
**MINUTES OF THE WORK SESSION
BOARD OF MAYOR AND ALDERMEN
FRANKLIN, TENNESSEE
CITY HALL BOARDROOM
TUESDAY, AUGUST 23, 2011 – 5:00 P.M.**

Board Members

Mayor Ken Moore	P	Alderman Margaret Martin	P
Alderman Clyde Barnhill	P	Alderman Dana McLendon	P
Alderman Pearl Bransford	P	Alderman Ann Petersen	P
Alderman Beverly Burger	P	Alderman Michael Skinner	P

Department Directors/Staff

Eric Stuckey, City Administrator	P	Eric Gardner, Engineering Director	P
Vernon Gerth, ACA Community/Economic Development	P	Shirley Harmon, HR Director	P
Russell Truell, ACA Finance & Administration	P	Mark Hilty, Water Management Director	P
David Parker, City Engineer	P	Gary Luffman, BNS Director	P
Shauna Billingsley, City Attorney	P	Catherine Powers, Planning & Sustainability Director	P
Rocky Garzarek, Fire Chief		Joe York, Streets Director	P
David Rahinsky, Police Chief	P	Brad Wilson, Facilities Project Manager	P
Fred Banner, MIT Director	P	Lanaii Benne, Assistant City Recorder	P
Becky Caldwell, Solid Waste Director		Linda Fulwider, Board Recording Secretary	P
Lisa Clayton, Parks Director	P		

1. Call to Order

Mayor Ken Moore called the BOMA Work Session to order at 5:00 p.m. on Tuesday, August 23, 2011 in the City Hall Boardroom.

2. Citizen Comments

Daniela Kunz, Franklin resident, spoke of her concern with fluoridated water. With Spring Hill officials voting to discontinue fluoridation of that City's water supply, she thought it a good time to revisit the issue in Franklin. Ms. Kunz related research shows fluoride should not be ingested but used topically as accumulated fluoride in a person's system could result in health issues. She asked the City to cease adding fluoride to the water system. Ms. Kunz provided documentation of her research.

WORK SESSION DISCUSSION ITEMS

- 3.* Consideration of Event Permit Application for Hope on Wheels Bike Ride on September 10, 2011
- 4.* Consideration of Event Permit Application for Franklin High Homecoming Parade on September 23, 2011
- 5.* Consideration of Event Permit Application for Wounded Warriors Bike Ride on September 24, 2011
David Rahinsky, Police Chief

No questions or comments

- ◆ Item 7 was taken prior the Item 6 due to the delayed arrival of CDM representatives

6. Presentation on Wastewater/Biosolids Update

Integrated Water Resources Plan Steering Committee

Wastewater Demand and Capacity

Wastewater Service Area

- 20 square miles of area
- 300+ miles of gravity sewer
- 22+ miles of force main
- 26 pump stations

Wastewater Demand Projections

- Graph reviewed

Decreasing Demand and Increasing Capacity

1. Collection system management can reduce peak flows to WWTP
2. Existing WWTP maintenance is required to meet permitted capacity
3. Improvements to existing WWTP could be implemented to increase capacity
4. A new WWTP could be constructed to address flows in the southern portion of the City's service area

Wastewater Collection System

Decreasing Demand in the Collection System

- Inflow and infiltration (I/I) are part of the capacity demands on the WWTP
- Characterization of flow
 - Base Wastewater Flow
 - Groundwater Infiltration
 - Rainfall Dependent I/I (RDII) is represented by an "R-value" indicating the amount of rainfall entering the sewers
- Reducing I/I can help address capacity needs at the WWTP

Collection System Flow Monitoring

Flow Monitoring Study

- 31 flow monitors
- 11 rain gauges

Results of RDII Analysis

- Staff will walk sewer lines to determine if CCTV or smoke testing should follow
- River crossings will be investigated closely
- CCTV may be performed in certain areas

Rehabilitation and Replacement Costs

Gravity Pipe Diameter (inches)	Cost, \$ per linear foot	
	Replacement	Rehabilitation
12	142	74
18	166	109
24	204	151
30	244	192
36	279	242
48	346	360
60	434	482

Manholes	Cost, \$ per vertical foot	
	Replacement	Rehabilitation
48	229	156
72	417	190

Example Collection System Rehabilitation Option

- Graph reviewed

Wastewater Regulatory Requirements

Water Quality in the Harpeth River

- Waste Load Allocations (WLA) for discharges are assigned through Total Maximum Daily Loads (TMDL) that have been established for the Harpeth River
- WLAs are used for calculating NPDES permit discharge limits
- Franklin has 2 NPDES permits
 - WWTP permit
 - MS4 (stormwater) permit
- A new WWTP does **not** have to be a zero discharge facility
- WQ impacts of WW discharges for WWTP project options will be evaluated using the IWRP River WQ Model that has been developed in coordination with TDEC staff

WWTP Permit Requirements

Parameters	Existing WWTP Permitted Monthly Average Concentration (mg/L)	Existing WWTP 2010 Average Effluent Concentration (mg/L)	Existing WWTP Future Anticipated Effluent Concentration (mg/L)
CBOD ₅ (summer/winter)	4.0/10	1.36/1.53	4.0/10
Ammonia as N (summer/winter)	0.4/1.5	0.08/0.02	0.4/1.5
Total Nitrogen (summer)	5.0/Report	2.4	2.9
Total Phosphorus as P (summer/winter)	5.0/Report	2.4/1.7	1.0/Report
Suspended Solids (summer/winter)	10/30	1.4/1.4	10/30
<i>E. coli</i> (cfu/100 mL)	126	1.7	126
Chlorine Residual, Total	--	--	<0.02
Dissolved Oxygen (mg/L)	>8.0	9.2	>8.0
pH (s.u.)	6.0 – 9.0	8.2	6.0 – 9.0

Anticipated WWTP Permit Requirements

- Potential New WWTP
 - Advanced Wastewater Treatment (AWT)
 - * CBOD
 - * TSS
 - * Nitrogen
 - * Phosphorus
 - Seasonal discharge limits
 - Reuse requirements
- Multiple potential benefits of discharge
 - Increased flow in Harpeth during low flow conditions
 - Increased reuse and decreased potable demand

Existing WWTP

Existing WWTP Evaluation

- Physical condition assessment
 - Process/mechanical equipment evaluation
 - Buildings and unit process structure condition assessment
 - Electrical condition assessment
 - Condition/Criticality score assigned to each unit process
- Biological Capacity Analysis
 - Unit process sizing
 - Unit process operating conditions
- Hydraulic Evaluation
 - Hydraulic profile modeling
 - Hydraulic stress testing

Physical Facilities Assessment

- Most equipment is nearing the anticipated 30 year useful life
- Replacement and repair is needed to maintain the existing WWTP equipment and facilities
- While costs are currently under development, there is not a “no cost” option to continue plant operations at current level of service
- “Headworks were constructed in 1996 upgrade and equipment is rusting and corroding”

Biological Capacity Analysis

- Biological capacity could be increased at facility
 - Process sizing
 - Operating conditions
 - Maximum capacity = 18 mgd
- Limiting process is DENITRIFICATION

- Denitrification filters have a maximum capacity of 13 mgd
- Additional filter is required
- Analysis does not consider plant hydraulic capacity (ability to pass peak flows through facility)

Hydraulic Capacity Analysis

- Hydraulic Evaluation
 - Hydraulic profile modeling and stress testing
 - Results
 - * Hydraulic restrictions occur at current design peak flows
 - * Maximum hydraulic capacity without new pump station between each process structure is 48 mgd
- CDM is finalizing hydraulic analyses
 - Option 1 - 12 mgd average flow; 38 mgd peak hydraulic flow
 - Option 2 – 16 mgd average flow; 48 mgd peak hydraulic flow
 - Both scenarios require a 5 MG equalization tank

Existing WWTP Upgrade Capital Costs

- Preliminary Costs
- Option 1
 - 12 mgd average biological capacity; 38 mgd peak flow
 - \$6.3M
- Option 2
 - 16 mgd average biological capacity; 48 mgd peak flow
 - \$18.6M
- Additional O&M Costs ~\$290k/year

Potential New WWTP

Wastewater Demand Projection

- Graph reviewed

Reliable Technologies for Meeting Anticipated Requirements

- WWTP Workshop was held to identify process alternatives
- EPA Guidelines for Nutrient Removal were reviewed with Steering Committee and WWTP Staff

Process	Biological Process	Tertiary Treatment	Disinfection
Option 1	Conventional Plug-Flow Activated Sludge	Denitrification Filter	UV & UV-AOP
Option 2	Oxidation Ditch	Denitrification Filter	UV & UV-AOP
Option 3	Conventional Plug-Flow Activated Sludge	Membrane Bioreactor	UV & UV-AOP

Strategy I – A²o + Tertiary Filtration Process

- Process diagram for Options 1 and 2 reviewed
- Secondary treatment can be accomplished either using conventional plug flow or with an oxidation ditch configuration

Strategy II – Modified Bardenpho Process

- Process diagram for Option 3 reviewed
- Secondary treatment can be accomplished either in a conventional plug flow configuration with a membrane filter

New WWTP Preliminary Conceptual Costs (without Biosolids Handling Facilities)

Option #1 A ² o	4 mgd (ADF)	6 mgd (ADF)	8 mgd (ADF)
Capital Costs	\$28M	\$36M	\$50M
Annual O&M Costs	\$388,000	\$412,000	\$776,000

Option #2 MBR	4 mgd (ADF)	6 mgd (ADF)	8 mgd (ADF)
Capital Costs	\$32M	\$41M	\$57M
Annual O&M Costs	\$588,000	\$782,000	\$1,176,000

- Potential new WWTP could be at Goose Creek site
- Potential new WWTP could be at existing WWTP site
 - Footprint is available at existing WWTP site
 - Hydraulics would require new plant as parallel train

Biosolids

Existing Solids Treatment Facilities

- Existing facility condition assessment results showed that biosolids equipment is at the end of its useful life
- Additional capacity required to handle future wastewater flows

- Future biosolids handling → *Process Criteria*

Produce Class A Biosolids	Minimize Energy Consumption	Efficiency of Operations
Sustainability	Diverse Portfolio of Produce Disposal Options	Odor Control
Reliability	Risk Reduction	Automated Processes
Environmental/Public Acceptance	Expandable Strategy for Growth	

Biosolids Treatment Strategy

- One WWTP
 - All future 24 mgd wastewater treatment at Franklin WWTP
- Two WWTPs
 - Full solids treatment process at existing Franklin WWTP
 - Partial solids treatment (Thickening) at potential new WWTP with transport of thickened solids to Franklin WWTP to complete the treatment process
- Technical memorandum has been posted to IWRP website

Process Alternatives

- Biosolids Workshop was held to identify process alternatives
- Biosolids Regulations and disposal options by "Class" were reviewed with Steering Committee and WWTP Staff

Process Train	Thickening	Stabilization	Dewatering	Drying	Biosolids Class
Option 1 (Existing)	DAF	None	Belt Filter Press	None	N/A
Option 2	Drum Thickener	Anaerobic Digestion	Screw Press	Solar Dryer	A
Option 3	Screw Thickener	Anaerobic Digestion	Centrifuge	Rotary Drum/Belt Dryer	A
Option 4	Gravity Belt Thickener	None	Centrifuge	Belt Dryer with ERS	N/A

Option 1 – Expand Existing Solids Process

- Dissolved Air Flootation (DAF) Thickening
- No Stabilization
- Belt Filter Press Dewatering
- No Drying

Advantages	Disadvantages
Staff has extensive O&M experience	High estimated annual O&M cost
Low capital construction cost	Continued reliance on landfill disposal of biosolids
Low overall energy consumption	Does not produce Class A biosolids

Option 2 – Digestion and Solar Drying

- Rotary Drum Thickening
- Anaerobic Digestion
- Screw Press Dewatering
- Solar Drying

Advantages	Disadvantages
May produce Class A biosolids	High energy consumption if continuous odor control is required
Low annual O&M cost	Solar dryer requires large land area
Energy can be recovered from biogas	High capital cost

Option 3 – Digestion and Belt Drying

- Screw Thickening
- Anaerobic Digestion
- Centrifuge Dewatering
- Belt Drying

Advantages	Disadvantages
Produces Class A biosolids	High overall energy consumption
Energy can be recovered from biogas	Mechanical complexity
Mesophilic anaerobic digestion process is well understood with many installations	High capital cost associated with belt dryer

Option 4 – No Stabilization & Belt Dryer w/ERS

- Gravity Belt Thickening
- No Stabilization (Belt Dryer with Energy Recovery System (ERS))
- Centrifuge Dewatering

Advantages	Disadvantages
Reduces hauling by 90 percent	Does not produce Class A biosolids
Low overall energy consumption	ERS requires additional chemicals
Energy from biosolids is recycled in drying	Centrifuges & ERS add mechanical complexity

Biosolids Conceptual Capital Costs

- Option 1 – Keep and Expand Existing Process
Biosolids Handling at One Plant - \$23M
Biosolids Handling at Two Plants - \$34M
- Option 2 – Anaerobic Digestion, Solar Drying
Biosolids Handling at One Plant - \$81M
Biosolids Handling at Two Plants - \$90M
- Option 3 – Anaerobic Digestion, Belt Drying
Biosolids Handling at One Plant - \$67M
Biosolids Handling at Two Plants - \$77M
- Option 4 – No Digestion, Belt Dryer w/ERS
Biosolids Handling at One Plant - \$77M
Biosolids Handling at Two Plants - \$86M

Biosolids O&M Costs

- Option 1 – Keep and Expand Existing Process
12 mgd (Initial Conditions) - O&M cost per Dry Ton - \$381
24 mgd (2040 Conditions) - O&M cost per Dry Ton - \$361
- Option 2 – Anaerobic Digestion, Solar Drying
12 mgd (Initial Conditions) - O&M cost per Dry Ton - \$202
24 mgd (2040 Conditions) - O&M cost per Dry Ton - \$166
- Option 3 – Anaerobic Digestion, Belt Drying
12 mgd (Initial Conditions) - O&M cost per Dry Ton - \$328
24 mgd (2040 Conditions) - O&M cost per Dry Ton - \$239
- Option 4 – No Digestion, Belt Dryer w/ERS
12 mgd (Initial Conditions) - O&M cost per Dry Ton - \$372
24 mgd (2040 Conditions) - O&M cost per Dry Ton - \$306
- Existing Plant
12 mgd (Initial Conditions) - O&M cost per Dry Ton - \$547

Next Steps

- Collection System
 - Staff to inspect high "R-value" areas
 - Develop rehabilitation and replacement costs for options
- Develop costs to maintain WWTP facility at 12 mgd
- Develop costs to upgrade WWTP to 16 mgd
- Select process and finalize costs for potential new WWTP
- Select preferred biosolids handling process and finalize layouts
- Integrate information into River WQ and STELLA model
- Additional BOMA Updates
 - September 13, 2011 – Technical Analysis Summary
 - Stakeholder Workshop

7.* Consideration of Acquisition and Development of the 84 Lumber Site as a Consolidated Public Works Facility

Eric Stuckey, City Administrator

- a. A RESOLUTION of Intent to Purchase Property for Consolidated Public Works Facility (Water/Streets/Fleet Maintenance)
- b. RESOLUTION 2011-42, A RESOLUTION Declaring the Intent of The City of Franklin to Reimburse Itself for Certain Expenditures Relating to Public Works Projects With the Proceeds

of Bonds or Other Debt Obligations to be Issued by The City of Franklin, Tennessee

BOMA is considering two resolutions:

- 2011-43 – Intent to Purchase 124 Lumber Drive (84 Lumber)
- 2011-42 – Reimbursement Resolution providing for the use of bonds or other debt obligations to reimburse project costs

Current Operations on Hillsboro Road

- The City operates its Water Management service function and Fleet Maintenance operation at 403-405 Hillsboro Road (near the Del Rio Pike intersection)
- The property ("The Hill") includes two parcels totaling 5.5 acres and has been the home of various City functions since 1960
- The primary building is approximately 20,000 square feet and was built in 1981
- A second building is on the smaller parcel and is 3,750 square feet

Current Operations on Southeast Parkway

- The City operates its Streets Maintenance function on a 3.49 acre facility on Southeast Parkway
- The primary building is approximately 7,780 square feet and was built in 1998
- An additional storage shed was constructed on the rear of the property in 1994

The 84 Lumber Property Summary

- Proposed purchase price \$2.4 million
- 15.81 acres (half currently developed)
- Two 20,000 square feet buildings built in 2003
- Three large storage sheds totaling over 21,000 square feet
- Located off Columbia Avenue near the City's other primary public works on Century Court
- Assessor's appraised value is \$3.63 million
- Highly competitive compared to other large properties in the area

The Development Plan

- **Phase 1** – Relocate the existing functions on "The Hill" – Water Management service and Fleet Maintenance
- Building A to include the water/sewer service area and administrative offices
- Phase 1 would also include the heavy construction including:
 - Build-out of locker rooms
 - Second floor area in the administrative office portion of Building A
 - Elevator in Building A
 - Installation of storage and inventory control area
- Building B to be modified to accommodate Fleet Maintenance. Including:
 - Installation of a pit area
 - Placement of existing lifts
 - Parts storage and inventory control area
 - Addition of conditioned space in portions of the building
 - Provide for space to accommodate future move of Streets functions such as sign shop area
- **Phase 2** would consist of the remaining modifications to accommodate the move of Streets to the facility (primarily office and meeting space build-out)

Phase 1 and 2 design and construction \$2.1 million. Other site improvements and transition costs are estimated at \$369,000, for a total of \$2.47 million

Site Access

- For the facility to be efficient signalized access to Columbia Avenue is needed
- The City has worked with Lasko the neighboring property to the north to provide for access
- The City would need to construct an access road across a portion of the Lasko property and install a traffic signal at the Lasko entrance
- This signal would also serve the Longview property on the west side of Columbia Avenue

Site Access Cost Summary

• Road Design and geotechnical	\$ 59,200
• Access Road Construction	300,000
• Traffic Signal Design	25,000
• Traffic Signal Installation	315,000
• Documents	35,500
• Fiber Installation	10,000
• Cost Recovery	(\$ 115,000)
Total Projected Cost	\$ 629,700

Surplus Property Disposition

- The City sought an appraisal of the value of the two properties and received the following opinion:
 - Hillsboro Road Property \$1.5 to 1.8 M
 - Southeast Parkway \$1.0 to 1.3 M
- As City operations were moved to the new facility, the City could declare each property as surplus and proceed with disposition per ordinance

Financing

- The purchase and development of the consolidated facility would need to be incorporated into the City Capital Investment Program (CIP)
- A 12-year bond financing is recommended
- Assuming a \$5 million in bonds, a level debt service of \$500,000 per year
- This could be split 50/50 between the general fund (Streets) and enterprise funds (Water and Sewer)
- We believe that operational efficiencies from the consolidation and more adequate facilities would offset a significant portion of the additional debt service

Examples of Operational Efficiencies

- Sharing of equipment reducing the need to add equipment as the City grows
- By sharing resources staff estimated the reduction of two backhoes, two dump trucks, and a number of other smaller pieces of equipment
- Staffing efficiencies are also projected
- Staffing and equipment savings projections are approximately \$130,000
- Fleet Maintenance capabilities can be more fully realized with better space and improve ability to work on large equipment

Project Summary

• Cost of Acquisition	\$ 2,410,150
• Development Costs	2,469,000
• Access Costs	629,700
• Less: Value of Existing Properties	(2,427,000) to
	<u>(3,027,000)</u>
<i>Total Project Cost</i>	<i>\$ 3,081,850 to</i>
	<i>\$ 2,481,850</i>

Lengthy discussion ensued on various aspects of the proposal including pros and cons of purchasing, financing, utilization of the property, and ingress/ egress.

- 8.* **Consideration of RESOLUTION 2011-41, A Resolution Authorizing the Issuance of Sewer and Water Revenue and Tax Refunding Bonds in the Aggregate Principal Amount of Not To Exceed Twenty-One Million Dollars (\$21,000,000) of The City of Franklin, Tennessee; Making Provision for the Issuance, Sale and Payment of Said Bonds; Establishing the Terms Thereof and The Disposition of Proceeds Therefrom; Providing for the Collection and Disposition of Revenues from The Water and Sewer System of The Municipality and Providing for The Levy of Taxes for the Payment of Principal of, Premium, If Any, and Interest on the Bonds**

Russ Truell, ACA Finance & Administration

Russ Truell related that many things have changed since this was first addressed. It was announced during the Budget and Finance Committee meeting that there was an opportunity for a direct bank loan. SunTrust offered the opportunity for a non-bank qualified loan rate in the range of 2.4% to 2.6% with a term of 15 years. The Resolution was changed and a letter from the State Comptroller was received today.

- 9.* **Consideration of Interlocal Agreement Between The City of Franklin, Tennessee and Williamson County, Tennessee for The Collection of Sewer Pipeline Assessment (Meadowgreen) (COF Contract 2011-112)**

David Parker, City Engineer/CIP Executive

Eric Stuckey withdrew this item and said it would be withdrawn from the voting agenda as well.

**10. Consideration of the Request for Sanitary Sewer Availability for 9330 Clovercroft Road
Eric Gardner, Engineering Director**

Eric Gardner reported the house on this property was built in 1997 and there are no problems with the septic system. The owner would like to make use of the area above the septic field. With the construction of the adjacent Clovercroft School, the owner thought sanitary sewer access would be closer to her property; however, it is a 1,000 feet away from her property. Annexation was not discussed.

Mr. Gardner will speak with the property owner regarding annexation and if she is aware of the costs involved to tie into city sewer 1,000 feet away from her property. Eric Stuckey advised once these questions are answered the request can be put on a voting agenda.

**11.* Consideration of Liquor License Retailer's Certificate for New Owner of Mallory Lane Wine and Spirits (Robert Scales), 3070 Mallory Lane #100, Franklin, Tennessee 37067
Lanaii Benne, Assistant City Recorder**

No comments or questions

**12.* Consideration of RESOLUTION to Modify Pension Plan
Russ Truell, ACA Finance & Administration
Shirley Harmon, Human Resources Director**

Amendment changes responsibility of Trustee from three designated City positions to "the City."

**13.* Consideration of Custodial Agreement for Pension Assets
Russ Truell, ACA Finance & Administration
Shirley Harmon, Human Resources Director**

The Pension and the Budget and Finance Committees recommend approval of a Custodial Agreement for pension assets with US Bank.

**14.* Consideration of Sunset Clause for Retiree Insurance Option
Shirley Harmon, Human Resources Director**

Staff concurs with the recommendation of Sherrill Morgan to recommend that the City allow the Special Early Retirement Option for retiree insurance to sunset on September 30, 2011.

ADJOURN

Work Session adjourned 7:00 p.m.

Mayor Ken Moore

Minutes prepared by: Linda Fulwider, Board Recording Secretary, City Administrator's Office - 11/22/2011 3:25 PM