Jefferson County
Port Hadlock UGA
Sewer Facility Plan

Public Workshop – Preliminary Design, Cost & Finance
October 10, 2006
Introduction
Purpose & Goals
Design Refinements
Project Costs
Finance Strategies
Discussion/Questions
Next Steps
Port Hadlock UGA – Sewer Facility Plan

Project Website

http://www.porthadlocksewer.org/

In response to the 1990 Growth Management Act (GMA), Jefferson County pursued the designation of an Urban Growth Area (UGA) in the Treadwell/Port Hadlock area. As part of the requirements for establishing a UGA, Jefferson County is conducting a study of alternatives for developing a sewer system.

The sewer study will enable the County to identify:

1. The final preferred alternative or method of collection, treatment, and disposal of wastewater;
2. The service area;
3. The phasing of implementation of sewers throughout the service area;
4. The estimated cost for individual connections to sewer, and
5. Financing strategy and revenue sources.

The goal of the study is to produce a comprehensive sewer facility plan that will help the County plan for growth in the area over the next 20 years that will satisfy RCW 36.94 concerning County's sewerage, water, and drainage system responsibilities, and that will be approved by the Department of Ecology.

The County and its consultants will develop alternatives for collection, treatment, and discharge of Port Hadlock and Treadwell's sewage. To simplify the analysis, the collection system analysis will be conducted first. Once a type of collection system is defined, a single set of flow and load...
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Approach to New Sewer Facilities Plan

Public Involvement

- Stakeholder Workshop
- Stakeholder Workshops (2)
- Public Meetings (2)

Technical

- Review Past Work
- Collection System Alternatives
- Disposal Alternatives
- Treatment Alternatives
- System Selection
- Facility Plan

Financial

- Financial Analysis
- Rates and Implementation Plan
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Thank You!

- County has received valuable input from stakeholders, community, agency staff
- Thank you for time, effort, and interest!
New Sewer System Realities & Approaches

- New System Costs
  - High – Systems are inherently expensive
  - Start Up – Lowest number of connected ERU’s
- Approaches – With the “Facts” Can Now Do the “Art”
New Sewer System Approaches

- Approaches – With the “Facts” Can Now Do the “Art”
  - Current cost estimates not set in stone
  - Approved Sewer Facility Plan means sewer system eligible for funding
    - Grantsmanship
    - Congressional / legislative approach
    - Low interest loans
    - Low income assistance

- Learn From Others’ Experience
Purpose of Sewer System

- Responsible, proactive planning for population growth under the auspices of the Growth Management Act
- Environmental protection
  - Chimacum Creek
  - Shellfish beds
- Allows denser development in designated areas
  - Development to planned densities
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Preferred Alternative

- **Collection**
  - Gravity Collection in core area
  - Gravity in outlying areas
  - Have flexibility for STEP (Septic Tank Effluent Pump) or grinder pumps in outlying areas

- **Treatment**
  - MBR (Membrane Bioreactor) for treatment technology
  - Best effluent quality, easily expandable
  - Anticipates future regulatory environment
  - Easiest to mitigate - odor control & aesthetics

- **Effluent Disposal/Reuse**
  - Rapid Rate Infiltration/Surface Percolation
  - Class A effluent best suited for land application/groundwater
  - Least costly and easy to implement

- **Solids Handling**
  - Contracted haul and disposal
  - Least costly, can change strategy as system develops
Developments/Design Refinements

- Treatment Plant Location – Recommend Siting in the South of the Sewer Service Area
- Collection System – Influent Pump Station near Ness’ Corner Road and Shotwell Road
- Treatment – Phasing
  - Costs forecast year-by-year
  - Costs shifted to optimize financing and development of the system
  - Hydrogeologic work ongoing
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Candidate WWTP Locations
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Influent Pump Station

[Map showing the location of the Influent Pump Station and surrounding areas, with a legend indicating various service boundaries and sites.]
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Phased Implementation

Gravity Sewer System

Legend:
- Existing Data
- Existing Gravity Sewer
- New Gravity Sewer
- Existing Force Main
- New Force Main
- Fenceline
- Intermediate Development Phase Areas:
  - Area #1
  - Area #2
  - Area #3

Port Townsend
## Planned Implementation by Phase

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Year Online</th>
<th>Area, ac</th>
<th>ERUs in 2030</th>
<th>2030 Max Month Flow, gpd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Core Area with Alcohol Plant</td>
<td>2010</td>
<td>355</td>
<td>768</td>
<td>195,300</td>
</tr>
<tr>
<td>2</td>
<td>Rhody Drive</td>
<td>2015</td>
<td>190</td>
<td>615</td>
<td>156,400</td>
</tr>
<tr>
<td>3</td>
<td>Residential Area 1</td>
<td>2021</td>
<td>110</td>
<td>342</td>
<td>87,000</td>
</tr>
<tr>
<td>4</td>
<td>Residential Area 2</td>
<td>2023</td>
<td>140</td>
<td>256</td>
<td>65,100</td>
</tr>
<tr>
<td>5</td>
<td>Residential Area 3</td>
<td>2026</td>
<td>165</td>
<td>598</td>
<td>152,000</td>
</tr>
<tr>
<td>6</td>
<td>Residential Area 4</td>
<td>2029</td>
<td>340</td>
<td>1364</td>
<td>346,900</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td>1,300</td>
<td>3,944</td>
<td>1,002,700</td>
</tr>
</tbody>
</table>
Sewer Facility Plan

- Must show defined funding mechanism for near term (6-year) strategy
- Must show viable financing plan for long term (20-year) strategy

Plan Adoption by Department of Ecology (DOE)

- The Community to proceed with implementation
- Details of financing plan could change during implementation
# Updated Capital Cost Estimate - 2018

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Core with Alcohol (in Thousands)</th>
<th>Rhody Drive (in Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravity Collection System</td>
<td>$8,222</td>
<td>$3,035</td>
</tr>
<tr>
<td>On-Site Costs</td>
<td>$2,049</td>
<td>$1,406</td>
</tr>
<tr>
<td>MBR Treatment Plant</td>
<td>$14,109</td>
<td>$774</td>
</tr>
<tr>
<td>Disinfection</td>
<td>$217</td>
<td>$0</td>
</tr>
<tr>
<td>Sludge Handling</td>
<td>$85</td>
<td>$1,345</td>
</tr>
<tr>
<td>Effluent Disposal</td>
<td>$2,222</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$26,904</strong></td>
<td><strong>$6,560</strong></td>
</tr>
</tbody>
</table>

Note: Table Shows Costs of Developing the Sewer System through 2018
Different Financing Strategies for Different Types of Sewer Costs
Types of Sewer Costs

- **Capital Costs**
  - Capital funding sources
  - Repayment of debt financing
  - Variety of methods to distribute capital costs

- **Operation and Maintenance (O&M) Costs**
  - Ongoing operating costs
  - Distributed to the users through monthly rates
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Overview of Sewer System Funding

One-Time
- Capital Improvements
  - Grants
  - Loans
  - Contributions
  - Cost Sharing
  - Bond Proceeds

Long Term Debt (associated with capital costs)
- Connection Charges
  - ULID Assessments

On-Going
- Operations Maintenance Administration
- Monthly Rates

- Cost Sharing
- Bond Proceeds
- Grants
- Loans
- Contributions
- ULID Assessments

- Connection Charges
## Types of Funding Opportunities

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Pay for Capital?</th>
<th>Pay for O&amp;M?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants</td>
<td>Yes</td>
<td>Maybe startup, not on-going</td>
</tr>
<tr>
<td>State/Federal/Local Loans</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Selling Bonds</td>
<td>Yes</td>
<td>Yes, not good idea</td>
</tr>
<tr>
<td>Connection Charges</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Utility Local Improvement District (ULID)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Monthly Utility Rates</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sewerage/Drainage Assessment District</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Port Hadlock UGA – Sewer Facility Plan

**Capital Funding Sources**

- **Grants**
  - Department of Ecology (grant/loan)
  - US Rural Development Administration (USRDA) (grant/loan)
  - US Economic Development Administration
  - Community Development & Economic/Job Development

- **Low-Interest Loans**
  - State of WA Public Works Trust Fund (PWTF)
  - Department of Ecology

- **Bonds**
  - General Obligation Bonds – Backed by taxes, general revenue
  - Revenue Bonds (Future) – Backed by utility revenue
Capital Funding Sources – (Continued)

- **Other Sources**
  - Congressional or State Line Items
  - Jefferson County Public Infrastructure Fund

- **Users**
  - Utility Local Improvement District (ULID) Assessments
  - Connection charges
  - Developer extensions
  - Debt repayment by monthly rates
Funding Initial Capital Costs

Thru the year 2018
Core with Alcohol Plant + Rhody Drive
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Capital Cost by Element
thru 2018 (Core, Alcohol, Rhody)

<table>
<thead>
<tr>
<th>COMMON/SHARED COST</th>
<th>LOCAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL</strong></td>
<td></td>
</tr>
<tr>
<td>• Treatment</td>
<td>• Gravity Collection Lines up to 8&quot;</td>
</tr>
<tr>
<td>• Disinfection</td>
<td></td>
</tr>
<tr>
<td>• Solids Handling</td>
<td></td>
</tr>
<tr>
<td>• Disposal</td>
<td></td>
</tr>
<tr>
<td>• Influent Pump Station</td>
<td></td>
</tr>
<tr>
<td>• Oversizing Collection</td>
<td></td>
</tr>
<tr>
<td><strong>$21,074,114</strong></td>
<td><strong>$8,934,800</strong></td>
</tr>
</tbody>
</table>

+ 

<table>
<thead>
<tr>
<th>PRIVATE/ON-SITE COST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ON-SITE</strong></td>
</tr>
<tr>
<td>Connect home/building to sewer system</td>
</tr>
<tr>
<td><strong>$3,455,000</strong></td>
</tr>
</tbody>
</table>
Wastewater System Elements

On-Site Elements
- Private
- Property Line
- Side Sewer

Collection Elements
- Local
- 8" Sewer

Treatment Elements
- General
- Influent Pump Station
- 10" Sewer
- Force Main
- Wastewater Treatment Plant
Timeline for Financing Common/Shared Costs

INITIAL CAPITAL REQUIREMENTS
(Does not include On-Site costs)

- Core + Alcohol Collection
- Treatment capacity 1,000 ERU
- Rhody Collection
- Add Membranes
- Additional 1,000 ERU treatment capacity

Timeline:
- 2010
- 2012
- 2015
- 2018
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**Funding Example - Shared Capital Costs**

Estimated annual debt repayment over 20 years = $1,200,000
$600,000 USRDA (4.5% interest) + $600,000 PWTF or DOE (2.5% interest)
Strategies for Recovering Capital Costs from Users
Three Strategies for Repayment

- **Connection Charges for General and Local**
  - Pay when connect

- **Connection Charges for General and Utility Local Improvement District (ULID) for Local**
  - ULID Assessment annually when sewer lines comes to neighborhood + Pay Conn. Chg. when connect

- **Assessed Value (AV) for General and Local**
  - Pay annually based on value of property; undeveloped pays much less than developed
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Connection Charge vs. ULID

Connection Charge
• Pay only when connect to sewer
• Property owners must come up with funds – home equity loan, second mortgage, savings, credit card
• Some jurisdictions may allow payment over time

ULID Assessment
• Provides long-term financing for property owners
• Pay annual assessment over 10-20 years
• ULID formed to fund sewers in specific areas
• Draw boundary around properties, all are in
• Assessment cannot exceed benefit
### Cost Implications of Strategies

#### CONN CHG FOR GENERAL & LOCAL

<table>
<thead>
<tr>
<th>Pay General &amp; Local upon connection</th>
<th>Without Grant</th>
<th>With Grant* (Residential)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Charge per ERU</td>
<td>$17,000</td>
<td>$9,350</td>
</tr>
<tr>
<td>+ Average On-Site</td>
<td>$3,500</td>
<td>$3,500</td>
</tr>
<tr>
<td><strong>Est. New Connection</strong></td>
<td><strong>$20,500</strong></td>
<td><strong>$12,850</strong></td>
</tr>
</tbody>
</table>

* Assumes 45% Grant for Residential Capital Costs

#### CONN CHG FOR GENERAL + ULID FOR LOCAL

<table>
<thead>
<tr>
<th>Pay General upon connection + Pay Local thru ULID Assessment</th>
<th>Without Grant</th>
<th>With Grant* (Residential)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Charge per ERU</td>
<td>$9,000</td>
<td>$4,950</td>
</tr>
<tr>
<td>+ ULID Assessment per ERU</td>
<td>$8,000</td>
<td>$4,400</td>
</tr>
<tr>
<td>+ Average On-Site</td>
<td>$3,500</td>
<td>$3,500</td>
</tr>
<tr>
<td><strong>Est. New Connection</strong></td>
<td><strong>$20,500</strong></td>
<td><strong>$12,850</strong></td>
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</tbody>
</table>

One ERU is 4,500 gallons of water per month
## What to Pay? Connect Early or Later

### COMPARE COST PER ERU

<table>
<thead>
<tr>
<th>What to pay if connecting when sewer is available or not?</th>
<th>Residential*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conn. Chg. for GENERAL &amp; LOCAL</strong></td>
<td><strong>+ Pay When Connect Later</strong></td>
</tr>
<tr>
<td>Pay General &amp; Local Upon Connection (includes On-site)</td>
<td><strong>$12,850</strong></td>
</tr>
</tbody>
</table>

| **SDC FOR GENERAL + ULID FOR LOCAL** | **——** | **$8,450** | **——** |
| Pay General upon connection (includes On-site) | **$8,450** | **——** | **——** |
| + Pay Local thru ULID | **$4,400** | **$4,400** | **——** |

* Assumes 45% grant for residential
### Who Pays?  Connect Early or Later

<table>
<thead>
<tr>
<th>COMPARE COST PER ERU</th>
<th>Commercial</th>
<th>Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What to pay if connecting when sewer available or not</strong></td>
<td><strong>Connect at Beginning</strong></td>
<td><strong>Do Not Connect at Beginning</strong></td>
</tr>
<tr>
<td>Conn Chg for GENERAL &amp; LOCAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pay General &amp; Local Upon Connection</td>
<td>$20,500</td>
<td>$0</td>
</tr>
<tr>
<td>Conn Chg FOR GENERAL + ULID FOR LOCAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pay General upon connection, Pay Local thru ULID</td>
<td>$20,500</td>
<td>$8,000</td>
</tr>
</tbody>
</table>

ERU = 4,500 gallons monthly water usage
Our Thoughts on These Cost Estimates

- Facility Plan costs based on recent bid results
- Current estimates are in-line with cost estimating procedures and experience
- Project Costs have a 30% contingency which is customary for planning level efforts
- Pre-Design, Design, Bidding will fine-tune costs
- Included 15% finance cost
- Need cost estimates to seek financial assistance
Current Sewer Expansion Examples

- **Langley**: City Council is discussing proposal of $15,558 connection charge for general and local.  
  *(Port Hadlock: $9,350 with grant or $17,000 without)*

- **Ronald Wastewater**: Connection to District-funded line extension: general, local and on-site = approx. $33,000.  
  *(Port Hadlock: $12,850 with grant or $20,500 without)*

- **Bainbridge Island**: Residential ULID assessments range from $8,000 for those connecting later to $30,000 including general, local and on-site.  
  *(Port Hadlock: $12,850 with grant or $20,500 without for those connecting at beginning)*
Operations & Maintenance
Cost Estimate
## Estimated O&M Costs per ERU

<table>
<thead>
<tr>
<th>Estimated Monthly Rate for O&amp;M and Admin Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>O&amp;M per ERU per month</td>
</tr>
<tr>
<td>Add Billing/Collection/State Tax/Admin</td>
</tr>
<tr>
<td>= Est. monthly rate before replacement</td>
</tr>
</tbody>
</table>

* Potential for a beginning rate, then evaluate replacement funding as more users connect.
What Does It Mean?
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**Est. Rolled Up Cost per ERU**

**Ongoing O&M with Admin.**

$60 per ERU per month

**Est. Capital Costs**

- $12,850 with 45% grant
- $20,500 without grant

ERU includes up to 4,500 gallons of water per month

“Art” of financing
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How to Continue to Reduce Costs

- Current cost estimates not set in stone!
  - Complete sewer facility plan to be eligible for funding assistance
  - Seek grants
  - County staff attend conference to meet funding program admin.
  - Seek low-income assistance – USRDA housing loans; health dept. loan program; create program with grant funding
  - Seek congressional line-item / legislative
  - Finalize method of distributing costs
  - Explore opportunities for O&M savings
  - Maximize initial participation: Community involvement
Next Steps

- Public Meetings: October 25, 2006 & February 2007
- Draft Sewer Facility Plan, November 2006
- Plan Approval Anticipated in March 2007
Discussion & Questions