WOODBURN
OREGON
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AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

Thursday April 24, 2008 – Wastewater Treatment Plant

1. 5:00 PM Plant Tours Available (Sandwiches Available)
2. 7:00 PM Advisory Committee Meeting Begins
3. Introductions
4. Public Works Director Welcome – Dan Brown
5. Election of Chairman and Vice Chairman
6. Facility Plan Outline - Randy Rohman
7. Current Facility Plan – Randy Rohman
8. Current Wastewater Rates and Structure – Randy Rohman
9. Current Wastewater System Development Charges – Randy Rohman
10. National Pollution Discharge Elimination System (NPDES) Permit and Mutual Agreement and Order (MAO) – Randy Rohman
11. Population Projections and Planning Horizon (DRAFT) – Dave Green
12. Collection System Mapping Progress – Dave Green
13. Study Area Characteristics Section (DRAFT) – Dave Green
14. Questions
15. Next Meeting Date and Location

City of Woodburn

POTW Facility Plan

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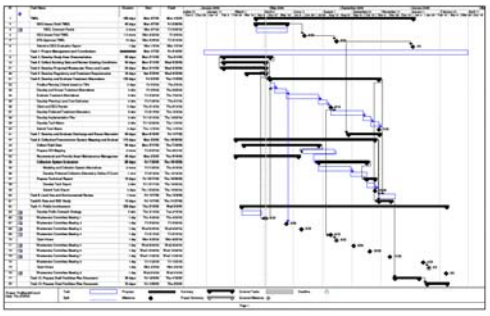
Wastewater Advisory Committee

Thursday, April 24, 2008

Agenda

- Overall Facility Plan
  - Scope and Schedule
- Study Area Characteristics
- Population Projections
  - Planning Horizon
  - Alternative Projections
- Collection System Mapping Progress

Overall Facility Planning Current Schedule



Key Planning Criteria

- Study Area Characteristics
- Population Projections
- Flow/Load Projections
- Project Regulatory Criteria
- Condition of Existing Facilities

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Study Area Characteristics

- Oregon DEQ requirement
- Most information already developed during Comprehensive Planning process
- Assists with informing DEQ and others by characterizing the study area

Study Area Characteristics

- Physical Environment
  - Climate, Soils, Geology
  - Water Resources
    - Pudding River
    - Mill Creek
    - Senecal Creek
  - Environmentally Sensitive Areas
    - Wetlands
    - Stream Corridors
  - Air Quality and Noise

Study Area Characteristics

- Socio-Economic Environment
  - Demographics
  - Economic trends
  - Population
- Land Use Regulations
  - City of Woodburn
    - Public Facility Planning
  - Marion County

Study Area Characteristics Land Use

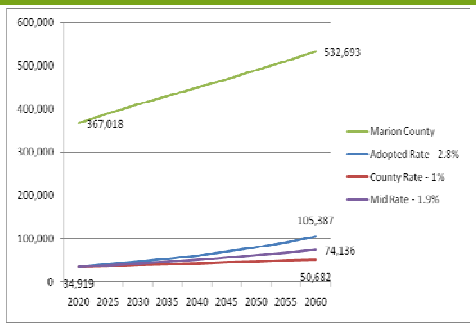
Population Projections

- Based on Comprehensive Planning work done by Winterbrook Planning (adopted in 2005)
- Planning horizon for that work looked at growth through 2020
  - assumed 2.8% average annual growth rate
- Oregon DEQ requires 20-year horizon for wastewater facility planning (beyond 2020)

Population Projections

- Three scenarios evaluated:
  - High End – Continue 2.8% average annual growth rate
  - Low End – Limit growth to 1% after 2020
    - Based on OEA projections for Marion County
  - Mid-Range – Assume 1.9% growth after 2020

Population Projections



Population Projections Recommendation

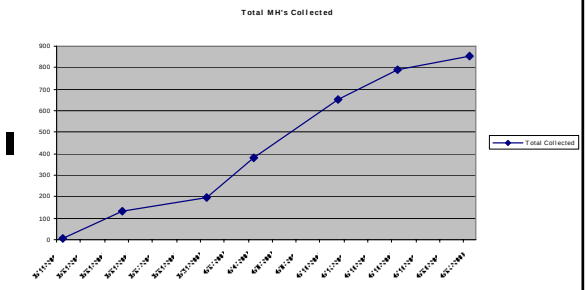
- Mid-Range Assumption
  - 1.9% growth after 2020
  - 50-year projection results in 2060 population of 74,000 people (doubles the current 2020 projection)
  - 2000 residential acres
  - 1000 employment acres
  - Total of 6.1 additional square miles

Population Projections Next Steps

- Develop Flow and Load Projections
- Assess impact on Collection System
- Assess impact on Treatment Plant
- Look for opportunities to phase the improvements

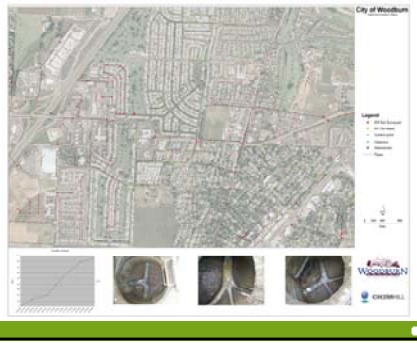
Collection System Mapping Progress (April 22)

Manhole Survey Rates About 2/3 Complete

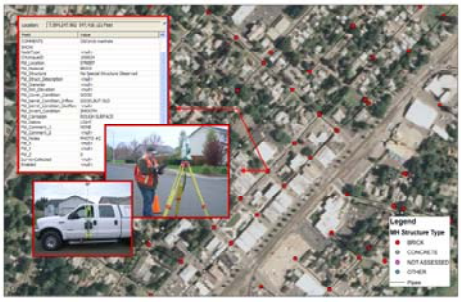


City Information Documented

Survey Information Collected (GIS)



Manhole Condition Info Collected



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Survey/Mapping Work Next Steps

- Continue field survey work, condition assessment and mapping
- Develop system information for collection system modeling
- Develop Computer Maintenance and Management System (CMMS) in conjunction with the data collected
- Maximize the value of the City's GIS

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Overall Facility Planning Next Steps

- Develop Planning Criteria
  - Define Study Area
  - Population Projections
  - Flow/Load Projections
  - Project Regulatory Criteria
  - Condition Assessment
- Develop POTW alternatives and recommendations
- Finalize survey work and mapping
- Develop collection system model and recommended improvements

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AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM - Thursday May 22, 2008

Police Department Community Room

1. Note of Attendance
2. Approval of April 24, 2008 Meeting Minutes
3. Regulatory and Treatment Requirements – David Green
4. Wastewater Flow and Load Analysis – Michelle Burkhart
5. Pilot Testing Scope of Work and Update – Jason Smesrud
6. Discussion/Overview of natural treatment systems - Jason Smesrud /Mark Madison
7. Treatment Plant and Collection System Condition Assessment - Michelle Burkhart
8. Public Involvement Theme – Randy Rohman
9. Public Involvement Process – Randy Rohman
10. Collection System Mapping Progress – David Green
11. Questions
12. Next Meeting Date and Location

City of Woodburn

POTW Facility Plan

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Wastewater Advisory Committee

Thursday, May 22, 2008

Agenda

- Overall Facility Plan
  - Scope and Schedule
- Regulatory and Treatment Requirements
- Flow and Load Analysis
- POTW and Collection System Condition Assessment
- Collection System Mapping Progress
- Pilot Testing Scope of Work & Update
- Overview of Natural Treatment Systems

Overall Facility Planning Current Schedule

Key Planning Criteria

- Study Area Characteristics
- Population Projections
- Project Regulatory Criteria
- Flow/Load Projections
- Condition of Existing Facilities

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Regulatory and Treatment Requirements

- Summary of Key Regulatory Criteria:
  - Total Max Daily Loads (TMDL's)
  - Effluent water quality criteria (including existing, emerging, and future criteria)
  - Effluent reuse criteria (existing and new)
  - Biosolids criteria (existing and emerging)
  - Reliability and redundancy requirements
- Review with Oregon DEQ

POTW Discharge Permit

- Dry Season (May 1st to Oct 31st)
  - CBOD: 10 mg/L monthly avg, 15 mg/l weekly avg
  - TSS: 10 mg/L monthly avg, 15 mg/l weekly avg
- Wet Season (Nov 1st to May 31st)
  - BOD: 25 mg/L monthly avg, 40 mg/l weekly avg
  - TSS: 30 mg/L monthly avg, 45 mg/l weekly avg
- BOD and TSS removal > 85% of influent conc
- Temperature Limits (potential major issue)
  - 9.2 million Kcals/day (May 1st to Oct 31st)

POTW Discharge Permit

- Year Round Ammonia-N Limits
  - Dry Season: June 1st to Oct 31st
    - Monthly average limits vary based on month as well as effluent flows and Pudding River flows
    - Plant staff manage limits thru the effluent reuse program
  - Wet Season: Nov 1st to May 31st
    - Monthly average limits vary based on river flow
    - MAO limits require nitrification thru winter – longer detention times and more air
    - Oregon continues to negotiate with EPA regarding ammonia limits – winter limits could be relaxed

Reclaimed Water Regulations

- Current permit relies on 1990 version of the Reuse Rules
- New version (2008) allows for additional beneficial uses with filtration and disinfection
- Opens the door for beneficial use of reclaimed water outside the POTW boundary
- More flexibility for Woodburn beyond the current poplar reuse system
- Pilot studies will help to define opportunities

Other Regulatory Requirements

- Biosolids Regulations (Class B program)
  - Limited by agronomic rates and metals
- Microcontaminants – Pharmaceuticals, herbicides, and pesticides
- Mercury – reduction plans required
- Temperature TMDL – potential for trading
- Sanitary Sewer Overflow Rule
  - Oregon's rules prohibit overflows – five year 24-hour winter storm and ten year 24-hour summer storm
- Air Quality/Greenhouse Gas – monitoring and reporting requirements in development
- Facility Reliability and Redundancy (Class II)

Key Planning Criteria

- Study Area Characteristics
- Population Projections
- Project Regulatory Criteria
- Flow/Load Projections
- Condition of Existing Facilities

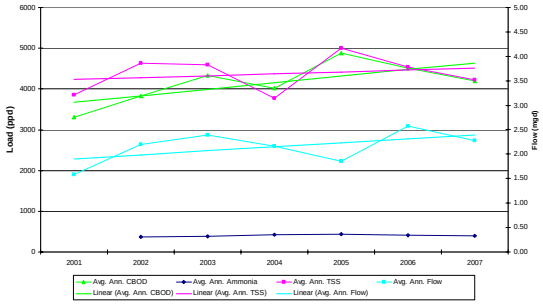
Population Projections Recommendation

- Mid-Range Assumption
  - 1.9% growth after 2020
  - 50-year projection results in 2060 population of 74,000 people (doubles the current 2020 projection)
  - 2000 residential acres
  - 1000 employment acres
  - Total of 6.1 additional square miles

Flow/Load Projections

- Start with Existing Flow and Load Characteristics
  - Adjust 'current' condition to account for industrial allocations above current use
- Project forward consistent with Population Projection recommendations and approved Comp Plan land uses
- Define range of flow and load conditions for future condition

Flow/Load Projections



Flow Projections

	2007 (mgd)	2020 (mgd)	2060 (mgd)
Industrial			
Users with Capacity Allocations > Use	0.94	0.94	0.94
Other Industrial Users	0.36	0.53	0.70
Commercial	0.31	0.40	0.84
Residential	1.66	2.38	5.05
Total	3.27	4.24	7.54

Load Projections

	2007 (lb/d)	2020 (lb/d)	2060 (lb/d)
CBOD			
Industrial Users w/ Capacity Allocations	5,350	5,350	5,350
Other Users	4,287	6,378	12,737
Total CBOD	9,637	11,728	18,087
TSS			
Industrial Users w/ Capacity Allocations	2,900	2,900	2,900
Other Users	4,474	6,207	12,395
Total TSS	7,374	9,107	15,295
Ammonia	410	725	1,287

Flow Basis for Design

- **Design Flows (year 2020)**
  - **Average Annual: 4.24 mgd**
  - **Max Month Dry Weather: 5.0 mgd**
  - **Max Month Wet Weather: 9.5 mgd**
  - **Max Day: 20.6 mgd**
- **Design Flows (year 2060)**
  - **Average Annual: 7.54 mgd**
  - **Max Month Dry Weather: 8.9 mgd**
  - **Max Month Wet Weather: 16.8 mgd**
  - **Max Day: 36.5 mgd**

Key Planning Criteria

- Study Area Characteristics
- Population Projections
- Project Regulatory Criteria
- Flow/Load Projections
- Condition of Existing Facilities

Condition Assessment Overview

- Objective:
  - Assess condition of existing facilities
  - Identify deteriorated facilities and structures
  - Identify operational and maintenance headaches
  - Identify potential triggers for code upgrades
  - Begin to identify priority improvements

Condition Assessment Findings - POTW

- Main process facilities are well constructed and in good condition
- Previous expansion appears to have considered newer electrical codes
- Poor electrical installation methods have resulted in maintenance issues

Condition Assessment Findings - POTW

- Plant support systems are in poor condition
  - Not adequately addressed in last expansion
  - Non-potable water systems are unreliable
  - Potential safety hazards exist

Condition Assessment Findings – Pump Stations

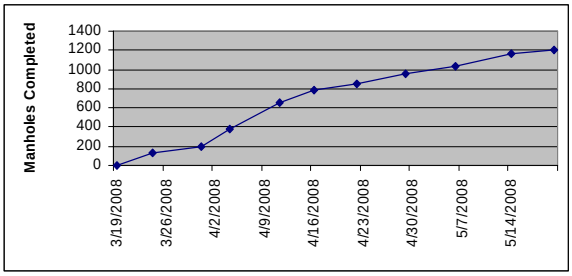
- Most are 30-40 years old, with recent mechanical upgrades, but perform reliably
- No provisions for odor control
- Some capacity issues
- Mill Creek Station
  - Difficulties meeting full range of flows
  - Access for maintenance is problematic
  - Little options for expansion

Condition Assessment Findings – Capacity

- Capacity Evaluation will be performed as part of subsequent evaluations
  - Identify opportunities to eliminate pump stations
  - Identify impacts of projected criteria on capacity of current plant process
- Next steps will include development of alternatives to meet capacity and condition shortfalls

Collection System Mapping Progress (May 20)

Manhole Survey Rates
85% Complete (1200/1425)



Survey/Mapping Work Next Steps

- Nearly complete with field survey work and condition assessment work
- Mapping and flow monitoring data is being used to develop system information for collection system modeling
- Develop Computer Maintenance and Management System (CMMS) in conjunction with the data collected
- Analyze the collection system, capacity shortfalls, need for expansion, etc.
- Develop capital improvement plant

Overall Facility Planning Next Steps

- ✓ Develop Planning Criteria
- Collection System
  - Finalize survey work and mapping
  - Develop collection system model and recommended improvements
- POTW Improvements
  - Brainstorming Session – Identify possible alternative solutions
  - Develop POTW alternatives and recommendations
- Next Advisory Committee Meeting
  - July 10th or 17th

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AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM - Thursday July 10, 2008

Police Department Community Room

1. Note of Attendance
2. Approval of May 22, 2008 Meeting Minutes
3. Collection System Mapping and Evaluation Progress – David Green
4. Treatment Plant and Collection System Condition Assessment Questions - Michelle Burkhart
5. Meeting with DEQ regarding regulatory criteria - David Green
6. Discussion and Screening of Treatment Alternatives and Alternative Combinations - David Green
7. Public Involvement Update – Randy Rohman
8. Questions
9. Next Meeting Date and Location

City of Woodburn

POTW Facility Plan

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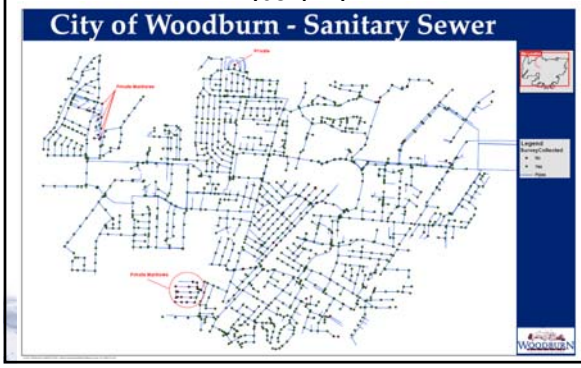
Wastewater Advisory Committee
MEETING NO. 3

July 10, 2008

Agenda

- Collection system mapping progress
- POTW and collection system condition assessment - questions
- Regulatory meeting with DEQ
- Treatment and reuse alternatives
- Public involvement update (Randy Rohman)

Collection System Mapping Progress (July 1)



Condition Assessment Overview

- Objective:
  - Assess condition of existing facilities
  - Identify deteriorated facilities and structures
  - Identify operational and maintenance headaches
  - Identify potential triggers for code upgrades
  - Begin to identify priority improvements

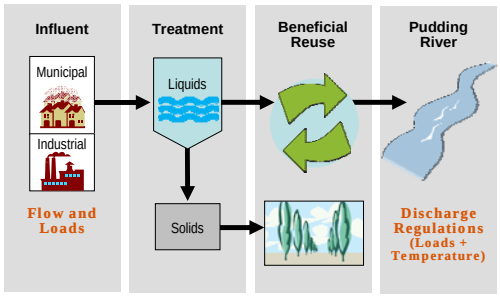
Regulatory Meeting with Oregon DEQ

- Some relief on wintertime pH, use of tertiary filters, winter disinfection, and reuse water
- Some opportunities available for 'blending'
- Potential for relief on wintertime ammonia limits (with EPA review)
- Reliability and redundancy must meet EPA Class 1 requirements.
- Some additional concerns about human impacts, compliance, and discharge related to wetlands

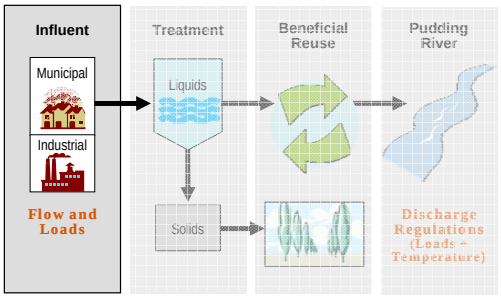
Treatment and Reuse Alternatives

- Planning criteria developed:
  - Study area characteristics
  - Population projections
  - Project regulatory criteria
  - Flow/load projections
  - Condition of existing facilities
- Brainstorming session with Woodburn staff
- Development of alternative treatment and reuse schemes

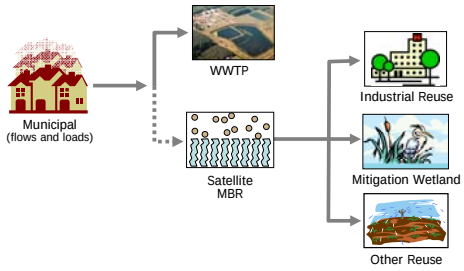
Woodburn Facility Plan | **Overview**



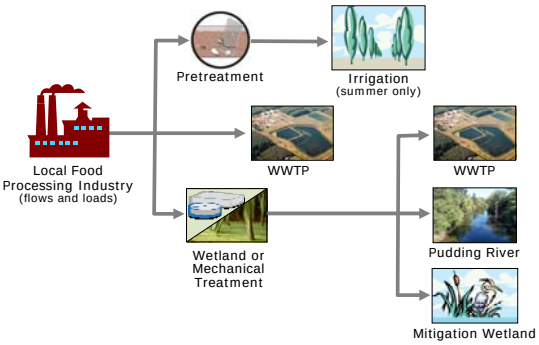
Woodburn Facility Plan | **Overview**



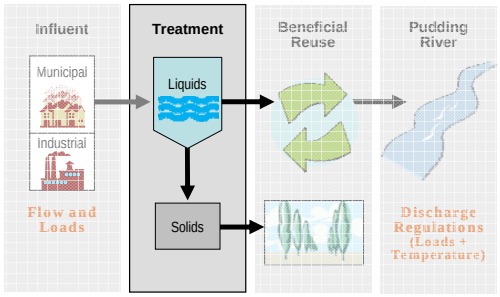
Municipal Influent



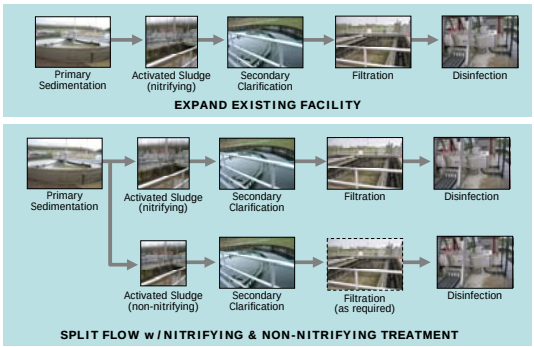
Industrial Influent



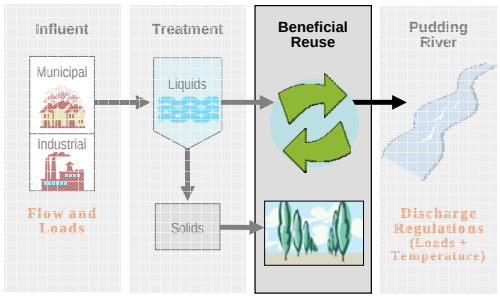
Woodburn Facility Plan | **Overview**



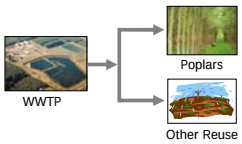
Treatment Alternatives



Woodburn Facility Plan | **Overview**



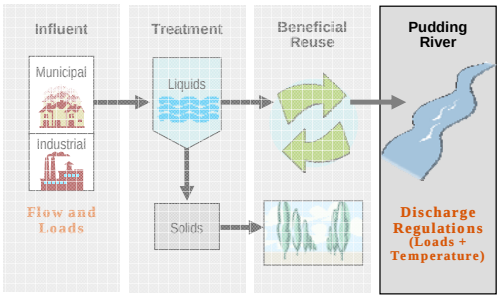
Reuse Alternatives



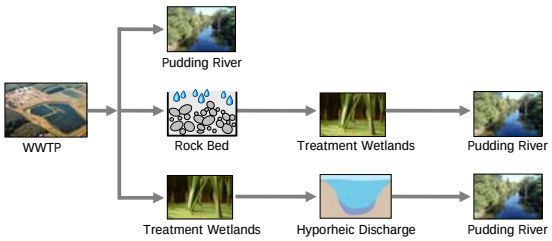
Water Reuse Alternatives

Class A	Class B	Class C	Class D	Non-Disinfected
• Agricultural • Horticultural • Landscapes, parks	• Fire protection	• Golf courses • Processed food crops	• Poplars	• Non-food agricultural lands

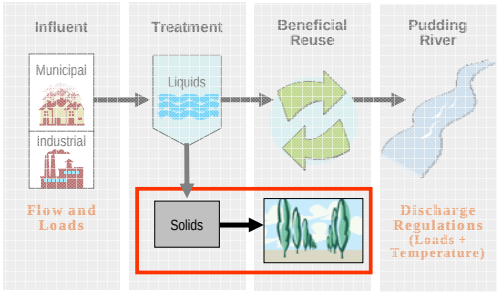
Woodburn Facility Plan | **Overview**



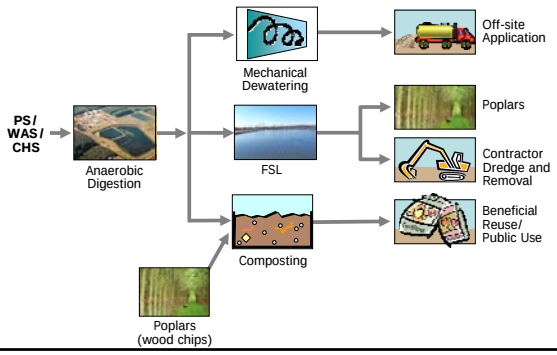
Discharge Alternatives



Woodburn Facility Plan | **Overview**



Biosolids



Overall Facility Planning Next Steps

- ✓ Develop planning criteria
- Collection system
  - Finalize survey work and mapping
  - Develop collection system model and recommended improvements
- POTW improvements
  - Develop treatment and reuse subalternatives
  - Develop cost estimates for subalternatives
  - Develop treatment and reuse recommendations
- Next Advisory Committee Meeting
  - August?

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AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM – Monday September 15, 2008

Police Department Community Room

1. Note of Attendance
2. Approval of July 10, 2008 Meeting Minutes
3. Public Involvement and Schedule Update – Randy Rohman
4. Marion County Zoning for Treatment Plant Property – Randy Rohman
5. Collection System Objectives – David Green, CH2M HILL
6. Pilot Studies Update
7. Treatment Alternative Development and Evaluation - David Green, Lynne Chicoine, and Jason Smesrud, CH2M HILL
    a. Pudding River Capacity - Ammonia and Temperature
    b. Industrial Treatment Options
    c. Update on Alternative Development
    d. Evaluation Criteria - Cost and Non-Cost Criteria
8. Questions
9. Next Meeting Date and Location

City of Woodburn

POTW Facility Plan

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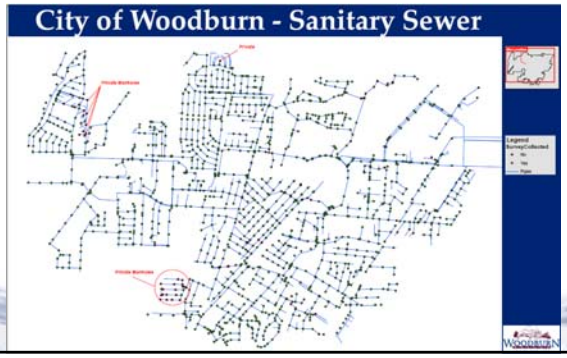
Wastewater Advisory Committee
MEETING NO. 4

September 15, 2008

Agenda

- Public Involvement Update (Randy Rohman)
- Marion County Zoning for Treatment Plant Property (Randy Rohman)
- Collection System Objectives
- Pilot Studies Update
- Pudding River Capacity – Ammonia and Temperature
- Alternative Evaluation Update
  - Industrial Influent
  - Solids Process
- Alternative Evaluation Criteria

Collection System Mapping Progress (Sept. 1)



Collection System Mapping Objectives

- Existing Collection System
  - Document length/diameter of pipes along with elevations (slope)
  - Model and assess the capacityof the system
  - Assess condition
  - Identify deteriorated facilities and structures
  - Identify potential capital upgrades
  - Identify operational and maintenance concerns

Collection System Mapping Objectives (cont.)

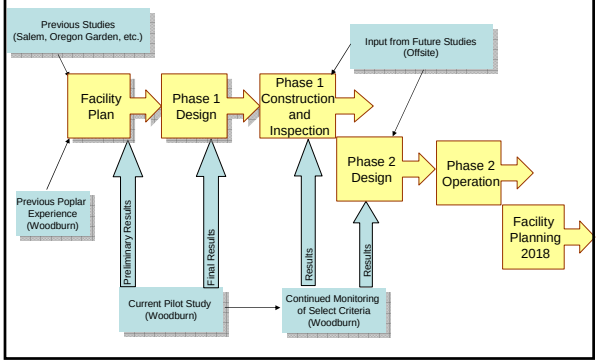
- GIS Update
  - All data and information stored in system
  - Require similar information for all future expansions
  - GIS allows quick retrieval and use of information

- Computerized Maintenance Management System (CMMS)
  - Mapping data will also be used to populate the new CMMS
  - Work Orders, capital improvement planning, etc.

Collection System Mapping Objectives (cont.)

- Capacity Management Operations and Maintenance (CMOM) - Objectives
  - Better manage, operate, and maintain collection systems
  - Investigate capacity constrained areas of the collection system
  - Improve water quality and customer service by reducing overflows and backups from sanitary sewers
  - Reduce costs by reducing the required number of emergency responses and repairs, and extending system life

Wastewater Facilities Planning and Natural Systems Input from Ongoing Research



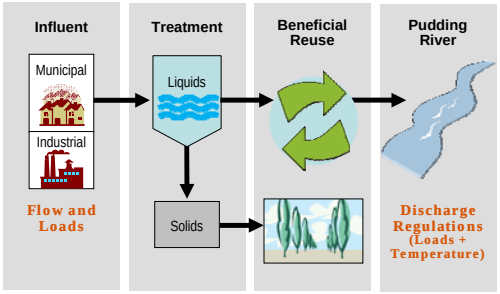
Pilot Studies Update

- High Rate Irrigation – Irrigated Jul-Sep with lysimeter and soil moisture data collected
- Coppice Study – Irrigated Jul-Sep with soil moisture data collected for water use
- Rock Bed – Began running effluent at end of August
- Groundwater monitoring network – 4 new wells and 7 piezometers installed with continuous level monitors

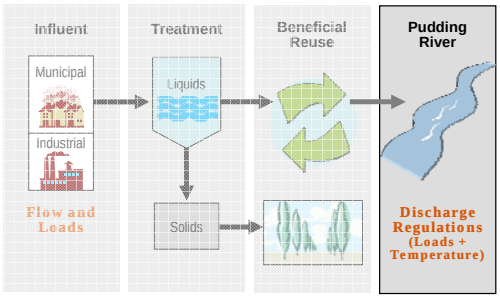
Pilot Studies Update

- Wetland Hyporeic Discharge – Fiber optic system, flow meters, and lysimeters installed, power delivered, multiple drain tiles blocked, drain sump surveyed, starting full flow and data collection this week
- Late-October – Meeting with City, CH2M, and OSU teams to review preliminary data

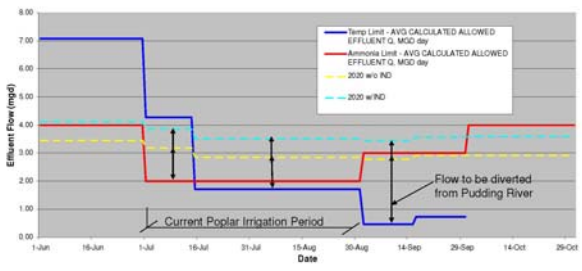
Woodburn Facility Plan | **Overview**



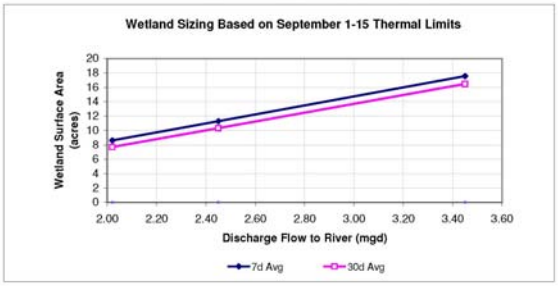
Woodburn Facility Plan | **Overview**



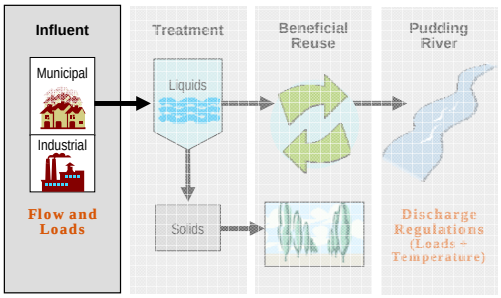
Pudding River Capacity



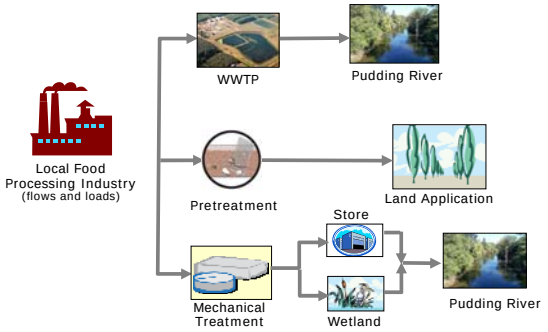
Temperature Wetland Sizing Approach



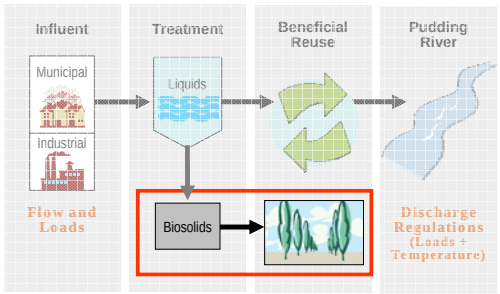
Woodburn Facility Plan | **Overview**



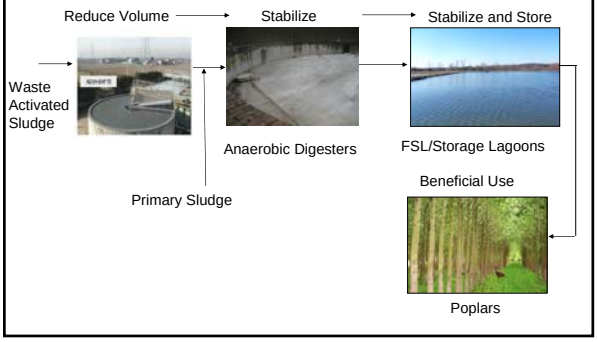
Industrial Influent (Summer)



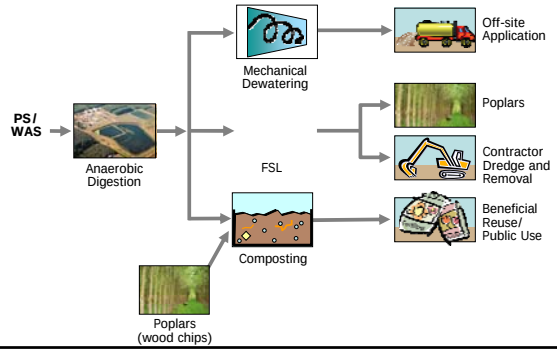
Woodburn Facility Plan | **Overview**



Woodburn Biosolids Processing Facilities



Biosolids Alternatives

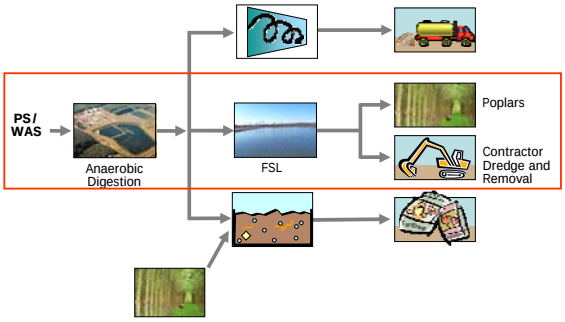


Biosolids Unit Capacity Summary

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
			Firm Capacity	Total Capacity	W/o Industrial	W/ Industrial
Dissolved Air Flotation Thickening	Max Month Loading	0.60 lb/sf hr [1]	3,269 lb/sf hr	6,538 lb/sf hr	3,500 lb/sf-hr	4,850 lb/sf-hr
Anaerobic Digestion	Hydraulic Detention Time	15 days 10 days	NA	46,800 gpd 70,200 gpd	40,100 gpd	46,700 gpd
FSL/Storage Lagoons	Max Month VSS Loading	50 ppd VSS/KSF[1]	NA	10,890 ppd VSS	4,000 ppd VSS[2] 4,200 ppd VSS[3]	4,000 ppd VSS[2] 5,100 ppd VSS[3]

1. Metcalf and Eddy, 4th Edition, 2003.
2. 15 days digester HRT
3. 10 days digester HRT (assumed 80% VSS destruction)

Biosolids Processing Recommendation



Dissolved Air Flotation Thickeners

- Adequate capacity through 2020
- Influent piping modification
- Correct maintenance issues

Anaerobic Digesters

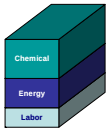
- Adequate capacity through 2020
- Repair roof coating
- Repair floating cover to reduce gas leakage
- Correct gas compressor piping
- Correct HVAC system

Facultative Sludge Lagoons

- Adequate capacity through 2020
- Add dredge equipment

Alternative Evaluation Criteria - Economic

Project Cost



O&M $ = Labor + Energy + Chemicals

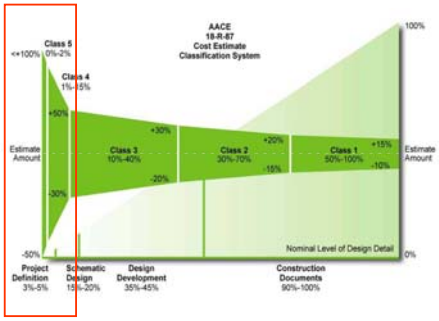
Present Worth Cost 2008$ =

Project Cost + Operation and Maintenance (O&M) Costs

Estimated Project Cost

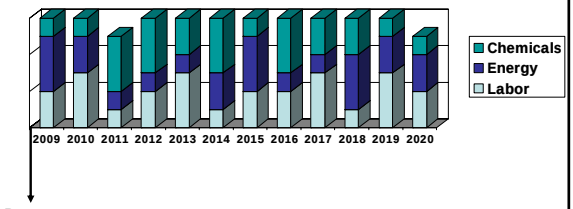
Construction Item +	
Construction Item +	
Construction Item +	
Base Construction Cost	**$**
+ General Conditions	10%
+ Contractors Overhead & Profit	15%
+ Contingencies	30%
Total Construction Cost (Expected Bid Price)	**$**
+ Engineering Legal & Administration	25%
TOTAL PROJECT COST	**$**

Facility Planning Level Cost Development



Operation and Maintenance Costs

- PW $ = Annual $ x Series PW Factor



Present Worth

Alternative Evaluation Criteria – Non-economic

- Performance
- Beneficial to the Environment
- Flexible
- Acceptable to the Public
- Implementable
- Expandability
- Reliability
- Ease of Operation

Facility Plan Implementation

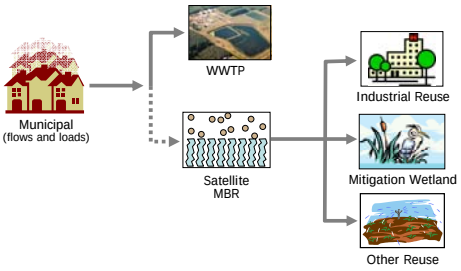
- Next Steps
  - Further develop treatment and reuse subalternatives
  - Develop cost estimates for subalternatives
  - Develop treatment and reuse recommendations
    - Industrial flows, natural system acreage
    - Some treatment plant upgrades
- Further Steps
  - Review recommendations with Woodburn
  - Review key issues/recommendations with DEQ
  - Review findings with Committee
- Capital Improvement Plan
- Rate and SDC Evaluation

Overall Facility Planning Next Steps

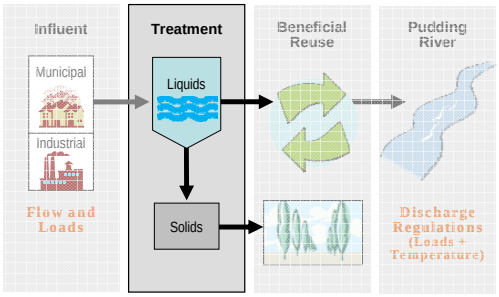
- Collection system
  - Finalize survey work and mapping
  - Develop collection system model and recommended improvements
- CMMS progress
  - Final selection of vendor/software
  - Visits to existing users?
  - Implementation
- Mixing Zone Study
  - Field work completed last week
- Next Advisory Committee Meeting
  - October 16th?

Questions?

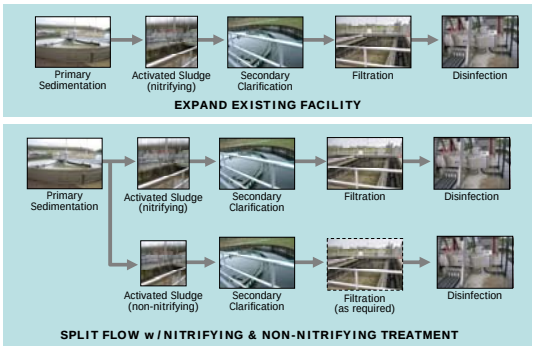
Municipal Influent



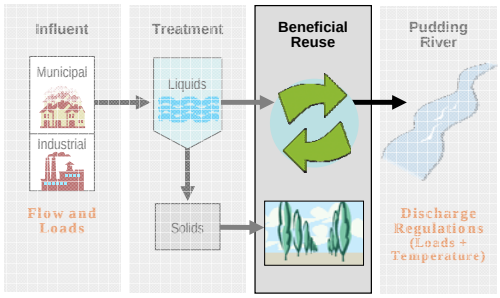
Woodburn Facility Plan | **Overview**



Treatment Alternatives



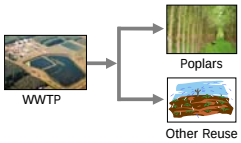
Woodburn Facility Plan | **Overview**



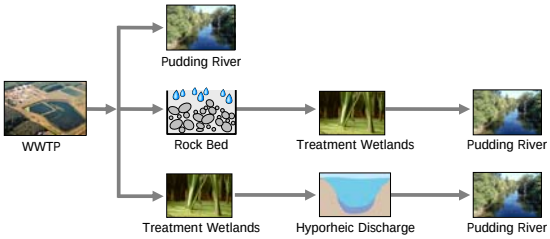
Water Reuse Alternatives

Class A	Class B	Class C	Class D	Non-Disinfected
				
• Agricultural • Horticultural • Landscapes, parks	• Fire protection	• Golf courses • Processed food crops	• Poplars	• Non-food agricultural lands

Reuse Alternatives



Discharge Alternatives



WOODBURN
OREGON
Incorporated 1889

AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM – Thursday October 16, 2008

Police Department Community Room

1. Note of Attendance
2. Approval of September 15, 2008 Meeting Minutes
3. Collection System Update – David Green
    a. Condition Assessment
    b. Hydraulic Modeling/Evaluation
4. Population, Flow and Load Projections – David Green
    a. Industrial Component/Allocation
5. Potential Alternatives - Lynne Chicoine, CH2M Hill
    a. Industrial Influent
    b. Treatment of Liquids and Solids
    c. Beneficial Reuse
    d. Effluent Discharge
6. Community Open House – Randy Rohman
7. Questions
8. Next Meeting Date and Location

City of Woodburn

POTW Facility Plan

CH2MHILL

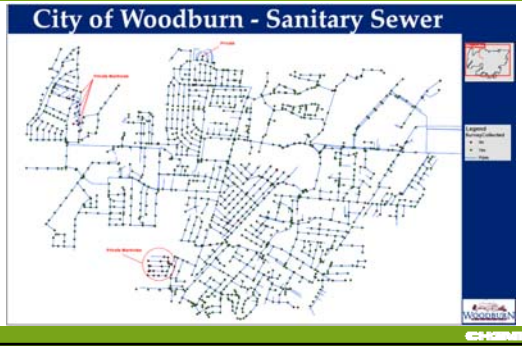
Wastewater Advisory Committee
Meeting No. 5

Thursday, October 16, 2008

Agenda

- Population, Flow and Load Projections (Dave Green
  - Food Industry contributions
- Collection System – Building the CIP (Dave Green)
  - Condition Assessment
  - Hydraulic Evaluation
- Potential Alternatives (Lynne Chicoine/Jason Smesrud)
  - Industrial Influent
  - Treatment of Liquids and Solids
  - Beneficial Reuse
  - Effluent Discharge
- Community Open House (Randy Rohman)

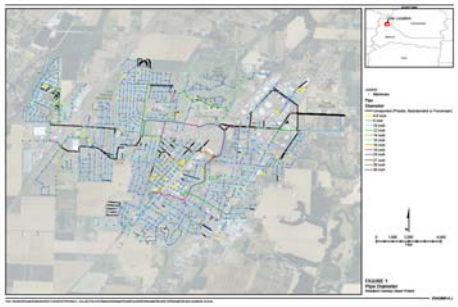
Collection System Mapping - Complete



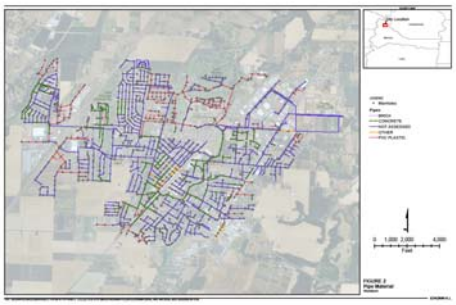
Collection System Mapping Objectives

- Existing Collection System
  - Document length/diameter of pipes along with elevations (slope)
  - Assess condition of pipes and manholes
  - Identify deteriorated facilities and structures
  - Identify potential capital upgrades
  - Identify operational and maintenance concerns

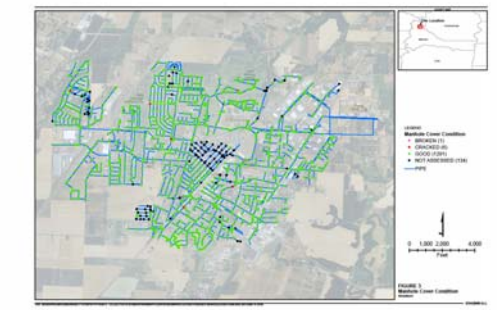
Collection System Mapping Pipe Diameter



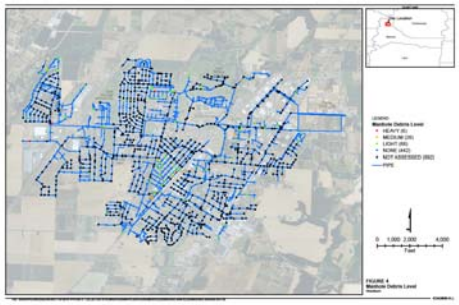
Collection System Mapping Pipe Material



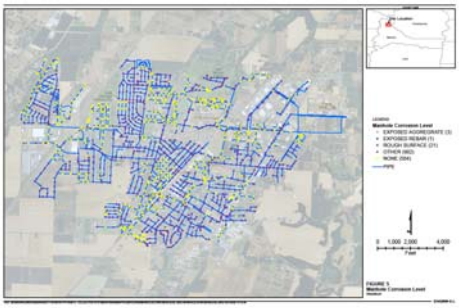
Collection System Mapping Manhole Covers



Collection System Mapping Manhole Debris



Collection System Mapping Manhole Corrosion

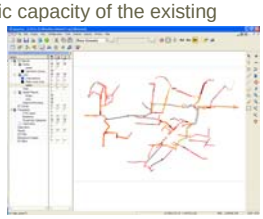


Collection System Mapping Objectives

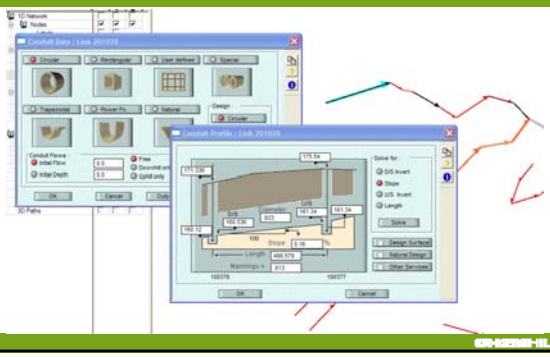
- Basis for Hydraulic Modeling
- GIS Update
- Computerized Maintenance Management System (CMMS)
- Capacity Management Operations and Maintenance (CMOM)

Collection System Collection System Model

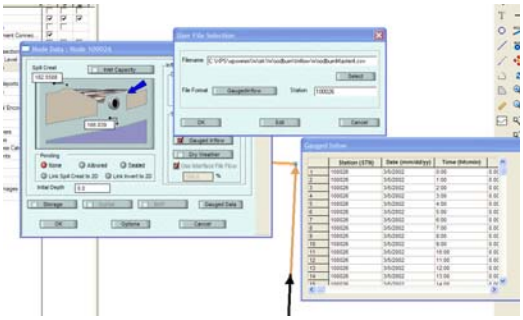
- Mapping data provides the basis for the computerized hydraulic modeling work
  - Used to determine hydraulic capacity of the existing system
  - Actual flow data used to calibrate the model, reflecting actual system response
  - Theoretical storms and increased flows are imposed on the calibrated model to determine future system response



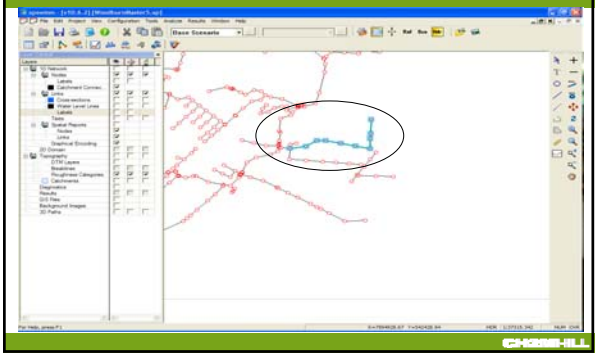
Collection System Modeling
Pipe Information by Segment



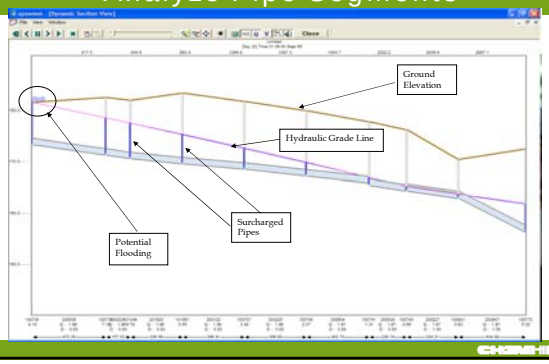
Collection System Modeling
Flow data applied (MH 100026)



Collection System Modeling
Develop Profile View



Collection System Modeling
Analyze Pipe Segments



Collection System Next Steps

- Condition Assessment
  - Determines upgrades and repairs
  - Determine timing for improvements
- Hydraulic Modeling
  - Identify existing and projected bottlenecks
  - Determine capacity needs and improvements
  - Determine timing for improvements
- Develop Capital Improvement Plan
- Develop Technical Report

Flow/Load Projections Review

Oregon DEQ requires *consistency* with adopted Comprehensive Plans:

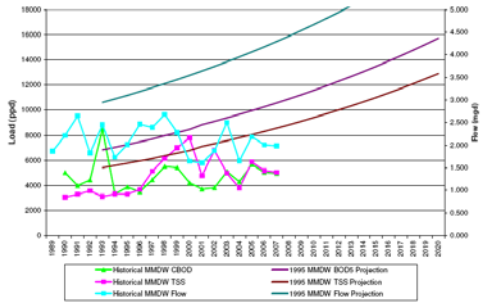
"Facilities plans and decisions to fund projects must be consistent with locally adopted comprehensive land use plans and development regulations in compliance with State wide planning goals acknowledged by the Oregon DLCD."

Woodburn adopted their Comprehensive Plan in 2005, expanding the UGB and projecting Growth through 2020.

1995 Flow/Load Projections

- Decision made to tie Flow and Load projections to estimated population
- Population equivalents were developed for commercial and industrial contributions
- Flows and Loads were assigned to population based on best available information
- Industrial (food processing) contribution was significant at that time.

Historical Data Compared to 1995 Projections



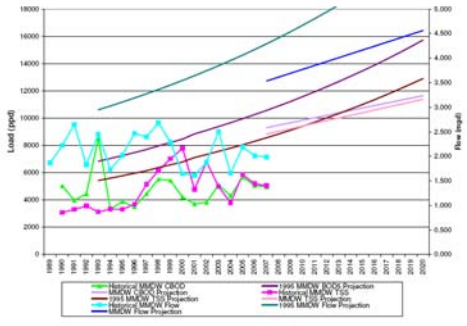
1995 Flow/Load Projections Summary

- Limited data available on flows and loads at the treatment plant.
- Decision made to tie Flow and Load projections to population “equivalent population”
- Population is actually the least reliable data
- Flows have not materialized as projected.
- Industrial flows have not grown in concert with residential/commercial.
- Industrial (food processing) flows and loads have decreased as a result of Smuckers’ departure.

2008 Flow/Load Projections

- Utilized plant data to define existing flow and load characteristics
  - captures unique demographics, characteristics of service area
  - independent of actual, reported or perceived population
- 2020 Projections Based on approved Comp Plan and UGB
  - 2.8% growth rate for residential
  - Commercial lands 100% developed
  - Industrial land 75% developed
- Utilizing “Growth Rate” rather than specific population numbers captures demographics
- Separated industrial component from residential/commercial component – industrial growth does not mirror residential growth (especially given the food processing allocations)

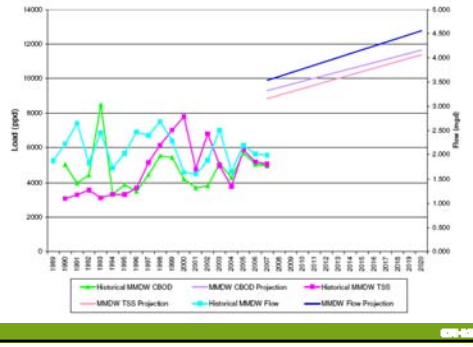
Historical Data Compared to 2008 Projections



Flow/Load Projections Summary

- Consistency with Comprehensive Plan is critical – it defines the overall growth pattern
- Residential/Commercial flows and loads are consistent and easy to estimate.
- Important to separate the Industrial component from the residential/commercial
- Food processors have a critical impact on loadings to the plant, not flow
- Impact is seasonal

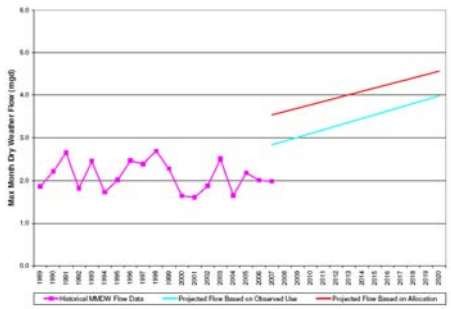
Historical Data Compared to 2008 Projections – Allocated Industrial



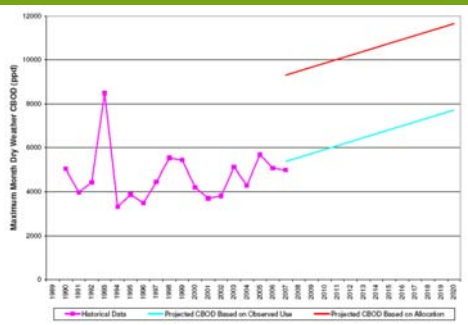
Impact of Allocation for Food Processors

- Several industries have a defined capacity allocation
  - Allows discharge of flows/loads up to a maximum amount
  - Based on Pretreatment Permits
- Industries do not currently discharge their maximum allocation
- But they have been allocated that capacity in the wastewater system
- Currently permitted to discharge up to those maximum levels
- Allocated amounts have a significant impact on treatment capacity

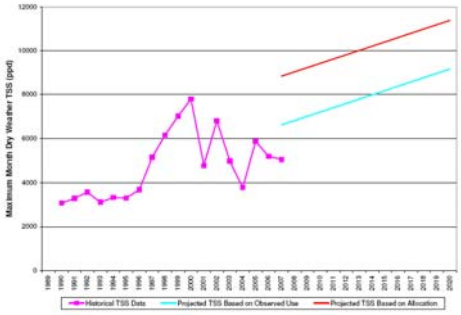
2008 Flow Projections Actual Industrial vs. Allocated



2008 BOD Projections Actual Industrial vs Allocated



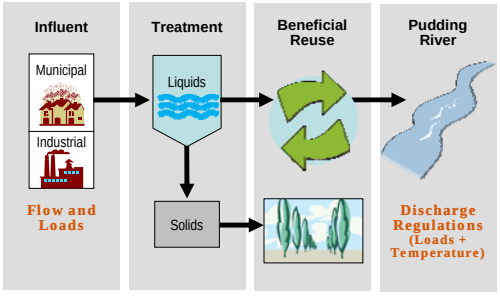
2008 TSS Projections Actual Industrial vs Allocated



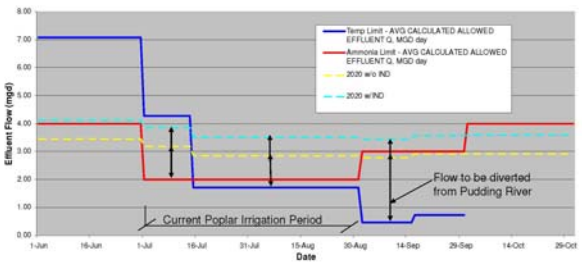
Facility Plan Addressing Food Processors

- Allocated amounts have a significant impact on treatment capacity (loadings)
- This results in a significant impact on capital planning
- Current Pretreatment permits allocate flows and loads to food processors
- Facility Plan must accommodate these flow and load contributions
- Facility Plan will present options and opportunities for managing food processing waste or re-negotiating allocations
  - Biggest cost savings opportunity for Woodburn
  - Allows for deferral of some plant expansion components

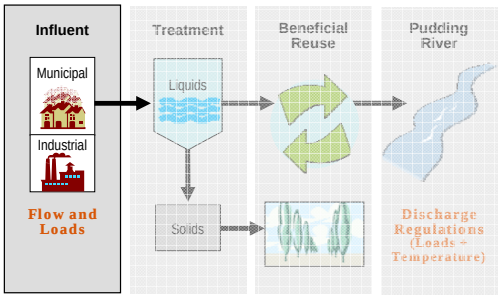
Woodburn Facility Plan Overview



Pudding River Capacity



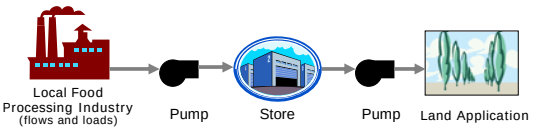
Woodburn Facility Plan Overview



Industrial Influent Alternatives (Summer)

- Alternative IND 1: Treat Industrial Flow Separately
  - Alternative IND 1A: Store and Land Application
  - Alternative IND 1B: Mechanically Treat
- Alternative IND 2: Store Summer Flow
- Alternative IND 3: Continue to Treat at WWTP

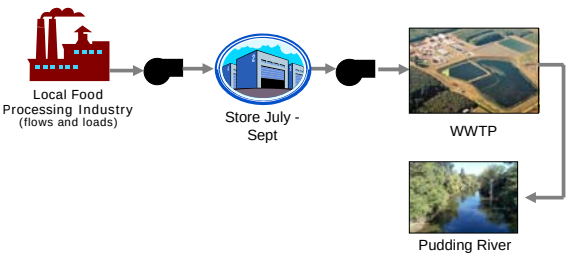
Industrial Treatment Alternative IND 1: Store and Land Apply



Alternative IND 1A- Store and Land Apply

- Storage Volume
  - Actual Industrial Flow - 5 million gallons
  - Allocated Industrial Flow - 17 million gallons
- Land Application Area
  - Actual Industrial Flow 32 acres
  - Allocated Industrial Flow 114 acres

Industrial Treatment Alternative IND 2: Store Summer Flow



Alternative IND 2 – Store Summer Industrial Flow

- Actual Industrial Flow
  - 7 million gallons
- Allocated Industrial Flow
  - 51 million gallons

Industrial Treatment Alternative IND 3: Treat at WWTP

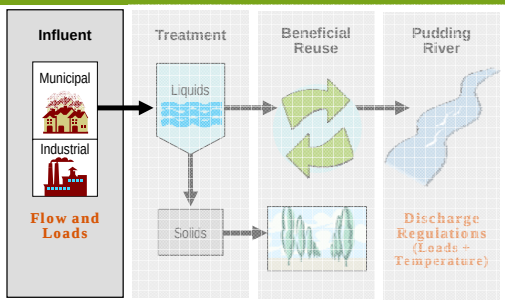
Evaluation of Industrial Treatment Alternatives – Actual Industrial Flow

	IND 1 Land Application	IND 2 Store Summer Flow	IND 3 Treat at WWTP
Capital $	$3.4M	$1.2M	
O&M $	$0.1M	$0.03	
Total PW $	$3.5M	$1.2M	

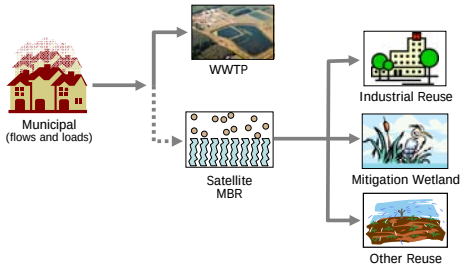
Evaluation of Industrial Treatment Alternatives – Allocated Industrial Flow

	IND 1 Land Application	IND 2 Store Summer Flow	IND 3 Treat at WWTP
Capital $	$8.2M	$6.8M	
O&M $	$0.2M	$0.03	
Total PW $	$8.4M	$6.8M	

Woodburn Facility Plan Overview



Municipal Influent



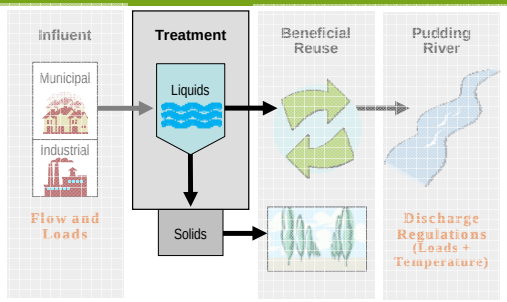
Beneficial Reuse - Satellite Treatment

- Provide treatment at the source
- Reduces discharge to Pudding River
- Facilitates reuse
- Can be located remotely

Satellite Treatment Conclusions

- Expensive (>$10M)
- Requires large land area for September irrigation
- Requires distribution system

Woodburn Facility Plan Overview



Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/ Ind
Screening	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd
Grit Removal	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd
Primary Sedimentation	Peak Hour Flow	2500 gpd/sf	11.9	11.9	NA	23 mgd
Aeration Basin (summer)	MMDW aerobic SRT	10 days	9000 ppd	9000 ppd	4470 ppd	7640 ppd
Secondary Clarification (summer)	MDDW SLR	25 lb/d/sf	7.8 mgd	8.7 mgd	5.3 mgd	6.2 mgd
Aeration Basin (winter)	MMWW aerobic SRT	5 days	11,030 ppd	11,030 ppd	NA	9450 ppd
Secondary Clarification (winter)	MDWW SLR	25 lb/d/sf	10.9 mgd	12.2 mgd	NA	17.0 mgd

Liquid Stream Unit Process Capacity (cont'd)

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/ Ind
Filtration	MDDWF	3 gpm/sf	3.2 mgd	6.4 mgd	5.3 mgd	6.2 mgd
UV Disinfection	Peak Hour Flow	mW-sec/cm2	12 mgd	12 mgd	NA	23 mgd
Outfall	Peak Hour Flow	100 year flood elevation	NA	17.3 mgd	NA	23 mgd

Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
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Secondary Clarification (winter)	MDWW SLR	25 lb/d/sf	10.9 mgd	12.2 mgd	NA	17.0 mgd

Liquid Stream Alternatives - Headworks

- Screening
  - Alternative SC 1: Add third screen
  - Alternative SC 2: Increase capacity of existing screening channels
- Grit Removal
  - Add third grit removal basin

Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/ Ind
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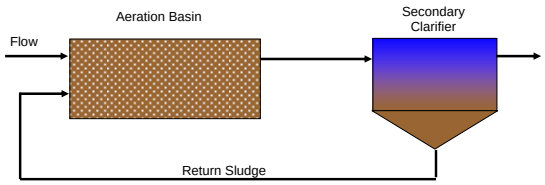
Aeration Basin (winter)	MMWW aerobic SRT	5 days	11,030 ppd	11,030 ppd	NA	9450 ppd
Secondary Clarifiication (winter)	MDWW SLR	25 lb/d/sf	10.9 mgd	12.2 mgd	NA	17.0 mgd

Liquid Stream Alternatives – Primary Sedimentation

- Alternative PC1: Construct 2 new primary clarifiers
- Alternative PC2: Split treatment using wet weather clarifiers
- Alternative PC3: Convert wet weather clarifiers to primary clarifiers
  - Construct primary effluent pump station
  - Construct sludge pump station
  - Retrofit electrical/mechanical

Liquid Stream Alternatives – Secondary Process



Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
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Secondary Clarification (winter)	MDWW SLR	25 lb/d/sf	10.9 mgd	12.2 mgd	NA	17.0 mgd

Liquid Stream Alternatives – Secondary Process

- Alternative SP 1: Construct one aeration basin
- Alternative SP2: Construct fewer secondary clarifiers and contact stabilization modifications
- Alternative SP 3: Construct three secondary clarifiers
- Alternative SP4: Split flow operation

Liquid Stream Unit Process Capacity (cont'd)

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/ Ind
Filtration	MDDWF	3 gpm/sf	3.2 mgd	6.4 mgd	5.3 mgd	6.2 mgd
UV Disinfection	Peak Hour Flow	mW-sec/cm2	12 mgd	12 mgd	NA	23 mgd
Outfall	Peak Hour Flow	100 year flood elevation	NA	17.3 mgd	NA	23 mgd

Liquid Stream Process – Filtration

- Alternative F1: Expand existing sand filter
- Alternative F2: Replace sand filters with higher capacity/newer technology filters.

Liquid Stream Unit Process Capacity (cont'd)

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/ Ind
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Outfall	Peak Hour Flow	100 year flood elevation	NA	17.3 mgd	NA	23 mgd

Liquid Stream Process – UV Disinfection

- Expand UV Disinfection

Liquid Stream Unit Process Capacity (cont'd)

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/ Ind
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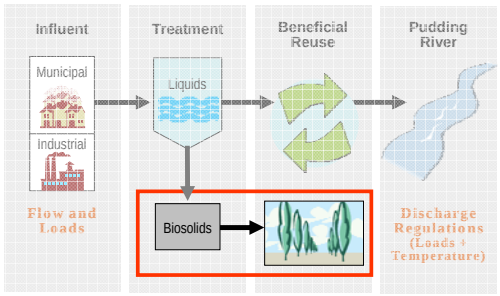
UV Disinfection	Peak Hour Flow	mW-sec/cm2	12 mgd	12 mgd	NA	23 mgd
Outfall	Peak Hour Flow	100 year flood elevation	NA	17.3 mgd	NA	23 mgd

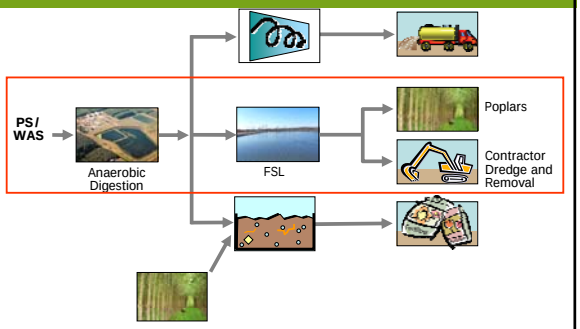
Liquid Stream Alternatives - Outfall

- Alternative OUT 1: Construct third parallel outfall
- Alternative OUT 2: Replace outfall with larger pipe

Woodburn Facility Plan Overview

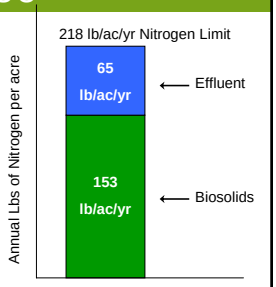


Biosolids Processing Recommendation

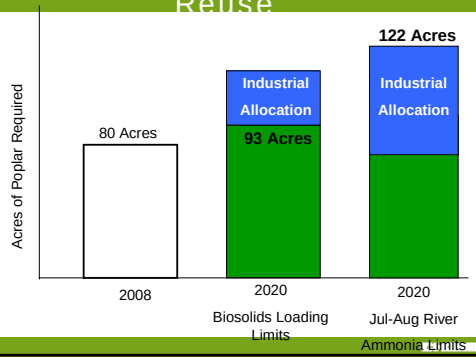


Poplars Provide Beneficial Reuse

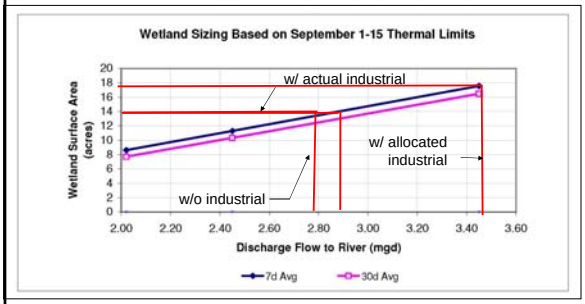
- Apply WWTP effluent during summer months
- Apply WWTP effluent and biosolids up to annual nitrogen limit



Expanded Poplar Acreage Will Continue to Provide Beneficial Reuse



Temperature Wetland Sizing



Facility Plan Implementation

- Next Steps
  - Finalize development of treatment and reuse subalternatives (Present at Open House)
  - Develop cost estimates for subalternatives (Discuss at December WAC meeting)
  - Develop treatment and reuse recommendations (Discuss at December WAC meeting)
- Further Steps
  - Review recommendations with Woodburn
  - Review key issues/recommendations with DEQ
- Draft Capital Improvement Plan and Implementation Schedule
- Rate and SDC Evaluation (Discuss at January WAC meeting)

Overall Facility Planning Additional Efforts

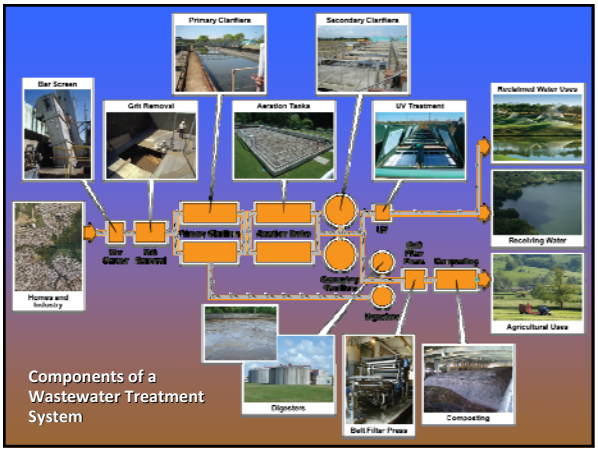
- CMMS progress
  - Final selection of vendor/software
  - Visits to existing users?
  - Implementation
- Mixing Zone Study
- TMDL Review
- Pilot Study work

- Open House
  - November 13th
- Next Advisory Committee Meeting
  - December 4th?

Questions?

Woodburn Facility Planning
Open House – November 13th

- Six or seven distinct stations with White Boards on easels, etc.
  - Survey/Mapping/GIS/CMMS
  - Population/Flows/Loads/Comp Plan
  - Collection System - Modeling, Condition Assessment, Capacity, CIP
  - Regulatory Issues/Temp TMDL/Pudding River limits
  - Industrial flows/separate treatment (is this ready for prime time?)
  - Treatment Plant - Condition Assessment, Capacity, CIP
  - Natural Treatment Systems and current Pilot Testing
  - And maybe a Sustainability station? or integrate sustainability into the other stations
- PowerPoint presentation by CH2M/Woodburn team describing work to date
- Liquid Assets Video from WEF, or some of the older videos from Woodburn
- Overall graphic showing the entire Woodburn treatment and reuse process (see Barbara's graphic)



Discussion?

Woodburn Facility Planning
Open House – November 13th

WOODBURN
OREGON
Incorporated 1889

AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM – Thursday December 4, 2008

Police Department Community Room

1. Note of Attendance

2. Approval of October 16, 2008 Meeting Minutes

3. Recap Facility Plan Open House – Randy Scott

4. Collection System Update – David Green, CH2M Hill

5. Development and Evaluation of Treatment Alternatives - David Green and Lynne Chicoine, CH2M Hill

    a. Industrial Wastewater Treatment Strategy and Alternatives
    b. Municipal Wastewater Treatment Strategies and Alternatives
    c. Wastewater Treatment Alternatives Cost and Recommendations

6. Development and Evaluation of Reuse and Discharge Alternatives- David Green, Lynne Chicoine and Jason Smesrud, CH2M Hill

    a. Alternatives Analysis
        i. Temperature Compliance Alternatives
        ii. Ammonia Discharge Alternatives
    b. Alternatives Cost and Recommendations

7. Questions

8. Next Meeting Date and Location

City of Woodburn

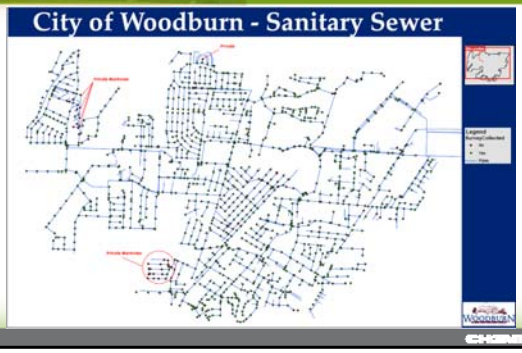
POTW Facility Plan

Wastewater Advisory Committee
Meeting No. 6

Agenda

- **Recap Facility Plan Open House**
- **Collection System – Update**
- **2020 vs 2030 Facility Planning**
- **Treatment Alternatives Evaluation**
  - Industrial Wastewater Treatment
  - Municipal Wastewater Treatment
  - Costs and Recommendations
- **Reuse and Discharge Alternatives**
  - Temperature Compliance Alternatives
  - Ammonia Discharge Alternatives
  - Costs and Recommendations

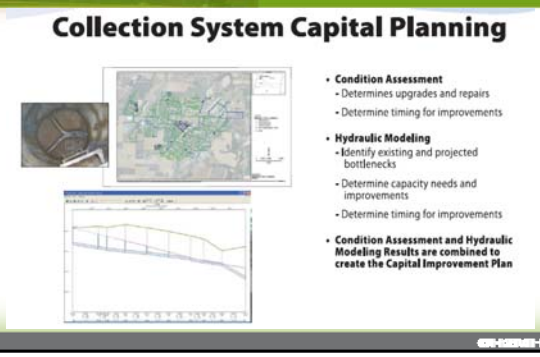
Collection System Mapping Work



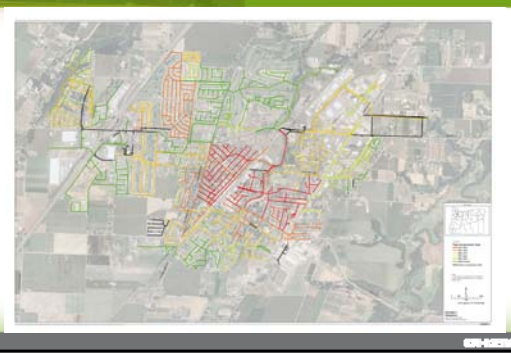
Collection System Mapping Objectives

- **Basis for Hydraulic Modeling**
- **GIS Update**
- **Computerized Maintenance Management System (CMMS)**
- **Capacity Management Operations and Maintenance (CMOM)**

Collection System Capital Planning



Collection System Pipe Construction Date



Collection System Pipe Material

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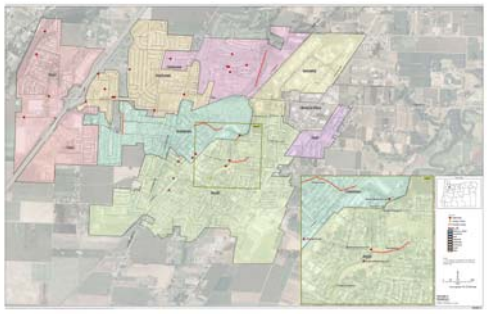
Collection System Observations (CH2M HILL Survey & City of Woodburn O&M Staff)



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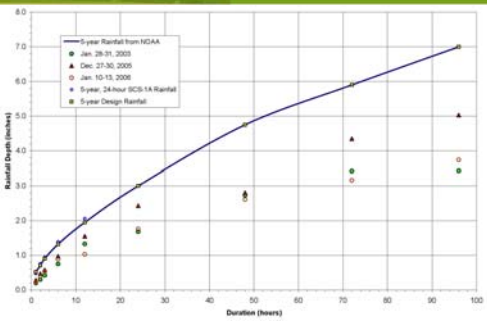
5-year Frequency Rainfall Depth-Duration Curve



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Modeled Freeboard 5yr-96hr Storm Event

10

Peaking Factors

Major Basin	Average Peaking Factor
West	2.4
Northwest	2.2
Downtown	2.3
Northeast	No Available Storm Data
South	7.8
East	2.5
Industrial	2.5
Direct to Plant	No Available Storm Data

*Peaking Factors calculated based on data from one to three typical storms (2002-2007)

*Major Basins include may all or part of Flow Monitor Sub-Basins

- 1-3: Minimal Inflow Problems Expected
- 3-6: Inflow Problems Apparent
- 6+: Substantial Inflow Problems

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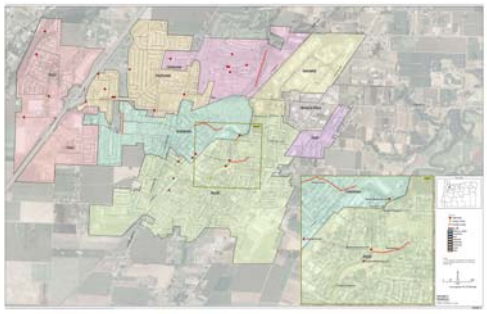
Observations (CH2M HILL Survey & City of Woodburn O&M Staff)



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Facility Planning Period Flow/Load Projections

- **Utilized plant data to define existing flow and load characteristics**
  - captures unique demographics, characteristics of service area
  - independent of actual, reported or perceived population
- **2020 Projections Based on approved Comp Plan and UGB**
  - 2.8% growth rate for residential
  - Commercial lands 100% developed
  - Industrial land 75% developed
- **2030 Projections Based on work by Winterbrook Planning**
  - 1.9% growth rate for residential after 2020
  - Commercial lands grow in proportion to residential
  - Continued growth in industrial lands

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Flow Projections, mgd

Flow Condition	2020 (Phase 2)		2030 (Phase 3)		2060 (Build Out)	
	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather
Minimum Month	-	2.35	-	2.80	-	4.30
Average Daily	4.65	3.28	5.56	3.88	8.63	5.90
Maximum Month	8.01	4.56	9.68	5.45	15.33	8.45
Maximum 7-Day	10.40	5.46	12.62	5.89	20.12	9.59
Maximum Day	16.93	6.20	20.56	7.40	32.88	11.45
Peak Hour	23		26		40	

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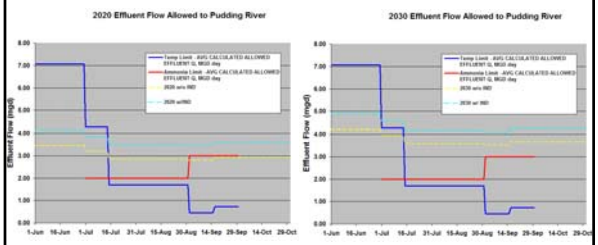
Pudding River Capacity 2020 and 2030



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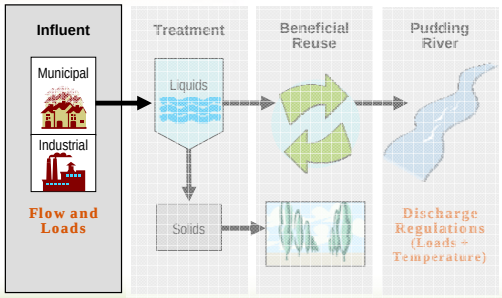
Woodburn Facility Plan Overview



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Facility Plan Addressing Food Processors

- Allocated amounts have a significant impact on treatment capacity (loadings)
- This results in a significant impact on capital planning
- Current pretreatment permits allocated flows and loads to food processors
- Facility Plan must accommodate these flow and load contributions
- Facility Plan will present options and opportunities for managing food processing waste or re-negotiating allocations
  - Biggest cost savings opportunity for Woodburn
  - Allows for deferral of some plant expansion components

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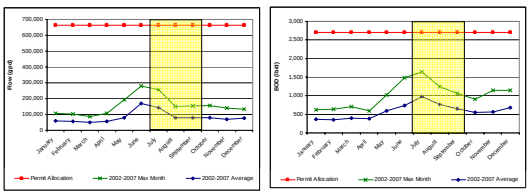
Actual vs Allocated Industrial Flow and Load



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Industrial Influent Alternatives (Summer)

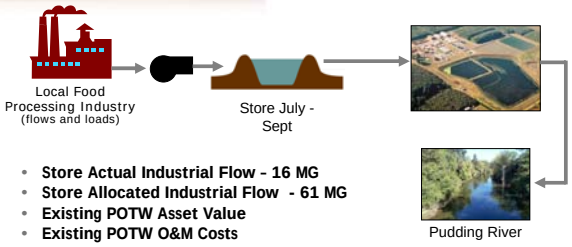
- **Alternative IND 1: Treat Industrial Flow Separately**
  - **Alternative IND 1A: Store and Land Application**
  - **Alternative IND 1B: Mechanically Treat**
- **Alternative IND 2: Store Summer Flow**
- **Alternative IND 3: Continue to Treat at WWTP**

Local Food Processing Industry (flows and loads)

Industrial Treatment Alternative IND 1: Store and Land Apply

- **Storage Volume**
  - Actual Industrial Flow - 5 million gallons
  - Allocated Industrial Flow - 17 million gallons
- **Land Application Area**
  - Actual Industrial Flow - 32 acres
  - Allocated Industrial Flow - 114 acres

Industrial Treatment Alternative IND 2: Store Summer Flow



- **Store Actual Industrial Flow – 16 MG**
- **Store Allocated Industrial Flow - 61 MG**
- **Existing POTW Asset Value**
- **Existing POTW O&M Costs**
- **Poplar Acreage (Biosolids only)**

Industrial Treatment Alternative IND 3: Treat at POTW

- **Existing POTW Asset Value**
- **Existing POTW O&M Costs**
- **New Aeration Basin, Filter, DAFT (allocated flow)**
- **Poplar Acreage**
- **Wetland Acreage (Effluent and Biosolids)**

Evaluation of Industrial Treatment Alternatives, $M, 2008$

	IND 1 Land Application	IND 2 Store Summer Flow	IND 3 Treat at WWTP
Actual Industrial Flow			
Capital $	$3.4	$2.5	$1.4
O&M $	$0.1	$0.7	$1.1
Total PW $	$3.5	$3.2	$2.5
Allocated Industrial Flow			
Capital $	$8.2	$13.4	$14.9
O&M $	$0.2	$2.7	$4.0
Total PW $	$8.4	$16.1	$18.9

Non-Economic Evaluation of Industrial Alternatives

Evaluation Criteria	Alternative IND 1A Store and Land Apply Industrial Flow	Alternative IND 2 Store Summertime Industrial Flow	Alternative IND 3 Treat Industrial Flow at WWTP
Performance	Decreases flow to be discharged under the NPDES permit.	Improves summer WWTP performance by deferring discharge.	No change from current operation.
Beneficial to the Environment	Provides irrigation water and reduces discharge to the Pudding River.	Reduces summer discharge to the Pudding River.	Provides additional wetland acreage.
Flexible	No flexibility with industrial flows.	No flexibility with industrial flows.	Current operation provides dry weather flexibility.

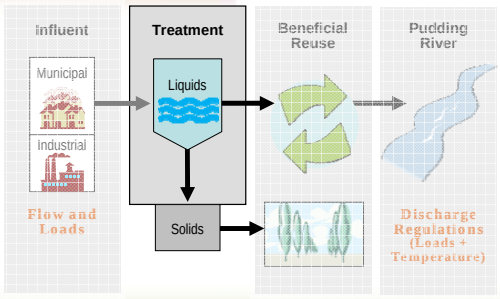
Non-Economic Evaluation of Industrial Alternatives cont'd

Evaluation Criteria	Alternative IND 1A Store and Land Apply Industrial Flow	Alternative IND 2 Store Summertime Industrial Flow	Alternative IND 3 Treat Industrial Flow at WWTP
Acceptable to the Public	Potential for odor at the storage lagoon and land application site.	Potential for odor at storage lagoon.	No change from current operation.
Implementable	Requires purchase of storage and land application sites.	Requires purchase of acreage for storage lagoon.	No change from current operation. Ultimately requires purchase of add'l poplar acreage.
Expandability	Difficult to expand storage volume.	Difficult to expand storage volume.	Would require WWTP, wetland, and poplar expansion.
Reliability	Reliable treatment process.	Highly reliable.	No change from current operation.
Ease of Operation	Increased operational demands for remote treatment facility.	Increased operational demands for remote treatment facility.	No change from current operation.

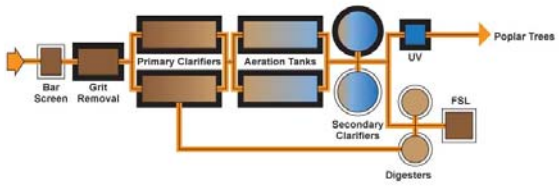
Industrial Treatment Considerations

- **Industrial flow consumes POTW capacity and requires additional poplar and wetland acreage**
- **Additional poplar and wetland requirements are immediate costs**
- **Capital cost of industrial treatment at the POTW is $0 until new facilities are required:**
  - Aeration basin $4,300,000
  - Filter $1,900,000
  - DAFT $1,000,000
- **Timing of POTW capital improvements depend on quantity of industrial flow:**
  - Actual flow: >2030
  - Allocated flow: 2020 – 2030

Woodburn Facility Plan Overview



POTW Process Flow Diagram



Liquid Stream Unit Process Capacity

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Grit Removal	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Primary Sedimentation	Peak Hour Flow	2500 gpd/sf	11.9	11.9	NA	23 mgd	NA	26 mgd
Aeration Basin (summer)	MMDW aerobic SRT	12 days	7500 ppd	7500 ppd	4470 ppd	7640 ppd	5500 ppd	8600 ppd
Secondary Clarification (summer)	MDDW SLR	25 lb/d/sf	6.2 mgd	8.3 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
Aeration Basin (winter)	MMWW aerobic SRT	5 days	11,030 ppd	11,030 ppd	NA	9450 ppd	NA	10900 ppd
Secondary Clarification (winter)	MDWW SLR	35 lb/d/sf	10.4 mgd	13.9 mgd	NA	17.0 mgd	NA	20.6 mgd
	Peak Hour Hydraulic Loading Rate	1500 gpd/sf	17.7 mgd	19.8 mgd	NA	23 mgd	NA	26 mgd

Liquid Stream Unit Process Capacity continued

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Filtration	MDDWF	3 gpm/sf	3.2 mgd	6.4 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
UV Disinfection	Peak Hour Flow	mW-sec/cm2	12 mgd	12 mgd	NA	23 mgd	NA	26 mgd
Outfall	Peak Hour Flow	100 year flood elevation	NA	17.3 mgd	NA	23 mgd	NA	26 mgd

Solids Processing Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Dissolved Air Flotation Thickening	Max Month Loading	0.60 lb/sf hr	3269 ppd	6538 ppd	3500 ppd	4850 ppd	5500 ppd	7500 ppd
Anaerobic Digestion	Max Month Hydraulic Detention Time	15 days	NA	46,800 gpd	40,100 gpd	46,700 gpd	47,300 gpd	54,000 gpd
		10 days		70,200 gpd				
Facultative Sludge/Storage Lagoons	Max Month VSS Loading	50 ppd VSS/KSF	NA	10,890 ppd VSS	4000 gpd VSS	4000 gpd VSS	4000 gpd VSS	4800 gpd VSS
					4200 ppd VSS	5100 ppd VSS	5300 ppd VSS	6500 ppd VSS

Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Screening	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Grit Removal	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Primary Sedimentation	Peak Hour Flow	2500 gpd/sf	11.9	11.9	NA	23 mgd	NA	26 mgd
Aeration Basin (summer)	MMDW aerobic SRT	12 days	7500 ppd	7500 ppd	4470 ppd	7640 ppd	5500 ppd	8600 ppd
Secondary Clarification (summer)	MDDW SLR	25 lb/d/sf	6.2 mgd	8.3 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
Aeration Basin (winter)	MMWW aerobic SRT	5 days	11,030 ppd	11,030 ppd	NA	9450 ppd	NA	10900 ppd
Secondary Clarification (winter)	MDWW SLR	35 lb/d/sf	10.4 mgd	13.9 mgd	NA	17.0 mgd	NA	20.6 mgd
	Peak Hour Hydraulic Loading Rate	1500 gpd/sf	17.7 mgd	19.8 mgd	NA	23 mgd	NA	26 mgd

Liquid Stream Alternatives - Headworks

- **Screening**
  - Alternative SC 1: Add third screen
  - Alternative SC 2: Increase capacity of existing screening channels
- **Grit Removal**
  - Add third grit removal basin

Liquid Stream Alternatives – Headworks Estimated Costs, 2008$

Item	Alternative SC 1: Add Third Screen	Alternative SC 2: Increase Capacity of Existing Channels
Capital Cost	$1,300,000	$1,700,000
Annual O&M Cost	$23,000	$15,000
PW O&M Cost	$380,000	$220,000
Total PW Cost	$1,700,000	$1,900,000

Non-Economic Evaluation of Screen Alternatives

Evaluation Criteria	Alternative SC1: Increase Capacity of Existing Channels	Alternative SC2:Add Third Screen
O&M Considerations	Modern technology reduces O&M requirements. Fewer units to maintain	Existing equipment is aging. More equipment to maintain
Performance	Reliable	Reliable
Reliability	Superior performance	Aging equipment is less reliable
Flexibility	Meets redundancy standards with manual screen	Three units provide more flexibility
Complexity	Same as existing	Same as existing
Energy Use	Same as existing	Same as existing

Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Screening	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Grit Removal	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Primary Sedimentation	Peak Hour Flow	2500 gpd/sf	11.9	11.9	NA	23 mgd	NA	26 mgd
Aeration Basin (summer)	MMDW aerobic SRT	12 days	7500 ppd	7500 ppd	4470 ppd	7640 ppd	5500 ppd	8600 ppd
Secondary Clarification (summer)	MDDW SLR	25 lb/d/sf	6.2 mgd	8.3 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
Aeration Basin (winter)	MMWW aerobic SRT	5 days	11,030 ppd	11,030 ppd	NA	9450 ppd	NA	10900 ppd
Secondary Clarification (winter)	MDWW SLR	35 lb/d/sf	10.4 mgd	13.9 mgd	NA	17.0 mgd	NA	20.6 mgd
	Peak Hour Hydraulic Loading Rate	1500 gpd/sf	17.7 mgd	19.8 mgd	NA	23 mgd	NA	26 mgd

Liquid Stream Alternatives – Primary Sedimentation

- Alternative PC1: Construct 3 new primary clarifiers
- Alternative PC2: Split treatment using wet weather clarifiers and add primary clarifier
- Alternative PC3: Convert wet weather clarifiers to primary clarifiers and add primary clarifier
  - Construct primary effluent pump station
  - Construct sludge pump station
  - Retrofit electrical/mechanical

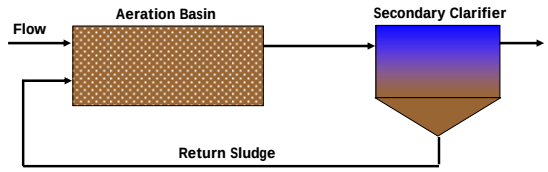
Economic Evaluation of Primary Sedimentation, 2008$

Item	Alternative PC1: Construct Three New PCs	Alternative PC2: Split Treatment Using Wet Weather Clarifiers and Construct One PC	Alternative PC3: Convert Wet Weather Clarifiers to PC and Construct One PC
New Primary Clarifiers	$7,100,000	$2,300,000	$2,300,000
Primary Sludge Pumping	$900,000	$50,000	$900,000
Rehabilitate Wet Weather Clarifiers		$1,000,000	$1,000,000
New Primary Effluent Pump Station			$2,900,000
Total	$8,000,000	$3,400,000	$7,100,000

Non-economic Evaluation of Primary Sedimentation

Evaluation Criteria	Alternative PC1: Construct Two New Primary Clarifiers	Alternative PC2: Split Treatment Using Wet Weather Clarifiers	Alternative PC3: Convert Wet Weather Clarifiers to Primary Clarifiers
O&M Considerations	O&M requirements comparable to existing.	Requires startup and shutdown of wet weather clarifiers.	Adds a pump station.
Reliability	Highly reliable.	Likely does not meet Class I reliability criteria	Satisfactory reliability.
Performance	New deeper clarifiers would provide superior performance.	Not reliable at high flows.	Comparable to existing.
Flexibility	Most flexible.	Does not provide flexibility	Somewhat flexible.
Complexity	Comparable to existing. Least complex.	Requires startup and shutdown of wet-weather clarifiers.	Two hydraulic grade lines. Most complex.
Energy Use	Comparable to existing.	Relatively low energy use.	Relatively high energy use due to re-pumping of flow under high flow conditions.

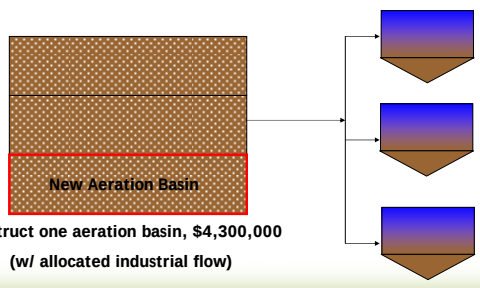
Liquid Stream Alternatives – Secondary Process



Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Screening	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Grit Removal	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Primary Sedimentation	Peak Hour Flow	2500 gpd/sf	11.9	11.9	NA	23 mgd	NA	26 mgd
Aeration Basin (summer)	MMDW aerobic SRT	12 days	7500 ppd	7500 ppd	4470 ppd	7640 ppd	5500 ppd	8600 ppd
Secondary Clarification (summer)	MDDW SLR	25 lb/d/sf	6.2 mgd	8.3 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
Aeration Basin (winter)	MMWW aerobic SRT	5 days	11,030 ppd	11,030 ppd	NA	9450 ppd	NA	10900 ppd
Secondary Clarification (winter)	MDWW SLR	35 lb/d/sf	10.4 mgd	13.9 mgd	NA	17.0 mgd	NA	20.6 mgd
	Peak Hour Hydraulic Loading Rate	1500 gpd/sf	17.7 mgd	19.8 mgd	NA	23 mgd	NA	26 mgd

Dry Weather Liquid Stream Alternatives – Secondary Process



Construct one aeration basin, $4,300,000

(w/ allocated industrial flow)

Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Screening	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Grit Removal	Peak Hour Flow	Headloss	16 mgd	16 mgd	NA	23 mgd	NA	26 mgd
Primary Sedimentation	Peak Hour Flow	2500 gpd/sf	11.9	11.9	NA	23 mgd	NA	26 mgd
Aeration Basin (summer)	MMDW aerobic SRT	12 days	7500 ppd	7500 ppd	4470 ppd	7640 ppd	5500 ppd	8600 ppd
Secondary Clarification (summer)	MDDW SLR	25 lb/d/sf	6.2 mgd	8.3 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
Aeration Basin (winter)	MMWW aerobic SRT	5 days	11,030 ppd	11,030 ppd	NA	9450 ppd	NA	10,900 ppd
Secondary Clarification (winter)	MDWW SLR	35 lb/d/sf	10.4 mgd	13.9 mgd	NA	17.0 mgd	NA	20.6 mgd
	Peak Hour Hydraulic Loading Rate	1500 gpd/sf	17.7 mgd	19.8 mgd	NA	23 mgd	NA	26 mgd

Wet Weather Liquid Stream Alternatives – Secondary Process

- **Alternative SP 1: Construct two aeration basins, one secondary clarifier**
- **Alternative SP2: Construct one aeration basin, two secondary clarifiers**
- **Alternative SP 3: Contact stabilization modifications, one secondary clarifier**

Economic Evaluation of Secondary Process Alternatives, $M, 2008$

	Alternative SP1 – Two Aeration Basins, one Secondary Clarifier	Alternative SP2 - Contact Stabilization and one Secondary Clarifier	Alternative SP3 – One Aeration Basin, two Secondary Clarifiers
New Aeration Basin	$8,600		$4,300
New Secondary Clarifier	$2,400	$2,400	$4,900
Blower Capacity Upgrade	$1,300	$1,300	$1,300
Contact Stabilization Modifications		$400	
Total	$12,300	$4,100	$10,500

Non-Economic Evaluation of Secondary Process Alternatives

Evaluation Criteria	Alternative SP1: One New AB and One New SC	Alternative SP2: Contact Stabilization Mods and One New SC	Alternative SP3: Two New SCs
O&M Considerations	O&M requirements comparable to existing.	O&M requirements comparable to existing.	O&M requirements comparable to existing.
Reliability	Highly reliable.	Highly reliable.	Highly reliable.
Performance	Comparable to existing.	Comparable to existing.	Comparable to existing.
Flexibility	Less aeration basin flexibility in wet weather.	Provides flexibility with existing tankage	Less aeration basin flexibility in wet weather.
Complexity	Comparable to existing.	Requires operation modification during wet weather.	Comparable to existing.
Energy Use	Comparable to existing.	Comparable to existing.	Comparable to existing.

Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Filtration	MDDWF	3 gpm/sf	3.2 mgd	6.4 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
UV Disinfection	Peak Hour Flow	mW-sec/cm2	12 mgd	12 mgd	NA	23 mgd	NA	26 mgd
Outfall	Peak Hour Flow	100 year flood elevation	NA	17.3 mgd	NA	23 mgd	NA	26 mgd

Liquid Stream Process – Filtration

- **Alternative F1: Expand existing sand filter**
- **Alternative F2: Replace existing filters with higher capacity/newer technology filters**

Economic Evaluation – Filtration, $2008

	Alternative F1: Add New Filter	Alternative F2: Replace with New Technology
Capital Cost, $	$2,400,000	$1,900,000
PW O&M Cost	$16,700	-
Total PW $	$2,400,000	$1,900,000

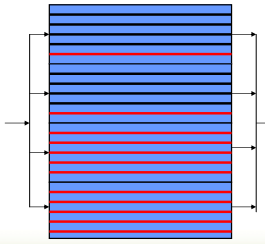
Non-Economic Evaluation of Filters

Evaluation Criteria	Alternative F1: Construct Third Filter	Alternative F2: Alternative Filtration Technology
O&M Considerations	O&M requirements comparable to existing	Modern technology reduces O&M requirements
Performance	Reliable	Reliable
Reliability	Historically underperforms	Superior performance
Flexibility	Three units provide more flexibility	Two units is less flexible than three
Complexity	Same as existing	Package unit provides simplicity
Energy Use	Same as existing	Relatively low energy use

Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Filtration	MDDWF	3 gpm/sf	3.2 mgd	6.4 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
UV Disinfection	Peak Hour Flow	mW-sec/cm2	12 mgd	12 mgd	NA	23 mgd	NA	26 mgd
Outfall	Peak Hour Flow	100 year flood elevation	NA	17.3 mgd	NA	23 mgd	NA	26 mgd

Liquid Stream Process – UV Disinfection



Add UV Disinfection Capacity

Estimated Capital Cost: $3,800,000

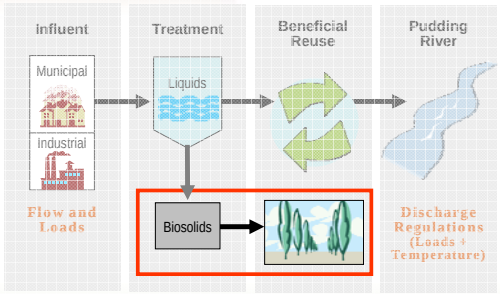
Liquid Stream Unit Process Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Filtration	MDDWF	3 gpm/sf	3.2 mgd	6.4 mgd	5.3 mgd	6.2 mgd	6.3 mgd	7.4 mgd
UV Disinfection	Peak Hour Flow	mW-sec/cm2	12 mgd	12 mgd	NA	23 mgd	NA	26 mgd
Outfall	Peak Hour Flow	100 year flood elevation	NA	17.3 mgd	NA	23 mgd	NA	26 mgd

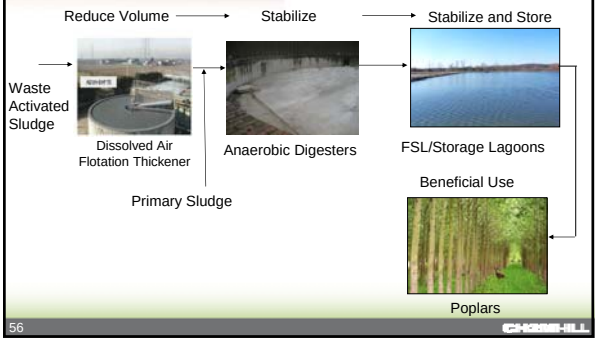
Liquid Stream Alternatives – Outfall

Item	Estimated Cost, 2008$
Construct Reaeration Bypass Structure Bypass	$100,000
Upsize 12 inch diameter portion of diversion outfall	$400,000

Woodburn Facility Plan Overview



Woodburn Biosolids Processing Facilities



Solids Processing Capacity

Unit Process	Basis for Capacity	Design Criteria	Existing Capacity		2020 Projections		2030 Projections	
			Firm Capacity	Total Capacity	w/o Ind	w/Ind	w/o Ind	w/Ind
Dissolved Air Flotation Thickening	Max Month Loading	0.60 lb/sf hr	3269 ppd	6538 ppd	3500 ppd	4850 ppd	5500 ppd	7500 ppd
Anaerobic Digestion	Max Month Hydraulic Detention Time	15 days	NA	46,800 gpd	40,100 gpd	46,700 gpd	47,300 gpd	54,000 gpd
		10 days		70200 gpd				
Facultative Sludge/Storage Lagoons	Max Month VSS Loading	50 ppd VSS/KSF	NA	10,890 ppd VSS	4000 gpd VSS	4000 gpd VSS	4000 gpd VSS	4800 gpd VSS
					4200 ppd VSS	5100 ppd VSS	5300 ppd VSS	6500 ppd VSS

Condition and Operational Improvements

- **Septage Receiving**
  - Provide gravity line for RV waste disposal
  - Provide new grating on septage station
- **Headworks**
  - Headworks channel covers
  - Headworks sump pump
  - Protect headworks electrical
- **Secondary Treatment**
  - Aeration system and blower control
  - Provide lifting device for blowers
  - Provide lifting device for RAS pumps
  - Replace diffuser membranes
- **Filtration**
  - Provide drainage in bypass channels

Condition and Operational Improvements continued

- **Disinfection**
  - Address unguarded 16 IN opening at slide gate (UV)
  - Replace NaOCl feed system
  - Install flow meter after disinfection
- **Thickening**
  - Odor control for sludge blend tank
  - Modify DAFT equipment to allow parallel operation
  - Provide separate scum lines to DAFT
- **Digestion**
  - Seal west digester cover
  - Recoat digester roofs and improve drainage
  - Improve gas compressor redundancy and enlarge drain
  - Provide lifting ability for equipment

Condition and Operational Improvements continued

- **Digester**
  - Provide permanent air supply system for pneumatic controls
  - Replace sump pumps with higher head pumps
  - Provide heat pump for digester electrical room
- **Civil/Site**
  - Improve roadway (poplar harvest, road drainage)
  - Poplar drainage
- **Non Process**
  - Upgrade/replace W3 system including freeze protection
  - Upgrade plant security system
  - Improve Lab HVAC
  - Plant SCADA system (and combine POTW and poplar systems)
  - Generator to meet reliability requirements

Natural Treatment - Poplar Trees

- Provides beneficial reuse of effluent in July and August
- Provides beneficial reuse of all biosolids produced
- Currently have approximately 80 acres developed
- Future phases will expand onto McNulty property first - will need additional land for Phase 3 (2030)

Natural Treatment - Wetlands

- Will cool effluent to allow discharge back to the Pudding River in compliance with temperature TMDL
- Sizing is driven by September temperature limits - Cooling also needed in July and August
- First wetland development would occur within existing effluent storage lagoon
- Siting of floodplain wetlands will need to avoid jurisdictional wetlands to avoid mitigation costs
- New outfall to river would be constructed from floodplain wetlands

Poplar Expansion and Wetland Areas and Costs

Alternative	Phase 1 (2020)			Phase 2 (2030)		
	Poplar Trees (acres)	Wetlands (acres)	Capital Cost ($1,000)	Poplar Trees (acres)	Wetlands (acres)	Capital Cost ($1,000)
Separate Land Application (IND 1)						
Actual	6	18	$1,947	85	24	$4,202
Allocated	6	18	$1,947	85	24	$4,202
Treat Industrial Q at WWTP (IND 3)						
Actual Ave	28	20	$2,537	107	26	$4,792
Allocated	77	24	$3,995	156	30	$6,250

Areas Available for NTS Expansion

Pilot Studies Implications

- Current FP recommendations are based on what we know now and could build today
- Pilot studies results could allow the City to reduce the acreage required for poplar and/or wetland development by allowing higher loading rates
- Therefore, cost assumptions for NTS components are conservative

Summary Costs for Phases 2 and 3, $1000, 2008$

Item	Actual Industrial Flow		Allocated Industrial Flow	
	Phase 2 2020	Phase 3 2030	Phase 2 2020	Phase 3 2030
Headworks – Screening	$1,900		$1,900	
Headworks – Grit Removal	$1,300		$1,300	$1,300
Primary Sedimentation	$4,700	$2,400	$4,700	$2,400
Secondary Process – Dry Weather				$4,300
Secondary Process – Wet Weather	$4,100		$4,100	
Filtration				$1,900
UV Disinfection	$2,500	$1.300	$2,500	$1,300
Outfall	$500		$500	
Solids Processing				$1,000
Poplars – Municipal*	$126	$1,659	$126	$1,659
Wetlands – Municipal*	$1,800	$600	$1,800	$600
Poplars – Industrial*	$462			
Wetlands – Industrial*	$200			
Outfall Wetlands	$300		$300	
Industrial Land Application			$8,200	
Total	**$18,000**	**$6,000**	**$25,000**	**$14,000**

*Does not include land costs

Facility Plan Implementation

- Complete Collection System Plan
- Draft Capital Improvement Plan and Implementation Schedule
- Draft Report
- Rate and SDC Evaluation (Discuss at January WAC meeting)

Discussion?

WOODBURN
OREGON
Incorporated 1889

AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM – Thursday January 29, 2009

Police Department Community Room

1. Note of Attendance
2. Approval of December 4, 2008 Meeting Minutes
3. Natural Treatment Pilot Study Update - Jason Smesrud, CH2M Hill
4. City of Woodburn Poplar Harvest – Randy Scott and Curtis Stultz
5. Confirmation of Recommendations to Date - David Green, CH2M Hill and Randy Scott
6. Proposed Capital Plan – 2020 and 2030 – David Green, CH2M Hill
    a. Draft, Recommended Capital Improvements
    Collection System Improvements - Mark Anderson, CH2M Hill
        i. Existing condition and Capacity Deficiencies
            1. Future capacity
    b. Draft, Recommended Capital Improvements
    Treatment Plant Alternatives - Lynne Chicoine, CH2M Hill
        i. Recommended Alternatives
            1. Industrial Wastewater Treatment Alternatives
            2. Municipal Wastewater Treatment Alternatives

c. Draft, Recommended Capital Improvements
Natural System Alternatives - Jason Smesrud, CH2M Hill

i. Recommended Alternatives
1. Temperature Compliance Alternatives
2. Ammonia Discharge Alternatives

ii. Biosolids Management Alternatives

7. Questions

8. Next Meeting Date and Location

City of Woodburn

POTW Facility Plan

Wastewater Advisory Committee
Meeting No. 7

Agenda

- **Natural Treatment Pilot Study Update**
- **City of Woodburn Poplar Harvest**
- **Confirmation of Recommendations to Date**
- **Proposed Capital Plan – 2020 and 2030**
  - Collection System Recommendations
  - Treatment Recommendations
    - Industrial Wastewater Treatment
    - Municipal Wastewater Treatment
  - Reuse and Discharge Recommendations

Natural Treatment Pilot Study Update

Jason's presentation

City of Woodburn Poplar Harvest

City presentation

Confirmation of Recommendations to Date

1. Is the WAC in agreement that prioritizing natural systems for temperature reduction is the preferred direction?

   Are constructed wetlands on City property the preferred approach?

   Should the City include public access and possibly other public facilities in the planning for these wetlands?

Confirmation of Recommendations to Date

2. Is the WAC in agreement that expanding the poplar acreage and reuse program is the best approach for continuing to address growth in wastewater flows?

   Should the City pursue additional opportunities to partner with the MacLaren Youth Correctional Facility for additional poplar acreage?

Confirmation of Recommendations to Date

3. Does the WAC think that the City should move forward with discussions with Sabroso and Townsend Farms to renegotiate (reduce) the allocated industrial flows?

   Might the City look to the WAC for public and political support during these discussions?

Confirmation of Recommendations to Date

4. Does the WAC think that the City should move forward with plans to divert the industrial wastewater flows to a separate land application system when the economics of that decision make sense?

   Should the City be actively evaluating potential properties in the area for a future land application system for these industries?

Confirmation of Recommendations to Date

5. Is the WAC supportive of the City's efforts to move forward with additional pilot testing and evaluation of natural systems with the intent of refining those design criteria for full-scale systems?

City of Woodburn Proposed Capital Plan

- **Confirmed recommendations form the basis for the proposed capital plan**
- **Capital plan is presented for**
  - Phase 2 Projects – 2010 through 2020
  - and Phase 3 Projects – 2020 through 2030
- **Note that Phase 3 projects require planning beyond the current UGB**
- **Capital Plan includes:**
  - capacity upgrade projects
  - capital improvements to existing facilities
  - improvements driven by new regulations

City of Woodburn Proposed Capital Plan

- Tonight: CH2M HILL will review the proposed capital plan resulting from the facility plan recommendations
- February: At the next Advisory Committee Meeting, adjusted capital plan will form the basis for a discussion on rates and SDC's.

Collection System Capital Plan

followed by Wastewater Treatment Capital Plan and Natural Treatment Capital Plan

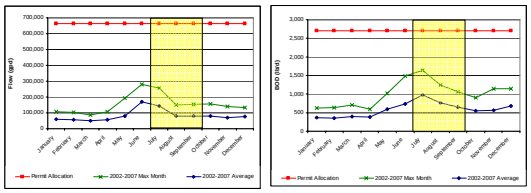
Collection System Capital Plan

13

Collection System Capital Plan

14

Actual vs Allocated Industrial Flow and Load



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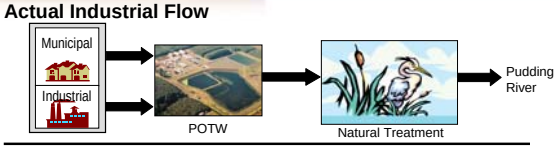
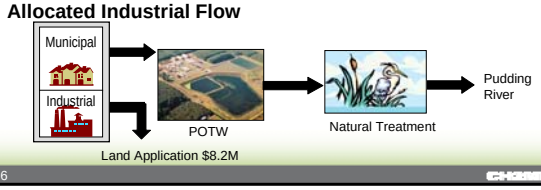
Recommended Plan - Actual and Allocated Industrial Flow 2030

Actual Industrial Flow



Allocated Industrial Flow



Land Application $8.2M

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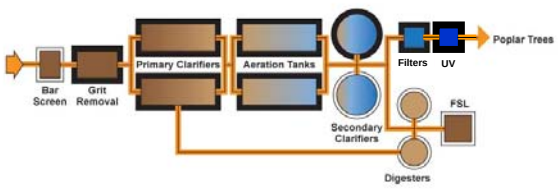
POTW Process Flow Diagram



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POTW Wet Weather Recommended Plan

	Basis for Capacity	2020 Recommendation	2030 Recommendation
Screening	PWWF	Increase capacity	None required.
Grit Removal	PWWF	Increase capacity	Increase capacity.
Primary Clarification	PWWF	Rehab WW clarifiers. Construct PEPS	Construct one clarifier.
Aeration Basins	MMWW	Contact Stabilization	None required.
Blowers	MDWW	Replace blowers.	None required.
Secondary Clarifiers	PWWF	Construct one clarifier	None required.
Filters	NA		
UV Disinfection	PWWF	Upgrade channels. Add one channel.	Add one channel.
Outfall	PWWF	Upsize	None required.

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POTW Dry Weather Recommended Plan

	Basis for Capacity	2020 Recommendation	2030 Recommendation
Screening	NA		
Grit Removal	NA		
Primary Clarification	NA		
Aeration Basins	MMDW	None required.	None required.
Blowers	MDDW	None required.	None required.
Secondary Clarifiers	MDDW	None required.	None required.
Filters	MDDW	None required.	None required.
UV Disinfection	NA		
Outfall	NA		

Condition and Operational Improvements POTW and Natural Treatment

- $4 million worth of condition and operational improvements distributed over 20-years
- Investment in existing assets maximizes equipment service life
- Operational improvements have a payback due to reduced labor and power costs

Natural Treatment - Poplar Trees

Natural Treatment

Natural Treatment

Summary Capital Costs for Phases 2 and 3, $1000, 2008$

	Actual Industrial Flow		Allocated Industrial Flow	
Item	Phase 2 2020	Phase 3 2030	Phase 2 2020	Phase 3 2030
Headworks – Screening	$1,900		$1,900	
Headworks – Grit Removal	$1,300	$1,300	$1,300	$1,300
Primary Sedimentation	$4,700	$2,400	$4,700	$2,400
Secondary Process – Dry Weather				
Secondary Process – Wet Weather	$4,100		$4,100	
Filtration				
UV Disinfection	$2,500	$1.300	$2,500	$1,300
Outfall	$500		$500	
Solids Processing				
Poplars –	$784	$4,500	$3,300	$200
Wetlands -	$3,700	$600	$4,100	
Industrial Land Application				$8,200
Total	**$19,500**	**$10,100**	**$22,400**	**$13,400**

Facility Plan Implementation Next Steps

- ✓ **Draft Capital Improvement Plan and Implementation Schedule (cash flow)**
- **Begin development of Rate Impacts and SDC's**
- **Complete Collection System Planning work**
- **Draft Report for distribution and review**

- **Present Preliminary Rate and SDC Evaluation (February WAC meeting)**

Discussion?

Facility Plan Addressing Food Processors

- Allocated amounts have a significant impact on treatment capacity (loadings)
- This results in a significant impact on capital planning
- Current pretreatment permits allocated flows and loads to food processors
- Facility Plan must accommodate these flow and load contributions
- Facility Plan will present options and opportunities for managing food processing waste or re-negotiating allocations
  - Biggest cost savings opportunity for Woodburn
  - Allows for deferral of some plant expansion components

Industrial Treatment Considerations

- **Industrial flow consumes POTW capacity and requires additional poplar and wetland acreage**
- **Additional poplar and wetland requirements are immediate costs**
- **Capital cost of industrial treatment at the POTW is $0 until new facilities are required:**
  - Aeration basin $4,300,000
  - Filter $1,900,000
  - DAFT $1,000,000
- **Timing of POTW capital improvements depend on quantity of industrial flow:**
  - Actual flow: >2030
  - Allocated flow: 2020 – 2030

WOODBURN
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AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM – Tuesday March 17, 2009

Police Department Community Room

1. Note of Attendance

2. Approval of January 29, 2009 Meeting Minutes

3. Meeting Agenda/Overview – Randy Scott

4. Proposed Draft Capital Plan Chapter 10, Treatment Plant, Natural Treatment System and Collection System - David Green, CH2M Hill, Lynne Chicoine, CH2M Hill, Jason Smesrud, CH2M Hill

5. Rate and SDC Study - David Green, CH2M Hill, Deborah Galardi, Galardi Consulting

    a. Background (1995 and 2007 studies)
    b. Current Rate Structure and Possible Modifications
    c. SDC legal requirements and overview of methodology
    d. Financial Planning Process and Current Capacity of the Rates to Fund Capital.

6. Draft Facility Plan, Volume One David Green, CH2M Hill, Randy Scott

7. Questions

8. Next Meeting and Open House Date and Location

City of Woodburn

POTW Facility Plan

Wastewater Advisory Committee
Meeting No. 8

Agenda

- **Proposed Capital Plan – 2020 and 2030**
- **Project Drivers and Triggers and Cash Flow**
  - Collection System
  - Treatment Plant Systems
  - Natural Treatment System
- **Wastewater Rate and SDC Introduction**
  - Background (1995 and 2007 studies)
  - Current rate structure and possible modifications
  - SDC legal requirements and overview of methodology
  - Financial planning process and current capacity of the rates to fund capital
- **Draft Facility Plan – Volume 1**

City of Woodburn Proposed Capital Plan

- Tonight: CH2M HILL will review the proposed capital plan resulting from the facility plan recommendations, along with drivers and triggers for improvements.
- Capital plan, coupled with implementation schedule forms the basis for the projected cash flow (capital and O&M costs on an annual basis).
- Capital Plan (cash flow) and projected O&M costs form the basis for the Rate and SDC development work.
- March 31st: At the next Advisory Committee Meeting, projected Rates and SDC's will be presented in detail.

City of Woodburn Project Drivers

- *Capacity.* Capacity triggers are based on an increase in flow or load to a given unit process or system.
  - *Capacity shortfalls (current)*
  - *Capacity for Growth*
- *Water Quality.* Improvements required to address changing regulatory criteria.
  - *Temperature TMDL*
  - *Wintertime ammonia limits*
- *Reliability.* Improvements based on meeting EPA's Class I requirements for reliability and redundancy.
- *Condition.* Improvements recommended to address the increased maintenance and reduced performance and reliability associated with the failing component.

Capital Plan provides the basis for determining rate impacts and SDC's

- **Some improvements are paid for by rate payers and some are paid for by growth**
  - Growth pays for growth (new capacity)
  - Existing and future ratepayers pay for:
    - New water quality regulations
      - *Temperature TMDL*
      - *Wintertime ammonia limits*
    - Reliability improvements (Class I)
    - Condition-related improvements
    - Operations and Maintenance (O&M) costs

Summary Capital Costs for Collection System Phases 2 and 3 2008 Dollars ($1000)

Item	Estimated Project Costs Phase 2 2010-2020	Phase 3 2020-2030
Mill Creek PS (Two Phases)	$4,450	
I-5 PS and Force Main	$3,110	
Stevens PS and FM	$600	
Young Street Pipeline Project	$952	
Front Street Pipeline Project	$560	
Mill Creek Interceptor Pipeline Project		$1,855
Progress Way Pipeline Project	$720	
Hayes Street Pipeline Project	$1,075	
Brown Street Pipeline Project	$460	
Sanitary Sewer Service to North Area (2005 PFP Project)		$4,950
Sanitary Sewer Service to Southwest Industrial Area (2005 PFP Pump Station Project)		$1,215
Sanitary Sewer Service to Southwest Industrial Area (2005 PFP Pipeline Project)		$9,900
Area Outside UGB		$8,600
Current CIP Projects (Funds 465, 472)	$460	
Replacement Costs-Collection System Piping	$4,600	$4,600
Equipment Replacement (VAC Truck)	$350	
Pump Station Upgrades (Existing Upgrades - Reliability)	$275	
Totals	**$17,612**	**$31,120**

Summary Capital Costs for Treatment Phases 2 and 3 2008 Dollars ($1000)

Item	Actual Industrial Flow		Allocated Industrial Flow	
	Phase 2 2020	Phase 3 2030	Phase 2 2020	Phase 3 2030
Headworks – Screening	$1,900		$1,900	
Headworks – Grit Removal	$1,300	$1,300	$1,300	$1,300
Primary Sedimentation	$4,700	$2,400	$4,700	$2,400
Secondary Process – Dry Weather				
Secondary Process – Wet Weather	$4,100		$4,100	
Filtration				
UV Disinfection	$2,500	$1,300	$2,500	$1,300
Outfall	$500		$500	
Solids Processing				
Poplars –	$800	$3,800	$3,300	$200
Wetlands -	$3,700	$600	$4,100	
Industrial Land Application				$8,200
Total	**$19,500**	**$9,400**	**$22,400**	**$13,400**

$6.9 M Difference between Actual and Allocated

$28,900

$35,800

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Collection System

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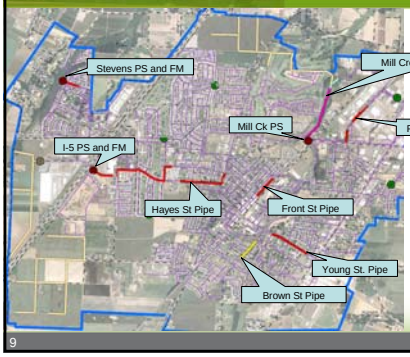
Collection System Capital Plan - Projects



Red and Yellow = Phase 2
Purple = Phase 3
Beige = Future service

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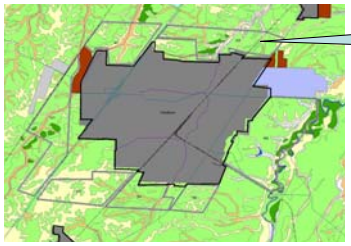
Collection System Capital Plan – Outside UGB Estimates



Potential Expansion Areas

Factors affecting costs:

- Distance
- Topography
- Number and location of expansion areas

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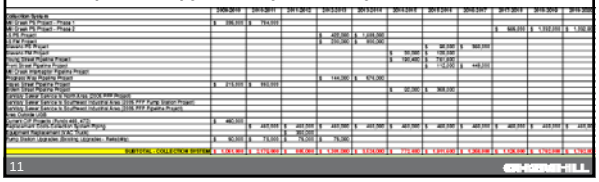
Collection System Proposed Capital Plan with Cash Flow Near Term Projects

- **Mill Creek Pump Station Improvements**
  - Capacity Shortfall for Peak Flows
  - Split into Two Phases of Construction
    - Maximize capacity of existing structure
    - Build new Pump Station (replace or run in parallel)
- **Young Street Pipeline Project**
  - Capacity Shortfall – Coordinate with road paving work (2015)
- **Current CIP Projects and Replacement Projects**
- **Pump Station Upgrade Study - Reliability**



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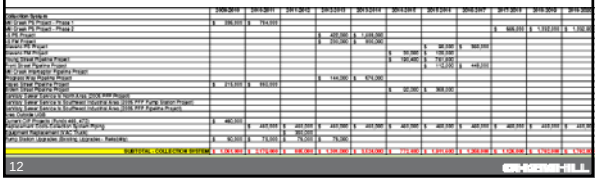
Collection System Proposed Capital Plan with Cash Flow Growth Related Projects

- **Pump Station Upgrades (I-5 and Stevens)**
  - Driven by growth and infill
- **Most of remaining pipeline upgrade projects are driven by growth and expansion of the UGB**
- **Ongoing Replacement Projects**



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Wastewater Treatment (POTW)

POTW Proposed Projects Project Drivers

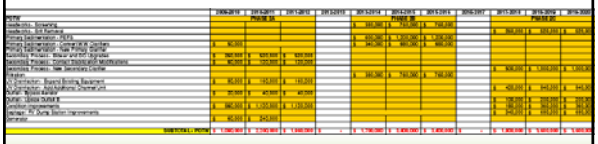
Category	Improvement Description
Preliminary Treatment	
Capacity for Growth / Reliability	Replace Bar Screens
Capacity for Growth	Add third grit removal unit
Capacity for Growth	Add fourth grit removal unit
Primary Treatment	
Water Quality / Reliability	Convert wet weather clarifiers to primary clarifiers
Capacity for Growth	Add third new primary clarifier
Secondary Treatment	
Condition / Capacity Shortfall	Blower and aeration system upgrades
Capacity Shortfall	Contact stabilization modifications
Reliability	Construct one new secondary clarifier

POTW Proposed Projects Project Drivers (Cont.)

Category	Improvement Description
Filtration	
Capacity Shortfall / Reliability	Replace with cloth filters
Disinfection	
Capacity Shortfall	Expand existing UV system
Capacity for Growth	Add third UV unit
Capacity for Growth	Add fourth UV unit
Outfall	
Capacity Shortfall	Bypass Aerator
Capacity for Growth	Upsize Outfall B
Emergency Generation	
Reliability	Install additional emergency generator

POTW Proposed Capital Plan with Cash Flow Phase 2 (thru 2020)

- Phase 2A projects provide condition improvements, address capacity shortfalls, increase reliability
- Phase 2B projects provide condition improvements, meet water quality requirements and increase reliability. The screen project only is related to new growth.
- Phase 2C projects provide condition improvements and increase reliability



POTW Proposed Capital Plan with Cash Flow Phase 3 (thru 2030)

- Phase 3 projects provide capacity for growth

Natural Treatment Systems

Phase 2 & 3
Natural Treatment and Reuse Facilities
Recommended Plan

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Agricultural Land

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Natural Treatment System
Proposed Projects
Project Drivers

Reuse and Discharge (Natural Treatment Systems)

Capacity for Growth	**Poplar tree expansion on City-owned land**
Capacity for Growth	**Land Purchase**
Capacity for Growth	**Poplar tree expansion on Additional land**
Water Quality	**Lagoon Wetlands**
Water Quality	**Floodplain Wetlands**
Water Quality	**Wetland conveyance and new river outfall**

Industrial Treatment

Capacity for Growth	**Industrial Land Application**

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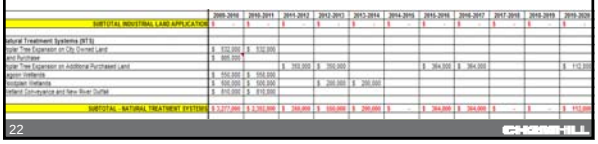
Natural Treatment System
Proposed Capital Plan with Cash Flow
Phase 2 (thru 2020) - Temperature Control

- **Temperature TMDL Driven Project Requirements**
  - Design by April 2010
  - In compliance by April 2012
- **Temperature TMDL Projects**
  - Lagoon (10 ac) and Floodplain (14 ac) Wetlands
  - New Pudding River Outfall



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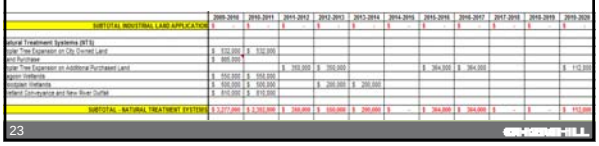
Natural Treatment System
Proposed Capital Plan with Cash Flow
Phase 2 (thru 2020) - Poplar Expansion

- **Poplar Tree Expansion Drivers**
  - Growth in Jul-Aug effluent flows
  - Need for additional biosolids land application capacity
- **Poplar Tree Projects**
  - Develop 38 ac on City-owned land by 2011
  - 59 ac land purchase in 2010 for phased development in 2012, 2016, 2020



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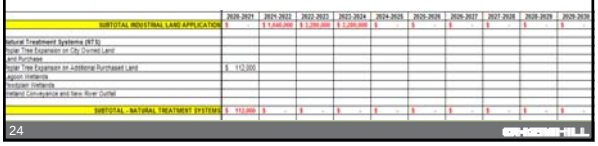
Natural Treatment System
Proposed Capital Plan with Cash Flow
Phase 3 (thru 2030)

- **Allocated industrial flows drive the need for Jul-Sep flow diversion in Phase 3**
  - Industrial land application facility built and operational by 2024
  - 17.5 MG storage + 114 ac irrigated pasture



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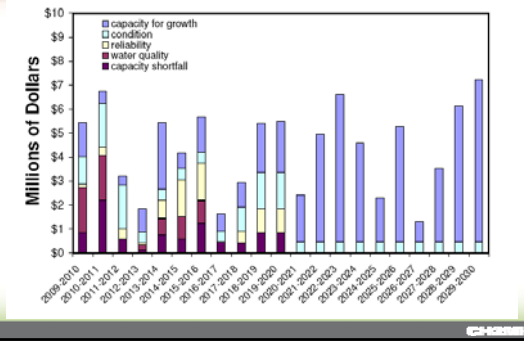
Capital Plan provides the basis for determining rate impacts and SDC's

- **Some improvements are paid for by rate payers and some are paid for by growth**
  - Growth pays for growth (new capacity)
  - Existing and future ratepayers pay for:
    - New water quality regulations
      - *Temperature TMDL*
      - *Wintertime ammonia limits*
    - Reliability improvements (Class I)
    - Condition-related improvements
    - Operations and Maintenance (O&M) costs

Rate impacts and SDC's will be determined by project drivers



Introduction to Rates and SDC's Deb Galardi/Galardi Consulting

- Proposed Capital Plan - 2020 and 2030
- Project Drivers and Triggers and Cash Flow
  - Collection System
  - Treatment Plant Systems
  - Natural Treatment System
- **Wastewater Rate and SDC Introduction**
  - Background (1995 and 2007 studies)
  - Current rate structure and possible modifications
  - SDC legal requirements and overview of methodology
  - Financial planning process and current capacity of the rates to fund capital
- Draft Facility Plan - Volume 1

Background - 1995 Study

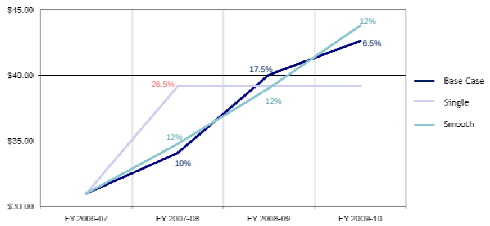
- **Completed in conjunction with Wastewater Master Plan**
  - $38 million phase one system upgrades
- **New rate structure adopted**
  - Move from flat $/month per residential dwelling unit to volume- based rate
- **Rates intended to be adequate for 5-year study period**
- **SDCs adopted**
  - $2,977 per EDU
  - No subsequent adjustments for inflation

Background - 2007 Study

- **No changes to rates between 1995 and 2007**
- **Limited scope of review**
  - Near term (3 years) capital improvements
  - Address DEQ debt service reserve requirements
  - Slight modification to rate structure for hotel/motel customers
- **Intended to be interim rate increases**
  - No building reserves for Phase 2 improvements
  - Wastewater Rate Review Committee recommended 'smoothed' approach

2007 Rate Scenarios

Monthly Residential Bill (based on 8ccf monthly use)



2007 Bill Comparison

Rate Comparison – Single Family Bill (8ccf monthly use) – 4/2006

McMinnville	$47.22	3% per year	
Portland	$45.59	6% per year	
West Linn	$42.64		**FY 2007-08 Options**
	$39.18		Woodburn (Single)
Salem	$36.03	6.5% per year	
Newberg	$34.90	4% per year	
	$34.76		Woodburn (Smooth)
	$34.07		Woodburn (Base)
Clean Water	$31.65		
Woodburn (current)	$30.97		
Corvallis	$29.09		
Wilsonville (4/06)	$27.72		
Albany	$26.59	9% per year	
Hillsboro	$25.83		
Lake Oswego	$23.52		
Gresham	$22.54		

Current Sewer Rates*

Residential and Multifamily	Commercial	Industrial

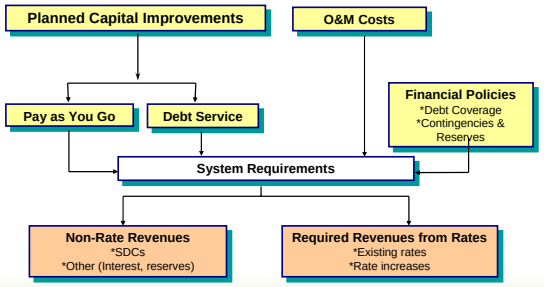
• **Minimum Charge $25.24/Dwelling unit**
  • Includes 500 cubic feet (cf) usage
• **Volume Charge $4.50/100 cf**
  • Based on winter average month consumption (3 lowest of 4 months
	• **Minimum Charge $32.04/Account**
	  • Includes 600 cubic feet (cf) usage
	• **Volume Charge $6.89/100 cf**
	  • Based on actual water use
		• **Minimum Charge $68.89/Account**
		  • Includes 1,000 cf flow, 25 lbs BOD, and 9 lbs TSS
		Amounts over minimum:
		• Flow $2.85/100 cf
		• BOD $1.07/lb
		• TSS $0.31/lb

* Effective 7/01/2008

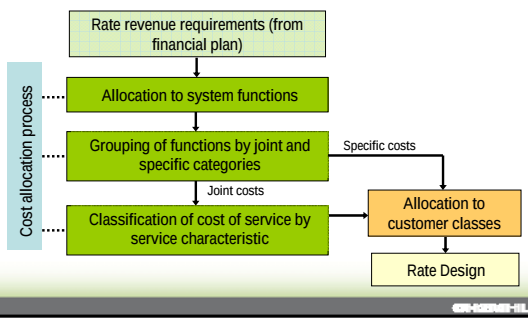
Current Study Objectives

- **Develop Long term rate strategy**
  - Rate increases to fund updated master plan improvements
    - Consider phasing options
  - Identify capacity costs related to future growth
    - Update SDCs
- **Review rate structure**
  - Review customer usage characteristics and revised cost structure
    - Fixed vs. volume rates
    - Flow, BOD, TSS rates

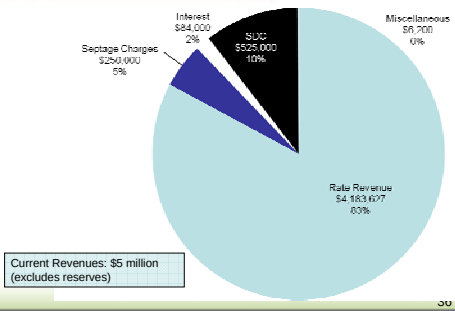
Financial Planning Process



Rate Development

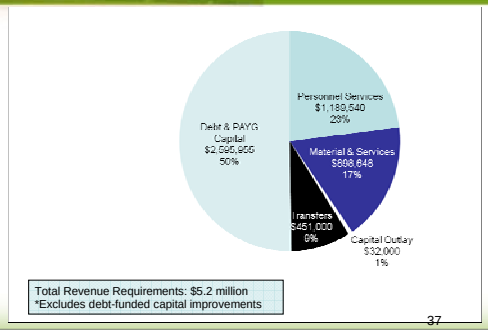


"Current" Revenues (FY2008-09)



Current Revenues: $5 million (excludes reserves)

Revenue Requirements (FY2008-09)



Total Revenue Requirements: $5.2 million
*Excludes debt-funded capital improvements

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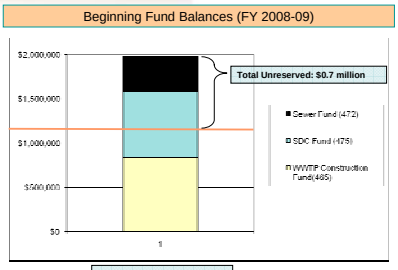
Contingencies & Reserves



Total Reserved: $1.2 million
Debt = $1.1 million
PERS = 0.1 million

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SDCs Defined

- **Also referred to as impact fees, capital recovery fees, connection fees, etc.**
- **One-time charge:**
  - At time of connection
  - When building permit is issued
- **Recover capital investments to serve growth**
- **State statutes provide guidelines for development & administration**
- **Eligible systems: water, wastewater, drainage, transportation, parks & recreation**

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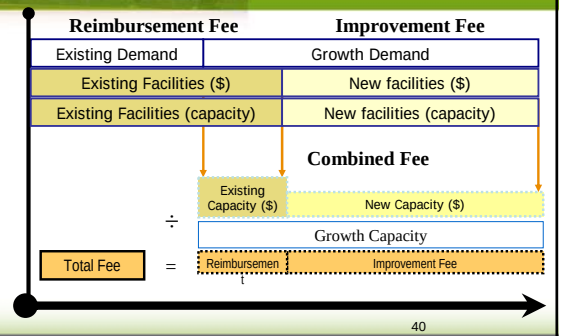
Fee Structure Development



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Administrative Requirements

- **Methodology update notification period**
  - 90 days notice of public hearing
  - 60 days for methodology review
- **Inflationary adjustments**
  - Must be part of the methodology or resolution
  - Tied to standard cost index (for non-SDC purposes)
- **Expenditures of fees**
  - Reimbursement – system specific
  - Improvements – further limited to capacity-related improvements
- **Revenue and expenditure accounting**
  - Revenues collected for compliance with SDC Act

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Rate Study Next Steps

✓ **Draft Capital Improvement Plan and Implementation Schedule (cash flow)**

- **Evaluate capital financing strategy**
- **Determine growth related costs and SDCs**
  - Present Preliminary financial plan and SDC options (March 31st WAC meeting)
- **Develop rate schedule**
  - Complete cost of service analysis
  - Present revised rate recommendations

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Facility Plan Implementation Next Steps

- ✓ Draft Capital Improvement Plan and Implementation Schedule (cash flow)
- ✓ Draft Volume 1 – Facilities Plan

- Complete Collection System Planning work (deliver Draft Report - Volume 2)
- Draft Volume 2 – Collection and Transmission System

- Present Preliminary financial plan and SDC options (March 31st WAC meeting)
- Draft Volume 3 – SDC and Rate Study

- Open House
- Finalize Facilities Plan – Volume 1, 2 and 3

Discussion?

WOODBURN
OREGON
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AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM – Tuesday March 31, 2009

Police Department Community Room

1. Note of Attendance

2. Approval of March 17, 2009 Meeting Minutes

3. Update, Biosolids – Randy Scott

4. Further Discussion - Draft Capital Plan and Chapter 10 Review, David Green, CH2M Hill, Randy Scott

5. Rate and SDC Study - David Green, CH2M Hill, Deborah Galardi, Galardi Consulting

    a. Wastewater System Financial Plan
    b. Rate Increase Scenarios
    c. SDC Analysis and Alternatives
    d. Rate & SDC Comparison to other Jurisdictions
    e. Committee Recommendations

6. Draft Facility Plan, Volume Two Collections, David Green, CH2M Hill, Randy Scott

7. Open House, Randy Scott

8. Questions

9. Next Meeting

City of Woodburn

POTW Facility Plan

Wastewater Advisory Committee
Meeting No. 9

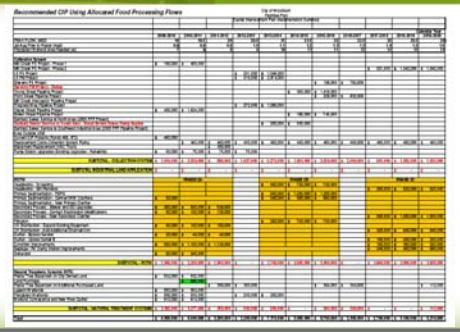
Agenda

- **Biosolids Study – City of Woodburn**
- **Further Discussion – CH2M HILL**
  - Volume 1 - Draft Facility Plan
  - Chapter 10 Review
  - Updated Capital Plan – 2020 and 2030
- **Wastewater Rate and SDC Discussion**
  - Wastewater System Financial Plan
  - Rate Increase Scenarios
  - SDC Analysis and Alternatives
  - Rate & SDC Comparison to other Jurisdictions
  - Committee Recommendations
- **Draft Facility Plan – Volume 2 – Collection System**
- **Open House and Additional WAC Meetings**

City of Woodburn Proposed Capital Plan

- Capital plan, coupled with implementation schedule forms the basis for the projected cash flow (capital and O&M costs on an annual basis).
- Capital Plan (cash flow) and projected O&M costs form the basis for the Rate and SDC development work.
- March 31st: At the next Advisory Committee Meeting, projected Rates and SDC's will be presented in detail.

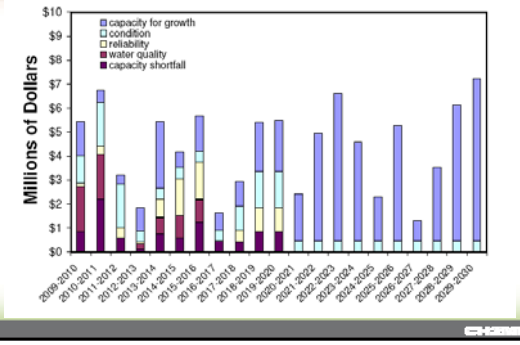
Summary Capital Plan (Updated)



Capital Plan provides the basis for determining rate impacts and SDC's

- **Some improvements are paid for by rate payers and some are paid for by growth**
  - Growth pays for growth (new capacity)
  - Existing and future ratepayers pay for:
    - New water quality regulations
      - *Temperature TMDL*
      - *Wintertime ammonia limits*
    - Reliability improvements (Class I)
    - Condition-related improvements
    - Operations and Maintenance (O&M) costs

Rate impacts and SDC's will be determined by project drivers



Agenda

- Biosolids Study – City of Woodburn
- Further Discussion – CH2M HILL
  - Volume 1 - Draft Facility Plan
  - Chapter 10 Review
  - Updated Capital Plan – 2020 and 2030
- **Wastewater Rate and SDC Discussion**
  - Wastewater System Financial Plan
  - Rate Increase Scenarios
  - SDC Analysis and Alternatives
  - Rate & SDC Comparison to other Jurisdictions
  - Committee Recommendations
- Draft Facility Plan – Volume 2 – Collection System
- Open House and Additional WAC Meetings

Preliminary Financial Plan Parameters

- **Planning period (FY2009-FY2019)**
- **3 preliminary scenarios:**
  - Best case financing
  - Base case financing
  - Actual industrial (w/best case financing)
- **Operating budget data (revenues & expenses)**
  - FY2009 estimated year end
  - FY2010 preliminary budget
- **System-wide rate adjustments**

Assumptions – All Scenarios

- **Growth rate**
  - Minimal in FY2010
  - 1% FY2011
  - 2.5% subsequent years
- **Cost escalation (applied to FY2010 budget)**
  - 2-3% in first 2 years
  - 4-5% thereafter
- **Water loan repayment in FY2011**
- **Additional O&M Costs (2009$)**
  - Biosolids contract hauling: $500,000/yr next 5 yrs.
  - Poplar & wetlands costs: $260,000/yr

Near Term Challenge

	Estimated FY 2008-9	Prelim. Budget FY 2009-10	Forecast FY 2010-11
Gross Revenue		**12.00%**	
Sales (User charges)*	$4,316,297	$4,747,927	$4,842,885
Septage Dumping	$225,000	$235,000	$235,000
SDCs	$425,000	$300,000	$425,000
Other revenue	48,100	105,744	108,571
Total Revenue	$5,014,397	$5,388,670	$5,611,457
Operation & Maintenance Costs			
Personal Services	$1,033,317	$1,130,122	$1,156,673
Materials & Services	$863,753	$926,760	$961,300
O&M Adjustments	$0	$280,000	$1,018,834
Transfers to Other Funds	$451,000	$765,000	$792,081
Total O&M	$2,348,070	$3,101,882	$3,928,888
Net Revenue	**$2,666,327**	**$2,286,788**	**$1,682,569**
Debt Service	$2,351,253	$2,343,332	$2,456,648
Debt Service Coverage (1.05 Req)	***1.13***	***0.98***	***0.68***

*Includes 12% rate increase in FY2010

FY2010 and FY2011 Rate Increases

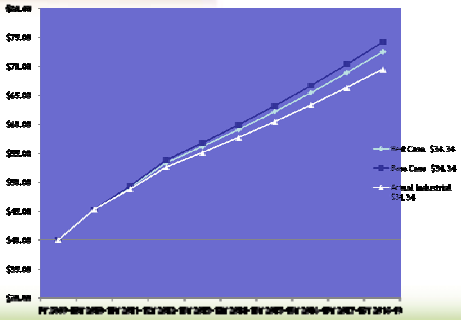
	Estimated FY 2008-9	Prelim. Budget FY 2009-10	Forecast FY 2010-11
Gross Revenue		**16.50%**	**13.20%**
Sales (User charges)	$4,316,297	$4,921,658	$5,749,169
Total Revenue	$5,014,397	$5,562,401	$6,517,740
Operation & Maintenance Costs			
Total O&M	$2,348,070	$3,101,882	$3,928,888
Net Revenue	**$2,666,327**	**$2,460,519**	**$2,588,852**
Debt Service	$2,351,253	$2,343,332	$2,456,648
Debt Service Coverage (1.05 Req)	***1.13***	***1.05***	***1.05***

Capital Financing Assumptions: Best Case

	FY2009-2019
Loan Proceeds	$4,093,000
Grant (Stimulus)	$2,580,588
Loan (Stimulus)	$2,580,588
Current Revenue (rate/SDC)	$3,948,678
Future Bond/Loan	$39,984,203
Bank Loan (land Purchase)	$729,240
Total Sources	**$53,916,296**
Capital Improvements(1)	$53,132,128
Interfund Loan	$277,179
SRF Reserves	359,628
Additions to Fund Balance	$147,361
Total Uses	**$53,916,296**

(1) Adjusted for inflation

Preliminary Rate Scenarios



Preliminary Rate Scenarios

	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Best Case	16.50%	13.20%	8.50%	8.50%	5.25%
Base Case	16.50%	13.20%	9.00%	9.00%	5.50%
Actual Industrial	16.50%	13.20%	7.75%	7.75%	4.75%

Preliminary SDC Analysis: Improvement

Component/Process	Total Cost	Design Basis	Growth %	Growth $
POTW				
Headworks - Screening	$1,900,000	PFT	83%	$1,577,000
Headworks - Grit Removal	$2,600,000	PFT	72%	$1,859,000
Primary Sedimentation - PEPS	$3,000,000	PFT	53%	$1,575,000
Primary Sedimentation - Convert WW Clarifiers	$1,750,000	PFT	53%	$918,750
Primary Sedimentation - New Primary Clarifier	$2,400,000	PFT	100%	$2,400,000
Secondary Process - Blower and DO Upgrades	$1,300,000	MDWWF	68%	$885,864
Secondary Process - Contact Stabilization Modificatio	$300,000	MDWWF	60%	$178,893
Secondary Process - New Secondary Clarifier	$2,500,000	PFT	100%	$2,500,000
Filtration	$1,900,000	MDDWF	36%	$679,353
UV Disinfection - Expand Existing Equipment	$400,000	PFT	0%	$0
UV Disinfection - Add Additional Channel/Unit	$3,400,000	PFT	89%	$3,038,750
Outfall - Bypass Aerator	$100,000	PFT	5%	$5,000
Outfall - Upsize Outfall B	$500,000	PFT	100%	$500,000
Condition Improvements	$3,700,000	PFT	37%	$1,351,168
Septage / RV Dump Station Improvements	$1,700,000		0%	$0
Generator	$300,000	PFT	50%	$150,000
Total Treatment	$27,750,000			$17,618,777
Total Collection	$52,072,000			$33,783,756
Total NTS	$7,721,000			$4,802,667
Industrial Land Application	$8,200,000	MDDWF	100%	$8,200,000
Total Wastewater System	**$95,743,000**			**$64,405,200**

Preliminary SDC Analysis: Improvement Allocations

	Expansion Total Capacity	Existing Ratepayers Amt.	%	Growth Amt.	%
Allocation of Treatment Expansion Improvements					
Headworks					
Screening	10.00	1.70	17%	8.30	83%
Grit Removal	20.00	5.70	29%	14.30	72%
Primary Clarification					
PEPS	12.00	5.70	48%	6.30	53%
Convert WW Clarifiers	12.00	5.70	48%	6.30	53%
New Primary Clarifier	6.00	-	0%	6.00	100%
Secondary Treatment					
Blowers	8.89	2.83	32%	6.06	68%
Aeration Basins - Contact Stabili:	10.16	4.10	40%	6.06	60%
Secondary Clarifiers	8.80	-	0%	8.80	100%
Filtration	7.40	4.75	64%	2.65	36%
Disinfection					
Expand Existing	4.00	4.00	100%	-	0%
Add Units	16.00	1.70	11%	14.30	89%
Outfall					
Bypass Aerator	6.00	5.70	95%	0.30	5%
Upsize Outfall B	22.00	-	0%	22.00	100%
NTS					
Poplar (acres)	77.00	-	0%	77.00	100%
Wetland (acres)	24.00	17.00	71%	7.00	29%
Industrial Land Application	0.95	-	0%	0.95	100%

Preliminary SDC Analysis: Reimbursement

Function	Design Criteria	Original Cost	Growth $ %	Growth $ $
Aeration Basins	MDDWF	$2,800,000	26%	$737,320
Irrigation Facility Yard	Poplar	$4,610,000	54%	$2,495,860
McNulty property	Poplar	$939,043	29%	$273,888
Subtotal		$8,349,043		$3,507,068
Pump Stations				
Sewer Lines	PF	$6,370,637	56%	$3,551,630
Total		$14,894,822		$7,058,698

Preliminary SDC Analysis: Summary

Component	Amount
Reimbursement SDC per EDU	$616
Improvement SDC per EDU	$5,097
Combined SDC per EDU	$5,713
Current SDC	***$2,977***
Inflation Adjusted (2008-1995)	***$4,502***

Rate Study Next Steps

- ✓ **Draft Capital Improvement Plan and Implementation Schedule (cash flow)**

- **Develop rate schedule**
  - Complete cost of service analysis
  - Present revised rate recommendations
- **Refine capital financing strategy and rate increases**
- **Complete SDC analysis and methodology**

Facility Plan Implementation Next Steps

- ✓ **Draft Capital Improvement Plan and Implementation Schedule (cash flow)**
- ✓ **Draft Volume 1 – Facilities Plan**

- ✓ **Complete Collection System Planning work**
- ✓ **Draft Volume 2 – Collection and Transmission System**

- ✓ **Present Preliminary financial plan and SDC options (March 31st WAC meeting)**

- **Refine SDC Options and Rate Study**
- **Develop Draft Volume 3 – SDC and Rate Study**

- **Open House**
- **Finalize Facilities Plan – Volume 1, 2 and 3**

Further Discussion?

Opinion

503-981-3441 ◆ jhorton@woodburnindependent.com ◆ www.woodburnindependent.com

Higher fees justified to upgrade wastewater facility

In Saturday's edition of the *Woodburn Independent* there was a story outlining the city's need to upgrade its wastewater treatment facility *(Outlook for 20 years — $94 million)*. City Administrator Scott Derickson, Public Works Director Dan Brown and several of the treatment facility's staff gave us a tour, May 20, to educate about the needs in the coming years.

It was eye-opening to say the least. Not just how the city's sewage was collected, purified and put back into the Pudding River, but how much goes into the process.

It's not as simple as flushing the toilet and everything takes care of itself. There are men and women and machinery — lots of machinery — who take care of Woodburn's waste on a daily basis, sometimes up to 16 million gallons worth a day.

Unfortunately, the facility is only set up to take on 4 million gallons a day.

In addition, the federal government consistently changes the rules for how water can be put back into the environment, sometimes by just 1 degree. That 1 degree, however, can sometimes cost millions of dollars and when the government changes those regulations it doesn't come with a check to fix everything.

Woodburn is unique in that its wastewater treatment facility is self-sufficient — meaning it is not funded by property taxes or system development charges, nor is it subsidized from the city's general fund.

Individuals are charged for their water usage each month and those fees are what fund the facility. Occasionally, grants are sought and awarded, but generally speaking, it's the citizens' fees which make the facility run.

In the coming years, your water fees are going to go up, probably significantly, in order to update the facility — an expected cost of $94 million over 20 years.

This is not a case of the city trying to stick it to its citizenry. This is a city looking for a way to fix a problem, and with the growing population and amount of waste being flushed each day, higher fees are the only fair way to do it.

Nobody likes higher utilities, and anyone who reads this paper knows we generally don't support higher taxes, but the city of Woodburn must deal with this problem soon.

This topic will be up for discussion at the June 8 Woodburn City Council and we encourage the people of Woodburn to attend and educate themselves on the entire process, and not just the inevitably higher fees.

When you take a look at the big picture, you will see this is going to make Woodburn a better place to live.

The editorial is the official position of the newspaper and does not necessarily represent the opinion of any individual newspaper employee.

Government Contacts

Sen. Jeff Merkley (D-Oregon)
B40B Dirksen Senate Office building
Washington, D.C. 20510
Phone: 202-224-3753
Web site: http://www.senate.gov/
E-Mail:
senator@merkley.senate.gov

Sen. Ron Wyden (D-Oregon)
223 Dirksen Senate Office
Washington, D.C. 20510
Phone: 202-224-5244
Web site: http://www.senate.gov/

Salem, OR 97301
Phone: 503-986-1600
Toll free: 1-800-332-2313 for transfer
Fax: 503-986-1004
E-mail:
sen.petercourtney@state.or.us
Web site:
www.leg.state.or.us\courtney

Senator Fred Girod (R-Molalla/Aurora/Donald/Hubbard)
State Capitol
900 Court St. N.E., Room S-217,

Wednesday, June 3, 2009

E

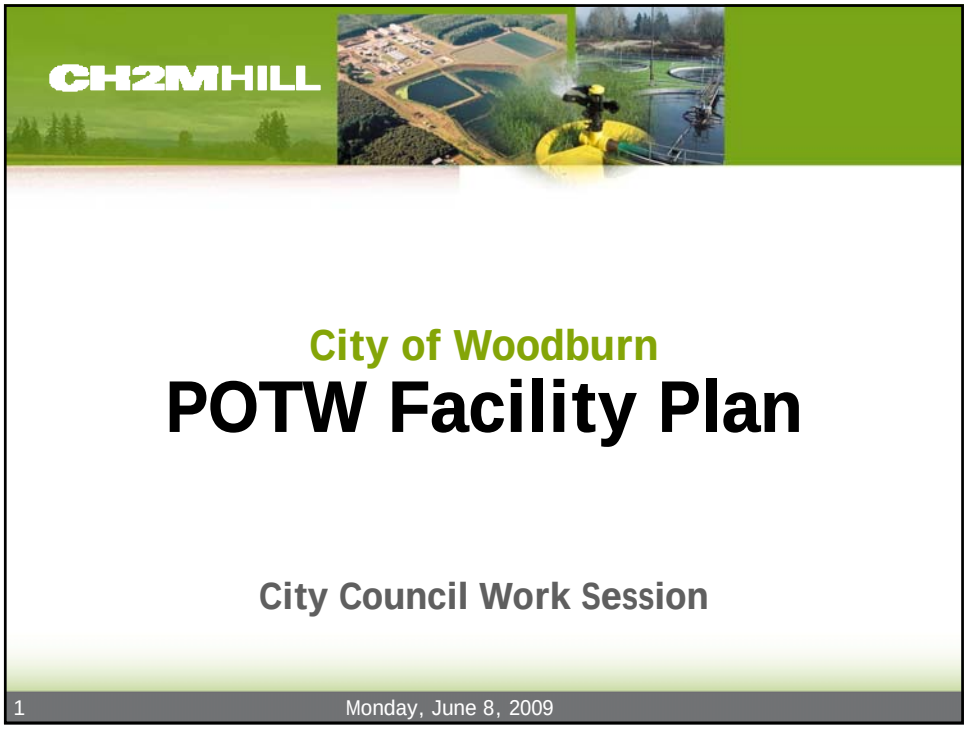
St. Paul gra

Fiber optics dela

By Charissa Bernard
Woodburn Independent

AURORA — Contrary to former reports, North Marion School District will not be installing fiber optic Internet lines this summer, Technology Director Lori Wells announced at the May 11 school board meeting.

In April, the board approved taking advantage of work being done by Willamette Education Service District (WESD) on the district's behalf, which would tap into federal e-Rate funds to bring faster Internet to North Marion at a fraction of the normal cost



City of Woodburn

POTW Facility Plan

City Council Work Session

Agenda

- Current Situation/WW System Components
- Project Background and Drivers
- Project Status
- Recommended Plan
- Early Action Projects
- Financial/Rates

Wastewater Facilities Plan

An Update to Meet a Changing Community

Council Briefing

- Background and History
- Plan Findings
- Operational Needs Today & Tomorrow
- Capital Improvements
- Plan Financing
- Conclusion

Background and History

- Update the 1995 Facilities Plan
- Compliance with the Woodburn Publicly Operated Treatment Works (POTW) National Pollutant Discharge Elimination System Permit
- Compliance with the Mutual Agreement Order (MAO) with the Oregon Department of Environmental Quality

Plan Update Addresses

- New Molalla/Pudding Sub-basin TMDLs & MOA
- Growth
- System Information
- Available and Needed Funding
- Public Education and Outreach

Plan Update Deliverables

- The Plan Update is organized as described in the DEQ *Guidelines for the Preparation of Facilities Plans and Environmental Review for Community Wastewater Projects*
- The Plan consists of three volumes:
  - Volume 1: Wastewater Treatment
  - Volume 2: Collection and Transmission
  - Volume 3: Rate Study

Planning Process Utilized

- Project Delivery Team
  - CH2M Hill
  - Water Resources Division Staff
  - Citizen Advisory Committee
- General Public Involvement
  - Open House – (Insert Date)
  - Future Open House – Date TBD

Existing Conditions

- Curtis Stultz to provide status of current operations
- Randy Scott to review the scope of services for the consultant and technical content of deliverables.

Plan Findings

- Loads and Flows
  - Used historical load and flow data with future land uses to predict future load and flows
  - This methodology is more accurate than a population based methods
  - Used Winterbrook Community Resource Planning memorandum for consistency of population increases.
  - 2030 Population – 42,151

Plan Findings

- Volume 2 – Collection and Transmission
  - Previously overlooked element of the future requirements for the Wastewater Facilities
  - Infiltration of ground and storm water into the wastewater system is a problem
  - Lift stations a reality of our topography

Randy Scott to cover this

Plan Findings

- Treatment Plant Needs
  - Immediate plant needs to meet TMDL
  - Future plant needs to meet growth
  - Plant improvements needed based upon corrective maintenance or change in operations
  - Natural treatment systems

Curtis Stultz to present this information

Plan Findings

- Commercial Allocated versus Actual Flows and Loads
  - Food processing allocations
  - Opportunities for savings
  - Local application versus treatment

Capital Improvements Needed

- Capital Improvements Needed through 2030 total $94 million
  - Capital Improvements are broken into three phases
  - Project delivery based upon system need
  - Regulatory requirements dictate initial capital outlay
  - Growth dictates improvements after 2020

Collection & Transmission

- The wastewater collection and transmission system consists of 87 miles of pipe and 8 pump stations.
- The system has been in a constant state of expansion since the first sewer lines were installed in 1910.
- Study needed to guide system improvements to cope with future growth.

Collection & Transmission

- Known system problems include existing capacity bottlenecks, reliability of pump stations, and the impact of storm and surface water infiltration and intrusion into the system.
- System capacity to address infiltration and intrusion is 300% greater than the wastewater demand alone.

Collection & Transmission

- Recommendations of the study for addressing collection & transmission are:
  - Wet Weather Flow Management
  - System Repair, Rehabilitation, and Replacement

Collection & Transmission

- Addressing the collection and transmission needs contributes $52 million of the total $94 million identified for the 20 year wastewater CIP.
- System Development Charges will pay for growth and increased capacity.
- Rates must pay for wet weather flow management, repair, rehabilitation, and replacement.

Collection & Transmission

- What would it cost to replace our 87 miles of wastewater collection and transmission lines?

$390 million

Financial Impact

- $94 million over 20 years to improve treatment facilities
- What does it mean to the average home in Woodburn?
  - 2008 – 2009 $34.34
  - 2009 – 2010 $40.01
  - 2010 – 2011 $45.29
  - 2011 – 2012 $49.14
  - 2012 – 2013 $53.31

Financial Impact

- What does it mean to the average home in Woodburn?
  - 2013 – 2014 $56.11
  - 2014 – 2015 $59.06
  - 2015 – 2016 $62.18
  - 2016 – 2017 $65.42
  - 2017 – 2018 $68.86
  - 2018 – 2019 $72.47

Financial Impact

- Project Delivery Team and Citizen Advisory Committee recommended the above **"Pay As You Go"** with an annual rate increase.
- Other Options include:
  - Stair step rate increases to avoid the annual rate increase. Increase would be averaged for a 3 to 5 year period.

Financial Impact

- Other Options include:
  - Bond for capital improvements and establish rate structure to pay off debt service. As grants and revolving fund loans are acquired, by down bond debt and lower rates as possible over the life of the bond (10 years).
  - Not fully implement the Wastewater Facilities Plan Update. (Would need to expend approximately $5 to $6 million to comply with NPDES permit requirements and backlogged major maintenance.)

tiful thing to have in our city. Howev- support," said Tuley. "I feel the city this project. It is one of the best and See GREENWAY, page 2

First Leadership WB class graduates

By Charissa Bernard
Woodburn Independent

At the monthly Chamber Forum luncheon June 10, the inaugural class of Leadership Woodburn participants was recognized for work completed did over the past nine months.

This class is made up of students from Gervais, North Marion and Woodburn high schools, along with professional adults employed by local banks, schools, the city of Woodburn, the *Woodburn Independent* and the Army National Guard. These 20 individuals met on a monthly basis for tours of different community organizations including city and state governments, medical facilities, area high schools and local businesses. The program is free to the students and each adult pays a nominal fee.

"You would think that in a program like this, the adults would teach the kids, but I think it's at least equal going back and forth," Woodburn Area Chamber of Commerce Executive Director Don Judson said at the ceremony.

Charissa Bernard | Woodburn Independent

Deb Yager accepts a gift from Ferren Taylor, one of the Woodburn Leadership participants, on behalf of the entire class. Yager stepped in and ran the program after the previous coordinator left for another job.

Throughout the nine months of meetings, the Leadership Woodburn group worked through a motivational workbook titled, "What's your red rubber ball?" The point of the monthly assignments was for each participant to build a list of what motivates them in life, and how to use those motivations to be a stronger leader in their communities.

See LEADERSHIP, page 2

Wastewater fees will take significant hikes

Bills could average $50 a month in the next year

By Rachel Cavanaugh
Woodburn Independent

WOODBURN — The city of Woodburn has unveiled the draft of a plan that will see monthly sewage rates double in the next eight years.

At a presentation before the city council June 8, Public Works Director Dan Brown discussed strategies for creating the $94 million that is needed in updates and infrastructure over the next two decades.

He emphasized all increases to come are non-optional, as they are indicated by new regulations.

"There is nothing that we're proposing here that is discretionary that we can take away," said Brown. "Maybe we can defer some of (the environmental upgrades) without creating a catastrophic environmental disaster, but in the end, it's going to have to be addressed. It's not like (public works is) asking to build a new building or something like that."

He pointed out that Woodburn's rates cannot be compared to other cities at this point, as it is one of the first to have to address the new Molalla sub-basin requirements.

The only other city so far is Newberg, which has already received concerns from residents.

As of now, Brown said, there are two options the city is looking at: one is to make smooth, gradual increases every year. The other is to make a series of incremental, more dramatic leaps.

Either way, the average home (700 cubic feet of water per month) will see rates jump from $38.36 to $72.52 by 2017.

By next year (2010-11), there will be an initial increase of $7 to $13 per month, depending on which plan is adopted.

By 2029-30, rates will have increased to $95.50 per month, (up 148 percent), he said.

See FEES, page 2

Kilmurray pleads guilty in Washington County

The Woodburn native admits to 15 separate counts of theft, forgery and fraud

Gervais narrows police chief search

By Rachel Cavanaugh
Woodburn Independent

GERVAIS — The city of Gervais hopes to have a new police

here as quickly as possible."

Interim Police Chief Rick Rhodes ended his three-month term June 5, and Sasaki said he is eager to get a permanent re-

ment that will become a little bit more professionalized than we've had.

"Rick has done a number of different things that have started

community welcomi
home Chief Russell.

This will be
evening of good old
ioned family fun
games including
war, three-legged
Frisbee and more.

For more informa
or to volunteer pleas
contact Kelly Long
951-0321 or Deb Ya
503-981-7378.

Kiwanis Safe
Camp July 13

The Woodburn Ki
nis Safety Camp wil
place July 13-16 at
coln Elementary Sch
from 9 a.m. to noon
day for children age
Registration form
available at the Woo
Aquatic Center. Cos
the camp is $25. The
camp is also in need
teen counselors. For
information or quest
call Gina Audritsh a
503-982-2344 or 50
951-2344.

Woodburn Pr
Fundraiser

Woodburn Proud,
is having a PartyLite
Fundraiser starting M
29 through June 16.
There are three great
PartyLite candle opti
to choose from with
of all funds going to
Woodburn Proud. To
chase candles or to v
teer to sell contact K
Long 503-951-0321
Tana Jo Webb 503-9
5514.

Greenway: Construction could begin this summer

CONTINUED FROM PAGE 1

"I hope council doesn't lose sight of the fact that Hermanson Pond and the Greenway in Phase 1 is public property," Ellsworth said.

One of the biggest concerns about pulling out of the project, according to city staff, was that it is linked to an Oregon State Parks Local Government Grant Program, which gave $210,000 to the project. Of that, the city had already spent $95,000.

According to City Administrator Scott Derickson, abandoning the project this late in the game could have held significant consequences.

"The city has already expended some of those grant funds," Derickson said, prior to the meeting. "Breaching contracts with the state is not something that they take lightly. When talking about funding for future grants, part of the consideration is your ability to deliver on the project."

He pointed to a pending $750,000 grant to update Centennial Park that might have been jeopardized.

The project was initially approved in 2007, but had been stalled since a public hearing in March, when controversy among property owners emerged. A six-member community panel was set up to take a closer look.

Monday night, Jim Row, community services director for Woodburn, presented nine updates to the project, based on recommendations by the panel.

One modification was to build the trail at least 25 feet from property lines south of the pond. Another was to use screened gravel fines rather than wood chips in the sections from Wilson Streets to Deer Run Street.

Others included building the trail along the tree line rather than the east property line in Hermanson Park 3; mowing a four-foot buffer on each side of the gravel fines (where the terrain allows); moving the observation platform from the east side of the pond to the clearing at the north side; and removing a cherry tree adjacent to the proposed sidewalk on Marshall Street to remain a consistent 5 feet in width.

"These nine modifications … were not significant enough to change the funding mechanism of the park, but would get at some of the concerns allowing us to move forward in a way that was the best compromise," said Derickson.

Security modifications included providing good signage indicating pathway rules at all key entry points; posting 'Private Property and 'No Trespassing' signs on the tennis and basketball courts; and providing street lighting for security at the trailheads.

In addition to the modifications, the Woodburn Police De-

Fees: Public will have input on how fees are implemented

CONTINUED FROM PAGE 1

Brown said he anticipates concern from citizens, but stressed the city will do what it can to create a rate structure that is most in line what the people prefer.

"The smooth curve means we do something every year as far as rate increases go," he said.

"The other one is that we would make a little bit bigger rate increase and then not have any adjustments for a couple of years, and then do another increase. What's more palatable to (council's) constituents as far as rate increases?"

Brown said there are about 30 major capital improvements on the table for the plant.

Beyond its own outdated infrastructure, regulations adopted in January by the Department of Environmental Quality (DEQ) are largely pushing the move.

Key changes will involve reducing ammonia levels and decreasing the water temperature an average of 2 to 3 degrees Celsius at the wastewater's discharge point.

"There is roughly about $34 million that's required associated with the treatment plant itself and there's about another $60 million with the collections system," he said.

Brown said at this point, the city will begin a more comprehensive stage of its public involvement period, which began 17 months ago with a public advisory committee.

That group used a consulting firm to access the facility's existing capacity and condition. The city spent about $860,000 on the project, in scientists and engineering time.

Over the coming summer, Brown will speak to neighborhood groups. Around August the city will hold an open house.

He said he guesses the council will adopt a resolution in September for the plan and initiate a formal public hearing then.

Brown said he understands the rate increases hurt during a time when residents are feeling the economic crunch, but added there is little the city can do to avoid the adjustments.

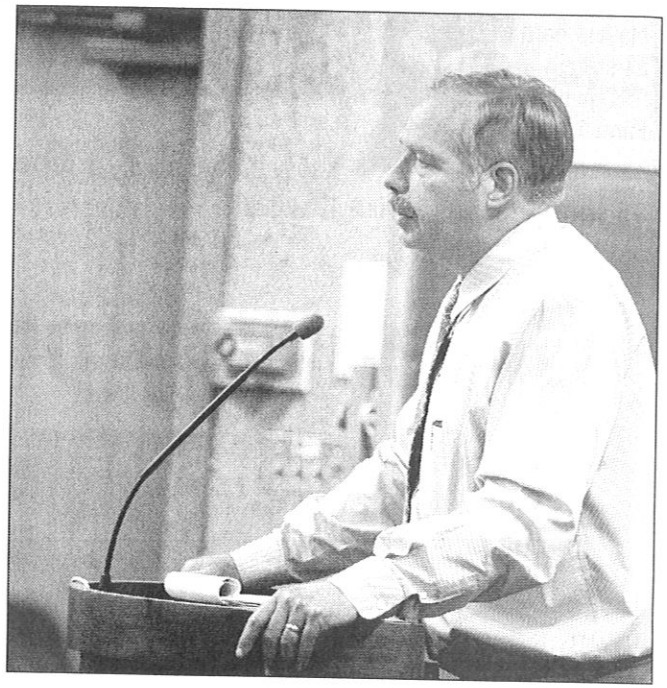
"We can't control the timing on this particular type of need," said Brown. "The regulatory requirements are passed. We have to meet those requirements as far as compliance. We cannot control that schedule.

"This is one of the key urban services that we provide and we can't really defer repairing equipment that provides reliability and protects the environment, even though it's certainly not a convenient time or a preferred time to do that," he continued.

"The truth of the matter is there's never a good time to confront these types of systematic improvements. Even if the economy was good, this would still be a painful expenditure," Brown said.

Unlike some urban wastewater treatment plants, which draw money from their city's general budget, the plant in Woodburn is completely self-sufficient.

That means 100 percent of building, operational and maintenance costs for the facility come directly from user rates, operating much like a private enterprise, Brown said.



RACHEL CAVANAUGH | WOODBURN INDEPENDENT

Woodburn Public Works Director Dan Brown talks about potential fee increases at the June 8 Woodburn City Council meeting.

MEMORANDUM
WATER RESOURCES DIVISON
PUBLIC WORKS DEPARTMENT

To: Wastewater Citizen Advisory Committee

From: Randy Scott, Water Resources Division Manager

CC: Dan Brown, Public Works Director

Date: June 25, 2009

Re: Wastewater Facilities Plan Open House

The Wastewater Facility Plan Open House has been scheduled for July 15th, between the hours of 5:00 pm to 8:00 pm at City Hall Council Chambers. You are welcome to attend and participate in the Open House.

As my June 3, 2009 memo indicated, on June 8th staff presented to the City Council in a workshop session a briefing on the Wastewater Facilities Plan effort. On conclusion of the presentation the City Council had some questions and discussion but concurred that we should continue with the Open House, Public Education effort and complete the Wastewater Advisory Committee task.

After the Open House we will schedule our next WCAC meeting. Prior to that though, I hope to deliver to each of you for your review, Volume III, SDC's and Rates. I appreciate your patience with the delay in our effort, but hopefully we will be able to wrap up committee tasks at the next meeting. If you should have any questions please don't hesitate to contact me by phone 503-980-2427 or by email at Randy.scott@ci.woodburn.or.us .

Thank you,

Randy

WOODBURN OPEN HOUSE | **RECEPCION GENERAL**

Clean Water: Back to Nature • Agua Potable: De nuevo a la naturaleza!

Wastewater Facility Plan Update

- What is the plan
  - The plan is comprehensive document that examines the entire existing wastewater collection, treatment and disposal system
  - The plan identifies existing and future potential operational and performance problems.
  - The plan projects future wastewater loads, evaluates and recommends alternatives for reliably meeting discharge permit requirements for the next twenty years.

Wastewater Facility Plan Update

- Why do we need this plan
  - The Wastewater Facilities Plan serves as education/business plan for the public, community, decision makers, state and federal funding and regulatory agencies.
  - The plan demonstrates how the proposed improvement alternatives are cost effective and environmentally sound for the collection, treatment and disposal of the cities wastewater.

Wastewater Facility Plan Update

- Why do we need this plan (continued)
  - The plan provides the cost of the required facility improvements, maintenance and operations.
  - Examines current user rates and system development charges for adequacy to fund the required operational, maintenance and growth related facility improvements.
  - The plan develops a financial plan which identifies when and the amount of revenue needed for the improvements through out the 20 year period.

Wastewater Facility Plan Update

- What triggered the need
  - The current Wastewater Facilities Plan was completed in 1995 and it developed a two phased approach
    - Phase one of the Facilities Plan Improvements were completed and placed on line in 2001 for a cost of 38 million
    - Due to regulatory changes, increased flows and loads, Phase Two required additional planning to meet the regulatory discharge limits.

Wastewater Facility Plan Update

- What triggered the need (continued)
  - The current NPDES permit was issued in 2004 with compliance limits for winter time ammonia and compliance schedule for excess thermal loading limits.
  - Due to difficulty meeting regulatory limits and the compliance schedule, the City entered into a Mutual Agreement Order (MAO) with DEQ in May of 2007. The MAO relaxed the winter time ammonia limits and extended the compliance schedule for meeting excess thermal load limits.

Wastewater Facility Plan Update

- What triggered the need (continued)
  - The MAO based the compliance schedule for winter time ammonia limits and excess thermal loading limits upon DEQ adoption of the Water Quality Management Plan for the Molalla-Pudding River Sub Basin. That approval was issued in December of 2008.
  - The approved WQMP develops more stringent limits for winter time ammonia and puts the compliance schedule in motion for excess thermal loading limits, this requires the city to be in compliance by approximately 2013.
  - Current NPDES permit expires in November of 2009.

Wastewater Facility Plan Update

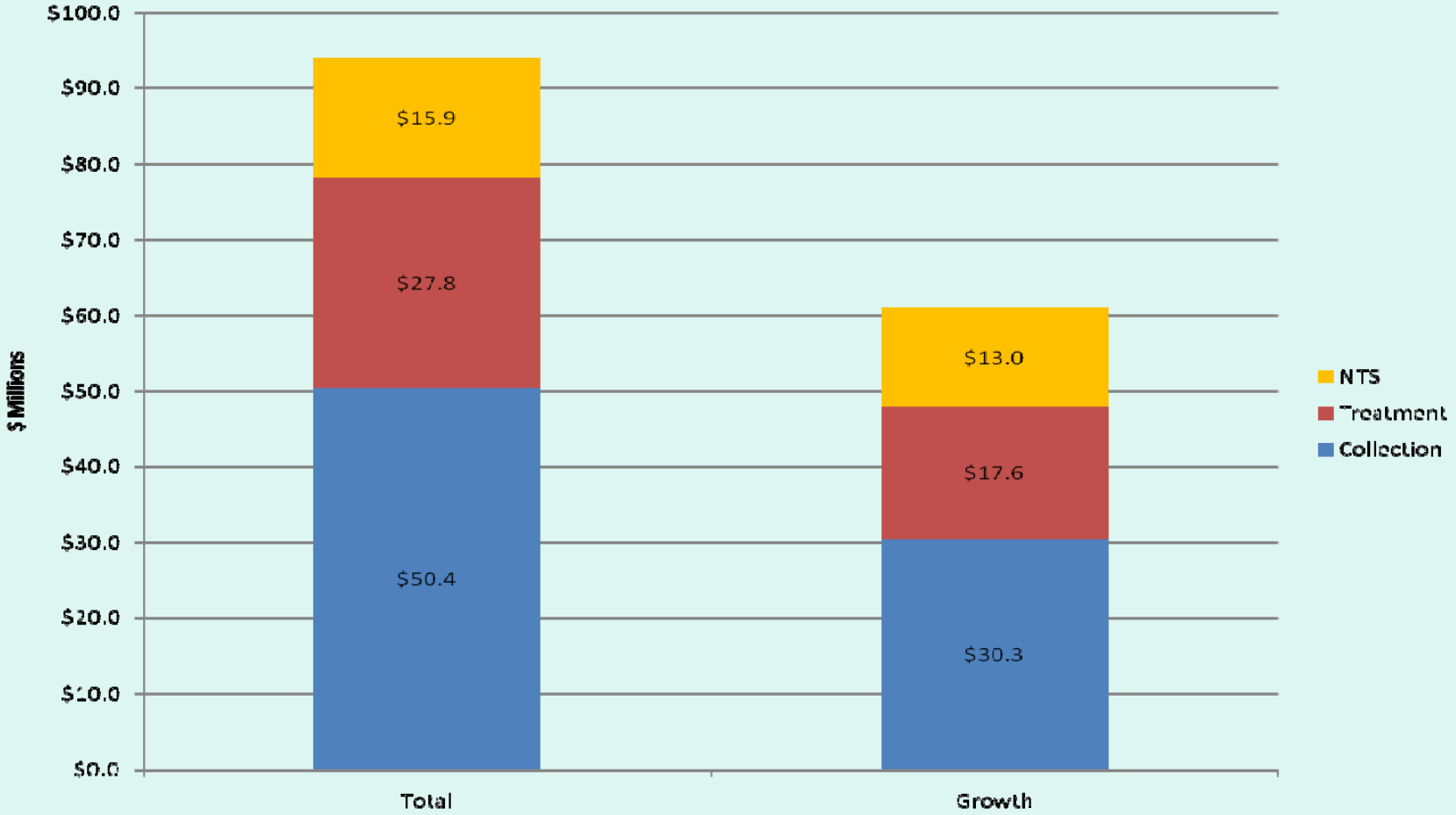
- Plan Status
  - The Wastewater Citizen Advisory Committee, the consultant CH2M Hill and staff have been working on this plan since April of 2008
  - Two open houses have been held, the first in November 2008 and the second in July of 2009.
  - City Council has been briefed on the draft results of the plan
  - The plan will consist of three volumes
    - Volume One, Wastewater Treatment, complete in draft form
    - Volume Two, Wastewater Collections, complete in draft form
    - Volume Three, Wastewater Rates and SDC's draft is being developed.

Wastewater Facility Plan Update

- Plan Findings
  - The 20 year plan has a Capital Improvement expenditure of approximately 94 Million
  - The Collection System Improvements amount to approximately 50 million of the identified cost through out the 20 year plan
  - The Liquid Treatment System Improvements amount to approximately 28 million of the identified cost through out the 20 year plan
  - The Natural Treatment Systems Improvements amount to approximately 16 million of the identified cost through out the 20 year plan

Wastewater Facility Plan Update

Facility Plan Costs by Component



Clean Water: Back to Nature • Agua Potable: De nuevo a la naturaleza!

Table 10-9: Recommended CIP Using Allocated Food Processing Flows

City of Woodburn
Facilities Plan
Capital Improvement Plan Implementation Summary

	Calendar Year																					
	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	Total
PEAK FLOW, MGD	19	19.5	20	20.5	21	21.5	22	22.5	23	23.5	24	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4	26.7	27	
Jul-Aug Flow to Poplar (mgd)	0.8	0.9	0.9	1.0	1.1	1.2	1.3	1.3	1.4	1.5	1.6	1.7	1.7	1.8	1.9	1.9	2.0	2.1	2.2	2.2	2.3	
Floodplain Wetland Area Needed (ac)	7	8	8	9	10	11	11	12	13	13	14											
Collection System																						
Mill Creek PS Project - Phase 1	$ 336,000	$ 784,000																				$ 1,120,000
Mill Creek PS Project - Phase 2									$ 666,000	$ 1,332,000	$ 1,332,000											$ 3,330,000
I-5 PS Project				$ 422,000	$ 1,688,000																	$ 2,110,000
I-5 FM Project				$ 200,000	$ 800,000																	$ 1,000,000
Stevens PS Project							$ 90,000	$ 360,000														$ 450,000
Stevens FM Project						$ 30,000	$ 120,000															$ 150,000
Young Street Pipeline Project						$ 190,400	$ 761,600															$ 952,000
Front Street Pipeline Project							$ 112,000	$ 448,000														$ 560,000
Mill Creek Interceptor Pipeline Project																				$ 371,000	$ 1,484,000	$ 1,855,000
Progress Way Pipeline Project				$ 144,000	$ 576,000																	$ 720,000
Hayes Street Pipeline Project	$ 215,000	$ 860,000																				$ 1,075,000
Brown Street Pipeline Project						$ 92,000	$ 368,000															$ 460,000
Sanitary Sewer Service to North Area (2005 PFP Project)																$ 990,000	$ 3,960,000					$ 4,950,000
Sanitary Sewer Service to Southwest Industrial Area (2005 PFP Pump Station Project)																			$ 243,000	$ 486,000	$ 486,000	$ 1,215,000
Sanitary Sewer Service to Southwest Industrial Area (2005 PFP Pipeline Project)																			$ 1,980,000	$ 3,960,000	$ 3,960,000	$ 9,900,000
Area Outside UGB												$ 860,000	$ 860,000	$ 860,000	$ 860,000	$ 860,000	$ 860,000	$ 860,000	$ 860,000	$ 860,000	$ 860,000	$ 8,600,000
Current CIP Projects (Funds 465, 472)	$ 460,000																					$ 460,000
Replacement Costs-Collection System Piping		$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 460,000	$ 9,200,000
Equipment Replacement (VAC Truck)			$ 350,000																			$ 350,000
Pump Station Upgrades (Existing Upgrades - Reliability)	$ 50,000	$ 75,000	$ 75,000	$ 75,000																		$ 275,000
SUBTOTAL - COLLECTION SYSTEM	$ 1,061,000	$ 2,179,000	$ 885,000	$ 1,301,000	$ 3,624,000	$ 772,400	$ 1,911,600	$ 1,268,000	$ 1,126,000	$ 1,792,000	$ 1,792,000	$ 1,320,000	$ 1,320,000	$ 1,320,000	$ 1,320,000	$ 2,310,000	$ 5,280,000	$ 1,320,000	$ 3,543,000	$ 6,137,000	$ 7,250,000	$ 48,732,000
SUBTOTAL INDUSTRIAL LAND APPLICATION	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,640,000	$ 3,280,000	$ 3,280,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,200,000
POTW	PHASE 2A				PHASE 2B				PHASE 2C			PHASE 3A										
Headworks - Screening					$ 380,000	$ 760,000	$ 760,000															$ 1,900,000
Headworks - Grit Removal									$ 260,000	$ 520,000	$ 520,000	$ 260,000	$ 520,000	$ 520,000								$ 2,600,000
Primary Sedimentation - PEPS					$ 600,000	$ 1,200,000	$ 1,200,000															$ 3,000,000
Primary Sedimentation - Convert WW Clarifiers	$ 50,000				$ 340,000	$ 680,000	$ 680,000															$ 1,750,000
Primary Sedimentation - New Primary Clarifier												$ 480,000	$ 960,000	$ 960,000								$ 2,400,000
Secondary Process - Blower and DO Upgrades	$ 260,000	$ 520,000	$ 520,000																			$ 1,300,000
Secondary Process - Contact Stabilization Modifications	$ 60,000	$ 120,000	$ 120,000																			$ 300,000
Secondary Process - New Secondary Clarifier									$ 500,000	$ 1,000,000	$ 1,000,000											$ 2,500,000
Filtration					$ 380,000	$ 760,000	$ 760,000															$ 1,900,000
UV Disinfection - Expand Existing Equipment	$ 80,000	$ 160,000	$ 160,000																			$ 400,000
UV Disinfection - Add Additional Channel/Unit									$ 420,000	$ 840,000	$ 840,000	$ 260,000	$ 520,000	$ 520,000								$ 3,400,000
Outfall - Bypass Aerator	$ 20,000	$ 40,000	$ 40,000																			$ 100,000
Outfall - Upsize Outfall B									$ 100,000	$ 200,000	$ 200,000											$ 500,000
Condition Improvements	$ 560,000	$ 1,120,000	$ 1,120,000						$ 180,000	$ 360,000	$ 360,000											$ 3,700,000
Septage / RV Dump Station Improvements									$ 340,000	$ 680,000	$ 680,000											$ 1,700,000
Generator	$ 60,000	$ 240,000																				$ 300,000
SUBTOTAL - POTW	$ 1,090,000	$ 2,200,000	$ 1,960,000	$ -	$ 1,700,000	$ 3,400,000	$ 3,400,000	$ -	$ 1,800,000	$ 3,600,000	$ 3,600,000	$ 1,000,000	$ 2,000,000	$ 2,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 27,750,000
Natural Treatment Systems (NTS)																						
Poplar Tree Expansion on City Owned Land	$ 532,000	$ 532,000																				$ 1,064,000
Land Purchase	$ 885,000																					$ 885,000
Poplar Tree Expansion on Additional Purchased Land			$ 350,000	$ 350,000			$ 364,000	$ 364,000			$ 112,000	$ 112,000										$ 1,652,000
Lagoon Wetlands	$ 550,000	$ 550,000																				$ 1,100,000
Floodplain Wetlands	$ 500,000	$ 500,000		$ 200,000	$ 200,000																	$ 1,400,000
Wetland Conveyance and New River Outfall	$ 810,000	$ 810,000																				$ 1,620,000
SUBTOTAL - NATURAL TREATMENT SYSTEMS	$ 3,277,000	$ 2,392,000	$ 350,000	$ 550,000	$ 200,000	$ -	$ 364,000	$ 364,000	$ -	$ -	$ 112,000	$ 112,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,721,000
Total	$ 5,430,000	$ 6,770,000	$ 3,200,000	$ 1,850,000	$ 5,420,000	$ 4,170,000	$ 5,680,000	$ 1,630,000	$ 2,930,000	$ 5,390,000	$ 5,500,000	$ 2,430,000	$ 4,960,000	$ 6,600,000	$ 4,600,000	$ 2,310,000	$ 5,280,000	$ 1,320,000	$ 3,540,000	$ 6,140,000	$ 7,250,000	$ 92,400,000

Wastewater Facility Plan Update

Rate Implementation Options

Rate Option	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Smooth	12.00%	17.00%	14.00%	14.00%	5.00%
Bill	*$38.46*	*$45.00*	*$51.30*	*$58.48*	*$61.40*
Intermittent	12.00%	34.00%	0.00%	0.00%	15.00%
Bill	*$38.46*	*$51.54*	*$51.54*	*$51.54*	*$59.27*

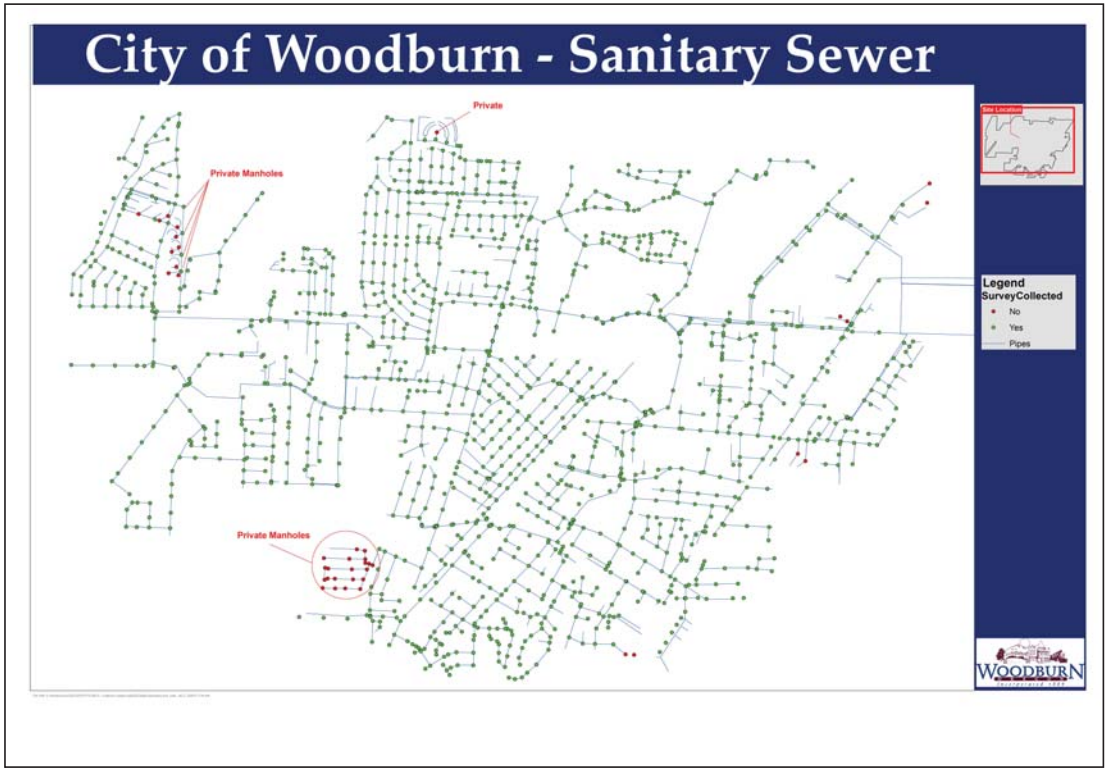
	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19
Smooth	5.00%	5.00%	3.50%	3.50%	3.50%
Bill	*$64.48*	*$67.70*	*$70.07*	*$72.52*	*$75.06*
Intermittent	0.00%	0.00%	23.00%	0.00%	0.00%
Bill	*$59.27*	*$59.27*	*$72.90*	*$72.90*	*$72.90*

SDC Comparison
Single Family Residential

	Sewer	Water	Streets	Parks	Storm	Total
Gresham (Springwater)	$5,056	$4,153	$6,734	$9,039	$6,052	$31,034
Gresham (Pleasant Valley)	$5,056	$4,153	$4,906	$8,137	$2,326	$24,578
West Linn	$2,539	$6,698	$4,721	$8,029	$439	$22,426
Neskowin	$10,595	$7,535				$18,130
Philomath	$5,719	$6,228	$3,488	$684	$1,080	$17,199
Silverton	$4,392	$3,987	$3,705	$1,205	$1,375	$14,664
Wilsonville	$4,068	$4,345	$3,082	$2,451	$482	$14,428
Springfield (Pending)	$4,495	$3,171	$2,053	$2,858	$1,507	$14,084
Newberg	$5,236	$5,394	$2,655	$0	$287	$13,572
Grants Pass	$2,463	$2,366	$5,656	$2,552	$412	$13,449
Woodburn (preliminary)	**$5,622**	**$2,085**	**$3,532**	**$1,752**	**$275**	**$13,266**
Dundee	$5,478	$4,782			$2,278	$12,538
Salem	$2,805	$4,184	$1,815	$3,154	$449	$12,407
Creswell	$4,746	$5,277	$627	$1,616		$12,266
Corvallis	$3,163	$1,052	$2,230	$5,161	$215	$11,821
Portland	$3,053	$2,995	$2,496	$1,883	$585	$11,012
Veneta	$3,380	$2,014	$1,808	$3,414	$156	$10,772
Aurora	$2,032	$4,153	$2,095	$2,205	$159	$10,644
Woodburn (current)	**$2,977**	**$2,085**	**$3,532**	**$1,752**	**$275**	**$10,621**
Springfield (Existing)	$2,376	$3,171	$1,043	$2,858	$1,000	$10,447
Eugene	$1,670	$3,251	$1,621	$3,213	$505	$10,259
Junction City	$6,669	$1,100	$1,116	$1,090		$9,975
Harrisburg	$1,888	$2,540	$2,291	$1,297	$672	$8,688
Turner	$5,000	$2,400	$400	$850	$0	$8,650
Cottage Grove	$958	$775	$776	$239	$1,255	$4,003

Sources:
LEAGUE OF OREGON CITIES MULTI-CITY SDC COMPARISON
MAY 2007 (WITH ***FEB '08*** ADDITIONS)
Additional internet search

Collection System Mapping Objectives



- **Hydraulic Modeling**
  - Determines hydraulic capacity of the existing collection system
  - Actual flow data used to calibrate the model, reflecting actual collection system response
  - Theoretical storms and increased flows (growth) used to determine future system response
- **GIS Update**
- **Computerized Maintenance Management System (CMMS)**
- **Capacity Management Operations and Maintenance (CMOM)**

Computerized Maintenance Management System (CMMS)

What is it?

- **Software application package that helps manage the maintenance of infrastructure, equipment and facility assets.**
- **Tracks preventive maintenance schedules, asset inspection results, work history, work costs, problem reports, and material/equipment inventories.**
- **Allows managers to measure performance measurement**
- **Increases planning efficiency**



What are the benefits?

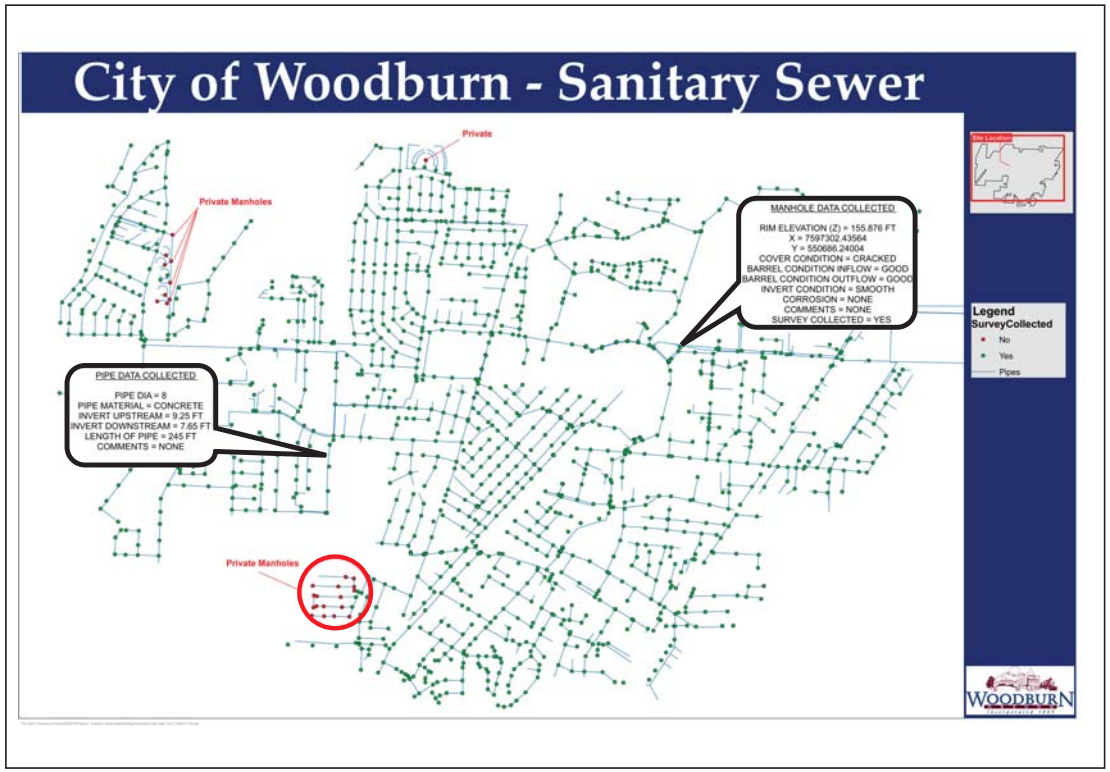
1. Improved citizen response.
- Track of complaints and requests for service.
- Access to complete information.
- Reduce system problems with a preventive maintenance program

2. Improved efficiency resource use.
- Measure time, materials, and equipment needed to complete specific maintenance tasks.
- Identify problem areas and adjust maintenance plans.
- Avoids duplicating of work.
- Reduces costs and avoid service interruptions.

3. Improved focus for maintenance activities.
- Focus maintenance activities for greatest benefit.
- Improve preventative maintenance but tracking problems, maintenance activities, or causes and failures by asset type or by specific assets.
- Rank and prioritize major repair and rehabilitation projects by tracking regular inspection results on an asset specific basis.

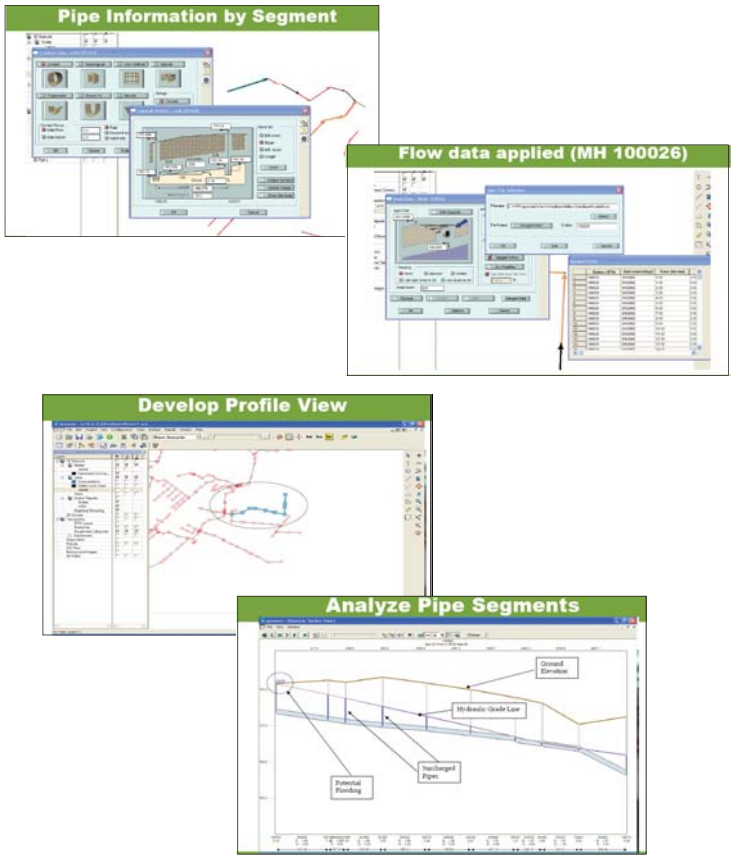
4. Improved response to government questions and requirements.
- Access the information required for legal and regulatory reporting.

Geographical Information Systems (GIS)



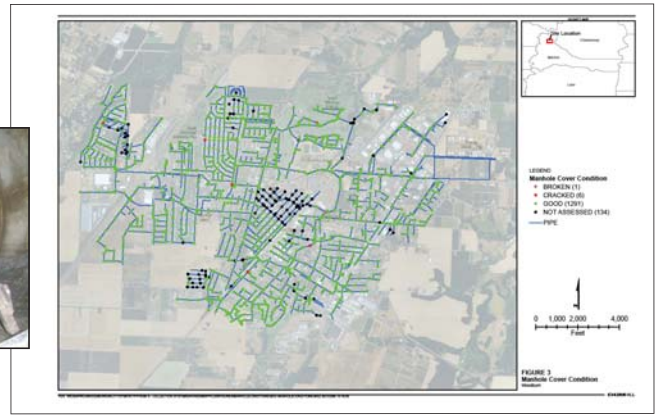
- **All mapping data and information stored in Woodburn's existing GIS**
- **Require similar information for all future expansions**
- **GIS allows quick retrieval, updates and use of information**
- **Mapping data will also be used to populate the new Computerized Maintenance Management System (CMMS)**
  - Work Orders, capital improvement planning, etc.

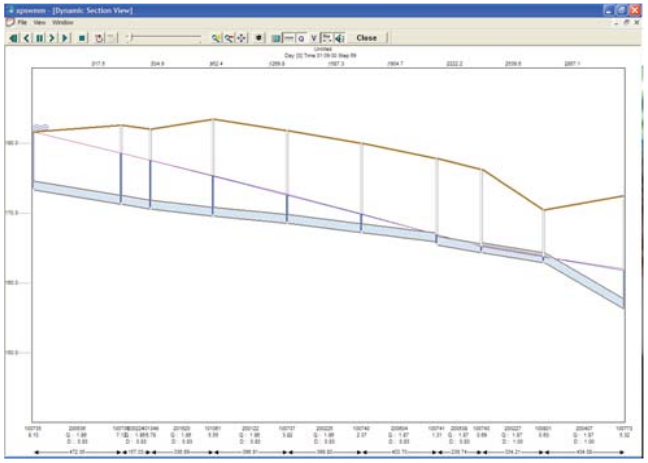
Collection System Mapping



- **Mapping data provides the basis for the computerized hydraulic modeling work**
  - Used to determine hydraulic capacity of the existing system
  - Actual flow data used to calibrate the model, reflecting actual system response
  - Theoretical storms and increased flows are imposed on the calibrated model to determine future system response

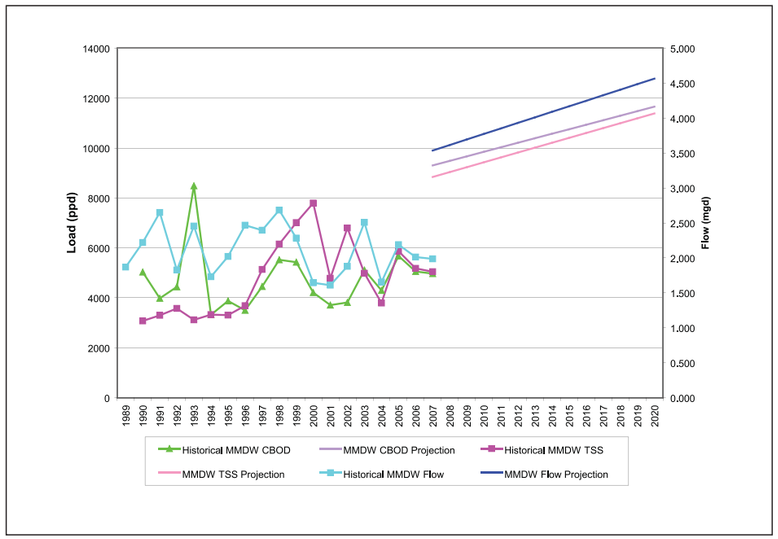
Collection System Capital Planning

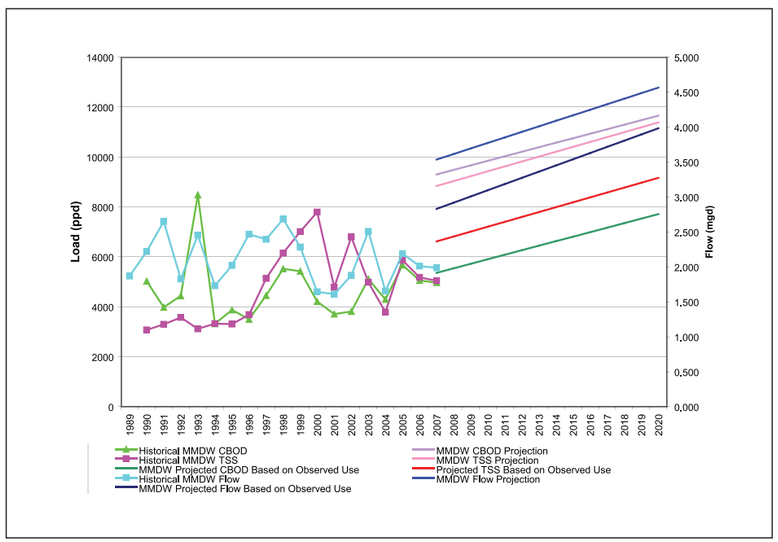




- **Condition Assessment**
  - Determines upgrades and repairs
  - Determine timing for improvements
- **Hydraulic Modeling**
  - Identify existing and projected bottlenecks
  - Determine capacity needs and improvements
  - Determine timing for improvements
- **Condition Assessment and Hydraulic Modeling Results are combined to create the Capital Improvement Plan**

Flow and Load Projections





- **Oregon DEQ requires consistency with adopted Comprehensive Plans**
  - Woodburn adopted Comp Plan in 2005
  - Expanded the UGB
  - Projected Growth through 2020
- **Utilizing actual plant data to define existing flow and load characteristics**
- **2020 Projections Based on approved Comp Plan and UGB**
  - 2.8% growth rate for residential
  - Commercial lands 100% developed
  - Industrial land 75% developed
- **Utilizing "Growth Rate" rather than specific population numbers captures demographics**
- **Residential/Commercial flows and loads are consistent and easy to estimate.**
- **Important to separate the Industrial component from the residential/commercial**
- **Food processors have a critical impact on the POTW**
  - Loadings impact, not flow
  - Impact is seasonal

Molalla Pudding Subbasin

Total Maximum Daily Load (TMDL)

POINT SOURCES:

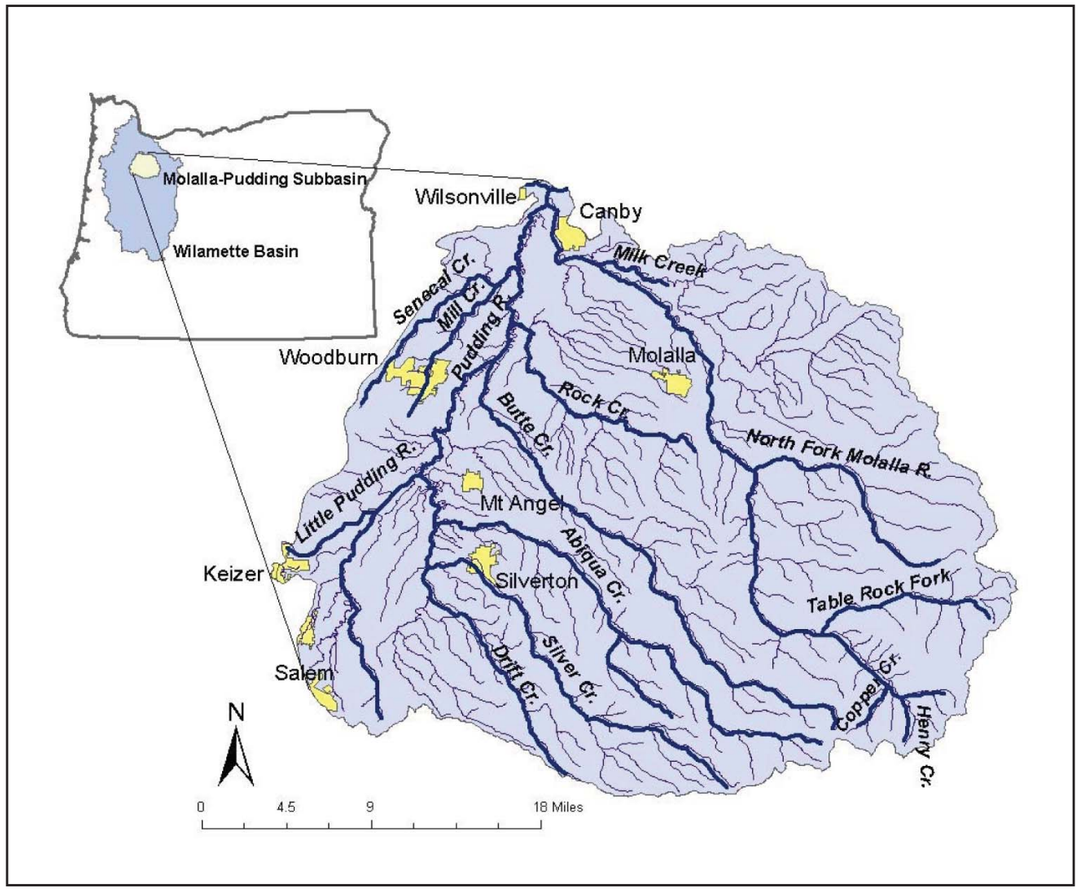
- Temperature: Cold water is essential for resident salmon and trout

NON POINT SOURCES:

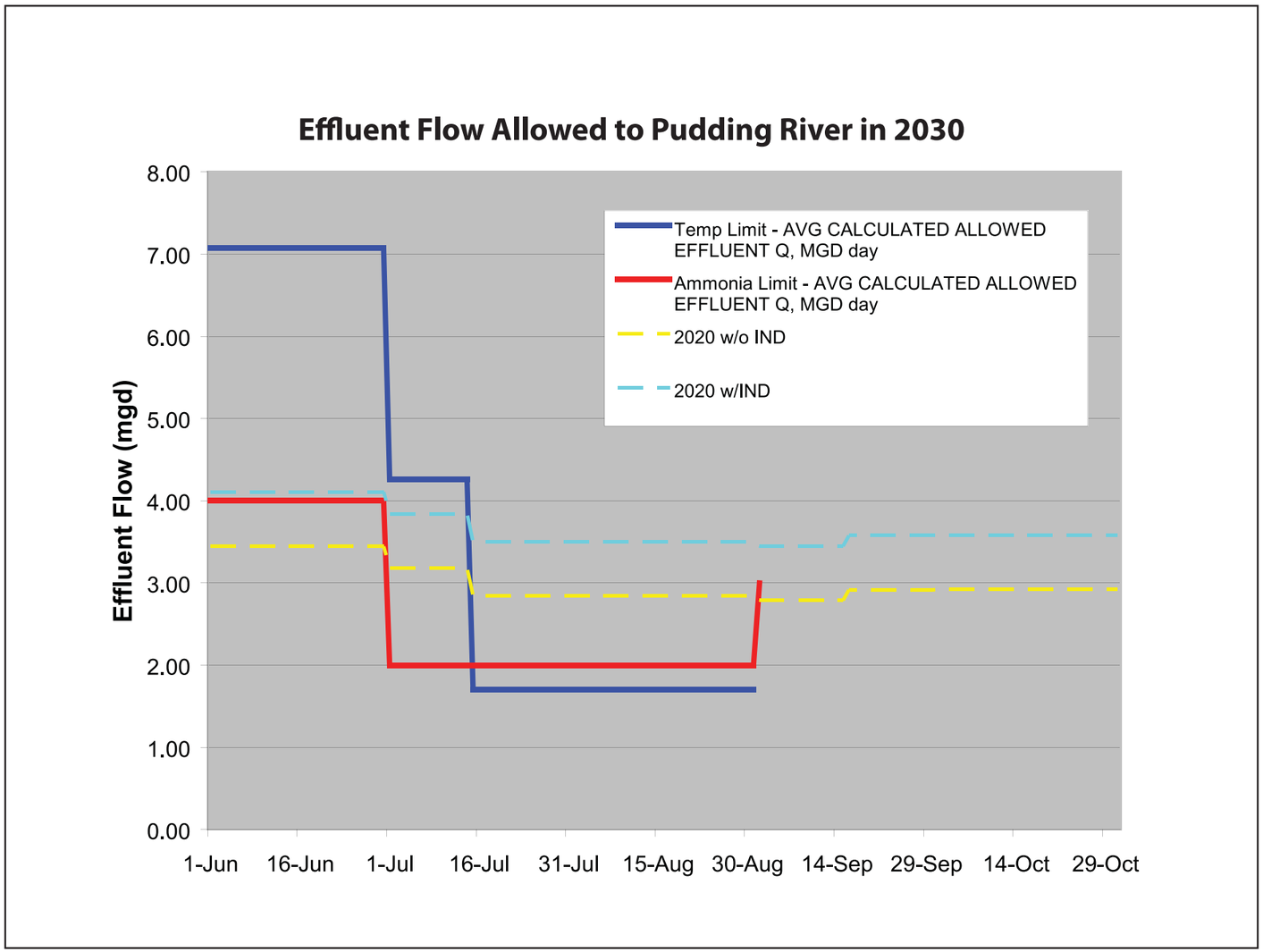
- Bacteria
- Nitrate
- Pesticides
- Metals

Ammonia

- High levels can be harmful to aquatic life
- Most critical is summer, when water temperature is higher, therefore
- Effluent discharge is limited in the summer



Allowable WWTP Discharge in Summer Months



Natural Treatment Systems **Pilot Studies**

The City of Woodburn is researching several innovative natural treatment system (NTS) strategies through the Pilot Studies project being conducted in cooperation with Oregon State University and CH2M HILL. The project addresses the technical and regulatory questions that need to be answered before these NTS strategies can be implemented. These technologies may reduce the cost of expanding the City's wastewater system. A brief summary of the pilot studies follows.

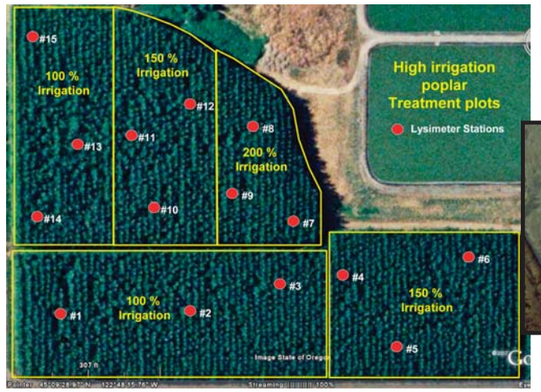
High Rate Irrigation: More irrigation water is applied to the poplar tree stand than is consumed by it. The excess water recharges underlying groundwater. This technology could reduce expansion costs by allowing the City to manage more recycled water per unit area of poplar trees.

Hyporheic Discharge: The "hyporheic zone" is the area of water interchange between groundwater and surface water under and around a river bed. This study examines building constructed wetlands that intentionally leak recycled water into the groundwater system with hyporheic discharge to the Pudding River. This could reduce the cost of a new river outfall. Recycled water traveling through the subsurface could also add additional thermal and nutrient removal benefits.

Rock Bed: The City built and operated a pilot rock bed at the POTW to evaluate low cost ammonia removal. This study collected additional monitoring data from the rock bed to determine whether a similar system may be useful for the POTW expansion.

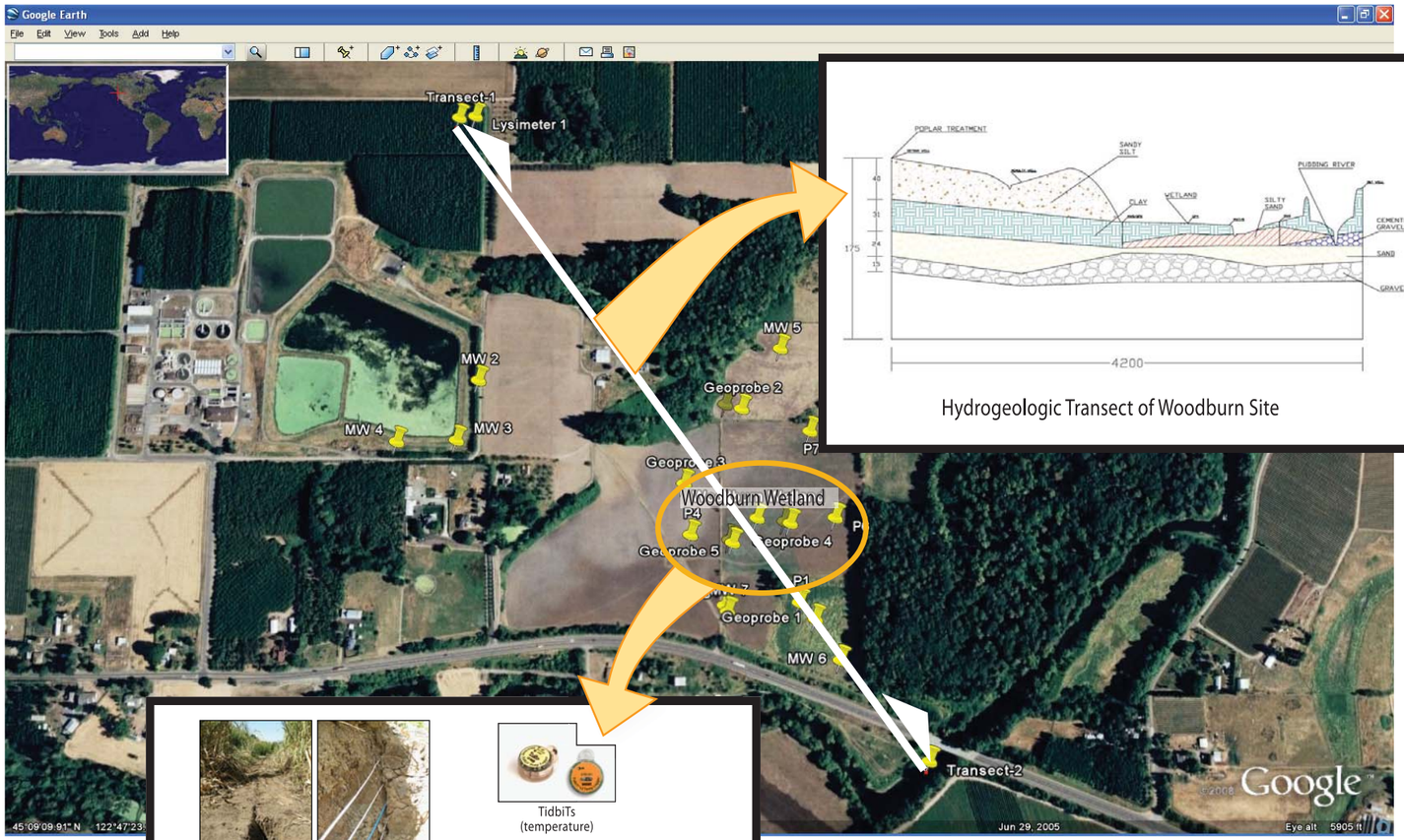
Poplar Coppice Management: Poplar trees are either harvested and replanted or cut and then allowed to sprout and regrow (coppice) from the cut stump. This study evaluates whether the coppice can be effectively managed to avoid the cost of replanting and to regrow a new tree in less time.

The Pilot Studies project began in 2007 and will to be completed in 2009. However, pilot studies selected for full-scale implementation may continue to be operated in the future to collect additional data.



Installing a wick lysimeter in the High Rate Pilot test.

High Rate Irrigation



Hydrogeologic Transect of Woodburn Site

Fiber Optic Cables

TidbiTs (temperature)

HOBO U20 (water level)

Distributed Temperature Sensor (DTS)

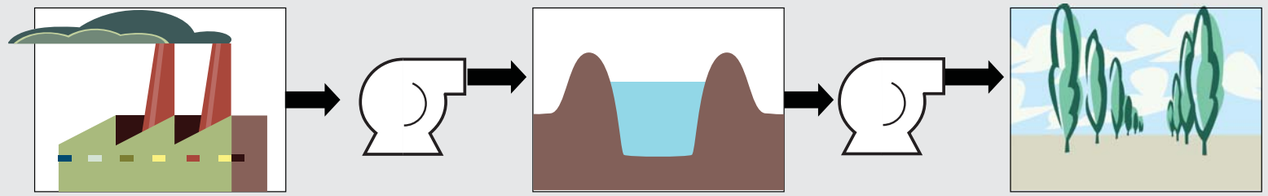
Magmeter (flow sensor)

Equipment used for hyporheic study

Industrial Flows and Loads

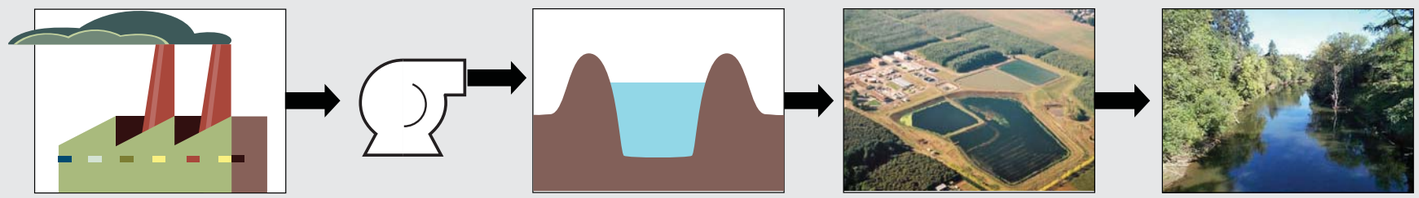
Alternative IND 1

Treat industrial flow separate from residential and commercial flows



Alternative IND 2

Store Industrial Flow in July through September



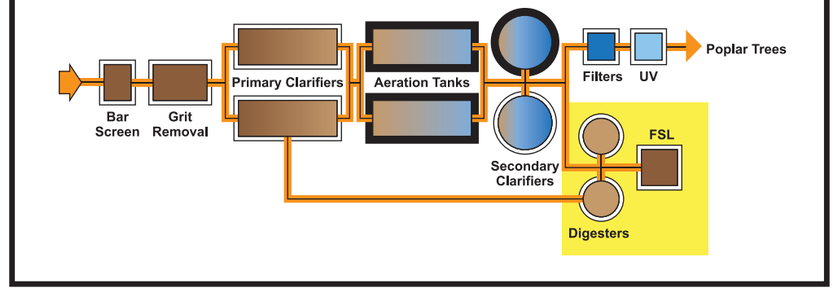
Alternative IND 3

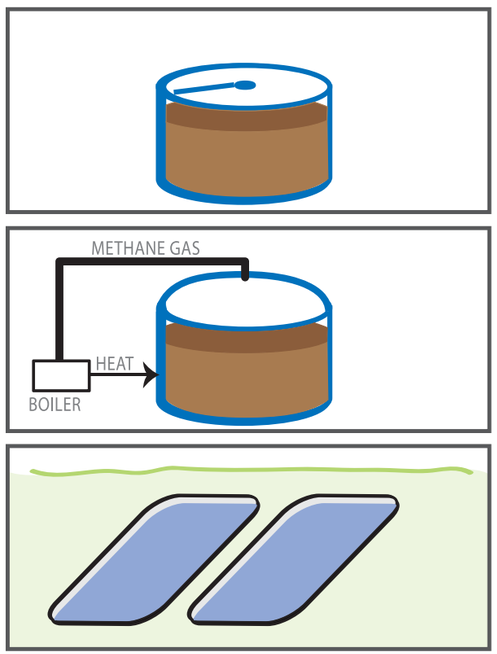
Treat Industrial Flow Year-round at the POTW (current treatment scheme)

PUBLICLY OWNED TREATMENT WORKS (POTW)

Solids

TREATMENT AND STORAGE





Existing Solids treatment capacity is adequate for 2030 Loads.
No expansion is required

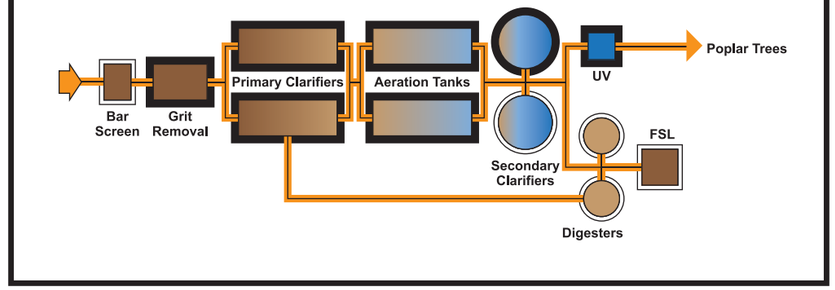
Dissolved Air Flotation Thickener (DAFT): Concentrates solids via dissolved air to reduce volume requirements of downstream processes.

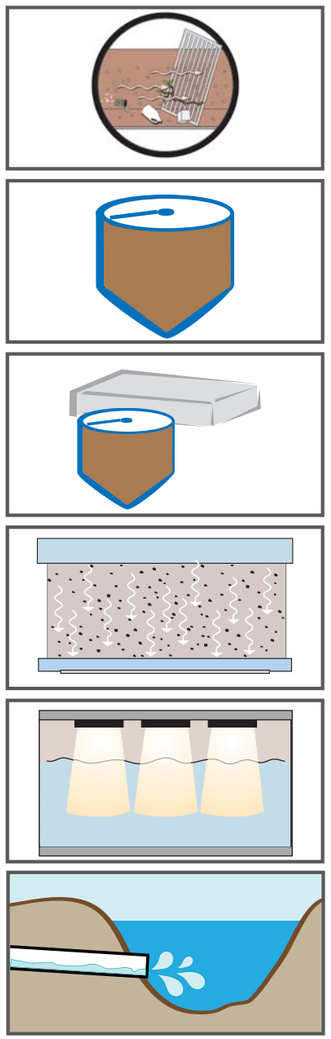
Anaerobic Digester: Breaks down biodegradable solids volume and stabilizes organics, making biosolids safe for beneficial reuse.

Facultative Sludge Lagoon: Stablizes organics and separates out solids. Lengthy storage periods thicken sludge via compression and allow digestion of biodegradable materials.

PUBLICLY OWNED TREATMENT WORKS (POTW)

Liquids





Headworks: Screens remove particles larger than 7/16". Sand, grit, and other small heavy objects settle.

Primary Sedimentation: Clarifiers remove settled sludge and floating grease and oils to produce a generally homogenous liquid.

Secondary Process: Oxygen is introduced to the system, producing an environment where bacteria and protozoa thrive, consuming the biodegradable organic content of the wastewater. Nonbiodegradeable material flocculation enables this material to settle out more readily.

Filtration: Removes the residual suspended matter.

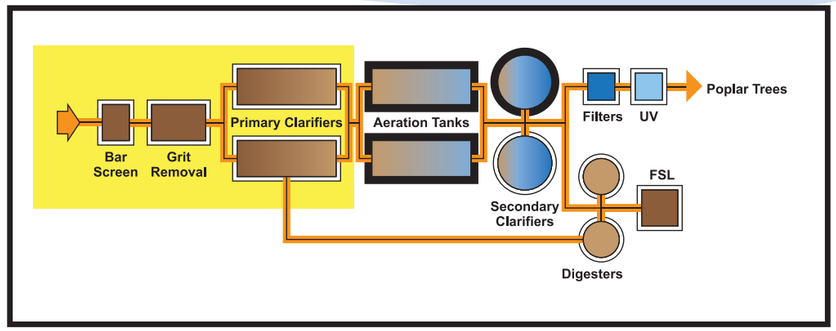
UV Disinfection: UV damages the genetic structure of bacteria, viruses, and other pathogens, making them incapable of reproduction. Disinfection reduces the number of microorganisms in the water.

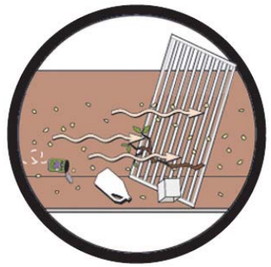
Outfall: Treated water, abiding by TMDLs, is discharged into the Pudding River at two locations.

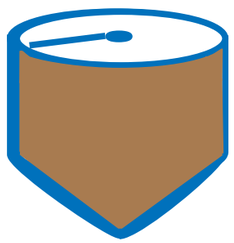
PUBLICLY OWNED TREATMENT WORKS (POTW)

Liquids

PRELIMINARY AND PRIMARY







Headworks Recommended Plan: Both screening and grit removal facilities must be increased to handle 2030 demands.

SCREENING FACILITY:

- Use newer, more efficient screening technolgy to increase capacity of existing structure and add a third screen

GRIT REMOVAL:

- Build third and fourth grit removal basins

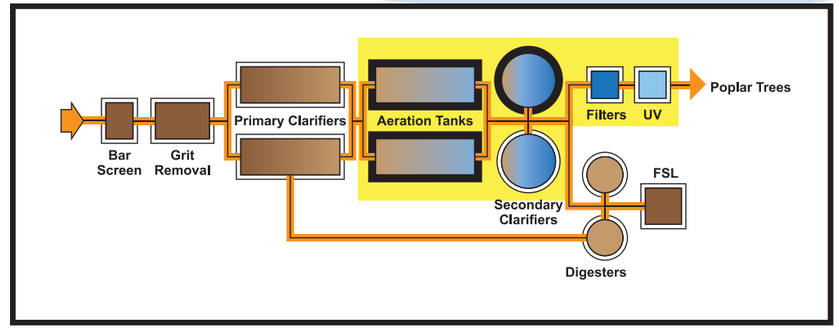
Primary Sedimentation Recommended Plan: Existing primary clarifiers must be increased by 100% to handle 2030 demands

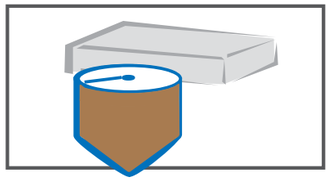
- Convert wet weather clarifiers to primary clarifiers and construct primary effluent pump station

PUBLICLY OWNED TREATMENT WORKS (POTW)

Liquids

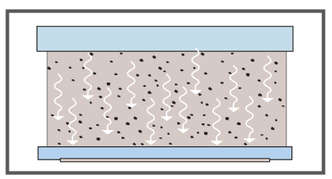
SECONDARY AND TERTIARY





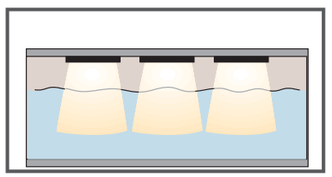
Secondary Process Recommended Plan: Both aeration basins and secondary clarification must be improved to handle 2030 demands

- Construct contact stabilization modifications and one secondary clarifier

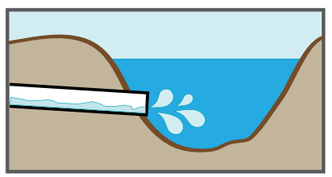


Filtration Recommended Plan: Existing filtration will need to be increased to meet reliability standards

- Replace existing filters with higher-capacity, newer technology filters

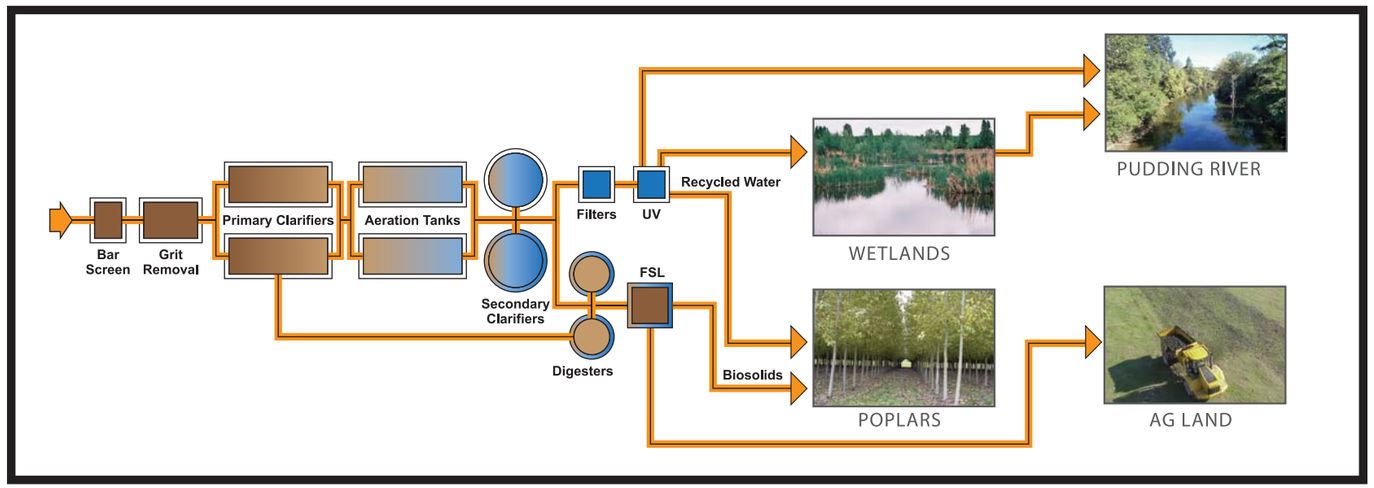


UV Disinfection Recommended Plan: Existing disinfection facility will be increased by 100% to handle 2030 demands

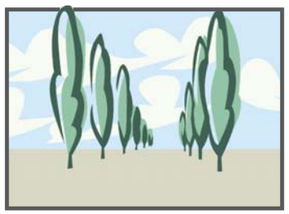


Outfall Recommended Plan: Existing outfall piping will be increased by 100% to handle 2030 demands by modifying and upsizing an existing outfall

Natural Treatment Systems



Wetlands for Temperature Reduction: Passive evaporation and radiant cooling processes lower recycled water temperature prior to Pudding River discharge.

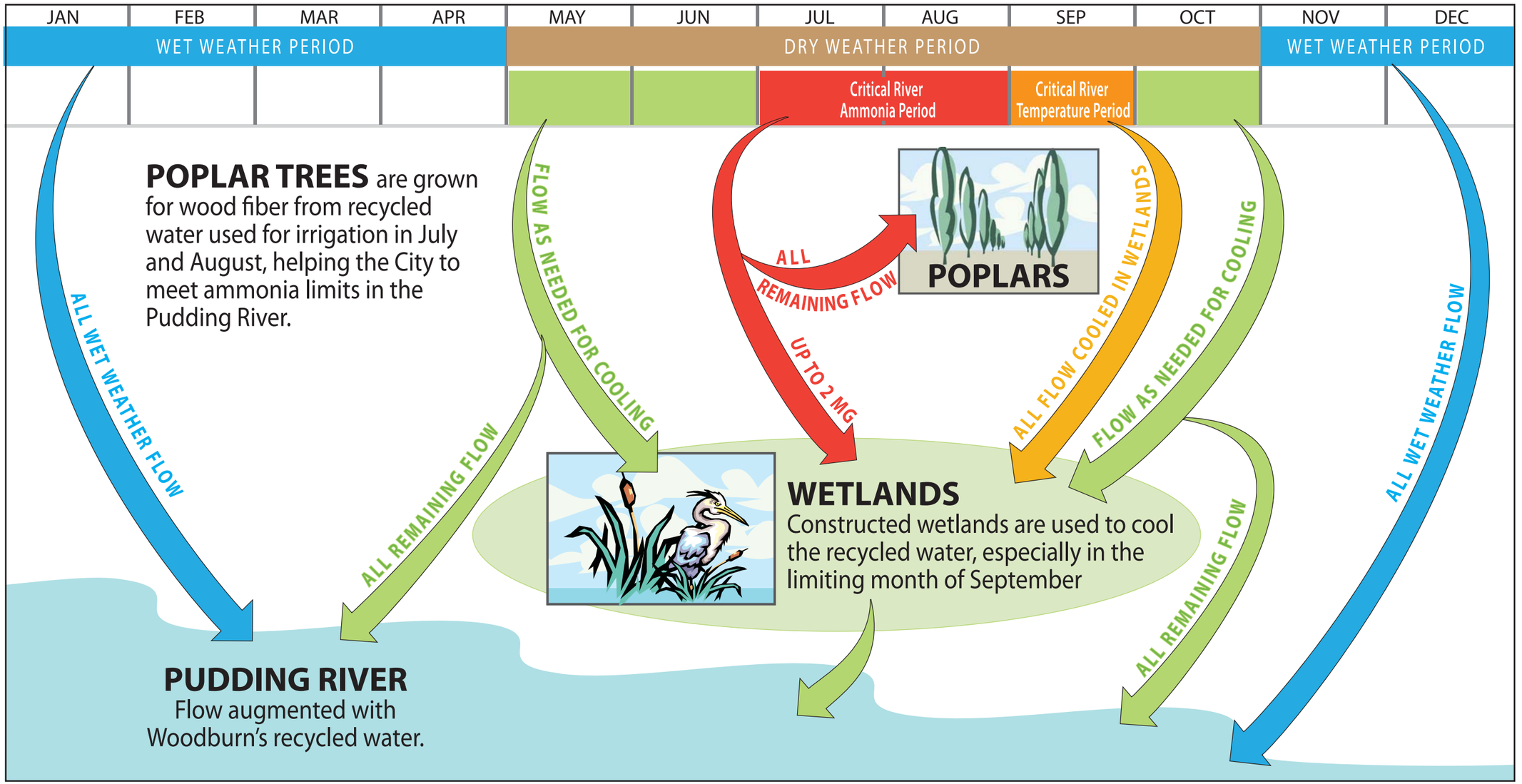


Poplars for Biosolids Reuse: Nutrients in biosolids are utilized as a fertilizer to enhance tree growth and wood fiber production.

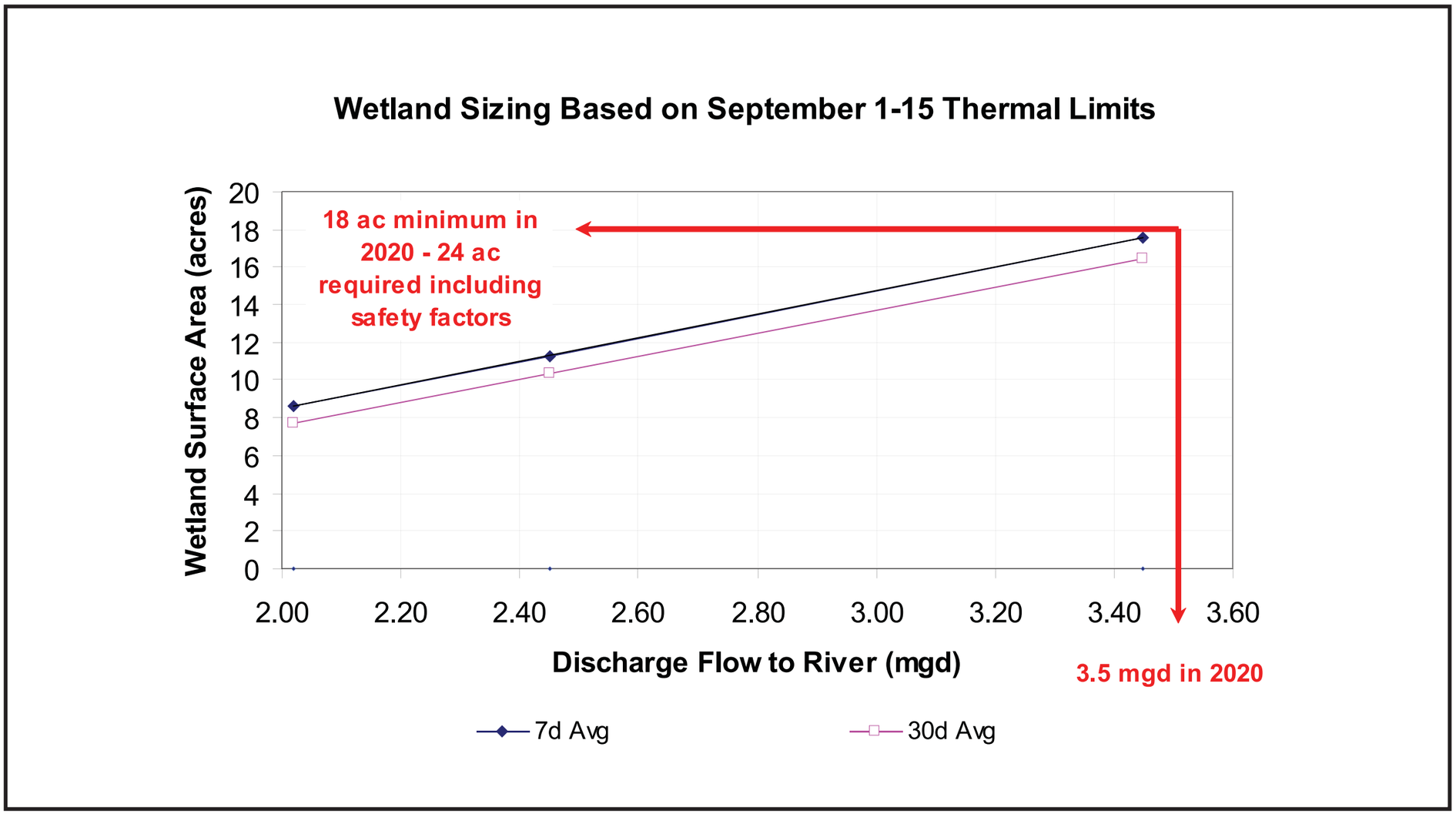
Poplars for Water Reuse: Recycled water is consumed by evapotranspiration in the tree stand and enhances wood fiber production.

Off-Site Agricultural Land for Biosolids Reuse: Additional biosolids volume not used within the poplar tree plantation will be hauled for fertilizer use on other agricultural lands.

Recycled Water Use Annual Timeline

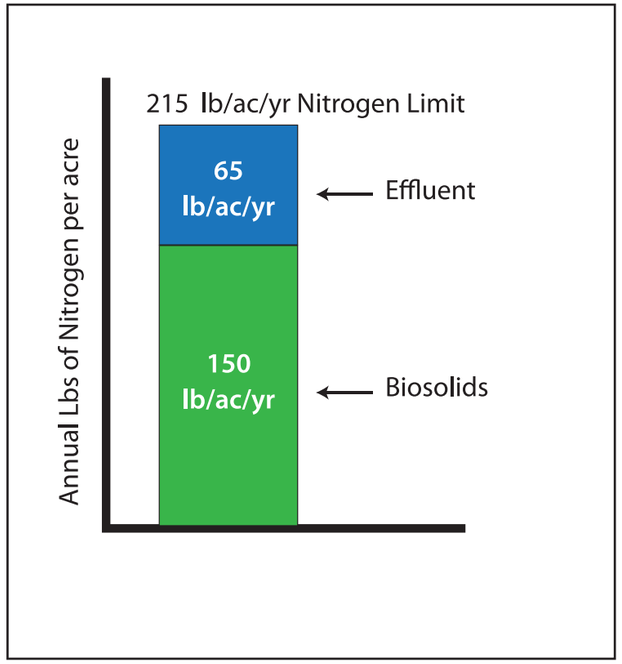


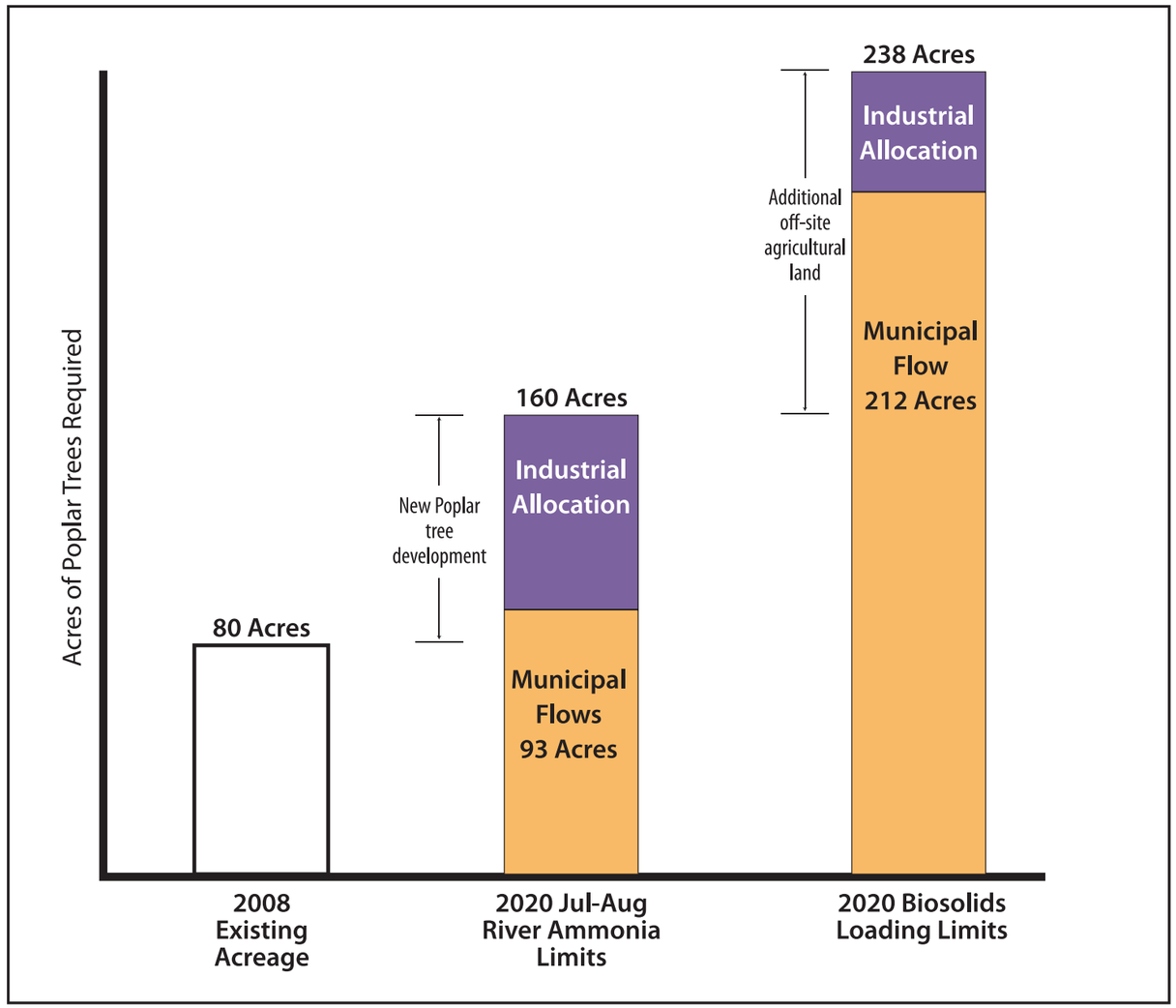
Temperature Wetland Sizing



Natural Treatment Systems

- Required poplar acreage is determined by the projected amount of recycled water
- Biosolids are used on-site up to the nutrient capacity of the tree plantation
- Excess biosolids will be utilized through hauling to other permitted agricultural operations in Oregon





City of Woodburn

Public Works Department Press Release

Date: July 29, 2009

For more information:

Dan Brown, P.E.
Public Works Director
(503) 982-5249
dan.brown@ci.woodburn.or.us

WASTEWATER FACILITIES PLAN UPDATE

WHAT IS THE WASTEWATER FACILITIES PLAN AND WHY IS IT BEING UPDATED?

The City of Woodburn provides wastewater collection and treatment for approximately 23,000 residents. The City is in the process of completing a Wastewater Facilities Plan that will plan for regulatory changes and plan for improvements needed to respond to growth in the City over the 20 year planning horizon of the plan, 2030.

The current Wastewater Facilities Plan was completed in 1995 and construction of the suggested Phase I improvements was completed in 2001 at cost of approximately $38 million dollars. The current plan called for Phase II improvements however with regulatory changes and increase in flow and loads the phase two improvements required additional planning to meet the regulatory discharge limits. The City of Woodburn is currently operating the wastewater plant under a National Pollution Discharge Elimination System (NPDES) permit issued in 20004. The NPDES permit compliance limits since have been modified by a Mutual Agreement and Order (MAO) with the Oregon Department of Environmental Quality (DEQ) issued in 2007. The MAO requires treated wastewater discharge improvements upon establishment and approval of the Water Quality Management Plan for the Molalla-Pudding River Sub-Basin. After many delays DEQ and the Environmental Protection Agency (EPA) in December of 2008 adopted the Water Quality Management Plan establishing Total Maximum Daily Load (TMDL) for the Molalla-Pudding River Sub-basin. The TMDL establishes limits for pollutants on the Pudding River. To comply with MAO requirements, the City must meet more stringent limits for both winter time ammonia and excess thermal loading, temperature prior to discharge into the Pudding River.

City of Woodburn

Public Works Department Press Release

The Woodburn City Council appointed a nine member Wastewater Facility Plan Advisory Committee which have monitored and advised on the plan development. The current citizen members of the Wastewater Facility Plan Advisory Committee are Dennis Want, Heidi Bischoff, Jerry Bourn, Ronald Lilienthal, Barbara Lucas, Willis Grafe, John Reinhardt, and Rongie Wangerin. Scott Eden is a member of the committee representing Marion County.

A Wastewater Facilities Plan is a comprehensive document that examines the entire existing wastewater collection, treatment and disposal system and identifies all operational and performance problems. It projects future wastewater loads, and describes and evaluates viable alternatives for reliably meeting discharge permit requirements for a twenty year time frame. It identifies a preferred alternative for implementation and includes a funding plan.

The City's facilities plan must ensure that the upgraded facility will comply with all of Oregon's water quality requirements. This is sometimes complicated, particularly when it comes to setting effluent limits that ensure that the permitted source will not violate in-stream water quality standards in the Pudding River.

A Wastewater Facilities Plan serves as an educational tool for the public, community decision makers, state and federal funding and regulatory agencies. The plan demonstrates how the proposed project is a cost effective and environmentally sound alternative for treatment of the City's wastewater. The plan documents and addresses environmental and regulatory issues associated with wastewater treatment. The plan provides the cost of facility improvements, maintenance and operations and examines current user rates for adequacy. The plan projects when and where rate increases are necessary.

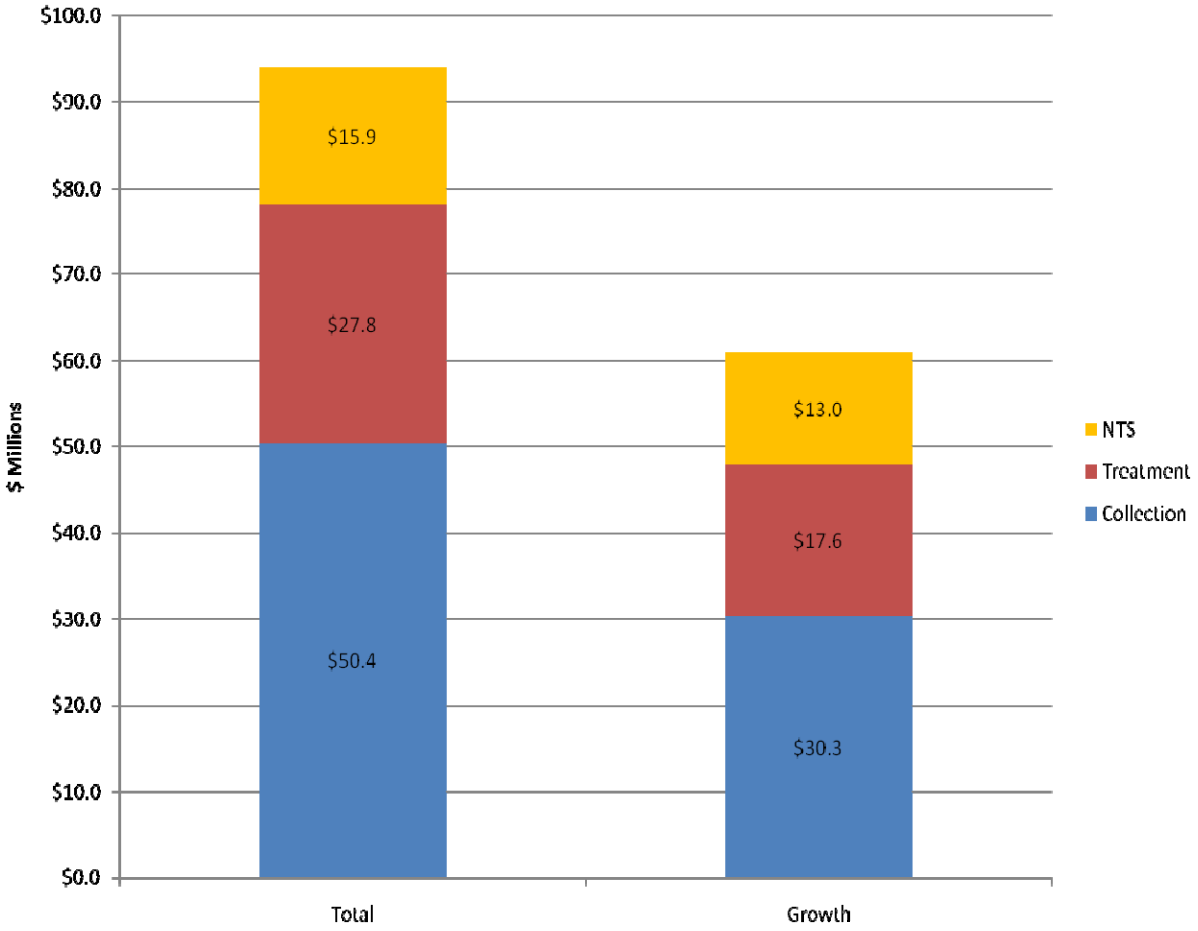
Preliminary findings of the plan identify the need for increases in both wastewater user rates and system development charges through the next 20 years. Below are preliminary numbers of the capital plan by component, preliminary implementation user rates options and preliminary system development charges with comparisons to other communities.

City of Woodburn

Public Works Department Press Release

Project Cost by Component

(NTS, denotes Natural Treatment System)



Preliminary Rate Implementation Options

Rate Option		FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Smooth		12.00%	17.00%	14.00%	14.00%	5.00%
	Bill	*$38.46*	*$45.00*	*$51.30*	*$58.48*	*$61.40*
Intermittent		12.00%	34.00%	0.00%	0.00%	15.00%
	Bill	*$38.46*	*$51.54*	*$51.54*	*$51.54*	*$59.27*
		FY 2014-15	**FY 2015-16**	**FY 2016-17**	**FY 2017-18**	**FY 2018-19**
Smooth		5.00%	5.00%	3.50%	3.50%	3.50%
	Bill	*$64.48*	*$67.70*	*$70.07*	*$72.52*	*$75.06*
Intermittent		0.00%	0.00%	23.00%	0.00%	0.00%
	Bill	*$59.27*	*$59.27*	*$72.90*	*$72.90*	*$72.90*

City of Woodburn

Public Works Department Press Release

SDC Comparison
Single Family Residential

	Sewer	Water	Streets	Parks	Storm	Total
Gresham (Springwater)	$5,056	$4,153	$6,734	$9,039	$6,052	$31,034
Gresham (Pleasant Valley)	$5,056	$4,153	$4,906	$8,137	$2,326	$24,578
West Linn	$2,539	$6,698	$4,721	$8,029	$439	$22,426
Neskowin	$10,595	$7,535				$18,130
Philomath	$5,719	$6,228	$3,488	$684	$1,080	$17,199
Silverton	$4,392	$3,987	$3,705	$1,205	$1,375	$14,664
Wilsonville	$4,068	$4,345	$3,082	$2,451	$482	$14,428
Springfield (Pending)	$4,495	$3,171	$2,053	$2,858	$1,507	$14,084
Newberg	$5,236	$5,394	$2,655	$0	$287	$13,572
Grants Pass	$2,463	$2,366	$5,656	$2,552	$412	$13,449
Woodburn (preliminary)	**$5,622**	**$2,085**	**$3,532**	**$1,752**	**$275**	**$13,266**
Dundee	$5,478	$4,782			$2,278	$12,538
Salem	$2,805	$4,184	$1,815	$3,154	$449	$12,407
Creswell	$4,746	$5,277	$627	$1,616		$12,266
Corvallis	$3,163	$1,052	$2,230	$5,161	$215	$11,821
Portland	$3,053	$2,995	$2,496	$1,883	$585	$11,012
Veneta	$3,380	$2,014	$1,808	$3,414	$156	$10,772
Aurora	$2,032	$4,153	$2,095	$2,205	$159	$10,644
Woodburn (current)	**$2,977**	**$2,085**	**$3,532**	**$1,752**	**$275**	**$10,621**
Springfield (Existing)	$2,376	$3,171	$1,043	$2,858	$1,000	$10,447
Eugene	$1,670	$3,251	$1,621	$3,213	$505	$10,259
Junction City	$6,669	$1,100	$1,116	$1,090		$9,975
Harrisburg	$1,888	$2,540	$2,291	$1,297	$672	$8,688
Turner	$5,000	$2,400	$400	$850	$0	$8,650
Cottage Grove	$958	$775	$776	$239	$1,255	$4,003

Sources:
LEAGUE OF OREGON CITIES MULTI-CITY SDC COMPARISON
MAY 2007 (WITH ***FEB '08*** ADDITIONS)
Additional internet search

While the City of Woodburn has many different plans intended to provide direction for the future of our community. The Wastewater Facilities Plan not only defines a vision for improvements to the system, it is mandated by regulatory requirements to define how we will comply with our NPDES Permit as a Publicly Operated Treatment Works. Upon Council approval, the plan will be reviewed by the DEQ and approved from a regulatory compliance perspective.

The projects and associated costs identified within the Wastewater Facilities Plan are real and rate increases needed to finance the improvements identified

will go into affect upon Council approval of the Plan. The City of Woodburn is aware and concerned of the financial impact these rate increases will have on the residents and businesses within our community. They are however, costs that can not be deferred or ignored. Ever effort has been expended to distribute those increases only as needed to meet the capital improvement and operational funding requirements of our Publicly Operated Treatment Works and Collection System.

Every community within our nation is going to face the same regulatory compliance requirements and associated costs that Woodburn is facing today. We are simply ahead of most communities in addressing these requirements. Comparisons of revised City of Woodburn rates with communities that have not yet addressed their compliance and future growth capital improvement requirements is not meaningful.

The City of Woodburn feels that it is essential for the future economic vitality of our community that all citizens fully understand what their sewer rates are paying for and why. The City of Woodburn is seeking opportunities to inform our community of our future needs, the cost to address those needs, and how we will finance those costs. The Wastewater Facilities Plan tells this story in great depth and detail. Most will not be able to invest in the time to read the Plan in detail and staff will summarize the Plan at opportunities such as the Chamber of Commerce Brown Bag Lunch.

If you have a group that is interested in receiving a presentation from City staff and taking a tour of the Wastewater Treatment Facility, please contact the Public Works Office at (503) 982-5240.

WOODBURN
OREGON
Incorporated 1889

AGENDA

WASTEWATER FACILITY PLAN ADVISORY COMMITTEE

6:30 PM – Tuesday September 29, 2009

Police Department Community Room

1. Note of Attendance

2. Approval of March 31, 2009 Meeting Minutes

3. Update, Facilities Plan Effort – Randy Scott

4. Draft Facility Plan, Volume III Rate and SDC- David Green, CH2M Hill, Deborah Galardi, Galardi Consulting, Randy Scott.

    a. Capital Plan – Revisions
    b. Wastewater System Financial Plan
    c. Results, User Rates
    d. Results, SDC Rates
    e. Rate & SDC Comparison to other Jurisdictions
    f. Committee Comments/Recommendation

5. Committee Wastewater Facility Plan Recommendation

6. CIty Council Meeting October 26, 2009, Randy Scott

7. Concluding Remarks, Dan Brown, Public Works Director

City of Woodburn

POTW Facility Plan

Wastewater Advisory Committee Meeting No. 10

Agenda

- **Facility Plan Update – City of Woodburn**
- **Volume 3 – CH2M HILL**
  - Capital Plan Revisions
  - Wastewater System Financial Plan
  - User Rates
  - System Development Charges
  - Rate and SDC Comparisons
- **Committee Recommendations**
- **City Council Meeting: October 26, 2009**
- **Concluding Remarks – City of Woodburn**

Work Accomplished Since Last WCAC Meeting (March-Sept 2009)

- Prepared and submitted Temperature and Wintertime Ammonia Report. Approved by DEQ.
- Prepared Biosolids Management Plan
- Prepared for and attended Open House (July)
- Received and incorporated City comments on Volumes 1 and 2
- Prepared Volume 3, received and incorporated City comments
- Reviewed correspondence concerning MAO implementation timeline

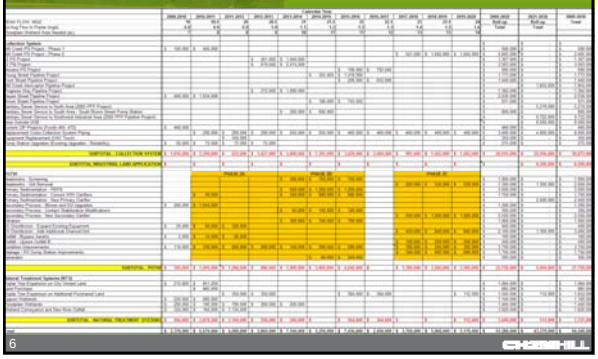
City of Woodburn Proposed Capital Plan

- Capital plan, coupled with implementation schedule forms the basis for the projected cash flow needs (capital and O&M costs on an annual basis).
- Capital Plan (cash flow) and projected O&M costs formed the basis for the initial Rate and SDC development work.
- Rate impacts drove the City and CH2M HILL to look for ways to defer costs and limit rate impacts.

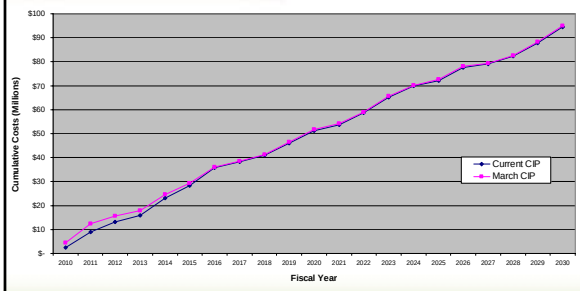
Preliminary Capital Plan Adjusted to Defer Non-Critical Elements

- DEQ's relaxation of MAO implementation allowed deferral of critical construction costs to FY2010/2011
- Reviewed Volume 2 with Woodburn staff and deferred some collection system elements
- Contact Stabilization modifications deferred to Phase 2B (along with flow related improvements)
- Redundancy/reliability improvements deferred to Phase 2B (Primary clarifiers and emergency generator)
- Worked with Woodburn staff to spread out condition improvements

Summary Capital Plan - Updated (with Allocated Industrial Flows)



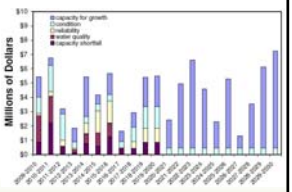
Adjustments to Implementation Plan Improved Rate Scenario



Capital Plan provides the basis for determining rate impacts and SDC's

Some improvements are paid for by rate payers and some are paid for by growth

- **Growth pays for growth (new capacity)**
- **Existing and future ratepayers pay for:**
  - New water quality regulations
    - *Temperature TMDL*
    - *Wintertime ammonia limits*
  - Reliability improvements (Class I)
  - Condition-related improvements
  - Operations and Maintenance (O&M) costs



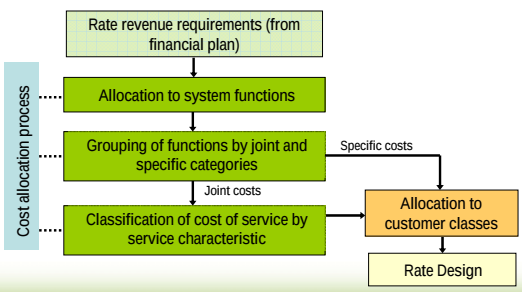
Financial Plan Changes

- **Updated capital plan phasing and financing**
  - Delayed need for revenue bond issue
- **Biosolids hauling paid by inter-fund loan**
  - 5-year repayment at 2.5%
- **SDC revenue forecast based on revised SDC**
  - Assume implementation July 1, 2010
- **Near-term rate increases reduced from previous estimates**
  - FY2011 – 12% (previous 17%)
  - FY2012-FY2015 – 9.5% (previous (5%-14%)
  - Subsequent years – 0-3.5% (previous 3.5%)

Wastewater System Financial Plan

	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15
Revenue Requirements					
O&M & NonCIP Transfers	$2,960,801	$3,007,615	$3,143,511	$3,299,530	$3,448,880
Interfund Loan	$646,856	$646,856	$646,856	$646,856	$646,856
Debt Service	$2,264,523	$2,730,652	$3,251,523	$3,940,599	$4,631,351
Capital Transfers	$525,885	$12,517	$66,618	$19,449	$71,892
Total	**$6,398,065**	**$6,397,641**	**$7,108,509**	**$7,906,434**	**$8,798,980**
Less Nonrate Revenue					
O&M Related					
Collections	100	100	100	100	100
Sewer Discharge Fines	505	517	530	543	556
Interest from Investment	5,483	5,685	5,743	5,913	6,108
Other Miscellaneous Income	7,271	7,449	7,633	7,820	8,013
Late Fees	42,412	43,455	44,524	45,619	46,741
Subtotal	**$55,770**	**$57,206**	**$58,530**	**$59,996**	**$61,519**
(Uses of) Additions to Reserves	($638,788)	$2,341	$6,795	$7,801	$7,468
Requirements From Rates					
O&M/Interfund Loan	$3,551,887	$3,597,265	$3,731,838	$3,886,391	$4,034,218
Capital	2,790,408	2,743,170	3,318,142	3,960,048	4,703,243
(Uses of) Additions to Reserves	(638,788)	2,341	6,795	7,801	7,468
Requirements From Rates	$5,703,507	$6,342,775	$7,056,774	$7,854,239	$8,744,928
Projected System-wide Rate Increase	*12.00%*	*9.50%*	*9.50%*	*9.50%*	*9.50%*

User Rate Development



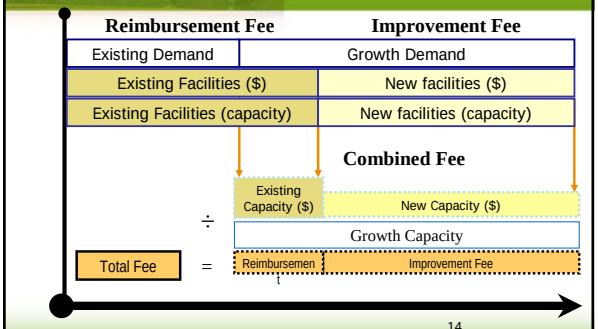
User Rate Summary

Customer Class	Existing Aug 1, 2009	Projected FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15
Usage Charges						
Residential	$5.04	$6.01	$6.58	$7.21	$7.90	$8.65
Multi-Family	$5.04	$6.01	$6.58	$7.21	$7.90	$8.65
Commercial	$7.71	$8.84	$9.74	$10.67	$11.69	$12.80
Industrial	$7.71	$8.84	$9.74	$10.67	$11.69	$12.80
Monitored						
Flow ($/ccf)	$3.19	$3.77	$4.14	$4.55	$4.99	$5.48
BOD ($/lb)	$1.19	$0.79	$0.85	$0.92	$1.01	$1.10
TSS ($/lb)	$0.35	$0.92	$1.00	$1.09	$1.19	$1.30
EDU Charge ($/EDU/Month)						
Residential	$28.38	$31.03	$33.98	$37.23	$40.77	$44.64
Multi-Family	$28.38	$31.03	$33.98	$37.23	$40.77	$44.64
Commercial	$35.88	$42.28	$46.11	$50.30	$54.89	$59.87
Monitored	$77.16	$69.87	$76.18	$83.10	$90.67	$98.90
Industrial	$35.88	$42.28	$46.11	$50.30	$54.89	$59.87

Sample Bills

Customer Class	EDUs	Monthly Use (ccf)	Existing	Projected Bills FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15
Residential		3	$28.38	$31.03	$33.98	$37.23	$40.77	$44.64
Residential		6	$33.29	$36.89	$40.40	$44.26	$48.48	$53.07
Residential		20	$103.98	$121.25	$132.74	$145.41	$159.25	$174.31
Multi-Family	3	10	$85.14	$93.08	$101.93	$111.68	$122.32	$133.91
Multi-Family	12	69	$383.51	$423.59	$463.83	$508.18	$556.60	$609.33
Multi-Family	40	400	$2,143.20	$2,444.01	$2,675.93	$2,931.53	$3,210.61	$3,514.53
Commercial		10	$66.72	$77.62	$85.07	$92.99	$101.65	$111.07
Commercial		26	$191.30	$220.40	$242.49	$265.45	$290.56	$317.88
Commercial		400	$3,073.62	$3,523.59	$3,894.36	$4,255.26	$4,661.14	$5,102.65
Flow			$3.19	$3.77	$4.14	$4.55	$4.99	$5.48
BOD			$1.19	$0.79	$0.85	$0.92	$1.01	$1.10
TSS			$0.35	$0.92	$1.00	$1.09	$1.19	$1.30
Septic Residential			$0.090	$0.133	$0.137	$0.143	$0.149	$0.156
Septic Commercial			$0.116	$0.171	$0.177	$0.184	$0.192	$0.201
Min Residential			$35.00	$51.71	$53.34	$55.54	$58.03	$60.63
Min Commercial			$44.00	$65.01	$67.06	$69.83	$72.95	$76.22
Residential				9.3%	9.5%	9.6%	9.5%	9.5%
Residential				10.8%	9.5%	9.6%	9.5%	9.5%
Residential				16.6%	9.5%	9.5%	9.5%	9.5%
Multi-Family				9.3%	9.5%	9.6%	9.5%	9.5%
Multi-Family				10.5%	9.5%	9.6%	9.5%	9.5%
Multi-Family				14.0%	9.5%	9.6%	9.5%	9.5%
Commercial				16.3%	9.6%	9.3%	9.3%	9.3%
Commercial				15.2%	10.0%	9.5%	9.5%	9.4%
Commercial				14.6%	10.2%	9.6%	9.5%	9.5%
Flow				18.3%	9.6%	9.9%	9.8%	9.8%
BOD				-34.0%	8.2%	8.9%	9.0%	8.9%
TSS				163.1%	8.6%	9.2%	9.2%	9.2%
Septic				47.7%	3.1%	4.1%	4.5%	4.5%

SDC Development



Revised SDCs

Component	Amount
Reimbursement SDC per EDU	$623
Improvement SDC per EDU	$5,048
Combined SDC per EDU	$5,671
Current SDC	***$2,977***
Inflation Adjusted (2008-1995)	***$4,522***

Compliance cost per EDU = $150 Total SDC = $5,821

Rate Comparison

Customer Class	Woodburn Existing Aug 1, 2009	FY2011 Woodburn	Jan 1, 2011 Wilsonville	FY2010 Newberg	FY2010 Albany	FY2010 Portland
Usage Charges						
Residential	$5.04	$6.01	$6.01	$5.43	$1.84	$6.50
Multi-Family	$5.04	$6.01	$6.01	$5.43	$1.84	$6.50
Commercial	$7.71	$8.84	$6.01	$5.43-$10.88	$5.19-$10.81	$6.63
Industrial	$7.71	$8.84	$6.01	$5.43-$10.88	$5.19-$10.81	$6.63
Monitored						
Flow ($/ccf)	$3.19	$3.77	$6.01	-	$2.57	$6.63
BOD ($/lb)	$1.19	$0.79	$0.85	-	$0.66	0.53
TSS ($/lb)	$0.35	$0.92	$0.85	-	$0.89	0.64
Quantity Allowance (ccf/month)						
Residential	5.00	5.00	2.00	-	-	-
Multi-Family	5.00	5.00	2.00	-	-	-
Commercial	6.00	6.00	2.00	-	-	-
Monitored	10.00	10.00	2.00	-	-	-
Industrial	6.00	6.00	2.00	-	-	-
EDU Charge ($/EDU/Month)						
Residential	$28.38	$31.03	$13.46	$11.94	$26.16	-
Multi-Family	$28.38	$31.03	$13.46	$10.54	$26.16	-
Commercial	$35.88	$42.28	$21.68-1,195.3	$11.94	$3.26-$14.59	-
Monitored	$77.16	$69.87	$21.68-1,195.3	na	na	-
Industrial	$35.88	$42.28	$21.68-1,195.3	na	na	-

Residential Bill Comparison

Monthly bill based on 7 ccf usage

	Bill	Effective
Newberg	$49.95	FY2010
McMinnville	$48.34	FY2010
Lebanon	$46.58	FY2010
Sweet Home	$44.48	FY2010
Portland	$45.50	FY2010
Salem	$43.93	FY2010
Wilsonville	$43.51	FY2011
Woodburn	**$43.05**	**FY2011**
Albany	$39.04	FY2010
Philomath	$36.90	CY2009
Corvallis	$32.07	CY2009
Hillsboro	$31.24	FY2010

SDC Comparison

Single Family Residential

	Sewer	Water	Streets	Parks	Storm	Total
Gresham (Springwater)	$5,056	$4,153	$6,734	$9,039	$6,052	$31,034
Gresham (Pleasant Valley)	$5,056	$4,153	$4,906	$8,137	$2,326	$24,578
West Linn	$2,539	$6,698	$4,721	$8,029	$439	$22,426
Philomath	$5,719	$6,228	$3,488	$684	$1,080	$17,199
Silverton	$4,392	$3,987	$3,705	$1,205	$1,375	$14,664
Wilsonville	$4,068	$4,345	$3,082	$2,451	$482	$14,428
Springfield (Pending)	$4,495	$3,171	$2,053	$2,858	$1,507	$14,084
Newberg	$5,236	$5,394	$2,655	$0	$287	$13,572
Woodburn (revised)	**$5,821**	**$2,085**	**$3,532**	**$1,752**	**$275**	**$13,465**
Grants Pass	$2,463	$2,366	$5,656	$2,552	$412	$13,449
Salem	$2,805	$4,184	$1,815	$3,154	$449	$12,407
Corvallis	$3,163	$1,052	$2,230	$5,161	$215	$11,821
Portland	$3,053	$2,995	$2,496	$1,883	$585	$11,012
Aurora	$2,032	$4,153	$2,095	$2,205	$159	$10,644
Woodburn (current)	**$2,977**	**$2,085**	**$3,532**	**$1,752**	**$275**	**$10,621**
Junction City	$6,669	$1,100	$1,116	$1,090		$9,975
Harrisburg	$1,888	$2,540	$2,291	$1,297	$672	$8,688
Turner	$5,000	$2,400	$400	$850	$0	$8,650

Summary of Recommendations

- **Financial Plan**
  - Monitor revenue and expenses semi-annually
  - Update financial plan in conjunction with first bond sale
- **User Rates**
  - Implement revised cost-of-service rates
  - Adjust as necessary based on changes in financial plan
- **SDCs**
  - Update revised SDCs
  - Implement annual inflationary adjustments
  - Follow state notification/adoptions requirements

Facility Plan Implementation Next Steps

- ✓ **Capital Improvement Plan and Implementation Schedule (cash flow)**
- ✓ **Final Draft Volume 1 – Facilities Plan**
- ✓ **Collection System Plan and Implementation Schedule, along with I/I Report**
- ✓ **Final Draft Volume 2 – Collection and Transmission System**
- ✓ **Financial plan, Rate Study, and SDC's**
- ✓ **Final Draft Volume 3 – SDC and Rate Study**

- **DEQ Meetings**
- **City Council Meetings – September 28 and October 26**
- **Finalize Facilities Plan – Volume 1, 2 and 3**

Public Comments and Responses

From the desk of
Barbara Lucas
214 E. Clackamas Circle
Woodburn OR 97071
503-982-8141

April 8, 2009

Randy Scott, Water Resources Division Manager
Wastewater Facility Planning
Woodburn Public Works Department
190 Garfield Street
Woodburn OR 97071

Dear Randy,

Closed are three comments on Volume 1 of the Facilities Plan:

- Comments on Socio-Economic Environment 3.2
- Comments on Cost Estimates 10.5; Redundancy
- Comments on Industrial Wastewater Alternatives 7.3.5

Would you see that these comments are sent to CH2MHill so they may be included in the "comment" section of the Facilities Plan.

Best regards,

Barbara Lucas

From the desk of
Barbara Lucas
214 E. Clackamas Circle
Woodburn OR 97071
503-982-8141

April 1, 2009

COMMENTS ON SOCIO-ECONOMIC ENVIRONMENT 3.2

In April 2008 the city embarked on a wastewater facility plan with CH2MHill to expand and improve its sewage system. The city still owes $23 million on a bond to build its present plant, which is only 8 years old, and $7 million to the state of Oregon. The improvements add up to $47.9 million The city will borrow $39.9 million to pay for improvements recommended in the facility plan. This total debt of $69.9 million must be paid by sewer users.

Present Population Information Lacking CH2MHill's figures on economic condition of present Woodburn residents, here is some information from the school district and the city's parks and recreation master plan update:

- Woodburn has a population of 20,100.
- What about these 20,100 people? How many are in school? 5109 kids.
- How many people are over 65? 18% (3600 seniors).
  What's the median age? 31.9 years
  What's the average household size? 3.91 people
- What's the per capita income? $16,112
- What's the median household income? $42,062
- What is level of education attained? Less than 9th grade 26.2%; 9th to 12th grade, no diploma 15.6%.

Population Economic Future. These are figures from Woodburn's Wastewater Facility Plan about the economic conditions Woodburn's residents can expect in the future:

- "More than 50% of new jobs created between 2000 and 2020 are expected to pay less than $30,000 annually on a full time equivalent basis. This is a range of $7.00 to $15.00 per hour expressed as an hourly wage.
- About 18% will pay between $30,000 and $39,000 annually;
- about 13% will pay $40,000 to $49,000 annually; and
- about 12% will pay more than $49,000 annually."

Proposed Sewer Rates. The present monthly sewer bill for residential customers using 700 cubic feet of water is $34.34. The consultant presents a series of percentages to apply against this $34.34 to create a monthly payment rate schedule for residential sewer users for the next 10 years: $40.01; $45.29; $49.14; $53.81; $56.11; $60.32; $63.49; $66.82; $70.33; $74.02. There is nothing to indicate how much of the $69.9 million debt will remain unpaid at the end of 10 years, in 2020.

Recommendation: Sewer rates increases are substantial. The consultant should provide more economic facts ut Woodburn's residents so the public can gauge if Woodburn's sewer users can afford the debt.

Barbara Lucas

From the desk of
Barbara Lucas
214 E. Clackamas Circle
Woodburn OR 97071
503-982-8141

April 1, 2009

COMMENTS ON COST ESTIMATES 10.5:
REDUNDANCY

On January 29, 2009, the citizens' advisory committee heard a consultant report that improvements to our wastewater treatment and collection system would cost about $39 million -- $20 million for treatment and $19 million for collection. This was $1 million more than the $38 million the plant cost when it was brand new is 2001.

$20 million improvements for an 8-year old plant! The charge to the committee had been to plan for expansion to serve increased population and to plan for meeting regulations covering ammonia content and water temperature. Woodburn has had excess treatment capacity since the plant was built - the ammonia problem has been solved months ago - and the temperature problems would be solved with $7 million wetlands. I couldn't see how the consultant had arrived at a $20 million cost for treatment plant improvements.

DEQ and Redundancy. The next morning, January 30, I called the sewer plant manager to express my surprise. He said they (city staff) were surprised too at the cost, that redundancy may have been the cause. At a meeting with DEQ, the subject of redundancy had arisen because of figures submitted by CH2MHill. It seems that questions about redundancy hadn't arisen when Brown and Caldwell had submitted its plans to build the plant in 1995. It wasn't known whether this was the fault of Brown and Caldwell, or the city's public works director, or DEQ for not catching the omission.

It seems that the DEQ people scheduled to meet with city staff and CH2MHill couldn't satisfactorily explain redundancy, so a DEQ person from another department was called in to explain.

Questions Never Answered. Puzzled about DEQ's inability to explain redundancy, I wrote city staff on January 30 , asking about peak flows at the plant. By March 31, 2009 I had not received an answer. On February 17, 2009 I wrote to the consultant and the public works director asking for an explanation about redundancy. I never got an answer. When the consultant presented costs of plant improvements, I asked if redundancy figures were shown. She said that redundancy figures were not broken out but were included in the cost figures.

Recommendations. Our plant is only 8 years old. The consultant has forecast that $20 million will be needed to improve the plant. The rate-paying public has a right to know how much redundancy has contributed to the $20 million cost of treatment plant improvements. The consultant should

- include an official DEQ explanation of redundancy;
- show how much cost for redundancy has been added to each of the improvements;
  show how much redundancy will increase the total costs of improvements to our plant.

Barbara Lucas

From the daesk of
Barbara Lucas
214 E. Clackamas Circle
Woodburn OR 97071
503-982-8141

April 1, 2009

COMMENTS ON INDUSTRIAL WASTEWATER ALTERNATIVES 7.3.5
Food Processors

Industrial Waste Permits Too Large. Several times during the facility planning, the consultants raised the point to the citizen's advisory committee that the present treatment plant is designed to provide capacity for food processors, capacity which has never been totally used. For example, the city currently holds industrial waste discharge agreements with two food-processing industries in the amount of 600,000 gallons per day, but the largest actual flows from the processors in 2007 was 147,180 gallons per day.

Modify Permits. Although there is enough capacity to serve the processors now, the plant will need to be expanded after year 2020. Providing the capacity for the processors in the expanded plant will be costly. How costly, I do not know. The consultant advises the city to enter into discussions with industries to modify industrial waste discharge permits to more closely reflect actual practices.

What to do with Sugar Water? But the consultants offer another suggestion too. During the processing season, ' 'y through September, the processors' liquid waste (sugar water) would not be sent to the treatment plant, but ead would be piped to a lagoon near Sabroso Company and from that lagoon the wastewater would be piped to land application sites. The lagoon and land application sites would be bought by the city who would operate the sites.

Difficulties in Operating a Landfill. Although Sabroso itself is in the city limits, the lagoon and land application sites would be in the county. Evidently some state permits would be necessary for this land application but because there is potential for odor at the storage lagoon and land application site, county permits may be necessary too. Odors attract critters. Perhaps it will be necessary to cover the area with dirt once a day as landfills are forced to do. Irrigation pipes would be needed in the land application site to insure that water is released at an agronomic rate. The city would also be liable for upkeep of pipe from Townsend Farms to the lagoon.

Costs. I have been unable to find cost for enlarging the treatment plant to handle 147,180 gallons a day. The cost to acquire the storage lagoon and land application site is $8.2 million. The annual operation and maintenance would be $12,500.

Recommendation. The consultant should provide figures for enlarging the treatment plant to handle 147,180 gallons a day of food processors' waste. And yes, the city should consider piping sugar water to a lagoon in the summer months, but it should be aware of all the environmental and aesthetic problems and well as monetary costs.

Barbara Lucas

From the desk of
Barbara Lucas
214 E. Clackamas Circle
Woodburn OR 97071
503-982-8141

April 8, 2009

COMMENTS ON VOL. 2
WASTEWATER COLLECTION AND TRANSMISSION SYTEM

I have been puzzled by this part of the facility plan since I read about it: first in Woodburn's RFP which called for proposals by September 14, 2007, and second the final version of the proposal by CH2MHill adopted by the city council in December 2007. A limit of $600,000 was set for the RFP; CH2MHill's original proposal was $536,664, but after negotiation CH2MHill's proposal was increased to $698,576.

No Layman's Language. Task 8 of the RFP lists the tasks for collection and transmission. The original RFP for Task 8 was only 1 ½ pages. The revised task was 3 ½ pages. Not being an engineer I couldn't understand the wording of the original task or the negotiated task which is all about pipes, manhole covers, pump stations, GIS, inflows, and models. I questioned staff about the original Task 8. Staff said that "The scope of work won't get us the information we need" but the staff never described in layman's language what they wanted to achieve with more information from the revised scope.

Reason for Task 8? Talking with staff and reading Task 8 I came away with the idea that the reason for the negotiation was the creation of a model which CH2MHill employees would develop for the extra money between $536,664 and $698,576.

But on page 2 of the revised Task 8 there is the following: "Evaluate the information and recommend improvements to the collection/transmission system. Prepare a capital improvements list and cost estimates for the recommended improvements" This evidently is the big reason for Task 8: to develop a list of improvements and costs.

Citizens' Group Not Involved. City staff and the consultants were hard at work to carry out Task 8 before the citizens committee began to meet in April 2008. Looking at maps and listening was all the committee ever did. There was never a committee discussion or decision. Task 8 and the $19 million collection./transmission costs have never been explained to the committee.

Recommendation. The consultant should somehow inject the idea into Volume 2 that the purpose of Task 8 is to develop a list of improvements and costs.

CH2M HILL
2020 SW 4th Avenue,
Suite 300
Portland, Oregon, 97201
Tel 503.235.5000
Fax 503.736.2000

CH2MHILL

October 6, 2009

Ms. Barbara Lucas
214 East Clackamas Circle
Woodburn, OR 97071

Subject: Responses to April 8 Comments on Draft Woodburn Wastewater Facilities Plan Volumes 1 and 2

Dear Ms. Lucas:

We have received your letters of April 8, 2009, which include comments on the draft Woodburn Wastewater Facilities Plan. Thank you for taking the time to review the documents. Our responses to your comments are as follows:

Volume 1—Wastewater Treatment

Response to Comment on Socio-Economic Environment 3.2:

Please refer to Volume 1, Section 2.3.2 Economic Conditions and Trends, for a summary of economic facts. The information stated was taken from *Economic Opportunities Analysis (EOA)* prepared by ECONorthwest in May 2001. Projected residential rates are shown in Tables ES-1 and ES-2 of Volume 3. As shown, rates will vary somewhat with quantity of water used.

Please refer to Table A-1 in Volume 3 for details regarding sources of funding and debt service.

Response to Comment on Cost Estimates 10.5, Redundancy

Oregon Department of Environmental Quality (DEQ) staff has indicated in meetings with city staff that the wastewater treatment plant required level of redundancy will be increased by DEQ from Reliability Class II to Reliability Class I in the next NPDES permit to be issued. Redundancy criteria for each reliability class are defined in *Design Criteria for Mechanical, Electric and Fluid System and Component Reliability* (EPA-430-99-74-001).

Refer to Table 10-8 in Volume 1 for a summary of triggers for each improvement recommended in the Facilities Plan. You should also have a slide in your Workshop 9 materials that shows graphically the cost of reliability improvements by date. (Project implementation has subsequently been adjusted as discussed in Workshop 10.) The costs were developed by attributing costs to each trigger (reliability, growth, regulatory, etc.) Where costs were attributable to more than one trigger, costs were apportioned appropriately. Costs attributable to reliability total approximately $7 million at the treatment plant.

Response to Comment on Industrial Wastewater Alternatives 7.3.5

The estimated capital cost of treating the actual industrial waste is shown as $1,800,000 in Table 7-5, and the estimated annual operations and maintenance cost is shown as $61,000/year in Table 7-6.

Volume 2—Wastewater Collection and Transmission System

Section 1 of Volume 2 outlines the background and purpose of the collection system work, which includes an assessment of the current system and provides recommendations for maintaining the desired level of service for the collection system.

Your letters and this letter have been included in the Public Outreach Meeting Materials Appendix in the Facilities Plan document.

Sincerely,

CH2M HILL

David W. Green
CH2M HILL Project Manager