Green Infrastructure Planning
Workshop for Permittee Staff

Tuesday, September 26, 2018 – 8:15 AM to 3:30 PM
Shadelands Civic Art Center Auditorium, 111 N. Wiget Lane, Walnut Creek

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td>REGISTRATION</td>
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<tr>
<td></td>
<td>Coffee and pastries available.</td>
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<tr>
<td>8:30</td>
<td>Greeting — Courtney Riddle, Program Manager, Contra Costa Clean Water Program</td>
</tr>
<tr>
<td>8:35</td>
<td>Introduction and Update — Dan Cloak, Consultant</td>
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</tbody>
</table>

**SESSION 1: Early Implementation Panel Discussion**
Amanda Booth, City of San Pablo, Carlton Thompson, City of Walnut Creek,
Frank Kennedy, Kennedy and Associates

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:45</td>
<td>Panel Discussion: Project Experience</td>
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<tr>
<td></td>
<td>• Lessons Learned from Design and Construction of Green Infrastructure Projects</td>
</tr>
<tr>
<td></td>
<td>• Design Guidelines, Details, and Specifications Used: Experience and Needs</td>
</tr>
<tr>
<td></td>
<td>• Experience with Funding Green Infrastructure Projects</td>
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<thead>
<tr>
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<tbody>
<tr>
<td>10:00</td>
<td>BREAK</td>
</tr>
<tr>
<td>10:15</td>
<td>Panel Discussion: Identifying Green Infrastructure Potential in Capital Projects</td>
</tr>
<tr>
<td></td>
<td>• Municipal Process for Reviewing Capital Improvement Projects</td>
</tr>
<tr>
<td></td>
<td>• Reports to the Regional Water Quality Control Board (Provision C.3.j.ii.)</td>
</tr>
<tr>
<td></td>
<td>• Identification of Green Infrastructure Opportunities</td>
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<tr>
<td></td>
<td>• Challenges to Integrating Green Infrastructure into Capital Projects</td>
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**SESSION 2: Green Infrastructure Plans**

<table>
<thead>
<tr>
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<tr>
<td>10:45</td>
<td>What Goes into a Green Infrastructure Plan? — Dan Cloak</td>
</tr>
<tr>
<td>11:00</td>
<td>The Contra Costa Storm Water Resources Plan — Adele Ho, Consultant</td>
</tr>
<tr>
<td>11:30</td>
<td>Green Infrastructure Plan Targets, Reasonable Assurance Analyses, and Pollutant Load Reductions — Adele Ho, Consultant and Lisa Austin, Geosyntec Consultants</td>
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<tr>
<td>12:00</td>
<td>LUNCH (provided)</td>
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<tr>
<td></td>
<td>Lunchtime presentation on “Quick Build” with Ryan McClain, Fehr &amp; Peers</td>
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**SESSION 2: Green Infrastructure Plans (continued)**

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<tbody>
<tr>
<td>12:45</td>
<td>Development/Redevelopment Projections: Process, Status, Integration with the RAA — Austin Orr, Geosyntec Consultants</td>
</tr>
<tr>
<td>1:15</td>
<td>Creating a List of Prioritized Projects — Group Discussion</td>
</tr>
<tr>
<td>1:45</td>
<td>Making Green Infrastructure into Municipal Policy — Group Discussion</td>
</tr>
<tr>
<td>2:15</td>
<td>Funding — Dan Cloak/Group Discussion</td>
</tr>
<tr>
<td>2:45</td>
<td>Project Tracking, Maintenance, Assessment, Adaptive Management —</td>
</tr>
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<td></td>
<td>Dan Cloak/Group Discussion</td>
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<td>3:15</td>
<td>Workshop Evaluation and Make a List of Follow-Up Items — Adele Ho/Group</td>
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<td>3:30</td>
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Request for Feedback

1. What were the most useful things you learned or discussed at the workshop?

2. What did you think of the format, including the time allocated for group discussions?

3. What could have been done better? Is there a topic you wanted to hear more about?

4. Any other comments?

5. Tell us a little about yourself.

Training (circle): Engineer Architect Landscape Architect Planner Construction Inspector
Other:

Employer (circle): Stormwater NPDES Permittee Other Public Agency Consulting Firm
Other:
Green Infrastructure Planning

Tuesday, September 26, 2018

Welcome

Courtney Riddle, Program Manager
Contra Costa Clean Water Program
Introduction and Update

Dan Cloak, P.E.
Consultant

4 things about Green Infrastructure

1. It’s not going away.
2. It has to be designed and engineered.
3. It has to be managed and maintained.
4. Don’t confuse the map for the territory.
Water Board Staff Guidance

- **Green Infrastructure Plans** (due 9/30/2019)
  - Multiple benefits of “grey to green”
  - Demonstrate your ability to build GI
  - Preliminary quantification of load reduction

- **Municipal Regional Permit 3.0**
  - Maximum Extent Practicable standard (?)

Recommended Objectives for 2019

- Show municipal management is on board
- Policies and procedures to ensure “no missed opportunities” to implement
- One or more projects are constructed, under construction, or on a fast track
- Designs or conceptual designs in-hand for additional projects (5- to 10-year time horizon), and funding is being sought
- A Plan that guides roll-out over future decades
Session 1: 
Early Implementation

Amanda Booth, City of San Pablo
Frank Kennedy, Kennedy and Associates
Carlton Thompson, City of Walnut Creek

Part 1: Project Experience

• What lessons were learned during design and construction?
• What guidelines, details, and specifications were used?
• How was the project funded?
Green Infrastructure

Amanda Booth
September 2018

Plaza San Pablo

• New road
• Bioswales
• Redevelopment
• C3 Regulated

Rumrill Complete Streets

• “Complete Streets” Project
• Road diet and safety project
• Bioswales and Silva Cells
• Not C3 regulated
Plaza San Pablo

Details and Lessons Learned
Details and Lessons Learned

- Soil Media Spec.
- Check Dams
- Energy dissipation devices (rocks)
Rumrill Complete Street

South of Market  North of Market

Funding

<table>
<thead>
<tr>
<th>Grant Funds</th>
<th>Amount</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caltrans: Active Transportation Program</td>
<td>$4,309,749</td>
<td>State/Federal</td>
</tr>
<tr>
<td>EPA: SF Bay Water Quality Improvement Fund</td>
<td>$864,634</td>
<td>Federal</td>
</tr>
<tr>
<td>Measure J: Pedestrian Bicycle Trail Facilities</td>
<td>$1,000,000</td>
<td>Local</td>
</tr>
<tr>
<td>California Natural Resources Agency: GGRF</td>
<td>$3,999,540</td>
<td>State</td>
</tr>
<tr>
<td>MTC: Transportation Develop Act</td>
<td>$85,000</td>
<td>Local</td>
</tr>
<tr>
<td>Caltrans: SB-1 Local Partnership Program</td>
<td>$3,200,000</td>
<td>State</td>
</tr>
<tr>
<td><strong>Total Grant Funding</strong></td>
<td><strong>$13,458,923</strong></td>
<td></td>
</tr>
<tr>
<td>Alternative Compliance Funds- Caltrans</td>
<td>$2,300,000</td>
<td>State</td>
</tr>
<tr>
<td>Alternative Compliance Funds- Private</td>
<td>$360,000</td>
<td>Private</td>
</tr>
<tr>
<td>City Funds</td>
<td>$743,000</td>
<td>Local</td>
</tr>
<tr>
<td><strong>Total Project Funding</strong></td>
<td><strong>$16,861,923</strong></td>
<td></td>
</tr>
</tbody>
</table>
Issues/Lessons Learned

- Underground utilities
  - Section 038193 PG&E Greenbook
  - PG&E Utility Standard S5453
- Caltrans CEQA funding restrictions
- Unpredictable construction costs
- Extensive grant requirements
  - 9 approvals, reports, tracking requirements, timelines, etc.
  - Grant Auditing 😒

Potential Cost Cutting Solutions
Potential Cost Cutting Solutions

- Flow through system?
- Pre-cast?
- Cut Silva Cells?
- 4% treatment area needed?

Currently discussing ongoing maintenance costs implications
Part 2: Reviewing Capital Projects

• What is the process for reviewing capital projects for Green Infrastructure potential?
  – Provision C.3.j.ii
  – BASMAA Guidance (May 2016)
    • Procedures for screening and assessment
    • Tabulating projects in Annual Reports

• What challenges have been encountered incorporating GI into projects?

Session 2: Green Infrastructure Plans
What Goes into a Green Infrastructure Plan?

Dan Cloak, P.E.

Resources

• Your Green Infrastructure Plan Framework/Workplan (2017)
• At www.cccleanwater.org
  – Template
  – Tasks, Roles, and Timeframes
  – Presentation slides
  – Design guidelines and details
    • Stormwater C.3 Guidebook
    • Links
  – Frequently Asked Questions
Template

1. Introduction and Overview
2. Green Infrastructure Targets
3. Public Project ID, Prioritization, Mapping
4. Early Implementation Projects
5. Tracking and Mapping Projects Over Time
6. Design Guidelines and Specifications
7. Funding Options
8. Adaptive Management

Chapter 1: Intro and Overview

• Regulatory Mandate
• Objectives and Vision
• Plan Context and Elements
  – Planning Context
  – Watershed and Storm Drainage Infrastructure
  – Related Regional and Countywide Plans
  – Related Local Planning Documents
  – Outreach and Education
  – Policies, Ordinances, and Legal Mechanisms
Chapter 2: Targets

- Private Development Projections
- Targets for Public Projects
- Projected Load Reductions

Chapter 3: Project Prioritization

- Tools and Process
  - Contra Costa Watersheds Storm Water Resources Plan
  - Prioritization criteria and process
  - Integration with Storm Drain Master Plans, Complete Streets, CIP process
- Maps and Project Lists
<table>
<thead>
<tr>
<th>Chapter 4: Early Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review of Capital Improvement Projects</td>
</tr>
<tr>
<td>• List of Projects Identified</td>
</tr>
<tr>
<td>• Workplan for Completion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 5: Tracking and Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tools and Process</td>
</tr>
<tr>
<td>• Results</td>
</tr>
</tbody>
</table>
Chapter 6: Guidelines and Specs

- Guidelines for Streetscape and Project Design
- Specifications and Typical Design Details
- Sizing Requirements

Chapter 7: Funding Options

- Funding Strategies Developed Regionally
  - BASMAA “Roadmap for Funding of Sustainable Streets”
- Local Funding Strategies
  - Alternative Compliance
  - Local Funding Streams
- How is funding for Green Infrastructure incorporated into the municipal budget?
Chapter 8: Adaptive Management

- Process for Plan Updates
- Pursuing Future Funding Sources
- Alternative Compliance and Credit Trading Investigations

Creating a List of Prioritized Projects
CONTRA COSTA WATERSHEDS
STORMWATER RESOURCE PLAN:
Greening the Community for
Healthy Watersheds

... and how it relates to your GI Plan

Green Infrastructure Planning Workshop
Shadelands Center for Community Arts, Walnut Creek
September 26, 2018

MUNICIPAL REGIONAL PERMIT

C.3.j. Green Infrastructure Planning and Implementation
The Permittees shall complete and implement a Green Infrastructure Plan for the
inclusion of low impact development drainage design into storm drain infrastructure
on public and private lands, including streets, roads, storm drains, parking lots,
building roofs, and other storm drain infrastructure elements.

***

Over the long term, the Plan is intended to describe how the Permittees will shift
their impervious surfaces and storm drain infrastructure from gray, or traditional
storm drain infrastructure where runoff flows directly into the storm drain and then
the receiving water, to green—that is, to a more-resilient, sustainable system that
slows runoff by dispersing it to vegetated areas, harvests and uses runoff, promotes
infiltration and evapotranspiration, and uses bioretention and other green
infrastructure practices to clean stormwater runoff.
The Plan is intended to serve as an implementation guide and reporting tool during this and subsequent Permit terms to provide reasonable assurance that urban runoff TMDL wastewater allocations (e.g., for the San Francisco Bay mercury and PCBs TMDLs) will be met, and to set goals for reducing, over the long term, the adverse water quality impacts of urbanization and urban runoff on receiving waters. For this Permit term, the Plan is being required, in part, as an alternative to expanding the definition of Regulated Projects prescribed in Provision C.3.b to include all new and redevelopment projects that create or replace 5,000 square feet or more of impervious surface areas and road projects that just replace existing impervious surface area. It also provides a mechanism to establish and implement alternative or in-lieu compliance options for Regulated Projects and to account for and justify Special Projects in accordance with Provision C.3.e.

The Plan shall also identify means and methods to prioritize particular areas and projects within each Permittee’s jurisdiction, at appropriate geographic and time scales, for implementation of green infrastructure projects. Further, it shall include means and methods to track the area within each Permittee’s jurisdiction that is treated by green infrastructure controls and the amount of directly connected impervious area. As appropriate, it shall incorporate plans required elsewhere within this Permit, and specifically plans required for the monitoring of and to ensure appropriate reductions in trash, PCBs, mercury, and other pollutants.
Municipal Regional Permit Sections

C.3.j
Also C.11.c. and C.12.c

A SWRP is...

• Watershed-based planning approach to develop projects that:
  - help meet water quality requirements
  - Provide flood control
  - Restore habitat
  - Enhance communities
  - Recharge groundwater

• “Feeder” for Green Infrastructure Plans

• Required for project grant funding
SWRP Benefits Considered

- Water Quality
- Water Supply
- Flood Management
- Environmental
- Community

The first five sections provide background information and describe the watersheds and outreach processes.

Sections 6&7 provide the approach to developing potential project opportunities and quantifying the benefits.
Project Development

18,000+ potential project opportunities were identified
**Project Concepts**

<table>
<thead>
<tr>
<th>Permittee</th>
<th>Project Name</th>
<th>Project Type</th>
</tr>
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<td>Vieira Ave - Wilbur Ave Green Streets Project</td>
<td>Green street</td>
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<td>Oakley Train Station GI Project</td>
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<td>Orinda</td>
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<td>Heather Farm Park Project</td>
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**SWRP Availability and Key Dates**

**Public Draft on CCCWP website:**
- [www.cccleanwater.org](http://www.cccleanwater.org)
- Comment form online; Comments due October 1st

**SWRP Final: January 31, 2019**

**Online Project Viewer: January 31, 2019**
SWRP Project Viewer

- Authorized users can update, edit, and add projects
- Public users can view projects and submit projects via form for consideration

Relationship between SWRP, GI Plan, and RAA

<table>
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<tr>
<th>SWRP</th>
<th>GI Plan</th>
<th>RAA</th>
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<td>Identify targets for public GI opportunities</td>
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<td>Identify and prioritize potential multi-benefit projects</td>
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... and how it relates to your GI Plan

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• “Feeder” for Green Infrastructure Plans

• Required for project grant funding
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• Water Quality
• Water Supply
• Flood Management
• Environmental
• Community

The first five sections provide background information and describe the watersheds and outreach processes.

Sections 6&7 provide the approach to developing potential project opportunities and quantifying the benefits.
**Project Development**

**Data Gathering**

**Project Identification**
- Permittees and Stakeholders Identify Planned Future Projects
- CCWF SWRP Team Identifies Potential Projects

**Project Scoring**
- CCWF SWRP Team Scores Identified Projects

**Project Prioritization**
- Permittees Prioritize Scored Projects

**Project Detailed Quantification and Concepts**
- CCWF SWRP Team Completes Detailed Quantification and Develops Conceptual Design for Top Prioritized Projects

**GIS-based opportunity analysis considered available public parcels and ROW, slope, drainage patterns**

**SCORE based on water quality pollutant removal, water supply, flood control, environmental and community benefits**

**PRIORITY based on individual jurisdiction’s review of the scored list of projects, with ranking based on local factors**

18,000+ potential project opportunities were identified

![Bar Chart](chart.png)
Project Concepts

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Green Infrastructure Plan Targets, Reasonable Assurance Analyses, and Pollutant Load Reductions

Some Background Information

• **Total Maximum Daily Load (TMDL)**
  - The maximum amount of a pollutant allowed to enter a waterbody to meet water quality standards
  - Determines a pollutant reduction target and allocates load reductions to the sources of the pollutant

• **Reasonable Assurance Analysis (RAA)**
  - A detailed analysis of TMDL wasteload allocations, associated permit limitations, and the extent of stormwater management actions needed
RAA Basics

- MRP specifies 2040 GI targets (and 2020 interim targets) for PCBs/mercury load reductions
- TMDLs specify load reductions required by 2028/2030
- If the region does not achieve these goals, then the responsibility for load reductions step down: Region → Countywide → Individual Permittee

The TMDL can be met with various control measures:
- Source Control – Source property cleanups, enhanced O&M, managing PCBs during building demolition, spill response
- Green Infrastructure and other treatment control (Full Trash Capture)
- RAA estimates the load reductions that will be achieved through these control measures

Relationship between GI Plan and RAA

- The GI Plan is intended to serve as:
  - an implementation guide and reporting tool during subsequent Permit terms to provide reasonable assurance that urban runoff TMDL wasteload allocations will be met, and
  - to set goals for reducing, over the long term, the adverse water quality impacts of urban runoff on receiving waters for all urban pollutants
Relationship between SWRP, GI Plan, and RAA

MRP PCBs and Mercury Load Reductions

• Through Green Infrastructure 2013 - 2020

<table>
<thead>
<tr>
<th></th>
<th>Mercury (g/yr)</th>
<th>PCBs (g/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All MRP Permittees</td>
<td>48</td>
<td>120</td>
</tr>
<tr>
<td>Contra Costa</td>
<td>9</td>
<td>23</td>
</tr>
</tbody>
</table>

• Through Green Infrastructure 2003 - 2040

<table>
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<th>PCBs (g/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All MRP Permittees</td>
<td>11,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Contra Costa</td>
<td>1,700</td>
<td>500</td>
</tr>
</tbody>
</table>
TMDL Load Reduction Goals

TMDL Attainment:

\[ LR_{\text{goal}} = \text{Baseline} - \text{WLA (kg/yr)} \]

Where:

- \( LR_{\text{goal}} \) = The load reduction goal (kg/yr)
- Baseline = The baseline pollutant loading (kg/yr)
- WLA = Contra Costa TMDL wasteload allocation (WLA)

<table>
<thead>
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<th>Mercury WLA (g/yr)</th>
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</tr>
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<tr>
<td>11,000</td>
<td>300</td>
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Note that the TMDL load reductions can be achieved with other control measures (in addition to Green Infrastructure)

TMDL Implementation Plan/RAA Report

- RAA Report being prepared by CCCWP for all of the Permittees
- Due with the 2020 Annual Report
- The RAA Report will estimate loads reduced from projections of future development on private property, Permittees’ GI projects on public property/ROW, source control measures, and discuss uncertainties in the estimates
- Will include a cost estimate
- Consistent with regional guidance developed by BASMAA
Description of RAA Model

- Baseline Model
  - Hydrology
  - Water Quality
- GI Performance Model
  - Hydraulic GI Model
  - GI Pollutant Load Reduction Calculations
- RAA Scenario Models
  - Future Hydrology (imperviousness changes)
  - Future Water Quality (land use changes, GI additions)

For further detail see: Quantitative Relationship Between Green Infrastructure Implementation and PCBs/Mercury Load Reductions (CCCWP, 2018)

Precipitation Zones
Evapotranspiration Zones

Climate Zones
Slopes

Soil Type
Imperviousness

RAA Model – GI Load Reduction

[Diagram showing the flow of imperviousness and load reduction through various stages: Influent, Bypass, Effluent, and Retained with associated volumes and concentrations.]
**RAA Scenario Models – Time Frame**

- GI measures implemented from 2003 through MRP 2.0 (i.e., “existing”; 2003 to 2020);
- Existing and Planned GI measures implemented to required TMDL attainment date (2003 through 2030); and
- Existing and Planned GI measures implemented to 2040 (2003 through 2040).

**RAA Model Output**

- Pollutant load reductions will be calculated for each RAA Scenario Model
- Hydrology and water quality updated across the county based on predicted land use changes
  - Private C.3 projects
  - Public GI projects
- Estimated load reductions compared to stormwater quality improvement goals
## RAA Load Reduction Scenarios

<table>
<thead>
<tr>
<th>Scenario Name</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
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</thead>
<tbody>
<tr>
<td>“PCBs Countywide Attainment”</td>
<td>N/A</td>
<td>SWRP Opportunity Sites</td>
<td>Private Projects (Public Parcels and ROW)</td>
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<tr>
<td>“Planned”</td>
<td></td>
<td>Public Retrofit in GI Plans</td>
<td>Private Projects (AGOL C.3 and UrbanSim)</td>
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</table>

## GI Planning/RAA Schedule

<table>
<thead>
<tr>
<th>Schedule</th>
<th>GI Plan</th>
<th>RAA</th>
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<tbody>
<tr>
<td>Q3 2018</td>
<td>• GI Planning Workshop &lt;br&gt; • Validate projections of private development</td>
<td>• Establish scenarios</td>
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<tr>
<td>Q4 2018</td>
<td>• Identify targets for the amount of impervious surface to be retrofitted by 2020, 2030, and 2040 &lt;br&gt; • Identify and prioritize projects and/or areas for potential projects for implementation by 2020, 2030, and 2040</td>
<td>• Cost estimation methodology &lt;br&gt; • Countywide attainment scenario</td>
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<tr>
<td>Q1 2019</td>
<td>• Draft GI Plan</td>
<td>• Ongoing scenario analyses</td>
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<tr>
<td>Q2 2019</td>
<td>• GI Plan approvals</td>
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</tr>
<tr>
<td>Q3 2019</td>
<td>• Submit GI Plan w/ 2019 AR</td>
<td>• Begin 2020 RAA Report modeling</td>
</tr>
<tr>
<td>Q1 – Q3 2020</td>
<td>• Revised source control measure load reduction accounting (BASMAA) &lt;br&gt; • Final RAA modeling &lt;br&gt; • TMDL Implementation Plan and RAA Technical Report with 2020 AR</td>
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</tbody>
</table>
**Quick Build Solutions for Complete Streets Implementation**

**Tactical Urbanism vs. Quick Build**

**Tactical Urbanism:**
Very Temporary

**Quick Build:**
Temporary to Semi-Permanent

Milvia Street Bike to Work Day Installation
Berkeley, CA

Civic Center Drive Crosswalk
Interim Enhancements
Fremont, CA
Pop-up Events

Yellow Brick Road, Richmond

Telegraph Avenue Protected Bikeway

Mivia Street Protected Bikeway

**Hard cost (approx)**

$5,000 – $15,000

**Materials**

- Donated plants
- Borrowed benches
- Straw wattle
- Cones
- Spray chalk
- Duct Tape
- Stencils
- Roofing Paper

**Hours**

- Telegraph Avenue
- Protected Bikeway

---

Quick Build Projects

**Years**

- Civic Center Drive, Fremont
- Telegraph Avenue, Oakland

**Hard cost (approx)**

$> 100,000

**Materials**

- Paint
- Thermoplastic
- Signs
- Surface Treatment
- Bolards
- Planters
Quick Build Projects for Complete Streets Implementation

1. Quickly and cost effectively implement safety improvements
2. Build on momentum from planning process
3. Pilot and evaluate roadway changes
4. Opportunity to deploy innovative green infrastructure?
5. A chance to dedicate space for future green infrastructure?

Example: El Cerrito
Quickly and cost effectively implement safety improvements
Planning
Three step process with guiding questions

1. Identify the Issues
2. Consider Phasing
3. Develop a Project Roadmap

Design
Implementation

1. Removable materials
2. Minimize drainage impacts
3. ADA Considerations

Determine successes and prepare for the next phase.
Implementation

Example: Richmond
Build on momentum from planning process
Community Driven
Demonstration into Quick Build
Utilize Event as “Living Preview” for Long-Term Design Testing – Make it Iterative

Stakeholder- & Community-Vetted Revised Design
Example: Richmond
Demonstration into Quick Build

Example: Oakland
Pilot and evaluate roadway changes
Example: Oakland
Pilot and Evaluate

Road diet with protected bikeway

Example: Oakland
Pilot and Evaluate

Compliance Challenges
Better accommodate transit

Example: Oakland
Pilot and Evaluate

Documented Evaluation

Designing safer streets
Safe and attractive options for all users
- Pedestrians
- Cyclists
- Motorists
- Public transit
- Delivery and freight
- Emergency vehicles
- Security
- School

Reducing delay
- Less congestion
- Faster movement

No pedestrian
- 40% decrease in collisions
- Pedestrians and bicyclists reported the first time in 8 years

40% decrease in collisions

Building great streets
- Increased safety
- Enhanced connectivity
- Enhanced community
- Promotes healthy activity
- Benefits the economy

48% decrease in southbound speeding
27% decrease in northbound speeding
Median speeds are now 7 mph

9% increase in retail sales

52% of bicyclists on Telegraph say they travel the corridor more frequently now
Using MTC’s UrbanSim to Estimate (Re)Development in Contra Costa County

Austin Orr, Geosyntec
Will Lewis, LWA

Purpose

1. Identify or develop a methodology for projecting the amount and locations of private (re)development subject to C.3

2. Apply this methodology and revise/validate projections of private development based on local understanding and knowledge of (re)development patterns

3. Produce a defensible projection of private (re)development project areas for 2020, 2030, 2040
Defensible Projection of Area

Total Area = Private C.3 + Public Retrofit Projects

1. METHODOLOGY
Estimating (Re)Development

- Other regions have used historical permit records and uniform rates for large areas
- Bay Area Metropolitan Transportation Commission (MTC) developed an UrbanSim model for transportation planning as part of Plan Bay Area

Why Use UrbanSim?

- Developed by startup at UC Berkeley
- State of the practice in transportation planning
- Factors influencing (re)development demand:
  - Population and employment demand over time
  - Commute time
  - Commercial and residential property values
  - Existing redevelopment
UrbanSim’s Greedy Gnome

• “Rational developer”
• Uses the demand to drive decisions
• Given two goals:
  o Increase “housing units” and “job spaces” by region-wide target rates
  o Maximize profits
• (Re)develops the parcel to yield greatest profit
• Repeat millions of times

MTC’s UrbanSim

• The majority of 2020 re(development) was manually coded in
• “Rational developer” switched on in 2021
• “Rational developer” considered region-wide information
  o Building square footage
  o Housing units
  o Job spaces
  o Estimated value
• Not TMDL compliance oriented
We Need You

• Need Permittees’ institutional knowledge to ground truth/gut check outputs
• Are re(development) rates reasonable for your jurisdiction?
• Are there any parcels that are not likely to undergo re(development) in the period assigned:
  o Environmentally sensitive areas
  o Historical landmarks
  o Contaminated sites

2. APPLICATION OF METHOD
Workflow

• Obtain and Prepare UrbanSim Results
  ✔

• Deliver Permittee Review Packages
  ✔
  - Google Earth file
  - Excel spreadsheet tracking file

• Permittee Review

Permittee Review

• Expected outcome is a *defensible projection*

• If changes are needed
  - Add, remove, and reclassify parcels based on local knowledge.
  - Document changes and alterations

• If not, or if no better information is available
  - Is the redevelopment rate from UrbanSim representative?
Reviewing & Editing UrbanSim Projections

- Corrected Future Use
  - Residential, commercial, mixed use, unchanged/no (re)development
- Corrected Year
- Corrected Density
  - Low, medium, high

Adding a (Re)Development Site

Walnut Creek
### Adding a Site

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### 3. UTILIZE REVIEWED DATA

![Clean Water Program Logo](image)
Results & Next Steps

• Receive revised 2020, 2030, and 2040 (re)development projections from Permittees

• GI Plan - Translate the *defensible projection* of parcels undergoing (re)development into impervious area

• RAA - Translate *defensible projection of* parcels undergoing (re)development into loads of PCBs and mercury reduced

QUESTIONS & DISCUSSION
Discussion: Prioritized Projects List

• How do you plan to create a list of prioritized Green Infrastructure projects?
• How will your prioritized project lists relate to your targets for 2020, 2030, 2040?

Making Green Infrastructure into Municipal Policy
Municipal Policies: Topics

- Experience incorporating Green Infrastructure into General Plans and other planning documents
- Need/opportunities for countywide collaboration

Discussion—Local Planning

- What efforts have you undertaken, and what has been your experience, reviewing current planning documents and incorporating Green Infrastructure into those documents?
  - General Plans
  - Urban Greening Plan
  - Sustainable Communities Strategy
  - Complete Streets Plan
  - Storm Drain Master Plan
  - Standard Details and Specifications
Discussion: Local Policy

• How will you document that your municipality has sufficient authorization to implement your Green Infrastructure Plan?
• Is there a need for model legal documents?
  – Green Infrastructure Ordinance
  – Policy on requirements for frontage improvements
  – CEQA
• If so, how would we go about preparing model documents?

Funding for Green Infrastructure
Funding Topics

• Funding Green Infrastructure Projects
  – Grants
  – Local Funding with Public Money

• Alternative Compliance
  – Provision C.3 Off-site Compliance
  – Compliance with Mandated Load Reductions for PCBs and Mercury

Roadmap of Funding Solutions

• GI Plans must include: “An evaluation of prioritized funding options…”

• Roadmap of Funding Solutions for Sustainable Streets
  – Potential sources of funding
  – Actions
    • Prioritize Sustainable Streets in Funding Sources
    • Improve Conditions for Projects that Are Funded by Multiple Grants
    • Additional Funding Options
C.3 Off-Site Compliance

- Provision C.3.e.i.
  - Offsite location
  - In-lieu fees (banking)
- Limitations to Using
  - On-site compliance is easiest for most projects
  - Applicant would have to build two projects
  - Who maintains the off-site facilities?
  - What happens if the off-site area is redeveloped?
  - Costs of retrofit vary widely

Street Frontage Improvements

- Applicability of C.3 to street frontage improvements
- Capturing street runoff to offset hard-to-treat areas
- Requiring Green Infrastructure as a Condition of Approval
Required Load Reductions via GI

- PCBs Load Reduction by 6/30/2020
  - 23g/year for Contra Costa Permittees
  - May be met regionally for all MRP Permittees
- Reasonable Assurance Analysis
  - 3000g/year for all MRP Permittees by 2040

Project Tracking, Maintenance, and Assessment
Tracking and Maintenance Topics

• Maintenance Requirements
  – What
  – Who
• Tracking and Reporting
  – Needs and Opportunities

Bioretention Facility Maintenance

• What: O&M Fact Sheet (on website)
  – No fertilizers or pesticides
  – Daily/weekly inspection and trash removal
  – Monthly weeding and irrigation check
  – Post-storm inspections
  – Annual pre-rainy-season check
  – Annual vegetation cut-back
• Who?
### Data Management Requirements

- **MRP Provision C.3.j.iv. By 2019:**
  - Track and report treated/disconnected area
  - Reasonable assurance (track load reduction)
  - Trash
  - Both public and private parcels
- **MRP Provisions C.3.b., C.3.e. and C.3.h.**
  - Report discretionary approvals of projects
  - Report “Special Projects”
  - Report construction of facilities
  - Keep a database of facilities and records of inspections

### Data Management Next Steps

- **We have developed:**
  - AGOL for C.3 load reductions and trash
  - Countywide consensus on need for a common C.3 tracking database
  - Database structure for C.3 tracking
- **How and when to move forward?**
Workshop Evaluation and Follow-Up Items

Feedback

• Do you have the resources you need to:
  – Incorporate Green Infrastructure into Capital Improvement Projects?
  – Complete a Green Infrastructure Plan in 2019?
• Are there additional opportunities for collaboration?
• Please complete the Request for Feedback (reverse side of agenda)