
Appendix C

Minimum BMPs

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C.1 Minimum BMPs for Construction Areas/Activities

Appendix C.1

Best Management Practices for Construction Activities

In accordance with Section D.2 of the Municipal Permit, the City of El Cajon has developed an inventory of minimum BMPs to be implemented during construction activities. Construction projects occurring within the City are required to comply with seasonal site management requirements and to implement selected BMPs from this inventory, where applicable. Minimum seasonal site management requirements are listed below:

Seasonal Site Management Requirements

Construction projects have to comply with the following minimum seasonal BMP requirements:

Dry Season (May 1st through September 30th)

- All exposed disturbed areas must have erosion prevention controls properly installed including building pads, unfinished roads, and slopes. (Slopes greater than 33.3% or 3:1 vertical vs. horizontal may use properly designed and installed de-silting basins at all discharge points in lieu of this requirement)
- Adequate perimeter protection BMPs must be installed and maintained.
- Adequate sediment control BMPs must be installed and maintained.
- Adequate BMPs designed to control off-site sediment tracking must be installed and maintained.
- At a minimum, 125% of the materials needed to install standby BMPs necessary to completely protect exposed portions of the site from erosion and prevent sediment discharges must be stored on the site.
- An approved “weather triggered” response plan is mandated for implementation in the event that a predicted storm event has a 50% chance of rain. The proponent must have the capacity to deploy the standby BMPs within 48 hours of the predicted storm event.
- All slopes must be equipped with erosion prevention BMPs as soon as slopes are completed for any portion of the site.
- All active slopes must be stabilized during rain events.
- The amount of cleared or graded areas left exposed at any given time is limited to 17 acres or to the alternate maximum area approved by the City in writing (see Section 5.4.3).

Wet Season (October 1st through April 30th)

All dry season requirements are required in addition to the following:

- Perimeter protection and sediment control BMPs must be upgraded if necessary to provide sufficient protection for storms.
- Adequate erosion prevention BMPs must be installed and established for all completed slopes prior to October 1 and maintained throughout the wet season. If a BMP fails, it must be repaired, improved or replaced with an acceptable alternate as soon as it is safe to do so.
- Standby erosion and sediment control BMPs must be able to protect all exposed soil areas. An incomplete disturbed area that is not being actively graded must be fully protected from erosion if left for 10 days or more.

Best Management Practices

In addition to the seasonal requirements, construction projects will be required to implement the following BMPs, when applicable. Since the initial development of the City's JURMP in 2002, the City has refined its minimum BMP requirements to only include those BMPs the City found to be the most effective based on previous experience. Construction sites will be responsible for implementing additional BMPs beyond the minimum listed below as necessary to control pollutant discharges to the City's standards. Factsheets that pertain to the following BMPs can be found in the Caltrans Storm Water Quality Handbooks Construction Site BMP Manual (2003). The relevant factsheet number is noted in parenthesis. Please refer to the Caltrans website for the most recent fact sheets, found at:

www.dot.ca.gov/hq/construc/stormwater/manuals.htm.

C.1.1 Development Planning

- a. Preservation of natural hydrologic features where feasible
- b. Preservation of riparian buffers and corridors where feasible
- c. Minimization of areas that are cleared and graded to only the portion of the site that is necessary for construction
- d. Minimization of exposure time of disturbed soil areas (SS-1)
- e. Minimization of grading during the wet season and correlation of grading with seasonal dry weather periods to the extent feasible (SS-1)
- f. Temporary stabilization and reseeded of disturbed soil areas as rapidly as feasible (SS-1)
- g. Employee and subcontractor training

C.1.2 Pollution Prevention

- a. Vehicle and Equipment Operations
 - Vehicle and Equipment Cleaning (NS-8)
 - Vehicle and Equipment Fueling (NS-9)
 - Vehicle and Equipment Maintenance (NS-10)

- b. Materials Management
 - Material Delivery and Storage (WM-1)
 - Stockpile Management (WM-3)
- c. Waste Management
 - Solid (WM-5)
 - Sanitary (WM-9)
 - Concrete (WM-8)

C.1.3 Erosion Prevention

- a. Physical Stabilization
 - Preservation of Existing Vegetation (SS-2)
 - Coconut Fiber Blankets (SS-7)
- b. Site Drainage
 - Outlet Protection/Velocity Dissipation (SS-10)
- c. Wind Erosion Control (WE-1)
- d. Permanent re-vegetation or landscaping as early as feasible (SS-1)

C.1.4 Sediment Controls

- a. Perimeter Protection
 - Silt Fencing (SC-1)
 - Gravel Bag Berm (SC-6)
 - Fiber Rolls (SC-5)
- b. Sediment Capture
 - Storm Drain Inlet Protection (SC-10)
 - Sediment Trap (SC-3)
 - De-silting Basins (SC-2)
- c. Sediment Tracking
 - Stabilize Construction Entrances and Exits (TC-1)
 - Street Sweeping (SC-7)

In addition to the information provided above, more specific BMP information can be obtained from the Caltrans Storm Water Quality Handbooks and the California Storm Water Quality Association (CASQA) Storm Water Best Management Practice Handbook for Construction Activities (2003). The CASQA construction handbook is available online at:

<http://www.cabmphandbooks.com/Construction.asp>

Table C.1-1 may also be used as guidance for selecting specific BMPs for construction activities beyond those listed above.

Additional Controls

In Addition to the City's minimum requirements, the City requires implementation of additional controls for construction sites tributary to 303(d) listed water body segments impaired for sediment or within, adjacent to, or discharging directly to coastal lagoons or other

receiving waters within ESAs. Additional requirements for such sites will be determined by the City as needed on a site-by-site basis. Additional controls may include required de-silting basins, increased inspection frequency, grading limitations, and/or stronger penalties for non-compliance. Currently, there are no water bodies 303(d) listed for sediment in or downstream of the City. The City has designated the major channels within the City as ESAs. As the channels designated as ESAs are mainly concrete conveyances, the main purpose of the ESA designation is to provide additional protection for Forester Creek rather than to protect the channels themselves. Since Forester Creek is not impaired for sediment or other constituents commonly found at construction sites, not all construction sites discharging to these ESAs will be required to implement additional controls. However, if a construction site within 200 feet of or discharging directly to any of channels designated as ESAs is found to have the potential to discharge pollutants for which Forester Creek is impaired, the City will require additional controls as necessary for these sites.

Maximum Disturbed Area for Erosion Controls

The City requires that temporary or permanent erosion controls be implemented before a construction site has disturbed a total of 17 acres. This 17 acre maximum is comparable to the current Caltrans soil disturbance limitation of 750,000 square feet. If the site is in compliance with applicable storm water regulations and has adequate control practices implemented to prevent storm water pollution, the City has the option to give the site written authorization to disturb beyond the 17 acre maximum. The City will require as necessary additional controls for construction sites allowed to disturb more than 17 acres, which could include additional BMPs, increased inspection frequency, and/or stronger penalties for non-compliance.

Advanced Treatment Methods

For the majority of the construction sites within the City's jurisdiction, the minimum required BMPs, if correctly installed and maintained, should adequately control sediment discharges from the site. However, if it is determined that a site possesses characteristics that could result in standard construction BMPs being ineffective in the treatment of sediment, thus resulting in an exceptional TTWQ, advanced treatment will be required. A site is considered to be an exceptional TTWQ if it meets ALL of the following criteria:

- Is located within, adjacent to, or a portion of the site is within 200 feet of waters listed on the CWA Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation, and turbidity;
- Disturbance is greater than five acres, including all phases of the development;
- Disturbed slopes are steeper than 4:1 (horizontal: vertical) and higher than 10 feet that drain toward the 303(d) listed receiving water;
- Contains a predominance of soils with USDA-NRCS Erosion factors k_f greater than or equal to 0.4.

Alternatively, applicants may perform a Revised Universal Soil Loss Equation (RUSLE) or Modified Universal Soil Loss Equation (MUSLE) analysis to prove to the City's satisfaction that advanced treatment is not required.

Advance treatment involves using mechanical or chemical means to flocculate and remove suspended sediment from construction site runoff prior to discharge. Treatment effluent water quality shall meet or exceed the water quality objectives for turbidity, and any other parameter deemed necessary by the City Engineer as listed in the Water Quality Control Plan for the San Diego Basin for Inland Surface Waters and Lagoons and Estuaries for the appropriate hydrologic unit.

For projects where advance treatment is required, the applicant must submit the design, operations and maintenance schedule, monitoring plan, and certification of training of staff to the satisfaction of the City.

C.2 Minimum BMPs for Municipal Areas/Activities

APPENDIX C.2

BEST MANAGEMENT PRACTICES FOR MUNICIPAL ACTIVITIES

In accordance with Section D.3.a of the Municipal Permit, the City of El Cajon has developed an inventory of BMPs that may be implemented at municipal facilities and during municipal activities, as determined in Section 6 of the Jurisdictional URMP. The following section is a compilation of BMPs that are implemented to reduce pollutants to the MEP. Table C.2-1 (below, and also shown in Section 6 of the JURMP document) illustrates specifically which minimum BMPs are required at specific municipal facilities and activities, where appropriate.

The BMP inventory consists of a set of general BMPs and activity-specific BMPs that are implemented according to Table C.2-1, where appropriate. The municipal BMP program emphasizes *non-structural* BMPs as an initial step toward low-cost, feasible implementation. The need for designed or engineered *structural* BMPs are evaluated by the City and the facility manager on a site-by-site basis. The City requires additional BMPs as necessary to comply with the Municipal Permit.

Some of the BMPs described are also required during construction, commercial, and industrial activities, and are further described in Appendices C.1, C.3, and C.4. In addition to the information provided within this manual, more specific BMP information can be obtained from the Caltrans Storm Water Quality Handbooks (2003) and the California Storm Water Quality Association Best Management Practice Handbook for Municipal Facilities (2003).

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TABLE C.2-1

MINIMUM BMP CHECKLIST FOR MUNICIPAL AREAS/ACTIVITIES

Facility Type	General				Landscaping				Materials Handling				Construction/Repair and Mobile Activ BMPs															
	Good Housekeeping	Employee Training	Visual Inspections	Improved Operation and Maintenance	Waste Disposal and Recycling	Preventive Maintenance	Reporting and Record Keeping	Facility and Grounds Maintenance	Irrigation Control	Landscape Waste Disposal	Native Vegetation	Pesticide, Herbicide, and Fertilizer Control	Spill Prevention and Response	Material Inventory Procedures	Material Storage Practices	Storage Tanks	Outside Storage	Loading and Unloading Materials	Sediment and Erosion Control	Street/Parking Lot Sweeping	Vegetation Control	Roadway and Bridge Maintenance	Facility Repair, Remodeling, and Construction	Vehicle and Equipment Maintenance	Vehicle and Equipment Washing	Power Washing	Special Events	
Fire Stations	X	X	X	X	X	X	X	X																X	X			
Mobile Municipal Activities, Including Power Washing	X	X	X	X	X		X																			X		
MS4		X	X	X	X	X																						
Other Fixed Facilities	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X				X				
Parks, Recreational Facilities, and Other Landscaped Areas	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X				X				
Potable Water Facilities	X	X	X		X	X	X	X																				
Power Washing		X		X	X																							
Public Works Operations Facilities	X	X	X	X	X	X	X						X	X	X	X	X	X	X						X	X		
Roads, Streets, Highways, and Parking Facilities	X	X	X	X	X		X													X	X	X						
Sanitary Sewer System, Including Sewage Pump Stations		X	X	X	X	X																						
Special Events	X	X	X		X																							X

BEST MANAGEMENT PRACTICES FOR MUNICIPAL ACTIVITIES

Best management practices that are currently implemented or may be implemented in the future at selected municipal facilities are described below and address the following categories:

- General BMPs
- Landscaping BMPs
- Materials Handling BMPs
- Construction / Repair and Mobile Activity BMPs
- Special Events

GENERAL BMPs

1. Good Housekeeping

Good housekeeping practices are designed to maintain a clean and orderly work environment. A clean work environment reduces the possibility of accidental spills caused by mishandling of chemicals or equipment and should reduce safety hazards to facility personnel. Good housekeeping measures are implemented in an effort to prevent pollutants from entering storm water discharges.

- Information on good housekeeping practices should be distributed during employee training sessions
- Good housekeeping measures should be discussed at employee meetings
- Employees should be informed of activities that could potentially cause contamination of storm water and the importance of carefully conducting these activities in areas that do not discharge/drain to storm sewers
- Good housekeeping tips and reminders should be posted on employee bulletin boards

2. Employee Training

An employee-training program is used to inform employees of the components and goals of storm water management plans. The training program creates an overall sensitivity to pollution prevention concerns. Open discussions are encouraged to further the importance and enhance the program. In addition, the effectiveness of the training program is evaluated routinely to verify that information has been communicated effectively to the employees. The training program may consist of both formal and informal training. Training tools that may be included in the training program are:

- Employee handbooks
- Films and slide presentations
- Drills
- Employee meetings

- Bulletin boards
- Suggestion boxes
- Newsletters
- Environmental excellence awards or other employee incentive programs

The overall education program is discussed in greater detail in Section 10 or the JURMP.

3. **Visual Inspections**

Designated personnel conduct inspections of the facilities and storm water conveyance systems associated with them. These individuals report inspection results to the City to ensure that any deficiencies are addressed. The City schedules inspections on a regular basis.

4. **Improved Operation and Maintenance**

The City should establish proper operation and maintenance practices to ensure processes and equipment are working well to lead to a reduction of materials entering the environment. The City should review current maintenance activities, evaluate if the maintenance efforts can directly or indirectly contribute pollutants to receiving waters, revise procedures or adopt additional BMPs as necessary to reduce the contribution of pollutants to receiving waters during maintenance activities, and educate employees on revised procedures.

5. **Waste Disposal and Recycling**

Waste disposal areas should be kept free of litter and debris. Waste receptacles have a cover or lid to prevent the contents from being dispersed by the wind or coming in contact with storm water. All recyclable wastes such as batteries, solvents, waste oil and anti-freeze should be stored in a covered area or a secondary containment bin that prevents contact with storm water.

6. **Preventive Maintenance**

Onsite equipment is maintained in good working condition. The preventive maintenance program includes regular inspections and testing of facility equipment. The storm water preventive maintenance program and BMPs shall expand upon the current preventive maintenance program to include storm water considerations.

7. **Record Keeping**

Record keeping systems are established to document housekeeping and preventive maintenance inspections, and training activities. Housekeeping and preventive maintenance inspections are documented. Inspection documentation contains the following information:

- The date and time the inspection was performed

- Name of the inspector
- Items inspected
- Problems noted
- Corrective action required
- Date corrective action was taken.

Other means to document and record inspection results include field notes, timed and dated photographs, videotapes, and drawings and maps. All records will be retained at the facility for at least one year after the expiration of the permit.

LANDSCAPING BMPs

1. Facility and Grounds Maintenance

The implementation of best management practices for trail and parking lot activities is designed to prevent pollutants from these areas from entering storm water conveyance systems. Litter and debris should be collected and disposed of properly. Paved surfaces are swept if necessary and the waste collected and disposed of properly. Storm drain inlets, culverts and dry creeks or swales are kept clean and free from debris.

2. Irrigation Control

The City periodically inspects irrigation facilities to ensure that only the necessary amount of water is being applied to landscaping. Over-watering can lead to increased storm water runoff containing fertilizer, pesticide, herbicide, and pet waste pollutants.

3. Landscape Waste

Landscape waste consists of clippings, cuttings, and droppings of leafy and woody materials. The following procedures are implemented, where applicable, to assure that exposed materials and accumulated trimmings and litter are disposed of properly and not to the storm drain system:

- Employees and contractors who generate landscape waste are required to dispose of it at a City-approved composting location or permitted landfill; provisions are included in landscape maintenance contracts.
- Temporarily stockpiled material is stored away from watercourses, and bermed or covered to prevent material releases to the storm drain system.

4. Native Vegetation

The following procedures should be implemented, where applicable, to retain and plant native vegetation when practical to reduce water, fertilizer and pesticide needs.

- Determine existing native vegetation features (location, species, size, function, importance) and consider the feasibility of protecting them.

- Consider elements such as their effect on drainage and erosion, hardiness, maintenance requirements, and possible conflicts between preserving vegetation and the resulting maintenance needs.
- Where feasible, retain and/or plant selected native vegetation whose features are determined to be beneficial.

5. **Mulch Use**

When mulch is used in the landscape, it is installed or placed in such a manner as to prevent its translocation into the storm drain system or natural waterways.

6. **Pesticide, Herbicide, and Fertilizer Application and Handling**

The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations generally cover: a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. All City employees who apply pesticides and herbicides in “agricultural use” areas such as parks, golf courses, rights-of-way, and recreation areas are properly certified in accordance with state regulations. Contracts for landscape maintenance include similar requirements.

BMPs that are implemented to reduce pollutants from pesticides, herbicides, and fertilizers include the following:

- a. City personnel who participate in the application of pesticides are trained and licensed (Qualified Applicator License) and follow guidelines set by the California Department of Pesticide Regulations and the County Agricultural Commission.
- b. Agricultural pest control businesses working for the City are supervised by a Qualified Applicator Licensee who has a current Qualified Applicator Certificate.
- c. Every two years, Qualified Applicator Certificate holders must show proof that they have secured a minimum of 20 hours of continuing education.
- d. City staff record the applications of all chemical agents by noting the locations, type, frequency, and quantity of chemicals used. Records are added to the Annual Report submitted to the Department of Agriculture.
- e. The Qualified Applicator Certificate holder conducts monthly inspections to monitor storage, handling and disposal of the pesticides.
- f. Personnel who participate in the application of herbicides for the City are trained and follow guidelines set by the County Agricultural Commission.
- g. Fertilizers are applied during the growing seasons: spring, summer, and fall.
- h. Trained City personnel perform irrigation of landscaped areas.

- i. Drip irrigation and overhead irrigation methods using timers are implemented, where appropriate, to avoid runoff from over-irrigation.
- j. The City will continue to upgrade the irrigation system as technology improves.
- k. The City continues to identify locations where over-spraying occurs and rearrange the sprinklers to minimize the runoff as needed.
- l. The City follows written recommendations prepared by a State Pesticide Advisor during pesticide application.
- m. Employees are trained to follow pesticide, herbicide and fertilizer labels, and the material safety data sheet(s) (MSDS).
- n. All federal, state, and local regulations are followed in the use of pesticides, herbicides and fertilizers.
- o. Pesticides, herbicides, and fertilizers are not applied during or directly prior to storm events.
- p. Only pesticides that are quickly absorbed into the soil or plants are used.
- q. Whenever practicable, integrated pest management techniques are implemented.
- r. Pesticides are not sprayed when there is a high possibility of the spray drifting into non-target areas or onto non-target vegetation, insects or animals.
- s. The City maintains compliance with county and state reporting requirements for pesticide use.
- t. Unused portions of chemicals are stored in a facility specially designed and inspected by the Department of Agriculture. These facilities are located at Lake El Cajon, Community Park and Old El Cajon Park. Products are properly labeled and stored away from heat sources, sparks, and flames.

More detail describing the management strategy for pesticides, herbicides, and fertilizers can be found in Section 6 of the JURMP

Minimizing the Use

The City considers specific alternative products in lieu of pesticides to control insects, fungi and weeds: Certain insects, such as lacewing and ladybugs, can be used against unwanted pests. Compost and soil amendments can be used as natural alternatives to fertilizers. For more information on alternatives, agencies such as the Bio-Integral Resource Center (BIRC) in Berkeley, which conducts research and produces brochures and a newsletter on Integrated Pest Management, can be contacted.

MATERIALS HANDLING BMPs

1. Spill Prevention and Response

An effective plan is maintained and includes spill prevention and response procedures that identify potential spill areas, specific material handling procedures, descriptions of spill response procedures, and spill clean-up equipment. The plan is designed to:

- Identify and characterize potential spills
- Eliminate and reduce spill potential

- Respond to spills when they occur in an effort to prevent pollutants from entering the storm water drainage system

2. Material Inventory Procedures

Site personnel maintain an up-to-date inventory of all hazardous and non-hazardous materials used at the facility. Chemicals used at the facilities are to be handled with adequate precaution. Hazardous and toxic materials used at the site are identified, quantified, and managed in compliance with federal, state, and local regulations. In addition, materials are recycled, reclaimed, and/or reused to reduce the volume of materials brought into the facility when possible, and less or non-toxic materials are substituted for toxic materials.

3. Material Storage Practices

Hazardous waste and materials used should be properly identified, handled, and stored; and instructions shall be given to all site personnel. Improper storage of these materials can result in accidental spills and the release of materials. Underground or aboveground storage tanks are designed and managed in accordance with applicable regulations, identified as a potential pollution source, and have secondary containment installed, such as a berm or dike with an impervious surface.

4. Storage Tanks

Accidental releases of chemicals from storage tanks can contaminate storm water with many different pollutants. Materials spilled, leaked, or lost from storage tanks may accumulate in soils or on other surfaces and be carried away by rainfall runoff. Specific standards set by Federal and State laws concerning the storage of oil and hazardous materials are met. Employees should be well trained to reduce human errors that lead to accidental releases or spills. Regular inspections of the integrity of storage containers (i.e. tanks, drums) should be performed. Tanks and drum storage areas, whether permanent or temporary, have a secondary containment system.

5. Outside Storage

Raw materials, by-products, finished products, containers, and other materials stored in areas exposed to rain and/or runoff can pollute storm water. Storm water can become contaminated by a wide range of pollutants when solid or liquid materials wash off or dissolve into the storm water, or when containers spill or leak. If feasible, outside storage areas are covered with a roof, and bermed, or enclosed to prevent storm water contact. Where overhead coverage is unavailable, temporary waterproof covering are used over potential pollutants stored outside. Potential pollutants stored outside have some type of secondary containment system in case of spills or leaks.

6. Loading and Unloading Materials

Loading and unloading operations usually take place outside on docks or terminals. Materials spilled, leaked, or lost during loading and unloading may collect in the soil or on other surfaces and be carried away by rainfall runoff or when the area is cleaned. Rainfall may wash off pollutants from machinery used to unload or load materials. If feasible employees load and unload materials and equipment in covered areas such as building overhangs at loading docks. Roof drains are directed away from this area.

CONSTRUCTION/REPAIR AND MOBILE ACTIVITY BMPs

1. Sediment and Erosion Control

The majority of sites are paved or have other surfaces resistant to erosion. Any unpaved areas should be inspected for any evidence of erosion and repaired as soon as it is safe to do so. Should erosion affect on-site storm water management systems, remedial action is taken to stop the erosion. This could involve planting vegetation, or patching or repaving deteriorated paved surfaces. If construction activity occurs on site, sediment and erosion control should be implemented and monitored. More details are provided in Appendix C.6, Construction Best Management Practices.

2. Street / Parking Lot Sweeping

Street sweeping is recognized as an effective method of reducing the amount of pollutants (litter, green waste, oils and grease and sediment) on street surfaces that may impact storm water. Street sweeping is most effective when sweepers have access to the entire length of the curb. In order to increase cleaning efforts, sweeper operators are advised to make a sufficient number of passes to maximize collection. In areas of chronic hindrances due to parked cars, the road crew posts temporary “no parking” signs.

Parking facilities should be cleaned on a regular basis to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions. If possible, dry cleaning methods should be used to prevent the discharge of pollutants into the storm water conveyance system. Sweeping or vacuuming the parking facility is encouraged over any other method. If water is used to clean a parking facility the rinsate is not allowed to enter any storm water conveyance systems or receiving waters.

3. Vegetation Control

The objective of this BMP is to minimize the amount of material that could potentially reach the storm water conveyance system due to mechanical vegetation control measures, where resource agencies allow. Mechanical vegetation control measures include, mowing grass, brush and tree trimming and the application of herbicides. Vegetation controls are most useful in areas of steep slopes adjacent to roadside

channels, or within roadside swales. As a source control BMP, plants that are compatible with semi-arid conditions and native to Southern California are utilized, thus reducing the amount of trimming and mowing necessary. Roads that do not pose a threat to passing vehicles or pedestrians are cut less frequently. In addition, hand held cutting tools are used when possible to more adequately manage the waste and to conduct maintenance at optimal seasonal times.

4. Roadway and Bridge Maintenance

Regular maintenance activities for roads and bridges may include, filling potholes, minor construction for sidewalks, and maintenance of drainage channels. To minimize the impact to storm water resulting from the maintenance of these facilities, the following BMPs should be implemented:

- Repairing potholes to reduce sediment loss and erosion
- Assuring that all spare filling material on the road is collected
- Conducting maintenance measures during dry weather, when possible
- Barricading drain inlets to reduce sediment or waste from entering the drain during maintenance and construction activities
- Storing materials away from conveyance systems
- Constructing temporary onsite washout areas
- Managing concrete cutting waste properly
- Inspecting maintenance equipment for leaks

5. Facility Repair, Remodeling and Construction

During construction of restrooms or picnic areas, there are a number of best management practices that are implemented. These include;

- Limiting the impervious area as much as possible
- If any form of grading or earth moving is necessary, employing sediment traps and barricades
- If construction is due to start just prior to the forecast of inclement weather, diverting all runoff away from the construction site

6. Vehicle and Equipment Maintenance Operations

Many vehicle and equipment maintenance operations use materials or create wastes that can be harmful to humans and the environment. Storm water runoff from areas where these activities occur can become polluted by a variety of contaminants. Parked vehicles should be monitored closely for leaks and pans are placed under any leaks to collect the fluids for proper disposal or recycling. The number of solvents used at the facility are kept to a minimum to make recycling easier and to reduce hazardous waste management cost. Mechanics should clean vehicle parts without using liquid cleaners wherever possible to reduce waste.

Steam cleaning and pressure washing may be used instead of solvent parts cleaning. The wastewater generated from steam cleaning should be discharged to an on-site oil water separator that is connected to a sanitary sewer or blind sump. Non-caustic detergents should be used instead of caustic cleaning agents, detergent-based or water-based cleaning systems in place of organic solvent degreasers, and non-chlorinated solvent in place of chlorinated organic solvents for parts cleaning.

7. Vehicle and Equipment Washing

Washing vehicles and equipment outdoors or in areas where wash water flows onto the ground can pollute storm water. Wash water can contain high concentrations of oil and grease, phosphates, and suspended solid. Vehicle wash water is considered a processed wastewater and needs to be disposed of properly. The City should use biodegradable, phosphate-free detergents for washing vehicles as appropriate. All washing of vehicles or equipment is done inside or on an impervious surface, when possible. The wash water should be collected and treated at the facility and either recycled or discharged to the sanitary sewer system or collected and disposed of as an industrial waste. If it is not feasible to wash the vehicles or equipment inside, then a designated area outside should be assigned for washing. This area must be bermed to collect the wash water and graded to direct the wash water to a treatment or disposal facility or a drain connected to the sanitary sewer system. Please note that permits must be obtained for such discharges to the sanitary sewer system. Wash water may also drain to a pervious infiltration area if allowed by other environmental regulations and no water leaves the pervious area and discharges to the MS4.

8. Power Washing

Similar to vehicle and equipment washing, discussed above, all water generated by power washing activities must be collected and treated at a City facility and either recycled or discharged to the sanitary sewer system or collected and disposed of as industrial waste. Please note that permits must be obtained for such discharges to the sanitary sewer system. Wash water may also drain to a pervious infiltration area if allowed by other environmental regulations and no water leaves the pervious area and discharges to the MS4.

SPECIAL EVENTS

1. Trash Management

Due to the nature of special events, trash may be a large problem if not managed properly. Staff should be available for immediate trash clean-up to ensure it does not get carried by wind or transported by other factors to inlets or areas where the trash may enter receiving water bodies. The City should also set up temporary trash receptacles to facilitate proper trash disposal by patrons of the special event.

2. Post Event Cleanup Activities

The City should implement post event cleanup activities when needed. This includes, but is not limited to:

- Street sweeping following the special event
- Cleaning catch basins after the event and prior to a rain event

3. Other BMPs

Depending on site location, event size, or historical observations, the City may implement other BMPs, when applicable. This includes, but is not limited to:

- Installation of temporary screens on catch basins and storm drain inlets
- Temporary fencing to prevent windblown trash from entering nearby water bodies and/or open channels

C.3 Minimum BMPs for Industrial and Commercial Areas/Activities

APPENDIX C.3.1

GENERAL BEST MANAGEMENT PRACTICES FOR INDUSTRIAL AND COMMERCIAL FACILITIES

In accordance with Section D.3.b of the Municipal Permit, the City of El Cajon has developed an inventory of general best management practices that may be selected where appropriate for implementation at all industrial facilities and high priority commercial facilities, as determined in Section 7 of the Jurisdictional URMP and revisions. General BMPs emphasize *non-structural* BMPs as an initial step toward low-cost, feasible implementation. In addition to general BMPs, high priority industrial and commercial facilities are also required to implement applicable activity-specific BMPs listed in Appendix C.3.2 and C.3.3. General BMPs are listed below in three tables:

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In addition to the information provided within this section, more specific BMP information can be obtained from the Caltrans Storm Water Quality Handbooks (2003) and the California Storm Water Best Management Practice Handbook for Industrial/Commercial Facilities (2003).

TABLE 1. GOOD HOUSEKEEPING BMPs

BMP Name	Purpose	Description
Routinely Report Any Observed Non-Storm Water Discharges	Prevent improper handling and disposal of significant materials that may be spilled or deposited into the storm drain system	Develop adequate routine reporting procedures so personnel can identify an act of illegal dumping or suspicious non-storm water discharges; Post signs with information regarding appropriate reporting procedures
Perform Regular Cleaning	Eliminate the accumulation of pollutants (dirt, surplus materials, spilled or dropped substances, litter, and debris) that collect in areas that can discharge runoff to storm water. Such areas include maintenance shops, manufacturing facilities, metal fabrication shops, mechanic garages, loading docks, and storage areas	Maintain regular sweeping and cleaning schedules; Keep work areas dust free and orderly; Keep floors and ground surfaces dry using brooms, shovels, vacuum cleaners; Collect and dispose of garbage regularly
Avoid Hosing Down the Site	Eliminate contaminated runoff generated by "wet" cleaning or hosing down of outdoor paved areas such as work stations, loading/unloading sites, maintenance shops, storage areas, and any areas that may contribute pollutants to storm water	Dry methods of cleaning include sweeping, using damp rags or mops and vacuums; If hosing is necessary the downstream storm drain should be permanently or temporarily modified with a plug such as a rubber mat, filters, absorbent blankets or bermed with sandbags.
Perform Regular Pavement Sweeping	Prevent trash, litter, and particulate matter from accumulating on paved surfaces and reduce the potential for these materials to wash into storm drains during storm events	The frequency of regular dry sweeping should be scheduled according to the quantity, toxicity and usage of materials, proximity to source area, evidence of exposure to storm system, probability of exposure, and sensitivity of receiving water
Place Trash Receptacles in Appropriate Locations	Promote the proper placement, handling, and disposal of waste materials to reduce spillage and accumulation in outdoor areas that are exposed to storm water runoff	Place trash receptacles in accessible locations and in sufficient numbers; Train personnel as to the location of trash receptacles and waste handling areas
Train Employees to Properly Dispose of Wastes	Keep employees and personnel informed and aware of the most recent BMPs regarding waste management	New employees should be trained regarding proper waste handling such as warnings about pouring deposit wastes into the storm drain, reporting observed discharges, and recycling procedures; All employees should be trained annually
Permanently Seal Floor Drains that Discharge to the Storm Drain System	Eliminate connections that act as a pathway for spilled or leaked pollutant materials to enter the storm drain system	Interior floor drains should be permanently sealed (whenever safe for structural integrity) to prevent accidental illegal dumping of contaminants into the storm drain system

BMP Name	Purpose	Description
Confirm that No Industrial Sinks are Connected to the Storm Drain	Eliminate direct connections that can introduce pollutants to the storm drain system	Sinks in industrial areas should be connected to the sanitary sewer system or appropriate disposal locations; Review and inspect "As-built" piping diagrams and building or site plans to verify that sinks are not connected to any storm drain
Store Waste and Recycling Materials in Proper Containers	Protect waste and recycling materials from exposure to wind, weather elements and scavengers that can transport pollutants to storm water	Dry waste such as light scrap metal, floor sweepings, metal chips and paper that can be affected by wind should be kept in sealed containers; Keep dumpsters closed; Seal recycling drums; Label containers, keep them readily accessible and empty containers regularly
Control Roof Downspout Discharge	Where possible, divert runoff collected on roofs, canopies and other coverings from discharging into areas of potential pollutant use or storage	Downspouts should be directed to avoid critical areas such as fueling, fabrications, lead tool, and dye storage of hazardous waste storage areas
Minimize Storm Water Run-On from Adjacent Facilities and Properties	If possible, divert run-on generated by neighboring facilities or adjacent properties before it can enter the site grounds. This should be done in such a manner as to prevent flooding of adjacent property.	Berming, diversion ditches, and dikes can direct flow away from the site; Vegetated strips, grass swales, or infiltration basins and trenches can impede slow incoming flow
Conduct Refresher Courses in Operating and Safety Procedures	Reduce spills and accidents that may cause significant materials to contaminate the storm drain system	Personnel should be required to have training and refresher courses to learn new procedures and policies regarding equipment operation and review correct operating and safety procedures
Designate Special Areas for Draining or Replacing Fluids	Eliminate improper handling and disposal of waste and reduce accidental spillage of significant materials in an unprotected area	Motor oil, coolants, and other potential pollutant fluids should be drained and replaced at specific areas designated for this activity
Drain All Fluids From Stored or Salvaged Vehicles and Equipment	Eliminate the potential for spillage such as oil, antifreeze, and hydraulic fluid from vehicles and equipment under long-term storage	All oil and other fluids should be drained from vehicles being stored long-term or salvaged and the oil should be collected and recycled; Post signs on drained vehicles
Completely Drain Oil Filters before Disposal	Reduce potential for contamination of storm water due to spills and leaks from used oil filters	All filters should be completely drained into collection drums for recycling and disposal of used oil; Post signs stating requirements to completely drain filters before disposal
Wash Equipment and Vehicles in Designated Areas	Contain runoff that may carry detergents, oil, and/or grease from vehicle washing and eliminate potential for contact of polluted water with the storm drain system	Facilities should have designated, bermed wash areas that contain wash water and drain to the sanitary sewer, a sump, or to a filter

BMP Name	Purpose	Description
Discharge Wash Water to a Sanitary Sewer	Eliminate runoff generated by cleaning of vehicles, equipment, and floors from entering the storm drain	All washing should occur in designated contained areas and wash water should be discharged to a sanitary sewer, collected in dead-end sump tanks and transported to a treatment facility or filtered
Reduce the Amount of Liquid Cleaning Agents Used	Reduce potential for pollution from cleaning agents such as soaps and detergents used in any maintenance operations including vehicle, equipment, aircraft or ship cleaning, metal work, and painting practices	Use products other than liquid cleaning agents to the maximum extent practicable (MEP); Substitute cleaning methods such as wire brush scraping or using a bake oven
Substitute Non-Toxic or Less-Toxic Cleaning Solvents	Minimize exposure of organic solvents used for cleaning equipment and parts to storm water discharge	Substitute non-toxic or less-toxic cleaning agents; Use non-caustic detergents, water-based degreasers, non-chlorinated solvents and phosphate-free detergents; Manage cleaning materials properly

TABLE 2. MATERIALS HANDLING BMPs

BMP Name	Purpose	Description
Use Solvents Efficiently	Reduce potential for spills and leaks of cleaning solvents in repair and maintenance operations	Reuse solvents and use sparingly; Pre-soak parts in "dirty" solvent before placing in fresh solvent to reduce the volume of solvent used
Use Outside Contractor for Handling Used Solvents and Other Significant Materials	Prevent improper storage, handling, and disposal of solvents, oils, paint thinners, and other toxic chemicals to reduce potential for spills and contamination of storm water	Use private contractors such as Safety Kleen to handle the disposal and replenishing of toxic chemicals
Protect Storage Containers from Being Damaged by Vehicles	Prevent vehicle impact damage to storage containers such as ruptures and cracks that may lead to significant spills and leaks	Install bollards or traffic barriers, fences and curbs to protect containers stored in locations accessible to vehicles
Centralize Liquid Solvent Cleaning to One Location	Promote conservative use of liquid solvents in designated contained areas to reduce the potential for spills, illegal dumping, and improper use of the solvent	Promote cleaning of parts using "dry" methods; if liquid solvents are necessary, clean in central locations to reduce the number of personnel using solvents and promote proper use and disposal; ensure that cleaning locations are properly operated and maintained
Properly Store Containers	Prevent exposure of significant materials or potential pollutants stored in outdoor containers to storm water	Proper storage includes: provide 3 feet of aisle space to provide access for inspections, store drums and bags away from traffic routes, stack containers according to manufacturers instructions, store liquid containers in bermed area
Use Overpack Containers or Containment Pallets to Store 55-Gallon Drums Outside of Storage Areas	Contain and prevent chemical, oil, solvent, or liquid leaks from 55-gallon drums to prevent contamination of storm water	Overpack containers and spill prevention or containment pallets are secondary containers, generally constructed of plastic; Secondary containment should be adequate to hold the contents of the storage barrels should they break or leak
Provide Roof to Cover Source Area	Prevent contact of storm water rainfall with significant materials in critical areas	Construct a roof, canopy, or effective covering for critical areas such as fuel transfer, loading/unloading, mechanical shops, metal fabrication and hazardous material storage areas
Pave Bermed Areas	Prevent infiltration of spilled material into the soil and subsequent transmission to the storm drain system	Critical areas designated for material handling and storage, equipment repair, and maintenance operations should be paved with impervious material such as concrete, asphalt, clay or plastic and curbed by berms and dikes

BMP Name	Purpose	Description
Repair Leaky Roofs	Keep storm water from leaking into covered areas where hazardous substances, parts equipment, vehicles and materials are stored	Repair leaky roofs as required for each building, move stored equipment and materials to another covered area, train personnel to notify supervisors when leaks are observed
Recycle	Reduce the amount of hazardous and non-hazardous waste material such as solvents, oil, scrap metals, wash water and absorbent materials used at the site and prevent exposure of significant materials to storm water activity	Recycling collections should be conducted weekly and more frequent pickups may be established based on quantity, toxicity, probability of exposure of materials to storm water, length of storage time, evidence of exposure, and sensitivity of receiving waters
Control Spills	Reduce potential for spills and implement proper containment in the event of a spill or leak to prevent the contamination of storm water runoff	Material Safety Data Sheets (MSDS) should be followed for handling, storage and cleanup of significant materials; For small spills, use absorbents such as sand, straw, or sawdust; For larger spills, use spill kits, boom, and other response supplies
Label all Drums, Cans, Containers, Tanks, and Valves	Reduce the potential for misuse or spillage of stored materials; Ensure that appropriate procedures, equipment and storage containers are used to prevent spills and ensure that in the event of a spill the material is properly identified and the appropriate response is implemented	All containers should be labeled according to its contents (solvent, gasoline) hazardous substances should be labeled regarding the potential hazard (corrosive, radioactive, flammable, explosive, poisonous); Department of Transportation (DOT)labeling requires that labels be prominently displayed on transported hazardous and toxic materials
Construct Berms or Dikes Around Critical Areas	Provide secondary containment for critical areas such as material handling and storage, equipment repair and maintenance areas to divert spills and leaks away from the storm drain system	A raised berm or dike should be placed around all critical areas or source areas with a high potential for release of pollutants
Use "Doghouse" Design for Outdoor Storage of Small Liquid Containers	Reduce the potential for pollution from small containers of liquid materials (paints, solvents, antifreeze, and oil) stored outdoors	Store small containers, cans, and pails carrying toxic contents inside buildings or in a "doghouse"; A doghouse design consists of a two walled shed with a peaked roof to divert rainfall and flooring equipped with spill prevention pallets
Do Not Store Used Parts or Containers Directly on the Ground	Prevent potential contamination from used parts covered in oil and grease, leaks in 55-gallon drums and flammable storage lockers by limiting direct contact of these stored materials with ground surfaces	Store used parts, storage drums and flammable materials indoors; store small parts in sealed containers, place drums on pallets; Use waterproof tarpaulins to protect ground surface and to cover stored materials

BMP Name	Purpose	Description
Store Batteries in a Secondary Container	Prevent contamination such as battery acid and caustic material from batteries into runoff	Store lead-acid batteries and charging units on pallets, in a bermed area under a canopy or awning; Used and cracked batteries should be stored in sealed containers
Keep Open Flames away from Flammable Material	Prevent accidents and ensure safety of personnel and staff as well as prevent polluted or toxic ash, rubbish, and debris generated by accidents, explosions, fires, and other chemical reactions from entering the storm drain	Open flames and smoking are prohibited within 50 feet of flammable materials (including paints); Use spark-proof tools when closer than 50 feet and post warning signs in areas where flammable materials are stored
Use Door Skirt or Seal	Contain spills of toxic or potential pollutant materials during loading and unloading activities and prevent contact of leaking material with ground surface runoff	Retrofit doorways used for loading with rubber or plastic door skirts; The door skirt acts as a strip barrier that encloses and seals the open end of the trailer with the open door of the loading dock during loading and unloading operations
Employ Proper Handling Procedures to Transport Materials and Waste	Prevent damage such as fractures or ruptures (which can create leaks and spills) during transport of drums, containers and storage boxes carrying potential pollutants	Drums should be moved using a barrel cart or by placing the drum on a pallet and moving by forklift; A minimum of two persons should assist the forklift operator in transferring a drum to or from a pallet; Metallic strapping should be used to secure stacked drums
Control Dust and Particulates	Prevent pollution of storm water from indoor and outdoor industrial processes such as metal finishing, painting, sanding, grinding, sawing, milling, sandblasting, welding, and cement manufacturing that generate significant quantities of dust and particulates	Control the emission of dust particles generated by industrial processes by using filters, baghouses, electrostatic precipitators, cyclone concentrators, waterwalls, and other measures
Store Liquids and Significant Materials within a Building or Covered Area	Prevent leaks and spills of significant materials stored, handled, or transported outside, to minimize contamination of storm water	Store significant materials within an enclosed building or covered area on an impervious surface such as concrete to MEP; Direct contaminated runoff to a storm water treatment facility or containment; Clean spills and leaks
Recycle Pressure Wash Solvents	Eliminate discharge of waste water containing dirt, oils, grease, and paint from pressure wash systems to the storm drain	Pressure wash wastes should be recycled using a closed loop system or "zero-discharge system"; Train personnel on proper usage of pressure wash systems
Provide Overfill Protection	Prevent overflows that may occur during regular fueling operations or transfer of fuels and toxic liquids to vehicles, equipment, aircraft, and ships from exposure to storm water	Retrofit existing and new tanks with overfill prevention equipment such as automatic shut off valves, restricted flow devices, or alarms that indicate when the tank is almost full, and install secondary containment

BMP Name	Purpose	Description
Monitor Major Fueling Operations	Prevent accidental overflows containing fuels and toxic liquids during high-volume transfers (such as for fuel tankers) that may contaminate storm water	Implement a policy mandating second party monitoring of fuel operations; Monitor high-volume transfers; Train personnel for appropriate emergency spill response actions
Provide Absorbent Booms in Unbermed Fueling Areas	Contain accidental spills and leaks during fuel transfer operations and prevent contamination of runoff	Portable absorbent booms should be stored and readily available at fueling areas; These booms should be used to contain spills and leaks or spills
Eliminate Topping Off Tanks	Eliminate fuel spills from overfilling tanks and prevent contact of fuels with ground surface and storm runoff	Develop a policy to discourage "topping off" fuel tanks; Post warning signs stating explicit penalties
Install Leak Detection System	Detect leaks from underground storage tanks (USTs) that may leak fuel or toxic liquids and contaminate the soil or groundwater	Install leak detection systems such as automatic gauging, vapor monitoring, groundwater monitoring wells and interstitial monitoring; Keep a close inventory on all fuel transfers in and out
Designate Areas for Fueling from Mobile Fuel Tankers	Contain accidental spills and leaks from mobile fuel tankers (MFTs) to designated areas	Minimize the use of MFTs and perform fuel operations in designated areas particularly when a large number of vehicles are in use
Restrict Access to Storage Tanks	Prevent toxic discharges from storage tanks to the ground due to unauthorized handling and vandalism	Restrict access to tanks and valves to authorized personnel and properly trained employees; Supply a locked gate and fence the area around tanks
Divert Drainage to a Low-Flow Sump	Treat contaminated flows that drain directly into the storm drain system	Use structural controls such as a low-flow sump, oil/water separator, wet pond or infiltration basin so that spilled material is not discharged into the rest of the storm drain system

TABLE 3. EQUIPMENT MAINTENANCE BMPs

BMP Name	Purpose	Description
Restrict Access to Area and Equipment	Reduce pollutants in storm water runoff caused by the release of significant materials due to vandalism of vehicles and facility property, or unauthorized trespassing	Vehicle, equipment and storage areas should be fenced, gated and access restricted to authorized personnel; Fences and gates should be properly maintained and additional measures such as lighting of the area, security guards and alarms should be used appropriately
Keep Equipment and Vehicles Clean	Reduce oil and grease from leaky vehicles and equipment; These pollutants may accumulate on impervious runoff areas and can be washed into the storm drain	Regularly clean and maintain vehicles and equipment using dry methods; Centralize liquid solvent cleaning to one location and wash vehicles in designated areas
Maintain Equipment in Good Condition	Prevent spills and leaks due to corrosion, loose fittings, poor welding, and improper poorly fitted gaskets on vehicles and equipment	Equipment should be kept in good working condition and inspected regularly for fluid leaks; equipment that is leaking or in poor working condition should be repaired or replaced
Implement Qualifying Tests for Equipment and Vehicle Operators	Prevent accidents due to employee misuse or unfamiliarity with operating procedures that may result in leaks or spills that expose significant materials to storm water	Implement qualifying tests for personnel operating equipment or vehicles; Train personnel in safe operating procedures and basic maintenance and spill response procedures associated with particular equipment and vehicle operation
Dispose of Obsolete Equipment, Inoperable Vehicles, and Surplus Materials	Reduce the likelihood of storm water pollution due to oil and lubricant spills from leaky engine parts in obsolete equipment, inoperable vehicles and surplus materials stored on-site.	Perform proper off-site disposing and recycling of old parts, equipment, and surplus materials based on implementer’s judgments of facility operations and conditions
Check Vehicles and Equipment for Leaks	Prevent contamination of storm water due to fluids from leaky engine parts on stored vehicles, aircraft or equipment	Stored or salvaged vehicles and equipment at the site must be inspected for oil and fluid leaks; Use drip pans to catch leaks and clean stains using “dry” methods
Park Vehicles or Equipment Indoors or under a Roof	Eliminate or reduce exposure of pollutants like oil and grease leaking from parked vehicles and equipment to storm water	Park and store vehicles and equipment indoors and under a roof, canopy, or other covering when available
Park Vehicles on an Impervious Surface	Prevent soil contamination and contamination of runoff; Prevent infiltration of spilled pollutants on ground surfaces into soil	Vehicles should be parked on an impervious surface such as concrete and asphalt that cannot be readily penetrated by rainfall
Use Drip Pans under Leaking Equipment	Contain fluids that may leak from equipment such as pumps, air conditioners, and boilers until equipment can be properly repaired or replaced	Drip pans should be placed under leaking equipment to collect any leaking fluid as a temporary BMP until the equipment is repaired or replaced

BMP Name	Purpose	Description
Perform Equipment Maintenance at Designated Areas	Contain oil, grease, engine coolant, and any pollutants generated by routine maintenance activities of small equipment such as sandblasters and sprayers and large equipment such as construction equipment, tanks, aircraft, and boats	Maintenance of equipment should only be performed in specific predetermined areas such as hangars, shops, garages, or dry docks; all employees and personnel should be trained and informed as to the location of these areas and appropriate BMPs to reduce and contain pollutants
Designate Areas for Washing Non-Vehicular Air Filters and Other Greasy Equipment	Contain oil and grease waste generated during cleaning and maintenance of mess hall cooking grills, air filters, and facilities where significant grease and soot can accumulate	Greasy equipment should be cleaned and maintained in designated areas where wash water and grease are contained and diverted to a sump or discharged to the sanitary sewer
Conduct Maintenance within Building or Covered Area	Prevent deposits and stains from oil, grease, or solvents spilled or leaked during maintenance activities from contacting storm water	Conduct maintenance of equipment and vehicles within an enclosed building or covered area such as hangars, garages, and shops; Clean all spills and leaks immediately using rags or dry absorbents

APPENDIX C.3.2

BEST MANAGEMENT PRACTICES FOR INDUSTRIAL ACTIVITIES

In accordance with Section D.3.b of the Municipal Permit, the City of El Cajon has developed an inventory of best management practices that may be selected for implementation at high, medium, and low priority industrial facilities, as determined in Section 7 of the Jurisdictional URMP. Facilities classified as medium and low priority, are required to implement a set of General BMPs. High priority facilities are required to implement General and Activity-Specific BMPs, both of which are described below:

a) General BMPs

All industrial facilities and high priority commercial facilities are required to implement selected general BMPs from Tables 1 – 3 in Appendix C.3.1.

b) Activity-Specific BMPs:

All high priority industrial facilities are required to implement activity-specific BMPs for all applicable industrial activities that correspond with Tables 1 through 12.

The industrial BMP program emphasizes *non-structural* BMPs as an initial step toward low-cost, feasible implementation. The need for designed or engineered *structural* BMPs is evaluated by the City and the facility owner on a site-by-site basis. The City may also require additional BMPs as necessary to comply with the Municipal Permit.

In addition to the information provided within this section, more specific BMP information can be obtained from the Caltrans Storm Water Quality Handbooks (2003) and the California Storm Water Best Management Practice Handbook for Industrial/Commercial Facilities (2003).

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TABLE 1. HAZARDOUS MATERIALS STORAGE

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Outdoor storage of hazardous materials	Storage Stock rotation	Spills Leaks Weathering	Hazardous liquids Petroleum products	<ul style="list-style-type: none"> ▪ Train employees ▪ Segregate and separate waste ▪ Keep drums closed and in good condition ▪ Provide secondary containment ▪ Provide readily accessible spill response equipment ▪ Report spills promptly ▪ Consider overhead coverage ▪ Conduct periodic inspections
Outdoor containers Storage of liquids	Aboveground storage tanks Tank loading/unloading	Spills	Diesel Waste oil Motor oil Hydraulic fluid Transmission fluid	<ul style="list-style-type: none"> ▪ Practice good housekeeping ▪ Provide secondary containment ▪ Provide readily accessible spill response equipment ▪ Report spills promptly ▪ Conduct periodic inspections ▪ Consider overhead coverage

TABLE 2. SOLID WASTE STORAGE

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Dumpster area	Trash storage and disposal	Debris Trash Green waste Liquid waste	Total organic carbon Cast-off items Garbage Litter	<ul style="list-style-type: none"> ▪ Practice good housekeeping ▪ Train employees ▪ Keep lids closed ▪ Consider berm or enclosure to prevent run-on or runoff ▪ Consider overhead coverage ▪ Conduct periodic inspections ▪ Provide adequate number of containers in good condition ▪ Increase pick-up frequency ▪ Secure area from after-hours dumping ▪ Dry sweep area routinely

TABLE 3. LOADING AND UNLOADING OF SIGNIFICANT MATERIALS

Area	Activity	Potential Pollutant Source	Type of Pollutant/Quantity	Best Management Practices
Loading docks	Loading and unloading	Spilled raw materials and motor fluids Dust and debris	Total organic carbon Garbage Litter	<ul style="list-style-type: none"> ▪ Load/unload only at designated loading areas ▪ Regularly “dry” sweep area ▪ Train material-control staff to inspect incoming vehicles for leaking fluids ▪ Train personnel to respond to spills of materials ▪ Arrange rooftop drains to prevent drainage directly into loading areas ▪ Pave loading areas with concrete instead of asphalt ▪ Cover the loading dock ▪ Avoid placing storm drains in the area ▪ Install curbs/berms around the loading area ▪ Grade the loading area to be sloped to direct flow toward an inlet with a shut-off valve. Keep the valve closed at all times. Use berms or slopes to prevent run-on so that storm water is not generally directed to the loading area. ▪ Connect the inlet to the sanitary sewer, if allowed by local wastewater authority, and discharge to established limits

Area	Activity	Potential Pollutant Source	Type of Pollutant/Quantity	Best Management Practices
Loading docks	Breakdown of shipping containers, including disposable ones	Binding and packing materials	Litter: Paper, plastic, metal bands, staples, packing materials (styrofoam), cardboard	<ul style="list-style-type: none"> ▪ Cover loading areas ▪ Grade properly and install berms, ▪ Retrofit doorways used for loading with rubber or plastic door skirts to provide a strip barrier enclosing and sealing open end of the trailer with the open loading dock door ▪ Divert storm water away from loading areas
Loading docks	Material delivery and storage	Spills Leaks	Soil, pesticides, fertilizers, detergents, plaster, petroleum products, and hazardous chemicals	<ul style="list-style-type: none"> ▪ Minimize on-site storage of hazardous materials ▪ Store equipment and supplies in specifically designated areas with secondary containment (e.g., berms, pallets, and flow diversion) ▪ Conduct regular inspections ▪ Train and educate employees and subcontractors
Loading docks	Misuse or spillage of stored materials	Spills Leaks	Various	<ul style="list-style-type: none"> ▪ Label all containers according to their contents (e.g., solvent, gasoline) ▪ Label hazardous substances regarding the potential hazard (corrosive, radioactive, flammable, explosive, poisonous) ▪ Prominently display required labels on transported hazardous and toxic materials (per US DOT regulations)

Area	Activity	Potential Pollutant Source	Type of Pollutant/Quantity	Best Management Practices
Loading docks	Transport of drums, containers and storage boxes carrying potential pollutants	Fractured or ruptured containers	Various	<ul style="list-style-type: none"> ▪ Move drums by using a barrel cart or by placing the drum on a pallet and moving it with a forklift ▪ Provide a minimum of two persons to assist forklift operator in transferring a drum to or from a pallet ▪ Secure stacked drums with metallic strapping
Loading docks	Loading and unloading	Spills Leaks Accidents Flooding	Vehicular fluids Raw materials-dry and liquid Metal (brake linings)	<ul style="list-style-type: none"> ▪ Maintain forklifts in good condition ▪ Provide SPCC materials ▪ Check trucks for leaks ▪ Dry sweep routinely and practice good housekeeping ▪ Unclog drains and provide grates, as needed ▪ Train employees ▪ Post written instructions and provide a sign-in log ▪ Block storm water drains during activities ▪ Maintain log of activities

TABLE 4. VEHICLE FUELING

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Fueling area	Re-fueling of vehicles Re-fueling of equipment Replacement of equipment	Spills Leaks Employee habits	Diesel Gasoline Oil/grease Trash Litter	<ul style="list-style-type: none"> ▪ Cover storm drains in the vicinity during transfer ▪ Provide readily accessible spill response equipment ▪ Report spills promptly ▪ Train employees ▪ Consider overhead coverage ▪ Consider concrete surface separated from other areas ▪ Bag trash from break/lunch room ▪ Post “no littering” signs ▪ Secure area from illegal dumping after hours ▪ Report leaking vehicles to fleet maintenance ▪ Design fueling area to prevent storm water runoff and spills ▪ Cover area and use a perimeter drain or slope pavement inward with drainage to sump; pave area with concrete rather than asphalt.

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Intake area of underground or aboveground storage tanks	Refilling of storage tanks			<ul style="list-style-type: none"> ▪ Store portable absorbent booms (long flexible shafts or barriers made of absorbent material) in unbermed fueling areas ▪ Use structural controls such as a low-flow sump, oil/water separator, wet pond or infiltration basin so that spilled material is not discharged into the rest of the storm drain system
Intake area of underground or aboveground storage tanks			Petroleum compounds, grease, floatable debris, and settleable solids	<ul style="list-style-type: none"> ▪ Use oil/water separators or underground vaults, such as a three-chamber separators, that allow for sedimentation, removal of oil and grease, and prevention of surcharge pressure
Intake area of underground or aboveground storage tanks			Settleable solids	<ul style="list-style-type: none"> ▪ Install inlet catch basin equipped with a small sedimentation basin or grit chamber to remove large particles from storm water in highly impervious areas

TABLE 5. LANDSCAPING AND GROUNDSKEEPING

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Throughout property	Landscape irrigation (daily)	Irrigation run-off	Sediment Fertilizers Herbicides	<ul style="list-style-type: none"> ▪ Minimize use of fertilizers and herbicides ▪ Store chemicals off-site by contracted landscaping firm ▪ Train employees
Throughout property	Pruning	Green waste	Total organic carbon	<ul style="list-style-type: none"> ▪ Sweep (dry) and collect for composting or trash removal
Throughout property	Excavating		Sediment/rocks/sand	<ul style="list-style-type: none"> ▪ Confine excavated materials to pervious surfaces away from sidewalks, pavement, and ditches ▪ Cover piles during rains
Throughout property	Pest control		Herbicides/pesticides	<ul style="list-style-type: none"> ▪ Plan and implement an Integrated Pest Management system
Garage	Equipment fueling Equipment maintenance		Oil/grease Gasoline Waste oil	<ul style="list-style-type: none"> ▪ Keep spill response materials readily accessible ▪ Perform repairs indoors or on impervious surfaces ▪ Use proper funnel, drains, and pans

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Grounds and medians				<ul style="list-style-type: none"> ▪ Utilize water delivery rates that do not exceed the infiltration rate of the soil ▪ Periodically observe areas that are watered to identify and correct damaged sprinkler systems, to adjust sprinkler heads, and to identify areas of excess watering and runoff ▪ Where practical, use automatic timers to minimize runoff ▪ Avoid overspray to minimize runoff and contact with equipment in the areas surrounding the targeted landscape ▪ Use fertilizer/herbicide/pesticide in accordance with manufacturer instructions ▪ Prevent overspray or application of chemicals outside of the targeted landscaped area

TABLE 6. VEHICLE/EQUIPMENT WASHING

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Outdoor or indoor area	Washing	Vehicle body or engine Equipment	Oil/grease Antifreeze Spent solvents Heavy metals Toxic chemicals	<ul style="list-style-type: none"> ▪ Mark the area clearly as a wash area ▪ Post signs stating that only washing is allowed in wash area ▪ Provide trash container in wash area ▪ Install sumps or drain lines to collect wash water for treatment ▪ Cover the wash area when not in use to prevent contact with rain water ▪ Grade or berm area to prevent run-on ▪ Wash in designated washing facilities ▪ Use phosphate-free and biodegradable products whenever possible ▪ Train staff on proper maintenance measures for the wash area

TABLE 7 PARKING LOTS

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Parking lots		<p>Automobile fluid leaks</p> <p>Trash</p>	<p>Heavy metals: Zn, Cd, Pb, Cu</p> <p>Vehicular fluids: antifreeze, motor oil, brake fluid, steering fluid, gasoline, transmission fluid</p> <p>Litter/debris: rubber, grease, solids, leaves, grass, trash</p>	<ul style="list-style-type: none"> ▪ Regularly “dry” sweep parking lot to minimize cleaning with water ▪ Regular cleaning of lot with a street sweeper or as necessary ▪ Provide trash receptacles in parking lot to discourage litter ▪ Clean up fluid spills immediately with absorbent rags or material ▪ Allow sheet runoff to flow into biofilters (vegetated strip and swale) and infiltration devices ▪ Utilize sand filters or oleophilic collectors for oily waste in low quantities. ▪ Arrange rooftop drains to prevent drainage directly onto paved surfaces ▪ Design lot to include semi-permeable hardscape ▪ Install catch basins

TABLE 8. PROCESS WATER PRETREATMENT

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Pretreatment area	Water pre-treatment	Reverse osmosis De-ionization	Water treatment chemicals Water high in TDS (salts)	<ul style="list-style-type: none"> ▪ Train personnel to clean-up spills ▪ Train personnel to wash equipment indoors or to use designated wash areas ▪ Cover all outdoor process equipment ▪ Provide berms and other secondary containment to prevent waste water from escaping to surrounding impervious surfaces ▪ Route discharge, blowdown, or fugitive leaks to sanitary sewer

TABLE 9. OUTDOOR EQUIPMENT STORAGE

Area	Activity	Potential Pollutant Source	Type of Pollutant/	Best Management Practices
Outdoor equipment storage	Storage		Lubricants and other petro-chemicals	<ul style="list-style-type: none"> ▪ Drain all lubricants and other petrochemicals prior to storage and dispose of them properly
Outdoor equipment storage			Heavy metals	<ul style="list-style-type: none"> ▪ Inspect equipment regularly for leaks or spills ▪ Cover equipment storage areas and dispose of rainwater inside the berm as a waste
Outdoor storage yard	Long-term storage	Leaks Weathering Debris	Rust Hydraulic fluids Oil/grease	<ul style="list-style-type: none"> ▪ Maintain inventory of usable and salable equipment ▪ Remove, recycle, or sell cast-offs as scrap material ▪ Practice good housekeeping ▪ Drain fluids before storage, where feasible, and dispose of them properly ▪ Train employees
Outdoor storage yard	Short-term storage	Spills Leaks Run-on		<ul style="list-style-type: none"> ▪ Train employees ▪ Practice good housekeeping ▪ Isolate area with berms or curbs to protect against run-on ▪ Maintain inventory and rotate materials ▪ Install overhead coverage

TABLE 10. ROOFTOPS

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Roof	Rain	Runoff	Asphalt aggregate Particulates Heavy metals	<ul style="list-style-type: none"> ▪ Clean bird droppings ▪ Route downspouts toward landscaped areas
Work areas	Rain, air emissions, control	Runoff, specific systems e.g baghouse filters	Particulates Heavy metals	<ul style="list-style-type: none"> ▪ Route downspouts away from work areas and toward lawns ▪ Conduct periodic inspections ▪ Conduct preventative maintenance
Work areas	Emergency generators	Leaks	Diesel	<ul style="list-style-type: none"> ▪ Conduct periodic inspections ▪ Conduct preventative maintenance

TABLE 11. WASTEWATER TREATMENT

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Facility	Maintenance activities (pipe/line cleaning) and repair	Overflow events	Bacteria Viruses Fecal coliform	<ul style="list-style-type: none"> ▪ Routinely clean facilities to improve hydraulic capacity ▪ Use vacuum equipment in the case of a spill to divert the sewage from the storm drains ▪ Covering or barricading storm drain inlets and other immediate downstream storm water conveyance systems ▪ Storing materials away from storm drains ▪ Constructing temporary washout areas ▪ Inspecting equipment for leaks periodically ▪ Collecting and removing waste for proper disposal

TABLE 12. VEHICLE MAINTENANCE

Area	Activity	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Indoor garage	Change oil, routine vehicle maintenance	Vehicle parts	Oils, grease, antifreeze, heavy metals, paint	<ul style="list-style-type: none"> ▪ Keep equipment clean and reduce build up of grease and oil ▪ Drain fluids from any retired vehicles stored onsite ▪ Inspect equipment in the yard periodically ▪ Maintain the yards storm drain outlets with regular cleanings ▪ Areas are kept clean by “dry” sweeping
Outdoor	Change oil, routine vehicle maintenance	Vehicle parts	Oils, grease, antifreeze, heavy metals, paint	<ul style="list-style-type: none"> ▪ Keep drip pans or containers under the vehicles ▪ Have designated areas for vehicle maintenance ▪ Berm areas around storm drains ▪ Cover the work area so as to limit exposure to the rain when not in use

BMP MANUAL REFERENCE LIST

1. California Stormwater Quality Task Force: *Best Management Practice Handbook—Industrial/Commercial*. 2004.
2. California State Water Resources Control Board: *Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, Water Quality Order No. 97-03-DWQ. Sacramento, 1997.
3. City of El Cajon: Community information pamphlets---various.
4. City of Los Angeles Department of Public Works—Bureau of Sanitation Storm Water Program: *Development BMP Handbook, pt. B: Planning Activities*.
5. Cities of Monterey and Santa Cruz: *Model Urban Runoff Program: A How-to Guide for Developing Urban Runoff Programs for Small Municipalities*. July 1998.
6. California Storm Water Task Force: *Retail Gas Stations BMPs*. 1987.
7. City of Sacramento: *Sacramento Storm Water Report: Investigations of Structural Control Measures (Performance Characteristics)*. 1999.
8. City of Sacramento, County of Sacramento: *Guidance Manual for On-Site Stormwater Quality Control Measures*. January 2000.
9. County of Santa Clara: *Santa Clara BMP Guide (County of Santa Clara Hazardous Waste Survival Guide)*. 1994
10. Fresno Metropolitan Flood Control District: *Model Storm Water Pollution Prevention Plan for Industrial Activities*. Fresno, January 1996.
11. Alameda Countywide Clean Water Program: *California Industrial/Commercial Stormwater Inspection Program Handbook*. Eisenberg, Olivieri, and Associates, Oakland, March 1996.

APPENDIX C.3.3

BEST MANAGEMENT PRACTICES FOR COMMERCIAL ACTIVITIES

In accordance with Section D.3.b of the Municipal Permit, the City of El Cajon has developed an inventory of best management practices that will be selected for implementation at high priority commercial facilities, as determined in Section 7 of the Jurisdictional URMP. These high priority commercial facilities are required to implement the following:

a) General BMPs

All industrial facilities and high priority commercial facilities are required to implement selected general BMPs from Tables 1 – 3 in Appendix C.3.1.

b) Activity-Specific BMPs:

All high priority commercial facilities may be required to implement activity-specific BMPs for all applicable commercial activities that correspond with Tables 1 through 22.

The commercial BMP program emphasizes *non-structural* BMPs as an initial step toward low-cost, feasible implementation. The need for designed or engineered *structural* BMPs is evaluated by the City and the facility owner on a site-by-site basis. The City may require additional BMPs as necessary to comply with the Permit.

In addition to the information provided within this section, more specific BMP information can be obtained from the Caltrans Storm Water Quality Handbooks (2003) and the California Storm Water Best Management Practice Handbook for Industrial/Commercial Facilities (2003).

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TABLE 1. AIRPLANE REPAIR, MAINTENANCE, FUELING, AND CLEANING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Interior of maintenance building Vehicle maintenance	Employee training Signage Preventive maintenance Record keeping	Spills Discarded maintenance materials	Engine fluids Dirt Sediment	<ul style="list-style-type: none"> ▪ Conduct work inside maintenance building ▪ Provide underdrains that discharge to oil-water separator, then to sanitary sewer ▪ Use drip pans ▪ Keep spill towels and absorbents readily accessible ▪ Maintain disposal logs ▪ Conduct periodic inspections
Contained area outdoors Aircraft fueling		Spills	Diesel fuel Gasoline Jet A Jet B AVGAS	<ul style="list-style-type: none"> ▪ Fuel indoors when available ▪ Keep spill response materials readily accessible (use dry methods) and report spills promptly ▪ Conduct operations on AC or concrete surface ▪ Post written fueling procedures ▪ Provide berms/curbs/dikes in fueling area ▪ Cover/protect storm drains during fueling ▪ Conduct periodic inspections ▪ Conduct preventive maintenance of fueling equipment ▪ Provide secondary containment ▪ Provide absorbent materials on the fueling truck/island

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Wash rack or pad Aircraft washing		Pressure washing	Rinsate (engine fluids/sediment)	<ul style="list-style-type: none"> ▪ Confine washing to airport-approved wash rack ▪ Initially wipe down surfaces instead of rinsing ▪ Operator BMP training ▪ Maintain oil/water separator ▪ Conduct periodic inspections of equipment ▪ Isolate area with berms ▪ Discharge rinsate into oil-water separator, then to sanitary sewer ▪ Dry-wash aircraft or dispense rinsate through oil/water separator into holding tank; dispense with certified waste hauler
Outdoor areas Aircraft fire-fighting activities	Employee training Spill response plan	Spills	Retardant agents Engine fluids Fuel	<ul style="list-style-type: none"> ▪ Avoid hot-fueling ▪ Employee training ▪ Provide secondary containment for all fluids ▪ Keep spill response equipment readily accessible

TABLE 2. AUTOMOBILE REPAIR, MAINTENANCE, FUELING, AND CLEANING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Repair or Maintenance	Employee training Preventive maintenance Spill response plan Signage	Changing fluids Replacing parts	Oil/grease Transmission fluid Antifreeze (coolant) Brake fluid Heavy metals: Cu, Zn, Cr, Ni, Pb	<ul style="list-style-type: none"> ▪ Service vehicle indoors when available ▪ Ensure floor drains are plumbed to sanitary sewer; if not, then cover drains ▪ Place secondary drip pans under fluid receptacles ▪ Keep absorbent materials/pads readily accessible in work areas ▪ Segregate waste fluids and store in approved containers ▪ Recycle fluids whenever possible ▪ Dispose of hazardous wastes properly ▪ Launder or dispose of soiled rags properly
Emergency outdoor repairs				<ul style="list-style-type: none"> ▪ Use tarp and drip pans under vehicles
Vehicle Fueling	Employee training	Spills Accidental leaks Hosing or washing down fuel area	Oil/grease Fuel	<ul style="list-style-type: none"> ▪ Do not “top off” when fueling ▪ Keep spill response materials readily accessible ▪ Provide design (berms or intercepting drains/sumps) for spill containment and to prevent run-on ▪ Use oil/fuel absorbent booms/pads in catch basins

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Vehicle Cleaning	Employee Training	Vehicle bodies Brake systems Tires	Heavy Metals Detergents Oil and Grease	<ul style="list-style-type: none"> ▪ Confine washing to wash rack or bermed area to prevent runoff or run-on ▪ Initially wipe down surfaces instead of rinsing ▪ Maintain oil/water separator ▪ Discharge rinsate into oil-water separator, then to sanitary sewer
Salvage area				<ul style="list-style-type: none"> ▪ Drain fluids from vehicles upon arrival to the yard ▪ Recycle oil, antifreeze, batteries, etc.
Work Area Cleaning	Run a "dry" shop Use non-caustic cleaning agents Replace chlorinated solvents with aqueous cleaning solutions			<ul style="list-style-type: none"> ▪ Collect dust, grindings, and shavings at work stations ▪ Dry sweep work areas before mopping ▪ Dispose of mop water to sanitary sewer only ▪ Power wash engines on paved, bermed surfaces equipped with sump drain or oil/water separator that drains to sanitary sewer system

TABLE 3. BOAT REPAIR, MAINTENANCE, FUELING, AND CLEANING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Boat repair, maintenance, and fueling		Engine work	Oil/grease	<ul style="list-style-type: none"> ▪ Routinely inspect fuel lines, gaskets, and hoses for leaks ▪ Use drip pan or bag around oil filter when changing it ▪ Spot clean engine parts frequently with solvent-damp rags ▪ Clean heavily soiled parts on land ▪ Segregate waste fluids in approved containers ▪ Tune engine frequently ▪ Use spill-proof pumps or vacuum tank for changing oil/transmission fluid ▪ Scrape, sand, or strip surfaces in dry dock ▪ Keep dry dock clean of waste and debris ▪ Use tarp or drop cloth to catch paint chips ▪ Use dustless sanders or enclosures ▪ Use approved paint for hull bottom ▪ Use drip pans under engine ▪ Use oil-absorbent or digestion pillows/pads instead of emulsifier or detergent cleaners ▪ Avoid pumping bilge water when it is oily or casts a sheen ▪ Avoid overfilling fuel tank ▪ Provide fuel-absorbent pads or booms at dispenser ▪ Store fuel in approved marine containers ▪ Display U. S. Coast Guard oil-discharge placard if required
		Hull work	Heavy metals	
		Bilge care	COD	
		Inboard and outboard motors	Paint (Pb, tributyl, Sn)	
		Fueling	Suspended solids	
			Solvents	
			Detergents	
			Emulsifiers	
			Oil/grease	

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Cleaning	<p>Minimize volume of water for washing</p> <p>Substitute less toxic materials (vinegar or baking soda for acids & caustics; phosphate-free cleaners)</p>	<p>Pressure washing</p> <p>Fish waste/byproducts</p> <p>Litter</p>	<p>Suspended solids</p> <p>Paint</p> <p>Heavy metals</p> <p>BOD</p> <p>COD</p> <p>Nutrients</p> <p>Bacteria</p>	<ul style="list-style-type: none"> ▪ Use temporary dikes to divert wash water to collection area ▪ Vacuum wash water and discharge it to sanitary sewer ▪ Rinse decks/hull more often with water only ▪ Use trash bags/ash trays ▪ Collect floating debris from slip ▪ Clean fish at dockside fish station

TABLE 4. EQUIPMENT REPAIR, MAINTENANCE, FUELING, AND CLEANING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
<p>General maintenance area or pad</p> <p>Equipment maintenance and repair</p>	<p>Employee training</p> <p>Spill response plan</p> <p>Record keeping</p> <p>Signage</p> <p>Preventive maintenance</p>	<p>Vehicle fluid spills or leaks</p> <p>Storm water run-on and runoff</p> <p>Container spills or leaks</p>	<p>Transmission fluids</p> <p>Radiator fluids</p> <p>Oil/grease</p> <p>Fuel</p> <p>Oil, grease, solvents, degreasers, and other cleansers</p>	<ul style="list-style-type: none"> ▪ Train employees in proper cleanup procedures of spills and leaks ▪ Clean equipment often to prevent excessive grease/oil buildup ▪ Use drip pans for any leaking vehicle/equipment ▪ Complete all maintenance indoors or under cover ▪ Dry sweep daily, dispose as trash ▪ Maintain an organized inventory of materials used in the maintenance shop ▪ Drain oil filters before disposal or recycling ▪ Store cracked batteries in a non-leaking secondary container ▪ Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop ▪ Inspect the maintenance/repair area regularly for proper implementation of control measures ▪ Segregate, label, and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, equipment batteries, and hydraulic and transmission fluids ▪ Use absorbent materials on small spills ▪ Plug floor drains that are connected to the storm or sanitary sewer ▪ Install spill kits in maintenance bay

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
<p>Cleaning and washing pad</p> <p>Equipment cleaning and washing</p>	<p>Minimize volume of water for washing</p> <p>Recycle wash water</p> <p>Substitute less toxic soaps/cleaners</p>	<p>Washed equipment particulates and debris</p>	<p>Sediment, brake dust, metals, grease, oil, and other toxic materials</p> <p>Nutrients (e.g., phosphates)</p> <p>Suspended solids</p> <p>BOD</p> <p>COD</p> <p>Oil/grease</p> <p>Hydrocarbons</p>	<ul style="list-style-type: none"> ▪ Train employees on proper washing procedures ▪ Use dry cleaning methods such as wiping down and dry sweeping instead of washing with water ▪ Avoid washing parts or equipment outside ▪ If outdoors, direct wash water towards surrounding, existing vegetation ▪ Use phosphate-free biodegradable soaps and detergents ▪ Use less water for cleaning and washing ▪ Contain and recycle wash water ▪ Inspect cleaning area regularly ▪ Clean storm drains regularly, and stencil “No Dumping” ▪ Evaluate feasibility of constructing a bermed or covered wash area draining to the sanitary sewer ▪ Self-contain and/or covered, equipped with a clarifier, or other pretreatment facility, and properly connected to a sanitary sewer or to a permitted disposal facility
<p>Equipment fueling area</p>	<p>Employee training</p>	<p>Spills</p> <p>Accidental leaks</p> <p>Spills and leaks during deliveries</p> <p>Hosing or washing down fuel area</p>	<p>Fuel, oil, grease, solvents, car battery acid, and coolant</p>	<ul style="list-style-type: none"> ▪ Discourage “topping off” of fuel tanks ▪ Use absorbent materials on spills ▪ Install covered spill kits next to fueling area ▪ Use dry cleanup methods for fuel area ▪ Perform preventive maintenance on storage tanks to detect potential leaks before they occur ▪ Always use secondary containment, such

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
				<p>as a drain pan or drop cloth, when fueling to catch spills/leaks</p> <ul style="list-style-type: none"> ▪ Install “shut-off” valves on nozzles ▪ Provide a smooth, impervious surface (e.g., Portland cement concrete) rather than asphalt in fueling area ▪ Provide overhead cover for fuel dispensing area
Equipment storage lot		Equipment leaks	Fuel, oil, grease, solvents, battery acid, coolant, soil, and other debris	<ul style="list-style-type: none"> ▪ Dry sweep parking area regularly to reduce the accumulation of soils and other debris ▪ Use drip pans under all vehicles and equipment waiting for maintenance ▪ Use absorbent material to clean up spills, and for general cleaning rather than hosing down the area. Remove the absorbent material promptly. ▪ Clean storm drains regularly, and stencil inlets with “No Dumping”

TABLE 5. AUTOMOBILE/VEHICLE BODY REPAIR OR PAINTING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Receiving/storing vehicles Painting, Stripping, and Cleaning Non-hazardous paint: Scraping or sandblasting, body filling, wet sanding Paint booth Hazardous paint removal Cleaning equipment	Minimize volume needed for the job	Leaks	Automotive fluids	<ul style="list-style-type: none"> ▪ Use drip pans ▪ Wipe down greasy parts with rags ▪ Perform work indoors when available ▪ Recycle/reuse paints ▪ Filter and reuse solvents ▪ Dry water-based paints/wet sanding material and dispose in trash ▪ Reuse brushes for water-based paints: rinse to a sanitary sewer ▪ Confine work to approved, enclosed area equipped with vacuum hood and filter ▪ Dry-sweep or vacuum dust and dispose to trash ▪ Use appropriate, well-maintained equipment (e.g., high-efficiency paint sprayers, electrostatic spray guns, air-atomized spray guns, high-volume/low pressure and gravity-feed guns) ▪ Collect and treat wastewater or remove as hazardous waste ▪ Refer to Cal-OSHA guidelines and state & local hazardous waste laws ▪ Use self-contained cleaning vat ▪ Recycle cleaning fluid
	Preventive maintenance	Over-mixing	Grease	
	Employee training	Spills	Paint	
		Open work area	Solvents	
		Drift (wind)	Thinners	
		Leaks	Particulates	
		Overspray	Settable solids	
		Rinsate from dust control	Paint chips/dust	
			Sand, glass, stone	
			Metals	
		Suspended solids		

TABLE 6. MOBILE AUTOMOBILE (OR OTHER VEHICLE) WASHING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Washing	Employee training Use less toxic detergents, e.g., aqueous cleaners Use phosphate-free detergents Minimize water for washing	Vehicle body Vehicle engine Wheels: Acid-based cleaning Line or gasket leaks Paved areas	Suspended solids PH Oil/grease Phosphates Heavy metals COD BOD	<ul style="list-style-type: none"> ▪ Cover storm drain grates or curb inlets ▪ Locate wash pad away from storm drains ▪ Use berms to divert wastewater to collection area ▪ Collect wastewater (by vacuum) for recycling or disposal to sanitary sewer ▪ Provide wastewater tank for wash water that cannot be disposed properly while on site

TABLE 7. AUTOMOBILE (OR OTHER VEHICLE) PARKING AND STORAGE FACILITIES

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Daily maintenance Unauthorized vehicular repair Rainy season preparation (Before Oct. 1)	Employee training Signage Spill response plan	Drift (wind) Leaks Illegal disposal of vehicle fluids	Litter Organic debris Oil/grease Automotive fluids Sediment Heavy metals	<ul style="list-style-type: none"> ▪ Post signs prohibiting littering, dumping, and vehicle servicing ▪ Provide trash containers in convenient locations ▪ Spot clean fluid leaks ▪ Dispose of oil-soaked absorbents as hazardous waste ▪ Use street sweepers periodically ▪ Manually clean inlets or use vacuum trucks

TABLE 8. RETAIL OR WHOLESALE FUELING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
<p>Dispensers</p> <p>Tanks</p>	<p>Employee training</p> <p>Signage</p> <p>Preventive maintenance</p> <p>Spill response plan</p>	<p>Spills from individual vehicles or tanker trucks</p>	<p>Fuels</p> <p>Oil/grease</p> <p>Heavy metals</p> <p>COD</p> <p>Litter</p>	<ul style="list-style-type: none"> ▪ Post “no topping off” signs ▪ Use dry sweep methods ▪ Keep spill response materials readily accessible ▪ Maintain surfaces paved with approved impervious material (e.g., Portland cement concrete) ▪ Provide design (berms or intercepting drains/sumps) for spill containment and to prevent run-on ▪ Use oil/fuel absorbent booms/pads in catch basins ▪ Provide overhead coverage that drains storm water away from dispensing areas ▪ Conform to state laws for spill containment and overfill prevention ▪ Provide automatic shut-off latches on nozzles as permitted by local regulations ▪ Provide secondary containment around fuel truck during transfer—driver stays with truck ▪ Provide secondary containment for outdoor storage areas

TABLE 9. PEST CONTROL SERVICES

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
<p>Storage</p> <p>Application</p> <p>Cleaning</p>	<p>Employee training</p> <p>Good housekeeping</p> <p>Signage</p> <p>Spill response plan</p> <p>Integrated pest management</p> <p>Preventive maintenance</p>	<p>Leaks</p> <p>Overspray</p> <p>Continual or excessive use of pesticides</p>	<p>Pesticides</p>	<ul style="list-style-type: none"> ▪ Comply with state and county pesticide handling regulations ▪ Provide secondary containment for containers in storage ▪ Use dry sweep methods ▪ Keep spill response materials easily accessible ▪ Apply when windy conditions are not expected ▪ Avoid applying before irrigation or rainfall ▪ Follow manufacturer’s instructions on label to prevent excessive concentrations, overspray, and leftover solutions ▪ Maintain applicator equipment in good condition ▪ Triple- or pressure-rinse empty containers ▪ Use rinsate for making next batch ▪ Use non-chemical methods (e.g., traps, sticky tape, hot-wire lamp, high-pressure water spray) whenever feasible ▪ Consider using non-chemical methods along water bodies

TABLE 10. EATING AND DRINKING ESTABLISHMENTS, INCLUDING FOOD MARKETS

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Dumpster	Employee training	Emptying containers	Oil/grease	<ul style="list-style-type: none"> ▪ Clean dumpster and grease bin areas daily
Tallow & grease bin			Pesticides	<ul style="list-style-type: none"> ▪ Replace leaking or dirty dumpster
Equipment cleaning	Signage	Improper pesticide application	Sediment	<ul style="list-style-type: none"> ▪ Reduce liquid waste in trash and double-bag trash to prevent leaks
Sidewalks	Spill response plan	Leaks	Litter	<ul style="list-style-type: none"> ▪ Dry sweep whenever possible
Parking lot	Recycling	Spills	Paints	<ul style="list-style-type: none"> ▪ Cover storm drain inlets before hosing down pavement
Loading/unloading	Preventive maintenance	Pressure washing		<ul style="list-style-type: none"> ▪ Use berms to divert wastewater to collection area
Exterior pest control				<ul style="list-style-type: none"> ▪ Collect wastewater (vacuum) and dispose to sanitary sewer
Landscaping				<ul style="list-style-type: none"> ▪ Stop spills at the source
				<ul style="list-style-type: none"> ▪ Keep spill response materials easily accessible, near the receiving door
				<ul style="list-style-type: none"> ▪ Use wet-clean method: Use rags or absorbent to collect residue; then mop and collect wastewater; dispose to sanitary sewer
				<ul style="list-style-type: none"> ▪ Properly maintain outdoor grease interceptors and storage areas
				<ul style="list-style-type: none"> ▪ Wash equipment indoors
				<ul style="list-style-type: none"> ▪ Properly maintain all sinks
				<ul style="list-style-type: none"> ▪ Contract with hood-filter-element cleaning service
				<ul style="list-style-type: none"> ▪ (Outdoor wash area): Provide bermed surface with slope toward drain connected to sanitary sewer
				<ul style="list-style-type: none"> ▪ Consider contracting with certified pest

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
				control operator <ul style="list-style-type: none"> ▪ Properly collect and dispose of green waste from landscaping activities

TABLE 11. MOBILE CARPET, DRAPE, OR FURNITURE CLEANING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
<p>Storage</p> <p>Wastewater disposal</p>	<p>Employee training</p> <p>Preventive maintenance</p> <p>Adequate equipment</p> <p>Minimize water for washing</p>	<p>Illegal discharges</p> <p>Leaks</p>	<p>Suspended solids</p> <p>BOD</p> <p>COD</p> <p>Organic matter</p>	<ul style="list-style-type: none"> ▪ Dispose of wastewater to sanitary sewer at the job site or to a holding tank ▪ Dispose of wastewater in tank to sanitary sewer at company headquarters or at an approved establishment ▪ Maintain tanks, hoses, and fittings in leak-proof condition <p>Note: High-volume discharges can disrupt septic systems of private homes. Also, routine disposal of such discharges to a municipal sewer may require approval from the local wastewater district.</p>

TABLE 12. CEMENT MIXING OR CUTTING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Headquarters:	Employee training	Spills	pH	<ul style="list-style-type: none"> ▪ Provide overhead coverage for production area ▪ Dry sweep daily and properly recycle or dispose of loose aggregate, mortar, dust, etc. ▪ Dry sweep gutters, alleys, streets, sidewalks, etc. ▪ Properly cover storm drains to prevent wash water from leaving site ▪ Use berms to prevent run-on ▪ Divert slurries to collection area or sedimentation basin ▪ Shovel/vacuum slurries daily ▪ Designate area where all rinsate is confined, collected, and disposed to sanitary sewer, dead-end sump, process treatment system, etc., or discharge rinsate to hole where water percolates/evaporates and solids are recovered for disposal
Production	Good Housekeeping	Drift (wind)	Suspended solids	
Mixing	Record keeping	Excess process water	Oil/grease	
Job site:	Recycling		Heavy metals	
Pouring			Hydrocarbons	
Cutting				
Exposed aggregate finishing				
Cleaning				
Washout area				

TABLE 13. MASONRY

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Acid washing Mixing Cleaning Storage Maintenance	Employee training Minimize volume of materials Recycling	Rinsate Excess material	pH Settable solids	<ul style="list-style-type: none"> ▪ Properly cover storm drains to prevent discharges of cleaning water ▪ Use portable berms to divert wash water from storm drains ▪ Dry sweep as much as possible ▪ Rinse with alkaline soap or neutralize rinsate and direct it to sanitary sewer or landscaping, where approved ▪ Store materials downgrade from storm drains/water bodies whenever possible ▪ Cover stock piles with tarp ▪ Reuse excess cement, grout, or mortar

TABLE 14. PAINTING AND COATING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
<p>Storage</p> <p>On the job</p> <p>Mixing/applying</p> <p>Clean up</p>	<p>Employee training</p> <p>Spill response plan</p> <p>Preventive maintenance</p> <p>Recycling</p>	<p>Storage</p> <p>Sanding/blasting</p> <p>Spills</p> <p>Rinsate</p>	<p>Hydrocarbons</p> <p>Solvents</p> <p>Oil/grease</p> <p>Metals</p> <p>Suspended solids</p> <p>COD</p>	<ul style="list-style-type: none"> ▪ Store paints and solvents in approved containers under cover and with secondary containment ▪ Construct tarp or plastic-sheeting enclosures to prevent drift ▪ Cover storm drains to protect from dust, chips, and rinsate ▪ Dry sweep daily ▪ Provide drop cloths and drip pans in mixing areas ▪ Properly maintain spray applicator equipment ▪ Rinse water-based paint to sanitary sewer ▪ Filter, reuse, and recycle thinners and other solvents ▪ Comply with Cal-OSHA and hazardous materials guidelines when working with lead or tributyl tin paint

TABLE 15. BOTANICAL OR ZOOLOGICAL GARDENS AND EXHIBITS

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Pest management	Employee training	Visitors	Sediment	<ul style="list-style-type: none"> ▪ Refer to Table 9 (Pest Control Services) ▪ Refer to Table 16 (Landscaping) ▪ Refer to Table 10 (Eating and Drinking Establishments) ▪ Refer to Tables 1 (Automobile Servicing), 4 (Equipment Servicing), 7 (Vehicular Storage and Parking Lots), and 8 (Retail and Wholesale Fueling) ▪ Plan soil-disturbance projects for dry season ▪ Stabilize bare-soil slopes with appropriate materials ▪ Stabilize project entrance to minimize tracking of sediment ▪ Dry sweep paved surfaces daily ▪ Cover stockpiles during rainy or windy conditions ▪ Cover and berm storm drain inlets in or downgrade from project site ▪ Dispose of animal liquid and solid wastes to sanitary sewer, landfill, or other method approved by appropriate local and state agencies (e.g., wastewater districts, vector control)
Landscaping		Animals	Suspended solids	
Food service	Preventive maintenance	Leaks	Trash	
Fleet and equipment maintenance	Recycling	Erosion	Litter	
Construction	Good housekeeping		Bacteria	
Waste removal			Nutrients	

TABLE 16. LANDSCAPING (INCLUDING CEMETERIES)

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Watering/irrigation	Employee training	Irrigation run-off	Sediment	<ul style="list-style-type: none"> ▪ Properly match water delivery rate with soil infiltration rate ▪ Properly match pesticide/herbicide application rate with soil infiltration rate ▪ Maintain irrigation efficiency and uniform distribution ▪ Periodically inspect sprinkler heads ▪ Utilize automatic timers to minimize runoff ▪ Cover stockpiles ▪ Control soil erosion: straw or sandbags, dikes, mulch, silt fences, biofilter strips, etc. ▪ Keep leaves, twigs, and clippings out of drain inlets and catch basins ▪ Collect and recycle all green waste ▪ Mix and apply chemicals according to manufacturer’s instructions ▪ Keep containers and spray nozzles in good condition ▪ Avoid overspray or application outside the target area ▪ Use manual methods along water bodies ▪ Triple-rinse containers and use rinsate to make next batch ▪ Properly dispose of empty containers ▪ Use appropriate predator species, whenever feasible
Installation		Rainwater runoff	Oil/grease	
Construction	Preventive maintenance	Soil preparation	Organic matter	
Plant maintenance	Good housekeeping	Stockpiling	Fertilizer	
Nutrient management	Integrated pest management	Trimming, mowing, and pruning	Herbicides	
Pest/weed management		Excessive concentration or overspray	Pesticides	
	Recycling (composting)		Nitrogen salts	
		Continual or excessive use	Nitrogen Phosphorus	

TABLE 17. NURSERIES AND GREENHOUSES

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Irrigation Green waste disposal or reuse Fertilizer application Pesticide application Construction	Employee training Signage Preventive maintenance Recycling Integrated pest management	Overwatering Tail water Leachate Stormwater runoff Drift (wind) Overspray	Sediment Fertilizers Pesticides Suspended solids (roof coating)	<ul style="list-style-type: none"> ▪ Utilize appropriate low-volume watering methods (e.g., drip-, sub-, & pulse-irrigation) to minimize water volume ▪ Use collection tray benches for overhead spraying ▪ Maintain nozzles, intermitters, and other application equipment in optimal condition ▪ Consider tail-water recovery systems or subsurface drains for recycling irrigation water ▪ Routinely conduct soil and plant tissue analysis to determine fertilizer needs ▪ Utilize appropriate methods (e.g., timed application or combination slow-release & constant liquid fertilizer) to reduce excessive fertilization ▪ Apply pesticides under appropriate weather conditions to prevent drift ▪ Apply pesticides within target area to prevent overspray ▪ Minimize use of pesticides causing local problems ▪ Utilize mechanical methods (trapping, vacuuming, net sweeping, etc.) where possible ▪ Divert roof runoff (storm water only) to subsurface drains or conveyances via

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
				gutter/downspout system <ul style="list-style-type: none"> ▪ Divert roof runoff (storm water with coating sediment) to settling pond ▪ Use shade cloths instead of roof coatings, whenever possible ▪ Store green waste away from conveyances and water bodies ▪ Remove or compost green waste properly to minimize stockpiling ▪ Cover stockpiles during rainy weather

TABLE 18. GOLF COURSES, PARKS, AND RECREATIONAL AREAS/FACILITIES

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Pest management	Employee training	Visitors	Litter	<ul style="list-style-type: none"> ▪ Refer to Table 9 (Pest Control Services) ▪ Refer to Table 16 (Landscaping) ▪ Refer to Table 10 (Eating and Drinking Establishments) ▪ Erosion control: Limit area of soil disturbance, plan work for non-rainy day, stabilize bare-soil slopes, cover stockpiles, etc. ▪ Water after heavy traffic to minimize soil compaction ▪ Post signs: No Dumping, No Littering, No Car Maintenance in Lots, Keep Pets on Leash, Stay on Trail, Aluminum Cans Only, etc. ▪ Provide maps showing locations of restrooms, trash containers, recycling bins, etc. ▪ Provide trash containers in parking lots, campgrounds, and other convenient locations ▪ Dry sweep paved surfaces ▪ Manually clean storm water catchbasins and culverts ▪ Plumb rest room floor drains to sanitary sewer, septic system, or properly installed subsurface drain if approved by local codes ▪ Provide vegetated buffer strips along water bodies, if feasible
Landscaping	Signage	Trail maintenance	BOD	
Food Service	Preventive maintenance	Vehicle leaks	COD	
Rest rooms	Recycling	Pets	Sediment	
Parking lots		Boats	Bacteria/viruses	
Trails		Green waste	Oil/grease	
Water bodies and wetlands		Solid waste	Heavy metals	
Wash rack or pad		Wash water	Manure	
Construction		Rinsate	Pesticides	
Mowing		Erosion	Fertilizers	
Irrigation			Detergents	

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
				<ul style="list-style-type: none"> ▪ Divert irrigation flows to minimize pesticides/fertilizers from reaching water bodies ▪ Consider using low-maintenance turf to minimize chemical needs ▪ Recycle (compost) green waste ▪ Recycle clippings via mulching method ▪ Plumb wash rack drainage system to sanitary sewer or approved recycling system

TABLE 19. POOL AND FOUNTAIN CLEANING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
<p>Storage</p> <p>Filter maintenance</p> <p>Water chemistry</p>	<p>Employee training</p> <p>Preventive maintenance</p>	<p>Spills</p> <p>Leaks</p> <p>Backwashing</p> <p>Algal control</p> <p>Acid washing</p> <p>Draining</p>	<p>Chlorine</p> <p>pH</p> <p>Organic matter</p> <p>Diatomaceous earth</p> <p>Copper</p> <p>Silver</p>	<ul style="list-style-type: none"> ▪ Store chemicals in approved, leak proof containers in covered area ▪ Discharge backwash wastewater to sanitary sewer via indirect connection (all public pools and private pools of homes connected to <u>municipal sewer system</u>) ▪ Discharge backwash wastewater onto level ground and allow to infiltrate soil OR discharge it through filter fabric device (homes with private <u>septic systems</u>) ▪ Allow pool water to set for several days until free chlorine level is below 1 ppm ▪ Neutralize pool water (7.2 –8.0) after acid washing before discharging to storm water conveyance system ▪ Minimize use of heavy metal algicides

TABLE 20. PORTABLE SANITARY TOILET SERVICING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
<p>Headquarters</p> <p>At the job site</p>	<p>Employee training</p> <p>Signage</p> <p>Spill response plan</p>	<p>Cleaning closets</p> <p>Emptying tanks</p> <p>Leaks</p> <p>Spills</p> <p>Vandalism</p>	<p>Bacteria</p> <p>Organic matter</p> <p>Disinfectant</p> <p>Suspended solids</p>	<ul style="list-style-type: none"> ▪ Clean closets at headquarters ▪ Remove paper trash before washing ▪ Drain wash water to sanitary sewer (if allowed by local wastewater district) or to holding tank ▪ Maintain wash area pavement in good condition and properly designed with slope to grated floor drain and with a bermed perimeter ▪ Keep spill containment materials readily available at headquarters, on transport trucks, and at the job site ▪ Place closets away from high-traffic vehicular areas ▪ Secure (e.g., with stakes) closets to prevent tipping ▪ Maintain all hoses, couplings, tanks, etc., in good condition to prevent leaks or spills ▪ Post sign for reporting closets in need of cleaning/repair or establish regular cleaning schedule

TABLE 21. ANIMAL FACILITIES

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Animal handling	Employee training	Animals Solid waste	Bacteria/viruses Manure Nutrients Oxygen demanding substances	<ul style="list-style-type: none"> ▪ Keep animals in controlled areas and implement BMPs in such areas (provide vegetative cover, mulching) to reduce runoff from such areas ▪ Keep animals in covered area, if possible ▪ Use dry cleaning methods to clean paved or other impervious surfaces where animals are stored/handled ▪ Properly collect and dispose of pet waste ▪ Properly dispose of uneaten food ▪ Post signs: Keep Pets on Leash, Pick up after your pet, etc.

TABLE 22. BUILDING MATERIAL RETAILERS AND STORAGE

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Outdoor storage	Employee training Signage Spill response plan	Drift (wind) Leaks Exposure of Materials	Litter Organic debris Oil/grease Automotive fluids Sediment Heavy metals	<ul style="list-style-type: none"> ▪ Post signs prohibiting littering and dumping ▪ Provide trash containers in convenient locations ▪ Spot clean fluid leaks ▪ Dry clean site on regular basis ▪ Manually clean inlets or use vacuum trucks ▪ Cover equipment storage areas and dispose of rainwater inside the berm as a waste ▪ Remove, recycle, or sell cast-offs as scrap material ▪ Cover and secure any stockpiles of loose material (dirt, gravel, etc.)

TABLE 23. POWER WASHING

Area or Activity	Pollution Prevention	Potential Pollutant Source	Type of Pollutant	Best Management Practices
Power Washing	Employee training Minimize water for washing	Wash surface Paved areas	Suspended solids Oil/grease Phosphates Heavy metals	<ul style="list-style-type: none"> ▪ Cover storm drain grates or curb inlets ▪ Prevent storm water from entering storm drain (collect wastewater by vacuum for recycling or disposal to sanitary sewer)

BMP SOURCE LIST

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5. California State Water Resources Control Board: *Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, Water Quality Order No. 97-03-DWQ. Sacramento, 1997.
6. California Storm Water Task Force: *Retail Gas Stations BMPs*. 1987.
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11. Hewitt, R.S.: *San Diego County BMPs for Erosion and Sedimentation Control and Storm Water Detention/Retention*. Mission Resources Conservation District (Fallbrook), 1998.
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14. Office of Water: *Best Nonpoint Source Documents: U.S. Environmental Protection Agency, January 2001* (<http://www.epa.gov/owow/nps/bestnpsdocs.html>).
15. Pierce County (Washington): *Stormwater Pollution Prevention Manual: A Guide to Best Management Practices for Industries, Businesses and Homeowners* (<http://www.co.pierce.wa.us/services/home/environ/water/>).
16. San Diego County Department of Environmental Health: *Stormwater Management Program: Best Management Practices Manual*, 1998.
17. Uniform Fire Code, Part 4, sections 2401-2405 and 5202.

18. US EPA: Boat cleaning and sewage facility management, in *National Management Measures Guidance*, Ch. 4.11 & 4.13
(<http://www.epa.gov/owow/NPS/MMGI>)
19. Orange County California: Existing Development BMPs Fact Sheets:
(http://www.ocwatersheds.com/Stormwater/documents_bmp_existing_development.asp)

C.4 Minimum BMPs for Residential Areas/Activities

Appendix C.4

Best Management Practices for Residential Activities

In accordance with Section D.3.c of the Municipal Permit, the City of El Cajon has developed an inventory of BMPs that may be implemented when performing any high priority residential activity within the City’s jurisdiction, as determined in Section 8 of the Jurisdictional URMP and its revisions. The residential BMP program emphasizes non-structural BMPs as an initial step toward low-cost, feasible implementation. Individual residences and homeowners are responsible for implementation of appropriate control measures and BMPs to maintain compliance with the Municipal Permit. If particular minimum BMPs are infeasible for any specific site or source, the City may require implementation of other equivalent BMPs. The City also requires implementation of any additional controls as necessary to comply with the Municipal Permit. Recommended BMPs for specific activities are listed below:

Updated BMP Requirements

The City of El Cajon continues to encourage the implementation of pollution prevention measures and encourage or require the implementation of BMPs for residential areas and activities, including areas and activities that have been designated high TTWQ and areas and activities that have not been designated high TTWQ. If particular BMPs are not feasible for any specific site or source, the City requires implementation of other equivalent BMPs. Education and outreach aimed at residents helps facilitate the implementation of BMPs, including pollution prevention methods. A detailed discussion of the City’s education program can be found later in this section and in Section 10 of this JURMP document.

Residents are encouraged, and in some cases required, to use BMPs, including pollution prevention techniques when performing the following high TTWQ activities:

- **Automobile Repair and Maintenance**
 - The following BMPs are required
 - Prevent leaks and spills from contacting urban runoff by using the following BMPs or their equivalent:
 - Use drip pans, plastic sheeting, or other materials to contain spills
 - Work indoors or under shelter

- If working outdoors, do not conduct maintenance during rain events
 - Clean up leaks and spills when they occur
 - Clean tools and parts only in contained areas
 - Properly manage and dispose of automotive wastes and materials by using the following BMPs or their equivalent:
 - Properly and lawfully dispose of all wastes
 - Recycle or properly dispose of oil and antifreeze
 - Store materials and wastes indoors or under cover
 - Use secure and watertight containers when storing materials and wastes outside
- Residents are encouraged to
 - Use routine preventive maintenance practices to prevent vehicle leaks and spills from entering urban runoff
 - Reduce vehicle use by
 - Changing driving habits
 - Carpooling
 - Increasing use of public transportation
 - Biking or walking for short trips
 - Make timely vehicle inspections and repairs
 - Use commercial repair and maintenance facilities to avoid the potential for pollution in residential areas.
- **Automobile Washing**
 - Residents are encouraged to do all of the following BMPs, except where specifically noted to be “required”:
 - Use preventive practices to keep vehicles clean (park in garage, under cover, etc.)
 - Reduce volume of wash water
 - Dry cleaning methods to avoid the generation of wash and rinse water
 - Turn off the water when not in use or to use a controllable spray nozzle
 - Contain, capture, or divert wash water from the conveyance system
 - Wash vehicles over pervious surfaces such as lawns or gravel areas
 - Establish neighborhood wash areas where wash water and contaminants can be properly managed
 - Properly manage materials and wastes
 - Use minimal amounts of soap, detergents, and other cleaners when washing vehicles
 - Residents are required to properly dispose of soapy water or bucket rinse water into the sanitary sewer or soak into the lawn

- Launder rags and towels or dispose of them in the trash
 - Use dry methods to degrease or clean especially dirty parts prior to wet washing and rinsing. For example, grease or brake dust can be removed using towels.
- Use commercial wash facilities to avoid the potential for pollution in residential neighborhoods (this may be discussed with residents, for example, during a complaint investigation)
- **Automobile Parking**
 - Residents are encouraged to do all of the following BMPs, except where specifically noted to be “required”:
 - Minimize leaks and spills in driveways and parking areas by repairing oil, water, and fuel leaks in vehicles
 - Proper design and construction of parking areas in residences during major redevelopment is required. Further details are given in the Development Planning Component (Section 4 of this document).
 - Clean parking areas using dry methods, particularly where sediments and/or debris has accumulated.
- **Recreational Vehicle Parking and Maintenance**
 - Wastes from recreational vehicles (RV) are required to be disposed of properly. A dump station is located at the 76 Service Station in the City at West Main Street and Marshall Avenue. This is the only dump station in East County.
- **Garden Care Activities and Product Use**
 - Residents are encouraged to do all of the following BMPs, except where specifically noted to be “required”:
 - Leaks and Spills
 - Residents are required to immediately clean up spills of gardening chemicals, fertilizers, and soils.
 - Return spilled materials to the container for future use or to properly dispose if them
 - Materials and Waste Management
 - Use safe substitutes and alternative methods for garden use including
 - Integrated Pest Management (IPM) techniques
 - Use of native plants and drought-tolerant species to reduce water use and the amount of green waste produced
 - Planting techniques to attract beneficial insects
 - Use of biological controls
 - Composting, vermiculture, and yard waste recycling
 - Employ practical purchasing for pesticides and fertilizers:
 - Use minimal amounts of pesticides and fertilizers, to help prevent unnecessary pollutant runoff to the MS4
 - Always read label instructions and follow the instructions for garden care products

- Conserve water through the use of xeriscape gardening, drip irrigation, soaker hoses, and micro-spray systems
- Repair or adjust irrigation systems that allow excessive runoff
- Prevent erosion by planting and mulching hillsides and slopes
- Store lawn care products in closed, labeled containers and in covered areas
- Avoid using pesticides, fertilizers, and other materials during windy or rainy days
- Effectively cover stockpiles of soil, compost or fertilizers with plastic tarps or equivalent methods to prevent dispersal by wind or rain
- Use dry sweeping techniques for clean up
- Recycle lawn clippings and greenery waste through local programs
- Refrain from hosing off paved surfaces to the street or gutter
- Residents are required to properly dispose of HHW. The City maintains a HHW disposal facility, which is described later in this section. Residents are prohibited from disposing of any hazardous waste into the trash, landfill, or storm drain system
- **Home Care and Maintenance**
 - Residents are encouraged to use proper techniques for spill cleanup and waste disposal.
- **Home Care and Maintenance**
 - The following BMPs are required
 - Leaks and Spills
 - Clean up hazardous materials spills immediately
 - Discharges and HHW
 - Do not dispose wash waters (carpet cleaning, mop water, paint wash-up, etc.) to the street, gutter, or storm drain
 - Ensure swimming pool water is clear, de-chlorinated, and free of chemicals, sediments, or other pollutants before discharging to the storm drain
 - Do not wash pool filters where discharges may enter storm drainage systems
 - Properly dispose of unwanted HHW
 - Residents are encouraged to implement the following BMPs:
 - Leaks and Spills
 - Use proper techniques for spill cleanup and waste disposal
 - Materials and Waste Management
 - Use practical purchasing for home cleaning and maintenance products to reduce waste. For example, purchase only what is needed for specific projects.
 - Use safe substitutes for home cleaning and maintenance

- Read and abide by product label instructions
 - Use water based paints
 - Store HHW in closed labeled containers in a covered area
 - Recycle latex paint through community programs
 - Recycle unused, unwanted products
 - Recycle unwanted appliances and household equipment
- **Pet Waste Disposal**
 - Waste Management/ Disposal
 - Pet owners are required to clean up after their pets in the public right of way and on private property not belonging to them. Pet waste bags are supplied at various parks in the City to facilitate this activity, and many Home Owners' Associations (HOA) provide pet waste bags and have posted signs to encourage proper waste disposal.
 - Residents are required to dispose of pet waste to the toilet trash, or other acceptable means
 - Residents are encouraged to clean up pet waste on their private property if pets are allowed to defecate outside
 - Pet Management
 - Residents are prohibited from allowing their pets to run free in residential neighborhoods
- **Disposal of Trash**
 - The following activities are prohibited:
 - Littering
 - Dumping trash, including large appliances, furniture, hazardous waste, and other unwanted items, into the MS4
 - The following BMPs are encouraged:
 - Dispose of trash in provided trash cans or shared dumpsters and to ensure trash bags are not leaking prior to disposal
 - Recycle waste products where possible
 - Compost food scraps and green waste where possible
 - Pick up, sweep up, and mop up trash and spills surrounding the trash can/dumpster, using minimal water and cleaning products, if necessary. No discharge to the MS4 is allowable during this process.
 - Keep trash can and/or dumpster lids closed
- **Private Lateral Maintenance**
 - Residents are required to maintain private sewer laterals and septic tanks to prevent blockages or other maintenance issues that could result in SSOs.
 - Residents are encouraged to reduce the amount of grease discharged to the sewer system to help prevent blockages and restrictions in downstream pipes.
 - Residents are required to report any sewage spills from private laterals or leaking septic tanks to the City.