



# STORMWATER CREDIT PROGRAM

**City of Anaheim**  
**Public Works Department**

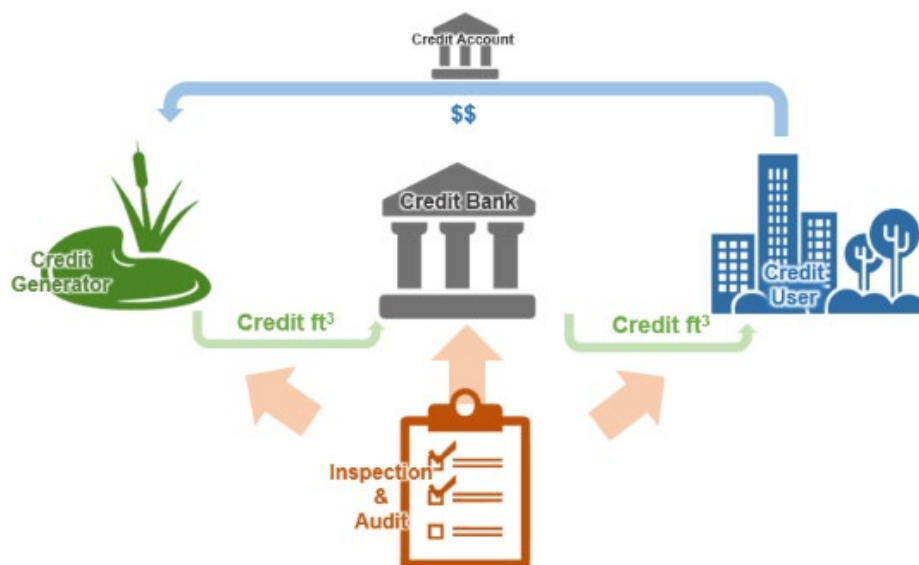


# EXECUTIVE SUMMARY

## Introduction

The City of Anaheim’s Stormwater Credit Program (Credit Program) establishes the mechanisms, tracking and controls that allow City-owned regional retention projects (Credit Generators) to generate “Credits” that can be purchased, by “New and Re-development” projects, to satisfy the BMP requirements of the New Development Program. The Credit Program provides the following benefits:

- *Incentivizes Stormwater Treatment and Water Supply Projects.* Incentivizes implementation of new regional stormwater retention (capture, treatment, and infiltration) and water supply projects through the generation and sale of Credits.
- *Accelerates Water Quality Improvement.* Accelerates water quality, watershed improvement, and improved hydrologic function versus on-site best management practices (BMPs) at redevelopment projects.
- *Improves BMP Effectiveness.* Improves effectiveness and efficiency of BMPs by replacing on-site privately managed flow-through treatment systems with publicly managed regional stormwater retention that provides better pollutant removal, ensures far more rigorous and closely monitored BMPs, reduces the number of BMPs requiring compliance oversight including design review, inspection, and maintenance confirmation, and provides more cost-effective maintenance.
- *Improves Water Supply.* Promotes capture of stormwater as a resource through regional stormwater capture, groundwater recharge, reducing local hydrologic/ flood control risks, and leveraging multi-source funding for implementation of multi-benefit projects.
- *Complies with MS4 Permit.* Complies with current stormwater regulations including the MS4 Permit and Orange County’s Model Water Quality Management Plan (WQMP) and aligns with State and County integrated water management approaches.



## Credit Program Eligibility

City-owned regional retention projects that meet eligibility requirements of the Credit Program can generate Credits (Credit Generators) that are available for acquisition by eligible New and Re-development projects (Credit Users) located within the same watershed. The Credit Program Watersheds are defined as the watersheds within City boundaries, specifically the Santa Ana River Watershed, the Anaheim Bay-Huntington Harbour Watershed, and the San Gabriel-Coyote Creek Watershed.

Only City-owned projects are eligible to generate Credits. To use Credits, projects must:

- Show that on-site stormwater capture and retention is infeasible per Orange County's Technical Guidance Document (TGD).
- Prepare a Water Quality Management Plan (WQMP) and implement appropriate on-site source control and site design BMPs.

## Net Watershed Benefit

To ensure there is net water quality benefit to watersheds where Credits are generated and used, the City has performed a comprehensive pollutant load analysis, developed Pollutant Load Multipliers (PLMs), and incorporated several safety/resiliency factors. Factors are built into the Credit Program to ensure more pollutants of concern are removed than would have otherwise been treated on-site by Credit Users. A Stormwater Credit Generation Report (SCGR) will be prepared by the City for each Credit Generator that shows the hydrologic studies completed to measure the amount of runoff treated and the reductions in available Credits to account for uncertainties and factors of safety. Final verification that the Credit Generator was constructed in accordance with design plans and is operational will take place prior to generating Credits for use. Credit Users will be required to purchase Credits equal to or greater than the portion of the Design Control Volume (DCV) they are not providing treatment for onsite. The amount of Credits to be purchased by a Credit User is based on a Pollutant Load Multiplier (PLM) that accounts for differences in pollutants generated by a Credit User land use and pollutants captured by a Credit Generator.

## Program Administration and Oversight

The City has incorporated a rigorous and transparent process to provide consistent and effective administration and oversight of the Credit Program, including the review, approval, O&M, and verification of both Credit Generators and Credit Users. For Credit Generators, Credit generation and O&M information will be documented in the SCGR and for Credit Users, a modified WQMP will be completed to document Credit use. The City will perform periodic inspections to confirm Credit Generators are in place and functional and will also inspect Credit Users to confirm source control and site design BMPs are in place and operational. Periodic inspections will evaluate if a Credit Generator is performing in accordance with the design, and Credit adjustments will be made, as necessary, should inspections show diminished capacity.

A Credit Bank Tracking Data Management System will be used to manage and account for the Credits generated and used within the City, including tracking of Credit adjustments. The Credit Bank will consist of a Credit Bank Tracking Data Management System that will be used to track information regarding the Credit Generator, the Credits generated by the project and available for use, the applicable watershed, and an accounting of Credit Users within the watershed. The City will perform annual audits to review important program implementation elements (i.e., program eligibility, inspections, O&M), Credit tracking, and financial components such as Credit pricing and fund disbursement. The City will use funds generated through the Credit Program for ongoing O&M costs and to supplement future regional stormwater retention projects.

# Contents

<b>Contents</b> .....	<b>i</b>
<b>Glossary of Key Terms</b> .....	<b>iii</b>
<b>1 Introduction</b> .....	<b>1</b>
1.1 Pilot Phase.....	1
1.2 Credit Program Overview.....	1
1.3 Regulatory Framework.....	2
1.4 Program Need.....	5
1.5 Process for Credit Program Development/Establishment.....	6
1.6 Program Administration and Oversight.....	6
1.7 Use and Availability of the Document.....	7
<b>2 Eligibility Requirements</b> .....	<b>8</b>
2.1 Credit Program Watersheds.....	8
2.2 Credit Generator Specifications.....	10
2.3 Stormwater Credit Generation Report.....	10
2.4 Credit Adjustments.....	10
2.4.1 Funding Source Credit Adjustments.....	11
2.4.2 Credit Reduction.....	12
2.4.3 Credit Retention.....	12
2.4.4 Future PDPs Constructed Credit Generator Watershed.....	13
2.5 Credit User Specifications.....	14
2.6 Credit Generation and Use Scenarios.....	16
<b>3 Credit Generator and User Oversight</b> .....	<b>18</b>
3.1 Review, Approval, O&M, and Verification of Credit Generator.....	18
3.2 Verification Monitoring.....	19
3.3 Revocation of Credits.....	20
3.4 Transfer of Ownership for Credit Generators.....	20
<b>4 Credit Use &amp; Tracking</b> .....	<b>21</b>
4.1 Pricing and Selling of Credits.....	21
4.2 Timing for Use of Credits.....	21
4.3 Credit Bank.....	21
4.4 Reporting.....	22
4.5 Enforcement.....	22
<b>5 Tracking Tools</b> .....	<b>23</b>
<b>6 Program Training, Coordination, and Integration</b> .....	<b>23</b>
6.1 Program Training and Outreach.....	23
6.2 Program Coordination.....	23
6.3 Program Integration.....	23
<b>7 References</b> .....	<b>25</b>

**Tables**

Table 1: Credit Program Roles and Responsibilities ..... 7

**Figures**

Figure 1: Credit Program Overview ..... 2  
Figure 2: Treated Area of Potential Regional versus Traditional Development Projects ..... 6  
Figure 3: Credit Program Watershed Delineation and Receiving Water Impairments ..... 9  
Figure 4: Credit Generator Flow Chart ..... 10  
Figure 5: Initial Credit Adjustment ..... 11  
Figure 6: Watershed Credit Adjustment for Diminished Capacity ..... 13  
Figure 7: Potential Future PDP Adjustment ..... 14  
Figure 8: Credit User Flow Chart ..... 15  
Figure 9: Depiction of Credit Generator and Credit User within Watershed ..... 16  
Figure 10: Review, Approval, and Oversight Inspection Flow Chart ..... 19

# Glossary of Key Terms

The following is provided to explain the intent and meaning of various key terms used in the Stormwater Credit Program (Credit Program) document.

**303(d) List of Impaired Waters:** The term "303(d) list" or "list" is short for a state's list of impaired and threatened waters (e.g., stream/river segments, lakes). States are required to submit their list for USEPA approval every two years. For each waterbody on the list, the state identifies the pollutant causing the impairment, when known. In addition, the state assigns a priority for development of Total Maximum Daily Loads (TMDL) based on the severity of the pollution and the sensitivity of the uses to be made of the waters, among other factors (40 C.F.R. §130.7(b)(4)).

**BMP Cost:** The Best Management Practice (BMP) Cost represents the costs for designing, constructing, and maintaining the credit generating BMP (Credit Generator) and is the baseline for determining the Credit Price.

**City-Owned Project:** A City-Owned Project is a project partially or entirely in the City's Right-of-Way or on a City-owned property. A City-Owned Project may partially reside on other Public Agency properties (e.g., Orange County Water District, Orange County Sanitation District, School District, Orange County Public Works, etc.) or utilize their infrastructure, provided the City has long-term agreements for portions of the project on other Agency property/infrastructure, including long term management rights to assure operational requirements of the BMP are met (as documented in the SCGR, verified during the verification inspections, and tracked in the periodic O&M Inspections), and the project is undertaken, managed and monitored by the City as the lead agency with enjoys full cooperation/participation by other public agency(ies).

**Stormwater Credit (Credit):** A Credit is the unit of measure of this program and is expressed as a unit of volume (in cubic feet, cf) and is generated by a Credit Generator for use by Credit Users within the same watershed. To generate or use Credits, a project must meet defined Credit Generator or Credit User eligibility requirements as further elaborated in Section 2.

**Credit Account:** The Credit Account is the financial mechanism established by the City to receive, hold, and disburse funds associated with the purchase of Credits by a Credit User from a Credit Generator. Accounts may be previously established accounts associated with a Credit Generator (i.e., a specific Department within the City) or an account established to receive funds dedicated to the ongoing O&M of a Credit Generator.

**Credit Bank:** The Credit Bank is the term established for the process to hold and track Credits generated and used through the Credit Program. The Credit Bank "holds" Credits generated by Credit Generators for each watershed and tracks all Credit transactions, including established Credit prices, associated with the Credit Program. For the purposes of the City's Credit Program, a Credit Bank Tracking Data Management System will be used as the tracking mechanism for credit related information.

**Credit Bank Tracking Data Management System:** A spreadsheet or database that tracks the Credits generated and sold, credit adjustments, credit price, and/or other associated components of the Credit Program.

**Credit Generator:** A City-Owned Project that was constructed, operational, and verified for the purpose of generating Credits (SCGR prepared as part of the design process for the project) subsequent to the approval of the Stormwater Credit Program by the Santa Ana Water Board Executive Officer (EO) and maintains the Credits through monitoring, operation, and maintenance. City-owned projects eligible to be Credit Generators include New Credit Generator Projects, Retrofit Projects, and Enhanced Priority Development Projects, but do not include Existing Projects. Credit Generators criteria include the preparation and approval by the City of a draft and final SCGR in conjunction with the design and construction of the project.

**Credit Generator Tributary Area:** The upstream drainage area directly tributary and contributing stormwater runoff to the Credit Generator BMP.

**Credit Price:** Credit Price is used to describe the cost per Credit calculated for Credit Generators. The Credit Price will be established to reimburse a portion of the Credit Generator's costs related to design and construction, as well as on-going O&M of the Credit Generating BMP. The Credit Price for each Credit Generator will be used to establish or adjust the Watershed Credit Price for each of the three Credit Program Watersheds.

**Credit User:** A Credit User is a PDP that meets eligibility requirements (see Section 2.5) and is utilizing Credits generated by a Credit Generator within the same Credit Program Watershed. A Credit User can acquire Credits to meet New Development/ Redevelopment Program requirements for on-site retention or biofiltration of the Design Capture Volume (DCV) if on-site retention is not feasible.

**Credit Reduction:** The Credit Program has incorporated an automatic 10% Credit Reduction for each Credit Generator to ensure a net stormwater quality benefit to Credit Program Watersheds is provided. See Section 2.4.2 for additional details related to the reduction of Credits.

**Credit Retention:** The Credit Program requires the retention of 10% of the Credits generated for each Credit Generator, as a factor of safety and to build program resiliency for potential unforeseen BMP maintenance or operational issues associated with the Credit Generator. Section 2.4.3 includes additional details related to retention of Credits.

**Credit Program Watersheds:** Credit Program Watersheds are defined as one of the three watersheds within City boundaries, specifically the Santa Ana River Watershed, the Anaheim Bay-Huntington Harbour Watershed, and the San Gabriel-Coyote Creek Watershed.

**DCV – Design Capture Volume (DCV):** The volume of stormwater runoff resulting from the design capture storm depth. DCV as used on this document is consistent with existing Orange County guidance documents, including the TGD.

**Enhanced Priority Development Project (PDP):** A PDP subject to Water Quality Management Plan requirements that expands a BMP design to receive additional runoff volume from existing, off-site tributary area that is not already treated by an on-site BMP.

**Existing Project:** A project that was constructed and operational prior to the approval of the Stormwater Credit Program by the Santa Ana Water Board Executive Officer (EO) or a project that was scoped, designed, and constructed with the express intent to generate Credits for this Program, and verification was initiated upon completion of construction, and verification was not completed prior to approval of the Credit Program by the EO.<sup>1</sup>

**Green Streets:** Green Street design within the City is primarily applicable to projects within the City's Right-of-Way including streets, roads, highways, and freeways with 5,000 square feet or more of paved/impervious surfaces. These Projects must implement the United States Environmental Protection Agency (USEPA) guidance, "Managing Wet Weather with Green Infrastructure: Green Streets" in a manner consistent with the Maximum Extent Practicable (MEP) standard. Green Streets refers to a wide variety of design elements including street trees, permeable pavements, bioretention, and swales.

---

<sup>1</sup> For the purposes of the City's Credit Program, only the Modjeska Park and La Palma Richfield projects were scoped, designed, and constructed with the express intent to generate Credits.

**Integrated Regional Water Management (IRWM) and the OC Plan:** The OC Plan was prepared in March 2018 to identify and implement water management solutions on a regional scale. The OC Plan updates and combines two existing IRWM plans that were prepared by the County of Orange to address regional watershed management issues for two WMAs in North Orange County. The previous two WMA IRWM Plans are the NOC Plan (completed in 2011) and the Central OC Plan (completed in 2012).

**Operation and Maintenance (O&M):** For the purposes of the Credit Program, O&M describes the activities performed by the Credit Generator to maintain the function and capacity of the BMP installed at the project site and approved to generate Credits. Periodic O&M Inspections will be performed by the City to confirm the Credit Generator has been properly maintained and is operational or if the Credit Generator needs repair, replacement and/or monitoring. This inspection will be integrated as part of the City's existing WQMP inspection program for City BMPs to allow for periodic oversight and tracking of the Credit Generator.

**Pollutant Load Multiplier (PLM):** The ratio of pollutants generated by a Credit User to the pollutants captured by a Credit Generator within a watershed. The PLM is used to increase the number of Credits a Credit User must purchase to account for differences in pollutants generated by a Credit User and pollutants captured by a Credit Generator in a watershed.

**Priority Development Project (PDP):** A New Development/ Redevelopment project meeting the thresholds described in Section 7.II-1.2 of Orange County's Model WQMP which requires BMPs to be incorporated in accordance with a WQMP.

**Retrofit Credit Generating Project:** An Existing Project that was modified subsequent to the approval of EO with the express intent of the modification functioning for the purpose of generating Stormwater Credits, including preparing a SCGR as part of the design process for the retrofit project. Only the capacity increase of the existing facility would be eligible for credit, not the capacity of the Existing Project. This modification would typically include expanding or upsizing an existing facility, routing new flow into a facility that has capacity that is not being utilized or establishing or increasing the infiltration rate of an existing facility.

**Right-of-Way:** "Right-of-way" shall mean land which by deed, conveyance, agreement, easement, dedication, usage or process of law which has been conveyed, reserved or irrevocably offered for dedication to the City of Anaheim or the general public for street, highway, alley, public utility, or pedestrian walkway purposes whether or not said land has been improved or accepted for maintenance by the City. "Public right-of-way" includes but is not limited to, streets, roadways, planter strips and sidewalks as designated or annotated on the City's GIS Mapping System. Because the public right-of-way typically includes both public and private utility systems, projects within the public right-of-way typically involve several City departments including Public Works, Utilities, Development Services, etc.

**Stormwater Credit Program (Credit Program):** This document outlines the components of the City of Anaheim's Credit Program. This program was developed by the City of Anaheim, with coordination and review from several interested stakeholders, to support the City's New Development/Redevelopment Program and provide incentives for regional stormwater retention projects within the City.

**Stormwater Credit Generation Report (SCGR):** The SCGR provides the documentation of the stormwater Credits generated by a Credit Generator and includes the BMP design and sizing calculations, Credit generation details, including Credit adjustments, and the O&M plan for the Credit Generator. This document is designed for use by all Credit Generators and will be provided to the Santa Ana Water Board for approval. For Credit Generators subject to WQMP requirements, the SCGR will be appended to the WQMP.



**Total Maximum Daily Load (TMDL):** Regulatory term in the U.S. Clean Water Act, describing a plan for restoring impaired waters that identifies the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.

**Watershed Improvement Projects:** The County's Watershed Improvement Project Subcommittee (WIPS) is a strategic initiative to identify and evaluate watershed improvement projects within the four North Orange County watersheds, including the three Credit Program Watersheds within the City.

**Watershed Management Area (WMA):** The City of Anaheim falls within the North Orange County Watershed Management Area (NOC WMA) which encompasses 241,000 acres (376 square miles) in Northern Orange County. The NOC WMA is bordered by Los Angeles County to the North and West and to the East by San Bernardino County. The three watersheds in this area are the San Gabriel River/Coyote Creek, Anaheim Bay-Huntington Harbour, and the Santa Ana River.

# City of Anaheim

## Stormwater Credit Program

### 1 Introduction

The following sections provide an overview of the City of Anaheim’s Stormwater Credit Program (Credit Program or Program), the Credit Program benefits and needs, and the administration and oversight of the program. The Credit Program establishes a prescriptive and transparent process to allow for the generation and use of Stormwater Credits (Credits) by the City.

#### 1.1 Pilot Phase

At the request of the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board), the City has developed a Pilot Phase for the Credit Program. During this phase only City-Owned Projects will be allowed to purchase Credits. Private Projects will only be allowed to purchase Credit following the Pilot Phase. The Pilot Phase will be limited to one year from the date of Executive Officer approval and will provide Santa Ana Water Board Staff the opportunity to observe, review, inquire and investigate the functionality of the Program. During the Pilot Phase, the City will coordinate regularly (monthly to start) with the Santa Ana Water Board to discuss implementation progress, status, Program tracking metrics, evaluate functionality and any other components of the Program requested. The purpose of this effort is to ensure and demonstrate that the Program functions properly, both in the Pilot Phase as well as in full implementation. The success of this Program is a goal of both the Santa Ana Water Board and the City and both agencies have agreed to cooperate in this mutual effort. Santa Ana Water Board Staff have committed to making themselves available to attend meetings and perform review to the extent they believe is necessary. Furthermore, City Staff have committed to provide all information requested in a reasonable timeframe. At the conclusion of the Pilot Phase, provided the Santa Ana Water Board does not find any “fatal flaws” that would result in the Program’s failure to function properly, AND provided reasonable program modifications requested by Santa Ana Water Board Staff are made by the City, the Program will become fully approved and will be allowed to offer and sell Credits to private Projects.

#### 1.2 Credit Program Overview

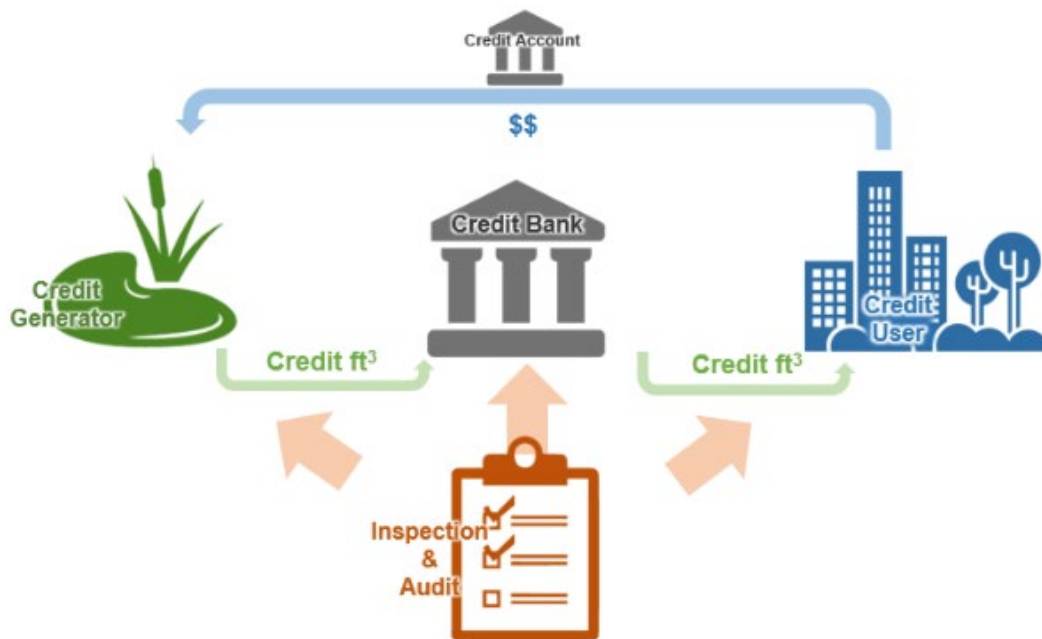
The Credit Program is intended to provide a streamlined approach to promote both the implementation of new regional stormwater retention projects and provide incentives to maximize the areas managed by post-construction BMPs associated with the New Development/ Redevelopment Program.

The City is evaluating and pursuing numerous regional stormwater retention projects that will serve as Credit Generators while also managing large-scale capital improvement projects (CIPs) and an extensive infill/ re-development program. The City envisions the Credit Program as a mechanism to promote design and installation of retention based BMPs in a more efficient and cost-effective manner City-wide. The City will prioritize the viability of these projects based on the benefits described in Section 1.3.1, as well as the overall project costs and constructability. To ensure the Credit Program provides short- and long-term regional water quality benefits, the City also reviewed and incorporated land-use based pollutant loading analysis consistent with the San Diego Water Quality Equivalency Program Guidance approved by the San Diego Regional Water Quality Control Board.

The Credit Program is for the generation and use of Credits associated with meeting the Design Capture Volume (DCV) (MS4 Permit Section XII.C.2) requirements for development sites and not associated with meeting Hydrologic Conditions of Concern (HCOC) (MS4 Permit Section XII.D) for developments sites where HCOCs exist. Development sites where HCOCs exist will need to meet those requirements onsite. The Program requires Credit Users purchase Credits equal to or greater than the DCV required to be managed under the Permit.

As shown in the conceptual flow-chart below, projects meeting eligibility requirements of the Credit Program (Credit Generators) can generate Credits that are available for future acquisition by eligible Credit Users located within the same watershed. When Credits are purchased for use within the watershed, those funds can be used to both supplement ongoing operation and maintenance (O&M) of the Credit Generator, as well as supplement future regional stormwater retention projects.

**Figure 1: Credit Program Overview**



### 1.3 Regulatory Framework

The Credit Program was developed in accordance with Santa Ana Water Board Order No. R8-2009-0030, as amended by Order R8-2010-0062 (MS4 Permit), the Orange County Model Water Quality Management Plan (WQMP) developed by Orange County Public Works and approved by the Santa Ana Water Board. The Credit Program has been developed to be consistent with the following sections of the current MS4 Permit.

- Section XII.C.2: Requires priority development projects to retain the Design Capture Volume (DCV) on-site to the extent feasible.
- Section XII.C.5: Allows for regional or sub-watershed management approaches based on constraining factors of a site. The Credit Program proposes that for sites where it is infeasible to meet the retention of the DCV on-site, a constraining factor, that a regional approach be used to meet the retention of the DCV with a regional credit generating facility in the same watershed.

- Section XII.E.3: Identifies that the goal of the WQMP is to develop and implement practicable programs and policies to minimize the effects of urbanization on site hydrology, urban runoff flow rates, velocities and pollutant loads and that this goal may be achieved through watershed-based structural treatment controls, in combination with site-specific BMPs. The Credit Program proposes watershed-based structural treatment controls as regional Credit Generators, as well as requiring Priority Development Projects (PDPs) using Credits to implement site designs and source controls on-site, which are site-specific BMPs.
- Finding L.63: References the development of the Model Water Quality Management Plan (WQMP).

The Credit Program has been developed to be consistent with Section 7.II.2.4.3.2 of the Orange County Model WQMP, that covers LID Practices Implemented on a Regional or Sub-Regional Basis. This section requires the following.

- The sub-regional/regional BMPs is located such that the project would drain to the BMP prior to discharge to a water of the US, the net pollutant removal load within the watershed is equivalent to what would be accomplished on-site, or would not impair the beneficial use of Waters of the US. The Credit Program has developed comprehensive pollutant load modeling to show the net pollutant removal load within each Credit Program watershed is greater than what would be accomplished on-site and provides a greater benefit in an expedited timeframe to the watershed.
- The sub-regional/regional BMP is sufficiently sized to treat stormwater runoff from its tributary area. The credit generating facilities are planned to be sufficiently sized to treat stormwater runoff from their tributary area.
- Sub-regional/regional BMPs are sited and designed such that they will provide equal or greater overall benefit than would be achieved by LID BMPs. The Credit Program has developed comprehensive pollutant load modeling to identify that program provides a greater benefit to the watershed than would be achieved by on-site LID BMPs.
- Sub-regional/regional BMP will be adequately maintained for the life of the project and the sub-regional/regional BMP will be constructed and operational to serve the project once the project is complete. The Credit Program requires that all Credit Generators be adequately maintained for the life of the facility. Additionally, Credit Generators are required to be constructed and verified before Credits are available for use.
- The sub-regional or regional facility is constructed to remove pollutants from those new development projects within the watershed in a timely manner. The Credit Program requires all Credit Generators be constructed and verified by the City before Credits are available for use.

More detailed information and references regarding the regulatory framework can be found in the *Technical Basis Document: Regulatory Framework* developed to support the program. When the Santa Ana Water Board adopts subsequent MS4 Permits, the Credit Program will be modified, as appropriate, to incorporate new MS4 Permit requirements. The modified Credit Program will be submitted to the Santa Ana Water Board for review and approval. After adoption of a subsequent MS4 Permit and during the review and approval process, the Program as previously approved, will remain functional and in place while awaiting Santa Ana Water Board approval.

### 1.3.1 Credit Program Benefits

The City is proactively identifying potential regional projects that can provide multiple benefits, with a primary purpose of providing local flood risk reduction, surface water quality improvement, and local water supply benefits. Credit Generators, in addition to removing pollutants from the watershed, provide a water supply benefit through aquifer recharge, direct capture and use of stormwater, and diversions to sanitary sewer where

the stormwater will be used as recycled wastewater or treated by OCWD's Groundwater Replenishment System (GWRS). As described in Section 2.2, Credit Generators will be limited to City-Owned Projects meeting specific eligibility and stormwater retention requirements. Additional benefits associated with implementation of the Credit Program include the following.

- Provide an expedited timeline for water quality improvement. The Credit Program requires a regional project be constructed and operational prior to generating Credits that are available for Credit Users (i.e., New Development/Redevelopment projects). This leads to achieving improved hydrologic function and water quality benefits sooner than traditional distributed development/redevelopment projects, where redevelopment of the watershed could take upwards of 200 years (based on an average redevelopment growth rate of 0.5%) for completion of redevelopment that meet the New Development/ Redevelopment MS4 permit requirements.
- Generation of funding for new regional projects allowing further achievement of an expedited timeline for improved hydrologic function and water quality benefits.
- Consolidated oversight and implementation of O&M activities (i.e., inspection, maintenance, monitoring) for regional retention projects over distributed BMPs throughout the City.
- Provide flexibility and efficiency in meeting WQMP requirements and provides more retention within the City than would be achieved without the Credit Program.
- Utilize stormwater as a valuable resource through regional groundwater recharge and direct stormwater capture for future water supply.
- The Stormwater Credit Program helps to achieve integrated water resource management and incentivizes participation in stormwater capture projects by other water sectors providing long-term local water supplies in North Orange County.
- Assist in alleviating local hydrologic/ flood control risks.
- Leveraging funding from multiple sources for multi-benefit projects.
- Potential for improved aesthetics and recreational opportunities for public facilities/lands when retention systems include above-ground features or multi-benefit projects include retention elements.
- Other potential benefits associated with certain green infrastructure projects if implemented as part of the program, including habitat creation, air quality improvement, reduction in the heat island effect, aesthetics, recreational benefits, sound reduction, traffic calming and safety, education, reduction in drainage and flood control infrastructure, and increased land values.
- Incorporation of pollutant loading multipliers based on land use and watershed impairments to provide a net benefit to the water quality and reduce potential for formation of "hot spots" from the implementation of the Credit Program

The Credit Program also promotes several positive community and social outcomes, including:

- The program was designed to remove more pollutants than would otherwise have been removed under the existing new/ redevelopment program, thereby providing an overall benefit to all communities.
- Investing in capturing stormwater with the intent of increasing the local community's water supply is an investment in the community and provides a sustainable, affordable future water supply. In addition to increasing water availability, it may reduce costs for customers.
- Capturing stormwater and allowing it to infiltrate into the aquifer assists with flood control and reduces community flooding, which lowers property ownership costs, homeowner's insurance

rates, and increases property values. Within the City, communities with higher flooding potential are typically in lower income areas.

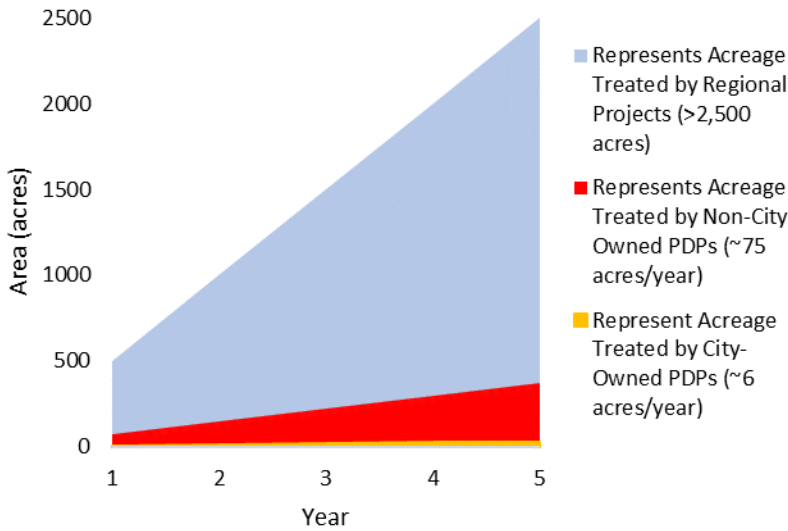
- As exhibited by the Modjeska Park project the investment in the local community allows for the improvement of parkland, and the placement of interpretive signage is an important part of the public message promoting the environment.
- The City's planning process takes into consideration a range of socio-economic factors including environmental justice, inclusion, and equity. While the Credit Program does not explicitly require the siting of projects in areas such as disadvantaged communities, the majority of projects will be in part grant funded. Most grant funding incentivizes or ranks more highly projects that benefit such communities. In the development of siting protocols for future stormwater retention projects one of the considerations will include the pollutant loads in the tributary drainage areas of potential future stormwater retention project locations.
- Utilizing regional stormwater capture projects rather than distributed treat and release BMPs is more cost effective and will ultimately reduce overall compliance costs for residential projects, promoting affordable housing.
- The City of Anaheim is also creating an Environmental Justice Element that includes a focus on reduction of pollution exposure and will become a part of the City's General Plan.

[Environmental Justice Element | Anaheim, CA - Official Website.](#)

## 1.4 Program Need

As mentioned above, regional stormwater retention projects will provide expedited water quality improvement and improved hydrologic function over traditional redevelopment projects. It may take several decades up to hundreds of years for existing development within a watershed to redevelop and integrate stormwater retention BMPs for compliance with the WQMP requirements. The Credit Program endeavors to speed up that timetable through incentivizing implementation of regional stormwater retention projects or other types of projects that retain stormwater (e.g., green street projects), which will provide improvement related to both stormwater quality and hydrologic functions in a watershed. To better understand the potential benefits of creating a Credit Program to promote regional stormwater retention projects, the City compiled data on PDPs approved and constructed within the City over the past five years (City-Owned and Non-City Owned) including areas tributary to retention BMPs. This data was compared to several potential future regional project concepts the City is evaluating and could potentially benefit from funds generated through the Credit Program. While these projects are hypothetical, they were used to better understand watershed water quality benefits of the Credit Program. Based on this analysis, it would take approximately 33 years (Non-City Owned) and greater than 400 years (City-Owned) of new and redevelopment to occur that implements retention-based BMPs to meet the equivalent area treated by the potential future regional projects in the City (see Figure 2 below).

**Figure 2: Treated Area of Potential Regional versus Traditional Development Projects**



### 1.5 Process for Credit Program Development/Establishment

The Credit Program was developed based on research/review of other programs and guidance developed around the United States, as well as review of provisions in the current MS4 Permit, draft MS4 Permit language, the TGD and Model WQMP, and coordination with various City Departments and interested stakeholders. Several supporting documents were prepared during the development of the Credit Program to support the technical basis for selection of components of the Credit Program. Technical basis documents were developed for the Credit Program regulatory framework, watersheds, pollutant load effects on treatment efficacy, and on-site feasibility analysis and are available upon request.

Following approval of the Credit Program by the Executive Officer (EO) of the Santa Ana Water Board, the City will officially establish the Program through adoption and establishment an ordinance, as well as a resolution and fee (i.e., Credit Price) by the City Council.

### 1.6 Program Administration and Oversight

An important component of Credit Program implementation is to provide consistent and effective administration and oversight of the Credit Program. The following City Departments (and consultants overseen by the City) will be responsible for implementing the identified components of the Credit Program. The results of the inspections and audits performed as part of the Program will be used by the City to evaluate the effectiveness of the Program and address deficiencies noted or improvements recommended, if any.

**Table 1: Credit Program Roles and Responsibilities**

<i>Department/Entity</i>	<i>Credit Program Roles/Responsibilities</i>
<b>City Capital Projects Staff (Public Works, Utilities, Parks)</b>	<ul style="list-style-type: none"> <li>Identify Credit Program project eligibility.</li> <li>For Credit Generators, prepare Stormwater Credit Generation Reports (SCGRs) (including Credit generation information, O&amp;M Plan, and Monitoring Plan) for review and approval.</li> <li>For Credit Users, prepare WQMP modified for use with the Credit Program for review and approval.</li> </ul>
<b>City Public Works Department</b>	<ul style="list-style-type: none"> <li>Review, comment, and approve Credit Generator SCGRs and Credit Generator and Credit User WQMPs modified for use with the Credit Program.</li> <li>Review, approve, document, track and allocate Credits. This includes review and approval of the Credit Generator Credit values for consistency with established internal city procedures.</li> <li>Contracting and oversight of third-party inspectors performing construction-phase and final verification inspections.</li> <li>Performing periodic O&amp;M inspections.</li> <li>Performing regular reviews/audits of financial aspects of the Credit Program.</li> <li>Reporting and enforcement related to the Credit Program (Sections 4.4 and 4.5).</li> </ul>
<b>Finance Division of Public Works</b>	<ul style="list-style-type: none"> <li>Receive, hold, and disburse funds associated with sale and transfer of Credits between Credit Generators and Users. The movement of funds will only occur after approval by the Public Works Department.</li> <li>Review and implement third-party financial auditor findings and recommendations, if any.</li> </ul>
<b>Qualified Program Auditors</b>	<ul style="list-style-type: none"> <li>Perform regular review of the following program elements:                             <ul style="list-style-type: none"> <li>Financial statement (credit purchase, valuation, and general program accounting)</li> <li>Credit tracking (review of the Credit Bank Tracking DMS for both Credit Generators and Credit Uses in each Credit Program watershed)</li> <li>Credit User WQMPs</li> <li>Credit Generator SCGRs</li> </ul> </li> </ul>
<b>Third-Party Inspectors</b>	<ul style="list-style-type: none"> <li>Perform construction-phase, final verification, and periodic O&amp;M inspections (see Sections 3.1 and 3.2). Inspection report findings will be provided to the Public Works Department for review and follow-up, as necessary.</li> </ul>

## 1.7 Use and Availability of the Document

This document serves as guidance for implementation of the City’s Credit Program and allows for consistent and transparent implementation. As the Credit Program evolves, this document will be modified to reflect improvements and modifications to the program and incorporate other guidance documents and resources necessary for Credit Program implementation. Substantive changes to core components of the Credit Program, other than inconsequential grammatical corrections or technical changes, will be submitted to the Santa Ana Water Board EO for approval.

Once approved by the Santa Ana Water Board EO, general information on the Credit Program information and this Credit Program document will be posted and publicly available on the City’s website. Other supporting documents for the Credit Program will be available upon request.



## 2 Eligibility Requirements

This section provides information, guidance and examples related to the eligibility requirements and implementation of the Credit Program for Credit Generators and Credit Users. It also defines what measures will be required to be implemented on-site for a PDP when proposing to use Credits from a Credit Generator.

Figure 4 (Credit Generator Flow Chart) and Figure 8 (Credit User Flow Chart) depict the process associated with Credit Generation and Use for the Credit Program.

### 2.1 Credit Program Watersheds

Credits can be used anywhere in the watershed where they are generated. The Credit Program Watersheds are defined as the three watersheds within City boundaries, specifically the Santa Ana River Watershed, the Anaheim Bay-Huntington Harbour Watershed, and the San Gabriel-Coyote Creek Watershed (see Figure 3). The Credit Program Watersheds were selected to be consistent with the watersheds described in the current MS4 Permit, but the City acknowledges that watersheds could be modified based on changes to MS4 Permit language or appropriate technical justification and approval. In such a case, the City Credit Program may be modified as necessary to match adjusted watershed definitions.

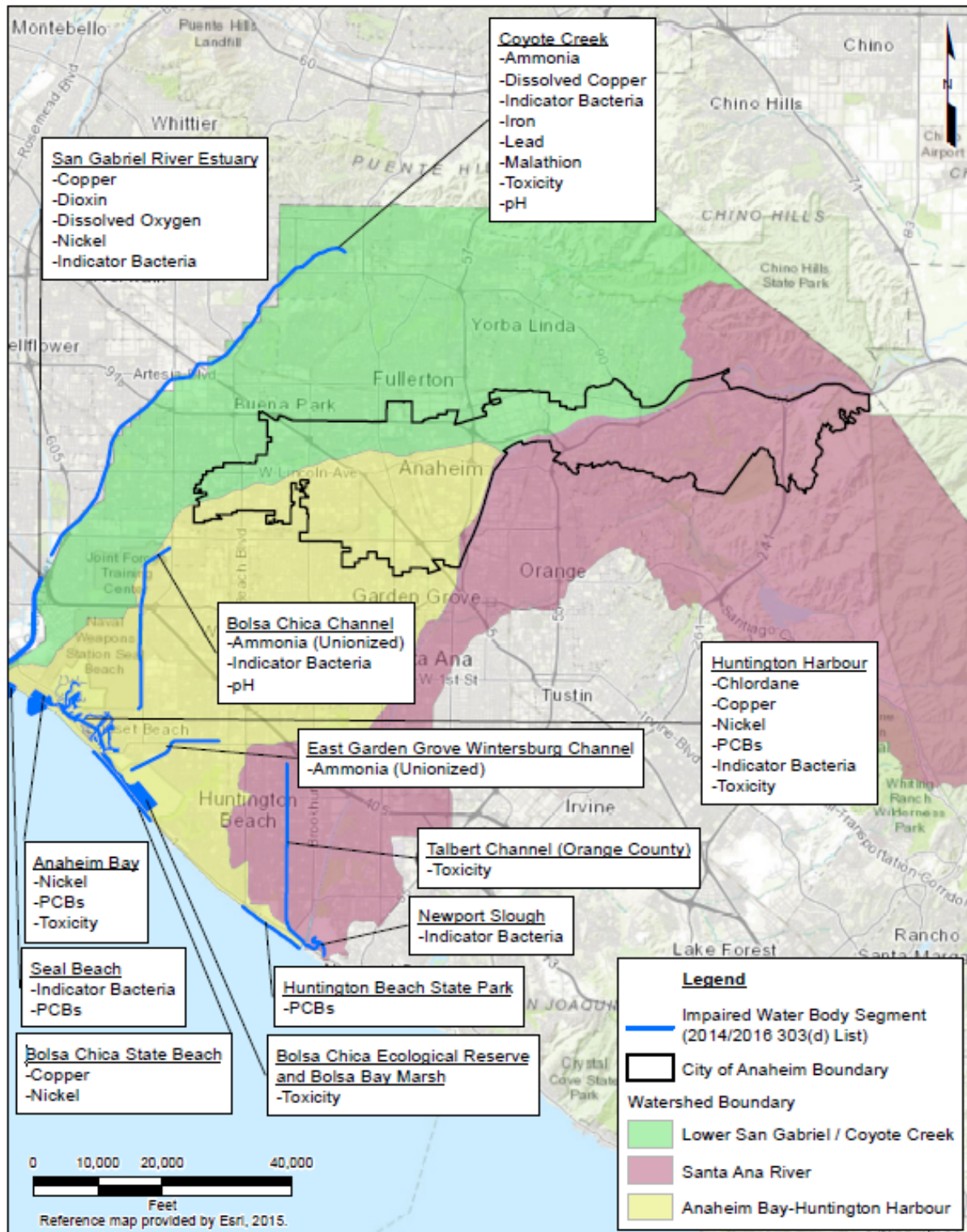
The Credit Program allows for generation and use of Credits anywhere within a watershed, regardless of whether the Credit User is directly tributary to the Credit Generator. When considering overall water quality benefit of a project for Credit generation, it is important to consider the impairments within the larger watershed, including established downstream Total Maximum Daily Loads (TMDLs) and receiving water/water body impairments. It should be noted that there are no impaired receiving waters/water body segments identified within the City of Anaheim boundary<sup>2</sup>. While there are no impairments within the City of Anaheim boundary, downstream water body impairments and TMDLs were also reviewed in the development of the Credit Program and incorporated into the land-use based pollutant loading analysis performed to establish the Pollutant Load Multiplier (PLM) described in Section 2.4.2. Figure 3 below includes a depiction of the three applicable watersheds (showing the larger watersheds and the affected portions within the City boundary) and the downstream impairments associated with each. Analysis shows that implementation of the Credit Program will provide a net benefit to the Credit Program Watersheds over traditional redevelopment.

Additional discussion related to the basis for selecting the Credit Program Watersheds is included in the *Technical Basis Document: Credit Program Watersheds* prepared by the City to support development of the Credit Program.

---

<sup>2</sup> SWRCB 2014/16 303(d) Listings. [https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2014\\_2016.shtml](https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml)

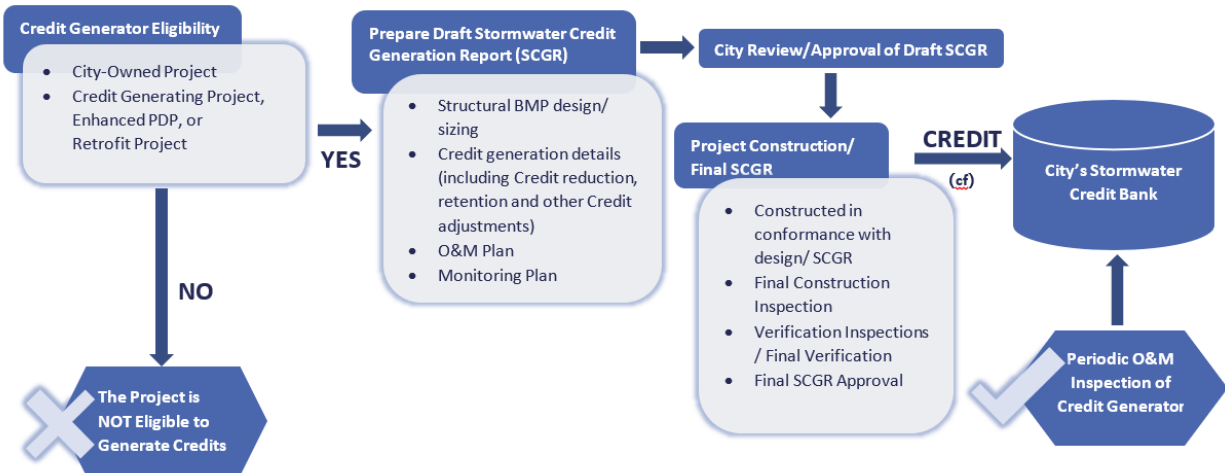
Figure 3: Credit Program Watershed Delineation and Receiving Water Impairments



## 2.2 Credit Generator Specifications

The Credit Program limits Credit Generation to City-Owned Projects. Figure 4 below provides a flow chart depicting the Credit Generator process, from initial evaluation of eligibility to approval of Credits and addition to the Credit Bank. City-owned projects eligible to be Credit Generators include new Credit Generator projects, Retrofit Projects, and Enhanced Priority Development Projects but does not include Existing Projects (see Glossary of Terms). Credit Generator criteria also includes the preparation and approval of a draft and final SCGR in conjunction with the design and construction of the project. The SCGR for a Credit Generator will not be finalized until the verification process described in Section 3.2 is complete.

**Figure 4: Credit Generator Flow Chart**



## 2.3 Stormwater Credit Generation Report

For Credit Generators, the City will require a SCGR to document Credit Program eligibility and the number of Credits created by the project. The SCGR will document the volume of stormwater eligible for Credit generation, the number of Credits generated, Credit adjustments as described in Section 2.4, as well as other project related information including, Preliminary Design Report, Design Drawings and Specifications, an Operation and Maintenance (O&M) plan, a Monitoring Plan, and design considerations consistent with the Model WQMP (Section 4 of Model WQMP) and TGD (Section 7 of TGD). The SCGR will also document capital costs related to design and construction of the Credit Generator that will be used in the establishment of the Credit price. The Credits generated by a Credit Generator will be limited to the DCV, and in no case will Credits be generated for stormwater captured beyond the DCV. The City has prepared an SCGR Template to provide a streamlined and consistent method to document, review, and approve Credit Generator projects. The SCGR and associated project related information will be available in searchable electronic format.

## 2.4 Credit Adjustments

In addition to limiting Credit Generators to City-Owned Projects, the City has built additional risk management features into the Credit Program, consistent with strategies summarized by the National Network on Water Quality Trading<sup>3</sup>. To further reduce the risks related to future loss or failure of a Credit Generator or potential

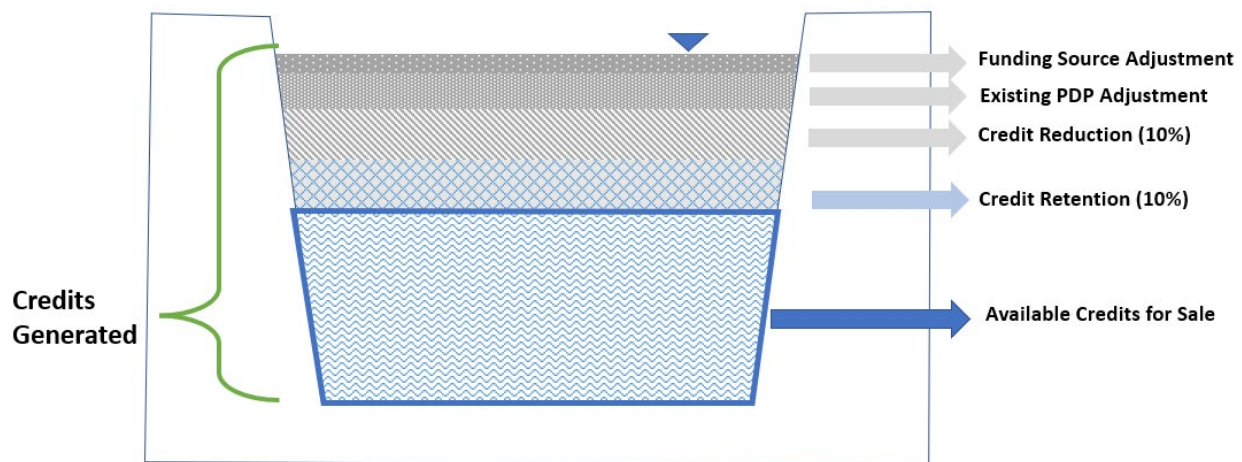
<sup>3</sup> Building a Water Quality Trading Program: Options and Considerations. June 2015. National Network on Water Quality Trading.

reduced capacity of infiltration/ retention BMPs over time, the City has built additional resiliency into the Credit Program through establishing a process for retention of a certain percentage of Credits generated in each watershed. This Credit Retention is consistent with the concept of “Set-Aside Ratios” discussed by the National Network on Water Quality Trading and is further discussed in Section 2.4.2.

In addition to Credit Retention for each Credit Generator, the City has incorporated an automatic reduction in Credits for each Credit Generator. This approach will provide a net stormwater quality benefit by permanently removing a certain percentage of Credits available for use in each watershed. This is consistent with the “Reductive Ratio” concept established by the National Network on Water Quality Trading and is further described in Section 2.4.2.

The City has incorporated additional Credit adjustments based on potential limitations or restrictions associated with the funding source of the Credit Generating BMP (see Section 2.4.1). The Credits available for purchase will also be adjusted to account for PDPs present within the Credit Generator drainage area. The PDPs with retention BMPs in the drainage area will either reduce the Design Capture Volume (DCV) of a regional retention system, or if the regional retention system DCV does not account for upstream PDP retention in the hydrologic analysis, a reduction of the number of Credits available for sale from the regional retention system will be incorporated and tracked in the Credit Bank Tracking Data Management System. PDPs with flow through treatment BMPs in the Credit Generator drainage area will also reduce the amount of Credits available for sale from a regional stormwater retention system. Figure 5 below depicts the Credit adjustment process that will be followed by the City. Credit adjustments associated with future PDPs constructed within the drainage area of a Credit Generator are discussed in Section 2.4.4.

**Figure 5: Initial Credit Adjustment**



### 2.4.1 Funding Source Credit Adjustments

Credit adjustments may be necessary based on the capital funding sources associated with the Credit Generator. Credit Generators, such as regional capture and infiltration projects, are often partially funded by State or other Grant funding agencies that may include limitations with respect to the use Grant funds for permit compliance purposes. A detailed analysis of capital funding sources for each Credit Generator project will be performed to identify any restrictions or limitations (e.g., restriction on the use of grant funds to meet MS4 Permit compliance) on the use of funds from the distinct capital funding sources. If restrictions or limitations are identified that would prevent the use of those funds in the generation of Credits, the proportionate Credits generated from the use of the “restricted” source of capital funding will be removed from the total Credits generated by the Credit Generator. As discussed in Section 4, the City is developing Credit

valuation guidance that will incorporate the methodology and guidance when evaluating funding sources and adjusting Credits.

## 2.4.2 Credit Reduction

The City has incorporated a minimum 10% Credit Reduction for each Credit Generator that will be applied after funding source Credit adjustments. This reduction in Credits generated for each Credit Generator applies a conservative and simple metric to each project to avoid concerns over decreases in overall stormwater quality from use of Credits in a watershed and to assure a net increase in retention/ infiltration volume for each watershed as a result of the Credit Program. The number of Credits reduced for each Credit Generator will be documented in the SCGR and Credit Bank Tracking Data Management System and will not be available for use within the watershed. Credits reduced as part of the Credit Reduction will be separate from those Credits retained as part of the Credit Retention identified in Section 2.4.3.

### 2.4.2.1 Land Use and Pollutant Load Analysis

To confirm the Credit reduction metrics properly account for land-use variations, are protective of downstream receiving water quality, and provide a net pollutant removal for the watershed, modeling of land-use factors, consistent with guidance developed in the SDWQE, was performed for the Credit Program watersheds within the City of Anaheim. The analysis was based on the distribution of land uses within each Credit Program Watershed, pollutant generating potential for each land use, downstream receiving water and water body impairments, and the land uses associated with Credit Users.

The ratio of pollutant removal capacity of a Credit Generator, based on the average land uses in a watershed area within the City, to the pollutant removal capacity of a flow-through bio-treatment system constructed on potential Credit User land uses was calculated (the Land Use Factor [LUF]).<sup>4</sup> The Pollutant Load Multiplier (PLM) is the inverse of the LUF. A Credit User is required to purchase credits equal to the portion of the DCV they are not treating onsite times the PLM. Tables of PLMs were generated for each land use in each watershed and for each pollutant. The pollutant with the highest PLM for which there is a downstream impairment will be the PLM the Credit User uses to calculate the number of credits they need to purchase. If a Credit User is developing more than one land use on a project, an area weighted average of pollutant loads from the Credit User's parcels is calculated to calculate a multi-land use PLM. Details and tables of PLMs are presented in the *Technical Basis Document: Pollutant Load Multipliers for Credit Users*. Based on the results of the analysis and potential pollutant loading from agricultural land uses, the City has excluded agricultural land uses from purchase of Credits (see Figure 8).

To provide a greater benefit to water quality, the Program ensures the PLM will always be 1.0 or higher. Therefore, the respective volume of water captured in the Credit Generator, as determined by the Credit purchased for each Priority Development Project, will always be greater than or equal to the volume required by the current MS4 NPDES Permit.

While the analysis establishes the Pollutant Load Multiplier for each Credit User to address site specific pollutant loading, the City chose to incorporate the automatic 10% Credit Reduction as an additional factor of safety. Based on the analysis, the City has excluded agricultural land uses from Credit purchase.

## 2.4.3 Credit Retention

After applying the 10% Credit Reduction described above, the City will require the retention of a minimum of 10% of the remaining Credits for each Credit Generator, as a factor of safety and to build program resiliency

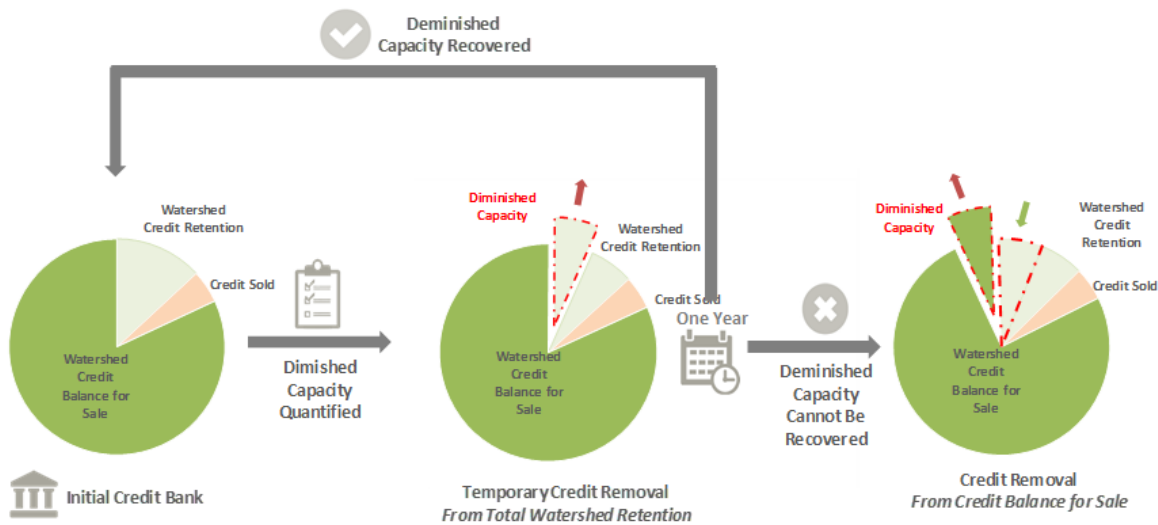
---

<sup>4</sup> If on-site retention is infeasible at a PDP, a flow-through bio-treatment BMP would be installed. Therefore, the comparison of pollutant removal is between regional retention and on-site flow-through bio-treatment.

for potential Credit loss from a Credit Generator due to BMP O&M issues or unforeseen causes (i.e., natural disaster). The City will retain a minimum of 10% of the Credits for each new Credit Generator until the total watershed retention is equivalent to 110% of the largest Credit Generator within the watershed. The intent is to have sufficient Credit retention in the Credit Bank to cover a potential catastrophic failure or loss of the largest BMP (based on Credits generated) in the watershed. Once retention within the watershed is equivalent to 110% of the largest Credit Generator (based on volume retained), the automatic 10% retention will not be applied to new Credit Generators within the watershed. However, the 10% reduction (as mentioned previously in Section 2.4.2) will continue to be applied to all new Credit Generators within a watershed, regardless of whether the watershed has met the 110% retention threshold.

If maintenance related issues cause diminished capacity (retention volume) of a Credit Generator, the retained Credits within the Credit Bank for the Credit Generator’s watershed will provide a buffer while maintenance related issues are being addressed. Credits associated with diminished capacity will be temporarily removed from total watershed Credit retention and documented in the Credit Bank Tracking Data Management System. If the diminished capacity cannot be addressed through periodic maintenance consistent with the O&M Plan for the Credit Generator, or for more significant issues identified within one year of the deficiency being quantified, the temporarily removed Credits (equivalent to the diminished capacity) will then be removed from the available Credits for sale in the Credit Bank. This process is depicted in Figure 6 below.

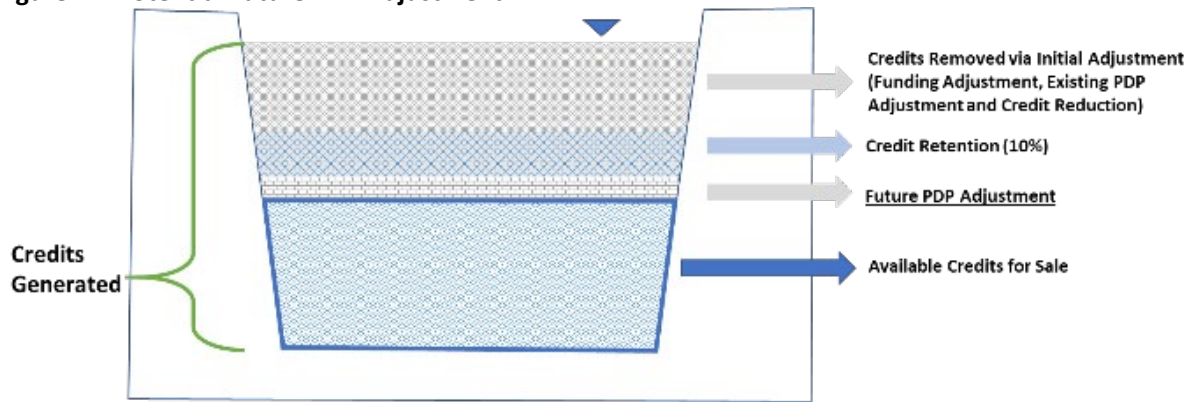
**Figure 6: Watershed Credit Adjustment for Diminished Capacity**



#### 2.4.4 Future PDPs Constructed Credit Generator Watershed

If a future PDP within the tributary watershed of a Credit Generator selects not to purchase Credits and instead installs structural BMPs to comply with New Development/Redevelopment requirements, the City has incorporated an additional Credit adjustment. Credits, equivalent to the DCV associated with the PDP, will be removed and documented in the Credit Bank Tracking Data Management System upon approval of the Credit transaction as depicted in Figure 7.

**Figure 7: Potential Future PDP Adjustment**

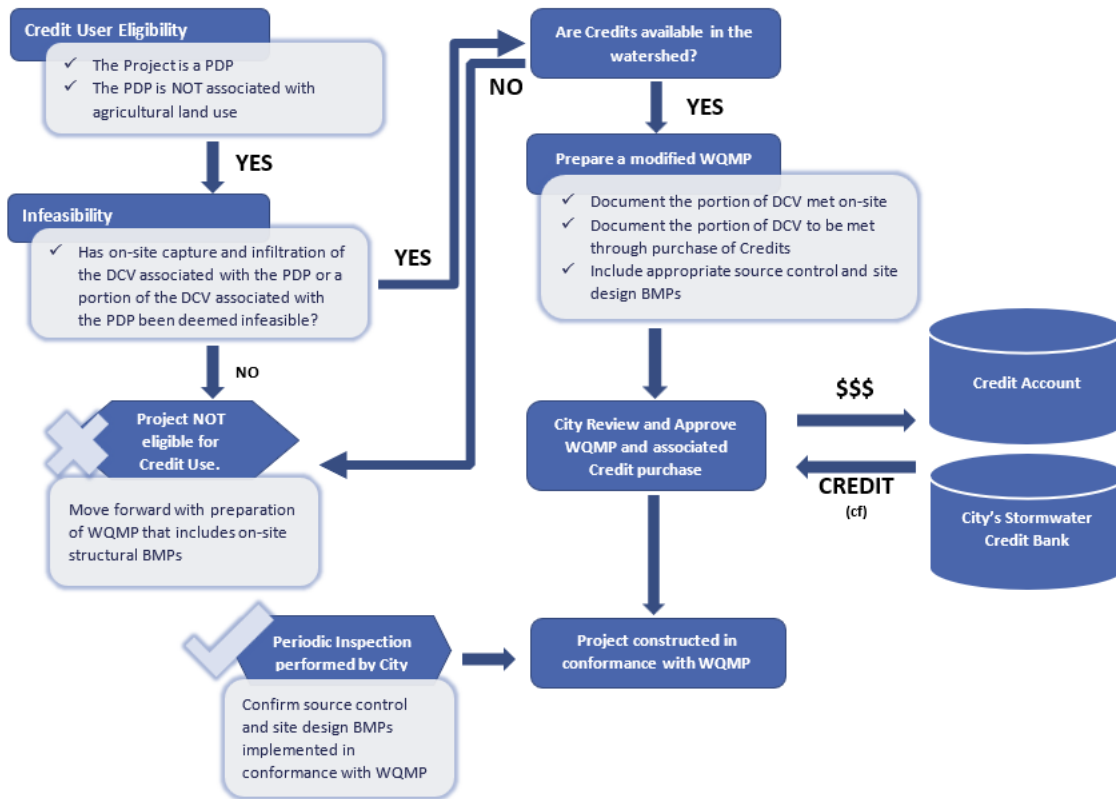


## 2.5 Credit User Specifications

Credits generated as described above can be used by eligible Projects (see Glossary of Terms). When on-site structural retention/ infiltration controls are infeasible<sup>5</sup>, these projects can opt to purchase Credits to meet New Development/Redevelopment Program requirements when there are sufficient Credits available within the same watershed. As shown in Figure 8, a stepwise process has been developed to properly quantify Credits being utilized and the proper documentation that must be completed. The *Technical Basis Document: On-Site Feasibility* was prepared by the City and describes the basis for the on-site feasibility considerations incorporated into the Credit Program.

<sup>5</sup> Evaluation of on-site feasibility has been integrated into the Credit Program to be consistent with the current MS4 Permit requirements, however if the on-site feasibility analysis is removed from the next MS4 Permit (preference of the City), the feasibility analysis could be removed from the Credit User specifications providing a more streamlined approach to realize the benefits of the use of regional BMPs.

**Figure 8: Credit User Flow Chart**



When on-site structural retention/ infiltration is infeasible, Credit Users will have the ability to purchase Credits to meet DCV obligations rather than implement on-site biofiltration, biotreatment, or treatment controls. Credit Users will still be required to implement on-site source control and site design BMPs, as defined in Section 7.II-2.4.4 and 2.4.6 of the Model WQMP, to qualify for Credit use, provided the DCV for the project is offset by Credits purchased and the Credit User is in the same watershed as the Credits available for purchase. For PDPs utilizing Credits to meet the entire DCV for the project, the WQMP will include a description of the Credits used to meet the DCV requirements for the project. The Credit User is required to incorporate and properly document applicable source control and site design BMPs for the project in the WQMP. To provide for consistency in the preparation of WQMPs by eligible Credit Users and streamline City review, the City will develop a Credit User WQMP Template, as well as a Credit User WQMP Review Checklist once the Credit Program receives Executive Officer approval.

For PDPs utilizing Credits to meet a portion of the required DCV, the WQMP will include appropriate documentation of on-site structural retention/ infiltration controls or biofiltration controls implemented to meet the portion of the DCV not utilizing Credits as well as documentation of Credits purchased to meet the remainder of the DCV.

The City Public Works Department will review the WQMP and associated Credit purchase information to verify Credit User eligibility and ensure accuracy and completeness. A typical Credit generation and use scenario is explored in more detail below. Once the Credits are purchased by a Credit User, the purchase and associated reduction in available Credits will be documented in the Credit Bank Tracking Data Management System (Section 4.3).



## 2.6 Credit Generation and Use Scenarios

The following provides a brief overview of typical Credit Generator and Credit User scenarios that would be covered under the Credit Program.

### Example Credit Generator and Use Scenario

#### *Example 1: Regional Stormwater Retrofit Project*

**Credit Generator:** The City's Public Works Department retrofits a park within the Bolsa Chica/Huntington Harbour Watershed to capture and infiltrate stormwater from the upstream tributary area (primarily existing residential and commercial land uses). The project is not a PDP and is designed to capture and infiltrate approximately 250,000 cf<sup>6</sup> from the park and upstream tributary area. After applying Credit Reduction and Retention, 202,500 cf of DCV will be eligible to generate Credit. A SCGR will be prepared to document the BMP sizing, Credits generated, and O&M Plan for the Credit Generator.

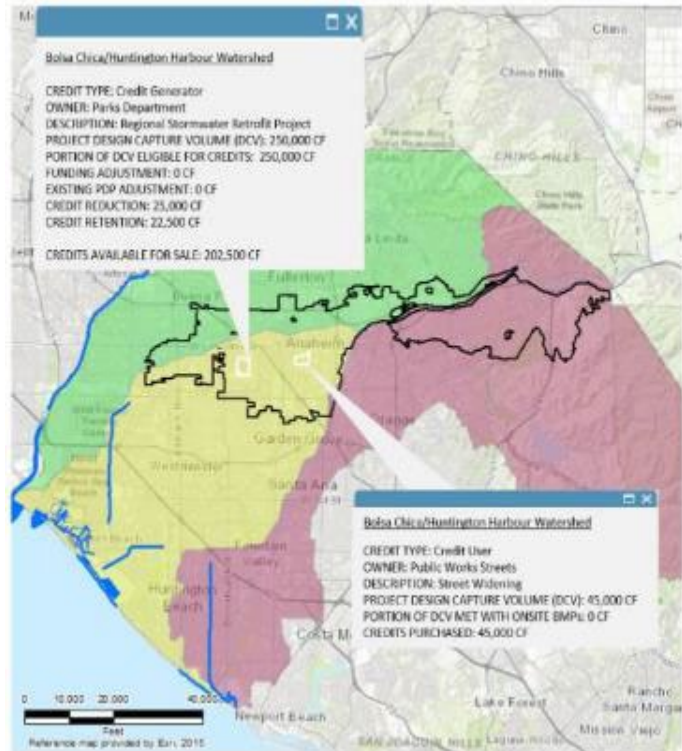
**Credit User:** A City capital project is a PDP subject to WQMP requirements. The WQMP identifies a DCV of 45,000 cf and the project is located within the same watershed as the Regional Stormwater Retrofit Project. Retention/ infiltration has been deemed infeasible based on space and utility corridor constraints and the City Maintenance

Division intends to purchase Credits from the Public Works Department for the entire DCV of capital project rather than implementing biofiltration/biotreatment controls. A project WQMP is completed that incorporates Credit use requirements for review and approval by the City. Once project documents are reviewed and approved by the City, 45,000 Credits would be subtracted from the 202,500 Credits available, reducing the available Credits in the watershed to 157,500 in the Credit Bank Tracking Data Management System.

#### *Example 2: Enhanced PDP*

**Credit Generator:** The City's Utilities Department is redeveloping an above-ground water storage and treatment tank and expanding the public Right-of-Way access road to the facility. The project is within the Santa Ana River Watershed and qualifies as a PDP because it is changing the original line and grade of the facility and disturbs an area of native soil greater than 5,000 square feet. Due to the high infiltrating soils within the area, and an adjacent commercial land use that drains onto the project property, the Utilities Department has increased the capacity from the required DCV of 100,000 cf of capacity per the 85<sup>th</sup> percentile storm event, to 200,000 cf by diverting additional drainage area from adjacent commercial development to the project's infiltration BMP. Credits for the portion of the DCV that goes beyond what is required by the PDP are eligible

**Figure 9: Depiction of Credit Generator and Credit User within Watershed**



<sup>6</sup> The capture/infiltration volume for the project is equal to the DCV (85<sup>th</sup> percentile storm event)

for Credit generation and will be documented in a SCGR and referenced in the project WQMP. After applying Credit Reduction and Retention, 81,000 cf of the portion of DCV that goes beyond what is required by the PDP will be eligible to generate Credits.

*Credit User:* The Credit User is a privately-owned commercial development project that is a PDP subject to WQMP requirements. The project has a DCV of 5,000 cf and is located within Santa Ana River Watershed. A technical feasibility analysis has identified that on-site retention/infiltration of the DCV is not feasible and the private developer intends to purchase Credits for the entire DCV of the project rather than implementing on-site biotreatment controls. A WQMP, incorporating Credits proposed for use, will be completed for review and approval by the City. Based on the process outlined in the *Technical Basis Document: Pollutant Load Multipliers for Credit Users* and potential pollutant loading associated with a commercial development project in the Santa Ana River Watershed, the project will be required to purchase 2.16 Credits for each cf of Credit needed, for a total of 10,800 Credits. Once project documents are reviewed and approved by the City, the 10,800 Credits needed would be subtracted from the 81,000 Credits available in the watershed.

### 3 Credit Generator and User Oversight

This section identifies the review, approval, and verification process (Figure 10) that will be implemented as part of the Credit Program.

#### 3.1 Review, Approval, O&M, and Verification of Credit Generator

The City Public Works Department will be responsible for project review and approval before Credits can be generated or used, in accordance with the criteria established in this Credit Program. The City intends to contract with a third-party to assist in the review and verification process but will manage on-going functionality and maintenance of the Credit Generators internally. The approval process for both the Credit Generator and Credit User will require acknowledgement of the conditions associated with the design and on-going O&M of the Credit Generator and will be documented in the SCGR.

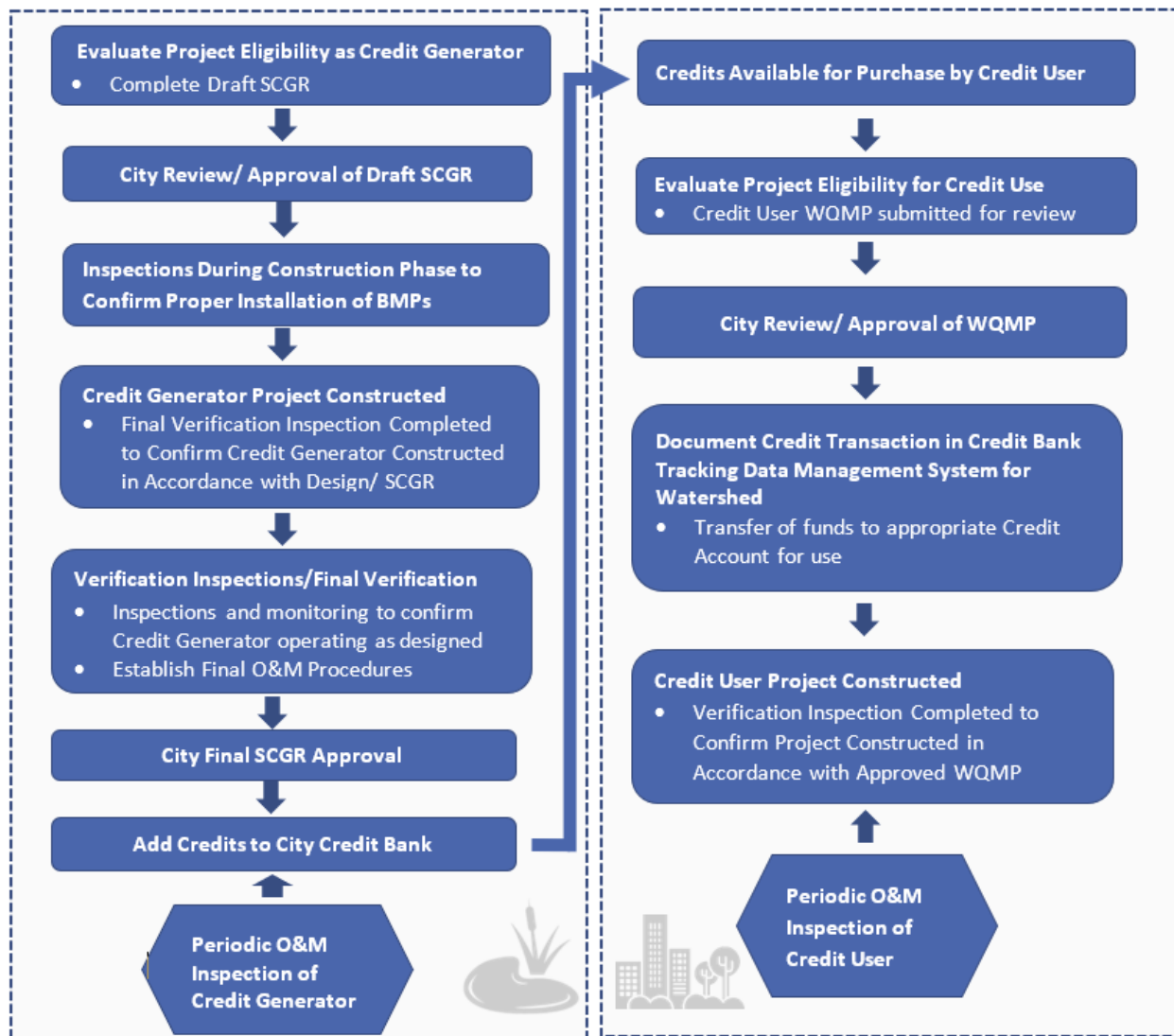
O&M Plan requirements incorporated into the SCGR will be consistent with Model WQMP and TGD requirements and the current MS4 Permit requirements for maintenance of structural treatment BMPs.

The City Public Works Department will perform the following:

- *Construction-Phase Inspections:* Performed during construction of Credit Generator projects to confirm the projects are constructed in accordance with the design plans and the approved SCGR. These inspections will be performed and documented at various stages of construction of the retention BMPs to confirm proper construction.
- *Final Construction Inspection:* A final construction inspection will be completed to confirm the Credit Generator construction is complete and consistent with design/construction plans.
- *Verification Inspections/ Final Verification:* Multiple verification inspections, including monitoring, will be completed after construction is complete to confirm the Credit Generator is operating as designed and to establish the appropriate O&M procedures. Additional details on the verification process are included in Section 3.2. *Final SCGR Approval:* Based on the results of the final verification and development/refinement of O&M procedures, the SCGR will be modified/adjusted as needed and approved by the City, and will be the guiding document for the management, operation, and maintenance of the Credit Generator.
- *Periodic O&M Inspections:* Performed, at a minimum annually, to confirm Credit Generator has been properly maintained and is operational. This will include a form of testing and/or inspection during operation to confirm the system functions as designed, both with respect to the flow routing, pre-treatment, capture volume, and infiltration/drawdown. The inspection and O&M frequencies, response trigger points, and detailed testing and maintenance protocols for each Credit Generator will be documented in the SCGR and incorporated into the O&M inspection procedures.

In the event the Credit Generator O&M inspection identifies that the capacity of a Credit Generator is diminished, an estimate of the diminished volume will be calculated. If the diminished capacity cannot be addressed through maintenance, a portion of the retained credits (see Section 2.4.3) will be permanently removed from the Credit Bank Tracking Data Management System and documented. The City's review, approval and oversight inspection process is shown in Figure 10.

Figure 10: Review, Approval, and Oversight Inspection Flow Chart



### 3.2 Verification Monitoring

The City has incorporated a rigorous verification process for each anticipated Credit Generator. The verification process is an important step in confirming the Credit Generator is functioning as designed and is used to establish the initial number of Credit generated, as well as the appropriate level operation and maintenance (O&M) for the Credit Generator.

- Storm event monitoring to ensure stormwater capture is occurring as designed. The City anticipates that monitoring will be performed for at least one to wet seasons to gather appropriate data on the capture and infiltration capacity of the Credit Generator. Monitoring will include the use of flow meters, level sensors, or other sensor(s) with the ability to confirm flow volumes into the system, as well as loss from the system through infiltration.
- Pretreatment is functioning effectively. The Credit Generator will be inspected to evaluate the effectiveness of the stormwater pretreatment in reducing trash, debris, and sediment into the system. Data generated from the monitoring system will be utilized when evaluating pretreatment effectiveness and potential loss of infiltration capacity due to clogging.

- Flow paths are maintained during and after storm events. During and/or post storm event inspections will be utilized, in conjunction with monitoring data, to assess whether the system is operating as designed.
- Infiltration rates and drawdown are functioning properly. As described above, data from the monitoring systems will be used to calculate infiltration rates and assess the operation of the Credit Generator. Modifications may be made to the system (i.e., pretreatment, flow routing, etc.) to enhance infiltration rates during the verification process.
- Vector related issues are identified and properly addressed in the O&M plan incorporated in the SCGR for the Credit Generator. If there are potential vector related issues identified, such as unanticipated, extended periods with standing water in the system, the City will address those issues during the verification process.
- Assessment of O&M impacts on performance. The verification and monitoring of the system will provide feedback on the appropriate O&M for each Credit Generator to enhance performance.

The O&M Plan in the SCGR for each Credit Generator will be updated and finalized based on the results of the verification process.

The number of credits a Credit Generator creates, as documented in the SCGR, will be updated based on the results of the verification process.

### 3.3 Revocation of Credits

While the City will be responsible for the long-term O&M of the Credit Generator and does not anticipate a scenario where a City maintained Credit Generator will be abandoned, the City has established a procedure to retain a portion Credits generated in each watershed and allow for the permanent removal of Credits from the Credit Bank Tracking Data Management System should the need arise (see Section 2.4.3).

### 3.4 Transfer of Ownership for Credit Generators

To ensure that Credit Generators are properly maintained, it is preferred and anticipated that Credit Generators remain owned by the City. If transfer of ownership is necessary, the requirements for maintaining the Credit Generator and preventing removal of the BMP generating Credits shall be recorded with the County Recorder's office by the Credit Generator or any successive owner/assignee to ensure that these requirements are attached by Deed to the Property. This requirement is similar to WQMP requirements that a local jurisdiction may require terms, conditions and requirements be recorded with the County Recorder's office by the property owner or any successive owner as authorized by the Water Quality Ordinance.

## 4 Credit Use & Tracking

This section identifies the mechanism to track and account for Credits. The funds generated from the purchase of Credits will be used for ongoing O&M costs and to supplement future regional stormwater retention projects.

### 4.1 Pricing and Selling of Credits

The City is developing internal guidance related to development and administration of the financial aspects of the Credit Program, including the Credit Price, transaction accounting, and fund disbursement.

The City will price Credits based on the cost of planning, permitting, designing, and constructing (capital costs), and operating, monitoring, maintaining, and administering (operations and maintenance [O&M] costs) Credit Generators. Separate prices will be calculated per watershed based on the total Capital and O&M costs of all Credit Generators in that watershed. As new Credit Generators are brought online within a watershed, the Credit Price will be adjusted based on changes in total Capital and O&M costs for all Credit Generators in that watershed and total credits available for sale in that watershed.

The City will price Credits based on Capital and O&M costs of Credit Generators, not to raise revenue for any other purposes. Costs for each Credit Generator project will be analyzed to separate out costs that are not specifically related to the Credit Generator infrastructure or to restore any infrastructure that had to be temporarily removed for installation of the Credit Generator infrastructure. Multiple benefit projects will be analyzed to identify specific Credit Generator costs and other costs not specifically for the Credit Generator elements. Only specific Credit Generator costs will be included in the credit price calculation.

When the City receives grant funds that are not to be repaid after completion of a Credit Generator project, those grant funds received will be subtracted from the total Credit Generator capital costs for the purpose of calculating credit price. The evaluation of grant funds received for each Credit Generator will be summarized in the SCGR, including the adjustment to overall capital costs used in the establishment of the Credit Price.

To establish the Credit Price, the City will prepare a resolution and proposed fee (Credit Price based on Credit pricing procedures) for City Council approval. The approved Credit Price, by watershed, will be included in the City approved Fee Schedule.

The City will track all Credit transactions, including the Credit Price within a watershed. The final price and terms of the transaction will be documented by the City and tracked as part of the Credit Bank Tracking Data Management System.

### 4.2 Timing for Use of Credits

A Credit Generator must be constructed, operational, and approved by the City (verification inspection complete and associated Credits approved) before Credits will be included in the Credit Bank (Section 4.3) and available for use. Once the Credits are approved and have been added to the Credit Bank, fund transfers will be managed by the City's Public Works Finance Division.

### 4.3 Credit Bank

The Credit Bank is the term established for the process to hold and track Credits generated and used through the Credit Program. For the purposes of the City's Credit Program, a Credit Bank Tracking Data Management System will be used as the tracking mechanism for Credit related information. The Credit Bank Tracking Data Management System is the spreadsheet or database that tracks the Credits generated and sold, the applicable

watershed, credit adjustments, credit price, as other associated components of the Credit Program. This information will be consistent with Credit information documented in the SCGR/WQMP developed for each Credit Generator/User. If a PDP is constructed within the tributary area of a Credit Generator after initial construction and approval, the Credit Bank Tracking Data Management System will be updated to reflect any additional Credit adjustments, if necessary, upon approval of the WQMP through the final verification inspection for the PDP. The Credit Bank Tracking Data Management System will summarize the available Credits in each watershed for use when evaluating Credit User eligibility. If the Credit Generator (i.e., a specific City Department) has specifically designated the Credits for their own department's future use, the Credits will be shown as generated but not available for purchase.

The Credit Bank Tracking Data Management System will be updated within 30 days of the approval of any new Credit Generator fully verified and approved by the City for the sale of any Credits for a Credit Program watershed.

The Credit Bank Tracking Data Management System will also be used to track the Credit price and manage and track the transfer of funds for Credit purchases by Credit Users within each watershed. The City's Public Works Finance Division will be responsible for disbursement of money associated with Credit transactions to the appropriate account.

#### **4.4 Reporting**

The City will track the progress and status of the Credit Program. The City will provide the Santa Ana Water Board a summary status report on a semi-annual basis (May 15 and November 15). The City will also provide supporting information such as SCGRs and Credit User WQMPs, upon request. While specific reporting obligations to the Santa Ana Water Board are not established in the MS4 Permit, the City will report program metrics from the past 6 months (i.e., summary of the Credit Generators and Credit User purchases approved, Credits reduced and retained in the Credit Bank for each watershed, and locations of Credit Generators and Credit Users). Much of this information will be included in the Credit Bank Tracking Data Management System, which will also be provided to the Santa Ana Water Board.

#### **4.5 Enforcement**

The primary mechanism to oversee and enforce the provisions of the Credit Program will be through periodic inspections of Credit Generators (see Section 3.1), periodic audits of the Credit Program (including the Credit Bank and financial aspects of the Credit Program), and internal documentation of corrective actions taken if O&M deficiencies are identified during inspections. As described above, the City has built in program resiliency and mechanisms to address the removal and retention of Credits from the Credit Program should there be a deficiency that cannot be addressed.

## 5 Tracking Tools

As described in Section 4.3, Credit generation and use will be tracked on a Credit Bank Tracking Data Management System. Modifications to Program tracking tools will be submitted to the Santa Ana Water Board for review, and approval if required.

## 6 Program Training, Coordination, and Integration

The Credit Program will be coordinated internally in the City and externally with the County, the Santa Ana Water Board and potentially others. The City will also provide training to appropriate City staff and the public through development and roll-out of procedural documents related to the Credit Program. Additionally, the City will develop a process to integrate evaluation of City CIPs with the Credit Program to identify potential Credit Generators that will be the most beneficial for the CIP Program as well as potential integration with other regional initiatives, if appropriate.

### 6.1 Program Training and Outreach

Upon program approval, the City will provide staff training through development and roll-out of procedural documents related to the Credit Program document, including but not limited to checklists, a Credit User WQMP template, procedures, fact sheets, etc. Through the City's website, the public will be able to access this Credit Program document, Credit pricing information, and contact information to obtain additional information on the Credit Program. Outreach will also be provided at regional seminars, meetings, and conferences for the development and regulated communities.

### 6.2 Program Coordination

The process for development of the Credit Program included coordination with both internal City Departments and external organizations. External coordination included presentations, meetings, and program review by the County of Orange, other interested Copermittees and agencies (i.e., Orange County Water District), the Construction Industry Coalition on Water Quality, and environmental groups (i.e., Orange County Coastkeeper, California Coastkeeper Alliance, and Natural Resources Defense Council). Input received from the County and other interested parties was reviewed, considered, and incorporated into the Credit Program as appropriate. Once approved by the Santa Ana Water Board, the City intends to continue to coordinate and share information with interested parties as the Credit Program is implemented.

### 6.3 Program Integration

The Credit Program will be integrated into City programs, including the integration of the Credit Program into the New Development/ Redevelopment Program and the City's CIP. Integration into the CIP process will include review of the CIP plan to identify where CIP projects will be located over the timeframe of the CIP plan to identify potential opportunities for Credit Generators. The process for the identification of potential Credit Generators will also use regional tools developed such as the Watershed Infiltration and Hydromodification Management Plans (WIHMPs) that identified potential locations for regional BMPs. These tools coupled with a desktop GIS exercise will help to identify potential locations of Credit Generators, which could then be field verified, investigated further with constraints analysis such as geotechnical studies and utilities investigations, and development of concept designs.



The program will also be integrated with other regional programs such as the North Orange County Watershed Improvement Projects Subcommittee (WIPS) efforts led by the County of Orange to identify and evaluate watershed improvement projects (regional BMPs) in the four north Orange County watersheds. Locations identified for potential watershed improvement projects through the WIPS efforts could also be used to identify potential locations for Credit Generators.

Because the Credit Program promotes regional stormwater retention projects, there is an inherent connection between the WIPS efforts for the watersheds that encompass the City of Anaheim and the Credit Program. The Credit Program also helps to restore the impacts from existing development by implementing regional stormwater quality improvement projects ahead of when typical redevelopment would occur, which speeds up restoration of the impacts of existing development. The WIPS efforts include the development of watershed models to understand the water quality, water quantity, and water supply benefits of the potential watershed improvement projects.

The intent of the WIPS effort is to improve water quality and overall watershed health over time. The Credit Program can assist in speeding up the timeframe of improving water quality and overall watershed health in a watershed, benefitting the overall WIPS efforts.

## 7 References

*Building a Water Quality Trading Program: Options and Considerations*. June 2015. National Network on Water Quality Trading.

<https://willamettepartnership.org/wp-content/uploads/2015/06/BuildingaWQTProgram-NNWQT.pdf>.

*Drainage Area Management Plan (DAMP), Exhibit 7.II, Model Water Quality Management Plan (WQMP)*. County of Orange. May 19, 2011.

*DAMP, Exhibit 7.III, Technical Guidance Document (TGD) for the Preparation of Conceptual/ Preliminary and/or Project Water Quality Management Plans*. County of Orange. December 20, 2013.

*Water Quality Equivalency Guidance Document for Participation in Jurisdictional Alternative Compliance Programs under California RWQCB, San Diego Region MS4 Permit*. Copermittees. May 2018.

<http://www.projectcleanwater.org/download/2018-wqe/>.

State Water Resources Control. 2014/2016 303(d) Listings.

[https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2014\\_2016.shtml](https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml).

*Order No. R8-2009-0030, NPDES No. CAS618030, As Amended by Order No. R8-2010-0062, Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region*. SARWQCB.

*Draft Order No. R8-2016-0001, NPDES No. CAS618030, Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region*. SARWQCB.

*Response to Comments for Draft Order No. R8-2016-0001, NPDES No. CAS618030, Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region*. August 24, 2016. SARWQCB.

*Storm Water Retention Credit Program*. Government of the District of Columbia, Department of Energy and Environmental.

“Stormwater Credit Trading Program Architecture” December 5, 2017. Vaikko Allen, Derek Berg, and Jacob Dorman; [www.ForesterNetwork.com](http://www.ForesterNetwork.com).

*The OC Plan, County of Orange, March 2018,*

<http://prg.ocpublicworks.com/DocmgmtInternet/Download.aspx?id=1489>.

*Model MS4 Alternative Compliance Program Benefit Cost Analysis for Orange County, California*. December 2016. Haimann Engineering, Inc, Construction Industry Coalition on Water Quality.