CITY OF BERKELEY
WATERSHED MANAGEMENT PLAN

INITIAL STUDY

City of Berkeley
2180 Milvia Street
Berkeley, CA 94704

October 2012

TABLE OF CONTENTS

FIGURES

PROJECT SUMMARY INFORMATION

1.	**Project Title:**	City of Berkeley Watershed Management Plan (WMP)
2.	**Lead Agency:**	Department of Public Works City of Berkeley 1947 Center Street, 4th Floor Berkeley, CA 94704
3.	**Contact Person:**	Jennifer Duffield AMEC Environment & Infrastructure 2101 Webster Street, 12th Floor Oakland, California 94612 Direct Questions to: Daniel.Gira@amec.com; 805 962-0992 x 225
4.	**Project Location:**	The Watershed Management Plan Area (WMP Area) includes the area within the City of Berkeley's jurisdictional boundaries (Attachment 1).
5.	**Project Sponsor:**	City of Berkeley 2180 Milvia Street Berkeley, CA 94704
6.	**General Plan Designation:**	The WMP Area includes various General Plan designations.
7.	**Zoning:**	The WMP Area includes various zones.

8. Description of Project:

The Watershed Management Plan (WMP) is an integrated and sustainable strategy for managing urban water resources. It is intended to guide City efforts to establish a healthier balance between the urban environment and natural ecosystems. The WMP looks at addressing water quality, flooding, and the preservation of creeks and aquatic habitats using multi-objective approaches where possible. This entails supplementing the existing engineered storm drain infrastructure with green infrastructure approaches that mimic natural hydrologic processes, including filtration and infiltration by soils and evapotranspiration by plants. Additionally, various green retrofit measures appropriate for the public right-of-way as well as for public and private property are recommended in the WMP. These approaches also provide opportunities for the collection and non-potable re-use of stormwater. The WMP builds upon existing City practices by recommending policies and programs to meet various goals including:

- Water quality protection;
- Urban flooding reduction;
- Natural waterways and habitat protection; and,
- Rainwater re-use promotion.

The WMP is available online on the City's website at: www.cityofberkeley.info/WatershedPlan.

The following list summarizes the various ways the plan guides City activities to meet WMP goals:

- Identifies potential City programs for development;
- Identifies a suite of Capital Improvement Projects (CIP) for two watersheds (i.e., Potter Watershed and Codornices Watershed) as funding becomes available;
- Identifies areas for additional data collection and provides future recommendations; and,
- Identifies relevant City policies and refinements to City policy development.

The WMP's program and policy recommendations would need additional refinements before being fully developed and implemented. In this sense, the WMP provides direction to City staff for interdepartmental coordination and stakeholder outreach. CIP recommendations are provided on a watershed scale with site-specific conceptual designs. However, construction drawings and specifications still need to be prepared. The WMP has a suite of investigative recommendations for future WMP refinements.

In addition to providing recommendations, the WMP provides an overview of the watershed planning process, regulatory issues, and the WMP's relationship to existing City plans, policies, and programs. It further describes on-going City activities related to water quality, creeks, storm drain pipe infrastructure, and maintenance. The WMP concludes by providing four potential funding level proposals corresponding to various levels of WMP implementation.

Background

The development of a WMP was a key recommendation of the Creek Task Force, which was appointed by the City Council in 2006 to review and suggest improvements to the City's creek protection ordinance. Development of the WMP began in late 2008. The WMP's goals and objectives are consistent with the City of Berkeley (Berkeley) General Plan, and are specifically supported by Objectives 23-33 of the Environmental Management Element (beginning with "Water Quality in Creeks and San Francisco Bay"). These objectives and all others in the General Plan were evaluated in the City of Berkeley Draft General Plan Final EIR, certified in July 2001. The WMP is consistent with current regulatory requirements, while also recommending programs in anticipation of future regulatory mandates.

Berkeley is a densely developed city, comprised of 11 watersheds wholly or partially within City limits. All watersheds in Berkeley eventually drain to the San Francisco Bay, which is an important economic resource as well as an internationally recognized natural resource. Each watershed is unique with various mixtures of: land uses, demographic communities, and remaining aquatic and terrestrial wildlife habitats. For a detailed description of the watershed that would be affected under the WMP, refer to the "Surrounding Land Uses and Setting" section below.

amec

Regional Setting and Project Location Map

FIGURE 1

Watershed drainage pathways in Berkeley include curb and gutters and storm drain pipeline infrastructure as well as open and culverted creeks. The existing storm drain pipes and creek culverts on public property are 80 to 100 years old, and have exceeded their design life expectancies. As urban runoff travels over impervious surfaces, it can pick up various pollutants and gain volume and velocity, contributing to water quality impairments, localized flooding, and wash-out of in-stream habitat.

A key strategy of the WMP is the use of landscaping features and/or temporary storage devices to cleanse, reduce, and slow stormwater runoff. This approach is known as Low Impact Development (LID), which includes the use of bio-retention cells, vegetated swales, rainwater harvesting, and permeable paving. These practices (appropriate for both public and private property) can be combined and customized to fit the physical needs of a neighborhood. The WMP uses the term Green Infrastructure (GI) to describe LID measures in the public right-of-way or in open space areas.

Hydraulic modeling results indicate that when GI measures are combined with other traditional approaches, a number of WMP goals can be met for a capital cost similar to upsizing storm drain pipe diameters to convey more flow. The WMP has developed a Sustainable Green Infrastructure Capital Improvement Program (CIP) for the both the Potter and Codornices Watersheds, which represent the full drainage spectrum within the City.

Another important component in the WMP is a rehabilitation program for existing storm drain infrastructure that is deteriorating as it ages. A similar program is recommended for creek culverts in the City right-of-way. Although these rehabilitation programs by themselves would be considered maintenance operations that are categorically exempt from CEQA, because they are part of the overall WMP, their impacts are included in this analysis.

WMP Recommendations

The WMP provides recommendations for a variety of programs and policies for further consideration and exploration by affected City departments, key stakeholders, and the City Council. Key WMP recommendations are provided below with each recommendation's corresponding number in parenthesis.

A. Recommendations requiring consideration and coordination among City Departments include:
   - Seek LID/GI Coordination Opportunities with existing Public Works Programs (3.2)
   - Develop "In-Lieu" Pilot Program for LID (3.4)
   - Promote Private Property LID (4.5)
   - Evaluate and Explore Street Sweeping Efficiency Improvements (7.12)

B. Recommendations requiring stakeholder coordination and agreements include:
   - Develop and Implement Volunteer Creek Assessment Pilot Program – need permission from property owners (5.7)
   - Increase Stormwater Conveyance Capacity though HWY I80/580 corridor to the Bay – need agreements with the California Department of Transportation (Caltrans) (8.1 & 8.2)
   - Realign Pipes and Install Trash Removal Device in Potter Stormdrain Trunkline – need permission from Union Pacific Railroad (UPRR) (8.1)

- Continue Creek Restoration Partnerships and Establish Operational Guidelines for Village Creek By-Pass – City of Albany and University of California (5.6 & 8.2)
- Identify and Pursue Partnerships Opportunities to Develop Mutually Beneficial Projects – potentially with the Berkeley Unified School District and the University of California (1.5)

C. Recommendations for Public Outreach and Participation
- Conduct on-going inter-departmental coordination (1.1)
- Conduct public meetings and make presentations to public commissions and City Council (1.2)
- Routinely update Watershed Resource webpage (1.3)
- Conduct watershed-specific public meetings (1.4 & 1.6)

D. Recommendations for Capital Improvement Programs in Codornices and Potter Watersheds

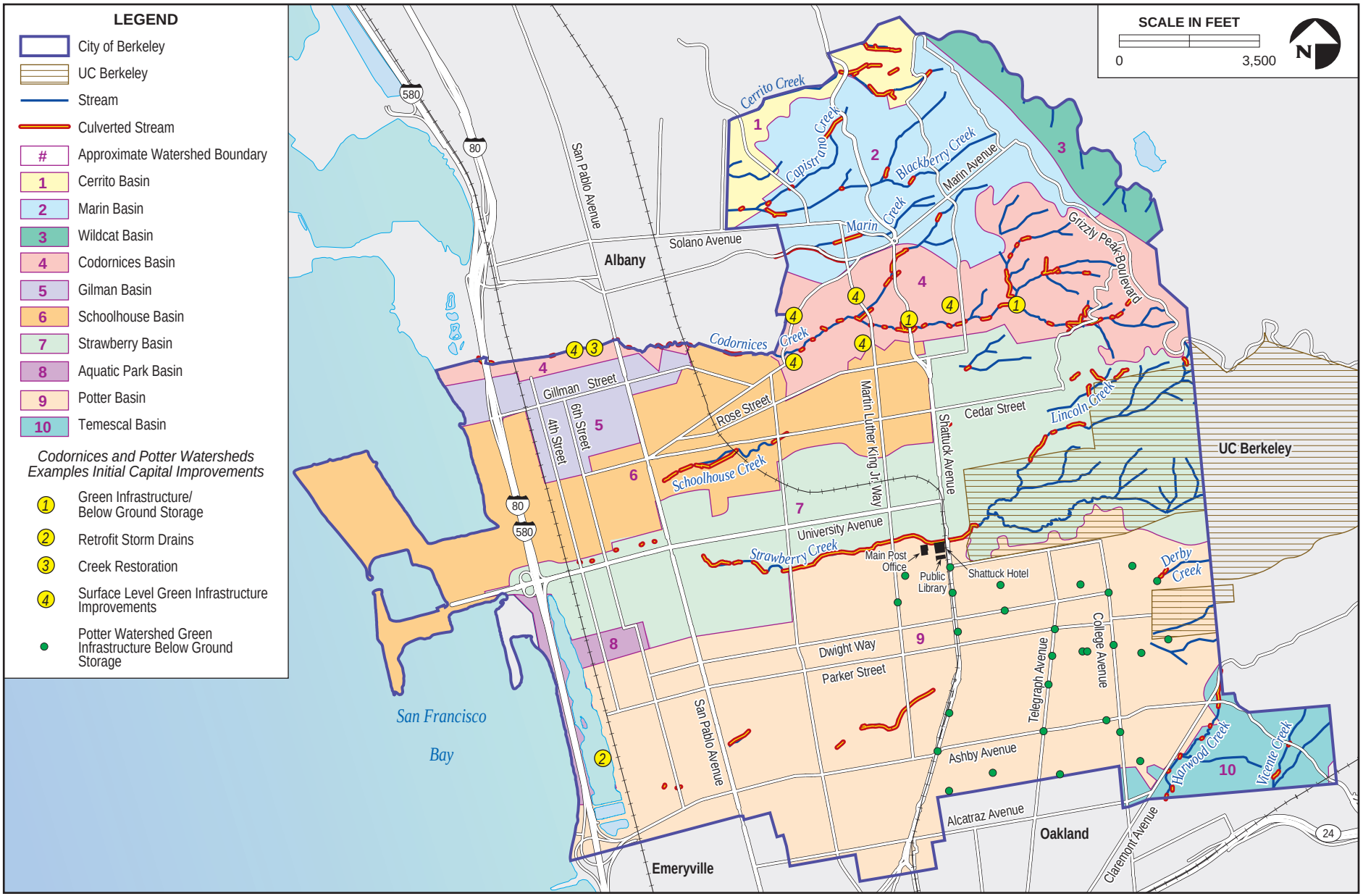
Codornices Watershed (8.2)

1. GI/Storage below basketball courts at Codornices Park
2. GI Continuous Deflective Separation (CDS) units at stormdrain outfalls into watercourse
3. GI/Storage (with new Eunice Street storm drain pipeline) at Henry Street (includes bio-retention cells on Eunice and Henry)
4. Berm at Second Street
5. Creek Restoration from San Pablo to Tenth Street
6. Storm Drain Pipe Retrofit on Shasta branch
7. Storm Drain Pipe Retrofit on Cragmont-Euclid branch
8. Creek Restoration from railroad to Eastshore Hwy Rd
9. GI (Bio-retention and Permeable paving) at opportunity sites in commercial areas
10. Creek Restoration Tenth Street to Eighth Street

Potter Watershed (8.1)

1. Retrofit Lower Trunkline (railroad to San Francisco Bay outfall) with 8-9’ diameter pressure pipe, with trash rack in diversion box (by railroad tracks)
2. GI/Storage east of Shattuck (53 Units)
3. Retrofit Trunkline from railroad to San Pablo Ave
4. Retrofit Trunkline from San Pablo Ave to MLK/Adeline/Shattuck
5. Transite line removal, new lines parallel with railroad
6. Retrofit specific storm drain lines

E. Recommendations for Areas of Further Information and Study
- Creek Culvert Condition Assessment Program (5.4)
- Storm Drain Infrastructure Condition Assessment Program (6.3)
- Hydraulic Modeling of Remaining Watersheds (Strawberry, Schoolhouse, Gilman, Marin, Cerrito, Wildcat, and Temescal) (6.2)



amec

City of Berkeley Watersheds and Representative Capital Improvements

FIGURE 2

9. Surrounding Land Uses and Setting:

The WMP Area spans the entire area, approximately 10.5 square miles, within the jurisdiction of the Berkeley. Berkeley is located in northern Alameda County on the eastern shoreline of the San Francisco Bay and extends east to the ridgelines of the East Bay Hills. The City is bordered to the north by the City of Albany, to the east by the East Bay Regional Park District's Tilden Park and the City of Oakland, to the south by the City of Oakland and the City of Emeryville, and to the west by the San Francisco Bay. Berkeley is a densely developed urban area, with a variety of land uses, including high, medium, and low density residential; commercial; industrial; institutional; recreational; open space; and streets and sidewalks (General Plan, 2002).

In general, the physiography of the Berkeley watersheds reflects their general position or alignment in relation to the primary geologic structures in the East Bay. The watersheds in Berkeley typically drain to the west out of the steeper headwaters (Berkeley Hills, with a maximum elevation of approximately 1,770 feet above mean sea level at Chaparral Peak), across a transitional alluvial fan zone, and then across the more gently sloping Bay plain before discharging into the San Francisco Bay (located approximately at sea-level). One exception to this trend is the Wildcat watershed, which runs north-south on the eastern side of the ridgelines of the Berkeley Hills. While Berkeley is predominately urban, a drainage from approximately 2 square miles of non-urban area outside the City boundary also flows into the City from Strawberry Canyon and Claremont Canyon east of the City.

Like most of Northern California, climate of the Berkeley area is largely governed by weather patterns originating in the Pacific Ocean, in winter most notably by the southern descent of the Polar Jet Stream bringing with it mid-latitude cyclonic storms. Climatic conditions in Berkeley are generally characterized as Mediterranean with moist, mild winters and hot, dry summers. Consequently, more than 90 percent of precipitation falls between November and April, with an annual rainfall amount of about 18-26 inches depending on location (microclimate effects).

Excluding Marina watershed, there are 11 watersheds wholly or partially within the City of Berkeley. Several of these watersheds extend past Berkeley's municipal boundaries where the City borders on the Town of Emeryville and the City of Oakland to the south. Additionally, many of these watersheds also extend into the Cities of Albany and El Cerrito to the north.

Watershed	Area within the City (acres)
Wildcat	152
Cerrito	149
Marin	699
Codornices	570
Gilman	249
Schoolhouse	703
Strawberry	1,385
Aquatic Park	134
Potter	2,053
Temescal	205

At the initiation of the WMP process, the City allocated funding to develop hydraulic models for two watersheds. The Potter and Codornices Watershed were selected because they represent the full range of the urban drainage spectrum in Berkeley.

The Potter Watershed, which is the southernmost watershed within the City, drains approximately 30 percent of Berkeley's land area through storm drain pipe infrastructure. This is the largest watershed in the City and experiences localized flooding in many areas. Additionally, it contributes runoff to the Aquatic Park Lagoon, which is a public park located just to the east of the Eastshore Freeway. The lagoon still connects with the San Francisco Bay through culverts under the freeway. Potter Creek itself is adjacent to a significant amount of protected land including a 72-acre parcel of forest wetlands and salt marsh continuing across Bayview Avenue to Barnegat Bay, which the Trust for Public Land conserved and transferred to Berkeley Township in 1997.

The Codornices Watershed drains approximately 10 percent of the City through open winding watercourses and creek culverts. This watershed is regionally significant as Codornices Creek is one of the least culverted creeks in the East Bay. Additionally, it is one of the few creeks in the East Bay with a salmonid fishery population. Codornices Creek is one of the most publicly accessible creeks in Berkeley, along with Strawberry Creek,as it runs through a number of public parks. Additionally, Codornices Creek has been the subject of a number of local creek restoration projects, including an effort to restore the creek between the railroad tracks and 9th Street.

Watershed Characteristics	Codornices Watershed	Potter Watershed
Drainage Area Total (acres)	796	2,693
Annual Precipitation (inches)	24	22
Estimated Impervious Surface (%)	34	55
Average Annual Wet Season Runoff (acre feet)	596	2460
Estimated Open Channel Length (feet)	15,477	2,254
Estimated Culvert Length (feet)	11,435	3,037
Estimated Storm Drain Pipe Length (feet)	40,088	187,020

Note: For descriptions of remaining watersheds in the City of Berkeley, please refer to Page 13 within the City of Berkeley Watershed Management Plan.

10. Other Public Agencies Whose Approval is Required:

No other public agency approvals are needed for this planning stage. However, for WMP implementation, individual projects are likely to need other public agency approvals depending on the project location and scope. These agencies may include:

- San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)
- California Department of Fish & Game (DFG)
- Bay Conservation and Development Commission (BCDC)
- California Department of Transportation (Caltrans)
- Union Pacific Railroad Company (UPRR)
- University of California, Berkeley (UCB)
- Berkeley Unified School District (BUSD)
- City of Albany (Albany)
- City of Oakland (Oakland)
- City of Emeryville (Emeryville)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☒ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☒ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☒ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☒ Transportation/Traffic	☒ Utilities/Service Systems	☒ Mandatory Findings of Significance

Determination: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____

Signature Date

_____

Printed Name

ENVIRONMENTAL CHECKLIST

The WMP provides general direction and guidance for implementing concept level watershed improvements. The exact location, design, timing, and construction techniques for the each proposed projects within the WMP are unknown at this time. Therefore per the general guidance of CEQA Section 15146, this initial study does not engage in speculation as to the exact impacts of each project, but instead provides analysis and mitigation at a programmatic level. Additional environment review for specific projects would be conducted following the development of project plans where appropriate or required.

I. AESTHETICS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion (a-d)

a. The WMP proposes strategies and measures to improve watershed health within Berkeley's urban setting. Many of these strategies are policy-related to both encourage the use of LID techniques and to gather additional data for future planning purposes. Proposed capital improvement projects are typically at grade-level and below (underground), although the WMP does encourage the use of surface vegetation as GI measures. This vegetation would consist of California native and/or drought-tolerant emergent, grass, and herbaceous, shrub and tree species. Trees associated with GI in the public right-of-way would be comparable to (or smaller than) existing mature street trees in size. No losses of scenic vistas are anticipated as a result of implementing the WMP. Therefore, there would be **no impact**.

b. No State scenic highways are located within the City limits. Thus, damages to scenic resources within a State scenic highway would not be anticipated as a result of implementing the WMP. Additionally, it is not anticipated that any mature or scenic trees would be removed as part of the CIP. Any impacts to mature trees would be avoided during the planning phase for each project under the WMP.

Many historic buildings within the City of Berkeley are listed on state and federal registers and many have also been recognized and designated City landmarks by the Landmarks Preservation Commission. A complete listing of the City of Berkeley Designated Landmarks and Structures of Merit can be found in the City of Berkeley General Plan. However, it is not anticipated that the implementation of the City of

Berkeley Watershed Management Plan would affect any historic structures. Additionally, the California State Historic Preservation Office would be consulted prior to any disturbance of a building or building façade. Therefore, there would be **no impact**.

c. The WMP typically recommends projects at grade level and below (underground), although it does encourage the use (and preservation) of trees and vegetation as GI measures. Construction activities would have minor short-term and temporary impacts to the project sites. However, street trees and vegetated bio-retention cells within the public right-of-way would enhance the visual character and quality of the public right-of-way as they would reduce the overall coverage of pavement, creating additional green space and natural visual character. Additionally, the implementation of these water quality practices in the public right-of-way would provide opportunities to involve residents in stormwater management and enhance their awareness of water quality issues. Similarly, riparian vegetation associated with creek restoration in open spaces on public lands would also enhance the visual character as well as the quality of these sites and their surroundings. Therefore, overall there would be **no impact**.

d. No new sources of substantial light or glare are anticipated with the implementation of the WMP. Street paving may become lighter in color with the potential use of permeable paving techniques rather than standard black top asphalt; however this would not result in a substantial change in light or glare. Therefore, there would be **no impact**.

II. AGRICULTURE AND FORESTRY RESOURCES.[1] Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion (a-e)

a. There is no farmland in the City of Berkeley. The City is shown as Urban and Built-Up Land on the California Department of Conservation's 2010 Farmland Map (Attachment 2). Therefore, there would be **no impact**.

b. The City does not contain any land zoned for agricultural use or that is governed by a Williamson Act contract.[2] Therefore, there would be **no impact**.

c. The WMP Area is comprised of all land use types within City limits as summarized by the General Plan (LU-2), which include: Residential (48 percent), Streets (24 percent), Industrial (9 percent),

[1] In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

[2] State of California, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, Alameda County, 2010 map. http://redirect.conservation.ca.gov/DLRP/fmmp/county_info_results.asp. Accessed September 22, 2011.

Commercial (7 percent), Open Space (6 percent), Manufacturing (4 percent), and Vacant (2 percent). There is no forest land or timberland in the WMP Area. Therefore, there would be **no impact**.

d. There is no forest land or timberland in the WMP Area. Therefore, there would be **no impact**.

e. There is no farmland, forest land, or timberland in the WMP Area. Therefore, there would be **no impact**.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion (a-e)

a. The Bay Area Air Quality District (BAAMQD) is the regional agency charged with managing air quality in the San Francisco Bay Area. The Bay Area 2010 Clean Air Plan is the most recently adopted plan of the BAAMQD. The goals and recommendations of the WMP are compatible with the Clean Air Plan as each seeks to improve environmental health through the use of policies and best management practices (BMPs). Projects that would be implemented under the WMP are intended to enhance the urban environment by protecting water quality and preserving natural waterways and habitats, while reducing localized flooding. Using GI strategies not only meets WMP goals, but also advances Clean Air goals by: 1) reducing urban heat island effects of transitional asphalt paving and tar roofing by using alternative paving and roofing materials; 2) promoting water conservation though rain water harvesting and reuse; and, 3) increasing vegetative cover (trees, shrubs, and groundcover) in the public right-of-way. These measures would support the Clean Air Plan by cumulatively improving air quality, absorbing carbon dioxide (CO_2) and gaseous pollutants, intercepting particulate matter (PM), releasing oxygen, and enhancing pedestrian safety to promote non-automotive modes of transportation. Therefore, there would be a **less than significant impact**.

b. Under the California Clean Air Act, the Bay Area is considered a non-attainment area for ground-level O_3, caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x). The area is also considered non-attainment for respirable particulates for matter with diameters of less than 10

micrometers (PM_{10}) and fine particulate matter less than 2.5 micrometers ($PM_{2.5}$). These elevated PM concentrations are the result of region-wide (or cumulative) and localized emissions. Both ozone (O_3) and PM concentrations can aggravate respiratory and cardiovascular diseases as well as reduce lung function. Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality. Diesel exhaust, comprised of benzene and formaldehyde (both carcinogenic), is the predominant TAC in urban air.

Implementation of the WMP would result in a number of construction activities to retrofit streetscapes, rehabilitate existing stormdrain pipelines, install new subsurface piping, and restore urban creeks within the public right-of-way and public open spaces. None of these activities would result in a stationary source of air pollutants or odors. By their nature, none of the recommended projects in the WMP would increase traffic congestion such that there would be a substantial increase in CO or GHGs. Traffic control measures and detours are standard operating procedures in approving construction projects in the public right-of-way. Increases to the average length of trip and/or idling time would be minimal. Consequently, impacts to air quality as a result of vehicular traffic would be negligible.

Although construction activities are typically short-term or temporary in duration, project generated emissions could include air pollutants such as carbon monoxide (CO), sulfur dioxide (SO_2), $PM_{2.5}$, PM_{10}, ROG, NO_x, and greenhouse gasses (GHGs) from exhaust and fugitive dust. The precise construction related emissions for individual future projects cannot be calculated or known at this time and it would be speculative to perform such calculations absent detailed construction-related information. Additionally, the BAAQMD's approach to CEQA analyses of construction impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions. Consequently, the determination of significance with respect to construction emissions is based on a consideration of the control measures to be implemented. Based on BAAQMD's guidelines, quantification of construction emissions for this project is not necessary. The City intends to provide any additional required environmental review for individual projects as needed and to mitigate construction emissions to a less than significant impact through the mandatory implementation of "Basic Construction Mitigation Measures Recommended for ALL Proposed Projects" and "Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold" as listed in Table 8-1 and Table 8-2 respectively of the BAAQMD's *CEQA Air Quality Guidelines*, May 2012. More detailed analysis of potential impacts and any required mitigation measures would be addressed in the appropriate environmental document when specifications of particular projects are more fully developed.

Nonetheless, the mitigation measures listed below are required for incorporation into the conditions of approval for contractors to ensure construction air quality impacts are reduced to a less than significant level.

Mitigation Measure AIR-1

Basic Construction Mitigation Measures Required for ALL Proposed Projects

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications. All equipment shall be checked by a certified visible emissions evaluator at least once prior to the commencement of construction activities, as well as once during any construction activities of a duration greater than or equal to six months.
8. A publicly visible sign shall be posted with the telephone number and the point of contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District’s phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AIR-2

Additional Construction Mitigation Measures Required for Projects with Construction Emissions Potentially Exceeding the Threshold

1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content shall be verified daily by lab samples or moisture probe.
2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities shall not occur, except with explicit approval of the BAAQMD. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.

6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
8. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways or surface water features from sites with a slope greater than one percent.
9. The idling time of diesel powered construction equipment shall be limited to a two minute maximum. After this period the engine must be turned off.
10. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent PM reduction compared to the most recent California Air Resources Board (CARB) fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
11. Low VOC (i.e., ROG) coatings shall be used beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
12. All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
13. All contractors shall use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

Incorporating the above measures into the conditions of approval for contractors would reduce air quality impacts to a less than significant level with mitigation.

c. See response IV, b above. Although air emissions would result for the implementation of the WMP, with the implementation of the Mitigation Measures AIR-1 and AIR-2, these emissions would substantially reduce anticipated emissions and minimize project contribution to cumulative emission of any criteria pollutant. The City intends to implement maximum feasible mitigation to reduce emissions and would assess potential impacts associated with individual future projects as required. Therefore, per the BAAQMD guidelines, there would be a **less than significant impact with mitigation**.

d. Construction activities could temporarily expose sensitive receptors (located adjacent to the project site) to substantial pollutant concentrations, principally PM_{10}, from fugitive dust sources. Without appropriate dust controls, the impact could be significant. However, as a Standard Condition of Approval the City requires that all large construction projects comply with the BAAQMD's Basic Control Measures for reducing construction emissions of $PM_{10.}$ Implementation of the BAAQMD's recommended BMPs for construction would reduce the impact to less than significant. Compliance with the following City of Berkeley Standard Condition of Approval would reduce impacts from dust to a less-than-significant level:

Mitigation Measure AIR-3

Dust from construction activities shall be controlled by following BAAQMD Rules and Regulations to reduce construction dust and diesel particulate emissions. Adherence to these rules and regulations would minimize the exposure of sensitive receptors to less than significant levels.

1. All piles of debris, soil, sand or other loose materials shall be covered at night and during rain events with plastic at least one-eighth millimeter thick and secured to the ground.
2. All active construction areas shall be watered at least twice daily, and all piles of debris soil, sand, or other loose materials shall be watered or covered.
3. All trucks hauling soil, sand, and other loose materials shall be covered or shall be required to maintain at least 2 feet of freeboard (i.e., the minimum required space between the top of the load the top of the trailer).
4. All visible soil material shall be swept from streets (preferably with water sweepers) and carried from the site.

Incorporating the above measures into the conditions of approval for contractors would reduce air quality impacts to a less than significant level with mitigation.

e. None of the WMP recommendations would result in a substantial stationary source of odors. While wet swales may have a minor potential to cause odors, as a general matter, these potential odors would not be expected to be greater than that of irrigated lawns, and the types of operations which expose substantial numbers of people to odorous emissions are wastewater treatment plants, refineries, transfer stations, manufacturing facilities, and restaurants. Therefore, there would be **no impact**.

IV. BIOLOGICAL RESOURCES Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Discussion (a-f)

a-c. The California Department of Fish & Game's (DFG) California Natural Diversity Database (CNDDB) was consulted to identify the status of rare plants and animals in and near the Berkeley area. This database includes both a Federal and a State status for threatened and endangered species, as well as rare plant listings from the California Native Plant Society (CNPS) The CNDDB is accessible online at: http://www.dfg.ca.gov/biogeodata/cnddb/. The following is a list of rare species known to occur in the general East San Francisco Bay area which includes Berkeley (taken from data associated with the

Oakland West and the Richmond Quadrangle USGS maps). Because this list includes the general East San Francisco Bay area, not all of these species may be present within the City of Berkeley limits.

Species Name	Common Name	Federal Status	State Status
Mammals			
Antrozous pallidus	Pallid bat		SSC
Microtus californicus sanpabloensis	San Pablo vole		SSC
Nyctinomops macrotis	Big free-tailed bat		SSC
Reithrodontomys raviventris	Salt-marsh harvest mouse	E	E
Scapanus latimanus parvus	Alameda Island mole		SSC
Sorex vagrans halicoetes	Salt-marsh wandering shrew		SSC
Birds			
Accipiter cooperii	Cooper's hawk		SSC
Athene cunicularia	Burrowing owl		SSC
Circus cyaneus	Northern harrier		SSC
Elanus leucurus	White-tailed kite		SSC
Geothlypis trichas sinuosa	Saltmarsh common yellowthroat		SSC
Laterallus jamaicensis coturniculus	California black rail		T
Melospiza melodia pusillula	Alameda song sparrow		SSC
Melospiza melodia samuelis	San Pablo song sparrow		SSC
Phalacrocorax auritus	Double-crested cormorant		SSC
Rallus longirostris obsoletus	California clapper rail	E	E
Sternula antillarum browni	California least tern	E	E
Xanthocephalus xanthocephalus	Yellow-headed blackbird		SSC
Fish			
Archoplites interruptus	Sacramento perch		SSC
Eucyclogobius newberryi	Tidewater goby	E	T
Oncorhynchus mykiss irideus	Steelhead	T	
Amphibians			
Ambystoma californiense	California tiger salamander	T	T
Rana draytonii	California red-legged frog		T
Reptiles			
Emys marmorata	Western pond turtle		SSC
Masticophis lateralis euryxanthus	Alameda whipsnake	T	T
Plants			
Chorizanthe robusta var. robusta	Robust spine flower		CRPR 1B.1
Suaeda californica	California seablite		CRPR 1B.1
Arctostaphylos pallida	Pallid manzanita		CRPR 1B.1
Holocarpha macradenia	Santa Cruz tarplant		CRPR 1B.1
Layia carnosa	Beach layia		CRPR 1B.1
Amsinckia lunaris	Bent-flowered fiddleneck		CRPR 1B.2

Species Name	Common Name	Federal Status	State Status
Astragalus tener var. *tener*	Alkali milk-vetch		CRPR 1B.2
Atriplex joaquinana	San Joaquin spearscale		CRPR 1B.2
California macrophylla	Round-leaved filaree		CRPR 1B.1
Calystegia purpurata ssp. *saxicola*	Coastal bluff morning-glory		CRPR 1B.2
Carex comosa	Bristly sedge		CRPR 2.1
Chloropyron maritimum ssp. *palustre*	Point Reyes bird's beak		CRPR 1B.2
Chorizanthe cuspidata var. *cuspidata*	San Francisco Bay spineflower		CRPR 1B.2
Dirca occidentalis	Western leatherwood		CRPR 1B.2
Fritillaria liliacea	Fragrant fritillary		CRPR 1B.2
Gilia capitata ssp. *chamissonis*	Blue coast gilia		CRPR 1B.1
Helianthella castanea	Diable helianthella		CRPR 1B.2
Hemizonia congesta ssp. *congesta*	White seaside tarplant		CRPR 1B.2
Hoita strobilina	Loma Prieta hoita		CRPR 1B.1
Horkelia cuneata var. *sericea*	Kellogg's horkelia		CRPR 1B.1
Leptosiphon rosaceus	Rose leptosiphon		CRPR 1B.1
Plagiobothrys chorisianus var. *chorisianus*	Choris' popcorn-flower		CRPR 1B.2
Trifolium hydrophilum	Saline clover		CRPR 1B.2
Sanicula maritima	Adobe sanicle		CRPR 1B.1

FEDERAL STATUS
E = Endangered = Danger of extinction throughout range

T = Threatened = Likely to become endangered in foreseeable future throughout range

C = Candidate = While the USFWS encourages cooperative conservation efforts for these species, they do not receive statutory protection under the ESA

STATE STATUS
E = Endangered = Applies to a species whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors

T = Threatened = Applies to a species that is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens

C = Candidate = Cooperative conservation efforts are encouraged however, they do not receive statutory protection under the CESA

SSC = Species of Special Concern

CNPS RANKING
CRPR = California Rare Plant Rank
1A = Plants presumed extinct in California
1B = Plants rare, threatened, or endangered in California and elsewhere
2 = Plants rare, threatened, or endangered in California, but common elsewhere

0.1 = Seriously Threatened in California = Over 80% of occurrences threatened/high degree and immediacy of threat
0.2 = Fairly Threatened in California = 20%- 80% occurrences threatened/high degree and immediacy of threat

Sensitive Species

Implementation of various WMP improvements, particularly within the Codornices Creek watershed, has the potential to impact sensitive species such as steelhead and rainbow trout, which are known to be present within this watershed. Installation of GI storage improvements, storm drain improvements, and even habitat restoration, all have the potential to create significant short term impacts to sensitive species, while enhancing habitat over the long-term. Grading and construction within creek channels can require vegetation removal and mobilize sediments, leading to short term habitat loss and water quality impacts. Such impacts are considered potentially significant, but subject to feasible mitigation through careful coordination with regulatory agencies and implementation of mitigation measures BIO-1 and BIO-2 below, as well as HYDRO/WQ-1 and GEO-1. Further, when detailed project construction specifications become available, future projects within sensitive species habitat would be subject to an appropriate level of project-specific environmental review.

Additionally, the City of Berkeley contains a number of sensitive habitat types, including creeks, tidal wetlands and riparian habitat as well as upland habitats. Natural habitats such as these are essential for the continued survival of sensitive species within the City's boundaries. Many sensitive bird as well as other terrestrial species use both upland and wetland areas for different lifecycle needs. Consequentially, connectivity among these areas is essential for sustaining wildlife populations. Similarly, connectivity between the lower and upper reaches of riverine systems is critical for fish species, such as the steelhead.

Steelhead are known to occur in Codornices Creek. While WMP projects, such as creek restoration, may have short term adverse impact to Steelhead habitat, over the long term the implementation of the WMP would improve habitat for this species in Codornices Creek.

Creeks

Water flows, velocity, depth, and tree shading determine the quality of riverine habitats. Due to the Mediterranean climate, nearly all Bay Area streams experience very low flows and nearly dry up at some point (refer to the table below for specific characteristics of different stream types). Because of the intermittent nature of flows, habitat quality in mainstream riverine habitat is not constant. Creeks in the City of Berkeley support riparian zones, as well as benthic macroinvertebrate organisms and fish and birds, which feed on the invertebrates. Codornices Creek still supports populations of *Onchyromyssis* (Steelhead and rainbow trout). It is expected that the implementation of GI measures associated with the WMP would reduce peak stream flow in Codornices Creek, due to the reduction in surface runoff; however, increased percolation from GI implementation would likely result in a higher groundwater table and a higher base flow. These changes may incrementally benefit species such as the steelhead trout as unnaturally high flood peaks which can damage habitat would be reduced and base increased flow during summer months would enhance instream habitat quality. Additionally, the WMP includes a number of bank improvements for specific creeks within the City of Berkeley. The following table provides a brief description of the various stream types.

Stream Type	Description
Ephemeral	Channel contains flow for short periods of time during a rainfall event or immediately after the event and becomes dry between events.
Intermittent	Channel contains flowing water seasonally and is supported by direct runoff as well as sub-surface baseflow. In the dry summer months, there is no flow, but isolated pools may persist.
Upper Perennial	Generally located in the zone between mid to lower watershed, there is no tidal influence and some water flows throughout the year. The substrate consists of rock, cobbles, or gravel with occasional patches of sand. Gradient and velocities are lower than in the upper watershed intermittent systems, though steeper than the lower perennial and tidal zones, and there is very little floodplain development.
Lower Perennial	Found in the lower Bay watersheds approaching the tidal zone, the water velocity is slower than the upper perennial reaches. There is no tidal influence, and some water flows throughout the year. The substrate consists mainly of sand and mud. Oxygen deficits may sometimes occur. The fauna is composed mostly of species that reach their maximum abundance in still water. The floodplain is well developed.
Tidal	The gradient is low and water velocity fluctuates under tidal influence. The streambed is mainly mud with occasional patches of sand. Oxygen deficits may sometimes occur. Historically, the floodplain along the tidal front was broad, but in much of the Bay Area today, these floodplains are more restricted due to levees, roadways and other human development.

Riparian

Riparian habitat is found along rivers and streams, as well as lakes, ponds, reservoirs and other water bodies or drainages. Riparian ecosystems are generally characterized by increased structural diversity, as compared to surrounding plant communities. Live oak (*Quercus agrifolia)*, bigleaf maple (*Acer macrophyllum*), and cottonwood species (Populus spp.) are typical dominants of riparian habitats in the Bay Area. Tree cover provides hiding places for aquatic species to escape predation and increased substrate for food items and egg attachment. Shading produces lower water temperatures which benefit many aquatic species and tree litter contributes organic substances to the aquatic system. This habitat type is critical for at-risk or protected species.

Tidal Wetlands

Tidal wetlands are characterized as salt or brackish marshes, which extend from moist grasslands and riparian habitats downstream to intertidal sand and mud flats along the Bay margins. Salt marsh vegetation is generally found immediately adjacent to the Bay and along the margins of associated creek and slough channels where the water is relatively saline. Plant species composition is dependent on elevation, and level and frequency of inundation relative to the daily tidal cycle. Waterfowl, herons, egrets, rails, gulls, terns, and a variety of shorebird and songbird species all use tidal wetlands habitats for foraging and nesting. Wetlands are important habitat for at-risk Bay Area species including the California

clapper rail (*Rallus longirostris obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), and salt-marsh common yellowthroat (*Geothlypis trichas sinuosa*).

Uplands Habitats

Uplands habitats consist of adjacent lands that are important to wetland and riverine ecosystems, but that are not typically inundated by surface water. Uplands habitats throughout the Bay Area typically include grasslands, oak woodland, and mixed evergreen forest.

The WMP is intended to foster improved wildlife and plant habitat within the City of Berkeley. This would occur through the implementation of GI projects in the public right-of-way, restoring creek reaches on City lands, and through the promotion of private sector practices with reduced environmental impacts.

While sensitive habitats, would be avoided whenever feasible, some projects, including creek restoration and GI improvements to open space, may have minor short term construction impacts on sensitive habitats, such as streams, wetlands, or riparian corridors. While the WMP would generally provide an overall beneficial impact to these habitat types, specific projects would need to implement the following mitigation measures as well as comply with permit conditions of regulatory agencies, such as the Department of Fish and Game and the National Marine Fisheries Service. Therefore, the impact to sensitive species and sensitive habitats would be **less than significant with mitigation**.

Mitigation Measure BIO-1

The City shall conduct biological resource surveys and monitoring prior to and during project related construction activities.

1. Prior to the commencement of any construction activity, the City shall perform protocol level biological surveys for special status species within the vicinity of the proposed project location. Such surveys shall be performed by a qualified biologist.
2. The implementation of the proposed project shall be timed to avoid the most impactful seasons (e.g., nesting bird season, spawning season, as well as the rainy season).
3. The implementation of the proposed project shall be designed in such a way as to avoid impacts to sensitive habitats. Any adverse impact to sensitive habitats shall be mitigated through restoration or replacement.
4. A qualified biologist shall be present during all construction activities to ensure that construction crews adhere to the appropriate mitigation measures and minimize adverse impacts to terrestrial and/or aquatic plants, wildlife, and habitat.

Mitigation Measure BIO-2

Construction related BMPs shall be enforced to reduce adverse impacts to biological resources.

1. The project shall incorporate control measures for minimizing terrestrial and aquatic pollution to the maximum extent feasible. These measures shall be included in a draft project construction plan, which shall be subject to approval by a qualified biologist.

2. BMPs shall include but not be limited to erosion control measures (e.g., bank stabilization) and pollution control measures (e.g., designated parking for construction vehicles).

Additionally, all necessary regulatory permits would be obtained prior to initiating work and all conditions of approval (i.e., mitigations) would be observed. While required actions to mitigate environmental impacts to biological resources are unknown at this stage, prior to any construction or restoration activities, site-specific mitigation measures would be determined by Federal, State, and local regulatory agencies (e.g., CDFG and City Biologist).

d. The majority of open creek reaches in Berkeley are on private property. Open creek reaches in Berkeley are typically bookended by creek culverts which can pose challenges for fish passage. The WMP seeks to improve creek habitat and continuity by providing guidance to creekside property owners, restoring creeks on City property, and rehabilitating deteriorating publically-owned creek culverts. Culvert rehabilitation projects would analyze potential modifications to make them more suitable for fish movement, provided these modifications do not increase flood hazard. No new culverts are considered in the WMP.

Additionally, the WMP would continue to implement the 1996 joint watershed goals statement which commits the City to removing obstructions to fish and wildlife migration. Therefore, it is anticipated that creek restoration activities associated with the implementation of the WMP would increase wildlife migration through the riparian corridor following creek restoration activities. However, due to fragmented nature of the daylighted creeks within the City of Berkeley, riparian corridors for movement within the City are generally of reduced quality.

As stated in IV (a-c) above, work would be conducted during seasonally appropriate times. This would avoid interference with fish migration. Implementing the WMP would not change existing land uses or promote new development of public right-of-way. Additionally, there are no known wildlife nursery sites located within the urban area of the City, therefore, it is not anticipated that the implementation of the WMP would have an adverse effect on these areas. Thus, the impact of the WMP on interfering with fish, wildlife, wildlife corridors, and nursery sites would be **less than significant**.

e. The City has an existing moratorium (Ordinance 6905-N.S.) on the removal of any single stem Coast Live Oak with a trunk diameter over 18” or any multi-stemmed Coast Live Oak with an aggregate trunk circumference of 26”. Exceptions can be made by the City Manager or designee if the tree is determined to be a threat to life, limb, or property. The WMP recognizes the stormwater management value of street trees, as well as their other important environmental and community benefits, and the intent of the WMP is to preserve them. Every effort would be made to not to disturb existing street trees. Where implementation of the WMP would result in the retrofit of streetscaping and storm drain pipes within the public right-of-way, there may be some instances where a diseased tree may be removed to accommodate GI installation. The City would consult with an arborist to assess the health of the street tree in these instances. Such removal would not have a significant impact on protected species due to the location of the project (in an urbanized area, where wildlife is adapted to urban conditions).

In addition to obtaining regulatory permits from outside agencies, any City work to improve a creek would need a City Creek Permit and would comply with the City's Natural Preservation and Restoration of Natural Water Courses Ordinance (Berkeley Municipal Code 17.08). This ordinance regulates development near open creeks and building over or near culverted creeks, and prohibits the obstruction or interference of watercourse flow. Permits from the City Engineer are required for the construction or placement of any wall, culvert, drain, bulkhead, riprap or other structure in any natural watercourse or creek in the City.

Thus, conflicts with local policies or ordinances protecting biological resources would be **less than significant**.

f. The WMP is intended to guide City efforts to enhance ecosystem function and heath, including the creation and restoration of habitat. WMP recommendations are consistent with the goals of the *Aquatic Park Improvement Program (APIP)*, 2008. The APIP is currently under CEQA analysis through the Environmental Initial Review (EIR) process. Two options in the APIP EIR are being studied as they pertain to stormwater. The preferred option is to eliminate urban runoff inputs to the Aquatic Park lagoons from both the Potter and Strawberry Watersheds. The other option is to significantly reduce stormwater flows currently entering the Aquatic Park Lagoons. The WMP provides two capital improvement options in the Potter Watershed which are compatible with these goals and are also sized to reduce flooding concerns upstream. Therefore, conflicts with approved local, regional, or State habitat conservation plans would be **less than significant**.

V. CULTURAL RESOURCES Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion (a-d)

a-d. The implementation of GI recommendations of the WMP would result in installation of new subsurface piping and surface-level streetscaping improvements. These improvements would typically occur within the public right-of-way, which is already developed and has been subject to ground disturbance in the recent past. Locations for GI are primarily paved, disturbed areas that are not known to contain (or are unlikely to contain) cultural resources. Additionally, prior to the commencement of any activities that would have the potential to disturb a structure; a historic structures record search would be conducted in order to verify that no historic resources are present within the vicinity. Proposed GI projects that do not involve substantial water storage facilities primarily consist of surface-level improvements with minor excavation or earthworking, and would have little potential to affect unidentified archaeological resources. However, in the case of creek restoration, there may be substantial grading needed to reestablish appropriate channel form (sinuosity, cross-section, and profile). Such grading could impact subsurface, potentially previously disturbed cultural resources.

While past disturbance and development makes it improbable that intact cultural deposits remain in most project areas, it is possible that historical or cultural resources, as defined by *CEQA Guidelines* section 15064.5, could be encountered during construction activities. The potential to uncover Native American human remains exists in locations throughout California, even in urbanized areas. Human remains could be identified during site-preparation and grading activities for recommended projects under the WMP, resulting in a significant impact to Native American cultural resources.

Therefore, excavation and earthwork has a low potential to impact subsurface remains. Implementation of the following mitigation measures would ensure that potential impacts to historic, cultural, and archeological resources that may be encountered during construction for all projects under the WMP would be reduced to a less than significant level.

Mitigation Measure CULT-1

A historical and cultural records search would be conducted prior to the commencement of any construction activity. Should excavation be proposed through a known potentially significant site, then the City would immediately consult with the California State Historic Preservation Office. In the event that the site is of known cultural significance, an approved archeologist shall monitor all construction activities throughout the duration of the project.

Should an archaeological resource be encountered during any project construction activities, the construction contractor shall halt construction in the vicinity of the find and immediately notify the City of Berkeley. Construction activities shall be redirected and a qualified archaeologist, in consultation with the City, shall: 1) evaluate the archaeological deposit to determine if it meets the CEQA definition of a historical or unique archaeological resource and 2) make recommendations about the treatment of the deposit, as warranted. If the deposit does meet the CEQA definition of a historical or unique archaeological resource, then it shall be avoided to the extent feasible by project construction activities. If avoidance is not feasible, then adverse effects to the deposit shall be mitigated as specified in CEQA Guidelines section 15126.4(b) (for historic resources) or CEQA section 21083.2 (for unique archaeological resources). This mitigation may include, but is not limited to, a thorough recording of the resource on Department of Parks and Recreation Form 523 records, or archaeological data recovery excavation. If data recovery excavation is warranted, CEQA Guidelines section 15126.4(b)(3)(C), which requires the preparation of a data recovery plan prior to data recovery excavation, shall be followed. If the significant identified resources are unique archaeological resources, mitigation of these resources shall be subject to the limitations on mitigation measures for archaeological resources identified in CEQA sections 21083.2(c) through 21083.2(f).

Mitigation Measure CULT-2

If paleontological resources are encountered during any site preparation or grading activities, all work within 75 feet of the discovery shall be redirected until a qualified paleontologist has assessed the discoveries and made recommendations. Paleontological resources include fossil plants and animals, and evidence of past life such as trace fossils and tracks. If the paleontological resources are found to be significant, adverse effects to such resources shall be avoided by project activities to the extent feasible. If project activities cannot avoid the resources, the adverse effects shall be mitigated. In accordance with *CEQA Guidelines* Section 15126.4(b)(3), mitigation may include data recovery and analysis, preparation of a final report, and the formal transmission or delivery of any fossil material recovered to a paleontological repository, such as the University of California Museum of Paleontology (UCMP). Upon completion of project activities, the final report shall document methods and findings of the mitigation and be submitted to the City of Berkeley and a suitable paleontological repository.

Mitigation Measure CULT-3

If human remains are encountered during any construction activities, work within 25 feet of the discovery shall be redirected and the Alameda County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage

Commission would identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the City of Berkeley and the Northwest Information Center.

Therefore, the WMP impact would be **less than significant with mitigations**.

VI. GEOLOGY AND SOILS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion (a-e)

a-i. The WMP is a citywide plan. The Berkeley area experiences seismic activity in the form of infrequent, large earthquakes. The eastern parts of the City (i.e., the Berkeley Hills) are located within an Alquist–Priolo Earthquake Fault Zone (according to the State of California Special Studies Zones Map, Attachment 3). Seismic activity in the San Francisco Bay Area is a constant threat with a 60 percent probability of a 6.7 magnitude earthquake by 2032 (USGS statistic from Association of Bay Area Governments (ABAG) website: http://quake.abag.ca.gov/shaking/eqcountry/).

With the exception of Codornices Park and two sites in the Potter Watershed (Channing at Piedmont, and on Prospect Street), the WMP does not propose locating GI/large volume storage units in this hazard area. The Codornices Park site was selected because it is an open space area that is below the grade of the public right-of-way and protected by earthen embankments on its western (i.e., downslope) side. A geotechnical study would be conducted and submitted to the City geologist for approval for any proposed large volume/peak flow storage location within the earthquake hazard zone to quantify risks to human life and property and provide recommendations for construction. All facilities would be designed to meet earthquake design criteria; however, if risk levels are high (as determined by the City geologist), the City would seek other locations for development. Therefore, there would be a **less than significant impact**.

a-ii. Strong seismic ground shaking is predicted for all areas in Berkeley. According to ABAG's interactive Earthquake Shaking Map, the intensity of potential earthquake shaking in Berkeley ranges from "VIII" (very strong – moderate damage) to "X" (very violent – extreme damage) on the Modified Mercali Intensity (MMI) Scale. Existing cement, clay, and brick pipes are more vulnerable to this hazard than new pipe materials, which would be installed in new projects. The pipeline rehabilitation program recommended by the WMP would reduce these hazards by identifying, correcting or replacing damaged pipes in-kind. Compliance with standard engineering practices as well as structural and seismic requirements in the Bay Area would ensure ground shaking effects associated with WMP implementation are **less than significant**.

a-iii. The western portions of the City from the shoreline generally to San Pablo Ave (and in some places further east) are identified as a Seismic Hazard Zone for Liquefaction by the California Geological Survey (City of Berkeley USGS Hazard Study Map, Attachment 4). This is likely due to the use of fill material as the City developed. As with response a-ii above, all future projects associated with the implementation of the WMP would be required to meet applicable engineering and structural requirements. Such compliance would ensure safety to the structures and plan components. Therefore, there would be a **less than significant impact**.

a-iv. Landslide Hazard Areas in Berkeley are typically found in the Berkeley Hills (see COB Hazard Map, Attachment 4). As with response a-i above, a geotechnical study would be conducted for any proposed large volume/peak flow storage location within the landside hazard zone to quantify risks to human life and property and provide recommendations for construction. If risk levels are high, the City would seek other locations. Therefore, there would be a **less than significant impact**.

b. Construction and grading activities for projects implementing the WMP can expose soils to potential erosion. The potential for soil erosion exists between the initiation of earthwork activities and the establishment of new vegetation or installation of hardscape. This is particularly relevant to creek restoration projects due to banked slopes and the force of moving water. Proposed GI projects and pipe rehabilitation projects within the public right-of way represent much less of a potential for soil erosion. Existing top soils would be replaced with amended soils and mulches for improved drainage at GI sites. All construction involving creeks would be required comply with City standards (listed below) and other regulatory agency requirements:

Mitigation Measure GEO-1

> The Contractor shall be responsible for and conduct all aspects of the work within the requirements of BMC Chapter 17.08 – Preservation and Restoration of Natural Watercourses (Creek Ordinance), and any other creek protection requirements by other agencies. Portions of work involving a creek channel shall not be permitted between October 15 through April 15, or other dates as may be stipulated in applicable permits. Any work between the creek banks shall be conducted to not create conditions, which would allow erosion, and shall be fully restored to at least the same erosion resistant condition as before the work. Complying with the requirements of creek protection shall include, but not be limited to: scheduling work around any time periods prohibiting work within creek limits; installing erosion control measures and employing appropriate BMPs for controlling erosion; monitoring, updating and modifying BMPs (to the satisfaction of the City Geologist and City Biologist) to meet the requirements for changing site conditions to comply with erosion control and creek protection; and, replanting creek banks to reestablish erosion resistance and bank stability.

Adherence to Mitigation Measure GEO-1 would ensure that impacts related to erosion would be **less than significant with mitigation**.

c. Portions of the City are underlain with fill material that could result in liquefaction during seismic events. Portions of the City are unstable due to landslide hazards and faults. As with response a-iii above, a geotechnical study would be conducted for any proposed large volume/peak flow storage location within the landside hazard zone to quantify risks to human life and property. If risk levels are high, the City would seek other locations. Additionally, typical GI projects would be designed as closed systems (no exfiltration to native soils), with under-drains connecting GI measures to existing storm drain pipes or creek culverts. This approach would ensure WMP projects would not result in the further instability of soils. Therefore, there would be a **less than significant impact**.

d. Portions of the City are underlain with Bay Mud, which is a soil unit with expansion potential. Proposed project locations could contain expansive soils that could damage implemented improvements if they are not properly constructed. Similar to responses ai-iii above, all improvements undertaken as part of the WMP would be constructed in compliance with geotechnical engineering standards and codes, which would ensure that improvements would not be substantially damaged by expansive soils. Therefore, the impact would be **less than significant**.

e. Projects that would be implemented under the WMP would not require the treatment or disposal of wastewater. The City maintains a separate sanitary sewer system. Therefore, there would be **no impacts**.

I. GREENHOUSE GAS EMISSIONS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Discussion (a-b)

a. The construction elements of the WMP's capital improvement projects would generate GHG emissions through the use of gasoline and diesel-powered heavy equipment and generators. This is necessary to complete projects in a timely and affordable manner with as little disruption to the general public as possible. Beyond the construction phases, there would be no additional GHG emissions associated with WMP implementation. The drainage throughout the City would remain as gravity-controlled or use water pressure to overcome tidal effects. GI measures would be located near existing storm drain pipelines and inlets which currently receive routine maintenance. These locations can be integrated into existing maintenance routines such that there would be no increases in vehicle miles traveled.

BAAQMD does not have an adopted *Threshold of Significance* for construction-related GHG emissions. Sources of construction-related GHGs include exhaust, for which the same detailed guidance as described for criteria air pollutants and precursors shall be followed. Although construction activities are typically short-term or temporary in duration, project generated emissions include air pollutants such as CO, SO_2, $PM_{2.5}$, PM_{10}, ROG, NO_x, and GHGs from exhaust and fugitive dust. The City intends to mitigate these emissions to a less than significant impact through the mandatory implementation of "Basic Construction Mitigation Measures Required for ALL Proposed Projects" and "Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold" as listed in Table 8-1 and Table 8-2 respectively of the BAAQMD's *CEQA Air Quality Guidelines*, May 2011. These mitigation measures are the same as those provided in "Section III: Air Quality" of this Initial Study.

Mitigation Measure AIR-1

Basic Construction Mitigation Measures Required for ALL Proposed Projects

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications. All equipment shall be checked by a certified visible emissions evaluator at least once prior to the commencement of construction activities, as well as once during any construction activities of a duration greater than or equal to six months.
8. A publicly visible sign shall be posted with the telephone number and the point of contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District‘s phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AIR-2

Additional Construction Mitigation Measures Required for Projects with Construction Emissions Above the Threshold

1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content shall be verified daily by lab samples or moisture probe.
2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities shall not occur, except with explicit approval of the BAAQMD. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
8. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways or surface water features from sites with a slope greater than one percent.

9. The idling time of diesel powered construction equipment shall be limited to a two minute maximum. After this period the engine must be turned off.
10. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent PM reduction compared to the most recent California Air Resources Board (CARB) fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
11. Low VOC (i.e., ROG) coatings shall be used beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
12. All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
13. All contractors shall use equipment that meets CARB‘s most recent certification standard for off-road heavy duty diesel engines.

Incorporating the above measures into the conditions of approval for contractors would reduce air quality impacts to a **less than significant level with mitigation**.

b. The City of Berkeley has a strong commitment to reducing the community’s GHG emissions. In 2006, Berkeley voters approved ballot Measure G which mandates an 80 percent reduction of the entire City’s GHG emissions by 2050 (from 2000 levels). The City developed a Climate Action Plan (CAP) (adopted in 2009) to achieve this target. The CAP recommends a number of implementing actions to prepare the Berkeley community for impacts of climate change (City of Berkeley Climate Action Plan, Appendix A, pg. 161), such as:

- Using development review to ensure new development does not contribute to flood potential
- Designing public improvements such as streets, parks, and plazas for retention and infiltration of stormwater using bio-filtration systems
- Expanding tree planting efforts
- Maximizing permeable surfaces
- Encouraging the use of green roofs

The long-term goals and strategies of the WMP are compatible with the recommended CAP actions. Therefore, there would be **no impact**.

I. HAZARDS AND HAZARDOUS MATERIALS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion (a-h)

a-c. Although small quantities of commercially available hazardous materials could be used during project construction activities (e.g., oil, gasoline, paint) and for landscape maintenance (e.g., herbicides) within project areas, these materials would not be used in sufficient quantities to pose a threat to human or environmental health. Additionally, through the implementation of Mitigation Measure HAZ-1 identified below, incidental spills would be minimized. Therefore, development of projects that would be implemented

under the WMP would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. This includes posing no hazard to students at schools in Berkeley or surrounding cities. Impacts would be **less than significant with mitigation.**

Mitigation Measure HAZ-1

> Prior to the commencement of construction activities, the City shall draft a Project Construction Plan, which shall incorporate control measures aimed at minimizing incidental hazardous materials spills to the maximum extent feasible. Measures shall include designated parking for heavy equipment and construction vehicles. Additionally, the Project Construction Plan shall include a required monthly inspection of construction equipment for projects lasting longer than 6 months in duration. Further, the Project Construction Plan shall include additional measures (e.g. the use of drip pans) for projects in the vicinity of sensitive habitats or aquatic environments.

d. Implementation of the WMP is not anticipated to pose a significant health hazard to the public or environment related to contaminated brownfield sites. Proposed project sites from the WMP are not listed in the updated *EnviroStor Report* generated by the Department of Toxic Substances Control (Attachment 5) pursuant to Government Code Section 65962.5. Potential project sites would be evaluated using the City's Environmental Management Area Maps and coordination with the City's Toxics Management Division to identify areas of potential ground contamination. Soil samples would be taken as part of the design process to assess the risks of disturbance. Any excavation of contaminated soils would be handled and disposed of properly in accordance with State regulations. GI infiltration measures would not be used at sites with a potential for groundwater contamination. Therefore, there would be **no impact**.

e-f. Oakland International Airport, which is the closest airport to the City, is located approximately 8 miles southeast of the WMP Area. No projects that would be implemented under the WMP would be located in an airport land use plan or within 2 miles of a public or public use airport. Therefore, implementation of the WMP would not expose people to airport-related hazards. Project sites are not located within the vicinity of a private airstrip. Consequently, implementation of the WMP would not expose people to airport-related hazards. Therefore, there would be **no impact**.

g. Implementation of the WMP would not substantially interfere with or impair the implementation of an adopted emergency response plan or emergency evacuation plan. The WMP is not expected to substantially increase vehicle congestion such that emergency access or evacuation would be hindered. Implementation of General Plan Policy T-28, Emergency Access, would ensure that fire truck access is maintained on all roads. Therefore, impacts would be **less than significant**.

h. The WMP recommends projects within the public right-of-way and in open spaces where the risks for wildland fires is already low. The GI measures would incorporate the use of street trees, riparian plants, and drought-tolerant vegetation. These projects would be maintained by the City such that weeds, litter, and the potential build up of fuels are minimized. While maintenance at each site would vary according to the project, the City staff would be responsible for the ongoing maintenance of new plantings. The City staff would coordinate with the jurisdictional fire department to ensure that the project would not result in secondary increases to wildland fire impacts. Therefore, impacts would be **less than significant**.

IX. HYDROLOGY AND WATER QUALITY Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion (a-j)

a. As one of its primary goals, the WMP is intended to protect water quality. Urban runoff is a major contributor to water quality impairment in the Bay Area and around the country. Non-point source pollutants generated by the daily activities of city life include trash, fertilizers, pesticides, grease, sediment, and heavy metals. These contaminants compromise the health of the San Francisco Bay and its urban tributary creeks. The City of Berkeley currently operates its stormwater pollution prevention programs in compliance with National Pollutant Discharge Elimination System (NPDES) requirements. Program activities include source control, planning and design review, pollutant interception and removal, inspections and enforcement, and education. The WMP builds on these existing programs with policies and capital improvement plans that promote runoff treatment and reduction through the use of Low Impact Development (LID) and GI practices. These practices (appropriate for both public and private property) include the use of bio-retention cells, vegetated swales, rainwater harvesting, and permeable paving. LID/GI measures have been found to be effective tools for urban runoff pollutant removal and avoidance.

While there is no anticipated impact on water quality standards associated with the operational elements of the WMP, construction activities could have a potential impact. To minimize this potential, all contractors would be required to incorporate construction BMPs as described below in Mitigation Measure HYDRO/WQ-1.

Mitigation Measure HYDRO/WQ-1

1. Contractor shall comply with Federal, State, City, and other local agencies' regulations that prohibit non-stormwater discharges from construction sites. Pollutants (any substance, material, or waste other than rainfall derived stormwater) discharged to storm drains shall be strictly prohibited. Contractors and City forces shall use BMPs as required by the Municipal Regional Stormwater Permit (MRP) and source control techniques on the site(s) at all times, regardless of time of year or rainfall conditions, in order to prevent the discharge of pollutants.
2. Contractor shall prepare a Plan showing the locations of all storm drains, storm drain culverts, creeks, creek culverts, catch basins, inlets, outlets, and other features through which stormwater flows. This plan shall identify each point of entry and show how each entry point would be protected from pollutants. The plan shall include a protocol for allowing drainage to flow properly during rainfall events *while still preventing* the pollutants from entering the storm drains, creeks, and Bay.
3. Contractor shall designate an individual, approved by the City, available at all times of sufficient authority to halt work and implement BMPs and source control measures for the Contractor and all sub-contractors, suppliers, and other personnel that may be at the Worksite, to prevent pollutant discharges from the Worksite. This individual shall be the point of contact for all matters of the Work regarding stormwater pollution.
4. The Plan shall include and show locations and describe protocols for implementing and maintaining the following but not limited to: material storage, dewatering operations, pavement saw-cutting operations, pavement operations, concrete operations, grading and excavation operations, spill prevention and control, vehicle and equipment cleaning, vehicle

and equipment operation and maintenance, litter control, dust control, pavement cleaning, construction waste management, standard details of BMPs per the MRP, and training for all employees, subcontractors, suppliers, and any others involved with the Work. Where BMPs affect traffic or parking, they shall be shown on the traffic control plans for the Work. The Plan shall be updated continuously to meet changing stages of the Work.

5. Contractor is responsible for ensuring all personnel, laborers, sub-contractors, suppliers, and any other personnel that are involved with the Work are trained in the importance of preventing stormwater pollution. The training shall include, at a minimum, a review of the BMP and Source Control Plan, and all BMPs (including BMP operation and maintenance) that are planned for the Work.

Mitigation Measure HYDRO/WQ-2

The proposed project will ensure that all GI improvements are properly maintained, such that they don't contribute to increased flooding or pooling of water. In particular Hydrodynamic Separator Units will be inspected and cleaned out after each substantial storm event to prevent mosquito breeding or the organic breakdown and re-suspension of pollutants.

Further, all construction involving creeks would be required to comply with City standards and Mitigation Measure GEO-1 (as stated in Section VI.b. above and provided below) and other regulatory agency requirements:

Mitigation Measure GEO-1

The Contractor shall be responsible for and conduct all aspects of the work within the requirements of BMC Chapter 17.08 – Preservation and Restoration of Natural Watercourses (Creek Ordinance), and any other creek protection requirements by other agencies. Portions of work involving a creek channel shall not be permitted between October 15 through April 15, or other dates as may be stipulated in applicable permits. Any work between the creek banks shall be conducted to not create conditions, which would allow erosion, and shall be fully restored to at least the same erosion resistant condition as before the work. Complying with the requirements of creek protection shall include but not be limited to: scheduling work around any time periods prohibiting work within creek limits; installing erosion control measures and employing appropriate BMPs for controlling erosion, monitoring, updating and modifying BMPs (to the satisfaction of the City Geologist and City Biologist) to meet the requirements for changing site conditions to comply with erosion control and creek protection; and, replanting creek banks to reestablish erosion resistance and bank stability.

Adherence to these standards would ensure that impacts related to water quality would be **less than significant with mitigation**.

b. Groundwater resources should remain unaffected or potentially improved through the use of GI measures to filter runoff pollutants. Soil analysis would be done on a project by project basis to identify opportunities for infiltration into native soils. To avoid impacts to groundwater quality, no stormwater infiltration measures would be undertaken in areas of existing soil contamination. Otherwise, GI measures would be designed with under-drains and/or storage units plumbed to existing storm drain pipes. No

removal of groundwater resources is proposed or expected through the implementation of the WMP. Therefore, there would be **no impact**.

c-d. The WMP does not recommend substantial alterations of drainage patterns which would result in substantial siltation, erosion, on-site flooding, or off-site flooding, as such measures would be in direct opposition to the goals of the WMP, which are to: 1) protect water quality, 2) reduce urban flooding, 3) preserve natural waterways and aquatic habitat, and 4) promote the reuse of rainwater as a resource. Rather, the WMP proposes minor alterations of drainage patters in certain locations to provide water quality benefits, in-stream habitat protection, reduced bank erosion, and/or reductions in localized flooding. Examples of typical and specific capital improvement projects are discussed below.

GI Measures

The concept of the GI measures is to strategically locate surface-level bio-retention measures (such as rain gardens and swales) within the planter strip area of sidewalks, within red zone curb-extensions, and within street medians, as feasible. These measures can be located near existing storm drain infrastructure, in commercial areas, and at inlets discharging directly to a creek. Permeable paving can be used in sidewalk areas, parking lanes, and residential streets to augment the other GI measures where site conditions limit the area available for bio-retention. GI installations would filter pollutants from stormwater through vegetated and soil/sand media prior to its discharge into existing storm drain pipes or to large underground storage pipes. The use of underground storage pipes would reduce peak runoff volumes and rates by filling during storm events and slowly discharging into the existing storm drain pipelines through small orifices. Over 50 sites in the upper Potter Watershed have been identified as viable locations for GI/large volume temporary storage projects. The anticipated, cumulative effects of GI measures are improvements in water quality and reductions in downstream bank erosion, habitat scour, and flooding.

Bioswales serve to filter pollutants from stormwater and reduce peak surface runoff. This installation of these types of GI improvements would improve water quality.

Codornices Park

The proposed temporary large volume storage project at Codornices Park is conceived to off-load peak flows from the creek, and then return the impounded water back to the creek as peak flows subside. It is anticipated that this project would result in reductions to downstream bank erosion, habitat scour, and flooding.

Lower Codornices Watershed

The WMP calls for a number of actions to improve creek conditions and reduce flooding in the Lower Codornices Watershed. These actions include:

1. Continued restoration of the creek corridor from San Pablo Avenue to the railroad right-of-way.

2. Re-routing excess flows from Codornices to Village Creek at the existing by-pass structure located at 5th Street.
3. Installing a low earthen berm around the creek corridor between 2nd Street and Eastshore Highway Rd.
4. Working with the Caltrans to increase culvert capacity under Highway I80.

Based on hydraulic modeling results, these measures are anticipated to reduce existing flooding in the 2nd Street area without raising flooding hazards to Albany businesses on the north side of the creek. Substantial erosion or siltation is not anticipated.

Lower Potter Watershed

Localized flooding is also a major concern in the lower areas of the Potter Watershed. This is attributed to both a large urbanized drainage area as well as the tidal effects of the San Francisco Bay. GI/storage measures in the upper watershed combined with upsizing the diameter of the main storm drain trunk line from Woolsey/Adeline to the railroad tracks are recommended for capacity improvements.

Additionally, the WMP presents two options for overcoming San Francisco Bay tidal effects. The preferred option is to install a new pressurized pipeline from the railroad track to the San Francisco Bay with no connections to the Aquatic Park Lagoons. The other option (less costly) is to retrofit the existing pipeline as a pressurized line while maintaining existing connections to the Aquatic Park Lagoons for temporary storage of excess flows. Both options would include the re-routing of existing stormwater pipelines that carry local runoff directly to the lagoons to a new storm drain trunkline structure at the railroad tracks. This structure would have a trash removal device to intercept pollutants prior to discharge into receiving waters. Used in combination with upper watershed GI measures, water quality in the lagoons would be improved in either scenario. This outcome is consistent with the goals of the *Aquatic Park Improvement Program* (APIP) currently under CEQA analysis through an Environmental Impact Review process.

Because the WMP only recommends minor alterations to exiting drainage patterns with projects that improve water quality, protect in-stream habitat, and/or reduce flooding, impacts would be **less than significant**.

e-f. Implementation of the WMP would not create nor contribute to stormwater runoff water exceeding the capacity of existing or planned storm drain pipes. Further, implementation of the WMP would not create or contribute to in-stream flow volumes exceeding the capacity of existing creek culverts. WMP proposed projects and policies would not generate any additional stormwater runoff nor represent additional sources of polluted runoff. Rather, WMP project recommendations call for the strategic upsizing of existing storm drain pipes where capacity increases are needed, the rehabilitation of deteriorating pipelines, and the use of GI measures (to both reduce peak flow volumes and protect water quality). Operationally, the WMP is consistent with existing NPDES requirements, while anticipating future regulatory mandates.

While there are no anticipated negative impacts to existing water quality associated with the operational elements of the WMP, construction activities could have a potential impact. To minimize this potential, all contractors would be required to incorporate construction BMPs as detailed in Mitigation Measure

HYDRO/WQ - 1 in Section IX- Hydrology/Water Quality of this Initial Study. Further, all construction involving creeks would be required to comply with City standards as described in Mitigation Measure GEO-1 in Section VI – Geology and Soils of this Initial Study and other regulatory agency requirements. Adherence to these standards would ensure that water quality impacts would be **less than significant with mitigation**.

g. No recommendations in the WMP would place housing in the 100-year flood hazard area. City staff would continue to administer the City's Flood Zone Development Ordinance, as codified in the Berkeley Municipal Code, Chapter 17.12. Therefore, there would be **no impact**.

h. The WMP does not propose any new structures that would redirect flood flows. The WMP does recommend the development of a low berm at Second Street around the downstream segment of the Codornices Creek corridor. This improvement would allow more flow into the existing creek culvert underneath Highway I-80. The berm would be constructed to maintain 2nd Street as the floodway, providing the same level of flood protection for surrounding properties as currently exists. Therefore, impacts would be **less than significant**.

i. The Association of Bay Area Governments (ABAG) maintains Hazard Maps for Dam Failure Inundation Areas (www.abag.ca.gov/bayarea/eqmaps/dammaps/berkdamf.gif). The Berryman Reservoir Basin is shown as a potential dam failure location which could inundate areas downstream (Attachment 6). This site is adjacent to Codornices Park where the WMP recommends installing large volume pipes for temporary storage of peak flows from the Codornices Creek culverts under the existing basketball court area. This project would be designed such that flows exchanged between the creek culverts and proposed storage pipes would be contained as a closed system and would not contribute to dam area saturation. Therefore, there would be a **less than significant impact**.

j. No recommendations in the WMP are expected to increase existing risks of tsunami, seiche, or mudflow. Therefore, there would be **no impact**.

X. LAND USE AND PLANNING Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion (a-c)

a. The physical division of an established community typically refers to the construction of a physical feature (e.g., interstate highways or railroad tracks) or removal of a means of access (e.g. local roads or bridges) that would impair mobility within an existing community, or between a community and outlying area. Projects that would be implemented under the proposed WMP would occur on existing rights-of-way and in open space areas within the City. Although some projects could result in minor alterations to streetscapes, such as use of curb extensions to locate bio-retention features, they would not result in the division of any established community. Therefore, there would be **no impact**.

b-c. The WMP recommendations are consistent with Objectives 23-33 of the Environmental Management Element of the City's General Plan. In addition, the WMP is consistent with policies and recommendations contained in other planning and policy documents associated with the public right-of-way and open spaces including the City's Pedestrian Master Plan, the Streets and Open Space Improvement Plan associated with the Downtown Area Plan, the Climate Action Plan, the Aquatic Park Improvement Plan, and the Preservation of Natural Watercourses Ordinance. Therefore, there would be **no impact**.

XI. MINERAL RESOURCES Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion (a-b)

a-b. The City of Berkeley does not contain any known areas with important mineral resources. Consequently, implementation of the WMP would not result in impacts to mineral resources. Therefore, there would be **no impact.**

XII. NOISE Would the project result in:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion (a-f)

a. The City's Noise Ordinance (BMC Chapter 13.40) sets limits for permissible noise levels during the day and night according to the zoning of the area. However, if ambient noise (the general level of noise in the area) exceeds the standard, that ambient noise level becomes the allowable noise level. Implementation of the WMP would typically result in the retrofit of streetscapes, rehabilitation of existing stormdrain pipelines, installation of new subsurface piping, and the restoration of urban creeks. These activities would typically occur within the public right-of-way and public open spaces, which can be found within and adjacent to other land use types.

Except for the use of permeable pavers in the travel lanes of residential streets (see response XII.b. below); no WMP-related activities would constitute a new, permanent source of noise generation. However, the construction phases of WMP implementation would typically exceed noise standards in most settings. To mitigate the impacts of construction noise to a less than significant level, contractors and City forces implementing projects would be required to follow the BMPs described in Mitigation Measure NOISE-1.

Mitigation Measure NOISE-1

1. Hours of construction shall be limited to 8 a.m. to 6 p.m. on weekdays and 9 a.m. to noon on Saturdays; no work shall occur on Sundays or Federal holidays. The Noise Control Officer may approve up to 10 days of extended working hours upon written request to accommodate special conditions, such as but not limited to extended concrete pours.

2. Contractors shall develop a site-specific noise reduction program prepared by a qualified acoustical consultant to reduce construction noise impacts to the maximum extent feasible, subject to review and approval of the Noise Control Officer. The noise reduction program should include, but shall not be limited to, the following measures:

   - Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible).
   - Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, which could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.
   - Stationary noise sources shall be located as far from sensitive receptors as possible, and they shall be muffled and enclosed within temporary sheds, or insulation barriers or other measures shall be incorporated to the extent feasible. Signs shall be posted at the construction site that include permitted construction days and hours, a day and evening contact number for the job site, and a day and evening contact number for the on-site complaint and enforcement manager, and the City's Noise Enforcement Officer, in the event of problems.
   - An on-site complaint and enforcement manager shall be available to respond to and track complaints. The manager would be responsible for responding to any complaints regarding construction noise and for coordinating with the adjacent land uses. The manager would determine the cause of any complaints and coordinate with the construction team to implement effective measures (considered technically and economically feasible) warranted to correct the problem. The telephone number of the coordinator shall be posted at the construction site and provided to neighbors in a notification letter. The manager shall notify the City's Noise Enforcement Officer of all complaints within 24 hours. The manager would be trained to use a sound level meter and should be available during all construction hours to respond to complaints.
   - Prior to the issuance of a building permit, a pre-construction meeting shall be held with the Noise Enforcement Officer and the general contractor/on-site project manager to

confirm that noise mitigation and practices are completed (including construction hours, neighborhood notification, posted signs, etc.).

Adherence to these requirements would keep noise impacts to a level **less than significant with mitigation**.

b. The projects with the greatest potential for groundborne vibrations are associated with conveyance capacity increases across HWY I-80 to the San Francisco Bay. These tunneling projects may include pile driving and other heavy duty means of compacting and retaining soils. These projects would occur in proximity to the highway, generally in either industrial or open space areas. Even smaller projects require large, heavy equipment for demolition, excavation and grading, and compacting. Adherence to Mitigation Measure NOISE-1 requirements (above) would keep these temporary sources of groundbourne vibration and noise to a level of **less than significant with mitigation**.

c. The use of permeable unit pavers (i.e., individual blocks of pavement with slight gaps meant to facilitate the percolation of surface water) in the travel lane of residential streets would be a permanent source of groundbourne noise from vehicle tires. This noise would be similar to that of tires on asphalt, however, do to the spacing of the pavers the noise would be slightly different. Although, it would become a contributor to permanent ambient noise in the project vicinity, noise resulting from the pavers is not expected to result in a substantial increase in decibel level. Further, this noise can be minimized by installing pavers at specific configurations and using paver types with minimal beveled edges. Projects associated with the WMP would use a configuration and paver type appropriate for the surrounding land use. Therefore, the exposure to excessive groundbourne vibrations and noise would be **less than significant**.

Permeable unit pavers have slight gaps which allow for surface water percolation. While this pavement type would be an additional source of groundbourne noise, the noise would be similar to that created by vehicles driving over asphalt.

d. See response XII.a. above. Impacts would be l**ess than significant with mitigation**.

e-f. Oakland International Airport, which is the closest airport to the City, is located approximately 8 miles southeast of the site. WMP projects would not be located in an airport land use plan or within 2 miles of a public airport or public use airport. Furthermore, the City is not located within the vicinity of a private airstrip. Therefore, there would be **no impact**.

XIII. POPULATION AND HOUSING Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion (a-c)

a-c. The WMP proposes stormwater management retrofits to the existing public right-of-way, in open spaces, and on private property. While the WMP would result in increases to stormwater conveyance capacity where it is exceeded by current demand, there is no creation of new roadways or other infrastructure that would induce population growth directly or indirectly. The WMP also does not recommend any activities that would displace people or any existing housing. Therefore, there would be **no impact**.

XIV. PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

Discussion (a)

Fire Protection: Recommended projects would be constructed or installed within existing rights-of-way and in open spaces, which would not result in new fire hazards or an increased demand for fire services. While some projects would result in minor alterations to local pedestrian, bicycle, and vehicular circulation patterns (e.g., changes to red zone curb areas where bio-retention cells would ideally be located), these projects would not substantially impair emergency access. Fire truck access would be maintained on all roads. Overall, the City would continue to be served by the Berkeley Fire Department, and the WMP would thus result in **less than significant** impacts to fire protection services.

Police Protection: The WMP recommends stormwater management improvements in the public right-of-way, in open space areas, and on private property. Implementing the WMP would not result in new demand for police services. Overall, the City would continue to be served by the Berkeley Police Department, and the WMP would thus result in **less than significant** impacts to police services.

Schools: The WMP recommends engaging the Berkeley Unified School District in rainwater harvesting and re-use partnerships. It does not involve the construction of housing or employment-generating facilities. Therefore, WMP implementation would not increase the demand for school services. There impacts would be **less than significant.**

Parks: The WMP recommends stormwater management improvements in the public right-of-way, in open space areas, and on private property. Projects that may be implemented in the right-of-way or in parks and open space areas would need to be maintained by City forces to ensure proper long-term functioning and public safety. Any proposed project in a City park or on open space would be coordinated with the Parks

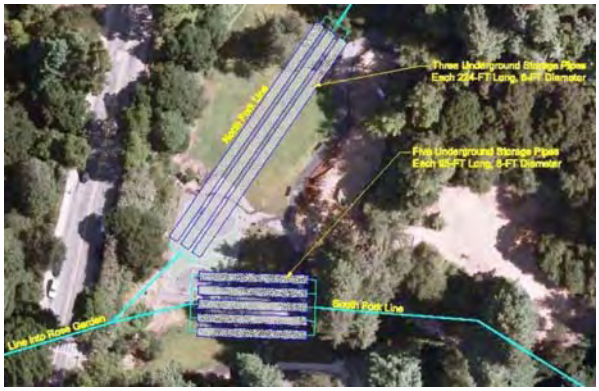
Department to ensure that adequate resources are available for maintenance activities. Any physical alteration of parklands to install stormwater management measures would include replacement of pre-project recreational amenities. Thus impacts would be **less than significant** and would not be expected to result in the physical deterioration of parks.

Other Public Facilities: The WMP would not increase demand for other public facilities, such as libraries, because it would not result in population or permanent employment growth in the City, or result in other demographic changes that would increase the demand for such facilities. However, Capital Improvement Projects would likely result in an increase of temporary employment. For the projects over $1 million there would be a community work force agreement which would outline a plan to recruit and hire low-income workers onto the project. In addition, it is anticipated that any temporary construction workers would be utilized from within the existing community population and thus not create a need for new or altered services and facilities. Thus impacts would be **less than significant**.

XV. RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion (a-b)

a-b. Implementing the recommendations of the WMP would not result in a substantial increase in park usage. The proposed project in Codornices Park would install underground storage pipes and replace pre-existing recreational amenities. In the case of creek restoration in the Lower Codornices Watershed, the addition of a pedestrian and bicycle path offers increased recreational opportunities and promotes alternative means of transportation to the automobile. The trail, when coupled with low-lying fencing, can encourage visitors to keep off environmentally-sensitive areas and its usage would not be expected to result in substantial physical deterioration of the park.



Under the WMP a GI underground storage unit would be installed under pre-existing recreation amenities, including a basketball court. While the project would have a short term adverse impact to recreation, the basketball court and associated amenities would be replaced.

Recommended improvements in the Potter Watershed include replacing existing storm drain pipes in Aquatic Park with a new alignment that delivers this runoff to the proposed retrofitted Potter stormdrain trunkline. While this would provide water quality benefits, it would not increase park usage to the level of accelerated deterioration. Thus, there is a **less than significant impact** to recreational facilities.

XVI. TRANSPORTATION TRAFFIC Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Discussion (a-f)

a. The WMP is consistent with the City's Pedestrian Master Plan and the Transportation Elements of the General Plan. The WMP does not include components that would generate new vehicle trips or increase the existing traffic load. Rather, implementation of the projects and programs identified in the WMP would improve the City's drainage and water quality. While project implementation would likely result in minor temporary increases in traffic during construction activities, over the long-term GI measures may contribute to enhanced pedestrian safety and increased walking as a viable form of transportation throughout the City. Bulb-outs associated with GI may result in shorter pedestrian cross-walk distances. Bulb-outs (i.e., extensions of landscaping around street corners) can also serve to reduce the turn radius for turning vehicles, thereby resulting in increased pedestrian safety by reducing the speed of vehicular traffic. Permeable pavers have been found to offer traffic calming benefit as well.

There may be instances where implementing GI could reduce the vehicle capacity of intersections and/or increase congestion through physical changes at intersections. Section 6.4.3 of the City's Pedestrian Master Plan includes items that should be considered when designing bulb-outs. Implementation of the following mitigation measure would ensure that proposed projects would not substantially increase traffic congestion.

Mitigation Measure TRAF-1

In addition to the considerations outlined in the Pedestrian Master Plan, the City shall ensure that bulb-outs would not extend beyond the parking lane into the through lanes of the roadway to the degree that they would eliminate through travel lanes or narrow travel lanes below minimum widths as described in State and Federal guidelines as adopted by the City of Berkeley.

If the City determines that removing or narrowing through travel lanes is necessary to accommodate GI measures and improve safety, then a level of service (LOS) and queuing analysis shall be prepared. These analyses would determine whether the project would cause a significant impact per the City's adopted LOS thresholds, as set forth in the *City of Berkeley Guidelines for Development of Traffic Impact Reports*, or would result in queuing that could affect traffic operations at adjacent intersections. If the proposed project results in a significant impact to LOS or results in queuing that could affect traffic operations at adjacent intersections, the City shall pursue one of the two following outcomes for each affected site: 1) the site design shall be modified to reduce the impact below the City's adopted LOS threshold, as set forth in the *City of Berkeley Guidelines for Development of Traffic Impact Reports*, or the prevailing LOS for the existing condition OR 2) the City shall make findings, pursuant to Policy T-18 in the General Plan, that significant beneficial pedestrian impacts and/or other beneficial impacts would reduce the adverse LOS/intersection operation impact to a less-than-significant level.

Mitigation Measure TRAF-2

Prior to the commencement of construction activities the City shall draft a construction plan which would include a traffic mitigation plan. This plan would include information regarding any potential road closures or substantial increases in vehicle delay within the vicinity of the proposed project. Where necessary, the plan would outline route detours in order to minimize traffic congestion to the greatest extent feasible.

Additionally, at least two weeks prior to the commencement of construction the City shall provide temporary signage in order to inform the public of any potential increases in delay.

Adherence to these requirements would keep traffic planning and policy conflicts with the WMP to a level of **less than significant with mitigation.**

b. The Alameda County Congestion Management Agency has designated several roadways within the City of Berkeley as designated routes in its Congestion Management Program (CMP). These include San Pablo Avenue, sections of University Avenue, Shattuck Avenue, Adeline Street, Ashby Avenue, and MLK Jr. Way. For GI projects considered on these routes, the implementation of Mitigation Measure TRAF-1 would reduce impacts to a level of **less than significant with mitigation**.

c. The WMP does not include any changes to infrastructure or policies that would affect air traffic patterns or levels of air traffic. Therefore, there would be **no impact**.

d. No increases in hazards due to design features are anticipated from implementation of the Plan. Proposed projects and policies are intended to provide stormwater management and natural resource benefits, while providing ancillary safety and aesthetic improvements to the community. Physical modifications to intersections, such as the construction/modification of bulb-outs and reduction of turn radii would reduce vehicle speed, provide more visibility for pedestrians, and enhance the safety of intersections. Therefore, impacts would be **less than significant**.

e. The construction of surface-level GI features could result in narrowing of traffic lanes and/or reduction of turn radii at intersections such that access for emergency vehicles is impeded. Implementation of General Plan Policy T-28, Emergency Access, would ensure that adequate emergency access is maintained throughout the City. Policy T-28 states: Provide for emergency access to all parts of the City and safe evacuation routes. (Also see Disaster Preparedness and Safety Policy S-22.) Actions A of Policy T-28 further states:

> "Do not install new full diverters or speed humps on streets identified on the Emergency Access and Evacuation Network map unless it is determined by the Fire and Police Departments that the installation would not significantly reduce emergency access or evacuation speeds. The Fire Department should be able to access all Berkeley locations within four minutes (see Disaster Preparedness and Safety Element). All other proposed traffic calming devices or obstructions to the free flow of traffic on these streets should be reviewed by the Fire and Police Departments to ensure that the proposed change would not significantly increase emergency response times or hinder effective evacuation of adjacent neighborhoods."

Compliance with these policies would ensure impacts are **less than significant**.

f. The WMP would be implemented such that projects and policies are compatible with the City General Plan, adopted specific plans, and the Pedestrian Master Plan. Therefore, impacts would be **less than significant**.

XVII. UTILITIES AND SERVICE SYSTEMS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion (a-g)

a. The proposed WMP would not increase the demand for wastewater treatment and would therefore not compromise the treatment standards of the Regional Water Quality Control Board. Therefore, there would be **no impact**.

b. Implementation of the proposed Plan would not generate wastewater or require the use of substantial quantities of water. Minor short-term increases in water use would occur for landscape irrigation for GI projects that include bio-retention measures or tree planting. However, such improvements would all need to comply with City policies regarding irrigation, planting of native species, and water-efficient landscape design. The Plan would not require the construction of new wastewater or water facilities, or the expansion of existing facilities. Therefore, there would be **no impact**.

c. The WMP consists of proposed projects and policies to improve stormwater management and natural water resources. The WMP proposes a rehabilitation program as well as a capital improvement program to increase capacity (where needed). This includes both new construction and modification of existing infrastructure, which is beyond its useful design life and deteriorating rapidly. Proposed capital improvements include a combination of increasing pipe existing diameters as well as using GI approaches to cleanse and slow run-off to minimize the need for further expansions. Environmental impacts would be minimal as construction activities would generally occur in already developed areas (typically within the public right-of-way). During project construction phases, contractors and City forces would be mandated to use BMPs to protect environmental resources. Adherence to Mitigation Measures AIR-1, AIR-2, AIR-3, GEO-1, and HYDRO/WQ-1 described within this Initial Study would ensure impacts to environmental resources would be **less than significant with mitigation**.

d. GI measures proposed by the WMP often include landscaping and plantings. These features would require small amounts of water for irrigation to become established. Once established, and operating under City policies for public landscaping, these plants would require little if any supplemental watering. Existing water entitlements would be sufficient to supply water to the projects. Therefore, there would be a **less than significant impact**.

e. Projects that would be implemented under the proposed Plan would not generate wastewater and would not result in an increase in demand for wastewater treatment. Therefore, there would be **no impact**.

f. Implementation of the WMP would result in minimal solid waste. WMP activities would generate earthen, concrete and asphalt spoils from excavation and street and pipe modifications. These would also be some green waste generated as well. Where feasible, these materials shall be recycled, reused, or otherwise diverted from landfills. The exceptions may be contaminated dirt, which would need to be disposed of at a hazardous waste facility. Existing landfills would have sufficient capacity to accommodate this potential minor increase in construction waste. Therefore, there would be a **less than significant impact**.

g. Solid wastes generated by the implementation of the WMP would be handled and disposed of properly and the WMP would adhere to Federal, State, and local statutes and regulations related to solid waste. Therefore, there would be a **less than significant impact**.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion (a-c)

a. Implementation of the WMP would depend on available funding and may take decades to implement based on costs and scope. The areas in which the implementation of the WMP has the potential to degrade the quality of the environment are in the realms of air quality, cultural resources, biology, hydrology, soils and geology, GHG emissions, noise, transportation, and utilities. These potential impacts are typically related to construction activities, which may take place throughout the City and over an extended time horizon. The City would adhere to the mitigation measures listed below and further explained within this Initial Study to ensure potential impacts would remain at levels **less than significant with mitigation**:

- Mitigation Measure AIR-1, AIR-2, & AIR-3
- Mitigation Measure BIO-1 & BIO-2
- Mitigation Measure CULT-1, CULT-2, & CULT-3
- Mitigation Measure GEO-1
- Mitigation Measure HAZ-1
- Mitigation Measure HYDRO/WQ-1
- Mitigation Measure HYDRO/WQ-2
- Mitigation Measure NOISE-1
- Mitigation Measure TRAF-1 & TRAF-2

b. Each recommended WMP project represents a stand-alone project that would be managed appropriately, including use of the mitigation measures recommended above to minimize or eliminate

potential environmental impacts. While numerous projects have been and are yet to be identified, it is likely the City would only have the financial resources to undertake a few projects at a time. Further, the implementation of the mitigation measures above would reduce the potential for cumulative air and water quality impacts to **less than significant with mitigation**.

c. Implementing the mitigation measures above would reduce the potential for direct or indirect adverse human impacts to **less than significant with mitigation**.

REFERENCES AND SOURCES CONSULTED

Alameda County Congestion Management Agency. 2009. *2009 Congestion Management Program*.

Association of Bay Area Governments. *Hazard Map for Dam Failure Inundation Areas* (www.abag.ca.gov/bayarea/eqmaps/dammaps/berkdamf.gif).

Bay Area Air Quality Management District. 2010. *California Environmental Quality Act: Air Quality Guidelines* (http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx)

California Department of Conservation. 2010. *Alameda County Important Farmland Map* (www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx).

California Department of Toxic Substances Control. 2011. *Hazardous Waste and Substances Site List* (www.dtsc.ca.gov/database/Calsites/Cortese_List.cfm).

City of Berkeley, Office of Transportation. *Guidelines for Development of Traffic Impact Reports*.

City of Berkeley. 2002. *Berkeley General Plan*.

City of Berkeley. 2008. *Aquatic Park Improvement Program*.

City of Berkeley. 2009. *Climate Action Plan*.

City of Berkeley. 2009. *Pedestrian Master Plan*. Kier Associates for Urban Creeks Council. *Codornices Creek Watershed Action Plan*, 2004.