Overview of Stormwater Program
Activities and Objectives

Control Measures for PCBs and Mercury

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Topics

- PCB and Mercury TMDL Implementation in Current NPDES Stormwater Permit
- Working Approach to PCBs and Mercury Implementation in Next NPDES Permit
- Recently submitted documents:
  - October 2013: Green Streets
- Next Steps and Information Priorities
PCBs and Mercury in the MRP

• **Driver:**
  – Fish Consumption Advisories
  – TMDL Load Allocations

• **Approach:**
  – Reduce sediment sources with elevated PCBs
  – Initial focus: find and reduce PCBs, account for mercury concurrently reduced
Phased approach with goal of attaining PCB & Hg TMDL allocations within 20 years:

1. Desk top analysis, literature review, bench scale testing, etc.
2. Pilot testing BMPs (mainly focusing on known “hot spot” areas)
3. Focused implementation (in areas of greatest benefit)
4. Full-scale implementation throughout the region
Current Permit Requirements
Pilot Projects – Evaluate Control Measures

- Source area investigations
- Enhanced street sweeping
- Street washing and pipe flushing
- Treatment retrofits
  - Bioretention / bioswales
  - Hydrodynamic separators
  - Tree wells
- Diversions to POTWs
- PCBs in building materials
- PCBs in existing IND inspection program
- Risk Reduction (Pub Outreach)
MRP 1.0 Lesson Learned
Where do we find high PCB concentrations in sediments?

- Closest to where PCBs were manufactured or used
- Often close to Bay margins
- Typically highest in “old industrial” (pre-1980) land uses

“Halo effect” – Vehicle, wind dispersion

Patchiness – Transient sources – Cleanup, degradation
MRP 1.0 Lessons
PCB Load Estimates

- PCB “yields” concept
  - Known areas with the highest production per acre
  - But what about the rest?
- Compile what we know about highly sampled areas (including RMP data)
- Model all other watersheds / land use areas
- Tabulate for land use types

How do we move to Phases 3, 4?

<table>
<thead>
<tr>
<th>Land Use PCB Yield (mg/ac/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Industrial</td>
</tr>
<tr>
<td>50</td>
</tr>
</tbody>
</table>

Figure from SFEI (2013)
Uncertainties, Information Gaps and Potential Challenges

• Finding Sources
  – Locating High, Moderate & Low Opportunity Areas

• Costs of Implementing and Maintaining Control Measures

• Calculating Load Reductions

• Achieving TMDL Targets and Waste Load Allocations
  – Reevaluation of TMDL Targets and Schedules

"How long do we have to get in compliance?"
Preparing for the Next Stage

Identifying Opportunity Areas and Implementation Planning
“High Opportunity”
Locations for management actions = High PCB concentrations in sediments

- Highest closest to where PCBs were manufactured or used
- Typically highest in “old industrial” land uses
- Often close to Bay margins
### MRP 2.0 PCB Strategy

<table>
<thead>
<tr>
<th>Estimated Acres</th>
<th>Estimated PCB Load</th>
<th>Known High Opportunity</th>
<th>Other Old Industrial and nearby / similar</th>
<th>Other Old Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>~ 3,100</td>
<td>~ 10%</td>
<td>~ 20,000</td>
<td>~ 15%</td>
<td>~ 300,000</td>
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</table>

<table>
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<tr>
<th>Current knowledge</th>
<th>Working assumptions re PCB yield (per unit area)</th>
<th>Certainty: are available data enough to support / justify focused implementation?</th>
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<tbody>
<tr>
<td>high</td>
<td>High within known catchment boundaries or management areas</td>
<td>Adequate certainty to begin evaluating implementation options</td>
</tr>
<tr>
<td>moderate</td>
<td>Moderate as overall average. Local areas vary from low to high</td>
<td>Limited; need to sort this subset into either “New High Opportunity” or “Moderate Opportunity” via monitoring and / or municipal staff input</td>
</tr>
<tr>
<td>varies</td>
<td>Low as overall average, but local areas vary; Total load significant due to large area.</td>
<td>No; focus on Moderate Opportunity areas to include in long term master planning to take advantage of opportunities for multiple benefits</td>
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# MRP 2.0 PCB Strategy

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<th>Land Use or Drainage Category</th>
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<td>~ 3,100</td>
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<td>~ 15%</td>
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</tr>
<tr>
<td>~ 300,000</td>
<td>~ 60%</td>
<td>Other Old Urban</td>
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<th>Long term info needs</th>
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<th>Other Old Urban</th>
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<tr>
<td>What is the best practicable solution at each location?</td>
<td>Screening information on existing infrastructure and PCB concentrations, criteria for sorting.</td>
<td>Coordinate with municipal plans, identify potential opportunities and funding sources</td>
<td></td>
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<tr>
<td>What will solutions cost?</td>
<td></td>
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<th>Short term info gathering priorities for stormwater programs</th>
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<th>Old Industrial and nearby / similar</th>
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<tr>
<td>Cost estimates and planning timelines for actions in high opportunity areas</td>
<td>First round info gathering and screening of selected areas (review history and records, windshield surveys, preliminary monitoring etc.)</td>
<td>Begin analysis of opportunities and constraints in coordination with other drivers</td>
<td></td>
</tr>
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Estimated PCB Load:
- ~ 10% for High opportunity
- ~ 15% for Old Industrial and nearby / similar
- ~ 60% for Other Old Urban

Current knowledge:
- High for High opportunity
- Moderate for Old Industrial and nearby / similar
- Varies for Other Old Urban

Long term info needs:
- What is the best practicable solution at each location?
- What will solutions cost?

Short term info gathering priorities for stormwater programs:
- Cost estimates and planning timelines for actions in high opportunity areas
- First round info gathering and screening of selected areas (review history and records, windshield surveys, preliminary monitoring etc.)
Opportunity Area Identification

• Different types of “Old Industrial” areas
  – Wide range of yields within “Old Industrial”
• Gaps in information & monitoring data
• High Opportunity Identification Process
  – Draft source area maps (pre-1980 development)
    • Old Industrial & Electrical Properties
    • Auto and Waste Recycling Facilities
    • Railroads, Ports and Military
  – Confirm/refine status of redevelopment/treatment
  – Site Reconnaissance & Possibly Additional Sediment Sampling
  – Develop Opportunity Area Maps
Draft Source Area Maps
Multiple Benefits for Consideration by Stormwater Permittees during Next Permit

• Coordination with other drivers
• Overlap among:
  – Old industrial
  – Priority areas for (re)development e.g. Green infrastructure
  – Trash reduction
• May not map onto existing drainages or watersheds
Next Steps

• Programs’ information gathering
  – First phase- now through FY 2014-15

• High Opportunity management areas
  – Known: start Focused Implementation in MRP 2.0
  – “New”: ID candidate areas, evaluate opportunity

• Long-term Watershed Master Planning
  – Integration with “Green Infrastructure” projects
  – Calculate long term benefits, costs
  – Potential funding mechanisms and timelines