



Standard Operating Procedure for Inspection & Maintenance of Stormwater Infrastructure

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Purpose

The purpose of this "Standard Operating Procedure" (SOP) is to set forth the process by which stormwater infrastructure is inspected and maintained in accordance with sound pollution prevention & good housekeeping practices for municipal operations.

Storm Infrastructure – Includes catch basins/inlets, pollution control manholes, vaults, detention tanks, stormwater quality facilities, pipes, and ditches.

Applicable Employees - The SOP applies to all Wastewater/Storm (WW/STM) Division team members.

Catch Basins/Inlets –

- Frequency - Inspection & cleaning frequency = 33% of all City owned catch basins/inlets per year.
- Labor - 2 FTE, more if traffic control is needed.
- Vehicles & Equipment – Correct PPE, (1) 2yd dump, traffic control devices as needed, (2) clam shovels, (2) 5- gal buckets. (1) Vaccon may be needed for deep CBs/inlets for CBs/inlets with heavy debris.
- Materials - storm decals & stenciling supplies.
- Process
 - 1) Stormwater Manager identifies stormwater basins for catch basin/inlet inspection & cleaning and provides maps to cleaning crews.
 - 2) Cleaning crew pros catch basins/inlets to be cleaned if sediment is greater than 4" deep, CB/inlet is cleaned. Decals or stencils are applied if needed.
 - 3) CBs/inlets over 5' deep or with more than 18" of debris are identified for Vaccon cleaning.
 - 4) CB debris is dumped at the end of each day in bunker and hauled off by an approved hauler when the bunker is full.
 - 5) Work orders are completed each day tracking CBs/inlets cleaned, labor, vehicles, equipment, decals/stencils applied, and quantity debris removed are tracked.
 - 6) Cleaning crews are asked to report any pollution concerns such as oil, pet waste, paint, concrete, etc.
 - 7) Priority Grates – The City has list of priority grates that are inspected and cleared on an as-needed basis during leaf season and after heavy rain events.

Pollution Control Manholes –

- Frequency - Inspection & cleaning frequency = 50% of all City owned pollution control MHs per year.
- Labor - 2 FTE, more if traffic control is needed.

- Vehicles & Equipment – Correct PPE, (1) pick up, traffic control devices as needed, (1) 15' probe, (1) pool skimmer, bags for trash, (1) Vaccon will be needed for deep cleaning.
- Materials – bags for trash
- Process
 - 1) Stormwater Manager identifies Pollution Control Manholes, (PCMH), for inspection & cleaning and provides maps to cleaning crews.
 - 2) Cleaning crew remove floatable trash from PCMH with pool skimmer.
 - 3) Cleaning crew probs PCMHs to be cleaned and if greater than 12" deep, PCMH is written for cleaning with the Vaccon.
 - 4) Vaccon Crew deep clean PCMHs with Vaccon.
 - 5) PCMH debris is dumped at the end of each day in bunker and hauled off by an approved hauler when the bunker is full.
 - 6) Work orders are completed each day tracking PCMHs inspected & cleaned, labor, vehicles, equipment, and quantity debris removed are tracked.
 - 7) Cleaning crews are asked to report any pollution concerns such as oil, pet waste, paint, concrete, etc.

Detention Pipes & Vaults –

- Frequency - Inspection & cleaning frequency = 50% of all City owned detention pipes & vaults per year.
- Labor - 2 FTE, more if traffic control is needed.
- Vehicles & Equipment – Correct PPE, (1) TV Truck w/pole camera, traffic control devices as needed, (1) Vaccon if detention pipe/vault cleaning is needed.
- Materials – Replacement cannister filters if needed.
- Process
 - 1) Stormwater Manager identifies detention pipes/vaults for inspection & cleaning and provides maps to cleaning crews.
 - 2) Inspection crew uses TV Truck & pole camera to visually inspect detention pipes & vaults.
 - 3) If sediment greater than 12" deep, is observed detention pipe/vault is written for cleaning with the Vaccon.
 - 4) Vaults – if a scum line is observed above the canisters, canisters need to be replaced in accordance with manufacturer recommendations & process.
 - 5) Detention pipe/ vault debris is dumped at the end of each day in bunker and hauled off by an approved hauler when the bunker is full.
 - 6) Work orders are completed each day tracking detention pipes/vaults inspected & cleaned, labor, vehicles, equipment, and quantity debris removed are tracked.
 - 7) Cleaning crews are asked to report any pollution concerns such as oil, pet waste, paint, concrete, etc.

Stormwater Quality Facilities, (includes ponds, swales, roadside planters) –

- Frequency - Inspection & maintenance frequency = all stormwater quality facilities, (SWQFs), are inspected monthly and after each heavy rain event. Vegetation maintenance is performed on a more frequent basis during the growing season.
- Labor – In-house labor 1 or 2 FTE & contract landscape labor.

- Vehicles & Equipment – Correct PPE, (1) 2yd dump, appropriate hand tools. Landscape contractor provides their own landscape maintenance equipment.
- Materials – None
- Process
 - 1) Stormwater Manager provides list & maps of SWQFs for inspection & maintenance to in-house staff.
 - 2) In-house inspection staff inspects, grates, flow control manholes, vegetation at each site to ensure they are functioning correctly and within landscape maintenance contract specifications.
 - 3) In-house inspection staff performs grate clearing and trash pick up as needed. They also develop lists and forward to the landscape maintenance contractor if additional work is needed.
 - 4) Work orders are completed each day SWQFs inspected & maintained tracking labor, vehicles, equipment, and quantity debris removed are tracked.
 - 5) Inspection staff are asked to report any pollution concerns such as oil, pet waste, paint, yard debris, etc.

Stormwater Pipes –

- Frequency - Inspection & cleaning frequency = 100% of pipe system video/visually inspected every 6 years. Pipes cleaned on an as needed basis based on inspections.
- Labor - 2 FTE, more if traffic control is needed.
- Vehicles & Equipment – Correct PPE, (1) TV Truck, traffic control devices as needed, (1) Vaccon if for pipe cleaning is needed.
- Materials – None
- Process
 - 1) Stormwater Manager identifies stormwater basins for video inspection and provides maps to video crews.
 - 2) Video crew uses TV Truck & pipeline video camera to video inspect stormwater pipes, noting locations of all defects, laterals, etc.
 - 3) If stormwater pipe cannot be video inspected due to excessive debris, roots, etc., the pipe is listed for cleaning with Vaccon and reinspected after cleaning is performed.
 - 4) Defects such as cracks, breaks, offset joints, etc., are noted and prioritized for repairs. Repairs are then scheduled on a priority basis.
 - 5) Work orders are completed each day tracking stormwater pipes inspected & cleaned along with total footage. Labor, vehicles, equipment, and quantity.
 - 6) Cleaning crews are asked to report any pollution concerns such as cross connections to sanitary, oil, pet waste, paint, concrete, etc.

Ditches – Vegetation maintenance of most residential ditches are the responsibility of the abutting property owner. Regrading & reshaping ditched is the responsibility of the City. The City in-house staff and landscape contractor perform vegetation maintenance of numerous regional ditches and ditches over 36" in depth.

- Frequency - Inspection & maintenance frequency = Ditch inspection & maintenance is performed on a as needed basis during the growing season & leaf seasons as well as after heavy rain events. Regrading & reshaping ditches are performed on an as needed basis based on inspections.
- Labor – In-house labor 1 or 2 FTE & contract landscape labor.
- Vehicles & Equipment – Correct PPE, (1) 2yd dump, appropriate hand tools. Landscape contractor provides their own landscape maintenance equipment.

- Materials – None
- Process
 - 1) Stormwater Manager provides list & maps of regional ditches for inspection & maintenance to in-house staff.
 - 2) In-house inspection staff inspects, ditches, to ensure they are functioning correctly and within landscape maintenance contract specifications.
 - 3) In-house inspection staff performs trash pickup as needed. They also develop lists and forward to the landscape maintenance contractor if additional work is needed.
 - 4) Work orders are completed each day SWQFs inspected & maintained tracking labor, vehicles, equipment.
 - 5) Inspection staff are asked to report any pollution concerns such as oil, pet waste, paint, yard debris, etc.