OAKS BLVD.	495	28	13,860	R	77
THOUSAND OAKS BLVD.	21	CARMEL AVE	SANTA FE AVE	510	33	16,830	C	77
THOUSAND OAKS BLVD.	22	SANTA FE AVE	CITY LIMIT (BERKELEY)	400	37	14,800	C	77
BUCHANAN ST WB	50	END PCC BRIDGE	580 OFF RAMP	615	35	21,525	A	76
EASTSHORE HWY LOOP	10	EASTSHORE HWY	END/ UNDER BRIDGE	350	24	8,400	O	76
GARFIELD AVE.	10	SAN PABLO AV	CORNELL AVE.	730	32	23,360	R	76
JOHNSON ST.	10	CLEVELAND AVE.	PIERCE ST.	429	30	12,870	R	76
MADISON ST.	50	SOLANO AVE.	BUCHANAN ST.	793	30	23,790	R	76
PORTLAND AVE.	10	SAN PABLO AV	CORNELL AVE.	730	36	26,280	C	76
GARFIELD AVE.	20	CORNELL AVE.	MASONIC AVE.	736	32	23,552	R	75
SANTA FE AVE.	40	SOLANO AVE.	MARIN AVE.	753	37	27,861	C	75
STANNAGE AVE.	15	BRIGHTON AVE	GARFIELD AVE	596	30	17,880	R	75
TALBOT AVE.	50	SOLANO AVE.	MARIN AVE.	1,093	30	32,790	O	75
TAYLOR ST.	10	SOLANO AVE.	BUCHANAN ST.	614	30	18,420	R	75
THOUSAND OAKS BLVD.	10	KEY ROUTE BLVD. SB	CARMEL AVE.	765	33	25,245	C	75
BUCHANAN ST EB	20	START PCC BRIDGE	OVERPASS/ PCC BRIDGE (ES)	480	30	14,400	A	74
BUCHANAN ST WB	40	OVERPASS/ PCC BRIDGE (ES)	END PCC BRIDGE WS	480	30	14,400	A	74
FRANCIS ST.	10	SANTA FE AVE.	NIELSEN ST.	475	27	12,825	O	74
FRANCIS ST.	20	NIELSEN ST.	PERALTA AVE.	393	27	10,611	O	74
MASONIC AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,042	38	39,596	C	74
PIERCE ST.	30	1946' S/O CITY LIMIT	CALHOUN ST.	1,339	30	40,170	A	74
POMONA AVE.	50	MARIN AVE.	SANTA FE AVE.	1,245	32	39,840	O	74
STANNAGE AVE.	20	GARFIELD AVE.	PORTLAND AVE.	591	30	17,730	R	74
POMONA AVE.	20	PORTLAND AVE.	WASHINGTON AVE. (S)	723	28	20,244	O	73
EASTSHORE HWY.	20	1025 EASTSHORE HWY PAVT CH	BUCHANAN ST(BRIDGE)	600	30	18,000	A	71
PORTLAND AVE.	20B	MASONIC AVE.	KEY ROUTE BLVD. SB	542	36	19,512	C	71
RAMONA AVE.	10	CITY LIMIT (EL CERRITO)	THOUSAND OAKS BLVD.	362	26	9,412	O	71
SOLANO AVE.	30	SAN PABLO AV	MASONIC AVE.	1,510	57	86,070	A	71
TEVLIN ST.	10	FRANCIS ST.	END	421	21	8,841	R	71
ALBANY TERR	10	NIELSEN ST.	TEVLIN ST.	230	21	4,830	R	70
PERALTA AVE.	30	SONOMA ST.	FRANCIS ST.	1,288	43	55,384	C	70
SOLANO AVE.	25	JACKSON ST.	SAN PABLO AV.	832	44	36,608	C	70
STANNAGE AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	586	30	17,580	R	70

City of Albany
Reference Report - PCI High to Low

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
BUCHANAN ST WB	10	SAN PABLO AV	JACKSON ST	767	24	18,408	A	69
PIERCE ST.	10	CITY LIMIT (EL CERRITO)	404' S/O CITY LIMIT	404	37	14,948	A	69
JACKSON ST.	50	MONROE ST	CITY LIMIT (BERKELEY)	350	51	17,850	O	68
PORTLAND AVE.	30	KEY ROUTE BLVD. SB	CARMEL AVE.	771	42	32,382	C	68
STANNAGE AVE.	50	SOLANO AVE.	MARIN AVE.	1,189	26	30,914	R	68
BUCHANAN ST WB	20B	PIERCE ST	MADISON ST	1,500	13	19,500	A	67
PIERCE ST.	40	CALHOUN ST.	SOLANO AVE.	488	30	14,640	A	67
SONOMA ST.	10	CURTIS ST.	PERALTA AVE.	602	36	21,672	O	67
CARMEL AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	661	30	19,830	R	66
ORDWAY ST.	10	SOLANO AVE.	MARIN AVE.	594	36	21,384	R	66
ADAMS ST.	20	SOLANO AVE	WASHINGTON AVE	718	26	18,668	O	65
BUCHANAN AVE	15	CLEVELAND AVE (W)	CLEVELAND AVE (E)	155	25	3,875	A	65
CORNELL AVE.	70	MARIN AVE.	DARTMOUTH ST.	1,042	26	27,092	R	65
KAINS AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	589	27	15,903	O	65
PORTLAND AVE.	40	CARMEL AVE.	CITY LIMIT (BERKELEY)	1,015	44	44,660	C	65
PERALTA AVE.	40	FRANCIS ST.	CITY LIMIT (BERKELEY)	587	43	25,241	C	64
BUCHANAN ST WB	20	JACKSON ST	PIERCE ST	1,260	27	34,020	A	63
KEY ROUTE BLVD.	40	MARIN AVE.	DARTMOUTH ST.	1,045	26	27,170	R	63
MARIN AVE.	60	PERALTA AVE.	CITY LIMIT (BERKELEY)	930	60	55,800	A	63
NEILSON ST.	40	FRANCIS ST. (N)	CITY LIMIT (BERKELEY)	600	21	12,600	R	63
KAINS AVE.	20	GARFIELD AVE.	PORTLAND AVE.	589	26	15,314	O	62
MASONIC AVE.	10	BRIGHTON AVE.	GARFIELD AVE.	590	38	22,420	C	62
SONOMA ST.	20	PERALTA AVE.	CITY LIMIT (BERKELEY)	874	36	31,464	O	62
STANNAGE AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)/ HARRIS(	558	26	14,508	R	62
MASONIC AVE.	20	GARFIELD AVE.	PORTLAND AVE.	589	38	22,382	C	60
PIERCE ST.	50	SOLANO AVE.	BUCHANAN ST.	513	30	15,390	A	60
WASHINGTON AVE.	60	TALBOT AVE.	MASONIC AVE.	517	35	18,095	C	60
CURTIS ST.	60	SONOMA AVE	FRANCIS ST	1,207	31	37,417	R	59
CURTIS ST.	70	FRANCIS ST.	CITY LIMIT (BERKELEY)	596	30	17,880	R	59
SANTA FE AVE.	20	PORTLAND AVE.	WASHINGTON AVE.	636	37	23,532	C	59
CORNELL AVE.	80	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	494	26	12,844	R	58
EVELYN AVE.	40	WASHINGTON AVE.	SOLANO AVE.	792	30	23,760	R	58
WASHINGTON AVE.	40	JACKSON ST.	SAN PABLO AV	750	26	19,500	R	58
BUCHANAN ST WB	60	580 OFF RAMP	ALBANY TRAIL	1,235	48	59,280	A	57
DARTMOUTH ST.	20	TALBOT AVE.	POMONA AVE.	975	30	29,250	O	57
CURTIS ST.	50	MARIN AVE	SONOMA AVE	405	31	12,555	O	56
CURTIS ST.	40	SOLANO AVE.	MARIN AVE.	631	31	19,561	R	55
EVELYN AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	589	30	17,670	R	55
KAINS AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	574	30	17,220	R	55

City of Albany
Reference Report - PCI High to Low

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
MARIN AVE.	30	CORNELL AVE	MASONIC AVE	725	61	44,225	A	55
MASONIC AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	670	38	25,460	C	54
STANNAGE AVE.	10	NORTH END	BRIGHTON AVE	370	30	11,100	R	54
KEY ROUTE BLVD.	30	SOLANO AVE.	MARIN AVE.	973	26	25,298	R	53
MARIN AVE. (EXTENSION)	10	JACKSON ST.	SAN PABLO AVE.	875	56	49,000	A	53
VENTURA AVE.	20	MARIN AVE.	SONOMA ST.	726	36	26,136	R	53
CERRITO ST.	30	SOLANO AVE.	BUCHANAN ST.	700	30	21,000	R	52
MARIN AVE.	40	MASONIC AVE.	SANTA FE AVE.	1,286	60	77,160	A	52
CASTRO. ST.	10	JACKSON ST.	SAN PABLO AV	724	26	18,824	R	51
MASONIC AVE.	50	SOLANO AVE.	MARIN AVE.	1,007	38	38,266	C	51
NEILSON ST.	30	SONOMA ST.	FRANCIS ST. (N)	1,298	21	27,258	R	51
BUCHANAN ST EB	40	PIERCE ST.	JACKSON ST.	1,260	27	34,020	A	50
SANTA FE AVE.	50	MARIN AVE.	ROMONA AVE.	978	36	35,208	C	50
SANTA FE AVE.	60	ROMONA AVE.	CITY LIMIT (BERKELEY)	1,118	36	40,248	C	50
TALBOT AVE.	70	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	620	30	18,600	O	50
GATEVIEW AVE.	10	WASHINGTON AVE.	END	941	20	18,820	R	49
POLK ST.	10	WASHINGTON AVE.	SOLANO AVE.	302	24	7,248	R	49
CORNELL AVE.	20	BRIGHTON AVE	GARFIELD AVE	582	26	15,132	R	48
SANTA FE AVE.	10	CITY LIMIT (EL CERRITO)	PORTLAND AVE.	1,141	37	42,217	C	48
SOLANO AVE.	50B	PERALTA AVE	CITY LIMIT (BERKELEY)	954	56	53,424	A	48
CLEVELAND AVE.	20	RAMP ON HWY 80	PVMNT CHG	770	32	24,640	A	47
EVELYN AVE.	50	SOLANO AVE.	MARIN AVE.	1,042	30	31,260	R	47
FILLMORE ST.	10	SOLANO AVE.	BUCHANAN ST.	557	30	16,710	R	47
STANNAGE AVE.	40	WASHINGTON AVE.	SOLANO AVE.	672	26	17,472	R	47
MARIN AVE.	50	SANTA FE AVE.	PERALTA AVE.	1,032	63	65,016	A	46
SOLANO AVE.	40B	POMONA AVE.	SANTA FE AVE.	935	54	50,490	A	46
STANNAGE AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,044	26	27,144	R	46
EVELYN AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,042	30	31,260	R	45
SPOKANE AVE.	10	CITY LIMIT (EL CERRITO)	BRIGHTON AVE	150	26	3,900	O	45
BRIGHTON AVE.	20	EVELYN AVE.	KEY ROUTE BLVD.	1,120	32	35,840	C	43
CORNELL AVE.	10	PARKING LOT	BRIGHTON AVE	446	26	11,596	R	43
CORNELL AVE.	40	PORTLAND AVE.	WASHINGTON AVE.	589	26	15,314	R	43
EASTSHORE HWY.	10	CITY LIMIT (BERKELEY)	1025 EASTSHORE HWY-PAVT CH	1,325	30	39,750	A	43
KAINS AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,042	30	31,260	O	43
VENTURA AVE.	10	SOLANO AVE.	MARIN AVE.	691	36	24,876	R	43
CLAY ST.	10	MADISON ST	SAN PABLO AV	500	28	14,000	R	42
DARTMOUTH ST.	10	SAN PABLO AV	TALBOT AVE.	1,000	30	30,000	O	41
TALBOT AVE.	20	GARFIELD AVE.	PORTLAND AVE.	589	31	18,259	O	41
MASONIC AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	589	38	22,382	C	40

City of Albany
Reference Report - PCI High to Low

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
POLK ST.	20	SOLANO AVE.	BUCHANAN ST.	647	30	19,410	R	40
WASHINGTON AVE.	10	CLEVELAND AVE.	PIERCE ST	391	27	10,557	R	40
WASHINGTON AVE.	80	SANTA FE AVE.	CITY LIMIT (BERKELEY)	508	45	22,860	C	40
CALHOUN ST.	10	PIERCE ST.	END	178	35	6,230	R	39
KAINS AVE.	10	PARKING LOT	GARFIELD AVE.	963	26	25,038	O	39
KEY ROUTE BLVD.	50	DARTMOUTH ST.	CITY LIMIT (BERKELEY)/ SANTA F	704	26	18,304	R	39
POSEN AVE.	20	VENTURA AVE.	CITY LIMIT (BERKELEY)	700	48	33,600	O	39
SOLANO AVE.	50A	SANTA FE AVE.	PERALTA AVE	864	56	48,384	A	39
TALBOT AVE.	10	PARKING LOT	GARFIELD AVE.	1,046	30	31,380	O	39
KAINS AVE.	40	WASHINGTON AVE.	SOLANO AVE.	606	26	15,756	O	38
RAMONA AVE.	40	SOLANO AVE.	MARIN AVE.	863	31	26,753	O	38
TALBOT AVE.	60	MARIN AVE.	DARTMOUTH ST.	1,042	30	31,260	O	38
BRIGHTON AVE.	10	SAN PABLO AV	EVELYN AVE.	1,246	32	39,872	C	37
KEY ROUTE BLVD. SB	20	PORTLAND AVE.	SOLANO AVE.	1,525	30	45,750	C	37
ORDWAY ST.	40	POSEN AVE	CITY LIMIT	500	36	18,000	R	37
RAMONA AVE.	50	MARIN AVE.	SANTA FE AVE.	808	32	25,856	O	37
SOLANO AVE.	40A	MASONIC AVE.	POMONA AVE.	455	54	24,570	A	37
SOLANO AVE.	10B	FILLMORE ST.	POLK ST.	515	33	16,995	A	36
TAFT ST.	10	HILLSIDE AVE.	END	1,515	27	40,905	R	36
JACKSON ST.	20	CASTRO. ST.	WASHINGTON AVE.	701	26	18,226	O	35
MASONIC AVE.	40	WASHINGTON AVE.	SOLANO AVE.	843	38	32,034	C	35
NEILSON ST.	10	SOLANO AVE	MARIN AVE.	521	32	16,672	R	35
WASHINGTON AVE.	70	POMONA AVE.	SANTA FE AVE.	1,016	42	42,672	C	35
BUCHANAN ST WB	30	PIERCE ST	OVERPASS/ PCC BRIDGE (ES)	250	30	7,500	A	34
CARMEL AVE.	30	WASHINGTON AVE.	SOLANO AVE.	762	30	22,860	R	33
CERRITO ST.	20	WASHINGTON AVE.	SOLANO AVE.	688	30	20,640	R	33
SOLANO AVE.	23	POLK ST.	JACKSON ST.	480	30	14,400	C	33
TALBOT AVE.	30	PORTLAND AVE.	WASHINGTON AVE.	589	31	18,259	O	33
VENTURA AVE.	30	SONOMA ST.	POSEN AVE.	1,014	24	24,336	R	33
BEVERLY PL.	10	VENTURA AVE.	CITY LIMIT (BERKELEY)	358	37	13,246	R	32
JACKSON ST.	30	WASHINGTON AVE.	SOLANO AVE.	721	27	19,467	O	32
WASHINGTON AVE.	20	PIERCE ST.	CERRITO ST.	1,192	20	23,840	R	32
CORNELL AVE.	50	WASHINGTON AVE.	SOLANO AVE.	701	26	18,226	R	31
HILLSIDE AVE.	20	TAFT ST.	SOUTH END	1,375	27	37,125	R	31
ORDWAY ST.	30	SONOMA ST.	POSEN AVE.	1,293	36	46,548	R	31
POSEN AVE.	10	PERALTA AVE.	VENTURA AVE.	825	49	40,425	O	31
BUCHANAN ST EB	30	OVERPASS/ PCC BRIDGE (ES)	PIERCE ST.	250	30	7,500	A	30
CORNELL AVE.	60	SOLANO AVE.	MARIN AVE.	1,140	26	29,640	R	30
HILLSIDE AVE.	10	JACKSON ST	TAFT ST	786	22	17,292	R	30

City of Albany
Reference Report - PCI High to Low

Road Name	Sec ID	Beg Location	End Location	Length	Width	Area	FC	PCI
SAN CARLOS AVE.	30	WASHINGTON AVE.	SOLANO AVE.	737	30	22,110	R	30
WASHINGTON AVE.	30	CERRITO ST.	JACKSON ST.	286	26	7,436	R	30
BUCHANAN AVE	20	CLEVELAND AVE. (E)	E END at PIERCE ST.	218	20	4,360	A	29
KEY ROUTE BLVD. NB	70	PORTLAND AVE.	CITY LIMIT (EL CERRITO)	1,255	27	33,885	C	29
CORNELL AVE.	30	GARFIELD AVE.	PORTLAND AVE.	589	26	15,314	R	28
ORDWAY ST.	20	MARIN AVE.	SONOMA ST.	711	36	25,596	R	28
SOLANO AVE.	10A	CLEVELAND AVE.	FILLMORE ST.	675	33	22,275	A	28
CLEVELAND AVE.	40	WASHINGTON AVE.	JOHNSON ST.	510	34	17,340	A	27
KEY ROUTE BLVD. SB	10	CITY LIMIT (EL CERRTIO)	PORTLAND AVE.	1,250	31	38,750	C	27
WASHINGTON AVE.	55	CORNELL AVE	TALBOT AVE	275	33	9,075	C	27
CLEVELAND AVE.	30	PVMNT CHG	WASHINGTON AVE	254	32	8,128	A	26
KEY ROUTE BLVD. NB	60	SOLANO AVE.	PORTLAND AVE.	1,525	27	41,175	C	26
CARMEL AVE.	40	SOLANO AVE.	MARIN AVE.	823	33	27,159	R	25
BUCHANAN AVE	10	CLEVELAND AVE (E)	CLEVELAND AVE (W)	160	11	1,760	A	24
CLEVELAND AVE.	60	BUCHANAN AVE	BUCHANAN ST STOP SIGN	366	25	9,150	A	24
CLEVELAND AVE.	50	JOHNSON ST.	BUCHANAN ST.	188	34	6,392	A	21
RAMONA AVE.	30	WASHINGTON AVE.	SOLANO AVE.	791	30	23,730	O	21
JACKSON ST.	10	N END	CASTRO. ST.	1,547	28	43,316	R	20
CLEVELAND AVE.	10	CITY LIMIT (EL CERRITO)	RAMP ON HWY 80	1,921	30	57,630	A	16

City of Albany
2021 PMP Update (PTAP Round 22)

Data Quality Management Report

For the 2021 Pavement Management Program update for the City of Albany, Pavement Engineering Inc. (PEI) rated about 32.3 centerline miles of Arterial, Collector, and Residential roadways. Those 32.3 centerline miles are broken down into 227 different management segments of varying lengths and widths. PEI completed their initial rating assessment in September 2021.

Once the initial ratings were completed, the field crew then preformed a 2nd rating on a randomly selected 10% of segments. This 2nd rating is intended as a consistency check, which ensures that our raters are performing evaluations consistent with our allowable range of +/- 5 PCI points. Of the 23 segments that were part of the 10% QC, 2 were found to be outside of the allowable range. Those 2 segments were re-rated by The Project Manager. Following the 10% Field Crew QC, an additional randomly selected 5% of segments were reviewed by The Project Manager.

Furthermore, an analysis was performed on the initial ratings to see how each segment's PCI has changed since the last rating was performed. Any segment found to have deteriorated more than 3 PCI points per year, since the City of Albany's PCIs were last updated, or have increased more than 1 PCI point without a documented M&R treatment, was then reviewed by The Project Manager.

Of the 227 segments reviewed, a total of 42.3% or 96 segments, were outside of the allowable range. These segments were then reviewed by The Project Manager. We found that of the 42.3% (96 segments), 44.8% (43 segments) were deemed to be accurate in the amount they had deteriorated. 32.3% (31 segments) were found to be rated harsher than deemed necessary, and 22.9% (22 segments) were rated too leniently. Those segments' PCIs were re-rated and now reflect the proper deterioration amount and coinciding PCI.

Section V
GIS Toolbox

GIS TOOLBOX

This section is intended to introduce the new feature in StreetSaver®. The GIS portion of the program is specifically designed for those agencies that do not have "in-house" GIS departments.

GIS TOOLBOX

The GIS toolbox is a new feature available within StreetSaver®. This is one of the most powerful tools available in StreetSaver®. The ability to link the existing road segments to a base map and produce maps displaying the Current Condition, Age of Pavement, Needs Treatments, Scenario Treatments, Last Treatment and Last Year Inspected are now available with just a few key strokes. No longer does an agency need to access "outside resources" or "wait" for graphical representations of their road system.

Maps that reflect the current condition of an agency's road system are a valuable asset when meeting with City Councils and the general public. A map of future maintenance treatments can be used to inform the residents when future work is scheduled on their road.

A basic "shapefile" is already loaded into the StreetSaver® system. From this shapefile it is just a matter of "linking" or "assigning" the beginning location and ending location of each management section found in the database.

There are a few cautions that the City of Albany should be aware of in regard to the GIS mapping. GIS is a "node" to "node" application. It uses intersections or nodes as its way to pinpoint a specific location. This means that each of the City's management sections needs to begin and end at a point that can be defined or found by the GIS link. Using house numbers or change in pavements will need to be defined as "feet" from the nearest "node". This will produce a more precise map. Next the Street Names will need to match and that will mean a more precise accounting of "street tags". The difference between calling a tag a "drive" or an "avenue" can hinder the linking process.

TERMINOLOGY

Once the GIS Toolbox is opened there will be two master items that can be accessed.

First there is the "GIS Reporting". This screen is used to "mine" StreetSaver® data for display in GIS format. Queries can be performed using the standard StreetSaver® filter screen, using pre-defined criteria defined by the system, or by selecting an area of the map. If Section data is returned those shapes can be exported to GIS shapefiles or printed out in a map format.

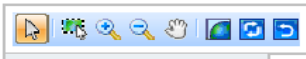
Then there is the “Section Link” screen which will match segments in the basemap based on street name, type (street tag) and/or direction. Each Section can be linked to a segment or segments in the basemap.

Explanations of the toolbars and the buttons available on the GIS Reporting screen are outlined below:

Navigation Toolbar

Select Sections from Map (Area Filter)	Click and Drag the mouse over an area on the map to search and retrieve sections within that area. **Note:** This works in conjunction with an applied Filter
Clear Area Filter	Clears the current selected area filter
Filter	Loads the Filter screen and retrieves sections based on the filter defined **Note:** This works in conjunction with an applied Area Filter
Clear Filter	Restores the shape to it’s state before any Add or Edits had occurred
Export Shapefiles	For each shape type currently showing on the map, a shapefile is created and stuffed in a ZIP file for download. This file will contain 3 files for every shape type. Those 3 files make up the Shapefile that can be used in other GIS applications
Print Map	Launches a Print Preview screen of the current Map and will resize based on the type of printer you choose

Reporting Toolbar



Select	Shows a tooltip of information regarding the section the mouse if pointing to an object.
Track Zoom In	Click and drag the mouse over an area of the map you want to Zoom in on.
Zoom In	Each click will Zoom the map in by 20%.
Zoom Out	Each click will Zoom the map OUT by 20%.
Pan	Click and drag the map around to navigate a specified direction.
Full Extent	Zooms out to the full border of your state.
Toggle Extent	Will toggle between the current Map extent and previous Map extent.
Previous Extent	Will cycle through each previous Map extent.

BASE MAP IMPLEMENTATION

Pavement Engineering Inc. reviewed the base map included with StreetSaver® and the automatic linking process. The review found most of the segments were linked correctly. Any of the segments that were not previously linked were fixed so they were linked.

CITY OF ALBANY

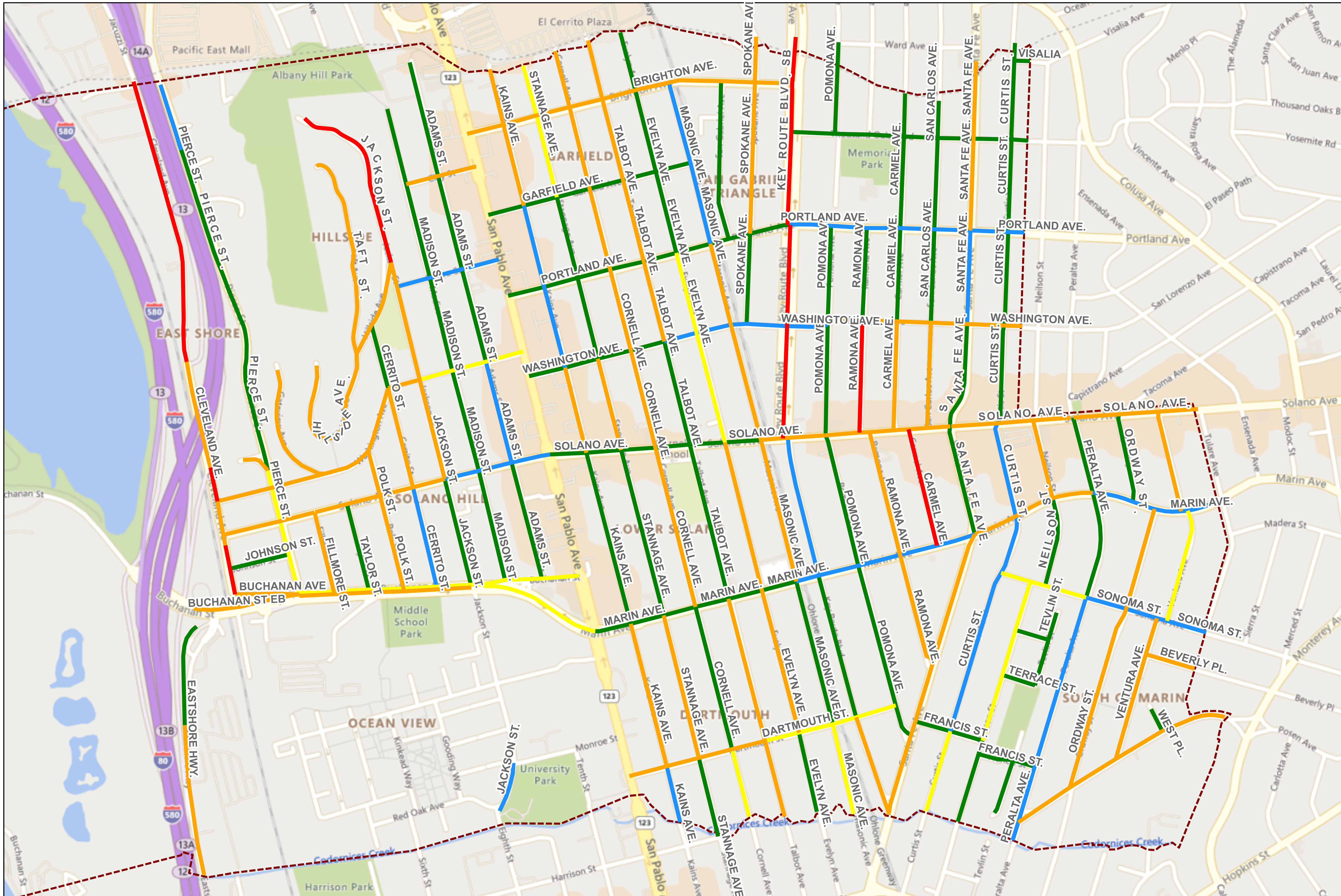
Current PCI Condition

Printed: 1/7/2022

Feature Legend

- Category I - Very Good
- Category II - Good (Non-Load)
- Category III - Good (Load)
- Category IV - Poor
- Category V - Very Poor

0 500 1000 2000 Feet



Appendix A
Summarized System Information

Network Summary Statistics

Printed: 01/06/2022

	Total Sections	Total Center Miles	Total Lane Miles	Total Area (sq. ft.)	PCI
Arterial	40	5.87	12.08	1,230,294	54
Collector	41	6.26	12.52	1,189,498	57
Residential/Local	86	11.53	23.06	1,713,180	54
Other	47	6.68	13.25	1,025,554	60
Total	214	30.34	60.91	5,158,526	
				Overall Network PCI as of 1/6/2022:	56

Network Replacement Cost

Printed: 01/06/2022

Functional Class	Surface Type	Lane Miles	Unit Cost/ Square Foot	Pavement Area/ Square Feet	Cost To Replace (in thousands)
Arterial	AC	8.2	$30.00	856,998	$25,711
	AC/AC	1.4	$30.00	111,325	$3,340
	AC/PCC	1.2	$30.00	176,868	$5,306
	PCC	1.2	$30.00	85,103	$2,553
Collector	AC	10.6	$21.94	996,198	$21,854
	AC/AC	1.9	$21.94	193,300	$4,241
Other	AC	12.1	$17.87	939,248	$16,781
	AC/AC	1.1	$17.87	86,306	$1,542
Residential/Local	AC	20.9	$17.87	1,549,413	$27,683
	AC/AC	2.2	$17.87	163,767	$2,926
	Grand Total:	60.9		5,158,526	$111,937

Decision Tree

Printed: 01/05/2022

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Arterial	AC	I - Very Good	Crack Treatment	SEAL CRACKS	$2.13	3		
			Surface Treatment	LIGHT MAINTENANCE	$12.75		7	
			Restoration Treatment	LIGHT REHABILITATION	$119.38			2
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$35.70			
		III - Good, Load Related		LIGHT REHABILITATION	$119.38			
		IV - Poor		HEAVY REHABILITATION	$153.33			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$270.01			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	$2.13	3		
			Surface Treatment	LIGHT MAINTENANCE	$12.75		7	
			Restoration Treatment	LIGHT REHABILITATION	$119.38			2
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$35.70			
		III - Good, Load Related		LIGHT REHABILITATION	$119.38			
		IV - Poor		HEAVY REHABILITATION	$153.33			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$270.01			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	$2.13	3		
			Surface Treatment	LIGHT MAINTENANCE	$12.75		7	
			Restoration Treatment	LIGHT REHABILITATION	$119.38			2
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$35.70			
		III - Good, Load Related		LIGHT REHABILITATION	$119.38			
		IV - Poor		HEAVY REHABILITATION	$153.33			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$270.01			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	99		
			Surface Treatment	DO NOTHING	$0.00		15	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$0.00			
		III - Good, Load Related		DO NOTHING	$0.00			
		IV - Poor		DO NOTHING	$44.00			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$270.01			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 01/05/2022

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Arterial	ST	I - Very Good	Crack Treatment	DO NOTHING	$0.00	9		
			Surface Treatment	DO NOTHING	$0.00		15	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$1.11			
		III - Good, Load Related		DO NOTHING	$1.51			
		IV - Poor		DO NOTHING	$1.92			
		V - Very Poor		DO NOTHING	$7.67			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 01/05/2022

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Collector	AC	I - Very Good	Crack Treatment	SEAL CRACKS	$1.75	4		
			Surface Treatment	LIGHT MAINTENANCE	$10.82		7	
			Restoration Treatment	LIGHT REHABILITATION	$90.73			3
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$29.01		7	
		III - Good, Load Related		LIGHT REHABILITATION	$90.73			
		IV - Poor		HEAVY REHABILITATION	$131.28			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$197.44			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	$1.75	4		
			Surface Treatment	LIGHT MAINTENANCE	$10.82		7	
			Restoration Treatment	LIGHT REHABILITATION	$90.73			3
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$29.01		7	
		III - Good, Load Related		LIGHT REHABILITATION	$90.73			
		IV - Poor		HEAVY REHABILITATION	$131.28			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$197.44			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	$1.75	4		
			Surface Treatment	LIGHT MAINTENANCE	$10.82		7	
			Restoration Treatment	LIGHT REHABILITATION	$90.73			3
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$29.01		7	
		III - Good, Load Related		LIGHT REHABILITATION	$90.73			
		IV - Poor		HEAVY REHABILITATION	$131.28			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$197.44			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	99		
			Surface Treatment	DO NOTHING	$0.00		15	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$0.00			
		III - Good, Load Related		DO NOTHING	$0.00			
		IV - Poor		DO NOTHING	$21.50			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$197.44			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 01/05/2022

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Collector	ST	I - Very Good	Crack Treatment	DO NOTHING	$0.00	9		
			Surface Treatment	DO NOTHING	$0.00		15	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$1.11			
		III - Good, Load Related		DO NOTHING	$1.51			
		IV - Poor		DO NOTHING	$1.92			
		V - Very Poor		DO NOTHING	$7.47			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 01/05/2022

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Residential/Local	AC	I - Very Good	Crack Treatment	SEAL CRACKS	$1.54	4		
			Surface Treatment	LIGHT MAINTENANCE	$8.88		8	
			Restoration Treatment	LIGHT REHABILITATION	$75.41			3
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$24.05		8	
		III - Good, Load Related		LIGHT REHABILITATION	$75.41			
		IV - Poor		HEAVY REHABILITATION	$109.16			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$160.80			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	$1.54	4		
			Surface Treatment	LIGHT MAINTENANCE	$8.88		8	
			Restoration Treatment	LIGHT REHABILITATION	$75.41			3
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$24.05		8	
		III - Good, Load Related		LIGHT REHABILITATION	$75.41			
		IV - Poor		HEAVY REHABILITATION	$109.16			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$160.80			
	AC/PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.60	4		
			Surface Treatment	DO NOTHING	$2.60		8	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$2.60			
		III - Good, Load Related		DO NOTHING	$14.00			
		IV - Poor		DO NOTHING	$19.00			
		V - Very Poor		DO NOTHING	$39.00			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	99		
			Surface Treatment	DO NOTHING	$0.00		15	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$0.00			
		III - Good, Load Related		DO NOTHING	$0.00			
		IV - Poor		DO NOTHING	$29.00			
		V - Very Poor		DO NOTHING	$32.00			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 01/05/2022

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Residential/Local	ST	I - Very Good	Crack Treatment	DO NOTHING	$0.00	9		
			Surface Treatment	DO NOTHING	$0.00		15	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$1.11			
		III - Good, Load Related		DO NOTHING	$1.51			
		IV - Poor		DO NOTHING	$1.92			
		V - Very Poor		DO NOTHING	$7.27			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 01/05/2022

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Other	AC	I - Very Good	Crack Treatment	SEAL CRACKS	$1.54	4		
			Surface Treatment	LIGHT MAINTENANCE	$8.88		8	
			Restoration Treatment	LIGHT REHABILITATION	$75.41			3
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$24.05		8	
		III - Good, Load Related		LIGHT REHABILITATION	$75.41			
		IV - Poor		HEAVY REHABILITATION	$109.16			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$160.80			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	$1.54	4		
			Surface Treatment	LIGHT MAINTENANCE	$8.88		8	
			Restoration Treatment	LIGHT REHABILITATION	$75.41			3
		II - Good, Non-Load Related		HEAVY MAINTENANCE	$24.05		8	
		III - Good, Load Related		LIGHT REHABILITATION	$75.41			
		IV - Poor		HEAVY REHABILITATION	$109.16			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$160.80			
	AC/PCC	I - Very Good	Crack Treatment	DO NOTHING	$1.60	4		
			Surface Treatment	DO NOTHING	$1.74		8	
			Restoration Treatment	DO NOTHING	$15.04			3
		II - Good, Non-Load Related		DO NOTHING	$1.52			
		III - Good, Load Related		DO NOTHING	$5.95			
		IV - Poor		DO NOTHING	$6.14			
		V - Very Poor		DO NOTHING	$8.75			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	99		
			Surface Treatment	DO NOTHING	$0.00		15	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$0.00			
		III - Good, Load Related		DO NOTHING	$0.00			
		IV - Poor		DO NOTHING	$39.00			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	$160.80			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 01/05/2022

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Other	ST	I - Very Good	Crack Treatment	DO NOTHING	$0.00	9		
			Surface Treatment	DO NOTHING	$0.00		15	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		DO NOTHING	$1.11			
		III - Good, Load Related		DO NOTHING	$1.51			
		IV - Poor		DO NOTHING	$1.92			
		V - Very Poor		DO NOTHING	$7.27			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Appendix B
Budget Scenarios

Needs Analysis
&
Zero Budget
($43.8 Million over 5 Years)

- Projected PCI/Cost Summary

Needs - Projected PCI/Cost Summary

Inflation Rate = 0.00 %

Printed 01/05/2022

Year	PCI Treated	PCI Untreated	PM Cost	Rehab Cost	Cost
2022	89	56	$619,953	$37,685,352	$38,305,305
2023	85	54	$43,633	$936,436	$980,069
2024	83	51	$377,432	$441,282	$818,714
2025	82	48	$1,381,983	$195,350	$1,577,333
2026	83	45	$2,085,657	$25,151	$2,110,808

% PM	PM Total Cost	Rehab Total Cost	Total Cost
10.30%	$4,508,658	$39,283,571	$43,792,229

Maintain PCI

($14.1 Million over 5 Years)

- Pavement Network Condition Lane Miles
- Network Condition Summary
- Cost Summary

Target-Driven Scenarios
Pavement Network Condition Lane Miles

Interest: 3.00% Inflation: .00% Printed: 01/06/2022

Scenario: Maintain 56

Objective: Minimum Network Average PCI Target: By Year

Year	Value	Year	Value	Year	Value	Year	Value
Year 1	56	Year 2	56	Year 3	56	Year 4	56
Year 5	56						

Annual budget needs to meet target objectives

Year	Arterial	Collector	Res/Loc	Other	Preventative Maintenance	Total
2022	$0	$0	$0	$0	$0	$0
2023	$67,546	$226,408	$1,383,158	$278,259	$663,655	$1,955,371
2024	$4,241,678	$0	$178,179	$291,686	$122,974	$4,711,543
2025	$1,844,208	$118,000	$1,456,797	$225,598	$80,827	$3,644,603
2026	$262,546	$1,688,702	$1,179,127	$637,992	$425,971	$3,768,367

Average Yearly Total: $2,815,977
Grand Total: $14,079,884

Pavement Network prior to treatments in lane miles.

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	54	6.3%	9.7%	10
Collector	57	6.8%	10.4%	10
Other	60	8.7%	8.0%	16
Residential	55	12.8%	14.6%	14

Pavement Network after schedulable treatments applied in lane miles.

2022

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	54	6.3%	9.7%	10
Collector	57	6.8%	10.4%	10
Other	60	8.7%	8.0%	16
Residential	55	12.8%	14.6%	14

2023

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	52	4.3%	12.1%	10
Collector	55	6.4%	10.9%	9
Other	60	9.2%	8.0%	16
Residential	57	15.3%	15.9%	16

Pavement Network after schedulable treatments applied in lane miles.

2024

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	60	10.4%	8.8%	14
Collector	51	5.1%	10.9%	9
Other	59	9.6%	8.0%	16
Residential	55	15.3%	16.8%	16

2025

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	61	11.6%	8.0%	15
Collector	48	5.3%	12.1%	8
Other	58	9.4%	7.9%	16
Residential	57	17.9%	15.3%	17

2026

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	59	11.3%	8.0%	15
Collector	49	7.5%	10.9%	10
Other	59	10.0%	7.6%	17
Residential	58	19.1%	14.1%	19

Target-Driven Scenarios
Network Condition Summary

Interest: 3% Inflation: 0% Printed: 01/06/2022

Scenario: Maintain 56

Objective: Minimum Network Average PCI Target: By Year

Year	Value	Year	Value	Year	Value	Year	Value
Year 1	56	Year 2	56	Year 3	56	Year 4	56
Year 5	56						

Projected Network Average PCI by year

Year	Never Treated	With Selected Treatment
2022	56	56
2023	54	56
2024	51	56
2025	48	56
2026	45	56

Percent Network Area by Functional Classification and Condition Class

Condition in base year 2022, prior to applying treatments.

Condition Class	Arterial	Collector	Res/Loc	Other	Total
I	6.3%	6.8%	12.8%	8.7%	34.6%
II / III	7.9%	5.9%	5.7%	3.2%	22.7%
IV	8.1%	9.6%	13.3%	7.5%	38.4%
V	1.6%	0.8%	1.4%	0.5%	4.2%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Condition in year 2022 after schedulable treatments applied.

Condition Class	Arterial	Collector	Res/Loc	Other	Total
I	6.3%	6.8%	12.8%	8.7%	34.6%
II / III	7.9%	5.9%	5.7%	3.2%	22.7%
IV	8.1%	9.6%	13.3%	7.5%	38.4%
V	1.6%	0.8%	1.4%	0.5%	4.2%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Condition in year 2026 after schedulable treatments applied.

Condition Class	Arterial	Collector	Res/Loc	Other	Total
I	11.3%	7.5%	19.1%	10.0%	47.9%
II / III	4.5%	4.7%	0.0%	2.2%	11.5%
IV	3.5%	3.5%	5.0%	4.2%	16.2%
V	4.5%	7.3%	9.1%	3.4%	24.4%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Scenarios Criteria: Bike Path - Exclude in Report <> 1

Target-Driven Scenarios - Cost Summary

Interest: 3% Inflation: 0% Printed: 01/06/2022

Scenario: Maintain 56

Objective: Minimum Network Average PCI Target: By Year

Year	Value	Year	Value	Year	Value	Year	Value
Year 1	56	Year 2	56	Year 3	56	Year 4	56
Year 5	56						

Year		Rehabilitation	Preventive Maintenance		Total Cost	Deferred
2022	II	$0	Non-Project	$0	$0	$38,305,222
	III	$0				
	IV	$0	Project	$0		
	V	$0				
	Total	$0				
	Project	$0				
2023	II	$90,197	Non-Project	$663,655	$1,955,371	$40,209,034
	III	$1,201,519				
	IV	$0	Project	$0		
	V	$0				
	Total	$1,291,716				
	Project	$0				
2024	II	$468,113	Non-Project	$122,974	$4,711,543	$39,458,208
	III	$481,354				
	IV	$3,639,102	Project	$0		
	V	$0				
	Total	$4,588,569				
	Project	$0				
2025	II	$217,987	Non-Project	$80,827	$3,644,603	$39,955,977
	III	$227,001				
	IV	$3,118,788	Project	$0		
	V	$0				
	Total	$3,563,776				
	Project	$0				
2026	II	$25,151	Non-Project	$425,971	$3,768,367	$39,270,898
	III	$166,154				
	IV	$3,151,091	Project	$0		
	V	$0				
	Total	$3,342,396				
	Project	$0				

Year	Rehabilitation	Preventive Maintenance	Total Cost	Deferred

Summary

Functional Class	Rehabilitation	Prev. Maint.
Arterial	$6,200,281	$215,697
Collector	$1,746,896	$286,214
Other	$1,083,680	$349,855
Residential/Local	$3,755,600	$441,661
Total:	$12,786,457	$1,293,427

Grand Total: $14,079,884

Current Funding

($9.4 Million over 5 Years)

- Network Condition Summary
- Cost Summary
- Sections Selected for Treatment
- GIS Maps of Treatments by year

Scenarios - Network Condition Summary

Interest: 3% Inflation: 0% Printed: 01/05/2022

Scenario: Current Budget

Year	Budget	PM	Year	Budget	PM	Year	Budget	PM
2022	$1,800,000	5%	2024	$1,900,000	5%	2026	$1,900,000	5%
2023	$1,900,000	5%	2025	$1,900,000	5%			

Projected Network Average PCI by year

Year	Never Treated	With Selected Treatment	Treated Centerline Miles	Treated Lane Miles
2022	56	58	5.02	10.04
2023	54	57	1.43	2.86
2024	51	55	1.82	3.63
2025	48	54	1.20	2.39
2026	45	53	3.58	7.16

Percent Network Area by Functional Class and Condition Category

Condition in base year 2022, prior to applying treatments.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	6.3%	6.8%	12.8%	8.7%	34.6%
II / III	7.9%	5.9%	5.7%	3.2%	22.7%
IV	8.1%	9.6%	13.3%	7.5%	38.4%
V	1.6%	0.8%	1.4%	0.5%	4.2%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Condition in year 2022 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	6.3%	6.8%	17.0%	10.3%	40.4%
II / III	7.9%	5.9%	1.6%	1.6%	17.0%
IV	8.1%	9.6%	13.3%	7.5%	38.4%
V	1.6%	0.8%	1.4%	0.5%	4.2%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Condition in year 2026 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	11.4%	4.7%	16.2%	8.9%	41.1%
II / III	4.5%	5.3%	1.3%	2.2%	13.4%
IV	3.5%	5.7%	6.6%	5.4%	21.1%
V	4.5%	7.3%	9.1%	3.4%	24.4%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Scenarios - Cost Summary

Interest: 3.00% Inflation: .00% Printed: 01/05/2022

Scenario: Current Budget

Year	PM	Budget	Rehabilitation		Preventative Maintenance	Surplus PM	Deferred		Stop Gap
2022	5%	$1,800,000	II $371,303	Non-Project	$117,859	$0	$36,507,727	Funded	$0
			III $1,308,350					Unmet	$73,223
			IV $0	Project	$0				
			V $0						
			Total $1,679,653						
			Project $0						
2023	5%	$1,900,000	II $341,411	Non-Project	$132,497	$0	$38,168,693	Funded	$0
			III $315,753					Unmet	$282
			IV $1,107,656	Project	$0				
			V $0						
			Total $1,764,820						
			Project $0						
2024	5%	$1,900,000	II $178,974	Non-Project	$120,280	$0	$40,234,825	Funded	$0
			III $105,574					Unmet	$937
			IV $1,489,755	Project	$0				
			V $0						
			Total $1,774,303						
			Project $0						
2025	5%	$1,900,000	II $207,806	Non-Project	$106,692	$0	$43,486,413	Funded	$0
			III $181,588					Unmet	$457
			IV $1,402,461	Project	$0				
			V $0						
			Total $1,791,855						
			Project $0						
2026	5%	$1,900,000	II $25,151	Non-Project	$103,892	$0	$43,379,374	Funded	$0
			III $0					Unmet	$0
			IV $1,763,381	Project	$0				
			V $0						
			Total $1,788,532						
			Project $0						

Summary

Functional Class	Rehabilitation	Prev. Maint.	Funded Stop Gap	Unmet Stop Gap
Arterial	$6,210,945	$149,513	$0	$20,698
Collector	$207,806	$101,189	$0	$20,103
Other	$476,035	$81,831	$0	$11,597
Residential/Local	$1,904,377	$248,687	$0	$22,501
Grand Total:	$8,799,163	$581,220	$0	$74,899

Scenarios - Sections Selected for Treatment

Interest: 3.00% Inflation: .00% Printed: 01/05/2022

Scenario: Current Budget

Year	Budget	PM	Year	Budget	PM	Year	Budget	PM
2022	$1,800,000	5%	2024	$1,900,000	5%	2026	$1,900,000	5%
2023	$1,900,000	5%	2025	$1,900,000	5%			

Year: 2022

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
CERRITO ST.	SOLANO AVE.	BUCHANAN ST.	CERRIT	30	700	30	21,000	R	AC	8	51	51	64	$56,117	4,724	HEAVY MAINTENANCE
CURTIS ST.	SONOMA AVE	FRANCIS ST	CURTIS	60	1,207	31	37,417	R	AC	12	58	58	69	$99,987	4,569	HEAVY MAINTENANCE
JACKSON ST.	MONROE ST	CITY LIMIT (BERKELEY)	JACKSO	50	350	51	17,850	O	AC	12	67	67	76	$47,700	5,519	HEAVY MAINTENANCE
KAINS AVE.	GARFIELD AVE.	PORTLAND AVE.	KAINS	20	589	26	15,314	O	AC	8	61	61	71	$40,923	5,215	HEAVY MAINTENANCE
KAINS AVE.	PORTLAND AVE.	WASHINGTON AVE.	KAINS	30	589	27	15,903	O	AC	8	64	64	74	$42,497	5,549	HEAVY MAINTENANCE
SONOMA ST.	PERALTA AVE.	CITY LIMIT (BERKELEY)	SONOMA	20	874	36	31,464	O	AC	8	61	61	71	$84,079	4,827	HEAVY MAINTENANCE
												Treatment Total		$371,303		
CORNELL AVE.	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	CORNEL	80	494	26	12,844	R	AC	8	57	57	100	$107,619	5,230	LIGHT REHABILITATION
CURTIS ST.	FRANCIS ST.	CITY LIMIT (BERKELEY)	CURTIS	70	596	30	17,880	R	AC	8	58	58	100	$149,815	5,197	LIGHT REHABILITATION
EVELYN AVE.	PORTLAND AVE.	WASHINGTON AVE.	EVELYN	30	589	30	17,670	R	AC	4	54	54	100	$148,055	5,486	LIGHT REHABILITATION
EVELYN AVE.	WASHINGTON AVE.	SOLANO AVE.	EVELYN	40	792	30	23,760	R	AC	12	57	57	100	$199,083	5,219	LIGHT REHABILITATION
NEILSON ST.	SONOMA ST.	FRANCIS ST. (N)	NEILSE	30	1,298	21	27,258	R	AC	8	50	50	100	$228,392	5,694	LIGHT REHABILITATION
STANNAGE AVE.	NORTH END	BRIGHTON AVE	STANNA	10	370	30	11,100	R	AC	4	53	53	100	$93,006	5,578	LIGHT REHABILITATION
VENTURA AVE.	MARIN AVE.	SONOMA ST.	VENTUR	20	726	36	26,136	R	AC	8	52	52	100	$218,991	5,592	LIGHT REHABILITATION
WASHINGTON AVE.	JACKSON ST.	SAN PABLO AV	WASHIN	40	750	26	19,500	R	AC	8	57	57	100	$163,389	5,243	LIGHT REHABILITATION
												Treatment Total		$1,308,350		
EASTSHORE HWY LOOP	EASTSHORE HWY	END/ UNDER BRIDGE	ESHWYLOOP	10	350	24	8,400	O	AC		75	75	83	$8,288	17,141	LIGHT MAINTENANCE
JACKSON ST.	SOLANO AVE.	BUCHANAN ST.	JACKSO	40	752	40	30,080	C	AC/AC	12	89	89	94	$36,163	15,567	LIGHT MAINTENANCE
OCEAN VIEW BIKE PATH	70' W/O JACKSON ST	USDA ENTRANCE	OCEAN	20	625	8	5,000	O	AC		76	76	84	$4,934	18,602	LIGHT MAINTENANCE
PERALTA AVE.	MARIN AVE.	SONOMA ST.	PERALT	20	750	37	27,750	C	AC/AC	8	84	84	91	$33,362	19,168	LIGHT MAINTENANCE
PORTLAND AVE.	CORNELL AVE.	TALBOT AVE.	PORTLA	15	259	36	9,324	C	AC/AC	8	89	89	95	$11,210	15,581	LIGHT MAINTENANCE
STANNAGE AVE.	BRIGHTON AVE	GARFIELD AVE	STANNA	15	596	30	17,880	R	AC		74	74	83	$17,642	17,531	LIGHT MAINTENANCE
WEST PL.	POSEN AVE.	END	WESTP	10	207	21	4,347	R	AC/AC	4	87	87	93	$4,290	13,173	LIGHT MAINTENANCE
												Treatment Total		$115,889		
CARMEL AVE.	CITY LIMIT (EL CERRITO)	PORTLAND AVE.	CARMEL	10	981	30	29,430	O	AC	12	79	79	81	$149	762,328	SEAL CRACKS

** - Treatment from Project Selection

Scenarios Criteria: Bike Path - Exclude in Report <> 1

Scenarios - Sections Selected for Treatment

Interest: 3.00% Inflation: .00% Printed: 01/05/2022

Scenario: Current Budget

Year: 2022

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
CURTIS ST.	CITY LIMIT (KENSINGTON)	PORTLAND AVE.	CURTIS	10	1,318	28	36,904	O	AC	8	82	82	83	$155	816,922	SEAL CRACKS
CURTIS ST.	PORTLAND AVE.	WASHINGTON AVE.	CURTIS	20	661	26	17,186	R	AC	8	82	82	83	$72	816,922	SEAL CRACKS
GARFIELD AVE.	SAN PABLO AV	CORNELL AVE.	GARFIE	10	730	32	23,360	R	AC	8	75	75	77	$143	872,581	SEAL CRACKS
MADISON ST.	NORTH END	CLAY ST.	MADISO	10	404	27	10,908	R	AC/AC	8	84	84	85	$30	1,465,235	SEAL CRACKS
MADISON ST.	CLAY ST.	CASTRO. ST.	MADISO	20	668	30	20,040	R	AC	8	82	82	83	$84	816,426	SEAL CRACKS
MADISON ST.	CASTRO. ST.	WASHINGTON AVE.	MADISO	30	668	29	19,372	R	AC	4	82	82	83	$81	816,426	SEAL CRACKS
MADISON ST.	WASHINGTON AVE.	SOLANO AVE.	MADISO	40	718	30	21,540	R	AC	8	81	81	83	$97	803,822	SEAL CRACKS
PIERCE ST.	404' S/O CITY LIMIT	1946' S/O CITY LIMIT	PIERCE	20	1,542	37	57,054	A	AC	8	78	78	80	$420	731,699	SEAL CRACKS
RAMONA AVE.	PORTLAND AVE.	WASHINGTON AVE.	ROMONA	20	661	30	19,830	O	AC	12	80	80	82	$95	777,655	SEAL CRACKS
SAN CARLOS AVE.	CITY LIMIT (EL CERRITO)	PORTLAND AVE.	SANCA	10	979	30	29,370	R	AC	12	83	83	84	$114	838,120	SEAL CRACKS
SAN CARLOS AVE.	PORTLAND AVE.	WASHINGTON AVE.	SANCA	20	664	30	19,920	R	AC	12	84	84	85	$72	858,601	SEAL CRACKS
SAN GABRIEL AVE.	BRIGHTON AV	PORTLAND AVE.	SANGA	10	1,124	30	33,720	R	AC/AC	8	84	84	85	$90	1,622,868	SEAL CRACKS
STANNAGE AVE.	GARFIELD AVE.	PORTLAND AVE.	STANNA	20	591	30	17,730	R	AC	8	73	73	75	$120	646,387	SEAL CRACKS
STANNAGE AVE.	PORTLAND AVE.	WASHINGTON AVE.	STANNA	30	586	30	17,580	R	AC	8	69	69	72	$135	701,947	SEAL CRACKS
TALBOT AVE.	WASHINGTON AVE.	SOLANO AVE.	TALBOT	40	743	30	22,290	O	AC/AC	8	79	79	81	$113	840,436	SEAL CRACKS
													Treatment Total		$1,970	
					Year 2022 Area Total		794,111						Year 2022 Total		$1,797,512	

Year: 2023

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
MARIN AVE.	SANTA FE AVE.	PERALTA AVE.	MARIN	50	1,032	63	65,016	A	AC	8	45	41	100	$1,107,656	4,788	HEAVY REHABILITATION
													Treatment Total		$1,107,656	
SOLANO AVE.	SAN PABLO AV	MASONIC AVE.	SOLANO	30	1,510	57	86,070	A	AC	12	70	68	77	$341,411	4,819	HEAVY MAINTENANCE
													Treatment Total		$341,411	
PIERCE ST.	CALHOUN ST.	SOLANO AVE.	PIERCE	40	488	30	14,640	A	AC/AC	8	66	63	100	$194,192	4,860	LIGHT REHABILITATION
STANNAGE AVE.	DARTMOUTH ST.	CITY LIMIT (BERKELEY)/ HARRISON ST	STANNA	70	558	26	14,508	R	AC	8	61	59	100	$121,561	5,157	LIGHT REHABILITATION
													Treatment Total		$315,753	
BUCHANAN ST WB	END PCC BRIDGE	580 OFF RAMP	BUCHANWB	50	615	35	21,525	A	AC		75	73	81	$30,494	13,902	LIGHT MAINTENANCE

** - Treatment from Project Selection

Scenarios Criteria: Bike Path - Exclude in Report <> 1

Scenarios - Sections Selected for Treatment

Interest: 3.00% Inflation: .00% Printed: 01/05/2022

Scenario: Current Budget

Year: 2023

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
EVELYN AVE.	BRIGHTON AVE	NORTH END	EVELYN	10	462	30	13,860	R	AC/AC	8	89	88	94	$13,676	14,314	LIGHT MAINTENANCE
EVELYN AVE.	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	EVELYN	70	620	30	18,600	R	AC/AC	4	86	85	92	$18,352	13,891	LIGHT MAINTENANCE
FRANCIS ST.	NIELSEN ST.	PERALTA AVE.	FRANCI	20	393	27	10,611	O	AC	8	73	71	80	$10,470	13,163	LIGHT MAINTENANCE
JOHNSON ST.	CLEVELAND AVE.	PIERCE ST.	JOHNSO	10	429	30	12,870	R	AC/AC	8	75	74	82	$12,699	13,840	LIGHT MAINTENANCE
NEILSON ST.	MARIN AVE.	SONOMA ST.	NEILSE	20	610	32	19,520	R	AC/AC	8	87	86	92	$19,260	14,055	LIGHT MAINTENANCE
ORDWAY ST.	SOLANO AVE.	MARIN AVE.	ORDWAY	10	594	36	21,384	R	AC	8	65	63	73	$21,099	14,549	LIGHT MAINTENANCE
TERRACE ST.	NIELSEN ST.	TEVLIN ST.	TERRAC	10	242	27	6,534	R	AC/AC	8	86	85	92	$6,447	13,892	LIGHT MAINTENANCE
													Treatment Total	$132,497		
					Year 2023 Area Total		305,138				Year 2023 Total			$1,897,317		

Year: 2024

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
BUCHANAN ST EB	PIERCE ST.	JACKSON ST.	BUCHANEB	40	1,260	27	34,020	A	AC/AC	12	49	43	100	$579,588	4,749	HEAVY REHABILITATION
SOLANO AVE.	PERALTA AVE	CITY LIMIT (BERKELEY)	SOLANO	50B	954	56	53,424	A	AC/PCC	12	47	41	100	$910,167	4,802	HEAVY REHABILITATION
													Treatment Total	$1,489,755		
CURTIS ST.	SOLANO AVE.	MARIN AVE.	CURTIS	40	631	31	19,561	R	AC	12	54	50	63	$52,272	4,275	HEAVY MAINTENANCE
KEY ROUTE BLVD.	MARIN AVE.	DARTMOUTH ST.	KEYRO	40	1,045	26	27,170	R	AC	8	62	59	70	$72,605	5,223	HEAVY MAINTENANCE
POMONA AVE.	PORTLAND AVE.	WASHINGTON AVE. (S)	POMONA	20	723	28	20,244	O	AC	12	72	69	78	$54,097	4,802	HEAVY MAINTENANCE
													Treatment Total	$178,974		
NEILSON ST.	FRANCIS ST. (N)	CITY LIMIT (BERKELEY)	NEILSE	40	600	21	12,600	R	AC	8	62	58	100	$105,574	5,130	LIGHT REHABILITATION
													Treatment Total	$105,574		
ALBANY TERR	NIELSEN ST.	TEVLIN ST.	ALBANY	10	230	21	4,830	R	AC	8	69	65	75	$4,766	12,721	LIGHT MAINTENANCE
BUCHANAN ST EB	580 OFF RAMP	START PCC BRIDGE	BUCHANEB	10	615	42	25,830	A	AC		79	75	83	$36,593	13,941	LIGHT MAINTENANCE
CERRITO ST.	HILLSIDE AVE.	WASHINGTON AVE.	CERRIT	10	461	23	10,603	R	AC/AC	4	82	79	87	$10,462	13,390	LIGHT MAINTENANCE
FRANCIS ST.	SANTA FE AVE.	NIELSEN ST.	FRANCI	10	475	27	12,825	O	AC	8	73	70	79	$12,654	13,077	LIGHT MAINTENANCE
POMONA AVE.	CITY LIMIT (EL CERRITO)	THOUSAND OAKS BLVD.	POMONA	10	495	28	13,860	R	AC	12	76	73	81	$13,676	13,190	LIGHT MAINTENANCE
POMONA AVE.	MARIN AVE.	SANTA FE AVE.	POMONA	50	1,245	32	39,840	O	AC	4	73	70	79	$39,309	13,088	LIGHT MAINTENANCE
VISALIA	CURTIS ST.	CITY LIMIT (BERKELEY)	VISALI	10	108	26	2,808	R	AC	4	78	75	83	$2,771	13,121	LIGHT MAINTENANCE
													Treatment Total	$120,231		

** - Treatment from Project Selection

Scenarios Criteria: Bike Path - Exclude in Report <> 1

Scenarios - Sections Selected for Treatment

Interest: 3.00% Inflation: .00% Printed: 01/05/2022

Scenario: Current Budget

Year: 2024

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
POMONA AVE.	WASHINGTON AVE. (S)	SOLANO AVE.	POMONA	30	752	28	21,056	O	AC	8	94	89	90	$49	398,170	SEAL CRACKS
													Treatment Total			$49
					Year 2025 Area Total		298,671						Year 2025 Total			$1,894,583

Year: 2025

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
MARIN AVE.	MASONIC AVE.	SANTA FE AVE.	MARIN	40	1,286	60	77,160	A	AC	8	51	41	100	$1,314,550	4,789	HEAVY REHABILITATION
POLK ST.	WASHINGTON AVE.	SOLANO AVE.	POLKS	10	302	24	7,248	R	AC	8	48	41	100	$87,911	4,179	HEAVY REHABILITATION
													Treatment Total			$1,402,461
SANTA FE AVE.	SOLANO AVE.	MARIN AVE.	SANTA	40	753	37	27,861	C	AC/AC	12	74	68	77	$89,806	4,705	HEAVY MAINTENANCE
SOLANO AVE.	JACKSON ST.	SAN PABLO AV.	SOLANO	25	832	44	36,608	C	AC/AC	8	69	63	73	$118,000	5,063	HEAVY MAINTENANCE
													Treatment Total			$207,806
SONOMA ST.	CURTIS ST.	PERALTA AVE.	SONOMA	10	602	36	21,672	O	AC	8	66	61	100	$181,588	4,881	LIGHT REHABILITATION
													Treatment Total			$181,588
OCEAN VIEW BIKE PATH	USDA ENTRANCE	BUCHANAN ST	OCEAN	30	500	11	5,500	O	AC		82	77	85	$5,427	12,886	LIGHT MAINTENANCE
PERALTA AVE.	SOLANO AVE	MARIN AVE.	PERALT	10	500	34	17,000	C	AC/AC	12	87	82	89	$20,438	12,897	LIGHT MAINTENANCE
PIERCE ST.	404' S/O CITY LIMIT	1946' S/O CITY LIMIT	PIERCE	20	1,542	37	57,054	A	AC	8	78	75	83	$80,827	15,218	LIGHT MAINTENANCE
													Treatment Total			$106,692
					Year 2025 Area Total		250,103						Year 2025 Total			$1,898,547

Year: 2026

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
BUCHANAN ST WB	580 OFF RAMP	ALBANY TRAIL	BUCHANWB	60	1,235	48	59,280	A	AC		56	44	100	$1,009,934	4,730	HEAVY REHABILITATION
MARIN AVE.	CORNELL AVE	MASONIC AVE	MARIN	30	725	61	44,225	A	AC		54	41	100	$753,447	4,786	HEAVY REHABILITATION
													Treatment Total			$1,763,381
RAMONA AVE.	CITY LIMIT (EL CERRITO)	THOUSAND OAKS BLVD.	ROMONA	10	362	26	9,412	O	AC	12	70	64	74	$25,151	5,544	HEAVY MAINTENANCE
													Treatment Total			$25,151
GARFIELD AVE.	SAN PABLO AV	CORNELL AVE.	GARFIE	10	730	32	23,360	R	AC	8	75	73	82	$23,049	17,975	LIGHT MAINTENANCE
MADISON ST.	NORTH END	CLAY ST.	MADISO	10	404	27	10,908	R	AC/AC	8	84	81	88	$10,763	13,657	LIGHT MAINTENANCE
SAN GABRIEL AVE.	BRIGHTON AV	PORTLAND AVE.	SANGA	10	1,124	30	33,720	R	AC/AC	8	84	82	89	$33,271	16,650	LIGHT MAINTENANCE

Scenarios - Sections Selected for Treatment

Interest: 3.00% Inflation: .00% Printed: 01/05/2022

Scenario: Current Budget

Year: 2026

Street Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surf Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
STANNAGE AVE.	GARFIELD AVE.	PORTLAND AVE.	STANNA	20	591	30	17,730	R	AC	8	73	70	79	$17,494	13,075	LIGHT MAINTENANCE
STANNAGE AVE.	PORTLAND AVE.	WASHINGTON AVE.	STANNA	30	586	30	17,580	R	AC	8	69	67	77	$17,346	16,452	LIGHT MAINTENANCE
												Treatment Total		$101,923		
BUCHANAN ST WB	END PCC BRIDGE	580 OFF RAMP	BUCHANWB	50	615	35	21,525	A	AC		75	76	78	$176	811,883	SEAL CRACKS
CORNELL AVE.	DARTMOUTH ST.	CITY LIMIT (BERKELEY)	CORNEL	80	494	26	12,844	R	AC	8	57	87	88	$14	1,342,668	SEAL CRACKS
CURTIS ST.	SONOMA AVE	FRANCIS ST	CURTIS	60	1,207	31	37,417	R	AC	12	58	63	66	$328	493,300	SEAL CRACKS
CURTIS ST.	FRANCIS ST.	CITY LIMIT (BERKELEY)	CURTIS	70	596	30	17,880	R	AC	8	58	87	88	$19	1,342,668	SEAL CRACKS
EASTSHORE HWY LOOP	EASTSHORE HWY	END/ UNDER BRIDGE	ESHWYLOOP	10	350	24	8,400	O	AC		75	80	81	$41	793,919	SEAL CRACKS
EVELYN AVE.	PORTLAND AVE.	WASHINGTON AVE.	EVELYN	30	589	30	17,670	R	AC	4	54	87	88	$19	1,342,668	SEAL CRACKS
EVELYN AVE.	WASHINGTON AVE.	SOLANO AVE.	EVELYN	40	792	30	23,760	R	AC	12	57	87	88	$25	1,342,668	SEAL CRACKS
JACKSON ST.	MONROE ST	CITY LIMIT (BERKELEY)	JACKSO	50	350	51	17,850	O	AC	12	67	72	74	$125	716,315	SEAL CRACKS
MARIN AVE.	SANTA FE AVE.	PERALTA AVE.	MARIN	50	1,032	63	65,016	A	AC	8	45	86	87	$129	1,308,650	SEAL CRACKS
NEILSON ST.	SONOMA ST.	FRANCIS ST. (N)	NEILSE	30	1,298	21	27,258	R	AC	8	50	87	88	$29	1,342,668	SEAL CRACKS
OCEAN VIEW BIKE PATH	70' W/O JACKSON ST	USDA ENTRANCE	OCEAN	20	625	8	5,000	O	AC		76	81	83	$22	1,081,966	SEAL CRACKS
PERALTA AVE.	MARIN AVE.	SONOMA ST.	PERALT	20	750	37	27,750	C	AC/AC	8	84	88	88	$16	9,485,146	SEAL CRACKS
PIERCE ST.	CALHOUN ST.	SOLANO AVE.	PIERCE	40	488	30	14,640	A	AC/AC	8	66	86	87	$29	1,308,650	SEAL CRACKS
SOLANO AVE.	SAN PABLO AV	MASONIC AVE.	SOLANO	30	1,510	57	86,070	A	AC	12	70	71	74	$845	701,545	SEAL CRACKS
STANNAGE AVE.	NORTH END	BRIGHTON AVE	STANNA	10	370	30	11,100	R	AC	4	53	87	88	$12	1,342,668	SEAL CRACKS
STANNAGE AVE.	BRIGHTON AVE	GARFIELD AVE	STANNA	15	596	30	17,880	R	AC		74	79	81	$91	972,749	SEAL CRACKS
VENTURA AVE.	MARIN AVE.	SONOMA ST.	VENTUR	20	726	36	26,136	R	AC	8	52	87	88	$28	1,342,668	SEAL CRACKS
WASHINGTON AVE.	JACKSON ST.	SAN PABLO AV	WASHIN	40	750	26	19,500	R	AC	8	57	87	88	$21	1,342,668	SEAL CRACKS
												Treatment Total		$1,969		
									Year 2026 Area Total		673,911	Year 2026 Total		$1,892,424		
									Total Section Area:		2,321,934	Grand Total		$9,380,383		

CITY OF ALBANY

Scenario Treatments

Current Budget - 2022 Project Period - Printed: 1/5/2022

Feature Legend

- HEAVY MAINTENANCE
- LIGHT MAINTENANCE
- LIGHT REHABILITATION

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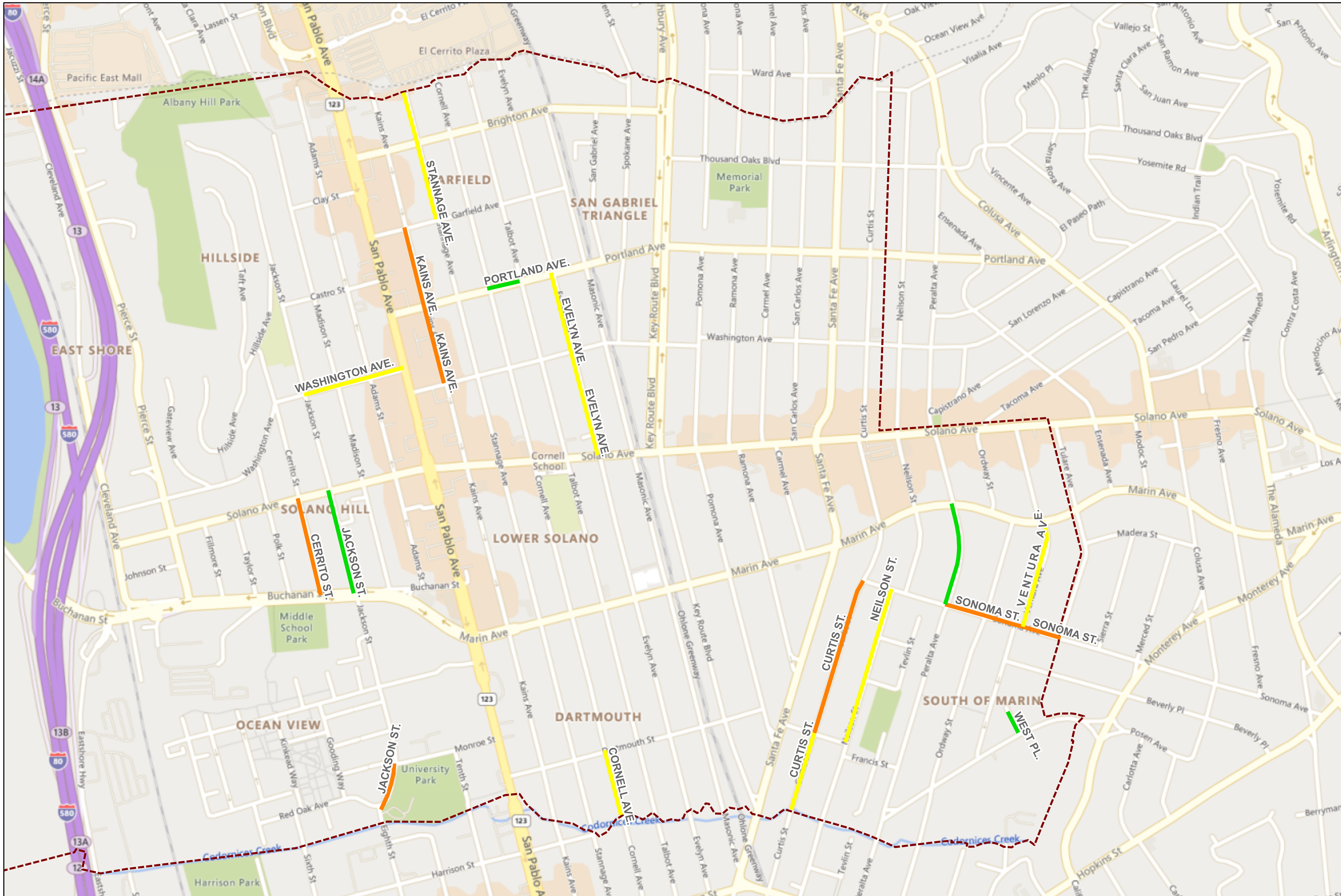


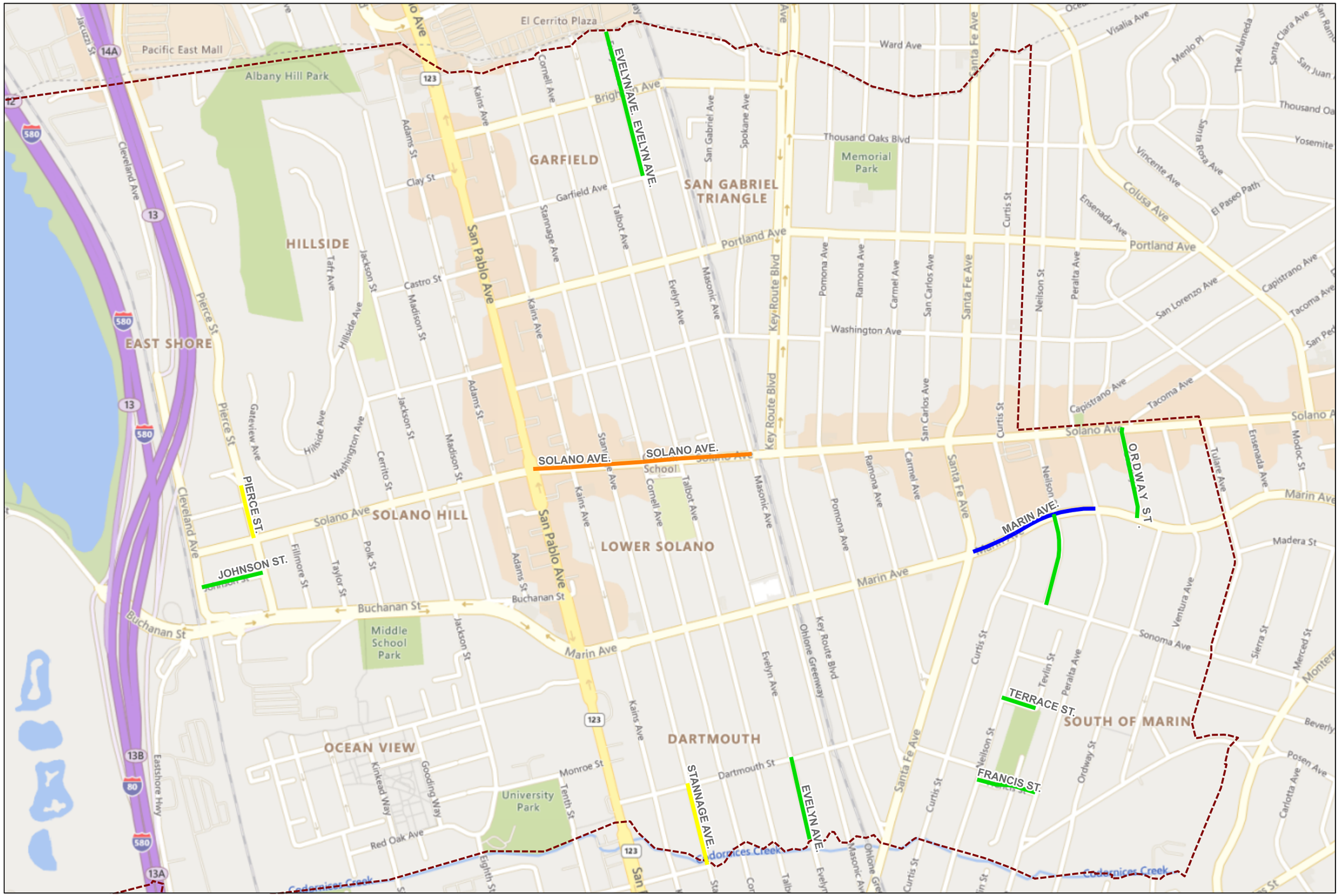
CITY OF ALBANY

Scenario Treatments

Current Budget - 2023 Project Period - Printed: 1/5/2022

Feature Legend

- HEAVY MAINTENANCE
- HEAVY REHABILITATION
- LIGHT MAINTENANCE
- LIGHT REHABILITATION



0 0.1 0.2 0.3 Miles

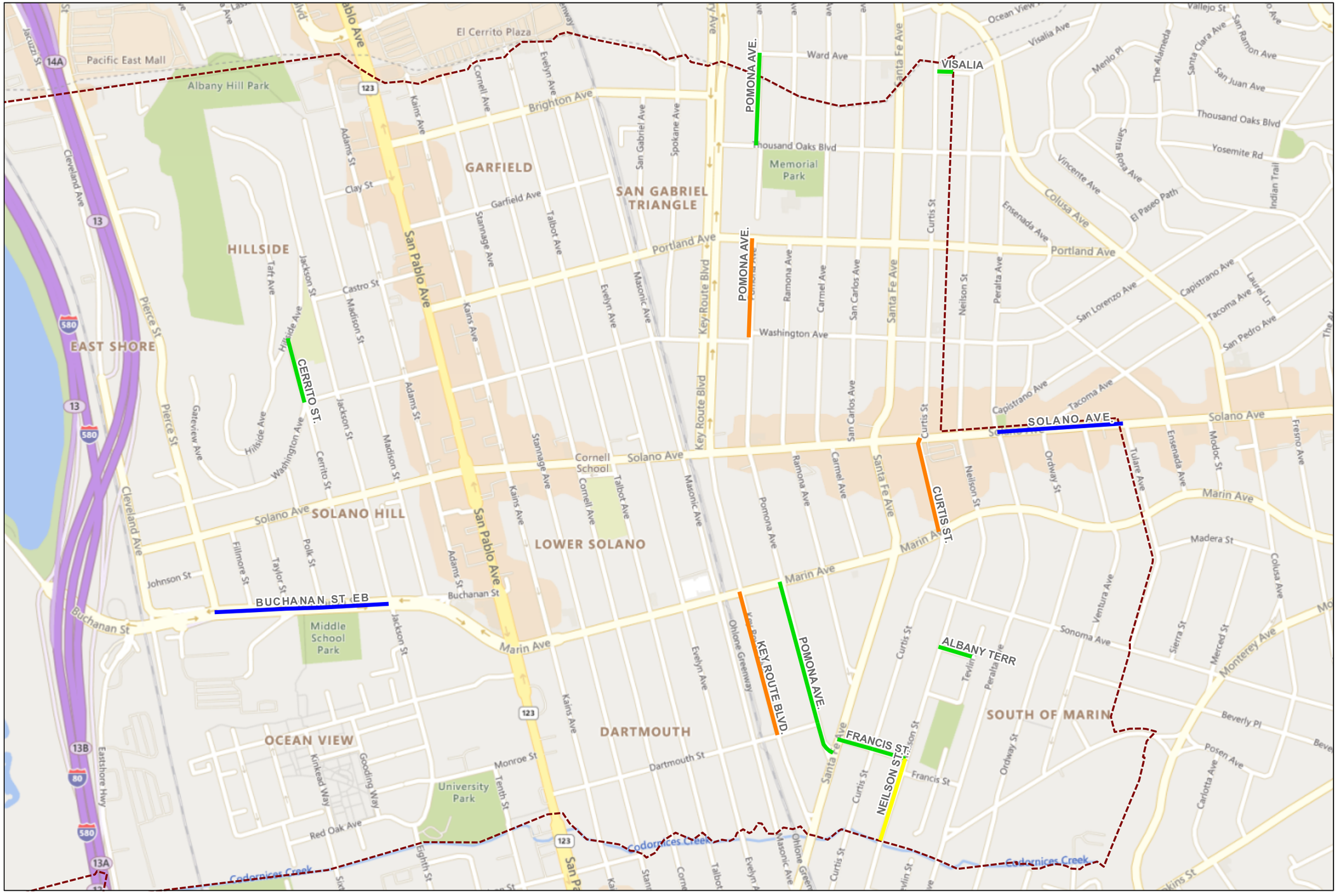
CITY OF ALBANY

Scenario Treatments

Current Budget - 2024 Project Period - Printed: 1/5/2022

Feature Legend

- HEAVY MAINTENANCE
- HEAVY REHABILITATION
- LIGHT MAINTENANCE
- LIGHT REHABILITATION



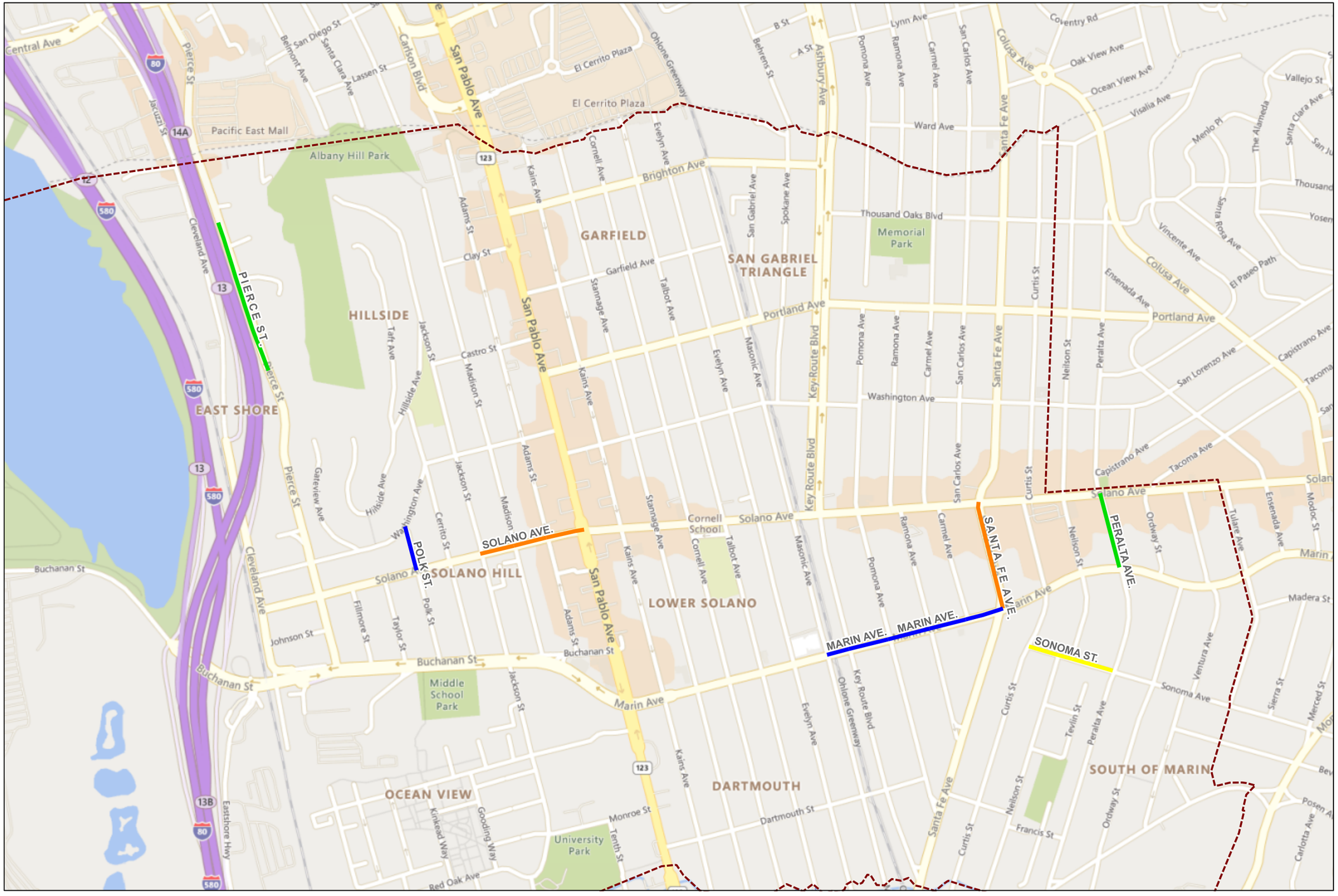
CITY OF ALBANY

Scenario Treatments

Current Budget - 2025 Project Period - Printed: 1/5/2022

Feature Legend

- HEAVY MAINTENANCE
- HEAVY REHABILITATION
- LIGHT MAINTENANCE
- LIGHT REHABILITATION



CITY OF ALBANY

Scenario Treatments

Current Budget - 2026 Project Period - Printed: 1/5/2022

Feature Legend

- LIGHT MAINTENANCE

Increase PCI by 5

($20.8 Million over 5 Years)

- Pavement Network Condition Lane Miles
- Network Condition Summary
- Cost Summary

Target-Driven Scenarios
Pavement Network Condition Lane Miles

Interest: 3.00% Inflation: .00% Printed: 01/06/2022

Scenario: Increase by 5

Objective: Minimum Network Average PCI Target: By Year

Year	Value	Year	Value	Year	Value	Year	Value
Year 1	57	Year 2	58	Year 3	59	Year 4	60
Year 5	61						

Annual budget needs to meet target objectives

Year	Arterial	Collector	Res/Loc	Other	Preventative Maintenance	Total
2022	$67,507	$152,258	$154,902	$76,167	$450,834	$450,834
2023	$3,833,392	$74,150	$1,228,151	$202,167	$212,752	$5,337,860
2024	$3,549,355	$0	$1,241,489	$291,686	$122,974	$5,082,530
2025	$1,150,371	$1,694,956	$2,005,364	$377,877	$81,143	$5,228,568
2026	$263,453	$755,232	$2,190,967	$1,485,826	$427,978	$4,695,478

Average Yearly Total: $4,159,054
Grand Total: $20,795,270

Pavement Network prior to treatments in lane miles.

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	54	6.3%	9.7%	10
Collector	57	6.8%	10.4%	10
Other	60	8.7%	8.0%	16
Residential	55	12.8%	14.6%	14

Pavement Network after schedulable treatments applied in lane miles.

2022

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	55	6.3%	9.7%	11
Collector	58	6.8%	10.4%	10
Other	61	8.7%	8.0%	16
Residential	55	12.8%	14.6%	15

2023

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	62	10.0%	8.4%	14
Collector	55	6.4%	10.9%	9
Other	60	9.2%	8.0%	16
Residential	57	15.3%	15.9%	16

Pavement Network after schedulable treatments applied in lane miles.

2024

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	68	13.9%	5.3%	17
Collector	51	5.1%	10.9%	9
Other	59	9.6%	8.0%	16
Residential	58	17.9%	15.3%	17

2025

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	67	14.6%	5.3%	18
Collector	52	8.7%	10.4%	10
Other	59	9.6%	7.6%	16
Residential	61	20.7%	12.5%	20

2026

Functional Class	PCI	Percentage of the Network in Very Good Condition	Percentage of the Network in Poor or Very Poor Condition	Remaining Life
Arterial	65	14.1%	5.3%	18
Collector	50	9.6%	10.4%	11
Other	63	11.1%	6.5%	19
Residential	65	22.6%	10.6%	22

Target-Driven Scenarios
Network Condition Summary

Interest: 3% Inflation: 0% Printed: 01/06/2022

Scenario: Increase by 5

Objective: Minimum Network Average PCI Target: By Year

Year	Value	Year	Value	Year	Value	Year	Value
Year 1	57	Year 2	58	Year 3	59	Year 4	60
Year 5	61						

Projected Network Average PCI by year

Year	Never Treated	With Selected Treatment
2022	56	57
2023	54	59
2024	51	59
2025	48	60
2026	45	61

Percent Network Area by Functional Classification and Condition Class

Condition in base year 2022, prior to applying treatments.

Condition Class	Arterial	Collector	Res/Loc	Other	Total
I	6.3%	6.8%	12.8%	8.7%	34.6%
II / III	7.9%	5.9%	5.7%	3.2%	22.7%
IV	8.1%	9.6%	13.3%	7.5%	38.4%
V	1.6%	0.8%	1.4%	0.5%	4.2%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Condition in year 2022 after schedulable treatments applied.

Condition Class	Arterial	Collector	Res/Loc	Other	Total
I	6.3%	6.8%	12.8%	8.7%	34.6%
II / III	7.9%	5.9%	5.7%	3.2%	22.7%
IV	8.1%	9.6%	13.3%	7.5%	38.4%
V	1.6%	0.8%	1.4%	0.5%	4.2%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Condition in year 2026 after schedulable treatments applied.

Condition Class	Arterial	Collector	Res/Loc	Other	Total
I	14.1%	9.6%	22.6%	11.1%	57.4%
II / III	4.5%	3.1%	0.0%	2.2%	9.8%
IV	0.8%	3.0%	3.6%	4.2%	11.5%
V	4.5%	7.3%	7.1%	2.4%	21.2%
Total	23.8%	23.1%	33.2%	19.9%	100.0%

Scenarios Criteria: Bike Path - Exclude in Report <> 1

Target-Driven Scenarios - Cost Summary

Interest: 3% Inflation: 0% Printed: 01/06/2022

Scenario: Increase by 5

Objective: Minimum Network Average PCI Target: By Year

Year	Value	Year	Value	Year	Value	Year	Value
Year 1	57	Year 2	58	Year 3	59	Year 4	60
Year 5	61						

Year		Rehabilitation	Preventive Maintenance		Total Cost	Deferred
2022	II	$0	Non-Project	$450,834	$450,834	$37,854,407
	III	$0				
	IV	$0	Project	$0		
	V	$0				
	Total	$0				
	Project	$0				
2023	II	$431,608	Non-Project	$212,752	$5,337,860	$36,375,644
	III	$1,395,711				
	IV	$3,297,789	Project	$0		
	V	$0				
	Total	$5,125,108				
	Project	$0				
2024	II	$278,961	Non-Project	$122,974	$5,082,530	$35,253,833
	III	$287,162				
	IV	$4,393,433	Project	$0		
	V	$0				
	Total	$4,959,556				
	Project	$0				
2025	II	$449,194	Non-Project	$81,143	$5,228,568	$33,982,977
	III	$227,001				
	IV	$4,338,373	Project	$0		
	V	$132,857				
	Total	$5,147,425				
	Project	$0				
2026	II	$25,151	Non-Project	$427,978	$4,695,478	$32,372,794
	III	$166,154				
	IV	$1,312,182	Project	$0		
	V	$2,764,013				
	Total	$4,267,500				
	Project	$0				

Year	Rehabilitation	Preventive Maintenance	Total Cost	Deferred

Summary

Functional Class	Rehabilitation	Prev. Maint.
Arterial	$8,647,197	$216,881
Collector	$2,390,173	$286,423
Other	$2,083,357	$350,366
Residential/Local	$6,378,862	$442,011
Total:	$19,499,589	$1,295,681

Grand Total: $20,795,270

Appendix C
Definitions

DEFINITIONS

This section is intended to define important pavement design acronyms and terms used when discussing a Pavement Management System (PMS).

GENERAL TERMS

AC - Asphaltic Concrete - A plant mixed asphalt binder (asphalt cement that is classified according to the Standard Specification for Performance Graded Asphalt Binder) and aggregate (rocks) thoroughly mixed and compacted into a mass.

ALLIGATOR CRACKING - Alligator or fatigue cracking is a series of interconnecting cracks caused by fatigue failure of the asphalt concrete surface under repeated traffic loading. Cracking begins at the bottom of the asphalt surface (or stabilized base) where the stress and strain are highest under a wheel load. The cracks propagate to the surface initially as a series of parallel longitudinal cracks. After repeated traffic loading, the cracks connect, forming many sided, sharp-angled pieces that develop a pattern resembling chicken wire or the skin of an alligator. Alligator cracking occurs only in areas subjected to repeated traffic loading, such as wheel paths. (Pattern-type cracking that occurs over an entire area not subjected to loading is called “block cracking,” which is not a load-associated distress.)

BLOCK CRACKING - Block cracks are interconnected cracks that divide the pavement into approximately rectangular pieces. Block cracking is caused mainly by shrinkage of the asphalt concrete and daily temperature cycling (which results in daily stress/strain cycling). It is not load-associated. Block cracking usually indicates that the asphalt has hardened significantly. Block cracking normally occurs over a large portion of the pavement area, but sometimes will occur only in non-traffic areas. This type of distress differs from alligator cracking in that alligator cracks form smaller, many-sided pieces with sharp angles. Also, unlike block, alligator cracks are caused by repeated traffic loadings, and are therefore found only in traffic areas (i.e., wheel paths).

CRITICAL PCI - The PCI value at which the rate of loss increases with time, or the cost of applying a maintenance treatment increases significantly.

DISTORTIONS (Bumps & Sags)- Bumps are small, localized, upward displacements of the pavement surface. They are different from shoves in that shoves are caused by unstable pavement. Sags are small, abrupt, downward displacements of the pavement surface. If bumps appear in pattern perpendicular to traffic flow and are spaced at less than 3 m (10 ft), the distress is called corrugation. Distortion and displacement that occur

over large areas of the pavement surface causing large and/or long dips in the pavement should be recorded at “swelling.”

EMULSION - A chemical added to water and asphalt that keeps the asphalt in a stable suspension in the water.

ESAL - The impact of trucks is measured in equivalent single 18,000 pound axle loads (Equivalent Single Axle Load).

FC - Functional Classification is the process by which streets and highways are grouped into classes, or systems, according to the character of traffic service that they are intended to provide. There are three highway functional classifications: arterial, collector, and local roads. All streets and highways are grouped into one of these classes, depending on the character of the traffic.

Arterials - provide the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.

Collectors - provide a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.

Residential/Local - consists of all roads not defined as arterials or collectors and primarily provides access to land with little or no through movement.

- (*Excerpted from the U.S. Department of Transportation, Federal Highway Administration web site on “Functional Classification”.)*

LONGITUDINAL / TRANSVERSE CRACKING - Longitudinal cracks are parallel to the pavement’s centerline or laydown direction. Transverse cracks extend across the pavement at approximately right angles to the pavement centerline or direction of laydown. These types of cracks are not usually load-associated.

OVERLAY - The placement of asphaltic concrete mix over an existing asphaltic concrete or portland cement concrete surface.

Light Overlay - would include any overlay of less than 2 inches of asphalt.

Heavy Overlay - is a thicker layer of asphalt and might include such items/operations as, but not limited to fabric, milling/grinding and reconstruction.

PATCHING & UTILITY CUTS - A patch is an area of pavement that has been replaced with new material to repair the existing pavement. A patch is considered a defect no matter how well it is performing (a patched area or adjacent area usually does not perform as well as an original pavement section). Generally, some roughness is associated with this distress.

PAVEMENT PRESERVATION - Applying the Right Treatment to the Right Pavement at the Right Time using the Right Materials.

PCC - Portland Cement Concrete

PCI - Pavement Condition Index - A rating scale for the condition of a road segment. 100 represents no defects and recent major rehabilitation.

PMS/ PMP - Pavement Management System/ Pavement Management Program - A program to aid in tracking the condition of roads and a means to help quantify the cost of maintaining the roads in a given area.

POTHOLES - Most often are structurally related distresses and should not be confused with raveling and weathering.

PREVENTIVE MAINTENANCE - Provides budget dollars for localized pavement repairs such as digouts and crack filling.

R-VALUE - A test to evaluate the base, subbase and subgrades of an area to be used in pavement designing for thickness of asphalt.

RAVELING - Raveling is the dislodging of coarse aggregate particles. Raveling may be caused by insufficient asphalt binder, poor mixture quality, insufficient compaction, segregation, or stripping. In addition, raveling may be caused by certain types of traffic, i.e., tracked vehicles. Softening of the surface and dislodging of the aggregates due to oil spillage are also included under raveling.

REFLECTIVE CRACKING - Cracks that occur in new “thin” overlays that are identical to the cracks that were present in the existing pavement.

RUTTING / SHOVING - A rut is a surface depression in the wheel paths. Pavement uplift may occur along the sides of the rut, but, in many instances, ruts are noticeable only after a rainfall when the paths are filled with water. Rutting stems from a permanent deformation in any of the pavement layers or subgrades, usually caused by consolidated or lateral movement of the materials due to traffic load.

Shoving is a permanent, longitudinal displacement of a localized area of the pavement surface caused by traffic loading. When traffic pushes against the pavement, it produces a short, abrupt wave in the pavement surface. This distress normally occurs only in unstable liquid asphalt mix (cutback or emulsion) pavements.

SLURRY SEAL - Includes a graded aggregate along with emulsion and water. Generally squeegeed and generally consists of two layers.

TI - Traffic Index - Cars and light trucks have little impact on the pavement structure. Larger/Heavier trucks have very significant impacts on the pavement due to the high axle weights. The total EALs is converted into a design Traffic Index (TI). The design TI is the total number of EALs that the pavement will support before it begins to fail, regardless of the passage of time. Normally for a new pavement, the EALs over a 20_year period are used. For rehabilitation procedures such as overlays, 10 years is generally used.

WEATHERING - Weathering is the loss of the fine aggregate from within the pavement matrix. This distress indicates that either the asphalt binder has hardened appreciably or that a poor quality mixture is present.

STREETSAVER® / REPORT DEFINITIONS

% LOAD RELATED - The percentage of the pavement distress in a management section that is load related distress (caused by excessive weight on the pavement surface).

% OF ENVIRONMENT - The percentage of the pavement distress in a management section that is an environment related distress.

% OTHER - Is the percentage of the pavement section that is not a load related or environment related distress.

ACTIVE - Indicates whether or not the current record is active.

ACTION / TREATMENT - A proposed type of rehabilitation work that should be used on a given road segment, based on PCI, FC and engineering evaluation.

ANNUAL BUDGET - The amount of money that is available each year to be used for pavement maintenance. These funds can come from various sources and can vary from year to year, although it is generally a fixed figure.

AREA - Contains the area of a section in square feet. This is automatically calculated using the values that are entered in the Length and Width fields. However, if the section is irregularly shaped the area can be entered by the user.

AREA ID - Is an optional, jurisdiction defined field to identify the area in which the section is located. For example, each neighborhood or subdivision, or each geographic type (mountain, valley, coast, etc.) in the jurisdiction may be assigned a letter of the alphabet.

BASE BUDGET - Provides an area for you to enter the dollar amount of your base budget.

BASE BUDGET INCREASE FACTOR - Stores the percent that the base budget will increase each year.

BASE PM SPLIT - Percent of the base budget that has been set aside for preventive maintenance.

BEGINNING LOCATION - Identifies the point that defines the beginning of the section. This is generally the name of a cross road or other landmark.

BRANCH - Generally a road name or a road name with a direction of travel.

CL - Centerline Mile - a measuring of the length of a road regardless of the width of the road.

CONDITION - Column lists the condition levels (2-5) that require stop-gap treatments.

COST/ SQ YD - Indicates the cost per square yard of road for the suggested treatment.

CURRENT PCI - Calculated from either a visual inspection or a maintenance treatment.

DESCRIPTION - Displays a description of the item named in the previous column in a grid.

DISTRESS - Contains the type of distress present on a section of a road.

DISTRESSES - Defects found in asphalt concrete (AC) pavements or portland cement concrete (PCC) pavements. These defects degrade the condition of the road.

DETERIORATION CURVE - This provides a graphical representation of the current pavement condition index and the historical PCIs for each section of road in your jurisdiction.

END LOCATION - Identifies the point that defines the end of the section. This is generally the name of a cross road or other landmark.

EVENTS – This provides for viewing and maintaining of Events or changes that have been made on a management section. The Events that are included are:

- Management Section Creation.
- Results from Maintenance and Rehabilitation treatments that have been applied to the Management Section.
- Results from Visual Inspections of Management Sections.
- Listing of changes/edits of information on a Management Section.

EVENT ACTIVE - Indicates whether an Event is currently part of the active history for the current Section.

EVENT PCI - The PCI after the selected Event occurred.

EVENT TRANSACTION TYPE - Includes: Creation, Inspection, Treatment, Split, Combine, Attribute Change and Core Data Change.

EVENT VALID - Indicates if an Event can be activated and made part of the valid events for the current section.

FUNDING SOURCE - Is an optional, jurisdiction defined field to identify the funding source for the section; an example might be G for general fund.

GENERAL CODE - Is an optional, jurisdiction defined field used to identify sections of pavement sharing common characteristics, i.e., drainage type.

INFLATION RATE - Is the inflation used throughout your jurisdiction. You may wish to consult your financial department with this value.

INSPECTION AREA - Is the total area of the inspection unit.

INTEREST RATE - Contains the interest rate used throughout your jurisdiction.

LM - Lane Mile - a measurement of the length of all the lanes for a given FC or area.

LIFE EXTENSION - Is the number of years that a maintenance treatment extends the life of a pavement surface.

MAINTENANCE/ REHABILITATION - This is used to review the proposed maintenance, new maintenance, and/ or rehabilitation for any road section in your jurisdiction.

MAINTENANCE DATE - Displays the date the maintenance was completed.

MANAGEMENT SECTION - This is used to maintain an inventory of all the roads and road sections in your jurisdiction.

MANAGEMENT UNIT - Relates a project to a management unit.

MILEPOSTS - Display the beginning and ending points of a management section.

NEW PCI - Stores the PCI value that was calculated after a treatment was applied.

NUMBER OF SURFACE SEALS BEFORE OVERLAY - Displays the recommended number of surface seals before the application of an overlay.

OLD PCI - Displays the pavement condition index before a treatment was applied.

OPTIMUM PCI – The Optimum PCI refers to the highest PCI level the overall network can achieve within the given “Budget Needs” time frame. That level is dependent on the parameters set in the Decision Tree and where the PCI Breakpoints are set. Changes made to the either the timing, or the treatments, within the Decision Tree, or to the value of each of the PCI Breakpoints will directly affect the Optimum PCI.

OTHER - Displays the weighting factor applied to management sections with functional classes other than arterial, collector, and residential.

OVERLAY - Displays the overlay code that corresponds to an overlay procedure.

OVERLAY CODE - Is an identifier for the treatment type; use one of the six codes from the pop-up list that appears when this is activated.

PCI CAP - Stores the maximum PCI value that will be included in needs and scenario calculations. If a PCI value is larger than the PCI Cap value, it will not be included.

PCI EFFECTIVENESS CUT-OFF - Contains the minimum PCI value used in calculating the area under the projected performance curve. That area is used in ranking sections needing work, and the area below the PCI Cut-Off value is not included in that area. It should generally be the lowest PCI value that defines the minimum acceptable condition for all of the pavement types and functional classification groupings.

PCI HIGH - LOW > 25 - Is marked if the difference between the high and low PCI values is greater than 25.

PCI HIGH VALUE - Is the maximum PCI value for an inspection unit used in the last PCI calculation for a management unit.

PCI LOW VALUE - Is the minimum PCI value for an inspection unit used in the last PCI calculation for a management unit.

PM% - Scenarios based on a yearly budget, this column stores the percent that has been set aside for preventive maintenance.

RATING - The rating is the weighted cost effectiveness ratio of the recommended treatment. Also referred to as Weighted Effectiveness Ratio (WER)

REPLACEMENT COST - Is the cost per square yard to install a new pavement surface.

RESIDENTIAL $ - Indicates the cost of a stop-gap treatment per square yard when applied to a road with a residential functional class and a given condition.

ROAD ID - Contains a two-character identifier that was assigned to the road. The combination of Road Number, Road Name, and Road ID must be unique for each road section.

ROAD NAME - Displays the name of the road that corresponds to the road number and road ID. The combination of Road Number, Road Name, and Road ID must be unique for each road section.

ROAD NUMBER - Contains the number that was assigned to a road. The combination of Road Number, Road Name, and Road ID must be unique for each road section.

SECTION - Usually a branch or road is large and needs to be divided into smaller pieces to maintain. These smaller pieces are labeled as "**Sections**" or "**Segments**" and designated with a number and a beginning and ending location.

SECTION ID - Is an identifier that is unique for each section of a given street. Note that the Street ID and the Section ID combined describe the individual section. Therefore, that combination must be unique. The same Section ID can be reused as long as it is used in conjunction with a different Street ID each time.

SEGMENT LENGTH - Is the length in feet of the management section.

SELECT MANAGEMENT SECTIONS - Allows you to calculate PCI values based on selected management sections. If this button is marked, the management sections that

have had records updated since the last calculations are displayed in a grid. Select the management sections you want included in the calculations from this grid.

SPECIAL - Check box is marked if the displayed inspection unit is non-representative of a section as a whole.

SPECIAL UNIT - The information will either be Y or blank. Y is an indication that this inspection unit is in some way non-representative of the section as a whole, and would receive a different maintenance/rehabilitation treatment from the rest of the section.

STANDARD INSPECTION UNITS - Is the typical number of inspection units that would be used for a particular management section.

STOP-GAP APPLICATION INTERVAL - Indicates the number of years between the applications of stop-gap treatments.

STREET ID - Is an identifier that is unique for each street. The Street ID usually bears some similarity to the actual street name.

STREET NAME - Is the full name of the street including “Street”, “Way”, “Court” etc.

SURFACE - Describes the type of surface for a specific section of road. The options for this field are:

- **A - AC** for asphalt concrete,
- **C - AC/PCC** for asphalt concrete over Portland cement concrete,
- **O - AC/AC** for overlays of asphalt concrete over asphalt concrete,
- **P - PCC** for Portland cement concrete,
- **S - ST** for surface treatment (This Surface Type is not used very often, as it refers to roads that are neither AC or PCC, but have a surface treatment over dirt or gravel.)

TREATMENT - Contains the type of treatment the road received or will receive.

TREATMENT COST - Is an optional field giving the cost in dollars and cents of the treatment.

UNIT OF MEASURE - Displays the units of measure used to measure an item.

UNIT PRICE - Displays the price paid for an inventory item.

VISUAL PCI - Used to identify PCI calculations that have been determined based upon a visual inspection. If this check box is blank, then the PCI was extrapolated based upon the maintenance treatment that has been applied to a management section.

WEIGHTING FACTORS - Section displays the weighting factors established by your jurisdiction for the functional classes.

YEAR OF MAINTENANCE - Stores the proposed year of a treatment.

YEARS BETWEEN CRACK SEALS - Displays the number of years between the application of crack seals for the functional class with a specific severity.

YEARS BETWEEN SURFACE SEALS - Displays the recommended number of years that should come between surface seal application for the functional class with the indicated severity.

YEARS TO CALCULATE - Stores the number of years you want to include in the Budget Needs calculation. The number of years cannot be less than 5 or more than 20.

ZONES - Geographical areas of the city defined by city staff to aid in the development of a maintenance plan for residential roads.