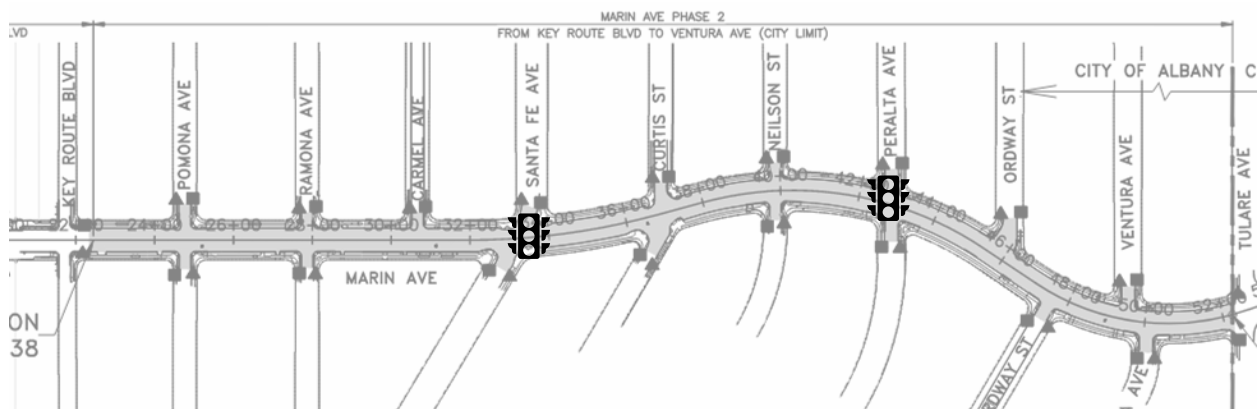




# Marin Avenue Pavement & Curb Ramp Rehabilitation Project

## Phase 2 Background and Discussion



April 7, 2025

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## **Background**

The City of Albany currently maintains approximately 30 centerline miles of roads representing five million square feet of pavement. The Annual Street Rehabilitation Program (CIP No. 21000) was established as part of the City's Capital Improvement Plan (CIP) in order to formalize the City's annual investment into improving and maintaining pavement conditions throughout the City.

The Marin Avenue Pavement & Curb Ramp Rehabilitation Project (Marin Paving Project) started as a paving project under the City's Annual Streets Rehabilitation Project (CIP No. 21000) but has since grown to include necessary stormwater rehabilitation and improvement work, traffic signal renewal, along with enhancements to pedestrian and bicycle safety and proposed intersection street lighting improvements as a bid alternative.

### **Project Limits Identified (Annual Street Rehabilitation Program)**

On November 2, 2020, Council awarded Contract No. C21-10 for programmatic pavement and curb rehabilitation design, including for Marin Avenue from Masonic Avenue to the Berkeley city limit (Resolution No. 2020-105). Locations included were selected based on prioritizations in the 2019 Pavement Management Plan, in conjunction with other upcoming projects including East Bay Municipal Utility District (EBMUD) planned pipeline replacement.

The limits of pavement and curb rehabilitation on Marin Avenue were expanded in January 2021 (Resolution No. 2021-02) to add three additional blocks of Marin Avenue (Cornell Avenue to Masonic Avenue) and scoped under the Marin Paving Project.

### **Marin Paving Project Corridor**

Recognizing Marin Avenue as a major transportation corridor of focus in the prior Active Transportation Plan (ATP) planning documents, staff reviewed project elements identified in the ATP and engaged with project designers to present proposed elements which could feasibly be incorporated into a paving project to the Transportation Commission for feedback.

On April 22, 2021, staff gathered feedback from the Transportation Commission for several design concepts for the Marin Paving Project. On May 27, 2021, staff returned to the Transportation Commission and presented revised design concepts to discuss challenges, receive public and commission feedback, and recommend elements to include in design. The Transportation Commission ultimately recommended:

- 1) Maintaining the existing street configuration of a single shoulder (parking lane), bicycle lane, and travel lane in each direction with a center turn lane; and
- 2) The reduction of the quarter crown along the curbside of the street<sup>1</sup>; and
- 3) The reduction of travel lanes to 10-feet wide; and
- 4) The inclusion of marked crossings at all four legs of the intersection; and
- 5) The inclusion of buffered bicycle lanes (2-feet on each side); and
- 6) The exclusion of curb (hardscaped) bulbouts; and
- 7) The evaluation of painted bulbouts; and
- 8) Deferring evaluation of “Complete Streets” elements’ (e.g. protected bike lanes, cycletracks, etc.) to decisions to be made in future planning processes.

## Marin Paving Project – Phased Approach

During design of the Marin Paving Project, East May Municipal Utilities District (EBMUD) communicated a need for waterline replacement on Marin Avenue from Key Route Boulevard to Tulare Avenue. This project was identified due to EBMUD’s anticipated need for pipeline repair and renewal within a major corridor undergoing pavement rehabilitation and was not part of the Agency’s original planned capital pipeline replacements.

To accommodate EBMUD acceleration of pipeline renewal, staff separated the Marin Paving Project into two phases (“Phase 1 Project”: Cornell to Key Route and “Phase 2 Project”: Key Route to City Limits). Phase 1 of the Marin Paving Project was accelerated to tie in with the overlapping Masonic Intersections (Ohlone Greenway Trail Improvement) Project, and was successfully completed in Summer 2023.

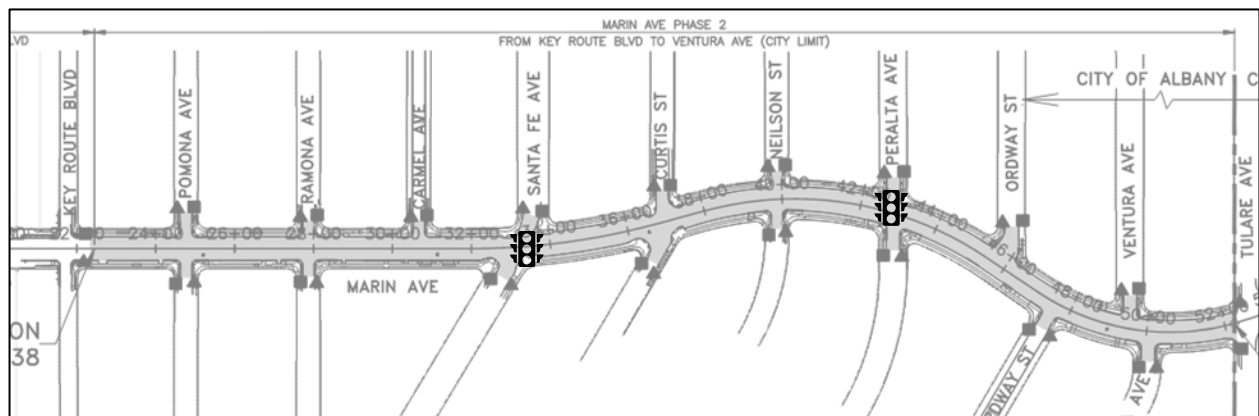


Figure 1. Marin Pavement and Curb Ramp Rehabilitation Project - Phase 2 Limits

<sup>1</sup> This recommendation is further discussed in a June 23, 2022 Transportation Commission presentation.

The planned sequence for construction of the Phase 2 Project was to resume following completion of the EBMUD waterline work. However, during 2023, staff identified significant amounts of work to be performed in 2024 by multiple agencies, including the City of Albany, along San Pablo Avenue, another major arterial, and adjusted project sequencing on Marin Paving Project accordingly.

## **Marin Paving Project, Phase 2 Project Development**

On June 23, 2022, staff presented Phase 2 Project plans to the Transportation Commission for feedback. It was discussed with the Transportation Commission that their 2021 recommendation for a cross-slope adjustment (quarter crown reduction) would require significant expenditures while not directly contributing towards the goal of improving pavement condition, ultimately falling outside of the stated program purpose of the Street Rehabilitation Program. Future bicycle improvements, including cross-slope adjustments for a potential bikeway project, were recommended for deferral to future planning processes, such as the Active Transportation Plan (ATP). This would also ensure the City follows the processes necessary to be eligible for outside funding sources to augment costs, which has the additional benefit of preserving pavement management funds for projects which are less attractive for grant funding opportunities. The Transportation Commission agreed with the staff recommendation; additionally, the Transportation Commission recommended the Phase 2 Project plans for Council approval with inclusion of:

- 1) Painted bulbouts with plastic posts at intersections; and
- 2) A Rectangular Rapid Flashing Beacon (RRFB) at Ventura Avenue; and
- 3) Evaluation of bicycle priority zones (e.g. “bicycle boxes”) at signalized intersections.

Staff reviewed the three June 2022 recommendations by the Transportation Commission and included these in the Phase 2 Project plans.

Following the June 23, 2022 meeting, additional comments were received from Council Members regarding the following features:

- 1) The inclusion of curb (hardscaped) bulbouts at Peralta Avenue; and
- 2) Moving infrastructure, such as storm drain inlets, outside of a conceptual alignment for a Class IV bicycle facility adjacent to Marin sidewalks; and
- 3) Reduction of red curb at Santa Fe and Curtis intersections to align with the original Safe Routes to Schools project.

Staff evaluated these comments and provide the following response:

- 1) Due to the planned curb radii reduction and geometry of the intersection, three curb bulbouts along Marin Avenue at Peralta were not feasible due to grading or inhibiting truck turn movements, including the Albany Fire Department. While the southwest curb bulbout may be workable, staff do not recommend including it as

in conflict with Transportation Commission's recommendation to exclude curb bulbouts in the Phase 2 Project, the intersection is signalized allowing for timed pedestrian crossings, and the crossing distance has been significantly reduced with the proposed curb radii modifications.

- 2) Any potential adjustment of infrastructure, such as storm drains and curb ramps, would necessitate decisions on proceeding with a major change in alignment for the bicycle facility, which has also yet to undergo a feasibility study. As a design alignment currently does not exist, nor is there public consensus on whether the alignment is adjacent to the sidewalk or within the street itself, it is staff's recommendation not to incur the costs and potentially unnecessary adjustment of infrastructure under the Phase 2 Project.
- 3) Red curb along Marin Avenue at the northwest Santa Fe Avenue intersection will be adjusted in the Bid Set. The other red curb at intersections were not reduced due to visibility or storm drain conflicts.

On July 18, 2022, Council approved additional design for stormwater drainage improvements for the Phase 2 Project in order to improve curb ramp and crosswalk design (Resolution No. 2022-105).

On June 17, 2024, Council awarded design services Contract No. C24-35 to include recommended improvements and updates for traffic signal renewal and intersection safety lighting into a revised set of plans and specifications for the Marin Phase 2 Project (Resolution No. 2024-49). See Discussion Section below for more information.

## Discussion

Marin Avenue was initially constructed over a century ago using methods which predate modern design and construction standards. At the time of original construction, equipment and vehicles weighed significantly less and paving techniques and traffic demand allowed for construction which would be slowly built up over poor soils in a manner which would not disturb the existing ground.



*Figure 2. 1912 Photo Image, Courtesy of Berkeley Historical Society*

### Existing Marin Avenue Crown

Since its original construction, Marin Avenue has been overlaid with layers of additional asphalt, creating a pavement section that “bridges” over the poor soils below and has held up well to modern traffic loads. This type of pavement maintenance and rehabilitation was a common technique but also one that can contribute to a very high roadway crown, such as exists on Marin Avenue – contributing to design and construction challenges to adjust roadways in a manner that meets modern accessibility requirements.

### Existing Marin Avenue Storm Drain

The original Marin Avenue also relied on deep gutters with shallow box-shaped cross drain pipes to convey storm water across intersections. The 1930s saw the construction of the Marin Storm Drain, extending from Berkeley and running through the City of Albany, but subsequent construction did not include connections to this storm drain main at all

intersections; drainage at many intersections along this corridor remains carried by cross drains which cause significant maintenance problems due to pipe corrosion, flat slopes, failures, and access difficulties. Intersections along the corridor commonly experience clogged or overwhelmed drains leading to water ponding at corners until the drain can be cleared. The locations of these cross drains are generally in conflict with the location of desired pedestrian crossings and the associated accessible curb ramps.

## **Marin Avenue Subgrade Challenges**

Given the high crowns, the initial design approach to the Marin Paving Project was to lower the roadway crown for accessible crosswalks through full-depth reconstruction of all intersections along the Marin corridor. However, the existing ground surface beneath the pavement on Marin Avenue (the subgrade) is challenging to work within.

### *Clay Subgrade and Intersections*

During design progress, geotechnical borings were used to determine the existing roadway cross sections. The results identified that the existing ground surface below the roadway consists of sandy clay to clay with an estimated R-value of 15 – considered a poor soil for the “foundation” of a street. R-value is used to measure resistance of a soil, with a value of 0 being similar to water (unstable) to a value of 100 being similar to steel. Staff took the opportunity to corroborate testing data with observations while utility work was being performed along Marin Avenue and the observations along utility trenches were generally consistent with geotechnical data.

In order to maintain a proper roadway foundation, the initial approach of lowering roadways crowns would have required higher risk/higher impact construction consisting of full removal and replacement of half an intersection at a time, including:

- Excavation up to 30+ inches below existing ground surface
- Trucking and disposal of excess soil
- Potential cement/lime treatment for the underlying clay soil requiring testing and application of treatment (further overexcavation, test to determine ratio of cement/lime, application of treatment, mix, roll, cure)
- Rebuilding of roadway to just under the final asphalt layer

All of this would need to occur before the roadway could be rebuilt at its final elevations. This would have been repeated two times at each intersection throughout the corridor, required month-long full closures on side streets, and be highly impacted by rain, all of which would have meant long periods of sidewalk closures, lane diversions, large parking impacts, and detours throughout construction. The Phase 1 Project benefited from a less extreme roadway crown within the segment resulting in less removal of existing roadway, and risks were partially mitigated by a smaller project and acceleration of the project to coincide with the Masonic Intersections (Ohlone Greenway Trail Improvement) Project,



which resulted in the work occurring in the summer when groundwater level is lower and subgrade more firm.

### *Bedrock*

In addition, shallow bedrock was also observed at Peralta during PG&E's utility pole replacement work at the Marin/Peralta intersection. Bedrock is difficult to remove and typically requires blasting techniques or slow, highly disruptive digging methods. As a result, there are major limitations to being able to regrade the street to a lower depth than existing elevations.

### *Soil Pumping*

In addition to challenges with subgrade at intersections, subgrade issues were observed between intersections in the Phase 1 Project following the removal of the top level of asphalt paving.

Modern paving techniques involve equipment and materials that are far heavier than what can be expected to occur during vehicle regular use (and that which were historically used). As fully loaded dump trucks were driven over the same area repeatedly during in areas requiring thicker restoration, and then again during reinstallation of new asphalt, large areas of the pavement base started to "pump"— that is, start to flex and lose structural stability.

## **Cost/Risk Analysis**

With these considerations, Staff engaged with project designers to perform a cost analysis for raising the grading within the intersections and develop a risk management strategy for project construction. Geotechnical investigations and observations noted above, along with a strategy to minimize repeated loading on unprotected pavement base and subgrade during paving operations was incorporated into the project risk management strategy and design. Based on comparisons between initial design approach and a revised design approach described below, the revised design approach was expected to save approximately \$900K in construction costs and significantly reduce project risk.

## **Revised Design Approach**

For Marin Avenue, the initial approach would have significantly higher risks, impacts, and costs. To mitigate the risks of delays and cost increases due to challenges above, staff worked with design engineers to minimize the need to lower intersections by instead adjusting sidewalk elevations upwards, including adding/adjusting the necessary storm drainage infrastructure improvements in order to manage storm water. This was a more challenging design exercise but came with significant reductions in project construction risk and paving costs.

### *Curb Ramp Considerations*

This approach is not without trade-offs. Due to the existing elevation constraints, 7 of the 46 of the curb ramps on the project (located within the Neilson, Peralta, Ordway, and Ventura intersections) required reversing the slope of the curb ramp. At these specific curb ramps, the ramp slopes toward the sidewalk and any water that is not intercepted by curb ramps is ultimately discharged across the corner into a planter strip. This is less common of a curb ramp design approach but is ADA compliant and manageable with the availability of sufficient stormwater infrastructure at Marin Avenue.

To mitigate risks to impacting pedestrian access and adjacent properties, the design has special attention toward providing greater stormwater capture upstream of curb ramps to avoid stormwater bypass to preserve pedestrian access during wet weather. Sidewalk grading also included a focus on the adjacent property grading and usage – including providing curbs behind the sidewalk at certain locations to control rainwater away from properties.

Ultimately, the proposed Phase 2 Project plans maintain directional perpendicular curb ramps that are compliant with both ADA accessibility standards and Public Right-of-Way Accessibility Guidelines (PROWAG) and follow the City of Albany's Curb Ramp Design Guidelines. In addition, the design team engaged with a California Certified Access Specialist and the U.S. Access Board to confirm that proposed curb ramp design meets accessibility requirements and that the proposed modifications were designed to the maximum extent feasible with existing physical constraints.

## Additional Project Changes

In early 2024, staff identified several recommended improvements and updates to the Phase 2 Project regarding signal improvements and intersection safety lighting as summarized below.

### *Traffic Signal Renewal.*

Renewal scope included in project plans are primarily intended to address visibility, reliability, and safety for existing traffic control systems along with optimizing adjustments to signal system which were triggered by curb ramps and curb radii reductions. Operational improvements are also included for minimize need for emergency crew responses during power outages at Peralta and Santa Fe. Changes to signal phasing or timing are not included but can be addressed operationally in the future should a need be identified.

- Visibility Improvements: Mitigate street tree impacts on traffic signal and pedestrian crossing signal visibility at Peralta, upgrade signal heads and include reflective back plates
- Reliability: Add battery backup systems to address intermittent power outages; add video detection system at Peralta; and rehabilitate existing conduit system to meet electrical code, including requirements for burial depth to mitigate accidental damages
- Safety and ADA Updates: Upgrade GPS based emergency preemption system, relocate pedestrian push buttons and upgrade to audible push buttons to meet current ADA standards

### *Cold-In-Place Recycling*

With the transition to raising the roadway surface, another benefit could be realized in the form of Cold-In-Place Recycling, a newer pavement rehabilitation technique. CIPR is a method of paving in which only the topmost layer of existing asphalt surface is removed, and the lower layer (or portion of the lower layer) is pulverized in place, blended with an asphalt recycling agent, and replaced in the same location, followed by application of a smooth finish pavement surface.

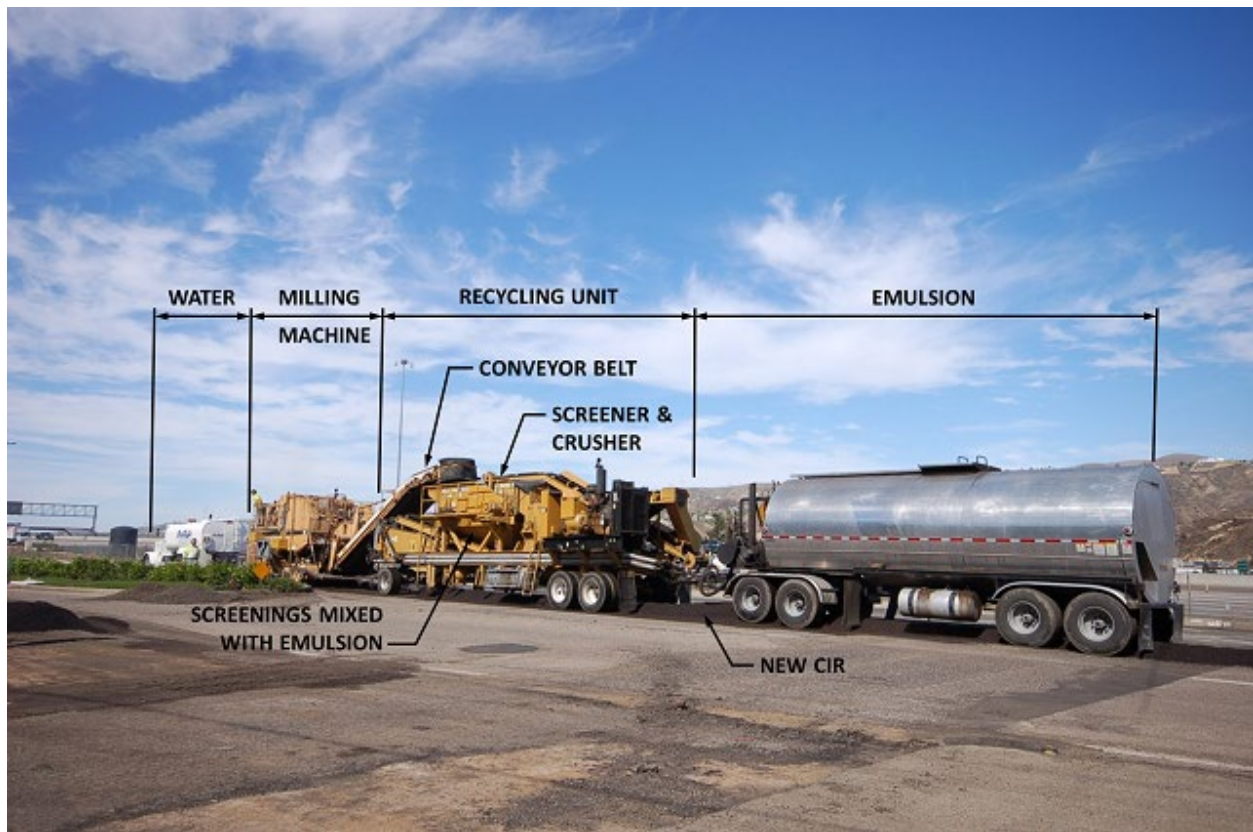


Figure 3. Cold-in-Place Recycling Equipment Train, Courtesy of Texas DOT

Limitations in the construction methodology make CIPR inefficient for streets with many bulbouts, major overexcavation or full depth reconstruction, and where significant underground utilities exist – making CIPR an approach mostly seen on County roads and wide streets without many intersections.

However, when an appropriate project is identified, CIPR allows for swifter paving delivery due to its construction methodology, is comparable in costs for the previously proposed paving techniques on this particular approach to the project, and is more sustainable due to the significant reduction in trucking and full reuse of materials involved in the CIPR process.

In the initial approach to Marin Avenue Phase 2, CIPR would not have been cost effective due to the need to fully rebuild intersections, particularly given the short distances between adjacent streets. With the revised approach, CIPR was now feasible and provides additional benefits in reducing repeated loading on thinner layers of pavement during construction.

### *Intersection Safety Lighting.*

The City of Albany completed a Citywide Streetlight Assessment (Assessment) in early 2024. The Assessment identified conflicts along Marin Avenue, from Key Route Boulevard to Berkeley City Limits, between existing utility pole mounted streetlights and the large tree canopy – ultimately recommending intersection safety lighting as a high priority project.

It must be noted that, as a general matter, cities do not have a duty to light streets. The City of Albany also does not have a dedicated streetlight improvement fund or program to supplement the costs of street light capital improvements.

However, the Marin Paving Project included Transportation Commission recommendations for marked crossings at all four legs of the intersection – a departure from the current configuration of a single marked crossing across Marin Avenue per intersection. This is expected to increase the number of locations where pedestrians cross the roadway.

With the changes to the pedestrian crossings for Marin Avenue and the identified high-priority improvement under the SL Assessment for intersection lighting along upper Marin Avenue, staff are recommending that the proposed lighting improvement is added to the construction bid docs of the Phase 2 Project as a bid alternate for evaluation on costs and potential inclusion to the project to be evaluated at time of award.

The Assessment also included a recommended project for bikeway/sidewalk lighting along Marin Avenue. This additional lighting was not included in the current design of the Phase 2 Project as it is a lower priority improvement task per the Assessment and would be more appropriate to be included in a future project when the bikeway alignment is determined. Design and construction of this additional lighting would also require reprioritizing funding away from other identified City right-of-way priorities, and, as previously noted, the City of Albany does not have a dedicated streetlight improvement fund to supplement these costs.

However, recognizing that future streetlight capacity may be needed and that the location of the future bikeway does not impact the service size, the streetlighting electrical system proposed for the Phase 2 Project is appropriately sized to include future midblock lighting tie-ins when the specific alignment of the future bikeway is determined.

### **90% Design Feedback**

On December 5, 2024, staff presented the Phase 2 Project 90% plans to the Transportation Commission for feedback. The Transportation Commission recommended that Council approve plans for the Phase 2 Project, including the addition of traffic signal improvements, intersection safety lighting, and traffic striping/markings revisions – including wayfinding signage for Marin Avenue from San Pablo Avenue to Tulare Street.

Following the December 5, 2024 meeting, Additional comments and questions were submitted by Council Members on December 10, 2024. Staff responded to the comments and questions on March 18, 2025. Most comments and questions were minor clarifications or were previously addressed by staff with the designer and were consistent with the project description and project background described above.

## **Next Steps**

Staff are currently working with the Phase 2 Project designer to revise the 100% Plans, Specifications, & Estimate (PS&E) into a final Bid Set PS&E for advertisement in April. Most PS&E modifications are minor plans/specification clarifications and minor adjustments for constructability purposes. Unless noted below, these modifications will not change the major design elements nor the geometry of the street and sidewalks as shown in the current plans.

Some key revisions that will be included in the Bid Set PS&E are:

1. One new, additional streetlight at the southwest Marin/Peralta intersection; and
2. Adjustment to the street light locations and orientations at Marin/Ventura, including modifying the northwest pedestrian street light to a roadway street light; and
3. Revisions to the traffic striping at the north Marin/Ordway intersection to a single southbound lane, to reduce approach and departure lane widths, to increase median centerline width, and to add painted bulbouts along Ordway (no modifications to the physical curb line and truck turn movements will be confirmed); and
4. Further refinements to select stormwater drain inlet types and underground alignments to improve drainage and reduce ponding risks at curb ramps; and
5. Exploring the feasibility of adjusting landscaping to remove the need for retaining curbs and drainage grates at northwest Marin/Neilson and northeast Marin/Peralta.