

## Best Management Practices for Corporation Yard Activities




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## Discussion Topics


- I. General BMPs
- II. Catch Basin Cleaning
- III. Spill Response
- IV. Storm Drain Inlet Protection
- V. Street Sweeping Debris
- VI. Patching, Resurfacing and Surface Sealing
- VII. Saw-cutting and Grinding



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## Discussion Topics (cont'd)


- VII. Irrigation Practices
- VIII. Vegetation Controls
- IX. Signing (Legends) and Striping
- X. Fuel Dispensing Areas
- XI. Fleet Maintenance/Vehicle Parking Areas
- XII. Vehicle/Equipment Washing
- XIII. Chemical Usage and Storage


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## Background

### What is Non-point Source Pollution?

- Storm water runoff from streets, parking lots, parks, building roofs and other impermeable surfaces
- Storm water (or anything else) in drain systems
- Agricultural runoff
- Sediment deposited in creeks, streams and other water bodies




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## Background

### Pollutants in Urban Runoff

▪ Pesticides and herbicides	▪ Oxygen-demanding substances
▪ Sediment	▪ Petroleum-based products
▪ Nutrients	▪ Heavy metals
▪ Bacteria and viruses	▪ Other toxic materials


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## Background

### Stormwater Regulations and Agencies

- Federal – Environmental Protection Agency
- California – State and Regional Water Quality Control Boards
- Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP)
- Local Program



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## Background

### Why Care About Runoff?

- Storm water discharges are untreated
- Storm drains discharge to local creeks and the Bay
- Pollutants are harmful to vegetation and aquatic life



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## Background

### Methods to Reduce Urban Runoff

- Best Management Practices
  - Source Control
  - Pollution Prevention
- Standard Operating Procedures
- Control Measures

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## General BMPs

- Store materials away from streets, gutters, storm drain inlets and water channels.
- Maintain safety equipment and spill containment kits within spill-prone areas.
- Follow spill response plan.
- Stencil storm drain inlets.



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## General BMPs (cont'd)

- Inspect safety equipment regularly.
- Annually inspect and clean storm drain inlets and catch basins within yard.
- Inspect yard to ensure no illegal discharges to storm drains.



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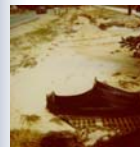
## General BMPs (cont'd)

- Only fuel equipment and vehicles at yard or service stations.
- Properly dispose of wastes frequently.
- Sweep yard monthly.

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## Catch Basin Cleaning



- Maintain all catch basin grates, silt sacks and catch basin bottoms.
- Conduct regular inspections and clean as needed.
- Properly dispose of collected debris.
- Record all maintenance and cleaning.
- If necessary, dewater debris.

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## Spill Response

- Keep spill containment, clean-up materials, and spill response plan on trucks and equipment.
- Follow spill response plan. Document spills.
- Request assistance.
- **Alert supervisor!**
- Contain all spills with “dry” methods.



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## Spill Response (cont'd)

- Do not hose down or bury spilled materials.
- Collect spilled (non-hazardous) materials for reuse or recycling.
- Properly dispose of non-recyclable wastes and spent absorbents.
- If spills occur on dirt areas, dig up and remove contaminated soil promptly and properly.

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## Storm Drain Inlet Protection

### Applications

- Required in areas where:
  - Sediment laden runoff may enter an inlet
  - Drainage has not been permanently stabilized
  - The drainage area is one acre or less
- Appropriate during wet seasons

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## Storm Drain Inlet Protection (cont'd)

- To ensure protection, erosion and sediment control measures should always be used in combination
- Each method is not effective alone



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## Storm Drain Inlet Protection (cont'd)

### Good Inlet Protection

- Inlet is not on a paved road
- **Measures:** A combination of multiple levels of fiber rolls and gravel beds with mulch and tackifier



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## Storm Drain Inlet Protection (cont'd)

### Adequate Inlet Protection

- Inlet is not on a paved road
- **Measures:** A combination of a large gravel bed and gravel bags.
- **Note:** Proper erosion control measures have not been taken on the surrounding area




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## Storm Drain Inlet Protection (cont'd)

### Poor Inlet Protection

- Inlet is inadequately protected
  - Sandbags are torn and are no longer effective





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## Storm Drain Inlet Protection (cont'd)

### Another Example

- Effective for dry debris (leaves or trash)
- Ineffective for fine sediments

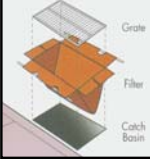




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## Storm Drain Inlet Protection (cont'd)

### Storm Drain Inlet Filters

- Use silt sacks only as a redundant safety feature
- Never use as a primary sediment control measure
  - Incapable of trapping fine sediment


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## Storm Drain Inlet Protection (cont'd)

### Storm Drain Inlet Filters

Silt sacks must be routinely inspected and maintained

- Empty when one-third full
- Properly dispose of accumulated sediment
- Clean, reuse or replace as necessary




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## Storm Drain Inlet Protection (cont'd)

### Inlet Protection Considerations


- Requires frequent maintenance to remove sediments
- Use only when ponding will not encroach into traffic or onto erodible surfaces and slopes
- During high flow conditions:
  - Sediment removal becomes more difficult
  - Use other on-site sediment trapping techniques in conjunction with inlet protection
- Never use filter fabric to cover the inlet grate

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## Storm Drain Inlet Protection (cont'd)

### Inspection and Maintenance

- Stabilize all bare areas around the inlet
- Properly dispose of accumulated sediment
- Inspect devices before/after rainfall events, and weekly throughout the rainy season
- Remove all devices within 30 days after site is stabilized or when no longer required

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## Street Sweeping Debris

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## A. Sweeping Time and Frequency

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- Define program and set priorities for sweeping frequency.
- Establish and maintain a consistent schedule.
- Sweep prior to start of wet season.
- Evaluate sweeping program effectiveness.
- Track miles swept during cleaning.




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## B. Equipment Operation and Selection

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- Operate at specified speed and in accordance with manufacturer's recommendations.
- Maintain equipment in good condition.
- Inspect vehicles for worn seals.
- Do not overload vehicles.
- Use most efficient sweepers in high pollutant load areas.


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## C. Other Measures To Improve Efficiency

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- Encourage voluntary relocation of parked vehicles.
- Use additional methods in areas with large accumulations of leaves or yard waste.
- Note trees or other obstructions which interfere with cleaning.
  - Notify supervisor
- Do not sweep roads without curbs and gutters.





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## D. Management of Debris

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- Store debris **only** in designated temporary storage sites. **No storage on open ground!**
- Cover all debris with tarps.
- Do not store debris within 100 feet of catch basins, creeks or sensitive habitats.
- Protect catch basins adjacent to temporary debris piles.




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## D. Management of Debris (cont'd)

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- Keep debris storage to a minimum during the wet season.
- Dispose of debris **only** at approved disposal sites.
- Consider using several temporary storage sites.
- Clean sweepers in approved areas. **Never** rinse or wash sweepers in the field.
- Dewater saturated materials **only** in approved areas.
- Drain liquids to sanitary sewer or allow them to evaporate.

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### E. Street Cleaning and Flushing


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**NO FLUSHING!!**



**ONLY USE DRY METHODS!!!**

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### Patching, Resurfacing, and Surface Sealing

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### Patching, Resurfacing, and Surface Sealing (cont'd)

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- Follow spill control and clean-up procedures.
- Schedule activities during dry weather.
- Before working, check all equipment shut-out valves.
- Preheat, transfer or load hot bituminous material away from drainage systems or watercourses.

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### Patching, Resurfacing, and Surface Sealing (cont'd)

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- Stockpile materials away from streets, gutter areas, storm drain inlets or watercourses.
- During wet weather, cover stockpiles with plastic tarps.
- Cover and seal nearby storm drain inlets and manholes before applying seal coat, slurry seal, etc.
  - Leave covers in place until job is complete and all water (from emulsified oil sealants) has drained or evaporated.
  - Clean (and properly dispose) any collected materials from covered manholes and drains.

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### Patching, Resurfacing, and Surface Sealing (cont'd)

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- Prevent excess material from exposed aggregate concrete (or similar treatments) from entering streets or storm drain inlets.
  - Designate an area for clean-up and proper disposal of excess materials.
- Use only as much water as necessary for dust control.

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### Patching, Resurfacing, and Surface Sealing (cont'd)

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- Sweep up as much excess material as possible and properly dispose.
- **Only** wash down streets if runoff is controlled or contained.
- Catch drips from paving equipment not in use.
  - Dispose of collected material and absorbents properly.
- After completion, remove temporary stockpiles (asphalt materials, sand, etc.) and other materials.

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## Patching, Resurfacing, and Surface Sealing (cont'd)

- If it rains unexpectedly, take appropriate action to prevent pollution of stormwater runoff.
  - Suspend all seal coat, tack coat, fog seal, etc. operations for the day.
- In dry weather, be prepared to quickly clean-up runs in coating.

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## Patching, Resurfacing, and Surface Sealing (cont'd)

### Chip Seal

- Cover or dike drain inlets.
- Sweep up loose aggregate with sweeper.
- After chip seal, sweep twice.
- Check drain inlets for chip seal debris.
  - Clean if necessary.
- Vactor drain inlets after final sweep.

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## Saw-cutting and Grinding

- Use as little water as possible.
- Block or place berms around nearby storm drain inlets or around work area.
- Confine slurry and sediment to the immediate work area.
- Remove saw-cut slurry. Use shovel, vacuum or sweep (when dry).



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## Irrigation Practices



- Inspect irrigation systems regularly.
- Make any needed repairs promptly.
- Shut off water source until repairs are made.
- To reduce sprinkler runoff, adjust sprinklers to apply the correct amount of water.

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## Irrigation Practices (cont'd)

- Prevent eroded soil (as a result of a line break) from entering the drainage system.
- After digging out a line, return all soil to the hole and compact properly.
- When bailing out muddy water, **do not** pour into the storm drain inlet or curb.
- Pour muddy water onto landscaping.

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## Vegetation Controls

### General Practices

- Check equipment for chemical, oil, or fuel leaks.
  - If necessary, make repairs before leaving for the job site.
- Fuel equipment only at Corp yards or service stations.

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## Vegetation Controls (cont'd)

### Pesticide Usage and Pest Management

- Follow all federal, state, and local laws and regulations.
- Avoid application of pesticides if rain is expected.
- Do not mix or load pesticides near storm drain inlets, culverts or watercourse.
- Rinse or sweep spilled chemicals (on pavement) to landscaping.



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## Vegetation Controls (cont'd)

### Pesticide Usage and Pest Management

- Use the least toxic pesticide and/or herbicide.
- Apply pesticides at the appropriate time.
- Only mix and apply the amount of chemical required for treatment.
- Clean spray equipment at the Corp yard, not in the field.

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## Vegetation Controls (cont'd)

### Pesticide Usage and Pest Management

- Consider employing integrated pest management methods.
- Avoid using copper-based pesticides.



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## Vegetation Controls (cont'd)

### Fertilizer Usage

- Avoid application of fertilizer if rain is expected.
- Consider applying municipally-generated compost in lieu of chemical fertilizers.
- Confine fertilizer to the targeted area.
- Remove fertilizer accidentally applied to paved surfaces.

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## Signing (Legends) and Striping



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## Signing (Legends) and Striping

- Inspect vehicles and equipment before and after work.
- Keep spill containment, clean-up materials and spill response plan on vehicles.
- Follow spill control and clean up procedures.
- Contain, clean up and properly dispose wastes in accordance with MSDS.

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## Signing (Legends) and Striping (cont'd)

- Handle paint and hot thermoplastic away from drainage systems or watercourses.
  - Load paint products at the Corp yard.
- Wash vehicles, equipment and stencils only at Corp yard.
  - Never rinse or wash in the field.
  - Discharge washwater to sanitary sewer.
- Place thermoplastic grindings into plastic bags.
  - Yellow thermoplastic grindings may be hazardous for lead.

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## Fuel Dispensing Areas



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## Fuel Dispensing Areas (cont'd)

- Conduct fueling only over concrete or asphalt with sealant.
- Follow spill response plan. Contain fuel overflows and spills using dry methods.
- Clean up spills immediately!
- Never wash down fueling area with water.



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## Fuel Dispensing Areas (cont'd)

- Inspect fueling area daily for leaks and spills.
- Properly dispose of non-recyclable wastes and spent absorbents.
- Do not "top off" or overfill fuel tanks.
- Annually inspect and clean storm drain inlets and catch basins within yard.

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## Fleet Maintenance/Vehicle Parking Areas



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## Fleet Maintenance/Vehicle Parking Areas (cont'd)

- Perform routine inspections of vehicles and parking areas.
- Repair vehicles with significant leaks.
- Use drip pans where appropriate.
- Keep parking area clean.
  - Periodically dry sweep.
- Change oil and other fluids in designated area.

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## Vehicle/Equipment Washing



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## Vehicle/Equipment Washing (cont'd)

- Wash vehicles/equipment **only** on designated wash pad areas.
  - Process wastewater is not permitted to enter the storm drain system!
- Wash water must be discharged to sanitary sewer.
- Consider washing vehicles/equipment at commercial vehicle washing facility.
- Only use wash pads for washing vehicles/ equipment.

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## Chemical Usage and Storage



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## Chemical Usage and Storage (cont'd)

- Store paint and other chemicals in an approved, covered containment area.
  - Prevent discharges to the storm drain system.
- Store hazardous materials in accordance with federal, state and local requirements.
- Follow spill response plan. Clean up spills or leaks **immediately** using dry methods.
- Keep spill containment and clean-up materials within storage areas.

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## Chemical Usage and Storage (cont'd)

- Label all hazardous materials and wastes.
- Segregate incompatible chemicals.
- Inspect containers regularly for damage or leaks.
- Minimize the use of hazardous materials.
- Properly manage and dispose of hazardous wastes.

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## Conclusion

- **Nothing but storm water is discharged to the storm drain system!**
- Protect storm drain inlets, creeks and the Bay.
- Clean-up spills promptly!
  - Ask for assistance!
  - Record spills and report the big ones.
- If materials enter catch basin, clean it out!
- Cover and contain debris.



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