Flood Storage Volume

Almost the entire portion of Alternative 2A ponds would be located below the existing ground surface elevation. A portion of the berms along the east side of the ponds would extend approximately 3 to 4 feet above the existing ground surface elevation. The berms along the eastern portion of the wetland ponds/ extended detention ponds would encroach into the 100-year floodplain in certain locations. This encroachment has the potential to both reduce and increase incremental flood storage volume depending on location. The City proposes to remove approximately 900,000 cubic yards of earth as mitigation to create the proposed wetland ponds/ extended detention ponds. The fill would be taken offsite to ensure that there would be no impact to flood storage volume. The Scour Report (Appendix E) summarizes the dynamic nature of the floodplain and how storage volume can increase and decrease depending on location. For example:

- Section A, located upstream of Chino Corona Road, shows an encroachment into the floodplain during flows greater than 30,000 cfs.
- Section B, located just downstream of Chino Corona Road, increases floodplain storage for flows between 11,000 and 15,000 cfs.
- Section C, located half way down the length of the Proposal in Mill Creek, increases floodplain storage for discharges greater than 15,000 cfs.
- Section D, located close to the outlet, results in minor floodplain storage losses.

Alternative 2A has the potential to incrementally reduce flood storage volume in certain locations, which could cause a significant adverse effect.

Integrity of Water Quality Facilities

Alternative 2A would be designed to control the amount of runoff diverted through the system by the sizing of the orifice plates. Alternative 2A incorporates sluice gates in several locations as means to shut down the diversion for maintenance or in case of emergency. Flows travel between wetland / extended detention ponds through risers or other conveyance pipes. If those systems became blocked, spillways would safely convey flows. Finally, the outlet structure is designed to safely convey the peak flows. Alternative 2A would be designed with redundancies to protect the integrity of the system without adverse effects.

Mill Creek is a dynamic floodway and subject to erosion from scour. In conjunction with the Geotechnical Analysis (Appendix D), the Scour Report (Appendix E) analyzed the potential effects of the stability of the berms along the eastern edge of the wetland / extended detention ponds. The Scour Report analyzed the changes in shear stresses and velocities at various flows. Given the dynamic nature of Mill Creek, the velocities and shear stresses vary for each cross-section. The following provides a brief summary of the findings for conditions along the right overbank (looking downstream), which is the area proposed for modification for both Alternatives 2A and 2B.

- Section A – shear stresses and velocities for flows under 24,000 cfs do not change and slightly increase for flows over 24,000 cfs.
- Section B – shear stresses and velocities remain relatively unchanged or slightly decrease for all discharges.

- Section C – shear stresses and velocities remain relatively unchanged for discharges under 15,000 cfs and decrease for flows greater than 15,000 cfs.
- Section D - shear stresses and velocities increase for discharges between 10,000 and 38,000 cfs and decrease for flows greater than 38,000 cfs.

Depending on location and flow, the berms associated with the Alternative 2A could be subjected to either an increase or decrease in shear stress and velocity, which could lead to a significant adverse effect.

Alternative 2B. Alternative 2B has the potential to cause significant adverse effects to the hydrology / hydraulics under the following circumstances: dry weather diversion; wet weather diversion; outlet to Mill Creek; reduction of flood storage volume; and integrity of water quality facilities. Alternative 2B does not draw from groundwater supplies and does not contain substantial amounts of impervious surface that would significantly increase storm event runoff. Therefore, no adverse effects are anticipated from either potential effect.

Dry Weather Diversion

Alternative 2B has the potential to divert between 1.25 cfs and 7.5 cfs into the wetland / extended detention ponds and 7 cfs into the bioswale cells. Therefore, Alternative 2B could divert up to 14.5 cfs during dry weather conditions. This maximum diversion is slightly less than Alternative 2A, therefore, similar to Alternative 2A, the diversion of dry weather flows would not cause significant adverse effects to Mill Creek.

Wet Weather Diversion

Wet weather flows would also be diverted from the rip-rap lined portion of Cucamonga Creek. The amount of diversion would vary depending on the size of the storm event. The estimated diversion during a 2-year rain event is 85 cfs. During 100-year storm events the amount of diversion is estimated to be 140 cfs.

The wetland / extended detention facilities would also receive storm event flows from Hellman Avenue and Chino Corona Road. The estimated peak flows from Hellman Avenue and Chino Corona Road are 50 cfs and 85 cfs, respectively. Added to the diversion from Cucamonga Creek, the total design peak flows through the Alternative 2B system is 275 cfs.

Similar to Alternative 2A, the wet weather diversion would constitute a minor percentage of the total wet weather flows in Mill Creek. Therefore, the diversion of wet weather flows would not cause significant effects to the hydraulics of Mill Creek.

Furthermore, in the wet weather condition the diversion to the vegetated bioswales would no longer occur because flows would overtop the vegetated berm separating the bioswales from Mill Creek in a two-year storm event. Thus, no adverse effects to the hydraulics of Mill Creek would occur from the bioswales.

Outlet to Mill Creek

The outlet from the wetland / extended detention ponds is designed to accommodate the maximum peak flow of 275 cfs. However that is not the critical design flow. During the maximum peak flow, the water surface elevation would be at or near the 100-year storm event water surface elevation in Mill Creek. Therefore, the flows of Mill Creek would be at or overtopping the outlet structure. A more critical condition would occur during smaller storm

4.9.4 Mitigation (Hydrology)

Potentially significant adverse effects were identified as a result of the flood storage volume and the integrity to water quality facilities. The following are mitigation measures designed to reduce the adverse effects to less than significant.

The following mitigation measures apply to Alternative 2A to ensure no adverse impacts to the flood storage capacity of Prado Basin.

HYD1: Alternative 2A Flood Storage Capacity

The Proposal shall not reduce flood storage capacity at any one-foot interval below the flood storage limit of 566 feet MSL unless otherwise approved by USACE. Therefore, prior to grading, the City of Ontario shall conduct a flood storage volume study based on the final design plans. Should that study determine that the final design of the Proposal causes a reduction of flood storage volume, either (i) the Proposal shall be redesigned to reduce the height of the proposed berms or make equivalent design changes to eliminate the reduction in flood storage capacity, or (ii) the Proposal shall provide a flood offset of equal or greater capacity than the loss of flood storage volume at the appropriate elevation. If a flood offset is proposed, the location and design of that offset may be subject to additional environmental review to determine if the flood offset causes any new impacts to environmental resources including, but not limited to, air quality, biology, and cultural resources.

The following mitigation measure applies to Alternative 2A, to minimize potential adverse effects associated with scour of the berm along the eastern edge of Ponds 2 and 4.

HYD2: Alternative 2A Bank Stabilization

Prior to grading, the final design plans for Alternative 2A shall include bank stabilization measures for the proposed berm along the eastern Proposal boundary designed to withstand the projected velocities and shear stresses. Additionally, the bank stabilization measures shall be designed in accordance with Mitigation Measure GEO1 and shall incorporate the levee toe-down depths identified in Table 2 of the Scour Report (Appendix E). Table 3 of the Scour Report provides guidance on appropriate bank stabilization measures for various velocities and shear stresses. The bank stabilization strategy chosen for the final design shall be effective to protect against the maximum velocity and shear stress found at any point along the berm.

The following mitigation measure applies to both Alternatives 2A and 2B to minimize potential adverse effects to the eastern bank of Mill Creek associated with potential changes to the hydraulics of Mill Creek from the edges of the wetland/extended detention ponds and the outlet structure.

and bacteria. Additional TDS, nutrients, organics and bacteria could increase incrementally over time. Therefore, the No Action Alternative would perpetuate the baseline condition and as such have no significant impact on water quality.

Alternative 2A. The proposed Alternative 2A is a regional stormwater treatment facility designed to hold and treat 160 acre-feet of water. This volume translates into treatment of 10 – 18% of all wet-weather runoff in the Cucamonga Channel watershed (Appendix L). As a regional system, Alternative 2A would capture untreated flows from existing development and new flows from development within the City's MS4 compliance area.

The treatment of the dry weather flows would occur in the constructed wetlands by a variety of mechanisms including sedimentation, filtration, adsorption, plant uptake, and microbial/chemical biodegradation and precipitation. Sedimentation and filtration assist in the removal of total suspended solids (i.e., a surrogate for sediment), floating debris, trash, soil-bound phosphorus, and some soil-bound pathogens. Adsorption to soil particles assists in removal of dissolved metals and soluble phosphorus. Microbial processes (e.g., nitrification and denitrification) and chemical processes (e.g., precipitation) assist in removal of nitrogen, organics, pathogens, and metals. Plants can uptake small amounts of nutrients including nitrogen and phosphorus and, depending on plant type, can uptake varying amounts of metals. Some plant types can uptake large quantities of metals; this is called phytoremediation. Exposure to sunlight and dryness on the edges of the wetland and in areas that do not consistently stay wet assist in removal of pathogens (Geosyntec, 2010).

Alternative 2A would also divert flows from Cucamonga Creek during the initial stages of storm events. Treatment of wet weather flows primarily occurs by extended detention and gravitational settling in wetland ponds. Extended detention ponds are ponds whose outlets have been designed to detain the water quality design volume for approximately 48 hours to allow sediment particles and associated pollutants to settle and be removed.

As with any ground disturbing construction activity, the construction of Alternative 2A could potentially result in short-term increases in silt and sediment-bound pollutants in receiving waters. The State Water Resources Control Board attempts to protect downstream water quality from these types of construction impacts through the California Construction General Permit Order 2009-0009-DWQ (NPDES No. CAS000002). The General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) to control all site pollutants and their sources, including sources of sediment. To achieve this end, site-specific SWPPPs are required to effectively implement Best Management Practices (BMPs) throughout the construction project. The proper development and implementation of a SWPPP for approval of Alternative 2A would alleviate potential downstream pollutant loading, thereby enabling the construction of Alternative 2A without significant adverse affects to water quality.

Alternative 2B. Alternative 2B is a regional water treatment facility designed to hold and treat 87 acre-feet of water. Treatment would occur by capturing runoff in wetland/extended detention facilities and diverting runoff into bioswales. Alternative 2B would provide treatment to 6 – 12% of all wet-weather runoff from the Cucamonga Creek watershed through the wetland/extended detention treatment facilities and 1 – 4% of all wet-weather runoff from the Cucamonga Creek watershed through the bioswale treatment facilities (Appendix J). As a regional system, Alternative 2B would capture untreated flows from existing development and new flows from development within the City's MS4 compliance area.

SPEECH INTERFERENCE is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

SLEEP INTERFERENCE is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

PHYSIOLOGICAL RESPONSES are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are sign of harm.

ANNOYANCE is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

The description, analysis and reporting of community noise levels around communities is made difficult by the complexity of human response to noise and the myriad of noise metrics that have been developed for describing noise impacts. Each of these metrics attempts to quantify noise levels with respect to community response.

Most of the metrics use the A-Weighted noise level to quantify noise impacts on humans. A-Weighting is a frequency weighting that accounts for human sensitivity to different frequencies. The A-weighted sound level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of sounds from distant sources that create a relatively steady background noise in which no particular source is identifiable. For this type of noise, a single descriptor called the Leq (or equivalent sound level) is used. Leq is the energy-mean A-weighted sound level during a measured time interval. It is the 'equivalent' constant sound level that would have to be produced by a given source to equal the average of the fluctuating level measured.

For most acoustical studies, the study interval is generally taken as one-hour and is abbreviated Leq-h; however, other time intervals are utilized depending on the jurisdictional preference. To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. They are the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of a stated time. Sound levels associated with the L10 typically describe transient or short-term events, while levels associated with the L90 describe the steady state (or most prevalent) noise conditions. In addition, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum and minimum measured sound level (Lmax and Lmin) indicators. The Lmin value obtained for a particular monitoring location is often called the acoustic floor for that location. Finally, a sound measure employed by the State of California (and adopted by the County of Riverside) is known as the Community Noise Equivalence Level (or CNEL) is defined as the "A" weighted average sound level for a 24-hour day. It is calculated by adding a 5-decibel penalty to sound levels in the evening (7:00 p.m. to 10:00 p.m.), and a 10-decibel penalty to sound levels in the night (10:00

The area surrounding Alternative 2A is rural farmland with very few sensitive receptors. Two residences that are associated with farms are located close to the Alternative 2A. Beyond those residences several other farms are located within several hundred feet of the Alternative 2A. However, each of these farms operates its own equipment, which produces noise similar to construction noise on a daily basis.

Although Alternative 2A is proposed to be located on federal land and USACE is not subject to local regulations, the City of Ontario would be responsible for construction and as such, would be subject to local noise ordinances. Alternative 2A is not located in one of the designated noise zones established by the City of Chino. Therefore construction noise limits do not apply. However, to abate the potential nuisance from construction noise, the City of Chino Noise Ordinance Section 15.44.030 limits the hours of construction activities from 7:00 a.m. to 8:00 p.m. on Monday through Saturday and no construction on Sundays and Federal holidays. Normally, most construction activities end around 3:30 p.m. with very limited Saturday work. Compliance with the City of Chino's ordinance confining activities to hours of least noise sensitivity and reasonable source/receiver separation would result in a less than significant construction activity noise impact.

Alternative 2A has the potential to generate operational noise from two sources. One source is from additional traffic generated by the hikers and equestrians using the proposed trail system. The other potential source of operational noise includes maintenance activities. The de-silting pond will be actively maintained annually and will rely on machinery to remove silt and debris. The ponds and trail will also be maintained, however the majority of this maintenance will be performed by hand or small equipment.

The Traffic Study (Appendix M) projects an increase of 128 average daily vehicle trips associated with trail users. That increase includes 5 additional AM peak hour trips and 10 PM peak hour trips. The increase in peak hour vehicle trips is so minor that there will not be a perceptible increase in noise (greater than 3dB). One parking lot with eight spaces is included in this project design, with an additional five space parking lot planned for the future. The use of these parking lots will again generate a minor amount of additional noise, but not a perceptible increase.

Maintenance of the de-silting pond will require the use of heavy machinery to remove silt and debris. Most likely a rubber tire front loader or similar type of equipment will be used. Maintenance of the pond is expected annually and will last a few days. The infrequent and short duration of maintenance of the de-silting pond results in a temporary noise event, similar to construction activities. Furthermore, front loaders or similar type of equipment are routinely used on the surrounding dairies and farmland. Therefore, maintenance of the de-silting pond will not produce a substantial, prolonged noise event.

Maintenance of the ponds and trail system will be primarily conducted by hand and small equipment, similar to landscape maintenance of other parks or commercial sites. This type of noise event is common source of ambient noise conditions and does not create a significant impact.

Alternative 2B. The location and operation of Alternative 2B is very similar to Alternative 2A. Both alternatives would generate a similar amount of temporary construction

restoration along Mill Creek and Chino Creek, expansion of the recreational components of the Prado Regional Park, expansion of the regional trail system within the local communities as well as the Coast to Crest inter-county trail system, and opportunities to create natural water quality treatment ponds.

The USACE Prado Basin Master Plan includes a Land Classification Plan for the Prado Basin that classifies the portion of the Proposal site south of Chino Corona Road as "Proposed Recreation Development" (Figure 4.12-1). This area includes land currently leased to San Bernardino County Regional Parks Department for recreational purposes, as well as private ownerships subject to acquired flood easements. The Proposed Recreation Development classification includes areas designated for future recreation development consistent with multiple resource management objectives. The land adjacent to the east of the Proposal site is designated as an "Extreme Resource Area". Areas of high biological sensitivity within the Mill Creek floodways are included within this extreme resource area. These areas are located to the east of the Proposal site and include critical habitat areas identified as suitable only for extremely low intensity use, which would not be affected or disturbed if either Alternative 2A or 2B was approved.

The Chino Preserve Specific Plan also includes a Bicycle Plan and Equestrian Plan that identify future trails and connections. The graphics, which are included as Figures 4.12-2 and 4.12-3 (Figures 13 and 14 from The Chino Preserve Specific Plan) provide the conceptual location of these trails and connections and illustrate the recreational connectivity to the Proposal site.

Figure 4.12-1 - Prado Basin Master Plan – Proposed Recreation Development

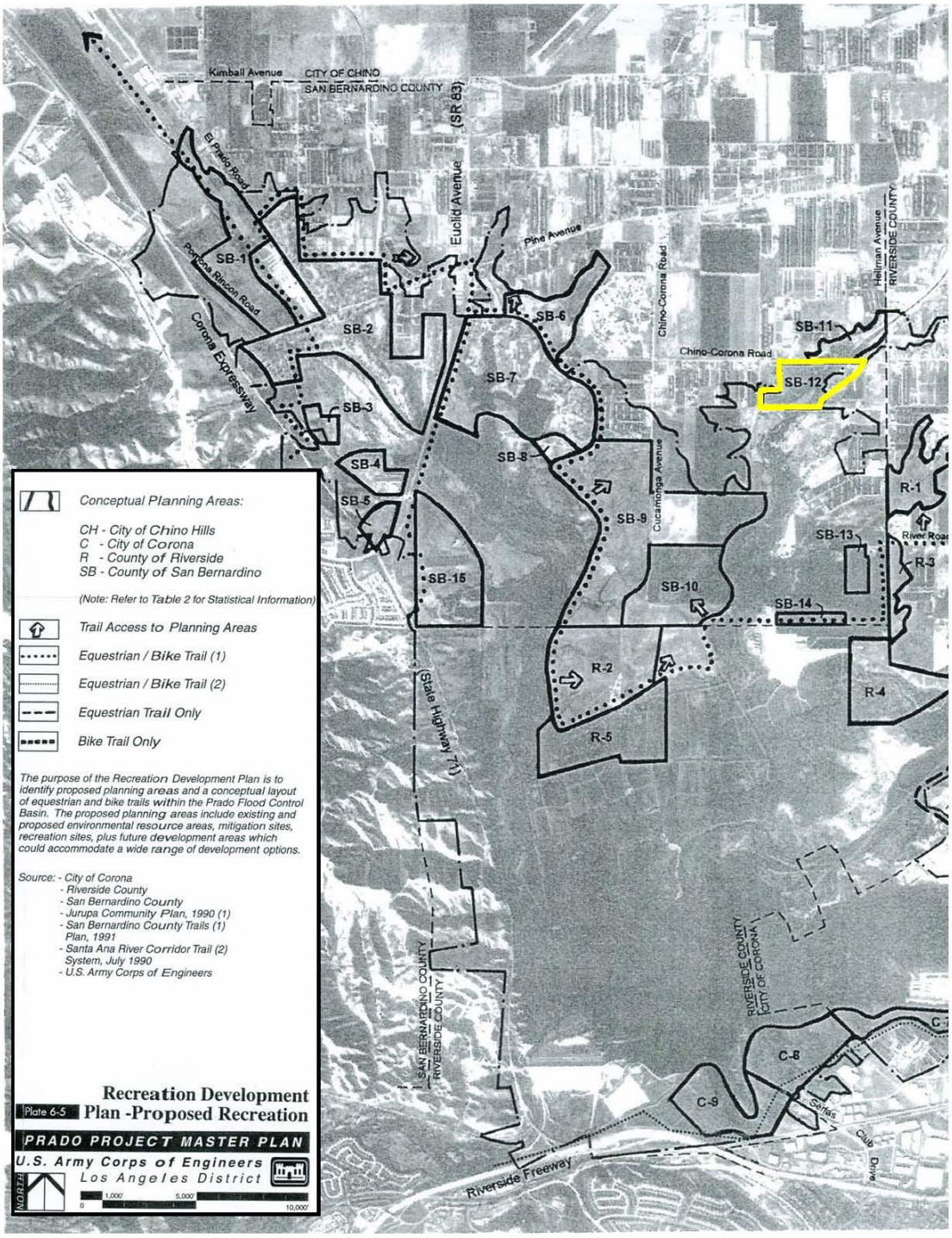


Figure 4.12-2 - The Chino Preserve Specific Plan – Bicycle Plan

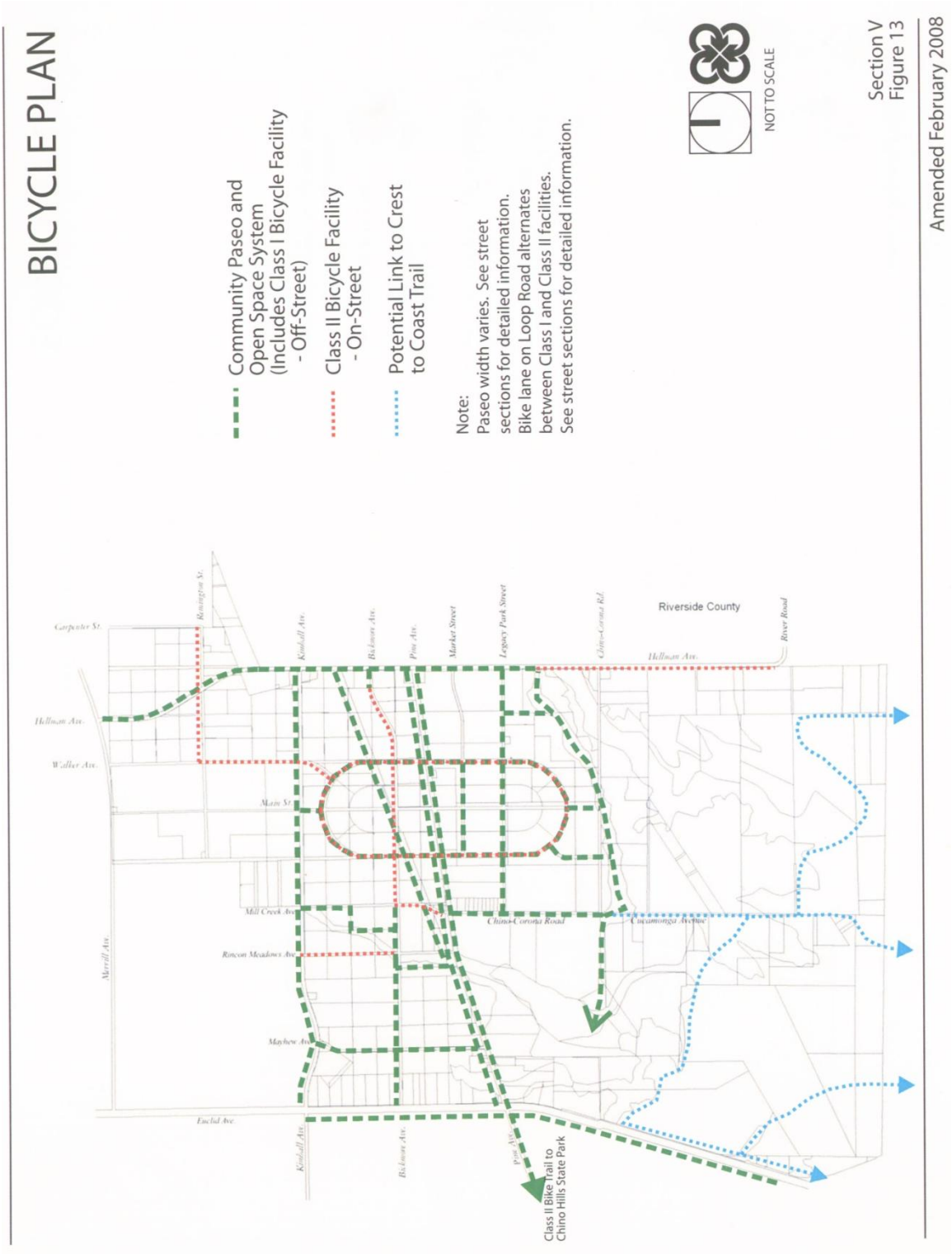
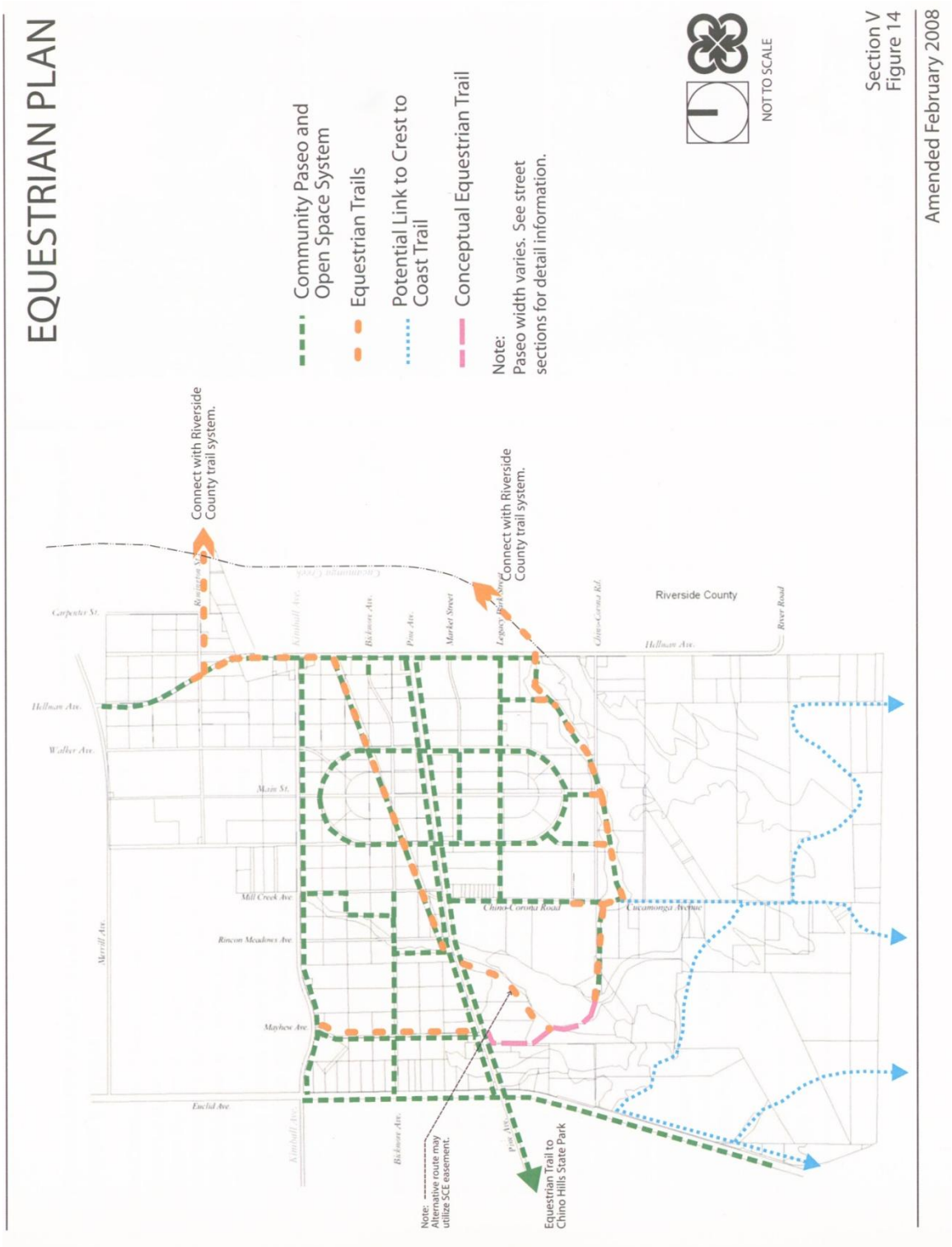


Figure 4.12-3- The Chino Preserve Specific Plan – Equestrian Plan



4.12.2 Environmental Effects

Basis of Significance. Effects to Recreational Resources are considered significant if construction would cause a substantial long-term disruption of existing recreational activity; generate a substantial demand for additional recreational resources; or conflict with an existing lease or adopted plan.

No Action Alternative. The No Action Alternative would not impact existing recreational facilities or create a demand for new recreational facilities. Under the No Action Alternative, the USACE would not grant the City the real estate rights to construct, operate and maintain a regional water quality treatment facility. No facilities would be constructed on the Proposal Site in the near future. The land would retain its current character as described in Section 3.0 Baseline Conditions. Therefore, the No Action Alternative would not cause any significant effects on Recreation and would not provide any new recreation facilities.

Alternative 2A. Alternative 2A would not affect any existing recreation resources., but would provide new recreation facilities, such as approximately 2.5 miles of recreation trails, trailhead parking, interpretive signage, and wildlife viewing areas. While Alternative 2A does not generate a new need for recreation, this Alternative would provide new recreation facilities that would complement the existing recreation facilities in the Prado Basin by providing future connections to community and regional recreational facilities and trails as proposed in the Prado Basin Master Plan and the Chino Preserve Specific Plan. Therefore, Alternative 2A would not cause any significant adverse effects on Recreation.

Alternative 2B. Alternative 2B proposes similar recreation facilities as those included in Alternative 2A. Therefore, Alternative 2B would not cause any significant adverse effects on Recreation for the same reasons as Alternative 2A.

4.12.3 Mitigation

Neither Alternative 2A nor 2B cause significant adverse effects on Recreational Resources, therefore, no mitigation is required.

4.13 Traffic and Transportation

4.13.1 Baseline Conditions

The following four key study intersections were analyzed in the preparation of this EA:

1. Chino-Corona Road (N/S) at Pine Avenue
2. Hellman Avenue at Pine Avenue/Schleisman Road
3. Chino-Corona Road (N/S) / Cucamonga Avenue at Chino-Corona Road (E/W)
4. Hellman Avenue at Chino-Corona Road (E/W)/Chandler Street

LOS "D" is the minimum acceptable condition during peak hours in the City of Chino. Any intersection operating at LOS "E" and "F" is considered deficient and unsatisfactory. The County of San Bernardino Congestion Management Plan (CMP) definition of deficiency is based on maintaining a level of service standard of LOS "E" or better, except where an existing LOS "F" condition is identified in the CMP document. Table 4.13-a summarizes the results of the traffic Assessment and provides the level of service of the baseline conditions. As shown, the

The closure of Chino Corona Road has the potential to create a dangerous driving condition to motorists if the road closure is not properly identified. Motorists may become lost or possibly drive into the road closure area and not have space to turn-around. Therefore, without mitigation, Alternative 2A would cause a significant effect to the transportation system.

During construction and the temporary closure of Chino Corona Road, emergency access would re-route around the closure. No significant effects to emergency access would occur because the temporarily closed stretch of Chino Corona Road only serves the subject property and Pine Avenue provides a sufficient alternative to east/west emergency traffic. Permission to construct and operate Alternative 2A would bring new trail users to the area. Each trail would measure approximately 16 feet wide and serve as a maintenance road for access to the treatment ponds and surrounding vegetation. Maintenance would occur periodically as needed and the public trails would be temporarily closed during maintenance activity. The trails are designed to comply with health and safety standards. As proposed, the width of the trails would be able to accommodate emergency vehicles. If necessary, first responders would have sufficient emergency access. No significant effects to emergency response would occur.

Alternative 2B. The location and operation of Alternative 2B is very similar to Alternative 2A. Alternative 2B would also require the closure of Chino Corona Road during construction. Both alternatives provide a similar amount of new recreation trails and would therefore generate similar amounts of new traffic. Furthermore, both Alternatives would have the same effects on road hazards due to the closure of Chino Corona Road and on emergency response. Therefore, the traffic effects, both temporary and long-term, of Alternative 2B are the same as those described for Alternative 2A.

4.13.4 Mitigation

Temporary closure of Chino Corona Road has the potential to cause a significant effect on the operation of surrounding intersections. Therefore, both Alternative 2A and Alternative 2B would implement the following mitigation measure.

TRF 1: Road Closure
Prior to the closure of Chino Corona Road, the following improvements shall be made at the intersection of Hellman Avenue at Pine Avenue/Schleisman Road.

- **Restripe the northbound, southbound, eastbound, and westbound approaches to provide separate left-turn lanes on Hellman Avenue and Pine Avenue/Schleisman Road.**
- **Each left-turn should have 150-feet of storage (minimum) and 90-foot transitions, with the exception of the northbound left-turn lane, which will require 350-feet of storage. In addition, the existing eastbound right-turn lane on Pine Avenue will require 350-feet of storage.**
- **Install a temporary or permanent traffic signal with two-phase operation. The temporary installation of a traffic signal at Hellman Avenue and Pine Avenue/Schleisman Road, and associated signing and striping modifications, is subject to the approval of the City of Chino.**