

James V. Fitzgerald Area of Special Biological Significance (ASBS)

Review of County Policies/Programs and Recommendations to Reduce Stormwater Runoff and Non-Point Source Impacts to Water Quality

Submitted in Support of Final Report for the County of San Mateo Fitzgerald Marine Reserve ASBS Pollution Reduction Program

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LIST OF ABBREVIATIONS

ASBS	Area(s) of Special Biological Significance
BASMAA	Bay Area Stormwater Management Agencies Association
BFLGP	Bay-Friendly Landscaping and Gardening Program
BFQP	Bay-Friendly Qualified Professional
BFLGC	Bay-Friendly Landscaping & Gardening Coalition
BMP	Best Management Practice
C/CAG	City/County Association of Governments
CCA	Critical Coastal Area
CCRMP	Central Coast Regional Monitoring Program
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DPW	San Mateo County Department of Public Works
ERP	Enforcement Response Plan
FOG	Fats, Oil and Grease
GI	Green Infrastructure
IPM	Integrated Pest Management
LCP	Local Coastal Program
LID	Low Impact Development
MRP	Municipal Regional Permit
MS4	Municipal Separate Storm Sewer System
MST	Microbial Source Tracking
NRCS	National Resource Conservation Service
NPDES	National Pollution Discharge Elimination System
PAH	Polynuclear Aromatic Hydrocarbons
PIP	Public Information and Participation
RCD	San Mateo County Resource Conservation District
SFEI	San Francisco Estuary Institute
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
TMDL	Total Maximum Daily Load
UCD	University of California, Davis
WELO	Water Efficient Landscape Ordinance

1.0 INTRODUCTION

This report summarizes key policies and programs that the County of San Mateo (County) implements that help protect and enhance water quality in the James V. Fitzgerald Marine Reserve, an Area of Special Biological Significance (ASBS). Many of these policies and programs have been recently revised to facilitate compliance with the Special Protections for Beneficial Uses of ASBS (Special Protections). The Special Protections are included with the General Exception to the California Ocean Plan waste discharge prohibition to ASBS that was adopted by the California State Water Resources Control Board (State Water Board) on March 20, 2012. The Special Protections require development of ASBS Compliance Plans by permitted point source dischargers (such as the County) or ASBS Pollution Prevention Plans by nonpoint source dischargers. The County's Draft ASBS Compliance Plan (County 2014) describes how the County, a National Pollutant Discharge Elimination System (NPDES) permitted point source stormwater discharger, is complying with the Special Protections.

The objectives of this report are to a) briefly summarize the existing relevant policies and programs, b) document recent changes to the policies and programs, especially those resulting from implementation of the Draft ASBS Compliance Plan and Special Protections, and c) recommend potential actions and associated improvements to the policies and programs to reduce stormwater runoff and non-point source impacts to water quality in the ASBS watershed.

1.1. Environmental Setting

The Fitzgerald ASBS is located in unincorporated coastal San Mateo County approximately seven miles north of the City of Half Moon Bay and includes the entire three-mile shoreline of the Fitzgerald Marine Reserve (Reserve). Coastal San Mateo County is rural in nature and presents a stark contrast to the densely urbanized areas located only ten miles to the east along the San Francisco Bay peninsula on the opposite side of the Santa Cruz Mountains. The watershed draining to the Fitzgerald ASBS is approximately 4.5 square miles (sq. mi.) or 2,880 acres and includes three relatively small creeks (Montara Creek, Dean Creek, and San Vicente Creek) and coastal bluff areas that drain directly to the ocean (Figure 1).

With more than two-thirds of the watershed in unincorporated rural lands, the dominant land uses are park/open space, ranching and equestrian facilities, small-scale agriculture, residential, light commercial/industrial, and a military facility. Three unincorporated residential communities are located in the watershed: Montara, Moss Beach, and Seal Cove. The urbanized areas are primarily very-low to medium density residential and overall imperviousness in the combined San Vicente, Dean, and Montara Creeks watershed (Figure 1) is estimated at only seven percent (San Mateo Countywide Stormwater Pollution Prevention Program 2002, California Coastal Commission 2008). A relatively limited network of storm drains and culverts directs runoff from some of the developed areas to receiving waters.

1.1.1. Water Quality Impacts

Existing and potential water quality impacts to the Fitzgerald ASBS are typical of those common to rural (e.g., open space, equestrian facilities, and small-scale agriculture), park, and residential land uses. Microbial pathogen indicators (e.g., coliform bacteria) have been identified as pollutants of concern in the area, and both the Reserve and San Vicente Creek are included on the 2010 Clean Water Act (CWA) 303(d) list for coliform bacteria with nonpoint sources identified as the potential source. A Microbial Source Tracking (MST) study conducted as part of the Proposition 84 grant-funded James V. Fitzgerald ASBS Pollution Reduction Program suggested that dogs are a primary source of fecal pollution.

Specifically, the project report stated “of the four host-specific markers that were analyzed (dog, horse, bovine, and human), dog-associated *Bacteroidales* was the most frequently detected host marker in the water, as well as in sediments and biofilms at all sites in the wet season” (SFEI and UCD 2013). A Total Maximum Daily Load (TMDL) to address the impairments is scheduled to be completed by 2019.

Pollutants of concern identified by the Fitzgerald Pollution Reduction Program (reports in preparation), unpublished preliminary water quality data from the Central Coast Regional ASBS Dischargers Monitoring Program, California Coastal Commission (2008), Ocean Plan Exception Monitoring (2007), and County Environmental Health Recreational Water Quality Monitoring Program include:

- Fecal indicator bacteria and urea;
- Trace metals (e.g., copper, nickel, zinc, lead);
- PAHs;
- Sediment related to land use activities (i.e., rural roads, construction, and residential practices) and due to flooding and erosion associated with the inadequate storm drain infrastructure;
- Pyrethroid pesticides (e.g., permethrin); and
- Legacy chemicals (elevated concentrations of DDT and PCBs found in bivalve tissues).

1.2. Existing Policies and Programs

Table 4.1 from the Draft ASBS Compliance Plan (County 2014) lists and summarizes the policies, plans, ordinances, and/or programs that have been developed to protect natural resources throughout the County and the Beneficial Uses of the ocean and other water bodies. This table is included below; additional details are available in the Draft ASBS Compliance Plan. Based on a review of these policies, together with information gained from the Fitzgerald Pollution Reduction Program and identified pollutants of concern, the following areas for improvement were identified:

- Confined Animal Ordinance (Section 2.0)
- Public Green Infrastructure (Section 3.0)
- Private Green Infrastructure (Section 4.0)
- Inspections (Section 5.0)
- Public Outreach and Education (Section 6.0)

The sections below describe existing policies, recent changes, and recommendations for improvements in these areas. Section 7.0 summarizes the recommendations from the various sections above.

Fitzgerald ASBS Water Quality Policies and Programs - Review and Recommendations

Table 1. Table 4.1 (Existing Programs Addressing Water Quality in the Fitzgerald ASBS) from the Draft ASBS Compliance Plan (County 2014)

Program	Summary of Sources Controlled / BMPs	Primary Pollutants Addressed
<p>Municipal Regional Stormwater NPDES Permit (MRP)</p> <p>San Mateo Countywide Water Pollution Prevention Program (SMCWPPP)</p>	<p>Municipal operations best management practices (BMPs)</p> <p>Source control at commercial businesses and industrial sites</p> <p>Inspection and follow-up of illicit discharges (e.g., non-stormwater discharges)</p> <p>Construction site BMPs to address sediment, erosion, run-on and run-off control</p> <p>Development site post-construction controls for pollutants and stormwater discharge rates and durations</p> <p>Trash, PCB, copper, mercury, pesticides, and other pollutant controls</p> <p>Public outreach and education</p> <p>Water quality monitoring</p>	<p>Pesticides</p> <p>Metals</p> <p>PAHs</p> <p>Sediment</p> <p>Trash</p> <p>Legacy Organics</p> <p>Other stormwater runoff pollutants</p>
<p>Department of Public Works (DPW) Watershed Protection Program</p>	<p>Permitting and compliance for DPW projects</p> <p>Erosion control design and implementation</p> <p>Development and implementation of Watershed Protection Maintenance Standards for DPW activities</p> <p>Training for County staff</p> <p>Participation in local conservation efforts</p>	<p>Sediment</p> <p>Pesticides</p> <p>Trash</p> <p>Oil & Grease</p>
<p>County Integrated Pest Management Policy</p>	<p>Reduced use of pesticides on property owned or managed by the County to the maximum extent practicable</p>	<p>Pesticides</p>
<p>County Zoning Ordinance Regulations</p>	<p>Prohibit grading activities during wet weather</p> <p>Environmental quality, site design, and water resources criteria</p> <p>No adverse impacts on the quantity or quality of marine and other wildlife</p>	<p>Sediment</p> <p>Pesticides</p> <p>Nutrients</p> <p>Other stormwater runoff pollutants</p>

Fitzgerald ASBS Water Quality Policies and Programs - Review and Recommendations

Program	Summary of Sources Controlled / BMPs	Primary Pollutants Addressed
County Confined Animal Ordinance	Detailed drainage and manure management plans required for approval of confined animal permit Setbacks from lakes, creeks, and streams required for animal structures and pastures	Sediment Nutrients Bacteria
County Water Efficient Landscape Ordinance	Applicable projects must comply with State’s Model Water Efficient Landscape Ordinance	Non-stormwater discharges
County Stormwater Management and Discharge Control Ordinance (Chapter 4.100)	Prohibits discharges of material other than stormwater into County storm drains unless in compliance with a NPDES permit or a specified exception Requires use of BMPs for any activity or operation which may contribute to stormwater pollution Prohibits littering in streets, storm drains, catch basins, conduits or other drainage structures such that it may become a pollutant	Trash Other stormwater runoff pollutants
Local Coastal Program (LCP)	Runoff containing fertilizers or pesticides must be stored on site and not released to any perennial or intermittent streams, and managed in accordance with U.S. Environmental Protection Agency & Regional Water Board regulations Nonpoint surface runoff control measures Impervious surface zoning standards Buildout and development policies BMPs for new development Erosion and sediment control plans Limited land disturbance and grading restrictions Sensitive species and habitat protections	Fertilizer Pesticides Sediment Other stormwater runoff pollutants
County Environmental Health and RecycleWorks	Education and outreach on topics including green gardening and landscaping, recycling, green business and building, and hazardous waste	Stormwater runoff pollutants
Fitzgerald Marine Reserve Master Plan	Natural resource management Visitor management program Uses and facilities program Water quality improvement program	Stormwater runoff pollutants

Fitzgerald ASBS Water Quality Policies and Programs - Review and Recommendations

Program	Summary of Sources Controlled / BMPs	Primary Pollutants Addressed
<p>Critical Coastal Area Program (CCA)</p> <p>CCA is part of the CA Nonpoint Source Pollution Control Program, administered by the State Water Board and the California Coastal Commission</p>	<p>Pilot project completed for the Fitzgerald Marine Reserve CCA</p> <p>Watershed Assessment completed to identify potential pollution impacts to coastal resources</p> <p>Action Plan was to be developed and implemented to address these impacts and improve water quality; however, the CCA pilot program is currently on hold due to budgetary issues.</p>	<p>Stormwater runoff pollutants</p>
<p>Monterey Bay Sanctuary Citizen Watershed Monitoring Network Snapshot Day and First Flush Monitoring</p>	<p>Water quality monitoring at locations within the Fitzgerald ASBS watershed</p>	<p>pH</p> <p>Temperature, Dissolved oxygen</p> <p>Nutrients</p> <p>Bacteria</p> <p>Metals</p> <p>Suspended sediment</p>
<p>County Environmental Health Recreational Water Quality Program</p>	<p>Bacteria water quality monitoring at locations within the Fitzgerald ASBS watershed</p>	<p>Bacteria</p>
<p>James V. Fitzgerald ASBS Pollution Prevention Program (Proposition 84 Grant-funded)</p>	<p>Storm drain inventory and assessment</p> <p>Microbial source tracking study</p> <p>Implementation of structural BMP retrofits to storm drain infrastructure</p> <p>Retrofit existing parking lot to improve filtration of runoff</p> <p>BMP effectiveness water quality monitoring</p> <p>Public education and outreach</p> <p>Future stormwater pollution reduction planning</p>	<p>Stormwater runoff pollutants</p>

2.0 CONFINED ANIMAL ORDINANCE (CAO)

2.1. Summary of Existing Ordinance

The County Planning and Building Department (Planning) is responsible for the administration of the County's Confined Animal Ordinance (CAO). The CAO helps address bacteria, sediment, and other pollutants of concern in the ASBS watershed by regulating the care and management of confined animals in unincorporated San Mateo County. The CAO requires a confined animal permit or exemption be issued by Planning to regulate the keeping of confined animals. Confined animals are defined as domesticated animals that are kept in confined structures (i.e., not solely in a pasture or range area) and typically have an adult weight exceeding 300 pounds, including but not limited to horses, mules, donkeys, and pot belly pigs.

Permits are required for the keeping of six or more animals in the rural area on land designated Open Space, Agriculture, Timber Preserve or Public Recreation and three or more animals in the urban area on land designated as Open Space, Agriculture or Public Recreation. Exemptions apply to smaller facilities and/or keeping of confined animals in the rural area for less than thirty consecutive days.

2.1.1. CAO Permit Process

Application for a Confined Animal Permit requires submittal for approval of a site management plan which demonstrates conformance to the criteria and standards of the CAO. The site management plan must include drainage and manure management components:

- The drainage component is required to show the confined animal areas, feeding and washing areas, direction of water flow, and proposed site drainage system. Specific drainage standards for confined animals include prohibiting surface runoff from coming into contact with stored animal manure; draining liquids more than ten feet from wells, septic tanks and/or drain fields; and draining animal waste runoff and liquids used to clean confined animals away from creeks, streams, lakes or other water bodies.
- The manure management component is required to include the method for and frequency of collecting, processing, storing and disposing or using the manure produced on-site. Specific manure management standards include requiring all animal waste be collected daily from confined animal structures; limiting stored animal waste for off-site use or disposal from being kept on site more than fourteen days; and requiring stored waste to be covered and separated from the ground by impermeable material.
- Confined animal structures and animal use of the property (including pasture or range areas) are prohibited from being located in lakes, creeks, and streams; within fifty feet of lakes, perennial creeks and streams, and thirty feet of intermittent creeks and streams; in sensitive habitat areas, including riparian corridors and wetlands; within fifty feet of the outward boundary of riparian corridors; within 100 feet of wetlands; on land used for a domestic well or septic tank, or above leach lines; and/or on slopes exceeding 30 percent for structures and 50 percent for animal use.

Planning's permit application review process includes a site visit and request for comments from the County Environmental Health Department, the Confined Animal Technical Advisory Committee, and the local fire agency.

An approved Confined Animal Permit is reviewed every three years for compliance with the conditions of approval. The review process includes a site inspection by Planning staff for zoning compliance, and a site inspection by Environmental Health staff for manure management and drainage compliance.

In accordance with the CAO, progressive enforcement action will be taken to bring noncompliant facilities into compliance. The initial identification of a facility's noncompliance with County Ordinance and regulations will result in the issuance of a written notice to the owner/operator for corrective action, the nature of the violation, the process to remedy the violation, and a specified date (up to 3 months after the date of violation, depending on the nature of the violation) by which corrective action shall be taken and/or re-inspection will occur. If corrective action is not taken by the specified deadline, the case is referred to the County Code Enforcement Division for further enforcement action. The Code Enforcement Division will issue a notice of violation with a two week deadline for compliance. If compliance is not made, Administrative Citations would be issued with fines pursuant to County Ordinance Code Section 1.40.010. If additional time is needed to correct the violation, the owner/operator must submit a timeline/schedule for compliance for review and approval by the County that demonstrates timely efforts toward compliance. Continued neglect to correct a violation will result in revocation of the permit, possible legal action and/or abatement by the County.

2.1.2. CAO Exemption Process

Confined animal keepers seeking exemption from the Confined Animal Permit must demonstrate to Planning the following:

- The keeping of confined animals conforms with the: (1) minimum parcel area, (2) maximum number of animals, (3) prohibited locations, and (4) minimum setback provisions of the CAO.
- Confined animal structures are not located within 300 feet of the inland extent of any beach, or of the mean high tide line where there is no beach.
- Confined animal structures are not located within 100 feet of any wetland, estuary, or stream, or within 300 feet of the top of any coastal bluff, or within 50 feet of the riparian corridor.
- Confined animal structures are not located on slopes of thirty percent (30%) or greater.
- Confined animal structures are not located within 50 feet of a domestic well, or above a septic system.
- The keeping of confined animals will include runoff control and manure management measures that protect water quality, sensitive habitats, and other significant environmental resources from potential adverse impacts.

Planning staff reviews the information and conducts a site visit prior to issuance of a certificate of exemption. The CAO does not currently require periodic review of exemptions.

2.2. Summary of Recent Relevant Changes

The current version of the CAO is dated 2001. No changes have been made since that time.

2.3. Recommended Future Improvements

Planning is currently in the process of reviewing the CAO, including review with the designated Confined Animal Technical Advisory Committee, for improvements to the current enforcement process to ensure such process is applied in an appropriate and timely manner and to update the frequency of inspections for confined animal facilities within the San Pedro Creek watershed. This review will be completed by April 30, 2015. Proposed amendments to the CAO must be brought to the County's Board of Supervisors

for approval. Progress of this review will be reported to the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) with the County's next (FY 2014/15) Bay Area Stormwater Municipal Regional Permit (MRP) Annual Report due September 15, 2015.

Recommendations for updates to the CAO include:

- Update the CAO to specifically acknowledge and address the sensitive receiving water resources in the Fitzgerald ASBS that are subject to the Special Protections, and other areas where more rigorous water quality protection efforts are warranted, such as the San Pedro Creek watershed in the City of Pacifica for which a bacteria Total Maximum Daily Load (TMDL) was adopted in 2012.
- Conduct more frequent (e.g., annual) review, including site inspections, of facilities within the ASBS and San Pedro Creek watersheds holding Confined Animal Permits.
- Conduct reviews, including site inspections, of facilities holding certificates of exemption every three years. These facilities include those with up to five animals in the rural area and up to two animals in the urban area.
- Change the enforcement process to follow the procedures for code enforcement of stormwater related violations, as detailed in the Planning and Building Department and Department of Public Works Stormwater Enforcement Response Plan.
- Add staff from the County Office of Sustainability, which was formed in July, 2014 as a pilot program of the County Manager's Office, to the Confined Animal Technical Advisory Committee or request Office of Sustainability staff's review and comment on Confined Animal Permit applications.
- Include an educational component developed by Planning staff to the review process for Confined Animal Permits and facilities holding exemptions. The education component could include development (or adoption) of a guidebook describing equestrian-related and pertinent Bay-Friendly Landscaping Best Management Practices (BMPs) that protect water quality. Site inspectors could engage facility owners/operators in discussions regarding sensitive receiving waters (e.g., Fitzgerald ASBS) and state-of-the-art manure management methods (e.g., composting), and could distribute Fitzgerald Pollution Reduction Program educational materials and the new (or adopted) BMP guidebook. The County may decide to use the Council of Bay Area Resource Conservation Districts' Horse Owners Guide to Water Quality Protection until an ASBS-specific version is developed. Encourage facility operators and owners to seek technical assistance from other agencies, such as the San Mateo County Resource Conservation District (RCD).

It is also recommended that the County develop a new ordinance or update an existing ordinance (e.g., stormwater ordinance) to address management of excreta from other domestic animals such as dogs and cats.

3.0 PUBLIC GREEN INFRASTRUCTURE

A new vision has emerged that entails the use of Green Infrastructure (GI) through a holistic hierarchy of stormwater management that considers stormwater a resource instead of hazard:

1. Reduce: Convert existing impervious surfaces to pervious surfaces and construct new surfaces where possible with permeable pavements that allow water to infiltrate into the subsoil, thereby reducing the run-off of stormwater at its source.
2. Re-direct: Convey the flow from any remaining impervious surfaces to sustainable landscapes employing the natural processes of trees, plants, soil and the biological communities in that soil to treat and clean stormwater.
3. Re-use: Consider rainwater as a resource and use it in place of potable water for irrigation or toilet flushing, thus saving potable water for the highest and best use – drinking.

GI has grown out of the field of Low Impact Development (LID), which has traditionally been used at the parcel level to reduce site run-off and protect or restore natural hydrologic functions. GI can be thought of as the “re-spongifying” of the urban watershed – both public and private properties.

This section of the report discusses GI in the public realm and the process of institutionalizing changes to standard municipal engineering, planning and maintenance processes to reduce the run-off of polluted stormwater from municipally owned roadways, sidewalks, parking lots and landscapes. The historical practice of directing urban run-off as quickly and efficiently as possible to lakes, rivers, creeks, bays and oceans with concrete, asphalt and pipes is no longer accepted. Now the mantra is “slow it, spread it, and sink it” as reflected in the hierarchy above. Communities in the Bay Area and all over the world are rediscovering old practices, such as building roads out of pavers, to reduce pollution and restore the health of local watersheds. These newly designed roadways are called Green Streets and are one aspect of GI. Other key components of GI are parks, the urban forest and other planted landscapes. However, not all vegetated landscapes are sustainable and they can create pollutants of their own. Combining the concepts of Bay-Friendly Landscaping with GI creates a program tailored to the local climate. If the Bay Area is to become more resilient in the face of climate change, droughts and sea-level rise, the landscaping used in GI needs to be designed in a holistic manner that addresses these issues as well as stormwater permit requirements.

3.1. Summary of Existing Relevant Policies and Programs

LID concepts were first incorporated into the stormwater permits in the Bay Area in 2001. The MRP expanded those concepts into LID site design and treatment requirements and also began to address LID in the public right-of-way. The MRP requires that new roadways and roadways adding a travel lane that are replacing or creating over 10,000 square feet of contiguous impervious surface incorporate LID measures. There are currently no requirements for road projects within the existing road footprint or for retrofits of existing roads, except for an already completed requirement to implement ten Green Street pilot projects throughout the Bay Area.

The next MRP, anticipated to be adopted during 2015, will likely include requirements for greatly expanded public right-of-way GI planning and early implementation, including opportunistic retrofitting of existing roadways. GI will also likely be used to help meet the provisions of the permit related to pollutants of concern such as PCBs, mercury and trash. When properly designed and maintained, GI is generally effective at reducing levels of a wide range of pollutants in stormwater, including microbial

pathogens and associated indicator organisms (e.g., coliform bacteria), suspended sediments, organics (e.g., PAHs, PCBs and many pesticides), and metals (e.g., copper, zinc and nickel) (BASMAA 2015).

The anticipated (though currently under development) approach for the next MRP can be summarized as follows:

- Use GI (both in public right-of-way and private projects) as part of long-term compliance with mercury/PCB, trash and C.3 provisions.
- Initiate programs to coordinate long-term GI planning.
- Leverage private development to incorporate GI in public right-of-way, as feasible.
- Review capital improvement program projects for GI opportunities.
- Adopt GI resolutions committing Permittees to GI policies and procedures.
- Train staff, contractors and public on benefits of GI.
- Track and report on implementation progress.
- Coordinate with transportation stakeholders to include GI in transportation funding mechanisms.

3.2. Summary of Recent Relevant Changes

As part of the prioritization and planning process, impervious cover area in each watershed draining to the ASBS and vicinity was estimated in the Critical Coastal Areas Program Pilot Project. Based on established relationships between impervious area and aquatic habitat degradation, percent impervious area has been identified as a predictor of stream health. Degradation, including channel erosion, reduced groundwater discharge, and increased flooding, has been observed in watersheds with as little as 10 percent impervious area. Watersheds with 10 to 25 percent impervious area may experience major alterations in stream morphology. Watersheds with over 25 percent impervious area suffer from loss of habitat, lack of floodplain connectivity, bank instability, and decreased water quality. Current impervious area in the San Vicente, Dean, and Montara watersheds was estimated at 7 percent, which is below the threshold for stream health degradation. Future development in the watersheds could increase impervious area; however, development is constrained by Local Coastal Plan restrictions (San Mateo Countywide Stormwater Pollution Prevention Program 2002, California Coastal Commission 2008).

Based on the impervious cover data and the low amount of existing and planned development and redevelopment activity in the area, the County's GI efforts to-date have focused on achieving water quality improvements in the ASBS watershed through retrofits of existing roadside ditches into vegetated swales, a green streets project along Carlos Street in Moss Beach, and a parking lot retrofit at the Fitzgerald Marine Reserve with stormwater quality and quantity control BMPs. Over the last several years the County has implemented 21 BMPs at 17 locations throughout ASBS watershed including BMPs addressing 11 direct storm water discharges to the ASBS.

3.3. Recommended Future Improvements

The conversion of publicly owned infrastructure from gray to green is a decades-long process that encompasses and affects many San Mateo County policies and programs. The Departments of Planning and Building, Parks, Public Works, Fire, Police, Health, Environmental Health, Legal, Economic Development and Finance, and Office of Sustainability, are all involved in planning and implementing long-term sustainable changes to the streets, drainage systems, open spaces, parks, buildings, landscapes and other facilities that are County controlled and/or owned within the ASBS. The County is

still in the early stages of collecting data, setting priorities and making long term planning decisions about how to best spend limited available funds on achieving water quality objectives within the ASBS watershed.

It is recommended that the County continue to gradually convert its public infrastructure within the ASBS watershed from gray to green and to use resources, such as the Countywide Sustainable Green Streets and Parking Lots Design Guidebook, to prepare for the new MRP requirements – both in planning and public works. The Guidebook is an award-winning document that illustrates a set of tools for implementing sustainable GI into the public right-of-way design process. It integrates multi-modal active transportation concepts with stormwater quality and quantity practices to help municipalities take the next step towards implementing more sustainable public projects.

More specific recommendations are listed below and grouped according to the applicable department:

Department of Public Works (DPW):

A. Highlight the following on the main DPW web page:

<http://publicworks.smcgov.org/>

1. General GI Approach and Priorities - Add information about GI and the priorities for DPW. Outline what DPW and others are doing to gradually convert from gray to green throughout the county and specifically in the ASBS.
 2. ASBS Prop 84 Grant – Provide GI project details for BMPs in public right-of-way on DPW website or provide link to Fitzgerald ASBS Pollution Reduction Program page (<http://smchealth.org/asbs>) that includes project details. DPW will coordinate with other County Departments as appropriate (e.g., the Office of Sustainability) and the RCD on the highlighting of the improvements completed.
 3. Bay-Friendly Landscaping and Gardening Program (BFLGP) and Training/Certification – Highlight what DPW is doing in this area.
 4. Develop additional County website features such as done by the San Francisco Public Utilities Commission with their GI projects, interactive map and Typical Details:
<http://sfwater.org/index.aspx?page=614>
<http://sfgov.maps.arcgis.com/apps/MapTour/index.html?appid=1c85679029a541c48d4a6aa0826f0a00&webmap=43fa8343164744448f66b6d519678196#>
<http://sfwater.org/sdg>
- B. Establish goals to train and achieve Bay-Friendly Qualified Professional (BFQP) status for all DPW maintenance crews (landscape and roadway) in a BFLGP O&M program by 2018. For example, the City of Oakland requires that all of their park and landscape maintenance staff become Bay Friendly Qualified Professionals in order to work full time and/or be eligible for promotion (95 staff have now completed the training as of 2015), and Section 3.5.1 of the City's Environmentally Preferable Purchasing policy (EPP) requires Bay Friendly maintenance for City landscapes (Oakland EPP 2007). The County should work with the Friends of Fitzgerald Marine Reserve and other local groups to customize Bay-Friendly Landscaping maintenance standards for the ASBS watershed, educating the public on the benefits of the Bay-Friendly Landscaping at the same time. The County could work with the BFLGP to re-brand the BFLGP as an Ocean-

Friendly LGP or some other similar name as other agencies have done in California such as River-Friendly and Lake-Friendly.

- C. Review any projects that the County has planned for new or retrofits of landscaping and/or streets and modify those projects as possible to add GI or Bay-Friendly elements in the ASBS watershed. Note: MRP 2.0 approach may include reviewing all capital improvement program projects for GI opportunities.
- D. Develop Bay-Friendly Landscaping stormwater treatment system details for urban forestry. See example of City of Fremont details: <http://www.fremont.gov/232/Landscape-Architecture>
- E. Continue to work with SFEI to generate recommendations for prioritized LID and GI implementation locations and seek possible grant funding to implement those projects.

Department of Planning and Building:

- A. Make improvements to Planning websites:

<https://planning.smcgov.org/stormwater-pollution-prevention-projects>

<http://planning.smcgov.org/areas-special-biological-significance>

- 1. Add information about GI, Bay-Friendly Landscaping, the Water Efficient Landscape Ordinance and the priorities for Planning. Outline Planning's role in the gradual conversion of public infrastructure from gray to green throughout the county and specifically in the ASBS.
- 2. Add information on what the County is considering related to the incorporation of GI into various planning documents such as those below in item C, and especially those related to the ASBS watershed.

- B. Make improvements to Building website:

<https://planning.smcgov.org/building>

Over time, with the addition of CALGreen and other similar sections of the new building code, the Building Department's scope and mission have been broadened from life and safety only to include water quality and other environmental issues like energy efficiency. The website could include information on the following: Rainwater Harvesting as described and defined in the 2013 Plumbing Code, the Rain Barrel Rebate Program from SCMWPPP, LID requirements for new development projects in the MRP, Water Efficient Landscaping Ordinance (WELO) requirements from the State and/or County and information on the drought as it relates to the construction of new landscapes and buildings.

- C. Begin to incorporate GI into County planning documents such as: Active Transportation (Bike/Pedestrian/Transit), Open Space/Parks, General and Specific Plans, and Urban Forestry.

4.0 PRIVATE GREEN INFRASTRUCTURE

4.1. Summary of Existing Relevant Policies and Programs

As a Permittee of the MRP, the County is required to implement Provision C.3 of the permit which relates to development projects. GI and Low Impact Development (LID) are keystone concepts in Provision C.3 which requires projects to use design strategies that increase perviousness, infiltration, evapotranspiration, harvesting and use of rainwater and biotreatment. Provision C.3 also requires appropriate source control measures to reduce pollutants from coming into contact with stormwater and for larger projects, the reduction of peak flows to creeks that are at risk of erosion.

The next MRP will likely be adopted during 2015 and is anticipated to require increased implementation of LID and GI with tie-ins to provisions of the permit related to pollutants of concern.

As part of the Proposition 84 grant-funded portion of the Fitzgerald Pollution Reduction Program, sustainable back yard assessments were conducted by the RCD with assistance from the National Resource Conservation Service (NRCS), and design plans for LID/BMPs (e.g., rain gardens, swales, rain water catchment systems, permeable driveways) were developed for nine properties in the ASBS watershed. These projects will be implemented over the next year and will serve as demonstration sites for the community.

The land uses within the ASBS watershed (as shown in Figure 1 below) are primarily open space with low density single family residential and some small commercial. Current and projected levels of redevelopment are low which affects the effectiveness of various strategies that are available. Further discussion of this is included in Section 4.3.

As landscaping is a key component of the LID and GI approach, it is crucial that the design, construction and maintenance of that landscaping be done using sustainable practices. Otherwise pollutants from the landscape can actually worsen water quality. The MRP recommends the use of the Bay-Friendly Landscaping program. Its holistic sustainable approach to landscaping is appropriate for the region's climate and covers all the best management practices of a landscape including water quality. Bay-Friendly Landscaping in tandem with LID requirements for private development can create a powerful partnership for implementing GI and converting watersheds to a more sustainable and healthy ecosystem. Other methods for getting Bay Friendly Landscaping out into the community include working with education programs in schools, community workshops, nurseries and Master Gardeners. Possible partners in this effort include SMCWPPP, RecycleWorks, and the County's Green Business Program, RCD, Agricultural Extensions and School Districts.

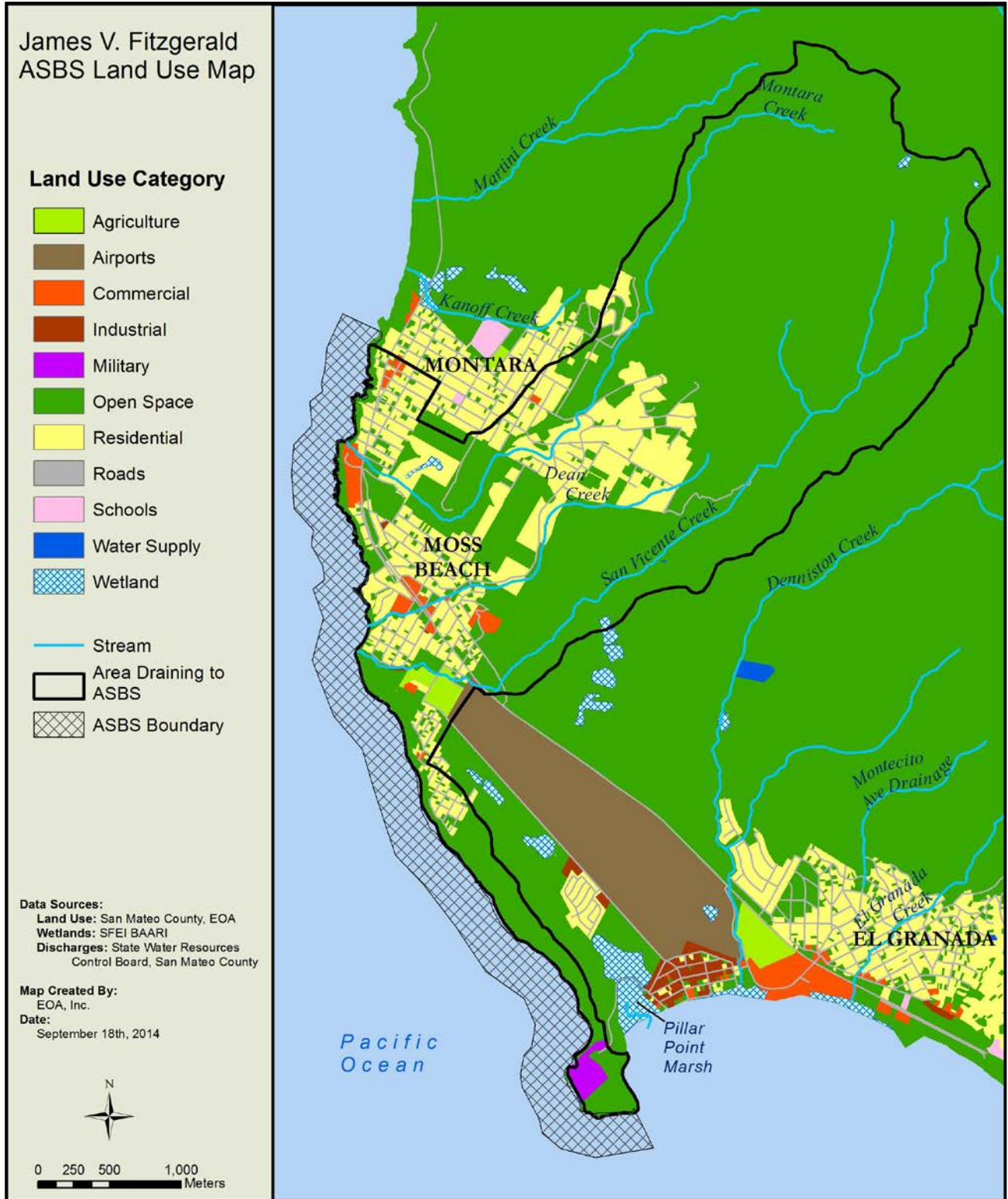


Figure 1. Land Use in the Fitzgerald ASBS Watershed

4.2. Summary of Recent Relevant Changes

Recently adopted new policies and programs related to LID and private GI include:

1. The County formed a New Project Review (NPR) committee in 2014 to improve the planning permit review process by creating a forum where applicable reviewing agencies can conduct an initial joint review of new projects. The NPR committee provides an initial review of the project's stormwater compliance to identify whether additional details or site plan modifications are needed to address stormwater management and compliance with the MRP. The County began using a new process in Planning with the updated C.3 - C.6 Project Checklist in 2014. The new checklist helps streamline the project review process for County staff and applicants and summarizes the data required for the annual stormwater report submitted to the Regional Water Board.
2. The San Mateo County Office of Sustainability was created in 2014 by the County Manager's office. Its tasks include coordinating NPDES compliance activities and the annual stormwater report, TMDL compliance, programs related to implementation of the Climate Action Plan, and interdepartmental communication and coordination related to sustainability activities.

4.2.1. Planning and Building Permit Counter

Planning, through its development/redevelopment project review and approval process and its role as an information clearinghouse for private property developers, has several opportunities to educate the public about ASBS water quality issues and require related mitigating measures. For example, the County addresses non-stormwater discharges by using the Planning development review process to identify and require new/replaced hardscaped areas that could be used for car washing (e.g., driveways) to pipe/drain to adequately-sized vegetative areas or other on-site treatment facilities prior to discharge to any County storm drain system. Nutrients, pesticides, and over-irrigation (i.e., non-stormwater discharges) are addressed through the Planning review process by requiring the use of drought tolerant and native vegetation and prohibiting fertilizer and pesticide use through conditions of approval within the ASBS watershed. As part of its public information/assistance service, Planning relies on staff to educate citizens at the public assistance counter about the concerns of polluted irrigation water and other chemical discharges to the ASBS. In addition, Planning implements the State of California Model Water Efficient Landscape Ordinance (effective January 1, 2010) which seeks to promote the conservation and efficient use of water. Planning and DPW review new development project plans for compliance with MRP Provision C.3 and as appropriate require those projects to include site plans with adequate stormwater management practices.

4.3. Recommended Future Improvements

The current County Water Efficient Landscape Ordinance (WELO) and MRP Provision C.3 thresholds require LID as large projects come forward with proposals for the complete demolition and re-design of existing properties and small projects come forward with proposals for retrofits or new buildings and landscapes. However, for the low density, rural and small commercial land uses common within the ASBS watershed with thresholds under the current MRP and County municipal codes, LID actions are unlikely to occur.

It is recommended that the pace of private GI conversion be increased through several programs:

- A. Adopt and implement new lower WELO and Provision C.3 thresholds specific to the ASBS watershed to require LID on smaller commercial and single family properties as buildings and

landscapes are renovated or refurbished. Lower the current thresholds in the WELO (to 500 or 1,000 sq. ft.) and in the County Stormwater Management and Discharge Control ordinance (Title 4, Chapter 4.100 and specifically Section 4.140 of the County Municipal Code) to all works of grading and paving for projects within the ASBS watershed. Add more Bay Friendly Landscaping required elements to the WELO and Water Conservation in Landscaping (Section 4.36.120 of the Municipal Code) such as the use of compost as a soil amendment. Programs modeling this approach include:

- StopWaste:
<http://stopwaste.org/preventing-waste/landscape-policies-ordinances>
 - City of Union City
<http://www.ci.union-city.ca.us/departments/economic-community-development/planning>
 - City of Emeryville WELO and Stormwater Ordinance
<http://emeryville.org/519/Plans-Programs>
- B. Adopt and implement new rebate programs to incentivize retrofitting existing properties with LID (e.g., rain barrels, rain gardens, pervious pavement, and green roofs). Building on the current City/County Association of Governments (C/CAG) rain barrel rebate program (flowstobay.org/rainbarrel), create more rebates and incentive programs for the ASBS watershed residents and businesses. Model programs include:
- RainScapes Rebate Program – Montgomery County
www.montgomerycountymd.gov/dep/water/rainscapes-rebates.html
www.montgomerycountymd.gov/DEP/water/rainscapes.html
 - “Downspout Re-Direct” rebates - Santa Cruz County water agencies like Soquel
www.soquelcreekwater.org/conserving-water/rebates/downspout-re-direct
 - City of Palo Alto Rebate Program
www.cityofpaloalto.org/gov/depts/pwd/stormwater/rebates/default.asp
- C. Consider working with C/CAG to restore the SMCWPPP Community Action Grants for small residential projects or school projects.
- D. Consider adopting and implementing new regulatory means to require over time the retrofitting of existing properties at time of sale and/or by a specified certain date. This can be done by the adoption of an LID ordinance or the modification of the existing Stormwater ordinance with specific regulations for the ASBS watershed with time of sale or date-certain mechanisms, Post-Construction Soil Standards, landscaping minimums and site design measures. Model programs include:
- EBMUD – Private Sewer Lateral Ordinance
www.eastbaypsl.com/eastbaypsl
 - Soils for Salmon program from Seattle area
www.soilsforsalmon.org
 - San Jose – Municipal Code and LID Policy

www.stormwater.sanjoseca.gov/planning/stormwater/

- E. Develop new outreach programs or better coordinate existing programs to educate residents and local businesses about water quality concerns, water saving landscaping methods and sustainable landscaping benefits to encourage additional voluntary property improvements. Note that SMCWPPP is already doing some outreach on behalf of the County and other Permittees.
1. Develop a LID guidance brochure or booklet primarily targeted to small-scale and residential projects. Model programs include:
 - San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) C.3 Technical Guidance Manual
 - SMCWPPP Green Streets Guide
 - RCD Rural Roads guide and other RCD information
 - Bay-Friendly Landscaping and Gardening Coalition
 - Santa Cruz RCD “Slow it, Spread it, Sink it”
 - Bay Area Stormwater Management Agencies Association (BASMAA) Fact Sheets
 - SMC Planning ASBS website
 - SMCWPPP Rain Barrel rebate
 - Bay Area Eco Gardens - SCVURPPP
 - The measures developed for the Proposition 84 grant project (but not yet constructed), including photos and design details.

The brochure should include the following elements:

- Midcoast/ASBS specific – for permit applicants located within the ASBS watershed and broader MidCoast area
- Use layman’s language with many example photographs of local projects
- Background section on the ASBS and stormwater quality
- Pesticide/herbicide alternatives (Bay-Friendly Landscaping)
- Pet waste
- Use and proper disposal of hazardous materials (paints, solvents, etc.)
- Sewer lateral/septic maintenance & resources
- O&M recommendations
- Cautions – soil type, coastal erosion, septic drain fields
- Permitting requirements and regulations
- Funding options

Fitzgerald ASBS Water Quality Policies and Programs - Review and Recommendations

2. Increase education about watersheds and water quality in schools located in the ASBS watershed, especially in relation to LID/GI and Bay-Friendly Landscaping and Gardening. For example, educational programs such as the Banana Slug String Band outreach program and RecycleWorks could be enhanced, and participation in Oceans Week activities at Farallone View Elementary should continue. A model program to consider is the “Keep it Clean Downstream” Partnership with signage in Boulder, Colorado.
<http://www.keepitcleanpartnership.org/>
3. Conduct enhanced outreach to architectural copper vendors and installers in the ASBS watershed. The SMCWPPP architectural copper BMP flyer should be customized for the ASBS watershed. Architectural copper vendors who provide services to property owners in the ASBS watershed should be contacted and provided with the updated flyer via email.

5.0 INSPECTIONS

This section focuses on construction site, industrial and commercial facility, and storm drain outfall inspections conducted by the County. The frequency of these types of inspections was recently increased to comply with the Special Protections. Other types of inspections performed by the County are not addressed here. The inspections described below are intended to help address a variety of pollutants of concern typically found in urban stormwater runoff. In addition, where applicable, inspections are used as an opportunity for public outreach.

5.1. Summary of Existing Relevant Policies and Programs

The County is a Permittee under the Bay Area Stormwater Municipal Regional Permit (MRP) (Order No. R2-2009-0074). The MRP contains requirements for Permittees to implement a Construction Site Control Program, a Commercial/Industrial Site Control Program and a Collection System Screening Program. The MRP has minimum inspection requirements and minimum legal authority requirements for all three programs.

The County meets the legal authority requirements through San Mateo County Municipal Code Chapter 4.100 Storm Water Management and Discharge Control. Chapter 4.100 provides the legal authority for the County to require BMPs at any construction site, commercial business or industrial facility that may cause or contribute to stormwater runoff pollution and perform inspections to determine whether a site is in compliance with the local ordinance. The ordinance also provides enforcement authority for inspectors to bring sites into compliance as needed.

5.1.1. Construction Sites

The County Construction Site Control Program includes all construction sites. The minimum inspection frequency required by the MRP is to inspect each construction site once a month during the wet season, from October through April, if the site disturbs one acre or more of land or has been identified by the County as high priority. Violations found during inspections must be corrected within 10 business days or by the next rain event to be considered corrected in a timely manner. This requirement in the MRP is also established in the County's Stormwater Enforcement Response Plan (ERP) for the Municipal Stormwater Program (revised May 17, 2013).

The County identifies construction sites that must be inspected through their plan approval and permitting process. The Building Department is responsible for inspecting private construction sites and DPW Construction Management or Watershed Protection Inspectors are responsible for inspecting County public construction sites.

5.1.2. Industrial Facilities

Industrial facilities that meet the requirements of the Statewide Industrial Stormwater General Permit (Order 2014-0057-DWQ to become effective July 1, 2015) must file a Notice of Intent (NOI) to be covered under the permit. The MRP requires that these NOI facilities be inspected by the Permittees as part of their Commercial/Industrial Site Control Program. The prioritization and frequency of inspection is documented in a Business Inspection Plan. The County's Business Inspection Plan requires that NOI facilities be inspected annually. These inspections are conducted by County Environmental Health (CEH) Department inspectors at the same time as the Certified Unified Program Agency (CUPA) hazardous materials/waste inspections.

5.1.3. Commercial Businesses

The MRP requires Permittees to inspect commercial facilities that could reasonably be considered to cause or contribute to pollution of stormwater runoff. The business types and individual businesses identified by the County for stormwater inspections are documented and prioritized for inspection in their Business Inspection Plan. High priority businesses are inspected annually, medium priority businesses are inspected once every two years and low priority businesses are inspected at least once during the five year MRP permit term. These inspections are coordinated, if possible, with the CUPA hazardous materials/waste inspections or food service establishment inspections.

5.1.4. Storm Drain Outfalls

The MRP Collection System Screening Program requires Permittees to conduct a survey of strategic collection system check points once each year during dry weather conditions. Routine surveys that occur during regular conveyance system maintenance inspections count toward this requirement.

5.2. Summary of Recent Relevant Changes

The Special Protections require an inspection program with minimum inspection frequencies for construction sites, industrial and commercial facilities, and storm drain outfalls in the ASBS watershed. In most cases, Special Protections inspections are more frequent than those required under the MRP or other programs. In 2014, the County updated their various inspection plans to make them consistent with Special Protections requirements.

5.2.1. Construction Site Inspection Program

The Special Protections require weekly inspections at construction sites during the rainy season. The County's program to meet MRP requirements required monthly inspections during the rainy season with a follow-up inspection conducted within 10 business days (or before the next rain event) if the site has a violation. There is no ordinance change necessary to meet the new Special Protections requirement. However, the additional inspections increase the work load of Building Department staff, necessitating adjustments in the number of staff conducting these inspections and/or staff workloads, and possibly the inspection fee program.

The MRP requires monthly inspections at sites disturbing 1 acre or more and high priority sites as determined by the County. The threshold for the ASBS inspections is construction sites that involve soil disturbance and are subject to a building or grading permit. Weekly inspections during the entire rainy season are typically required for sites that have grading permits. Building permits can be issued for projects with minimal ground disturbance where the duration of ground disturbance is typically less than one week (e.g., footings for a new deck). For sites triggered by a Building permit where the ground disturbance is minimal, the duration of disturbance is estimated to be less than one week, the area of work is flat, and proper erosion control measures are proposed, the County relies on Building (or Planning) Department staff to verify the area of work is stabilized prior to final building inspection. Given the number of construction projects with a grading permit or building permit in the Fitzgerald ASBS watershed in past several years, it is estimated there is likely to be 3 - 6 construction sites that require weekly inspections during the rainy season and 3 - 5 sites that require limited inspections due to the minimal scope of the project in any given year.

5.2.2. Industrial Facilities Site Inspection Program

The Special Protections require monthly inspections at industrial facility sites during the rainy season. The County's program to meet MRP requirements required annual inspections. Ordinance or staffing changes have not been needed to meet the new Special Protections requirements since currently there are no NOI facilities in the Fitzgerald ASBS watershed.

5.2.3. Commercial Business Site Inspection Program

The Special Protections require two inspections of each commercial business, including restaurants, during the rainy season. There are approximately 35 commercial businesses in the Fitzgerald ASBS watershed. The County's program to meet MRP requirements required, at a maximum, annual inspections at 6 of these commercial sites (5 restaurants and 1 gas station). There is no ordinance change necessary to meet the new Special Protections requirement. However, the additional inspections increases the work load of CEH staff, necessitating adjustments in the number of staff conducting these inspections and/or staff workloads.

Currently the ASBS inspections for the 35 commercial sites are conducted by a single inspector who is solely responsible for stormwater-related inspections. The results of these inspections are recorded in an Excel spreadsheet. This inspector is not a permanent employee of the County and it is unknown how long this option for conducting inspections will remain viable.

5.2.4. Storm Drain Outfall Inspection Program

The Special Protections require two inspections annually, before and during the rainy season at storm drain outfalls 18 inches or greater in diameter. The County has five outfalls in the Fitzgerald ASBS watershed that are greater than 18 inches.

Similar to the MRP Collection System Screening Program, routine maintenance surveys that occur during regular conveyance system inspections count toward this requirement. The inspection of the outfalls prior to the rainy season is coordinated with the dry weather survey required by the MRP Collection System Screening Program. The second inspection conducted during the rainy season is coordinated with any routine maintenance or inspections that happen to occur during that period. If no routine activities have occurred at the outfalls an inspection for the outfalls is scheduled. ASBS discharge inspections and the collection system screening inspections are documented on the SMCWPPP Collection System Screening Forms.

The DPW Road Services Division conducts inspections at these five discharge outfalls and removes trash and other anthropogenic debris according to the Special Protections. Currently, County DPW staff assigned to ASBS compliance track ASBS outfall inspection needs and inform Road Services Division staff via email communication.

5.3. Recommendations for Potential Future Improvements

The following sections discuss potential future improvements to the construction site, industrial facility, commercial facility, and storm drain outfall inspection programs.

5.3.1. Construction Site Inspection Program

The County is currently conducting the weekly construction site inspections by simply adding the additional inspections onto the site's assigned inspector. Currently the Building Department has five building inspectors that cover nine inspection areas throughout the County. It is not uncommon for an inspector to cover, on average, 10 construction sites per day over more than one inspection area. Thus

adding even a small number of sites to an inspector's schedule can make an inspector's workload challenging.

Other ASBS jurisdictions have found it efficient to conduct all of the required inspections on a single day by a single inspector. For example, one inspector conducts all of the ASBS required inspections on Friday every week. Other jurisdictions have found it possible to conduct more than 20 sites in a day. The number of sites that can be inspected per day depends on the locations of the sites and how close together they are located. Jurisdictions that currently bill sites for an inspector's time to conduct construction site inspections are continuing to bill this way even though going from monthly to weekly inspections may result in approximately a 400% increase in the total fee. Some jurisdictions are hoping such increases in permit fees will provide an incentive for projects to conduct earth moving activities during the dry season.

5.3.2. Industrial Facilities Site Inspection Program

At this time improvements to this inspection program are not applicable because there are no NOI Industrial Permit facilities in the Fitzgerald ASBS watershed.

5.3.3. Commercial Business Site Inspection Program

The County uses commercial site inspections as an opportunity to verbally educate businesses regarding stormwater pollution prevention. During future inspections, the County will also provide applicable BMP brochures to businesses that can be shared with all employees. This will enhance the public outreach aspect of the inspections.

Currently the County inspects all 30 commercial businesses in the Fitzgerald ASBS watershed twice during the rainy season using a dedicated stormwater inspector. The County has found that 24 of these sites have land uses such as office space that are unlikely to cause or contribute to pollution of stormwater runoff. It is recommended that after the 2014-15 rainy season the County removes these 24 sites from the ASBS Special Protections inspection list. At that time the 24 sites will have been inspected at least twice and received general stormwater public outreach materials. If there is a change in the site activity or owner, indicated during the business licensing process or by other means (e.g., by an inspector driving by the businesses), the County could inspect the business to confirm the site is still not reasonably considered to cause or contribute to pollution of stormwater runoff and provide the new owners and/or operators with general outreach material on stormwater pollution prevention.

The County will continue to inspect the 6 remaining commercial sites (5 restaurants and 1 gas station) twice during each rainy season. The County may continue to have a dedicated stormwater inspector conduct the inspections at these sites. Alternatively, the County may choose to coordinate at least one of the Special Protections-required inspections each year with the routine MRP stormwater inspections conducted concurrently with food service establishment health or CUPA inspections.

The County may explore contracting the second Special Protections-required stormwater inspections for restaurants to the Sewer Authority Mid Coastside (SAM). Moss Beach and Montara, which contain all of the commercial businesses that have Special Protections inspection requirements, are served by the SAM wastewater treatment plant. SAM requires restaurants in their service area to install grease removal devices. SAM is developing a program to inspect these devices annually, at a minimum. The inspections may be conducted by SAM or SAM may contract with another local wastewater treatment plant's Fats, Oil and Grease (FOG) program to conduct the inspections. It may be possible for the County to work with SAM to have the second stormwater inspection during the rainy season be conducted by the same inspector that will be at the facility to inspect its grease removal devices.

5.3.4. Storm Drain Outfall Inspection Program

Regional Water Board staff has indicated that the reissued municipal stormwater permit (referred to as MRP 2.0) will likely discontinue the requirement for a Collection System Screening Program. If so the County will need to develop a new process to conduct and document the two annual inspections (before and during the rainy season) required by the Special Protections, at the five stormwater outfalls in the ASBS watershed that are greater than 18 inches in diameter. The existing Collection System Screening Forms could be modified for this purpose.

6.0 PUBLIC OUTREACH AND EDUCATION

6.1. Summary of Existing Relevant Policies and Programs

Public outreach and education measures address all pollutants of concern in the ASBS watershed and other issues such as hydromodification management. A major driver of public outreach and education is the MRP. MRP Provision C.7, Public Information and Outreach, requires that the County and other San Mateo County Permittees to a) educate target audiences about the causes of stormwater pollution and its adverse effects on water quality in receiving waters, and b) encourage residents to adopt less polluting and more environmentally beneficial practices. Subsections of Provision C.7 require specific activities (with various compliance deadlines) designed to meet these goals, including: storm drain inlet marking, advertising campaigns, media relations, stormwater point of contact, public outreach events, watershed stewardship collaborative efforts, citizen involvement events, school-age children outreach, and outreach to municipal officials. SMCWPPP assists with these activities through an extensive countywide Public Information and Participation (PIP) program performed on behalf of the County and other San Mateo County Permittees in coordination with BASMAA outreach programs. Other activities consistent with the MRP cover topics such as reusable bag ordinances, household toxics disposal, car care, coastal cleanup days, litter, and integrated pest management (IPM). Most related educational materials are made available on the SMCWPPP website (www.flowstobay.org).

The County implements several additional countywide stormwater-related education and outreach programs, such as the Department of Public Works' RecycleWorks Program (www.recycleworks.org), the County Environmental Health's Toxics and Household Hazardous Waste program, and school training programs. Consistent with Provision C.7, the County participates in multiple watershed stewardship programs overseen by the San Mateo County Resource Conservation District.

The Parks Department maintains webpages dedicated to the Fitzgerald Marine Reserve (<https://parks.smcgov.org/fitzgerald-marine-reserve>) and the Bluff Trail (<http://parks.smcgov.org/bluff-trail>). These webpages and participation in the recreational opportunities that they promote raise awareness about the valuable resources in the ASBS watershed. Furthermore, the Fitzgerald Marine Reserve webpage provides links to the Fitzgerald Pollution Prevention Program and related BMP projects.

6.2. Summary of Recent Relevant Changes to Policies and Programs

In 2011, in order to comply with the Special Protections, the County began a targeted education and outreach program for the Fitzgerald ASBS watershed aimed at pollution reduction. The targeted education and outreach is part of the Fitzgerald Pollution Reduction Program, which was initiated with Proposition 84 grant funding. Completed tasks under the Fitzgerald Pollution Reduction Program are summarized in the sections below.

6.2.1. Website Development

As part of the Proposition 84 grant-funded work, the DPW and CEH created a website dedicated to the Fitzgerald Pollution Reduction Program at www.smchealth.org/asbs. Links to this website are prominently posted on other County websites addressing stormwater runoff, such as the SMCWPPP website at www.flowstobay.org. The website serves as a platform to inform readers about ASBS and the Fitzgerald Pollution Reduction Program with links to BMP factsheets, key regulations, grant reports, and the Fitzgerald Special Edition Newsletters (described below).

Planning also has a webpage dedicated to compliance with the Special Protections at <http://planning.smcgov.org/san-mateo-county-fitzgerald-asbs-pollution-reduction-program>. This webpage is focused on educating private landowners on ASBS-specific regulations such as the prohibition of non-stormwater discharges, new point sources, pool and spa discharges; architectural copper BMPs; siting of car wash facilities; erosion and sediment control plan approval; construction site inspections; and landscape irrigation.

6.2.2. Fitzgerald Special Edition Newsletters

Since 2012, the County has published three annual Fitzgerald Special Edition Newsletters describing various aspects of the Fitzgerald Marine Reserve, ASBS, watershed, regulatory setting, and the Fitzgerald Pollution Reduction Program, as well as measures that local residents and businesses can take to eliminate non-stormwater discharges and reduce pollutants in stormwater runoff. Specific topics include:

- General stormwater education.
- Bacteria impairments of local waters and potential sources.
- Non-chemical pest control options.
- Awareness of copper in architectural features.
- LID and GI techniques such as permeable pavements, rain gardens, vegetated swales, and rain barrels.

Annual newsletters are posted on the Fitzgerald Pollution Reduction Program website and distributed electronically and via hardcopy to key stakeholder groups. Hardcopies are also left at select locations in the ASBS watershed such as coffee shops and the post office to increase awareness.

6.2.3. Flyers, Factsheets, and Checklists

As part of the Proposition 84 Fitzgerald Pollution Reduction Program, the County collaborated with the RCD, SMCWPPP, and/or BASMAA to generate and distribute several flyers, factsheets, and checklists addressing specific pollutants of concern or activities.

- “Get the Scoop of Pet Poop” addresses bacteria by reminding pet and domestic animal (e.g., horses) owners about the consequences of pet waste on receiving waters (i.e., pathogens) and the need to pick it up. These flyers were distributed through the Fitzgerald Special Edition Newsletters and the SMCWPPP Team Effort campaign (<http://www.flowstobay.org/teameffort>).
- “Where to Find...” addresses all pollutants of concern by directing residents and business owners in the ASBS watershed to water pollution prevention websites and listing related BMPs. These flyers were distributed through the Fitzgerald Special Edition Newsletters and the SMCWPPP Team Effort campaign (<http://www.flowstobay.org/teameffort>).
- “Backyard Habitat Checklist” addresses nutrients, pesticides, sediment, over-irrigation, and other landscape pollutants by encouraging private property owners to assess the sustainability of their gardening practices. The RCD distributed this checklist from the Bay-Friendly Landscaping and Gardening Coalition to promote healthy soils, reduce waste, conserve water, create wildlife habitat, protect receiving waters, and save energy. This checklist was distributed with a County-specific Native Plant List and several BASMAA Factsheets (e.g., Rain Barrels, Rain Gardens, Landscape Dispersion, Pervious Paving).

6.2.4. Workshops

As part of the Proposition 84 Fitzgerald Pollution Reduction Program, the County and SFEI hosted a Low Impact Development Workshop on August 25, 2012, entitled “Protecting Coastal Watersheds: with Focus on Residential Low-Impact Development.” The workshop covered topics including rain gardens and bioswales, pervious pavement, irrigation and pesticide use, rainwater harvesting, and permits and requirements. The presentations are available on the Fitzgerald Pollution Reduction Program website - <http://smchealth.org/asbs>. It is recommended that the County continues to promote residential LID and GI in the ASBS watershed.

6.2.5. Planning and Building Permit Counter

See Section 4.2.1.

6.3. Recommended Improvements to Policies and Programs

The County is committed to further developing a comprehensive public outreach and education program for the ASBS, as detailed in the ASBS Compliance Plan (County 2014). Recommendations for future education and outreach activities are listed below. Many of these will involve coordination with SMCWPPP, the San Mateo County Resource Conservation District (RCD), and/or BASMAA.

- Continue to update the Fitzgerald Pollution Reduction Program website (<http://www.smchealth.org/asbs>) and maintain it beyond the completion of the Proposition 84 grant. Improve usability of the website and organize it in a manner that allows for easier access to materials.
- Seek funding to continue the development and distribution of the annual Fitzgerald Special Edition Newsletters.
- Address potential microbial pathogen sources (based on routine beach water quality fecal indicator bacteria monitoring data and the Microbial Source Tracking study) by coordinating/partnering with SMCWPPP, the RCD, and possibly BASMAA to develop an enhanced pet waste public information and outreach effort. Potential activities may include continuing the pilot area-wide email alert reminders to pick up backyard pet waste before wet weather events, conducting local school programs, initiating a pledge effort, and installing signage and bag dispensers. These efforts would inform residents about how waste enters waterways, how contamination can result in beach closures and threaten human health and wildlife, and remind people to clean up waste in their yards and where dogs are walked. These activities would result in increased awareness and will be prompts for direct action. The Clear Choices Clean Water program developed in Indiana may serve as an example (<http://indiana.clearchoicescleanwater.org/>).
- Address microbial pathogens by coordinating with the RCD on development of an enhanced outreach effort to provide information to residents with livestock on ways to reduce potential water quality impacts related to animal feces. The effort may include technical assistance about BMPs (e.g., installing roofs over chicken coops) and development of site-specific manure management plans for residents or property managers. Outreach efforts may also include “get out of manure free” days to help reduce manure loads in the ASBS watershed. Outreach is a needed step to achieve sustained, long-term reductions in pollutant sources through behavioral and structural changes in manure management. Educational materials developed through this effort could be distributed during annual inspections at permitted facilities and triennial inspections at exempt facilities.

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- Add an ASBS and Special Protections component to the training program for construction site, industrial facility, commercial business, and storm drain outfall Inspectors. Require that inspectors distribute educational materials during inspections.
- Implement new rebate programs to incentivize retrofitting existing properties (e.g., rain barrels, rain gardens, pervious pavement, and green roofs), including associated outreach components. See Section 4.3.
- Develop an LID/GI guidance brochure or booklet primarily targeted to small-scale and residential projects. See Section 4.3.
- Continue to work with Farallone View Elementary (e.g., Ocean's Week pollution prevention activities) and enhance other school watershed education programs (e.g., Banana Slug String Band). See Section 4.3.
- Enhance architectural copper vendor/installer outreach. See Section 4.3.
- Continue to promote residential LID and GI in the ASBS watershed.
- Provide better coordination of existing programs (e.g., consistent messaging, cross posting).

7.0 SUMMARY OF RECOMMENDATIONS

This report examines the key County policies, plans, ordinances, and/or programs that address several topics related to the protection and enhancement of water quality in the Fitzgerald ASBS watershed. Overall, the County has many progressive and constructive strategies already in place, many of which have seen improvements in recent years. Key recommendations and considerations for potential future improvements are listed below. See the specific sections referenced for more detail.

- **Confined Animal Ordinance** (Section 2.0) – The current Confined Animal Permit process requires submittal of detailed drainage and manure management plans along with compliance with several criteria related to land use. Permitted facilities are reviewed every three years and exempt facilities are not reviewed after certificates of exemption are issued. It is recommended that the frequency of permit reviews is increased to annually and that triennial reviews are implemented for exempt facilities. An education component should be added to the review process. As a related measure, it is recommended that the County develop a new ordinance or update an existing ordinance to address management of excreta from other domestic animals such as dogs and cats.
- **Public Green Infrastructure** (Section 3.0) – Current policies in the County follow the MRP which requires incorporation of GI in the public right-of-way on new roads and widened roads that are replacing or creating over 10,000 square feet of contiguous impervious surface. The County has also gone beyond this requirement by implementing Green Street BMP projects in the ASBS watershed. The next MRP, expected to be adopted by the end of 2015, will likely include more requirements for public GI planning and initial early implementation, including opportunistic retrofitting of existing roadways. It is recommended that the County add GI information to department websites, train employees on Bay-Friendly Landscaping practices, continue to implement GI BMPs in the ASBS watershed, and add GI policies to County plans.
- **Private Green Infrastructure** (Section 4.0) – Current policies in the County follow the MRP which requires that private development projects use GI and LID-based design strategies and source control measures. It is recommended that the County continue to refine its stormwater management review process for development projects, implement new and modify existing regulatory mechanisms to increase the pace of GI conversion and retrofitting on private property, and develop GI incentive and outreach programs targeting private properties within the ASBS watershed community.
- **Inspections** (Section 5.0) – The frequencies of construction site, industrial facility, commercial business, and storm drain outfall Inspections in the ASBS watershed were recently increased to comply with the Special Protections. It is recommended that the County consider strategies used by other ASBS jurisdictions to fund additional staff or improve efficiencies. In addition, the County may choose to coordinate selected Special Protections-required inspections each year with the routine MRP stormwater inspections conducted concurrently with food service establishment health or CUPA inspections. The County may also explore contracting selected Special Protections-required stormwater inspections for restaurants to the Sewer Authority Mid Coastside (SAM), in coordination with SAM’s Fats, Oil and Grease (FOG) program inspections.

Inspectors should distribute brochures and other educational materials during all of the above types of inspections.

- **Public Outreach and Education** (Section 6.0) – The County partners with SMCWPPP and implements several programs (e.g., RecycleWorks) to comply with public information and outreach requirements of the MRP. Since 2012, several ASBS-specific materials and programs have been developed through the Fitzgerald Pollution Reduction Program. It is recommended that the County continue to develop and improve those new programs (e.g., Fitzgerald Special Edition Newsletters, website, pet waste alerts), identify outreach opportunities through other programs (e.g., GI guidance, rebate programs, inspections), and work to better coordinate these programs.

8.0 REFERENCES

- Bay Area Stormwater Management Agencies Association (BASMAA). (2015) White Paper on Provision C.3 in MRP 2.0: Dan Cloak Environmental Consulting and EOA Inc. February 27, 2015.
- California Coastal Commission. (2008). Nonpoint Source Watershed Assessment: James Fitzgerald Marine Reserve Critical Coastal Area. December 2008.
- City of Oakland. (2007) Environmentally Preferable Purchasing Policy. July 17, 2007.
- County of San Mateo (County). (2014). James V. Fitzgerald Area of Special Biological Significance (ASBS) Draft Compliance Plan. Prepared by EOA, Inc. Draft September 20, 2014.
- San Francisco Estuary Institute and University of California, Davis (SFEI and UCD). (2013). James V. Fitzgerald Area of Special Biological Significance Pollution Reduction Program, Microbial Source Tracking Study Summary Reports. Grant Identification Number 10-402-550. February 2013.
- San Mateo Countywide Stormwater Pollution Program. (2002). Characterization of Imperviousness and Creek Channel Modifications for Seventeen Watersheds in San Mateo County. January 2002.