Top FOG Issues

• **Maintenance and cost**
  - Treating FOG at wastewater plants
  - Cleaning FOG buildup in collection system
  - FSE inspections

• **Sanitary sewer overflows (SSOs)**
  - EPA and DEQ have zero tolerance for SSOs
  - FOG causes blockages that result in SSOs
Scope and Magnitude

• 1,700 FSEs in Clean Water Services area
• Population 530,000
• About 90% FOG generated by FSEs
  ▪ Most FOG is discharged to public system
  ▪ Resource recovery estimates (Kennedy/Jenks “Brown Grease Study”)
• About 10% FOG generated by residential & industrial sources
• 28.4 miles of FOG lines need extra cleaning
$4.2 \text{ M} = \text{Annual cost of FOG}

Wastewater treatment $3,500,000
- Diminished treatment capacity
- Uses more energy and chemicals

Maintenance $371,000
- Collection system $168,000 (includes cities)
- Pump Stations $117,000
- Treatment plants $86,000

FSE Oversight $362,000
- Inspections $252,000 (includes cities)
- Public Affairs $16,000
- Administration $94,000

Total $4,233,000
FOG is from food preparation

- Residential/multi-family
- Industrial food processing/packaging
- Food Service Establishments (FSEs)

*FSEs: restaurants, taverns, clubs, coffee shops, groceries, deli’s, commissaries, care facilities, churches, schools, hospitals, etc.
Types of GRDs

- Inside
  - Hydro-mechanical

- Outside
  - Interceptor vaults
BMP Effectiveness?

- Despite inspections, and training on kitchen BMPs and GRD maintenance . . .

- Just 3 months after line cleaning we found:
  - FOG buildup at FSE connections
  - Restrictions in the pipe (FOG on top of pipe indicates blockage)
What we find at FSEs

- No GRDs
- Not all drains are connected to GRDs
- Poorly maintained GRDs
- Difficult access to clean and inspect GRDs
- GRD not right for the business
- Size vs. maintenance not cost effective
- Use of prohibited emulsifiers, chemicals
# Case Studies #1 and #2

<table>
<thead>
<tr>
<th>Status</th>
<th>GRD Size</th>
<th>Connections</th>
<th>Lbs FOG per year</th>
<th>Cleaning frequency</th>
<th>Cleaning cost/year</th>
<th>More FOG captured</th>
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<tbody>
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## Case Studies #3 and #4

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# Plumbing determines Costs

## Current

### Fixtures/Drains with FOG Protection
- Wok HGI 20/40
- 3 comp & Mop sink HGI 20/40
- Prewash sink HGI 20/40

### Fixtures/Drains without Protection
- Dishwasher
- 2 compartment sink
- 2 hand wash sinks (one used to dump)
- 3 Floor sinks
- 2 Floor drains

Current practices:
$895.99 / month or $10,740.00 / year

If added proper training and strict staff BMPs:
$485.00 / month or $5,820.00 / year

City & CWS is processing this FOG

## All Drains Connected

### Option 1
- New design HGI
- $220.00 / month
- $2,640.00 / year

### Option 2
- GGI (1,900 gal)
- $450.00 every 5 or 6 months
- $1,080.00 / year

## Pumper Prices
- HGIs 1 = $95.00, 2 = $120.00, 3 = $175.00
- GGIs 0.25 – 0.28 per gallon

## Return on Investment
Floor Drains Impacted
More drains to be connected
Retrofits vs. New Construction
Stormwater impacts
Is there a better way?
Doing the right thing

Drains to GGI
Questions?

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