

CITY COUNCIL COMMITTEE

SPECIAL MEETING

INFRASTRUCTURE & FRANCHISE

Laura Hoffmeister, Chair
Edi Birsan, Committee Member

6:15 p.m.
Monday, July 20, 2015
(please note later start time)

Building A, Garden Conference Room
1950 Parkside Drive, Concord

AGENDA

ROLL CALL

PUBLIC COMMENT PERIOD

1. **DISCUSSION** – of Pavement Management Program – Measure Q Lease Financing Expenditure Recommendation. Report by Jeff Rogers, Associate Civil Engineer.
2. **ADJOURNMENT**

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Distribution: City Council
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Jovan Grogan, Deputy City Manager
Mark Coon, City Attorney
Victoria Walker, Community & Economic Development Director
Robert Ovadia, City Engineer
Jeff Rogers, Associate Civil Engineer
Administrative Services

**REPORT TO INFRASTRUCTURE AND FRANCHISE COMMITTEE**

TO THE HONORABLE COMMITTEE MEMBERS:

DATE: July 20, 2015

SUBJECT: PAVEMENT MANAGEMENT PROGRAM - MEASURE Q LEASE FINANCING EXPENDITURE PLAN RECOMMENDATION

Report in Brief

In March 2015, the City Council authorized a Lease Finance Agreement that made \$22.4 million available to address street maintenance needs. On April 22, 2015, staff presented a recommendation to the Infrastructure & Franchise Committee (Committee) describing a broad approach to effectively spend the lease financing funds within the required time frames. The Committee approved staff's recommendation with the understanding that staff would return to the Committee in July 2015 and then to the City Council with the specific street segments selected.

To help generate a timely Expenditure Plan to effectively expend these funds on roadway repair projects, the City sought support from the engineering consulting firm of NCE. NCE has substantial and recent experience with assisting public agencies with budgetary analysis, street selection and prioritization, street review, and cost estimating.

NCE has worked with Engineering staff to develop an Expenditure Plan that establishes how and when the available funding could most effectively be spent on roadway repairs throughout the City, while meeting the expenditure timeline requirements of the Lease Finance Agreement. NCE expedited the specific street segment repair recommendations for the first two years (2015/16 and 2016/17) of a four-year plan and provided estimated project costs. NCE will develop the remaining two years of street repair recommendations for 2017/18 and 2018/19 in the upcoming months. The outline and approval of the pavement repair recommendations for the first two years will allow the project design phase to begin quickly while the remaining Expenditure Plan program is developed.

If the Committee recommends approval of the proposed Expenditure Plan, staff will bring the recommendation to the City Council for consideration in September 2015.

Background

In March 2015, the City Council authorized a Lease Finance Agreement that generated \$22.4 million to address the City's street infrastructure needs.

On April 22, 2015, the Committee received a staff recommendation for a "three pronged" approach to apply the lease financing funds made available for street improvements throughout the City, and these recommendations were approved by the Committee. A brief description of the approach is shown below, and is described in more detail in the attached April 22, 2015 staff report (Attachment 3).

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1. Allocation of funds towards localized pavement repairs (potholes and base failures).
 - a. Increase in-house capacity for addressing potholes. Allocate \$200,000 to purchase an Asphalt Zipper machine and add \$50,000 to \$75,000 per year to supplement Public Works asphalt and material budget.
 - b. Contract for repair of larger areas and heavy traffic areas. For those areas that are located in high-traffic areas and that may be too large to efficiently complete with in-house Public Works staff, \$600,000 to \$700,000 per year will be allocated towards localized pavement repairs.
2. Allocate \$5,000,000 to \$6,000,000 over the next five years for major street repair and reconstruction projects and as a local match for grant funding opportunities.
3. Allocate \$10,000,000 to \$12,000,000 over the next five years to fund neighborhood street repairs.

The adopted FY 2015-16 Capital Improvement Program (CIP) includes two previously authorized pavement projects that were partially funded to cover design costs. Construction funding was deferred until the City was ready to award a construction contract. The CIP acknowledged the potential to fund these two projects with the Measure Q lease financing revenues. The utilization of these funds will be beneficial in meeting the timeline requirements of the lease finance agreement expenditures. The two projects are:

- FY14-15 Pavement Maintenance Project (Project No. 2329). This project includes various streets in street maintenance zone 3. The project design was funded with an appropriation from the City's Pavement Management Annual Program – Holding Account (Project No. 2157). The construction cost for this project is estimated to be \$1,870,000, which includes construction, contingencies, inspection, construction management, and construction administration and is recommended to be funded entirely with the Measure Q lease financing proceeds.
- FY14-15 Pavement Rehabilitation Project (Project No. 2331). This project includes portions of Oak Grove Road and Salvio Street as well as pavement repairs at the Diablo Creek Golf Course parking lot. The project design was primarily funded with an appropriation from the City's Pavement Management Annual Program – Holding Account (Project No. 2157). The Golf Course Enterprise is responsible for the costs associated with the repairs at the golf course. The City was also awarded a 511 Contra Costa grant of \$355,000 to partially fund complete streets improvements on Salvio Street. Estimated unfunded construction cost for this project is \$2,200,000 which includes construction, contingencies, inspection, construction management, and construction administration and is recommended to be funded entirely with the Measure Q lease financing proceeds.

Discussion

To expedite the preparation of an Expenditure Plan (Attachment 1) to effectively expend Measure Q lease financing funds on street repair and rehabilitation projects, the City sought support from an engineering consulting firm with experience in development of pavement management projects. NCE has worked with

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more than 200 local agencies in California on pavement management projects. They have recently played a critical role in assisting public agencies with budgetary analysis, street selection and prioritization, street review and costing, as well as pavement design, and preparation of plans, specifications, and estimates for major local funding measures for a number of Cities, including Berkeley (Measure M), Richmond (Measure U), Moraga (Measure K), and Davis (recent sales tax consideration).

NCE's expertise also includes providing civil engineering design work for Cities and Counties in the San Francisco Bay and outlying areas. Recent clients of the firm include San Francisco, Hayward, Martinez, Milpitas, Fairfield, Fremont, San Jose, Sunnyvale, Los Gatos, Campbell, Mountain View, Richmond, San Ramon, Orinda, and Moraga.

NCE was tasked with developing an Expenditure Plan that generates a list of street segments to be addressed, differentiated by project (repair type) and year to be implemented. The proposed Expenditure Plan is consistent with the recommended three pronged approach and will meet the expenditure milestones required by the Lease Finance Agreement. The expenditure summary table shown on page 3 of the Expenditure Plan has been enlarged. (Attachment 2)

Typically, street selection for pavement maintenance and rehabilitation projects are based on field review, available budget, recommendations generated by the City's Pavement Management Program (PMP), and discussions with Public Works maintenance staff. Projects such as the City's annual slurry and cape seal program are programmed geographically for cost savings and geographic equity.

The City's PMP is founded on pavement surveys of the street's condition and a "decision tree" that establishes what type of pavement treatments should be applied to which streets and when the treatment should occur. The pavement treatment determination is based on a weighted effectiveness rating that is calculated using the Pavement Condition Index (PCI), the street's functional classification (arterial, collector, residential), and the life-extension and cost of treatments. This is analogous to a cost/benefit ratio, where priority is given to street treatments that yield the highest weighted effectiveness rating.

Calibrating the City's PMP

As an initial step in developing the Expenditure Plan, NCE reviewed the City's PMP and how pavement treatments were recommended through the PMP program. Part of the determination regarding appropriate pavement treatment is based on a street segment's existing Pavement Condition Index or PCI. The PCI is a pavement condition rating on scale that ranges from 100 to 0, with 100 being the highest or best condition. Generally speaking, the lower the PCI, the more expensive the pavement repairs that are needed. The PMP, however, identifies only four basic levels of pavement conditions: good, fair, poor, and very poor.

After review of the City's existing PMP, NCE recommended changes to correspond with the standard of practice for the Bay Area, and which is also consistent with the Metropolitan Transportation Commission (MTC) standards. For example, Concord's arterial street "very poor" breakpoint was set at a PCI of 40, while most other Cities classify a PCI of 25 as "very poor." This means that more expensive treatments are currently recommended for Concord streets that had a PCI between 26 and 40 than would be recommended in other Bay Area Cities. The City of Concord's original intent for the

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higher breakpoints was to pursue a higher standard of pavement condition for the public; however, re-aligning the City's PMP values to be consistent with the Bay Area standard of practice will allow the lease financing funds to go further while still recommending adequate pavement treatments. Staff concurs with this NCE recommendation.

Street Selection

Street selections and pavement treatment decisions are based on many factors. The first guide in determining which streets should be rehabilitated was the City of Concord's three-prong plan (base repairs-potholes and base failures, major street repair and reconstruction projects, and neighborhood street repair) for the next four years. The three-prong outline of the Expenditure Plan established how and when money was to be spent in each of the City's five zones. With a total budget of \$22.4 million and the percentages of funds to be spent within each of the three types of repair categories (or "prongs") established, calculations were made to determine how much funding would be available to each repair category for each of the four years of this project.

The City is divided into five geographical areas (Zones 1-5) for purposes of annual rotation of street repair focus as shown in Attachment 3. This means about 20% of the City is reviewed for local street repairs each year. However, because the lease financing funds requirements specify that 80% of the funds must be expended within the first 5 years, and to introduce greater funding equality, NCE selected streets for treatment in all five zones for the four years of the Expenditure Plan.

Once dollar value targets were established, the PMP program was used to obtain a list of all arterials, collectors, and residential streets in the City and their corresponding condition and recommended treatment. As noted earlier, the program utilizes a weighted effectiveness rating to determine the streets or street segments with the highest priority and cost/benefit return for pavement treatment. This list in combination with PCI maps was used as a starting point for selecting streets to review. (Note: streets that are currently in the process of design/construction or are already funded for future work or maintenance were not included in this list).

NCE next performed a field review to assess the conditions of the street sections and to field calibrate the appropriate pavement repair treatments for the streets. The methodology was to look for streets that fell within at least one of the three repair categories. In some cases, streets fell within two or three of the repair categories. Priority was given to streets that fall within two or more repair categories. In addition, during the course of the field review the street segments needing repair were combined, split apart, extended, or shortened to streamline maintenance activities based on the type of repair needed and geographic location. This allows the most efficient use of the funding possible.

NCE used engineering judgment and experience to modify the PMP recommendations as appropriate and also to "spread" the projects around all five zones. For example, because of its poor ride-ability, and numerous concerns brought to staff's attention by the public, Olivera Road was selected for treatment even though it does not meet any of the three repair category requirements.

To ensure all work is completed and funding is expended in a timely manner, NCE has expedited the selection of streets for the first two years (2015/16 and 2016/17) of the four-year Expenditure Plan. The Expenditure Plan generates street segment repair lists that are identified by project (repair type),

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construction year, and estimated associated project costs. NCE will develop the remaining two years of street segments to be repaired (2017/18 and 2018/19) in the upcoming months. Once completed, the Expenditure Plan will allocate the entire \$22.4 M as required by the Lease Finance Agreement within the required timeline. The proposed Expenditure Plan for the first two years presented in this report has been reviewed by the CED Engineering and Transportation Divisions and by the Public Works Department.

After initiation of NCE's work to develop the Measure Q lease financing Expenditure Plan and approval of the City's FY 2015-16 Capital Improvement Program (CIP), staff advised NCE of two pavement maintenance and rehabilitation projects that would require appropriation of lease financing funds for construction.

FY 14-15 Pavement Maintenance (Project No. 2329) is shovel ready and is scheduled for award of construction contract by the City Council on July 28, 2015. In addition, FY 14-15 Pavement Rehabilitation project (Project No. 2331), which includes portions of Salvio Street and Oak Grove Avenue, is currently in design with construction scheduled for early Spring of 2016. The construction timeline for the Salvio project was deferred to allow for inclusion of the sidewalk along the north side of Salvio Street, which was approved in the 2015-16 CIP.

Funding these two "ready to go" street repair projects with Lease Financing funds will expedite fund expenditures, and preserve other local funds for later year projects. Allocating Lease Financing funding for these two projects in Years 1 and 2 of the Expenditure Plan means that the funding for the outer years in the Expenditure Plan (Years 3 and 4) were reduced by the following amounts:

- \$1,870,000 for FY 14-15 Pavement Maintenance (Project No. 2329)
- \$2,200,000 for FY 14-15 Pavement Rehabilitation (Project No. 2331)

On July 13, 2015, the Infrastructure and Franchise Committee recommended using \$150,000 of the Measure Q lease financing funds to cover the costs of implementing a pilot program to install Green Pavement Markings in the conflict areas of the new bike lanes as part of the Detroit Avenue Pedestrian and Bicycle Improvements project (Project No. 2276). It is recommended that this \$150,000 allocation be reflected in the proposed Expenditure Plan, by adding \$150,000 to year 1 and reducing the allocation in year 4 by the same amount.

With the Committee's approval of the recommended expenditures for Years 1 and 2 of the program, staff will bring the recommendations to the City Council for consideration and will work with NCE to develop the Expenditure Plan for the remaining Measure Q Lease Financing funds. With these recommendations, approximately 80% of the funding would be allocated to projects in the first two years, and the remaining 20% would be allocated to Years 3 and 4.

Staff will pursue grant leveraging opportunities as they arise during the next 18- 24 months utilizing the funds allocated to Years 3 and 4 as local match. Should opportunities or leverage funds not become available in the next two years, the funds will be programmed to meet the expenditure requirements associated with the lease financing terms. Staff will be coming back to the Committee to review the proposed expenditure plan for Years 3 and 4 as it is developed.

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Fiscal Impact

The costs associated with implementing the program recommendations will be funded by the proceeds generated through the Measure Q Lease Financing, in the amount of \$22,400,000.

Public Contact

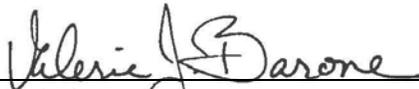
The Infrastructure and Franchise Committee Agenda was posted.

Recommendation for Action

Staff recommends that the Infrastructure & Franchise Committee recommend approval to the City Council of the attached Expenditure Plan for the first two years (Year 1-2015/16 and Year 2-2016/17) of the four year plan (Attachment 1).

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- Attachment 1: Expenditure Plan (Multi-Year Pavement Rehabilitation Recommendations Letter Report - NCE)
- Attachment 2: Expenditure Summary Table
- Attachment 3: April 22, 2015 Staff Report, Infrastructure and Franchise Committee



July 16, 2015
NCE Project No: 663.08.55

Mr. Jeff Rogers
City of Concord
Engineering Services
1435 Gasoline Alley
Concord, CA 94520

**Multi-Year Pavement Rehabilitation Recommendations Letter Report
2016 to 2019 Pavement Program
Concord, California**

Dear Mr. Rogers:

NCE is pleased to present this letter-report with preliminary pavement rehabilitation and maintenance recommendations for the City of Concord's 2016 to 2020 Pavement Management Program Measure Q Expenditure Plan. This report presents recommendations for the first two years of the program. Recommendations for the remaining two years will be presented in a separate report.

Background

NCE contracted with the City of Concord to provide engineering services as per the Scope of Work dated June 1, 2015. The City of Concord maintains approximately 310 centerline miles of public streets with an average network PCI of 61, which puts the network in an at risk fair condition category. The network PCI has been in decline over the past several years due to lack of sufficient funding to properly repair and maintain the street network. Street maintenance has primarily been funded with Measure J, Gas Tax, and grant funds. Approximately \$1.2 million in local funds (Measure J and Gas Tax) has typically been programmed annually for preventative maintenance projects (surface seals) with projects being applied to five geographical areas (Zones 1 to 5) on a 5 year rotational basis. The City of Concord (City) voters approved an important ballot measure, "Measure Q" in November 2014 to renew a sales tax of 0.5 percent for 9 years. The City is now considering up to \$22.4 million for City infrastructure improvements, specifically street paving.

In order to best prioritize how this money gets spent and allocated over the next 5 years, the City requested that NCE develop a cost-effective multi-year paving work plan. Specifically, this work plan would address the following:

- Discuss alternate or new maintenance strategies;
- Calibrate local street conditions and City's expectations of maintenance treatments/strategies;

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- Develop expenditure timeline based on the *StreetSaver* budget analysis meeting the following minimum expenditure thresholds:
 - 10% of total spent by March 2016
 - 30% of total spent by March 2017
 - 60% of total spent by March 2018
 - 85% of total spent by March 2020
- Develop 5 year initial work plan, with initial work plan for FY 2015-16 and FY 2016-17 for council review and approval on July 28, 2015.

The City envisions a three-pronged approach to expending these funds for pavement management in the next five years. These prongs are:

1. Allocate funds for localized repairs for potholes and base repairs. For this the City would contract out for base repairs for larger repair areas and heavily trafficked areas, which we understand is typically arterials and major collectors. The City committed the remaining paving funds for smaller repair areas on less trafficked streets in this category for City crews to complete potholes, including the purchase of a \$169,490.00 asphalt zipper machine for localized repairs. Some residential streets in strong need of repair would be included here too.
2. Allocate funds for those streets in very poor (“worst” streets) condition that have deteriorated to a point that deferral no longer results in significant increases in maintenance costs and/or are not triggered for selection by the City’s pavement management program. In addition to providing full funding for “Prong2” projects, Measure Q funds may be used as Local Matching funds for grant funded projects.
3. Allocate funds for pavement rehabilitation on neighborhood streets. The City has indicated that this should follow the City’s geographical rotation as follows: Zone 4 – FY 2015-16, Zone 5 – FY 2016-17, Zone 1 – FY 2017-18, Zone 2 – FY 2018-19, Zone 3 – FY 2019-20. This geographic rotation plan has since been modified due to the City’s desire to achieve geographical balance in their treatment application and that the treatment funding as planned was more heavily ‘front loaded’ which would mean that the zones scheduled for later treatment would receive a disproportionately lower amount of funding.

Project Kick-Off Meeting

NCE and City of Concord Engineering Staff had a kick-off meeting on June 10, 2015. At this meeting the scope of work was discussed as well as establishment of deliverables, deadlines, and project schedule. The budget and spending plan as outlined above was modified to allow for balanced spending. The pavement rehabilitation plan to be delivered by NCE is to spend the full 100%, \$22.4M. Maintenance strategies were discussed with the City as well as the potential for using innovative treatments that are not currently in the City’s Pavement Management System (PMS) Decision Tree. The decision tree in *StreetSaver* was evaluated and NCE was directed by the City to use the existing unit costs in the City’s *StreetSaver* database (‘Turnkey costs’) for cost estimation. It was decided that curb ramps would be counted for the streets being recommended for maintenance and rehabilitation. A typical cost for an

average number of ramps on a given project has been built into the decision tree cost. A second meeting was set up for Field calibration between NCE staff and City Engineering to ensure that treatments recommended are consistent with City desires and maintenance policies.

Pavement Maintenance Strategy Plan

Expenditure Allocation

The first step in developing a work plan was to develop an expenditure plan based on the City of Concord's three-pronged plan. The expenditure plan is summarized in the table below. An agreement was made during the kick off meeting to consolidate the first two years' plans together resulting in a four year plan that will start in 2016. With the budget set at \$22.4M and the percentages of funds to be spent within each prong established, calculations were made to determine how much was available for each prong for each of the four years of this project; FY 2016 to FY 2019. After initiation of this effort, four projects were added and they are shown as PM, Green Pavement, PR, and PW in the table. Funding for these projects was taken from the Year 3 and Year 4 budget allotment since the spending plan for Year 1 and Year 2 (this document) has been developed and is in review by City staff. The total expenditures remain the same at \$22.4M following these additions.

	Construction Deadline	Cumulative Minimum Required Spending (Percent)	Yearly Minimum Required Spending (Percent)	Minimum Required Spending (Millions)	Base Repairs Prong 1 (16%) (Millions)	Major Construction Prong 2 (28%) (Millions)	Residential Prong 3 (56%) (Millions)	Total Spending (Millions)	Cumulative Spending (Millions)
PM	FY 14-15						\$ 1.87	\$ 1.87	\$ 1.87
Green Pavement	FY 14-15					\$ 0.15		\$ 0.15	\$ 2.02
PR	FY 15-16					\$ 2.20		\$ 2.20	\$ 4.22
PW	Years 1 thru 5				\$ 0.50			\$ 0.50	\$ 4.72
Year 1	November 2016	30%	30%	\$ 6.72	\$ 1.08	\$ 1.88	\$ 3.76	\$ 6.72	\$ 11.44
Year 2	November 2017	60%	30%	\$ 6.72	\$ 1.08	\$ 1.88	\$ 3.76	\$ 6.72	\$ 18.16
Year 3	November 2018		20%	\$ 4.48	\$ 0.46	\$ 0.18	\$ 1.57	\$ 2.21	\$ 20.37
Year 4	November 2019	100%	20%	\$ 4.48	\$ 0.46	\$ -	\$ 1.57	\$ 2.03	\$ 22.40
Total		100%			\$ 3.58	\$ 6.29	\$ 12.53	\$ 22.40	

PM - City of Concord's FY 14-15 Pavement Maintenance Project #2329.

Green Pavement - Detroit Avenue Pedestrian and Bicycle Improvements Project No. 2276, "Green Bicycle Lane" funding.

PR - City of Concord's FY 14-15 Pavement Rehabilitation Project #2331 (Oak Grove Road and Salvio Street).

PW - As approved by the INF on April 22, the Public Works Department purchased an Asphalt Zipper Machine to increase their capacity to construct Pot Hole repairs.

The Zipper Costs \$169,490. Approx \$66k annually is recommended to be pulled from MQ to Provide PW with a total of \$500k from Prong 1.

Five year plan has been reduced to four years. Year 1 is now Year 2 from original five year plan.

Percent for 'new' Year 1 is sum of 10% (original Year 1) and 20% (original Year 2) from five year plan.

Percentages and dollars are based upon total budget value of \$22.4 Million.

In conversations with Mr. Jeff Rogers, it was decided to spread the first two years' funding out among all the zones, particularly for residential streets, to yield a more balanced strategy since the initial funding plan was 'front heavy' for two zones (4 and 5) and the other zones would see less benefit of this funding.

Maintenance and Rehabilitation Decision Tree Review

The maintenance and rehabilitation (M&R) decision tree is a critical step as it has a direct and significant impact on the final work plan that is developed, as well as the budgeting consequences. The M&R

decision tree is used to select effective treatments for each street section based upon criteria such as condition, pavement type, and functional class.

NCE reviewed the City's PMP Decision Tree. *StreetSaver* has four levels of conditions; good, fair, poor, and very poor that define how M&R treatments are assigned. Generally the lower the PCI for a given street, the more aggressive and costlier the treatment needed. Concord's existing PCI breakpoint levels were 75, 60, and 40, which are higher than conventional practice. Conventional Bay Area best-practices and MTC guidelines recommend levels of 70, 50, and 25. These levels, which are ranges of PCI values, are the points at which changes in treatments are recommended (and needed) based upon the condition of the pavement.

As part of the *StreetSaver* analysis, NCE recommended that the City modify their breakpoint levels to correspond to the standard practice levels. There were several main reasons for this.

- 1) The City's levels necessitated more costly (and often inappropriate) treatments to streets in each of the four condition categories than is generally performed. For example, Concord's very poor breakpoint was set to 40, while most other cities use 25. This meant that more aggressive and expensive treatments were recommended from the PMS for streets that were between 26 and 40 than were required. *StreetSaver's* Unconstrained Needs Calculation would show significantly higher costs with the existing breakpoints than with lower values. These higher levels wouldn't necessarily alter the recommendations made in this four-year plan as engineering judgment often overruled *StreetSaver* recommendations, however over the long term, costs would be much higher with the existing levels.
- 2) Though the City's higher PCI breakpoint levels would encourage pavements to be rehabilitated earlier and theoretically be kept in better condition, this would require significantly more funding than is available.
- 3) The MTC guidelines and best-practices were established based upon experience and reflect appropriate treatments for streets at various PCI levels. This change would move the City in-line with general Bay Area practice, and experience could be more readily gleaned from neighboring cities.

Field Review

Prior to conducting our field review, NCE staff began by creating color coded street maps for each of the five zones within the City. The colors reflected the various pavement condition indices (PCI) of each street section. A table listing all street sections and their corresponding limits, dimensions, conditions, and PCIs was used in conjunction with the maps. The initial decisions for which treatment to be selected in *StreetSaver* were based on a weighted effectiveness rating that is calculated using the PCI, functional classification (arterial, collector, residential) and the life-extension and cost of treatments. NCE staff next performed a field review to assess the conditions of the street sections and field-calibrate the appropriate planning level treatments for the streets. Since the goal was to identify streets that met

requirements of the three prongs of the funding program, streets all over the City were driven to determine best suited candidates for pothole repair, major rehabilitation, and residential maintenance and rehabilitation. In addition, during the course of the field review, streets were aggregated, split apart, extended, or shortened to streamline maintenance activities based on type and geographic location. For the purposes of planning and estimating, base repair quantities were estimated. Exact quantities should be measured prior to design and construction.

Also, the City had produced a list of streets which were not to be selected as they were currently in the process of design/construction or were already funded for future work. These streets were not considered. Observations of street conditions and best practice recommendations were recorded on these maps and tables, and are presented in this report. NCE engineering staff physically drove and/or walked almost 1000 pavement sections in the City in order to find appropriate streets for treatment.

During the field review, it became immediately apparent to NCE staff that much of arterial and collector network exhibits significant age and environmental related cracking - transverse cracking (low temperature) and block cracking (aging) of varying sizes. Load related cracking where present on these streets tended to be of low to moderate severity, but if untreated would progress to higher severity distress and ultimately potholes. The remaining streets show this same aging and also have medium to high severity wheelpath fatigue cracking, indicating that they have structurally failed. Residential streets also exhibit these same age related distresses with varying levels of load related cracking. The City's use of slurry seals has masked much of this distress and slowed down its progression, and in many cases helped keep the pavement sections in more useable condition.

Typical Pavement Distresses

The photos below show typical distresses seen in the City in this field investigation. The examples cited describe the street's condition, recommended treatment and rationale for the treatment. The photos presented are from Google Street View as very specific images were of interest.

Figure 1 shows Indiana Drive which has moderate severity block cracking with minimal to no fatigue cracking. This street is a perfect candidate for a Cape Seal, as the distress is too severe for a Slurry Seal, yet it doesn't require any structural addition. The Cape Seal's rubberized chip seal will help mitigate those cracks from propagating through and the treatment will slow down future block cracking. While the block cracking will eventually come to the surface, the severity of the cracks will be lower and the cost of this treatment is about 30% of the next alternative Mill and Overlay.



Figure 1. Indiana Drive with block cracking – treatment is Cape Seal (source Google Maps)

Figure 2 shows Lynwood Drive which has intermittent moderate to high severity fatigue cracking. The presence of light colored staining on the surface within the cracks is indicative of base failure (movement of the base fine aggregate up through the asphalt concrete). Base repairs would be required for the fatigued areas and an overall appropriate pavement treatment would be a mill and overlay. If this level of cracking was present throughout the entire street, the appropriate treatment would be surface reconstruct which addresses the failed base layer.



Figure 2. Lynwood Drive with medium to high severity fatigue cracking – treatment is mill and overlay (source Google Maps)

Figure 3 shows Winterberry Court Cul-de-sac with mixed high severity fatigue cracking and block cracking. This is a very typical Cul-de-sac found in the City. The treatment recommended for this Cul-de-sac is mill and overlay. A Cape Seal could be used here to save money, following repairs of the fatigue cracks, however Cape Seal performance is not ideal in tight turning areas such as these. In

discussions with City engineering, it was decided to pave failed bulbs with mill and overlay and the tangent (straight sections) of the streets with the appropriate treatment. This is a more expensive way to handle such streets, but will give a much longer pavement lifetime.



Figure 3. Winterberry Court Cul-de-sac with mixed high severity fatigue cracking and block cracking – treatment is mill and overlay (source Google Maps)

Figure 4 shows Snowcloud Court Cul-de-sac street with low severity fatigue cracking. With this low level of cracking and evidence of aged and worn existing slurry seal, a new slurry seal is the recommended treatment here. Base repairs can be made for any areas of higher severity cracking. Unlike Figure 3, this bulb does not require any structural repair, making the slurry seal an ideal low cost treatment.



Figure 4. Snowcloud Court Cul-de-sac with low severity fatigue cracking – treatment is slurry seal (source Google Maps)

Figure 5 shows Hillsborough Drive with fatigue cracking present throughout the entire length of the section such that a very high amount of base repairs would be required to restore this pavement. This

amount of cutting into the pavement is inefficient and a better way to treat this pavement is to reconstruct the pavement by removing the AC and recompacting the supporting layers.



Figure 5. Hillsborough Drive with high percentage fatigue cracking – treatment is reconstruction (source Google Maps)

Figure 6 shows East Olivera Road with significant ride quality problems resulting from a combination of age cracking of the asphalt and moisture induced subgrade movement. The likely cause of this distress is water entering the pavement through the numerous cracks wet the highly expansive/contractive Alamo Fat Clay deposition underlying the pavement. The soil expands around the wet areas (cracks) and dries in others, resulting in the uplift and depressions seen. The treatment for this distress is Full Depth Reclamation (FDR) with Lime Stabilization to mitigate against moisture induced volumetric changes in the subgrade. An overlay is applied over the FDR. An exploratory investigation would be required.



Figure 6. East Olivera Road with moisture and age related distress – treatment is reconstruction (source Google Maps)

Figure 7 shows Kirker Pass Road with varying degrees of fatigue cracking and moderate levels of block/age cracking. The distress is primarily localized to the vehicle wheelpaths and can be addressed by base repairs. Since this is structural failure, additional structure could be added following the base repairs at a considerable cost. The deep base repairs will handle most of this structural issue. Base repairs are the recommended treatment to give the pavement many years of service until it needs to be completely reconstructed. This solution is more economical at this time. The surface could also be Slurry Sealed following base repairs for visual improvement and protection against further environmental degradation. Alternative treatments such as Cold-In-Place Recycling (CIR) and Full Depth Reclamation (FDR) could be performed at a considerable cost increase. They were not selected due to budget constraints.



Figure 7. Kirker Pass Road with low, medium, and high severity fatigue cracking – treatment is base repair and slurry seal (or overlay) (source Google Maps)

Street and Treatment Selection Processes

Typically, street selection for pavement maintenance and rehabilitation projects are based on field review, geographic region, available budget, and recommendations generated by the PMP.

There were far more streets in the City to address than could be funded through this four-year plan. During and following field review, the list of streets was narrowed down until spending limits were reached. The street selection process follows:

- 1) Group the streets under the one (or more) of the three prongs; pothole, rehabilitation, residential and establish the most appropriate treatment for each street.
- 2) For arterial and collector streets using engineering judgment determine whether the street meets either Prong 1 or Prong 2 criteria based upon the distress, traffic and surface rehabilitation history of the street.

3) Select residential streets in large groupings and/or neighborhoods to make more cost effective for construction, decrease mobilization costs, and facilitate future maintenance. When entire neighborhoods were selected, make certain that each of the streets is addressed, though not necessarily with the same treatment. This process while creating 'continuity' within a neighborhood limited the selection of streets to broader areas and some streets deserving of treatment may not have been selected.

4) Determine the cost to rehabilitate each of the streets based upon the area of the street and the City's unit cost of the treatments. Add up the costs to rehabilitate the groups of residential streets as well as collectors and arterials.

5) Compare streets and groups of streets (neighborhoods) using engineering judgment of the distress, traffic, and surface rehabilitation history and select those that more appropriately need treatment, keeping in mind the cost of the treatments and the budget. For example, if two residential streets /neighborhoods exhibit similar distress, the streets with the oldest treatment were generally selected. In many cases, residential streets were very recently slurry sealed and it was hard to justify rehabilitating these streets (even though it was often necessary) if there were other streets with old deteriorated slurry seals. The cost to rehabilitate either group of streets would generally be the same, so cost was not an issue.

6) Ensure that the streets selected were geographically balanced throughout the five zones in the City. There was invariably some variation in this balance which will be addressed in the plan for years 3 and 4.

6) Modify selections to ensure that steps 2 through 6 were all met.

Treatments were determined based upon the street's PCI, observed physical distress, estimated age of the existing surface treatment, level of traffic (arterial, collector, residential), *StreetSaver* recommendations, and engineering judgment of the most suitable cost effective treatment. Details of this were shown in Figures 1 to 7. In some cases, treatments were recommended that are not in the City's decision tree.

The treatment selection process is described below:

1) Determine the type of street; arterial, collector, residential.

2) For arterial and collector streets:

A) Evaluate whether distress is load related or environmental related. Low levels (< 20% to 30% generally) of load related distresses, particularly potholes and high severity fatigue cracking of arterials and collectors can be addressed through base-repair with Prong 1 funding. When higher levels of structural damage are present and the street needs to be reconstructed, the street moved to Prong 2. In some cases, pothole/base repair is recommended as well as milling and overlay of the surface.

B) If significant environmental distress is present such that typical treatments such as overlays, mill and overlays, and other surface treatments would not be sound choices, the streets were recommended for Prong 2 funding. If environmental distress is at a lesser presence and there is also low levels of base repair, treatments were selected for Prong 1 funding to address the base repairs. Streets with low levels of environmental distress and no load related distress were not selected.

C) Reconstruction and major rehabilitation of the pavements could consist of complete removal and replacement of the existing structure, Cold-In-Place Recycling (CIR) of the existing asphalt concrete plus overlay, or Full Depth Reclamation (FDR) of the pavement plus overlay, depending on the type and level of distress.

3) For residential streets:

Since the City owns a significant number of cul-de-sac streets and neighborhoods with 'feeder' streets, all residential streets could not be considered equally. Several treatment types were considered depending on the type of distress noted.

A) For cul-de-sac streets, it was determined in discussions with City engineers that where necessary, the pavement in the bulbs would be milled and overlaid with asphalt concrete (AC) pavement. This decision was made due to AC's better performance with tight turning vehicles, particularly garbage trucks and delivery vehicles. The tangent ('straight') portions of the streets would either be maintained with less expensive Cape Seal treatment (slurry seal + chip seal) or AC overlay, or slurry seal, depending on the type of distress. Generally if a bulb exhibits significant age and load related distress, it would be replaced. Similarly for the tangent section. For the purposes of calculating material quantities, an average bulb diameter of 65 ft. was used.

B) For residential streets that were 'feeder' streets to neighborhoods that exhibited high levels of load related distress in addition to age/environmental distress, base repairs and overlays or base repairs and mill and overlays were the recommended treatments. If an effort to stretch pavement maintenance dollars, NCE recommended for those residential streets that exhibited low levels of load related distress, either base repairs alone or in combination with Cape Seals were recommended. In the past, overlays have been recommended for these type of streets, but given limited funding of public agencies and effectiveness of cape seals, particularly rubberized cape seals, cape seals are a good maintenance strategy. Therefore for limited traffic streets, Cape Seals in combination with base repairs were often selected instead of mill and overlay for budgetary reasons.

C) For residential streets that presented primarily environmental/age distress, either Cape Seals or Slurry seals were recommended. The large quantity of soft rubberized binder in the Cape Seal treatment is designed to mitigate crack propagation and should perform well over the age related cracks. For sections that show structural failure and age related cracking, depending on

the relative proportion of these two distresses, either a Rubberized Cape Seal or a mill and overlay, both with base repairs where needed, were recommended.

D) Slurry seals were recommended for those streets with minimal to no distress but show aging and/or wearing away of the existing slurry seal.

It is expected that Cape Seals and Slurry Seals for environmental and/or load related distresses will not likely perform as well as mill and overlay since the existing distress is not removed but covered. This is a tradeoff that is made in the name of cost and budget versus lower performance requirements and risk in residential applications.

Pavement Rehabilitation and Maintenance Plan

The recommended plan for 2016-2017 for the City is shown in the tables at the back of this report. The tables present the street IDs, names, limits, appropriate treatments, associated costs and year of construction. Selection of year of construction was based upon a combination of necessity and yearly funding balance. Maps of the corresponding sections are also presented. Further details can be provided upon request.

The total spending target for the three Prongs for the two year 2016-2018 program was \$13.44M. Spending for Base Repairs (Prong 1) was about \$500K below target, spending for reconstruction (Prong 2) was about \$300K above target, and residential spending (Prong 3) was about \$200K above target. City engineering staff gave NCE this flexibility with the various prong spending levels to accommodate treatment decision making. The budget plan is shown in the table below. The two year total budget was \$13.44M.

	2016		2017	
ARTERIALS & COLLECTORS		\$ 2,781,000		\$ 2,913,000
RESIDENTIALS	Zone 2, Subzone 2A	\$ 2,135,559	Zone 1, Subzone 1A	\$ 2,221,478
	Zone 4, Subzone 4B	\$ 594,483	Zone 3, Subzone 3B	\$ 635,092
	Zone 5, Subzone 5B2	\$ 1,311,083	Zone 5, Subzone 5B1	\$ 852,475
YEARLY TOTALS		\$ 6,822,126		\$ 6,622,046

Summary and Recommendations

This report outlines the methods taken to develop a list of streets and their most appropriate rehabilitation and maintenance treatments for the City's multi-year Measure Q pavement plan. These recommendations were developed through visual observation of the streets using engineering judgment and experience along with discussions with City engineering staff. While there is no single solution to this complex process, the recommendations made when implemented will provide the City with a much improved street network.

It is strongly advised that when these pavement treatments are to be designed and constructed that a thorough field investigation be performed on the subject streets which would include at a minimum; coring for thickness and cracking evaluation, material sampling and characterization, and deflection testing for structural evaluation. Depending on the outcome of this investigation, it may be necessary to modify some these recommendations to reflect newly found information that was not available at the time of this writing and/or if street conditions change before final design decisions are made.

We trust this document provides the City of Concord with the necessary information at this time. If you have any further questions, please contact us at (510) 215-3620.

Regards,

NCE



James M. Signore, Ph.D., P.E
Associate



Mei-Hui Lee, Ph.D
Project Engineer

TABLES

City of Concord - 2016 2017 Prong 1 and Prong 2 Treatment Plan

Treatment Year	Zone	StreetSaver Street ID	StreetSaver Section ID	Street Name	Beginning Location	End Location	Functional Class	Total Area (SY)	Average (Weighted) PCI	Field Review Treatment Recommendation	PRONG 1 Base Repair Cost	PRONG 2 Base Repair + Thin Overlay (w/mill)	PRONG 2 Reconstruct
2016	Z2	CLAYTR	360 - 390	CLAYTON RD	WEST ST	TREAT BL	A	20,999	51	BR + Thin OL		1,126,812	
2016	Z3	MOHRL	010 - 140	MOHR LN	DAVID AV	MONUMENT BL	C	23,153	57	BR	\$ 155,507		
2016	Z3	SAMIGR	010 - 110	SAN MIGUEL RD	TREAT BL	SYSTRON DR	C	30,283	41	BR	\$ 78,988		
2016	Z5	EOLIVE	010 - 070	E OLIVERA RD	PT CHICAGO HW	WILLOW PASS RD	C	24,403	87	Reconstruct / BR	\$ 82,334		\$ 1,337,061
2017	Z1	KIRKER	010 - 060	KIRKER PASS RD	CLAYTON RD	CITY LIMITS	A	66,758	62	BR	\$ 235,647		
2017	Z1	PINEHO	060 - 080	PINE HOLLOW RD	MISSOURI DR	KRONA LN	A	7,038	44	BR	\$ 26,603		
2017	Z1	YGNACV	005 - 050	YGNACIO VALLEY RD	CITY LIMIT	CLAYTON RD/END AC	A	111,382	70	BR	\$ 421,025		
2017	Z1	CONCOB	470 - 550	CONCORD BL	AYERS RD	CITY LIMIT	A	36,540	48	BR	\$ 239,466		
2017	Z3	MEADOW	040 - 070	MEADOW LN	GELBKE LN	BLACKFIELD DR	A	6,481	47	BR	\$ 21,113		
2017	Z4	CONCOB	020 - 070	CONCORD BL	GALINDO ST	EAST ST	A	14,260	60	BR	\$ 15,401		
2017	Z4	COWELL	250 - 280	COWELL RD	TREAT BL	N LARWIN AV	A	16,330	64	BR	\$ 44,090		
2017	Z5	CONCOA	110 - 150	CONCORD AV	203 W/O MARKET ST	SALVIO ST	A	20,949	55	BR	\$ 33,938	\$ -	
2017	Z5	EAST	040 - 090	EAST ST	WILLOW PASS RD	418' N. OF BACON ST	A	13,642	45	BR	\$ 110,500		
2017	Z5	WILLOP	270 - 350	WILLOW PASS RD	FARM BUREAU RD	LYNWOOD DR	A	26,431	63	BR	\$ 142,727		
2017	Z2	WEST	010 - 130	WEST ST	CLAYTON RD	CONCORD BL	C	17,212	63	BR	\$ 42,976		\$ -
2017	Z5	HILSBD	030 - 110	HILLSBOROUGH DR	LABRADOR ST	ST. GEORGE DR	R	14,426		Reconstruct FDR			\$ 1,580,068

City of Concord 2016 and 2017 Prong 3 Treatment Plan

Treatment Year	Zone	Sub-Zone	StreetSaver Street ID	StreetSaver Section ID	Street Name	Beginning Location	End Location	Functional Class	Area (SY)	Average (Weighted) PCI	Field Review Treatment Recommendation	Cul-de-Sac	PRONG 3 Total Cost
2016	Z2	2A	ALMONC	010	ALMONDWOOD CT	ELKWOOD DR	END	R	774	43	Mill and Overlay	Yes	\$ 31,550
2016	Z2	2A	BEECHC	010	BEECHWOOD CT	BEECHWOOD DR	END	R	484	51	Mill and Overlay		\$ 19,738
2016	Z2	2A	BELLWC	010	BELLWOOD CT	LYNWOOD DR	END	R	1,382	42	Mill and Overlay	Yes	\$ 56,372
2016	Z2	2A	BIRCHW	010	BIRCHWOOD CT	LYNWOOD DR	END	R	737	59	Slurry Seal	Yes	\$ 4,363
2016	Z2	2A	DANA	010	DANA CT	LYNWOOD DR	END	R	458	52	Slurry Seal	Yes	\$ 2,713
2016	Z2	2A	ELDERW	010	ELDERWOOD DR	VILLAGE RD	LARKSPUR DR	R	3,432	39	Mill and Overlay		\$ 136,250
2016	Z2	2A	ELKWOC	010	ELKWOOD CT	ELKWOOD DR	END	R	532	48	Mill and Overlay	Yes	\$ 21,107
2016	Z2	2A	KENWOO	010	KENWOOD DR	BELLWOOD DR	MANZANITA DR	R	2,889	39	Mill and Overlay		\$ 114,707
2016	Z2	2A	LANDAC	010	LANDANA CT	LANDANA DR	END	R	968	45	Mill and Overlay	Yes	\$ 38,430
2016	Z2	2A	LARKSC	010	LARKSPUR CT	LARKSPUR DR	END	R	2,130	31	Mill and Overlay	Yes	\$ 84,574
2016	Z2	2A	LARKSD	010 - 040	LARKSPUR DR	CARLOTTA DR	LYNWOOD DR	R	8,921	29	Slurry Seal		\$ 354,164
2016	Z2	2A	LYNWOD	140 - 230	LYNWOOD DR	BEECHWOOD DR	WILLOW PASS RD	R	27,977	22	Mill and Overlay		\$ 1,110,674
2016	Z2	2A	MANZAC	010	MANZANITA CT	MANZANITA DR	END	R	550	47	Mill and Overlay	Yes	\$ 22,429
2016	Z2	2A	MANZAD	010 - 040	MANZANITA DR	BEECHWOOD DR	LANDANA DR	R	4,442	68	Cape Seal		\$ 26,296
2016	Z2	2A	MAPLWC	010	MAPLEWOOD CT	SANDALWOOD DR	END	R	458	50	Slurry Seal	Yes	\$ 2,713
2016	Z2	2A	MAPLWD	010	MAPLEWOOD DR	SILVERWOOD DR	SANDALWOOD DR	R	1,302	58	Slurry Seal		\$ 7,706
2016	Z2	2A	MOSSWO	010	MOSSWOOD CT	LYNWOOD DR	END	R	807	54	Slurry Seal	Yes	\$ 4,775
2016	Z2	2A	PEACHW	010	PEACHWOOD DR	LYNWOOD DR	ELKWOOD DR	R	1,133	46	Mill and Overlay		\$ 44,980
2016	Z2	2A	SANDAL	010	SANDALWOOD DR	MAPLEWOOD CT	LANDANA DR	R	2,669	52	Slurry Seal		\$ 15,802
2016	Z2	2A	SIWODR	010 - 030	SILVERWOOD DR	LANDANA DR	END (1857)	R	4,609	0	Cape Seal		\$ 65,558
2016	Z2	2A	STMICT	010	ST MICHAEL CT	ELKWOOD DR	END	R	424	20	Mill and Overlay	Yes	\$ 17,291
2016	Z2	2A	VILLAG	070 - 090	VILLAGE RD	SILVERWOOD DR	LYNWOOD DR	R	7,702	0	Slurry Seal		\$ 98,651
2016	Z4	4B	BLACKB	010	BLACKBURN CT	LIMERIDGE DR	END	R	653	40	Slurry Seal	Yes	\$ 3,159
2016	Z4	4B	BUTTRE	010	BUTTRESS CT	LIMERIDGE DR	END	R	968	50	Slurry Seal	Yes	\$ 4,685

City of Concord 2016 and 2017 Prong 3 Treatment Plan

Treatment Year	Zone	Sub-Zone	StreetSaver Street ID	StreetSaver Section ID	Street Name	Beginning Location	End Location	Functional Class	Area (SY)	Average (Weighted) PCI	Field Review Treatment Recommendation	Cul-de-Sac	PRONG 3 Total Cost
2016	Z4	4B	CAPITO	010	CAPITOL CT	LIMERIDGE DR	END	R	514	47	Mill and Overlay	Yes	\$ 19,846
2016	Z4	4B	CLOUD	010	CLOUD CT	SUNLIGHT CR	END	R	660	57	Slurry Seal	Yes	\$ 3,192
2016	Z4	4B	FAIRWE	010	FAIR WEATHER CR	LIMERIDGE DR	LIMERIDGE DR	R	5,331	37	Cape Seal		\$ 128,965
2016	Z4	4B	GRAYS	010	GRAYS CT	LIMERIDGE DR	END	R	1,357	58	Slurry Seal	Yes	\$ 6,566
2016	Z4	4B	GREENL	010	GREENLEAF CT	LIMERIDGE RD	END	R	660	45	Slurry Seal	Yes	\$ 3,194
2016	Z4	4B	KEARSA	010 - 020	KEARSAGE CT	END	END	R	2,017	0	Slurry Seal	Yes	\$ 9,761
2016	Z4	4B	LIMERI	010 - 170	LIMERIDGE DR	LIMERIDGE DR	LIMERIDGE DR	R	37,116	11	Cape Seal		\$ 518,425
2016	Z4	4B	NLARWI	020 - 030	N LARWIN AV	LIMERIDGE DR	COWELL RD	R	39,132	11	Slurry Seal		\$ 528,186
2016	Z4	4B	REDCLO	010	RED CLOUD CT	LIMERIDGE DR	END	R	583	59	Slurry Seal		\$ 2,823
2016	Z4	4B	ROSINA	010	ROSINA CT	END	SUNLIGHT CR	R	403	52	Slurry Seal	Yes	\$ 1,949
2016	Z4	4B	SHFLCT	010 - 020	SHELLFLOWER CT	END	END	R	1,517	72	Slurry Seal	Yes	\$ 7,342
2016	Z4	4B	SNCLCT	010 - 020	SNOWCLOUD CT	END	END	R	2,167	70	Slurry Seal	Yes	\$ 10,486
2016	Z4	4B	SULICR	010 - 030	SUNLIGHT CR	LIMERIDGE DR	N LARWIN AV	R	4,333	70	Slurry Seal		\$ 20,972
2016	Z4	4B	SULICT	010	SUNLIGHT CT	LIMERIDGE DR	END	R	439	50	Slurry Seal	Yes	\$ 2,124
2016	Z4	4B	TYNDAL	010	TYNDALL CT	END	LIMERIDGE DR	R	786	46	Slurry Seal	Yes	\$ 3,805
2016	Z4	4B	WETTER	010	WETTERHORN CT	LIMERIDGE DR	END	R	1,357	55	Slurry Seal	Yes	\$ 6,566
2016	Z4	4B	WINDFL	010	WINDFLOWER CT	LIMERIDGE DR	END	R	1,357	37	Slurry Seal	Yes	\$ 6,566
2016	Z5	5B2	DOE	010	DOE CT	ESPERANZA DR	END	R	590	48	Cape Seal	Yes	\$ 18,164
2016	Z5	5B3	DORMEA	010 - 090	DORMER AV	E OLIVERA RD	END	R	9,161	30	Cape Seal		\$ 59,645
2016	Z5	5B2	DORMEC	010	DORMER CT	DORMER AV	END	R	1,100	47	Cape Seal	Yes	\$ 31,349
2016	Z5	5B3	DUMBAR	010 - 020	DUMBARTON ST	ESPERANZA DR	DORMER AV	R	10,261	27	Cape Seal		\$ 90,994
2016	Z5	5B3	ESPERA	160 - 230	ESPERANZA DR	E OLIVERA RD	END	R	9,246	64	Mill and Overlay		\$ 206,397
2016	Z5	5B3	HAMILT	010 - 020	HAMILTON AV	DORMER AV	CITY LIMIT	R	10,822	64	Cape Seal		\$ 247,989
2016	Z5	5B3	MONTGO	010 - 020	MONTGOMERY AV	DORMER AV	WEXFORD DR	R	3,835	35	Cape Seal		\$ 67,924

City of Concord 2016 and 2017 Prong 3 Treatment Plan

Treatment Year	Zone	Sub-Zone	StreetSaver Street ID	StreetSaver Section ID	Street Name	Beginning Location	End Location	Functional Class	Area (SY)	Average (Weighted) PCI	Field Review Treatment Recommendation	Cul-de-Sac	PRONG 3 Total Cost
2016	Z5	5B2	PRESTW	010	PRESTWICK AV	DORMER AV	ESPERANZA DR	R	5,614	65	Cape Seal		\$ 99,418
2016	Z5	5B2	PURLEY	010	PURLEY LN	DORMER AV	DUMBARTON ST	R	2,066	57	Cape Seal		\$ 36,585
2016	Z5	5B2	SARATO	010	SARATOGA AV	DORMER AVE	ESPERANZA DR	R	5,610	46	Cape Seal		\$ 99,353
2016	Z1	5B2	WEXFOR	010	WEXFORD DR	E OLIVERA RD	MONTGOMERY AV	R	2,875	49	Cape Seal		\$ 50,910
2017	Z2	2A	BEECHD	010 - 050	BEECHWOOD DR	LANDANA DR	LYNWOOD DR	R	18,349	20	Mill and Overlay		\$ 324,969
2017	Z2	2A	BELLWD	010 - 020	BELLWOOD DR	MANZANITA DR	LYNWOOD DR	R	21,224	18	Mill and Overlay		\$ 375,879
2017	Z2	2A	ELKWOD	010 - 040	ELKWOOD DR	LYNWOOD DR	PEACHWOOD DR	R	48,058	16	Mill and Overlay		\$ 851,111
2017	Z1	1A	GENEVA	010 - 020	GENEVA AV	MATHESON RD	CLAYCORD AV	R	4,638	48	Cape Seal		\$ 87,154
2017	Z1	1A	HAKIMA	010	HAKIMA CT	BAILEY RD	END	R	964	42	Cape Seal	Yes	\$ 25,829
2017	Z1	1A	INNWOOD	010	INNWOOD CT	CLAYCORD AV	END	R	744	55	Cape Seal		\$ 13,986
2017	Z1	1A	JOELLE	010	JOELLE DR	MATHESON RD	GENEVA AV	R	3,186	54	Cape Seal		\$ 59,871
2017	Z1	1A	LAVERC	010	LAVERNE CT	LAVERNE WY	END	R	447	52	Mill and Overlay	Yes	\$ 17,759
2017	Z1	1A	LAVERW	010 - 030	LAVERNE WY	CLAYCORD AV	END	R	6,204	47	Cape Seal		\$ 116,573
2017	Z1	1A	LIMEWC	010	LIMEWOOD CT	LIMEWOOD DR	END	R	1,547	55	Cape Seal	Yes	\$ 36,784
2017	Z1	1A	LIMEWD	010 - 030	LIMEWOOD DR	BAILEY RD	BERRYWOOD DR	R	2,328	59	Cape Seal		\$ 43,749
2017	Z1	1A	MATHES	020 - 060	MATHESON RD	END CURB & GUTTER	CURLETTO DR	R	5,606	67	Cape Seal		\$ 105,328
2017	Z1	1A	MINTWO	010	MINTWOOD DR	CLAYCORD AV (S)	CLAYCORD AV (N)	R	3,483	51	Cape Seal		\$ 65,452
2017	Z1	1A	NEWHAL	020	NEWHALL PARK WY	BOXER BL	CLAYTON RD	R	2,170	70	Cape Seal		\$ 40,774
2017	Z1	1A	OLIVE	010 - 050	OLIVE DR	BAILEY RD	CLAYCORD AV	R	6,611	64	Cape Seal		\$ 124,221
2017	Z1	1A	PIZZIM	010	PIZZIMENTI CT	BERRYWOOD DR	END	R	700	55	Cape Seal	Yes	\$ 20,869
2017	Z1	1A	POPLAW	010	POPLARWOOD CT	LIMEWOOD DR	END	R	1,547	54	Cape Seal	Yes	\$ 36,784
2017	Z1	1A	RIOBLA	010 - 020	RIO BLANCO DR	END	SPRINGWOOD WY	R	1,203	66	Cape Seal	Yes	\$ 30,308
2017	Z1	1A	RUSSO	010	RUSSO CT	RIO BLANCO DR	END	R	418	61	Cape Seal	Yes	\$ 15,564
2017	Z1	1A	SHWODR	010	SHELLWOOD DR	CURLETTO DR	OLIVE DR	R	1,742	51	Cape Seal		\$ 32,726

City of Concord 2016 and 2017 Prong 3 Treatment Plan

Treatment Year	Zone	Sub-Zone	StreetSaver Street ID	StreetSaver Section ID	Street Name	Beginning Location	End Location	Functional Class	Area (SY)	Average (Weighted) PCI	Field Review Treatment Recommendation	Cul-de-Sac	PRONG 3 Total Cost
2017	Z1	1A	SWOOWY	010 - 020	SPRINGWOOD WY	BAILEY RD	END	R	1,705	58	Cape Seal		\$ 32,037
2017	Z1	1A	SUNNPL	010	SUNNY PL	BAILEY RD	END	R	1,247	58	Cape Seal	Yes	\$ 31,134
2017	Z1	1A	THIESS	010	THIESSEN CT	CLAYCORD AV	END	R	1,679	74	Slurry Seal		\$ 9,938
2017	Z1	1A	ALROA	010 - 030	ALRO AV	MATHESON RD	CLAYCORD AV	R	4,922	52	Cape Seal		\$ 92,486
2017	Z1	1A	ALROCT	010	ALRO CT	ALRO AV	END	R	898	41	Cape Seal	Yes	\$ 24,591
2017	Z1	1A	ANGLEW	010	ANGLEWOOD CT	CLAYCORD AV	END	R	755	60	Cape Seal	Yes	\$ 21,902
2017	Z1	1A	BAILEC	010	BAILEY CT	BAILEY RD	END	R	605	27	Cape Seal	Yes	\$ 19,077
2017	Z1	1A	BECKHA	010	BECKHAM CT	ALRO AV	END	R	1,045	57	Cape Seal	Yes	\$ 27,345
2017	Z1	1A	BELDIN	010	BELDING CT	OLIVE DR	END	R	869	57	Cape Seal	Yes	\$ 24,038
2017	Z1	1A	BERRYC	010	BERRYWOOD CT	OLIVE DR	END	R	873	58	Cape Seal		\$ 21,110
2017	Z1	1A	BERRYD	010 - 040	BERRYWOOD DR	OLIVE DR	CONCORD BL	R	3,925	56	Cape Seal		\$ 105,534
2017	Z1	1A	BLUEWO	010	BLUEWOOD CT	CLAYCORD AV	END	R	455	52	Cape Seal	Yes	\$ 16,253
2017	Z1	1A	CHEROK	010	CHEROKEE DR	MATHESON RD	CLAYCORD AV	R	4,786	25	Cape Seal		\$ 89,937
2017	Z1	1A	CLAYCO	020 - 120	CLAYCORD AV	LAVERNE WY	BERRYWOOD DR	R	15,655	37	Mill and Overlay		\$ 680,675
2017	Z1	1A	CLAYCT	010	CLAYCORD CT	CLAYCORD AV	END	R	587	54	Mill and Overlay	Yes	\$ 24,875
2017	Z1	1A	CURLET	010 - 020	CURLETTO DR	OLIVE DR	SHELLWOOD DR	R	4,066	48	Cape Seal		\$ 76,406
2017	Z1	1A	FEDSCC	010	FEDSCO CT	CLAYCORD AV	END	R	756	38	Mill and Overlay	Yes	\$ 30,013
2017	Z1	1A	FEDSCD	010	FEDSCO DR	CLAYCORD AV	LAVERNE WY	R	1,085	37	Cape Seal		\$ 20,393
2017	Z3	3B	CORTEM	010	CORTE MIGUEL	SAN MIGUEL RD	END	R	1,387	82	Slurry Seal		\$ 8,209
2017	Z3	3B	FRAYNC	010	FRAYNE CT	FRAYNE LN	END	R	825	46	Mill and Overlay	Yes	\$ 32,753
2017	Z3	3B	FRAYNL	010 - 020	FRAYNE LN	MADIGAN AV	SAN MIGUEL RD	R	4,356	50	Mill and Overlay		\$ 172,916
2017	Z3	3B	LUXURY	010 - 030	LUXURY DR	MINERT RD	SAN SIMEON DR	R	2,439	68	Slurry Seal		\$ 14,440
2017	Z3	3B	MADIGA	010 - 030	MADIGAN AV	FRAYNE LN	MINERT RD	R	6,200	43	Mill and Overlay		\$ 246,149
2017	Z3	3B	MADIGC	010	MADIGAN CT	MADIGAN AV	END	R	1,272	35	Mill and Overlay	Yes	\$ 50,512

City of Concord 2016 and 2017 Prong 3 Treatment Plan

Treatment Year	Zone	Sub-Zone	StreetSaver Street ID	StreetSaver Section ID	Street Name	Beginning Location	End Location	Functional Class	Area (SY)	Average (Weighted) PCI	Field Review Treatment Recommendation	Cul-de-Sac	PRONG 3 Total Cost
2017	Z3	3B	MCELRO	010	MCELROY CT	RYAN RD	END	R	1,309	34	Mill and Overlay	Yes	\$ 51,967
2017	Z3	3B	MINERT	150 - 170	MINERT RD	SAN SIMEON DR	ST JOHN CR	R	4,020	39	Cape Seal		\$ 97,244
2017	Z3	3B	RYAND	050 - 070	RYAN RD	SAN SIMEON DR	SERPA DR	R	5,499	45	Mill and Overlay		\$ 218,293
2017	Z3	3B	SANSID	090 - 120	SAN SIMEON DR	RYAN RD	END	R	12,116	64	Slurry Seal	Yes	\$ 71,724
2017	Z3	3B	SPVACT	010	SPRINGVALE CT	SPRINGVALE WY	END	R	440	45	Mill and Overlay	Yes	\$ 17,468
2017	Z3	3B	SPVAWY	010 - 020	SPRINGVALE WY	END	ST JOHN CR	R	2,391	46	Mill and Overlay	Yes	\$ 94,936
2017	Z3	3B	STJOCR	010 - 020	ST JOHN CR	SULLIVAN AV	MINERT RD	R	4,711	50	Mill and Overlay		\$ 187,022
2017	Z3	3B	STJOCT	010	ST JOHN CT	ST JOHN CR	END	R	1,195	47	Mill and Overlay	Yes	\$ 47,455
2017	Z3	3B	STJODR	010 - 020	ST JOSEPH DR	SAN SIMEON DR	END	R	4,390	66	Slurry Seal	Yes	\$ 25,987
2017	Z3	3B	SULLAV	010	SULLIVAN AV	RYAN RD	ST JOHN CR	R	2,090	42	Mill and Overlay		\$ 82,973
2017	Z3	3B	WATSOE	010	WATSON CT (E)	LUXURY DR	END	R	931	43	Mill and Overlay	Yes	\$ 36,974
2017	Z3	3B	WATSOW	010	WATSON CT (W)	LUXURY DR	END	R	1,254	55	Slurry Seal	Yes	\$ 7,424
2017	Z5	5B1	CARDIC	010	CARDINAL CT	CARDINAL DR	END	R	451	48	Cape Seal	Yes	\$ 15,697
2017	Z5	5B2	CARDID	010 - 030	CARDINAL DR	THUNDERBIRD DR	FLOYD LN	R	2,798	53	Cape Seal		\$ 60,122
2017	Z5	5B1	FALCON	010	FALCON DR	CARDINAL DR	FLOYD LN	R	2,823	54	Cape Seal		\$ 50,001
2017	Z5	5B2	FLAMIN	010 - 030	FLAMINGO DR	OLIVERA RD	THUNDERBIRD DR	R	3,953	42	Cape Seal		\$ 70,002
2017	Z5	5B2	FLOYD	040 - 060	FLOYD LN	CARDINAL DR	PT CHICAGO HW	R	2,816	63	Cape Seal		\$ 49,871
2017	Z5	5B1	SKLADR	010	SKYLARK DR	THUNDERBIRD DR	FLOYD LN	R	3,245	53	Cape Seal		\$ 57,469
2017	Z5	5B2	TANACR	010 - 030	TANAGER CR	FLAMINGO DR	FLAMINGO DR	R	5,566	51	Cape Seal		\$ 98,574
2017	Z5	5B1	TANACT	010	TANAGER CT	TANAGER CR	END	R	1,357	46	Cape Seal	Yes	\$ 31,736
2017	Z5	5B1	TANAPL	010	TANAGER PL	TANAGER CR	END	R	567	52	Cape Seal	Yes	\$ 17,751
2017	Z5	5B2	THUNDD	010 - 050	THUNDERBIRD DR	OLIVERA RD	FLOYD LN	R	8,994	45	Mill and Overlay		\$ 366,789

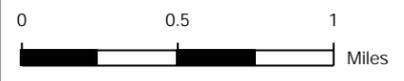
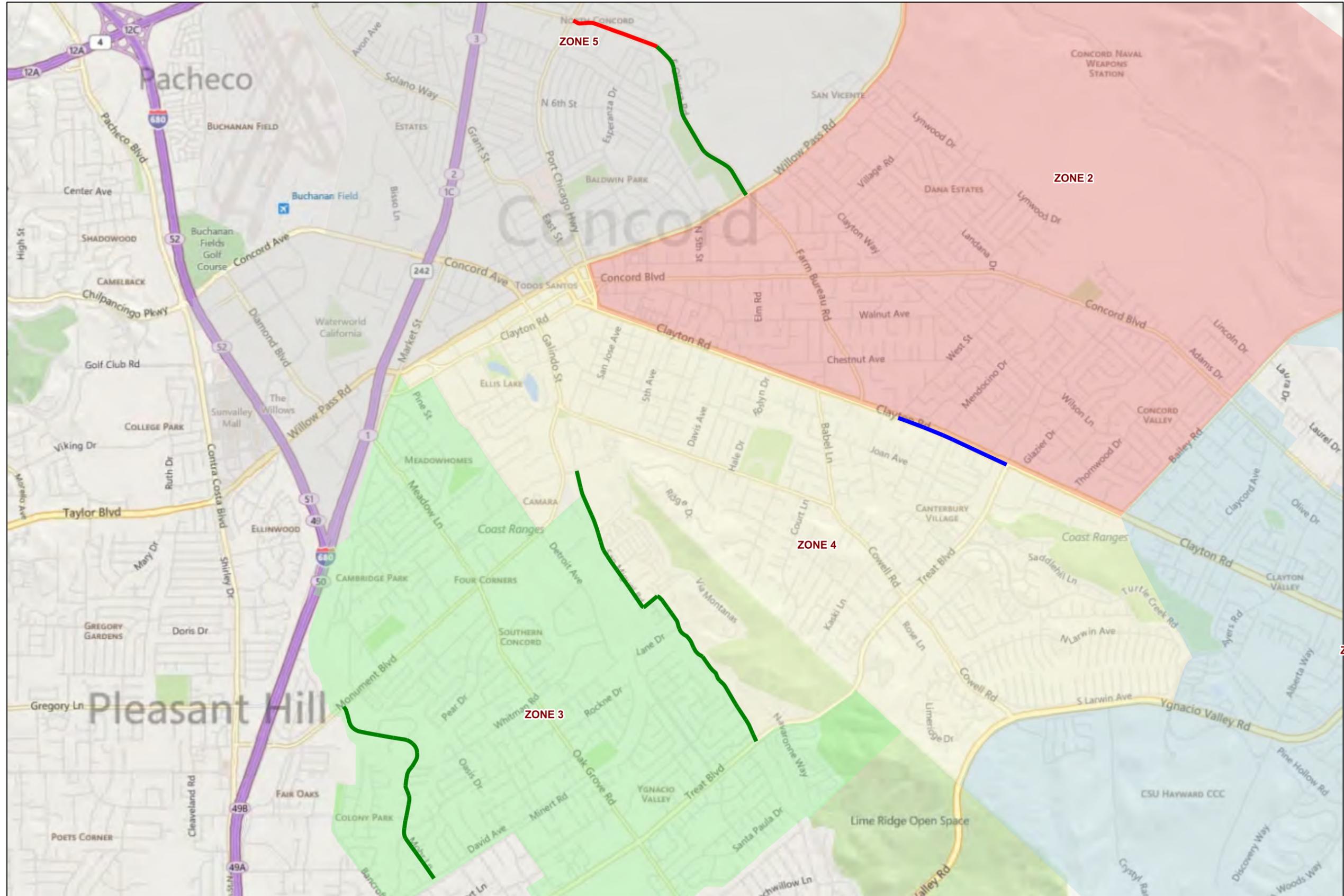
MAPS



2016 Prong 1&2

Feature Legend

- BASE REPAIR
- BASE REPAIR WITHIN OVERLAY
- RECONSTRUCT STRUCTURE (AC)

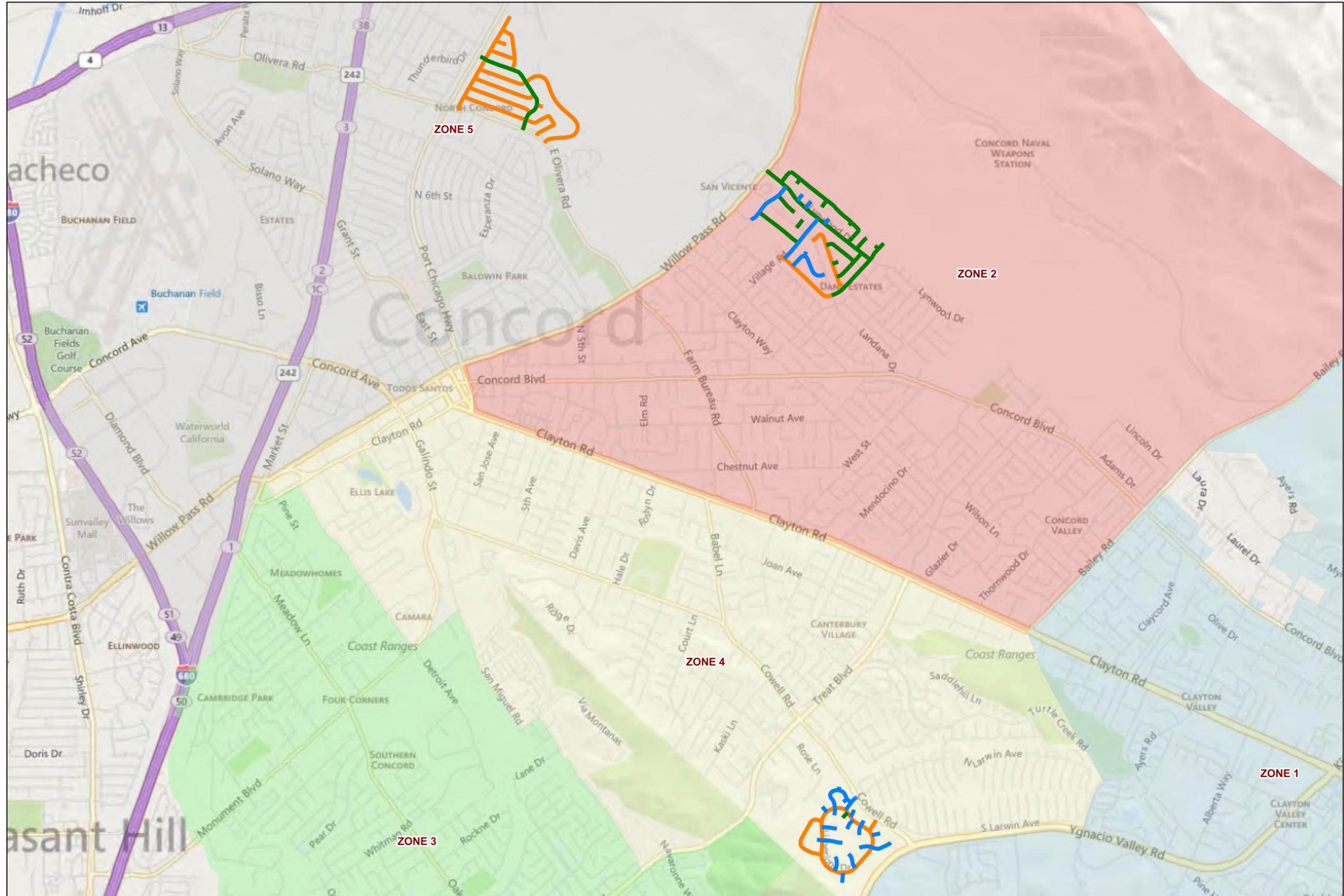




2016 Prong 3

Feature Legend

- █ CAPE SEAL
- █ MILL AND OVERLAY
- █ SLURRY SEAL

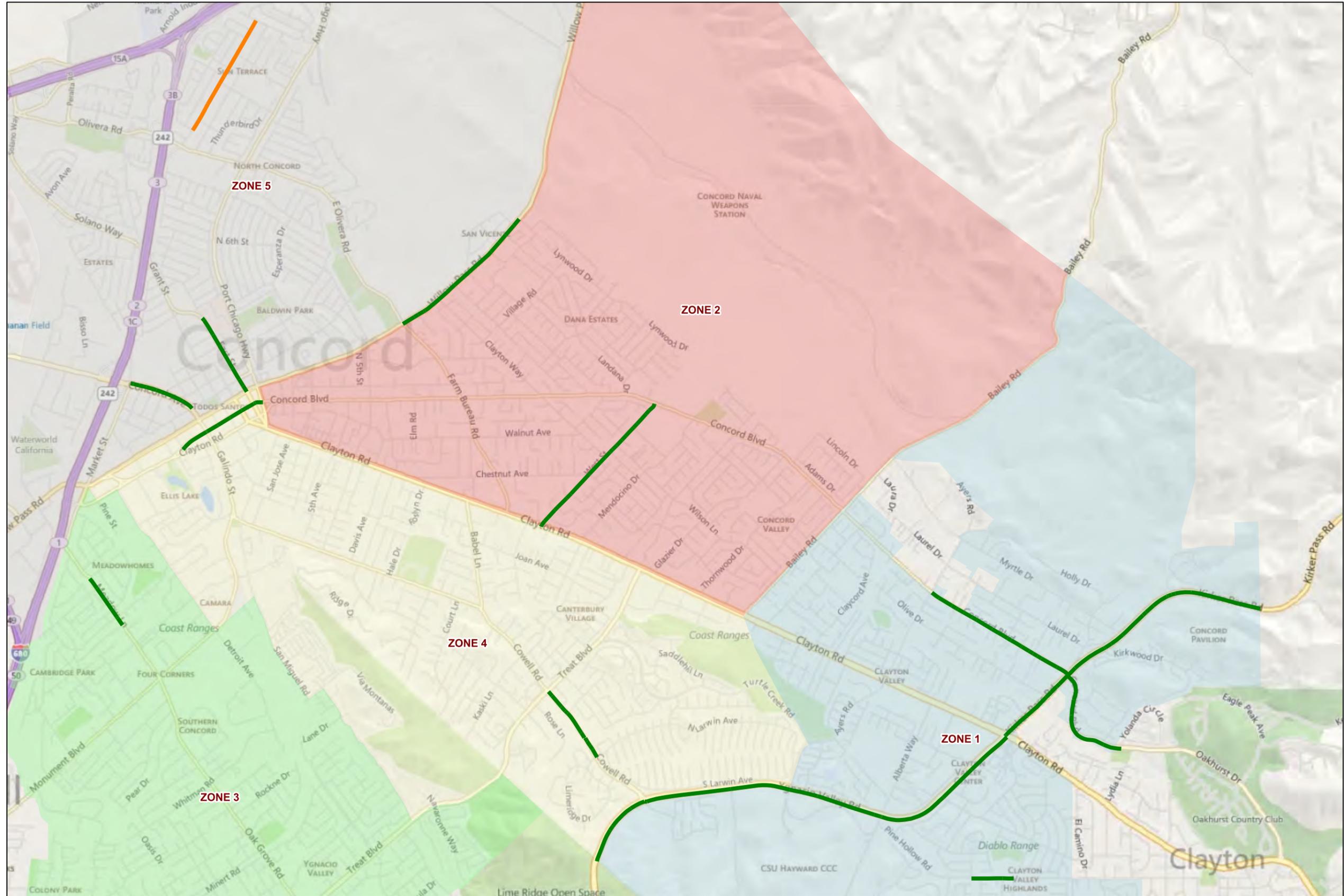




2017 Prong 1&2

Feature Legend

- █ BASE REPAIR
- █ Reconstruct FDR

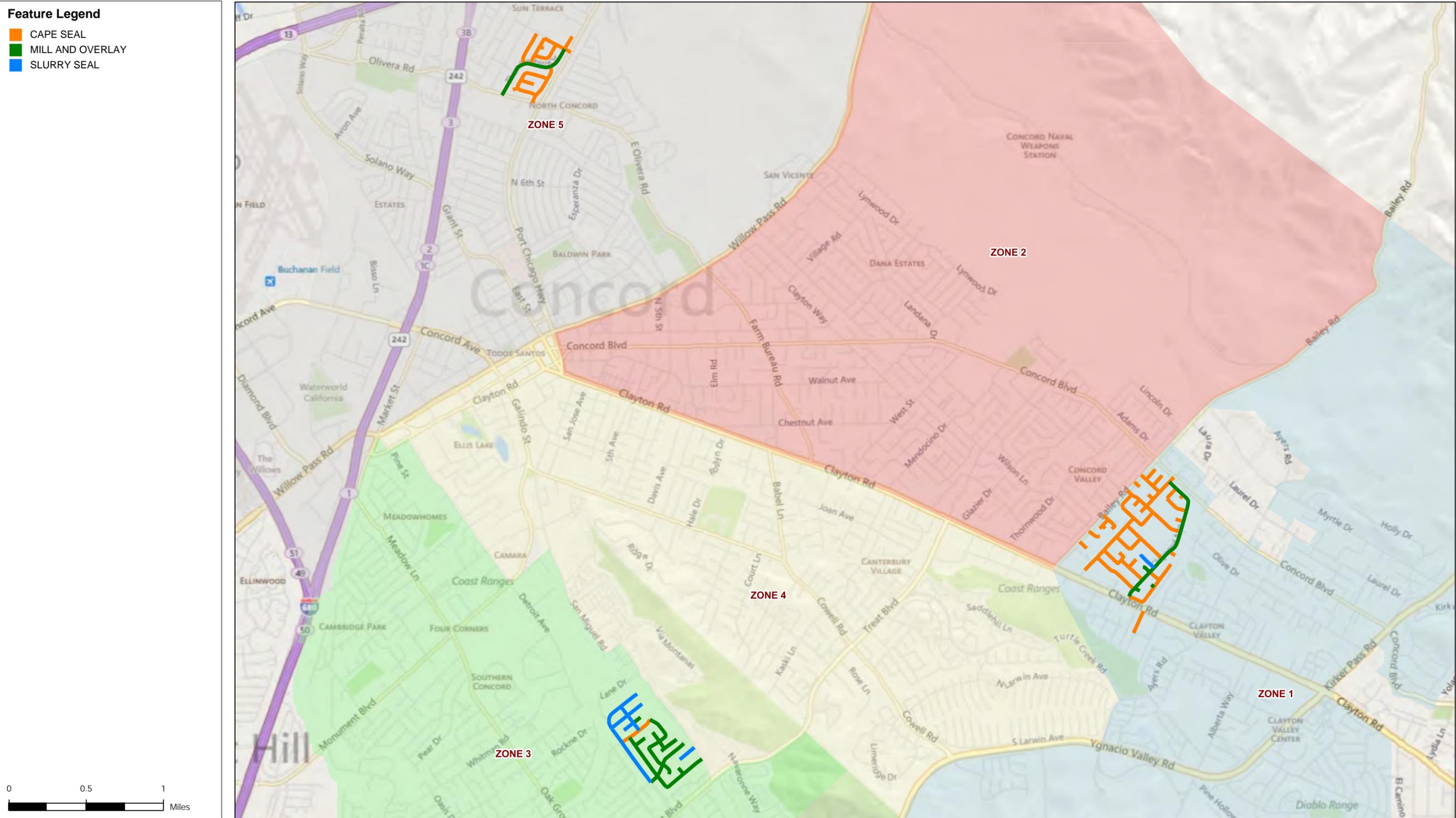




2017 Prong 3

Feature Legend

- █ CAPE SEAL
- █ MILL AND OVERLAY
- █ SLURRY SEAL





City of Concord

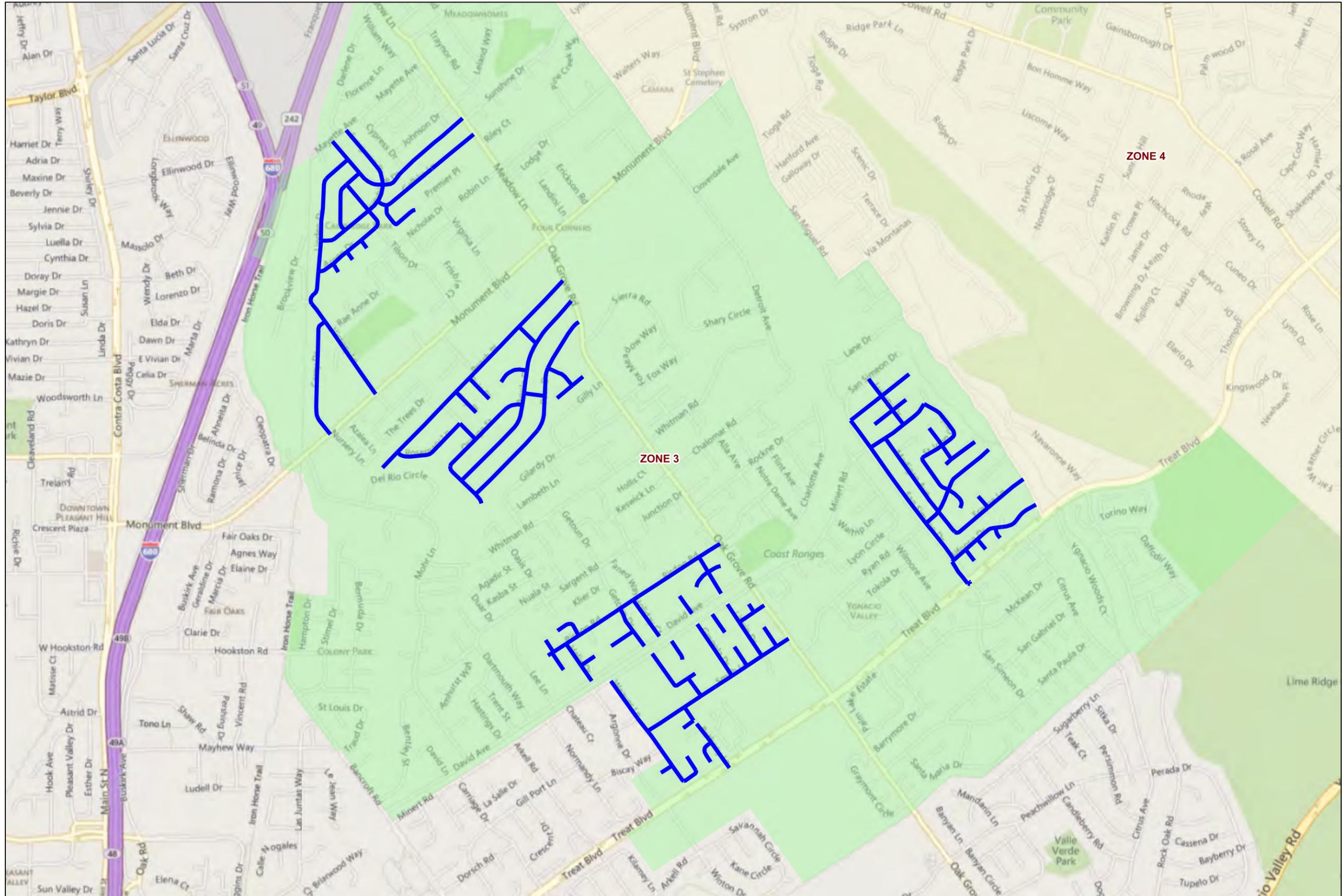
Scenario Treatments

PJ 2329 - Slurry - 2015 Project Period - Printed: 7/16/2015

Feature Legend

- SLURRY SEAL

0 0.5 Miles



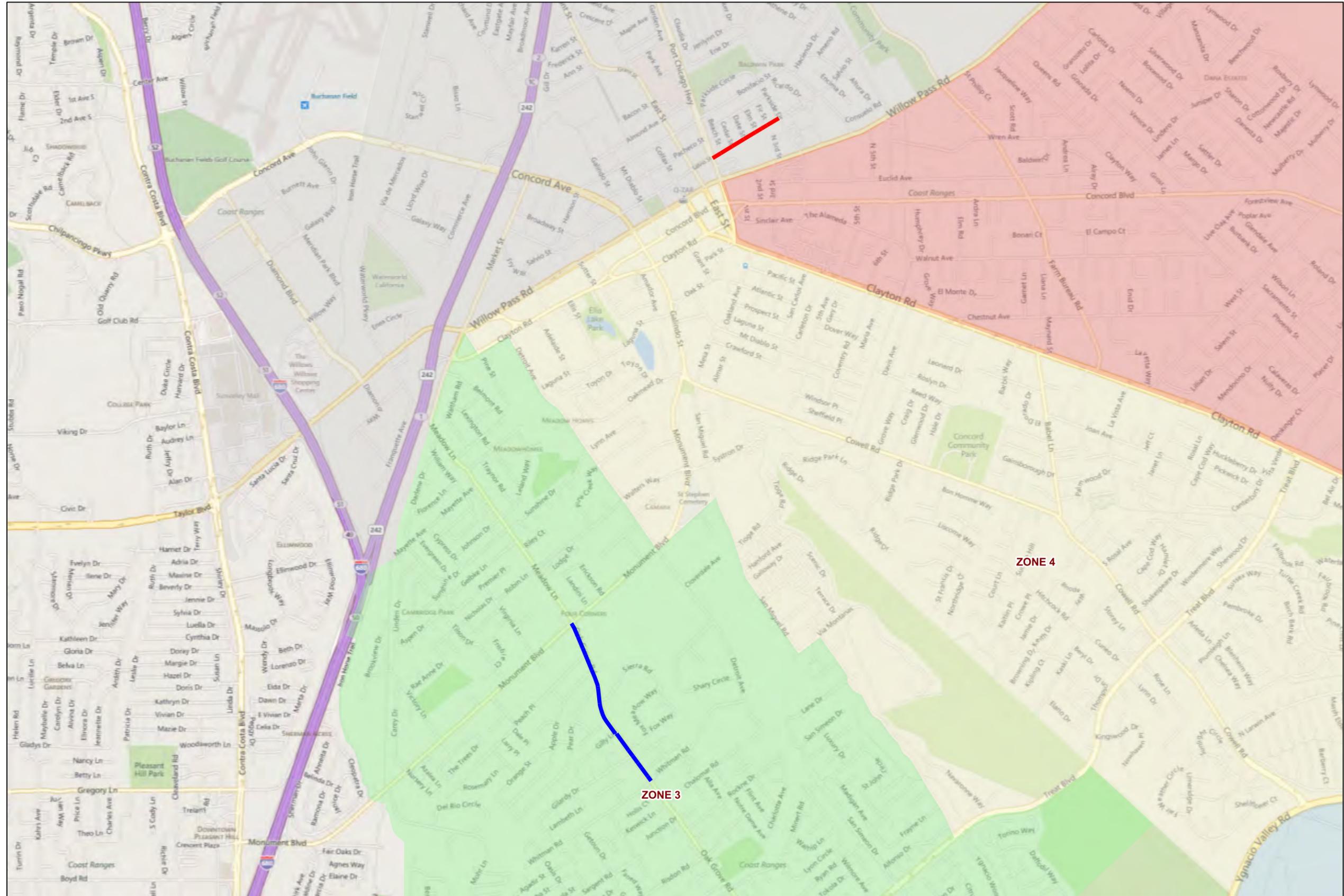


Scenario Treatments

PJ 2331 - 2015 Project Period - Printed: 7/16/2015

Feature Legend

- MILL & FILL
- OVERLAY



	Construction Spending Deadline	Cumulative Minimum Required Spending (Percent)	Yearly Minimum Required Spending (Percent)	Minimum Required Spending (Millions)	Base Repairs Prong 1 (16%) (Millions)	Major Construction Prong 2 (28%) (Millions)	Residential Prong 3 (56%) (Millions)	Total Spending (Millions)	Cumulative Spending (Millions)
PM	FY 14-15						\$ 1.87	\$ 1.87	\$ 1.87
Green Pavement	FY 14-15					\$ 0.15		\$ 0.15	\$ 2.02
PR	FY 15-16					\$ 2.20		\$ 2.20	\$ 4.22
PW	Years 1 thru 5				\$ 0.50			\$ 0.50	\$ 4.72
Year 1	November 2016	30%	30%	\$ 6.72	\$ 1.08	\$ 1.88	\$ 3.76	\$ 6.72	\$ 11.44
Year 2	November 2017	60%	30%	\$ 6.72	\$ 1.08	\$ 1.88	\$ 3.76	\$ 6.72	\$ 18.16
Year 3	November 2018		20%	\$ 4.48	\$ 0.46	\$ 0.18	\$ 1.57	\$ 2.21	\$ 20.37
Year 4	November 2019	100%	20%	\$ 4.48	\$ 0.46	\$ -	\$ 1.57	\$ 2.03	\$ 22.40
Total		100%			\$ 3.58	\$ 6.29	\$ 12.53	\$ 22.40	

PM - City of Concord's FY 14-15 Pavement Maintenance Project #2329.

Green Pavement - Detroit Avenue Pedestrian and Bicycle Improvements Project No. 2276, "Green Bicycle Lane" funding.

PR - City of Concord's FY 14-15 Pavement Rehabilitation Project #2331 (Oak Grove Road and Salvio Street).

PW - As approved by the INF on April 22, the Public Works Department purchased an Asphalt Zipper Machine to increase their capacity to construct Pot Hole repairs. The Zipper Costs \$169,490. Approx \$66k annually is recommended to be pulled from MQ to Provide PW with a total of \$500k from Prong 1.

Five year plan has been reduced to four years. Year 1 is now Year 2 from original five year plan.

Percent for 'new' Year 1 is sum of 10% (original Year 1) and 20% (original Year 2) from five year plan.

Percentages and dollars are based upon total budget value of \$22.4 Million.

CITY COUNCIL COMMITTEE

SPECIAL MEETING

INFRASTRUCTURE & FRANCHISE

Laura Hoffmeister, Chair
Edi Birsan, Committee Member

5:30 p.m.
Wednesday, April 22, 2015

Building A, Garden Conference Room
1950 Parkside Drive, Concord

AGENDA

ROLL CALL

PUBLIC COMMENT PERIOD

- 1. CONSIDERATION** – City of Concord Pavement Management Program – Lease Financing Expenditure Recommendations. Report by Jeff Rogers, Associate Civil Engineer.
- 2. ADJOURNMENT**

In accordance with the Americans with Disabilities Act and California Law, it is the policy of the City of Concord to offer its public programs, services and meetings in a manner that is readily accessible to everyone, including those with disabilities. If you are disabled and require a copy of a public hearing notice, or an agenda and/or agenda packet in an appropriate alternative format; or if you require other accommodation, please contact the ADA Coordinator at (925) 671-3361, at least five days in advance of the meeting. Advance notification within this guideline will enable the City to make reasonable arrangements to ensure accessibility.

Distribution: City Council
Valerie Barone, City Manager
Jovan Grogan, Deputy City Manager
Mark Coon, City Attorney
Victoria Walker, Community & Economic Development Director
Robert Ovadia, City Engineer
Jeff Rogers, Associate Civil Engineer
Administrative Services

**REPORT TO COUNCIL COMMITTEE ON
INFRASTRUCTURE & FRANCHISE****TO THE HONORABLE COMMITTEE MEMBERS:**

DATE: April 22, 2015

**SUBJECT: CITY OF CONCORD PAVEMENT MANAGEMENT PROGRAM - LEASE
FINANCING EXPENDITURE RECOMMENDATIONS****Report in Brief**

The City of Concord owns and maintains approximately 310 centerline miles of City streets. The City uses an asset management tool referred to as the Pavement Management Program (PMP) to catalog condition assessments, maintenance activities and project the pavement deterioration and repair cost of the City's street inventory. The PMP is also used to make recommendations regarding the most cost-effective use of available resources to maintain the City's streets. Street conditions are measured in the PMP using a standard Pavement Condition Index (PCI) which rates streets with scores that can range between 0 – 100. The current PCI for the City's streets is 61 (fair).

In March 2015, the City Council authorized the City to enter into a lease finance agreement, utilizing a portion of the anticipated revenues from the reauthorization of the Measure Q half cent sales tax. The purpose of the debt financing was to allow a quicker investment in addressing the City's street maintenance needs. \$22,435,000 in net proceeds has been made available through this mechanism to address infrastructure needs.

Engineering and Public Works staff have outlined an approach to address the City's street maintenance needs with the newly allocated funding. While staff is anxious to provide a list of recommended projects with individual street selections, staff is seeking support on the approach to be used in developing projects. As such, staff is presenting a three-pronged approach for allocating this funding over the next five years. If the Council Committee supports this approach, staff will develop a detailed investment plan which identifies individual roadway segments, consistent with the approach outlined in this report.

Background

The City of Concord owns and maintains approximately 310 centerline miles public streets and utilizes the Pavement Management Program (PMP) help manage the City's street inventory. The average PCI for the City's overall street inventory was recently rated 61 (fair). Unfortunately the PCI has declined over the past several years due to lack of sufficient funding to properly repair the street network.

The PMP utilizes a cost/benefit calculation to systematically recommend pavement maintenance and rehabilitation utilizing available funds. Street conditions are assessed on an annual to bi-annual basis for collectors and arterials, the most recent having been completed in November, 2014. Residential (local) streets

**THE CITY OF CONCORD PAVEMENT MANAGEMENT PROGRAM –
LEASE FINANCING EXPENDITURE RECOMMENDATIONS**

April 22, 2015

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are assessed at least once every 5 years, with approximately one-half of the residential streets assessed every two years. The results of the assessments are part of the base information in the PMP, and are also provided to the Metropolitan Transportation Commission (MTC). MTC periodically provides the City with grant funds to conduct the PCI evaluation, and requires a specific methodology be used. By compliance with this program, the City remains eligible for important grant opportunities. Reports and maps generated from the PMP are used as starting points for creating Pavement Maintenance and Rehabilitation projects.

Each year staff determines which pavement preservation strategy or combination of strategies should be implemented to preserve, rehabilitate, and extend the life of the City's streets, depending on available funds. Street maintenance is primarily funded with Measure J, Gas Tax and grant funds. Approximately \$1,200,000 in local funds (Measure J and Gas Tax) is programmed annually for preventative maintenance, slurry and cape seal projects. Because a slurry seal treatment lasts approximately 5-7 years, the City has been divided into five geographical areas (Zones 1-5) (Attachment 1) and pavement treatment projects are programmed in each zone on a 5 year rotational basis.

The City has been able to augment its local funds with various grants which help address some of the needs along arterial and collector streets. The following Pavement Rehabilitation Projects are scheduled for construction sometime during the 2015 or 2016 construction seasons, and most have been primarily funded with grant funds:

- Farm Bureau Road Safe Route to School (SR2S) Improvements (PJ 2251): This complete streets project includes resurfacing of the pavement and restriping to include bike lanes on Farm Bureau Road between Willow Pass Road and Wren Avenue and is currently under construction.
- Detroit Avenue Pedestrian and Bicycle Improvements (PJ 2276): This complete streets project will, among other things, resurface the pavement on Detroit Avenue between Monument Boulevard and Laguna Street and repair and slurry between Laguna Street and Clayton Road. Construction is scheduled to begin in the Summer/Fall 2015, (Funded by Congestion Management and Air Quality [CMAQ] and City Off-Site Improvement Program [OSIP])
- FY 14-15 Pavement Rehabilitation (PJ 2331): This complete streets project will construct improvements and resurface the pavement on Oak Grove Road from Monument Boulevard to Whitman Road, and on Salvio Street from Port Chicago Highway to Parkside Drive. Construction is scheduled for the Summer/Fall of 2015 (Funded by traditional Measure J funds and a Measure J - 511 Contra Costa Grant.)
- Central Concord Pedestrian Improvements and Streetscape Project (PJ 2239): This complete streets project will, among other things, include the resurfacing of the pavement on Willow Pass Road between Galindo Street and Market Street. Construction is scheduled for the Spring of 2016 (Funded by a Transportation for Livable Communities [TLC] Measure J Grant).
- City of Concord Pavement Rehabilitation (PJ 2292): This project will resurface the pavement on Concord Blvd between Sixth Street and Port Chicago Highway, and on Arnold Industrial Way between Port Chicago Highway and Pike Lane. Construction is scheduled to begin in the Spring 2016 (Funded by State Transportation Improvement Program [STIP]).
- FY 14-15 Pavement Maintenance (PJ2329): This project, which is in design, will slurry seal and cape seal select residential streets in Zone 3, has an estimated construction cost of \$900,000 and is funded by Measure J. It is scheduled for construction later this year.

**THE CITY OF CONCORD PAVEMENT MANAGEMENT PROGRAM –
LEASE FINANCING EXPENDITURE RECOMMENDATIONS**

April 22, 2015

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- FY 15-16 Pavement Maintenance (PJ2332): This project will slurry seal and cape seal select residential streets in Zone 4, is proposed with an estimated construction cost of \$900,000 and funded by Measure J. It is scheduled for construction in Spring/Summer 2016.
- FY 15-16 Pavement Rehabilitation (PJ 2333): This project will resurface neighborhood (local) streets in Spring/Summer 2016. The streets selected for this project are conditional on the Committee's support of the approach outlined in this report.

Staff will also apply for grants to fund the following projects which will include pavement repair/resurfacing components:

- Farm Bureau Road Complete Streets - Phase II, from Wren Avenue to Walnut Avenue
- Farm Bureau Road Complete Streets - Phase III, from Walnut Avenue to Clayton Road
- Oak Grove Road Complete Streets – Phase II, from Whitman Road to Treat Boulevard

In March 2015, the City Council authorized the City to enter into a lease finance agreement, utilizing a portion of the anticipated revenues from the reauthorization of Measure Q. The purpose of the debt financing was to allow a quicker investment in addressing the City's street maintenance needs. \$22,435,000 has been made available through this mechanism to address infrastructure needs.

Discussion

While staff is anxious to develop and provide a list of recommended projects with individual street selections, it is important that the Council support the approach in development of the projects and street selections. As such, staff recommends using a three pronged approach in utilizing the available funds to address street maintenance needs as follows:

1. Allocate \$4 to \$7 million of the funds towards localized pavement repairs (potholes and base failures.)

One of the most prevalent issues related to the deterioration of our streets are potholes and other localized pavement failures. These potholes generate a significant number of complaints, and the longer they remain unaddressed, the more serious the failures become, which can significantly increase the future cost of repair. Allocating additional resources to address these localized areas will help the City keep up with maintaining our pavements with lower cost surface treatments and improve ride-ability on our local streets. Public works staff currently addresses potholes by applying a thin layer of new asphalt atop the failed surface, filling holes and preventing water from causing further damage. Though this is a good stop gap measure, it does not address the underlying failure. Staff recommends:

- a. Increase the Public Works Department Infrastructure Maintenance Program capacity for addressing potholes

To increase in-house capacity to repair potholes and failed pavement areas, additional equipment is needed to more efficiently remove the existing asphalt and allow for a deeper and more effective pothole repair. After investigation, Public Works staff recommends the purchase of an Asphalt Zipper machine (Attachment 2) at a cost of approximately \$200,000. In addition, due to the increased

**THE CITY OF CONCORD PAVEMENT MANAGEMENT PROGRAM –
LEASE FINANCING EXPENDITURE RECOMMENDATIONS**

April 22, 2015

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efficiency, the Public Works asphalt and material budget should be increased by \$50,000 – \$75,000 annually for the next five years (the targeted time for spending the lease revenue funds).

b. Contract the work for larger repair areas and in heavily trafficked areas

As there are many areas that are located in high-traffic areas that will require significant traffic control or that may be too large to efficiently complete by the Public Works Infrastructure Maintenance Program, it is recommended that the repair program be augmented with work conducted by private contractors. It is recommended that approximately \$600,000 - \$700,000 be allocated annually over the 5 year period to cover the costs of the contract work as well as project and construction management.

2. Allocate funds for major street repair and reconstruction projects

As noted above, the PMP uses a cost/benefit calculation to recommend selected streets for maintenance or repair. This calculation is based on the additional cost of deferring maintenance through the calculation period based on available funding. Several streets have deteriorated beyond the point where deferral of maintenance will increase costs significantly over the calculation period or have deteriorated sufficiently that they no longer trigger a repair recommendation out of the PMP. The condition of these streets is such that a repair is not as cost-effective as work on other streets. It is recommended that approximately \$5M-\$6M of the \$22M total be allocated to address streets in this category, including streets like Commerce Boulevard, as well as to use as local matching funds for streets that qualify for grant funds. Utilizing the funds as local match will allow the City to leverage the funds and provide for a greater return on its investment on City Streets.

3. Allocate funds for local neighborhood street resurfacing

Most streets recommended for repair through the PMP are local residential streets, but grant funds are typically only available for work on collector and arterial streets. Therefore, it is recommended that the bulk of available funds be dedicated to resurfacing neighborhood streets. It is recommended that approximately \$10M - \$12M of the \$22M total be allocated to resurface local neighborhood streets. The goal would be to establish a framework for identifying the streets to be addressed in each area of the five geographic areas of the City and to address residential streets area-by-area over five years.

If this three pronged approach is supported by the Council Committee, staff will partner with a specialist in pavement management to refine the proposed program and identify individual street selections. Staff will bring the refined project scopes and street selections to the Council Committee and then the Council for approval.

Because the financing for this program is tax-exempt there are requirements for speedy expenditure of the funds. Specifically, 10% of the funds must be expended within one year, 30% of the funds expended within two years, 60% of the funds be expended within three years and 85% of the funds must be expended within five years. Consequently, the program staff develops will be designed to meet or exceed these targets. However, to meet the year one and two expenditure targets, the City may need to expend some of the funds on currently programmed projects then use a reciprocal swap to return the funds for expenditure on roadways through this program.

**THE CITY OF CONCORD PAVEMENT MANAGEMENT PROGRAM –
LEASE FINANCING EXPENDITURE RECOMMENDATIONS**

April 22, 2015

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The expenditure plan will include a detailed street list for each program project including recommended repairs and surface treatments, and estimated project costs (including project management, design, construction and inspection), as well as a targeted delivery schedule. Staff will use this plan to program projects, generate and implement the various construction projects, as well as track expenditure progress. Staff anticipates returning to the Committee and Council with the plan in July. However, staff is recommending that if the Committee supports the purchase of the new piece of equipment and additional materials to enhance the City's pothole repair program, staff move this part of the program forward immediately.

Fiscal Impact

The costs associated with implementing the program recommendations will be funded by the proceeds generated through the lease financing mechanism recently implemented, in the amount of \$22,435,000.

Public Contact

The Council Agenda was posted.

Recommendation for Action

Staff recommends that the Infrastructure & Franchise Committee review the recommendations presented below and indicate support for the three-pronged approach to addressing street maintenance needs, and direct staff to return to the Committee and the Council in July with the specific street segments selected:

- Increase in-house capacity for addressing potholes: Allocate \$200,000 to purchase an asphalt Zipper and add \$50,000 to \$75,000 per year to supplement the Public Works asphalt and material budget. (Direct staff to begin this program immediately.)
- Contract the work for larger repair areas and in heavily trafficked areas: For those areas that are located in high-traffic areas and that may be too large to efficiently complete with in-house resources, allocate \$600,000 to \$700,000 per year over the next five years towards localized pavement repairs.
- Allocate \$5,000,000 to \$6,000,000 over the next five years for major street repair and reconstruction projects and as a local match for grant funding opportunities to allow the funds to go further
- Allocate \$10,000,000 to \$12,000,000 over the next five years to fund neighborhood (local) street repair. Streets would be chosen based on a framework approved by the Committee and Council and one geographic area of the City would be addressed each year for the next five years.

**THE CITY OF CONCORD PAVEMENT MANAGEMENT PROGRAM –
LEASE FINANCING EXPENDITURE RECOMMENDATIONS**

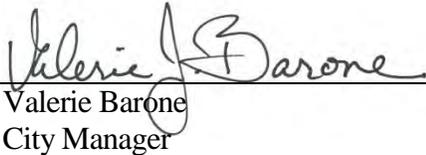
April 22, 2015

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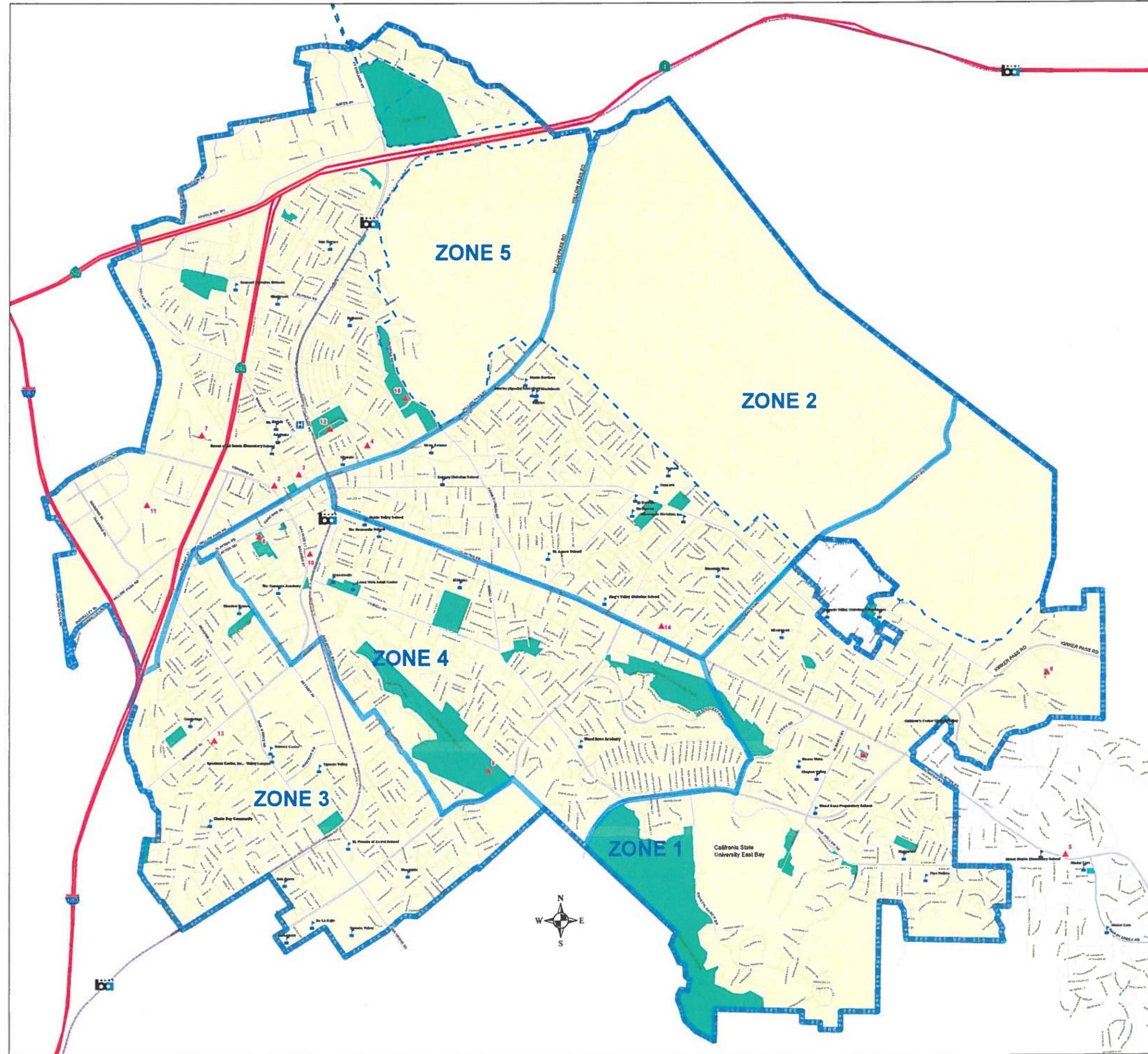


Valerie Barone
City Manager

Reviewed by: Justin Ezell
Director of Public Works
justin.ezell@cityofconcord.org

- Attachment 1: Street Maintenance Zones Map
- Attachment 2: Asphalt Zipper Image

STREET MAINTENANCE ZONES
(ATTACHMENT 1)



Legend

- City Limit
- Parks
- Street Maintenance Zones
- Schools
- Hospitals
- BART Station
- BART Track

City Facilities

- facility**
- 1 Center Concord
 - 2 City Parking Garage- 2051 Salvia St
 - 3 City Parking Garage- 2255 Salvia St
 - 4 Civic Center
 - 5 Clayton City Hall
 - 6 Concord Pavilion
 - 7 Corporation Yard
 - 8 Keller House
 - 9 Lime Ridge Community Building
 - 10 Police Headquarters
 - 11 Pump Station
 - 12 Senior Center
 - 13 Southern Field Office-1500 Monument Bl
 - 14 Valley Field Office- 4467 Clayton Rd
 - 15 Willow Pass Center



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Maintenance Zones
City of Concord



