CITY OF OAKLAND

AGENDA REPORT

TO: Sabrina B. Landreth
City Administrator

FROM: Christine Daniel
Interim Director, OPW

SUBJECT: Follow-up Report on Stormwater Trash Load Reduction Compliance

DATE: May 16, 2017

City Administrator Approval Date: 5/18/17

RECOMMENDATION

Staff Recommends That The City Council Receive An Informational Report On The Status Of The City's Compliance With The Municipal Regional Stormwater Permit's July 1, 2017 Deadline For A 70% Reduction In Stormwater Drain Trash And Recommendations For Achieving That Requirement.

REASON FOR SUPPLEMENTAL REPORT

Receive A Follow-up Informational Report On The Status Of The City's Compliance With The Municipal Regional Stormwater Permit's July 1, 2017 Deadline For A 70% Reduction In Stormwater Drain Trash And Recommendations For Achieving That Requirement.

On April 25, 2017 Oakland Public Works (OPW) provided the Public Works Committee (PWC) an informational report on Oakland's compliance with clean water regulations regarding trash load reductions in the City of Oakland storm drain system. The report informed the PWC that the City may have difficulty meeting the 2017 trash load reduction requirement. At the PWC staff was directed to return with a follow-up report to address consequences if the City is not in compliance, what is actively being done to achieve compliance, and what is the timeline to increase required numbers. This report addresses those questions and additional questions provided by Councilmember Kalb via e-mail on April 24, 2017.

BACKGROUND / LEGISLATIVE HISTORY

The City of Oakland is subject to the Regional Water Quality Control Board's (Board) National Pollutant Discharge Elimination System (NPDES) Municipal Regional Permit (MRP). Under the permit, the City must reduce trash and litter entering into the City's municipal storm drain system from 2009 baseline levels. The Trash Load Reduction requirements are:

- 70% by 2017
- 80% by 2019
- 100% by 2022

Item: _____
Public Works Committee
May 23, 2017

General information concerning the City of Oakland's trash load reduction program, including purpose, permit requirements, and compliance status, is available in the City of Oakland's annual report to the Board webpage http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/MRP/2016_AR/Alameda/Oakland_2015-16_MRP_AR.pdf

ANALYSIS AND POLICY ALTERNATIVES

The PWC had the following requests for additional information:

- Consequences if the City is not in compliance.
- What is actively being done to achieve compliance?
- What is our timeline to increase required numbers?
- Additionally, written questions were submitted by Councilmember Kalb's office to staff on April 24 by e-mail.

Consequences of Non-compliance

In general, the Board employs a progressive enforcement policy of notices of violations, abatement orders and fines. Imposition of fines is typically based on either $10,000 per day or up to $10 per gallon of illegal discharge. On May 12, 2017 the Board sent a letter to Oakland reminding the City of compliance obligations and outlining potential enforcement actions. The letter asked that if the City does not meet its compliance obligations that it "include in the Annual Report a description of the non-compliance and a proposed plan that will bring your municipality into compliance in a timely manner. The plan should include the actions, associated schedule, and all other information, as appropriate, demonstrating how you will return to compliance." It also stated that "the plan should indicate how additional resources will be obtained." Finally it states that "The range of potential actions includes enforcement orders, such as Cease and Desist Orders that require permittees to implement specific actions sufficient to achieve the reduction by specified dates, and Time Schedule Orders, which include stipulated penalties for not meeting the implementation requirements specified in the order. Additionally, the Board may consider Administrative Civil Liability orders for monetary penalties. In accordance with the Water Boards' statewide enforcement policy, the Board must impose penalties that, at a minimum, recover the cost savings of the avoided actions that would have been needed to achieve compliance." See copy of the Board letter in ***Attachment A***.

Active Compliance Efforts and Timelines for Increasing Trash Reduction

The total trash load reduction on June 30, 2016 was 44.6%. An updated trash load reduction for the City of Oakland is unknown until full calculations are completed this summer in preparation of the September 30, 2017 annual report to the Board.

However, staff estimates that an additional 20% credit may be able to be achieved in the near term as follows: Preliminary data collection and estimates indicate that the City may be able to obtain up to 15% of additional trash reduction credit for projects and programs that have been fully implemented in the last year or are fully funded and in progress of being implemented. These

include additional credit for the expanded countywide bag ban and for installed and soon to be installed full trash capture units. Up to 3-5% of credit may be gained if additional full trash capture devices are added along International Blvd. as part of the Bus Rapid Transit (BRT) project. The cost of them is approximately $180,000 and staff will propose that this be allocated from Measure BB funding.

City of Oakland existing and proposed programs and projects to achieve trash reduction goals include:

1. Direct Discharge Planning
2. Full Trash Capture
3. Street Sweeping
4. Other:
   - Source Reduction
   - Creek and Shoreline Clean-up
   - Business Improvement Districts

These will each be addressed specifically below.

1. Direct Discharge Plan

A Direct Discharge Plan allows cities to claim up to 15% credit for implementing a comprehensive plan for control of direct discharges of trash to receiving waters. The plan is submitted for approval to the Board no later than February 1 of the first year in which the offset will be reported. To date, only one City subject to the MRP has an approved Direct Discharge Plan. Staff met with the Board staff in March to begin development of a Direct Discharge Plan. The City's illegal dumping and homeless encampment abatement programs will be the central features in a proposed Direct Discharge Plan to be submitted to the Board in January 2018 for implementation in FY 2018/19.

Oakland Public Works spends approximately $5.5 million annually on illegal dumping and homeless camp abatement. Crews remove illegally dumped materials and debris associated with homeless encampments seven days a week and have more than doubled the amount of trash collected in the last five years. However, illegal dumping and homeless encampment cleanup efforts are in need of adjustments in order to better meet regulatory mandates while also balancing existing resources and the illegal dumping program goals of serving all the needs of Oakland.

Towards those efforts Watershed staff is working closely with Keep Oakland Clean and Beautiful staff and the City Administrator's office to develop and implement adjustments to the illegal dumping/homeless camp abatement program that may include:

- Evaluation of a waste characterization study to better understand the sources trash and litter as a component of illegally dumped materials.
- Improved procedures related to assigning service requests and operational practices.
- Prioritization of cleanups to shoreline areas and areas most likely to contribute to trash and litter in the storm drain system and waterways.

- The addition of new street litter containers in targeted shoreline areas.
- Increased effectiveness of outreach, education and enforcement efforts.
- Development of new Board accepted methodologies for tracking trash reduction efforts related to illegal dumping and homeless camp abatement efforts.
- Finally, as resources permit, the addition of two additional illegal dumping crews in East and West Oakland at a cost of $1.6 million the first year and $940,000 in subsequent years.

2. Full trash capture devices

Full trash capture devices are devices installed in storm drain infrastructure that collect trash prior to entering nearby waterways. The advantages of full trash capture devices are that they are a very effective method for preventing trash from entering waterways and they ensure full trash reduction credit for the area treated. The disadvantages are that full trash capture devices can be expensive and are unseen underground solutions that do not address cleaner streets and quality of life issues. The two main types of full trash capture devices are Hydrodynamic Separators (HDS) and Connector Pipe Screens (CPS).

An HDS is a large underground unit installed in-line or off-line of a collector storm drain with a large basket that capture the trash as stormwater flows through the storm drain system. An HDS today can cost between $400,000 to over a million dollars each to install and can treat from 40 to 400 acres. HDS have high capital costs and are challenging to find suitable installation locations due to utility conflicts, size of device required, feasibility challenges and difficulty targeting only high trash generating areas (see ***Attachment B*** City of Oakland Trash Generation Map). Once installed, they are sturdy and long lasting with low annual maintenance costs per acre treated.

A CPS is a screen installed in a storm drain inlet that traps trash in the inlet and prevents it from entering the storm drain. A CPS today typically costs about $2,700 to install and treats an area of one half to 3 acres. CPS typically cost $130 per cleaning and need to be cleaned one to four times per year. CPS has low installation costs, can precisely target high trash areas but can have costly maintenance costs that add up over time.

To help prioritize location and type of trash capture device, staff use collected infrastructure data and feasibility analysis in combination with evaluating the drainage area. ***Attachment C*** shows data collection information maps and analysis for HDS units. ***Attachment D*** shows the City's trash management areas that help determine locations for both HDS and CPS devices. Additionally, staff has implemented an internal Standard Operating Procedure requiring the inclusion of full trash capture devices for transportation capital projects in high and very high trash loading areas.

The City has installed 12 HDS and 15 CPS units resulting in a credit of almost 10% at a cost of $3.6 million dollars (see ***Attachment E*** - City of Oakland Full Trash Capture Map). Two new HDS devices are 90% designed, fully funded and scheduled to be installed in 2018 for a total additional trash reduction credit of almost 3%. The City has installed at least 67 new CPS units and is the process of installing 153 more for an additional trash reduction credit of 10%. This includes installation of 106 CPS units in conjunction with the BRT corridor project to be funded by AC

Transit. Additional full trash capture projects are being evaluated by weighing various options based on further feasibility analysis, opportunities analysis, and cost comparisons.

To date, all full trash capture devices have been funded through Measure DD, grants and development agreements. The cost to complete full trash capture throughout the City is estimated to be between at least $10,000,000, however, there is currently no funding source identified for the magnitude of the cost. Staff intends to return to Council to request full trash capture funding for specific projects as resources allow. Staff will also continue to leverage existing bond funding, transportation funding, existing capital projects, grants and private development projects.

3. Street Sweeping

The most widespread program the City uses to remove trash is its street sweeping program. The City has posted signs on all routes, has a rigorous enforcement program, has increased street sweeping in high and very high trash areas and spends more than $6.6 million dollars on implementation annually. However, because of the difficulty of using visual trash assessments for monitoring effectiveness of street sweeping and because the street sweeping program was in place prior to the adoption of the MRP trash reduction regulation the City receives no trash reduction credit for this program. Staff has initiated efforts to study options for improving and reconfiguring the street sweeping program to both increase efficacy of street sweeping to remove trash and to obtain credit for the program. Options include, the possible addition of wing gate auto-retractable inlet screens to prevent trash from being pushed into inlets by street sweeping, adjusting routes to more frequently and effectively target high trash areas and increasing equipment effectiveness. Staff anticipates that current underway auto-retractable studies will be complete in 2018 and that other studies could be completed over the next year. Additionally, staff plans to collaborate with Board staff to develop a trash reduction credit methodology in addition to visual assessments for street sweeping if changes are implemented.

4. Other

Source reduction – Currently the City receives 8% credit for its ban on Expanded Polystyrene and through its participation in the countywide ban on plastic bags. The countywide ban on plastic bags has expanded this year resulting in an additional 2% credit for a total 10% trash reduction credit from source reduction. Source reduction credit is capped at 10%.

Creek/shoreline cleanups – Currently the City receives 3.3% reduction credit for Creek/shoreline cleanup efforts mostly through its volunteer programs during Creek to Bay Day and Earth Day. Cities can receive up to 10% trash reduction credit in this category. Staff will explore options for better data tracking, program improvements and expansion opportunities.

Business Improvement District (BID) - Citywide there are ten BIDs providing 6.2% in trash reduction credits. (See ***Attachment F*** - City of Oakland BID map). Currently there is an effort to establish a new BID in Chinatown and Watershed staff will be working with City Administrator staff on other potential opportunities. There is no cap for credit on BIDs.

Summary Matrix

The matrix below summarizes recently implemented projects/programs and potential projects/programs. It also shows preliminary estimated trash reduction credit potential, estimated costs, implementation status, funding status and estimated annual costs. The items in bold are included in the 15% potential trash reduction credit estimate for projects and programs that are either complete or in the process of being implemented. More up to date information will be included in the September 30, 2017 annual deliverables MRP report to the Board.

Programs/Projects to Achieve MRP Trash Reduction Compliance Targets

Type of Program or Project	Location	Potential Reduction Credit*	Status	Estimated Cost*	Funding Status	Estimated Annual Costs
Full Trash Capture Connector Pipe Screen (CPS)	**Bus Rapid Transit (BRT) Corridor**	**5.63%**	**Under Construction**	**$140,000**	**Funded**	**AC Transit will maintain**
	Additional BRT	3 - 5%	Under Construction	$180,000	Proposed FY17/19 CIP	Not yet Determined
	West of Downtown	**0.87%**	**Installed 2016**	**Cost covered by project**	**Funded**	**$7,000 – 9,000**
	14th Avenue from International to 19th	**1.24%**	**Installed 2017**	**Cost covered by project**	**Funded**	**$7,000 – 9,000**
	San Pablo Avenue from 17th Street to Castro Street	**2.09%**	**Installed 2017**	**Cost covered by project**	**Funded**	**$12,000 - $15,000**
	Chinatown CPS	0.87%	Installed 2017	Cost covered by project	Funded	Not yet determined
	Foothill Blvd from Lake Merritt to 64th Ave	3.10%	Feasibility	TBD	unfunded	Not yet determined
100 Additional CPS	Very high trash areas	3 - 5%	Feasibility	$180,000	unfunded	$26,000
800 Additional CPS	Medium, High and Very Trash Areas	Up to 30%	Feasibility	$1,500,000 – $2,000,000	unfunded	$200,000
Full Trash Capture Hydro-Dynamic Separator (HDS)	**18th and Lakeshore**	**0.77%**	**90% design construction 2018**	**$998,000**	**Funded**	**$1,000**
	21st and Harrison	**2.18%**	**90% design construction 2018**	**$ 1,060,000**	**Funded**	**$1,000**
	15th Ave/12th Street	1.80%	Feasibility/ Conceptual	$1,000,000 – $3,000,000	unfunded FY17/19 CIP	$1,000
	23rd Ave/Kennedy	0.59%	Feasibility/ Conceptual	$150,000 - $500,000	unfunded FY17/19 CIP	$1,000
	52nd/Bancroft	0.76%	Feasibility/ Conceptual	$200,000 - $500,000	unfunded FY17/19 CIP	$1,000
	87th Ave/E Street	1.52%	Feasibility/ Conceptual	$600,000 – $2,000 000	unfunded FY17/19 CIP	$1,000
	Embarcadero/Linden Street	0.68%	Feasibility/ Conceptual	$600,000 - $2,000,000	unfunded FY17/19 CIP	$1,000
	Webster/Embarcadero	1.46%	Feasibility/ Conceptual	$600,000 - $2,000,000	unfunded FY17/19 CIP	$1,000
Green	**MacArthur and San**	**0.008%**	**July 2017**	**Built in costs**	**Funded**	**Not yet**

Infrastructure	**Pablo Stormwater Spine**		**Construction**			**determined**
	Oakland green street - Lakeside Harrison	**0.083%**	**under construction**	**Built in costs**	**Funded**	**Not yet determined**
	7th Street Streetscape	**0.14%**	**95 % Design**	**Built in costs**	**Funded**	**Not yet determined**
	17th and San Pablo Green Street	**0.030%**	**July 2017 Construction**	**Built in costs**	**Funded**	**Not yet determined**
	Ettie Street Pump Station Low Impact Development Project	2.81%	30 % Design	TBD	unfunded	Not yet determined
	Oakland green street - Laurel MacArthur	**0.020%**	**95% Design**	**Built in costs**	**Funded**	**Not yet determined**
Source Reduction Expanded plastic bag ban	**Citywide**	**2%**	**Implemented**	**Shared costs countywide**	**Funded**	**Covered by shared cost countywide**
Boom - Proposed (Damon Slough)	Arroyo Viejo and Lion Creek Watershed	1.7%	Initial Stages	$150,000 – $250,000	unfunded	To be maintained by Alameda County
Direct Discharge Program	City-wide (Concentrate Near Creeks & Shoreline)	15%	Complete by February 2018	Redirect existing resources to prioritize waterways	Additional resource needs TBD	Built into existing annual costs of $5,500,000
Enhanced Street Sweeping (Proposed)	North Oakland (TMA 3) High Trash Areas - After Enhanced Sweeping	1.25%	Extra Route Available Extra Sweeper Route Identified & Available (15 miles/day)	Targeting existing "surplus" sweeper	funded	Built into existing annual costs of $6,500,000
	East Oakland (Between Bancroft Avenue and D Street)	1.66%	Extra Route Available	Targeting existing "surplus" sweeper	funded	Built into existing annual costs of $6,500,000
Street sweeping rerouting and management changes	Citywide	5%-15%	2018/2019	Redirect existing resources	funded	Built into existing annual costs of $6,500,000

**Please note - many of these estimates, costs and percentage reduction credit are very preliminary and are used for comparison purposes only.*

Councilmember Kalb Questions:

1. "What is the increased level of staffing necessary to implement an effective and workable Direct Discharge program that achieves the maximum 15% reduction allowable by the permit and what is the associated cost for that effort?"

Currently, staff is coordinating the development of the Direct Discharge Plan using existing staff resources from the Watershed and Stormwater Management Section, Homeless Encampment Task Force, and Keep Oakland Clean and Beautiful. It is unknown if and how much additional resources will be needed until the Direct Discharge Plan is completed. Cost estimates may be compiled during the development of the plan. It is anticipated that there will be some redirection of existing resources for City-wide illegal dumping and homeless encampment abatement programs to areas near waterways and that some additional staff resources may be required for implementation.

2. "How would the additional efforts described on pg. 4 of the (April 25, 2017) staff report be coordinated with the existing illegal dumping and homeless encampment abatement programs?" "Are those programs going to need additional staffing?" "What are the associated costs?"

We will be re-convening an internal working group of City Staff including Maintenance, Keep Oakland Clean and Beautiful, the City Administrator's Office, and Watershed and Stormwater Management. The cost to fund two additional illegal dumping crews in East and West Oakland is $1.6 million the first year and $940,000 in subsequent years.

3. "How many additional large Full Trash Capture Devices must the city construct and install in order to comply?" "What is the cost for building, installing, and maintaining this equipment on an ongoing basis?"

Cost and Credit per HDS unit

HDS units typically cost from $400,000 to over a million dollars and treat 40-400 acres of high and very high trash generating areas. Units that we will be installing this year at 21st and Harrison and 18th and Lakeshore are preliminarily estimated to cost $1.06 million and $998k respectively. This works out to a cost of about $4,000 per acre treated. If the City were to install the equivalent HDS for a 30% reduction credit, the capital costs could be upwards of $10 to $15 million and would have a maintenance cost of about $20,000 per year and $400,000 over 20 years.

Credit per CPS unit

If the City installs 100 CPS in high and very high trash generating areas the City would receive approximately 5% trash reduction credit at a cost of between $150,000 to $270,000 to install and cost about $26,000 annually for maintenance. Maintenance costs over 20 years could be as high as $500,000. The trash reduction credit return diminishes as the highest trash generating areas are covered with inlet screens. If the City installs 800 CPS in medium, high and very high trash generating areas the City would receive approximately 30% trash reduction credit at a cost of $1.5 to $2 million and annual cost of about $200,000 for maintenance. The 20 year maintenance cost could be over $4 million.

4. "Will staff be developing the protocols necessary for on-street illegal dumping and homeless encampment abatement to receive trash reduction credit?"

Yes, the MRP requires that a Direction Discharge Plan include a "description of control actions that will be implemented during the permit term to prevent or reduce direct discharge trash loads in a systematic and comprehensive manner (Section C.10.e.ii.b)" and a "description of how effectiveness of controls will be assessed, including documentation of controls, quantification of trash volume controlled, and assessment of resulting improvements to receiving water conditions (Section C.10.e.ii.d)." The City is coordinating an internal workgroup to determine the actions necessary to reduce trash from illegal dumping activities and homeless encampments and how the City will assess the success of actions and quantify the volume of trash removed.

5. "Can Oakland receive trash reduction credit for Enhanced Street Sweeping if sweeper routes are redeployed to areas with a greater trash burden than current routes?" "Will staff be proposing that these new areas be designated as restricted parking areas to improve street sweeping?" "What are the associated costs of this?"

The City can receive trash reduction credit in areas with enhanced street sweeping when visual trash assessments are able to document a reduction in observable trash on the streets and sidewalks. However, the City has not been able to successfully use visual assessments to demonstrate observable trash reduction in these areas due to the high trash loading in comparison to the infrequency of visual assessment monitoring. The City is exploring the possibility of attaining trash reduction credit for street sweeping when combined with new added measures in high and very high trash load areas, including, installation of inlet and wing gate auto-retractable screens.

Additionally, the City will be looking at ways that enhanced street sweeping and rerouting street sweeping can more accurately targeting high and very high trash loading areas. The City will continue to use parking restrictions as no parking enforcement is essential to the efficiency of the street sweeping program. Currently the City spends $6.5 million on the street sweeping program and cleans 84,000 miles of city streets annually. The goal is to use existing resources to retarget and enhance street sweeping routes to better remove trash.

6. "Do we know what sanctions/penalties are likely to be imposed from the Water Board if we do not meet the requirements by the deadline?"

See ***Attachment A***, letter from the Board, dated May 12, 2017.

COORDINATION

The Office of the City Attorney, Budget Office, and the City Administrator's Office were consulted for the preparation of this report.

SUSTAINABLE OPPORTUNITIES

Economic: The continued efforts to reduce trash and litter will assist in improving the physical appearance of the City of Oakland, which translates directly into attracting and retaining business and promoting civic pride.

Environmental: The continued efforts to reduce trash and litter entering the storm-drain systems will improve the health of our creeks and waterways.

Social Equity: The enhanced efforts of collaboration and partnering between the City of Oakland, our residents and business community improves the quality of life and public safety.

ACTION REQUESTED OF THE CITY COUNCIL

Accept this Informational Report On The Status Of The City's Compliance With The Municipal Regional Stormwater Permit's July 1, 2017 Deadline For A 70% Reduction In Stormwater Drain Trash And Recommendations For Achieving That Requirement.

For questions regarding this report, please contact Lesley Estes, Watershed Manager, at (510) 238-7431.

Respectfully submitted,

Christine Daniel,
Interim Public Works Director

Prepared by:
Lesley Estes, Watershed Manager

Reviewed by:
Danny Lau, P.E., Assistant Director

Attachments:

A - Water Board letter
B - Trash Generation Map
C - HDS siting analysis Maps
D - Trash Management Area Maps
E - Full Trash Capture Map
F - City of Oakland BID map