METROPOLITAN SEWERAGE DISTRICT BOARD

March 23, 1982

The regular monthly meeting of the Metropolitan Sewerage District Board was held in the Boardroom of MSD's Administration Building at 2 p.m., Tuesday, March 23, 1982.

Chairman Robinson called the meeting to order, and Mrs. Crowe called the roll. In addition to the Chairman, the following members were present: Messrs. Boggs, Clark, Dent, Griffith, Hyatt, Pope, and Williams.

In addition to the Board, the following attorney, consultants, and MSD staff were present: Mr. John S. Stevens; Messrs. Dean Huber, Lloyd R. Robinson, Jr., and W. H. Kinsland; Messrs. W. H. Mull, Doug Thrash, and Marc Fender and Mrs. Jan Crowe.

Mr. Boggs moved that the minutes of the February 16 regular meeting stand approved as written. Mr. Dent seconded the motion, and voice vote was unanimous in favor of the motion.

MINUTES OF PUBLIC HEARING

At 2:03 p.m., Chairman Robinson declared a public hearing opening for the purpose of presenting to and receiving comments and statements from the public concerning the Facilities Plan Update as advertised in THE ASHEVILLE CITIZEN and THE ASHEVILLE TIMES February 19 and 26 and March 5 and 12, 1982.

NOTICE OF PUBLIC HEARING

A public hearing will be held on Tuesday, March 23, 1982, in the Boardroom of the Metropolitan Sewerage District of Buncombe County, Highway 251 North, Asheville, North Carolina, at 2 p.m., local time, for the purpose of presenting to the public the Facilities Plan for the Proposed Improvements to the Public Sanitary Sewer System of Metropolitan Asheville for the Metropolitan Sewerage District of Buncombe County, North Carolina, Facilities Plan Update, Metropolitan Sewage Treatment Plant, and for the purpose of receiving comments and statements from the public concerning the Facilities Plan Update. This meeting is being held to comply with requirements of the Environmental Protection Agency and National Environmental Policy Act of 1969.

This project is a portion of the Step I Facilities Plan Stage of the proposed improvements to the Metropolitan Sewerage System for Buncombe County, North Carolina. This Update contains required improvements to the biological treatment portion of the Metropolitan Sewage Treatment Plant. It was prepared by Harry Hendon and Associates, Inc., of Birmingham, Alabama.

Detailed information concerning this project is available at the offices of the Metropolitan Sewerage District (telephone 704/255-5382).

METROPOLITAN SEWERAGE DISTRICT
OF BUNCOMBE COUNTY

W. H. Mull, Engineer-Manager

Dr. Lloyd R. Robinson, Jr., of Harry Hendon and Associates, presented the Facility Plan Update to those present, after which there was considerable discussion between the Board and the Consulting Engineers. A copy of the court stenographer's report is attached hereto and thereby made a part of these minutes.

Chairman Robinson closed the public hearing at 2:52 p.m. and reconvened the regular meeting.

Mr. W. H. Mull, Engineer-Manager, reported on the following:

a. Status report on Hominy Valley, South Buncombe, and Weaverville project: Mr. Mull submitted the following information to the Board: Hominy Valley: Construction is 99% complete on Phase I; construction is 18% complete on Phase II; construction is 9.5% complete on Phase III; 7 parcels remain to be acquired, of which all 7 are under condemnation. South Buncombe: Construction is 45% complete on Phase I; the contract has been awarded and clearing has begun on Phase II; 15 parcels remain to be acquired, of which 13 are under condemnation and 2 are under negotiation. Weaverville: Of the 17 parcels on this project, 8 have been acquired, 5 are under negotiation, and 4 are to be condemned. This report was received as information by the Board.

b. Ratification of action taken by Right-of-Way Review Committee: Mr. Dent moved that the Board ratify these actions, thereby accepting the total report of the committee, which was to authorize monetary payment for easement over the following parcels: Hominy Valley: #13, Smith, up to $3,600. South Buncombe: #93, Brown, up to $3,000. Weaverville: #15, Jesse Roberts, up to $2,500; #16, O'Neil Roberts, up to $3,000. Mr. Boggs seconded the motion, and roll call vote was unanimous in favor of the motion.

c. Status report on hydroelectric project: Mr. Mull told the Board that the Land-of-Sky A-95 Review Committee unanimously approved the project; that people who canoe on the French Broad River had requested that a portage trail be built downstream around the project for their use; that, at a meeting in Raleigh, State officials were enthusiastic and had stated that the project was eligible for grant funds; that a copy of the study has been sent to the State Clearinghouse for review. Mr. Mull then read to the Board a letter received by the MSD from the Department of the Interior, Fish and Wildlife Service, concerning the project and posing questions regarding its possible impact on fish and wildlife in the area surrounding the project. This report was received as information by the Board.

d. Updated costs estimates (including rights-of-way) on Hominy Valley and South Buncombe projects: Mr. Huber presented these costs estimates, which were received as information by the Board. A copy of the costs estimates is attached hereto and thereby made a part of these minutes.

e. Request from Coca-Cola for rebate of certain sewer service charges: After reviewing a letter and table of flows, charges, interest, etc., to the MSD from Mr. Frederick J. Seufert, consultant for Coca-Cola, it was the consensus of the Board that Mr. Mull reply to Mr. Seufert's letter requesting evidence that a meter had been installed and advising that after same was received the matter would be considered by the Board.

Chairman Robinson appointed Messrs. Boggs, Pope, Smith, and Warlick to the Budget Committee for Fiscal Year 1982-83. Mr. Smith will chair the committee.

Date of the next regular meeting of the MSD Board will be April 20, 1982.

There being no further business, the meeting was adjourned at 3:30 p.m.

Secretary

FACILITY PLAN

FOR THE

PROPOSED IMPROVEMENTS

TO THE

PUBLIC SANITARY SEWER SYSTEMS

OF

METROPOLITAN ASHEVILLE

FOR THE

METROPOLITAN SEWERAGE DISTRICT OF

BUNCOMBE COUNTY, NORTH CAROLINA

FACILITY PLAN UPDATE

MAIN WASTEWATER TREATMENT PLANT

E.P.A. PROJECT NO. C-370391

The within is the transcript of a public hearing held in the above matter on Tuesday, March 23, 1982, commencing at the hour of 2:00 pm in the offices of the Metropolitan Sewerage District, Riverside Drive, Asheville, North Carolina.

REPORTED BY: Edrie L. Strader

BOARD MEMBERS PRESENT AT ROLL CALL:

Chairman Robinson, Mr. Griffith, Ben Clark, Walter Boggs, Roy Pope, Frank Hyatt, Charles Dent & Leon Williams. Absent were Frank Smith and Paul Warlick.

OTHERS PRESENT:

John Stevens, Counsel; Bill Mull, Eng./Mgr.; R L Cunningham, MSD, Plt. Supt.; E. Marc Fender, MSD, Asst. Supt. of Oper.; Lloyd R. Robinson, Jr., PhD, Harry Hendon & Assoc.; Bill Kinsland and Dean Huber, also of Hendon Assoc.

** ** **

BY CHAIRMAN ROBINSON: (Meeting was called to order and Secretary called the roll.)

Today, we are having a public hearing of the 201 and I believe Dr. Robinson is going to address this public hearing, so we will temporarily suspend our regular meeting and now go into the public hearing at 2:03 p.m.. Dr. Robinson.

BY LLOYD R. ROBINSON, JR., PhD, HARRY HENDON & ASSOC., INC.:

As advertised four times in the newspaper, we are now holding a public hearing for the purpose of presenting to the public the Facility Plan for the Proposed Amendments to the Public Sanitary Sewer Systems of Metropolitan Asheville for the Metropolitan Sewerage District of Buncombe County, North Carolina, Facility Plan Update,

Main Wastewater Treatment Plant and for the purpose of receiving comments and statements from the public concerning the Facility Plan Update. This meeting is being held to comply with requirements of the U. S. Environmental Protection Agency and the National Environmental Policy Act of 1969. This project is a portion of the Step 1 Facility Plan Stage of proposed improvements to the Metropolitan Sewage System for Buncombe County, North Carolina. This Update contains recommended improvements to the biological treatment portion of the Main Wastewater Treatment Plant and also for a hydroelectric project. It was prepared by Harry Hendon and Associates, Inc., Birmingham, Alabama. Each of you has in your folder an Executive Summary of the Facility Plan Update and, I believe, each of you is familiar basically with what this Update involves and as apparently no outside public attendees showed up, I'll just try to bring you up-to-date as rapidly as possible and answer any questions that you may have. A little bit of background that's not in the Update: The Metropolitan Sewage Treatment System which serves much of Buncombe County, North Carolina, including the City of Asheville, and which has the design capacity projected for fifteen years was placed in service in 1967. It is now nearing or at it's designed capacity

of an average flow of 25 MGD. A facility plan initially funded by the U. S. Environmental Protection Agency in 1974 for expanding the MSD system including these facilities was prepared and submitted to E.P.A. and the Division of Environmental Management of the North Carolina Department of Natural Resources Community Development in October of 1976 following a public hearing held on September 14, 1976. This public hearing is an update to that 1976 hearing. Because of a recent surge in growth in the area and to reflect requirements of recent change in federal regulations, the Facility Plan is currently being revised and based on recent schedules with similar projects and with discussion with E.P.A., it's estimated that the proposed expansions for the subject facility will not be completed for several years. Effluent BOD and suspended solids concentration hover near their maximums of 30 milligrams per liter as permitted by the N.P.D.S. permit. Because of the above conditions it is imperative that the treatment system be operated at its maximum attainable efficiency until it can get additional facilities. The purpose of this study which started late in December, 1980, and continued up through December, 1981, the purpose was to observe and vary operating modes of the system to get the most efficient

treatment that we could out of the existing facilities. The existing plant which is shown on this map consists of raw sewage pumping, bar screens, grit removal, primary settling and a biological treatment system that goes just past the Administration Building on down including aeration for biological stabilization of organic waste and final settling, chlorine for disinfection and a measuring flume before it's discharged to the river. Sludge which is collected, the solids which are collected are pumped to two digesters where they are further stabilized, then pumped up the hill to the lagoon. That is basically what the existing system consists of. The biological treatment portion of the plant which is the one that is critical to meet the N.P.D.S. permit consists of primary settling, the aeration and the final settling. Now what we analyzed and to see if the part of the plant which is the most subject to control and operational changes is the aeration portion and the final settling portion of the plant. This aeration system can be operated in three different modes, when it was designed in the '60's. The system that it's operated most of the time we call step-aeration. This system actually consists of eight paths up and down but really only two bases, the west and the east. Now when the sewage comes in, the way it's

normally operated, it passes down a channel to the far end (indicating on map) and a portion of the sewage is allowed to enter this gate and this gate to start both the east and west train, at which time returned solids, the microorganisms and the bacteria which has settled out in the final clarifier are pumped back and added. These are our workers, the sludge, the micro-organisms; some is added here and some is added here to the two trains. Now as the sewage and the micro-organisms pass down this path and down this path, air is pumped into the basin, it bubbles to the surface and causes the basin to roll in a spiral flow. The microorganisms take the organic matter out of the sewage and use it for food and to produce new cells. The idea of the step-aeration is that we only put in one fourth of the sewage at this point and the bugs have just about used it all up by the time it gets to the end. As it turns around and goes back here, we add another fourth of the sewage at this point; so now the bugs have a fresh food source and they can operate on this one; we add another fourth this way and the final fourth this way - that's why it's called step-aeration, we feed it in four steps. Then it passes into the settling basins, the microorganisms are settled out, carried back through the pump station and if we have too many,

if the concentration gets too high, the waste sludge as we call it is pumped up to the digesters or back to the head of the plant, back to the primary and to the digesters. The rest of it is sent back for our workers. The second alternative that we can use is called conventional activated sludge. In a conventional process we add all the returned sludge and the sewage at the same place. So it has four passes; one, two, three, four passes to stabilize (indicating). Same on the other side. There is a third process in which we just add the organisms here and allow them to pass through three basins in which any food that may residual, they eat it up until they are totally starved. We add all the sewage at the start of the fourth basin and because the organisms are so starved, they latch onto it all in this one short pass. That is called contact stabilization. So we have three possible processes to look at. We started a study in January, started originally using the step-aeration which has operated traditionally. The west basin we used as a control system; we did not change the way it operated from the way it had been operating. The east side we used to change flows, change solids concentrations. After several weeks we were just getting the system stabilized and all of a sudden an industrial

shock load hit, killed our system, we had to build the organism back up. This kept going until, as you know, early last summer you authorized us to do an industrial surveillance program in which we identified and began a procedure to control industrial discharges which were causing problems with the system. This study continued using the three different control systems we mentioned up until December 18th. In the main report, not in your Executive Summary, we summarized the operation modes of our study; we used step-aeration up until the middle of March, contact stabilization until the middle of May, conventional activated sludge up until the middle of July, then we tried contact stabilization again and finally conventional activated sludge. That's the study pattern we ran through the year. Now our initial schedule was projected for just a six months study but we ran into so much difficulty with controlling the system every time it got killed from a shock load and building it back up that it really took us a year to get enough data to identify all the problems in the system. And incidentally, to show how difficult the system operated, I could show you all of these, these are just outlines of the control parameters in each study. I could go through all of these but each one

of them, you see how the numbers are up and down all over the place. An ideally operating situation, this thing should run pretty much on straight lines, maybe a little bit higher during the week and a little bit lower during the weekends when the industries go off line. But as you can see our system is just one helter-skelter, mish-mash; the entire year presented this type of problem. As the study progressed, we observed all the parameters that were available to study the industrial parameters causing the proposed problems and then we got down to identifying where the problems were. One problem which did not relate directly to the operational performance but had great affect on the maintenance and up-keep was our aeration system. The old diffuser system kept plugging with a continual maintenance headache and we knew the aeration system had to be replaced. In fact the headers are rusting out; you can go down there to the steel air distribution pipes and almost put your finger or a pencil through them in places. So we analyzed five different aeration systems trying to identify one that 1) was as maintenance free as possible, 2) as energy efficient as possible and 3) as inexpensive as possible. Mr. Cunningham, Mr. Fender and Mr. Kinsland of our office made a little trip a couple of months ago to look

at several alternative systems. I was going to go but I ended up with the flu. We analyzed five systems to add the air. Two of these systems, the most energy efficient, the entire bottom of these basins would be covered with porous ceramic domes, about a foot or 18 inches in diameter, and a fine curtain of air bubbles would rise through the tanks. Because of the efficiency of fine bubbles for transferring air, this would use slightly less energy. However, in our investigations, both on that trip and some other reports we found, this system creates almost insurmountable maintenance problems. So these two systems were rejected because maintenance costs would far offset any energy savings. Then we looked at three other systems which provide a conventional roll similar to what we have in the existing tank. We have looked at two that are the most attractive, have not made a final decision. One of the systems uses a rubber sock with over 4,000 minute slits in each one of the socks to provide a fine bubble curtain and these would be placed down the middle of the tank and the roll would be in a double spiral. The biggest problem with this system is that the company is only five years old and if they went out of business, we would never be able to get any replacement rubber socks. The other system which is virtually maintenance free is made out

of light weight stainless steel to the same technology used in the dairy industry to make dairy milkers and sanitizing equipment. The bubble size is slightly higher, therefore, it takes slightly more power to use but it is not subject to clogging which results in head buildup and thus more power consumption. It also would be mounted right down the center of the bottom of each basin and these systems have been operating for 10 or 15 years with basically no service in the air diffuser system. Now, with that portion identified, we also plan to replace the blowers in the blower building for two reasons. One, they have been in operation for 15 years and are virtually worn out and number two, they have no turn-down capacity, so if we only need half of the air out of the blowers or 75 percent of the blowers, we have no method to match air supply with air demand and thus with power consumption. So we are planning on new blowers which can be turned down which we will monitor with automatic monitors in the basins and when the final plant expansion is completed, we hope to be able to put in a computer system so that this will be automatically monitored 24 hours a day so we match the power demand with the air requirement. We are putting in a similar system in another city right now. It's not a brand new concept, it's fairly recent

but it is a system that helps us get the maximum efficiency out of our power. Now, the major problem which we finally identified with operating this system, discounting the industrial problem which I already mentioned, was in our ability to separate our activated sludge or our solid particles from the treated sewage before we discharge it to the river. The system as designed in the 60's used the technology available at that time. Since that time, we have identified that these final settling tanks must have more capacity than previously thought. These basins now provide a capacity to handle 950 gallons per square foot of surface per day. That is the capacity that we have. Current design criteria says that that is twice what it should be so we are proposing to double this capacity to give us, instead of 900, 450 gallons per square foot per day. In other words, what we are doing, we are slowing down the water giving us more time to separate the solids from the sewage. Also the weirs, the plates at the end of the basin that the wastewater flows over, are not long enough. We need additional capacity in them, so they will be supplemented with additional weirs to slow down that velocity. With those two velocities plus additional pumps to get the solids back, we will be able to increase the concentration of our little workers in

the aeration basin. In fact, the maximum that we were able to get was 2,000 parts per million and we found it very difficult to contain at that concentration. With the normal operation we can hardly get up to a thousand parts per million solids in the aeration basin and those solids, those living microorganisms, are the little critters that actually treat the sewage, give us a clear effluent. So our proposal, then, which is listed in your Executive Summary, will be to:

1. Add a new blower system including four 400 HP blowers with turn-down capabilities.
2. Add a new Air Diffuser System mounted in the bottom of the center of each aeration tank to provide a double spiral-roll aeration pattern. These two systems give us a more efficient utilization of energy and hopefully at least a 15 percent power savings in the most power intensity part of the entire treatment plant.
3. The third recommendation is we will be adding some new gates in these aeration basins and some new drains to facilitate maintenance. The way it is set up right now, if we want to take one out of service, we have to take half of the entire system out. We cannot separate

each of these four. We will be adding gates so that we can drain and we can service one-eighth instead of one-half. So, in other words, instead of losing 50 percent of our treatment capacity, we only lose 12-1/2 percent during service.

4. We are going to add dissolved oxygen and suspended solids monitoring equipment to make it possible to more closely control the process and blower utilization. And this equipment will have the capability to tie into the computer which we hope to include as part of the major plant expansion.

5. We will replace the sludge collection mechanisms in the final clarifiers. As you all know that we have had problems with scum collecting when the wind is from a certain direction and the odor problems and the complaints we've had. Incidentally, the system is worn out anyway. We will put in a new system which will have automatic scum collection capabilities so we will never have that scum collecting on those clarifiers again. It will be automatically removed on a continuous basis.

6. We will add additional effluent weir capacity

as I explained.

7. We will add two additional final clarifiers to double our capacity. That's what this red outline basin is right here (indicating).

8. We will provide additional sludge recirculation pumping facilities to permit sludge return at a rate as high as 100 percent of the average plant design flow.

Our present maximum capacity is only 40 percent. We will go to 100 percent maximum.

Before going to cost, I have been mentioning the plant expansion as well. We have also shown what would happen if, and we have not come to a size so I am not reporting that today, but if we went to a 50 percent plant expansion, that's from 29 MGD to 37-1/2 MGD, we would have to also add one more set of aeration basins. In other words, increase this 50 percent and add out here two additional final clarifiers (indicating) and our chlorine contact chamber which will have to be moved from here to a new place in between these basins. That, for the biological treatment portion of the plant, is what it would look like if we went to a 50 percent expansion. Mr. Mull and Mr. Huber have been discussing with the State the possibility of including that portion of the expansion at the same time we do the upgrade.

This would give us the attractive cost saving that the contractor would be less limited in phasing his construction to keep treatment operating during construction. And when you force a contractor to phase his construction, the price goes up. Also we wouldn't have to complete this and come back in six months with another contractor to build the new basins. So we would have two real potentials for cost saving if our way is cleared to increase the biological portion of the plant at the same time we do the upgrade. That is not a portion of the recommendation here; that has developed, that idea has developed since the upgrade report was submitted and a recommendation to that effect hopefully will be submitted either in the April or the May meeting.

The one additional thing which we must point out on this is the cost and the affect the cost will have on user charges. The estimated capital cost for the proposed improvements, that's the eight improvements that I read off that are on your Executive Summary, is $4,187,800. It is anticipated that the capital costs will be provided as follows:

Federal Grant (75%, that is)	$3,140,850
State Grant (12½%)	523,475
Local Share (12½%)	523,475

Now, we have a possibility, because of our energy and

cost saving projections, to receive this grant under Innovative and Alternative Technology provisions of the grant program. If that happens, if these funds can be made available, the Federal Grant will jump from 75 to 85 percent, or $3,559,630. Then the State Grant would be 7-1/2 percent or $314,085 and the Local Share also 7-1/2 percent. The local share of the estimated capital costs should be available from the Capital Improvements Reserve Fund maintained by MSD through a Reserve Fund item which is an established routine line item in the MSD budget. The projected Annual Operation of Maintenance cost increase to the system of $11,450 would be an insignificant budget increase as stated especially in view of the temporary capacity increase of 5 MGD that it provides. I'll allude to that in just a second. However, this number is conservative and it is quite likely that there will be no identifiable Operation and Maintenance cost increases attributable to the proposed project. Thus, the proposed Metropolitan Sewage Treatment Plant Update will have no effect on Customer Service Charges. The one objective which I neglected to mention further in the discussion which applies most importantly if we are delayed in the plant expansion is that we will be able to force through our biological treatment system, which is designed for

25 MGD, we will be able to, with careful control, force 30 MGD through this system for a 20 percent increase and still meet our effluent standards. It will take careful control but our study shows that we will be able to do it. So we are buying time until we can get the rest of the expansion completed and still not be on the ragged edge or the danger of a moratorium because we have exceeded our plant capacity. Now I can entertain questions on this portion of it which I think might be a good idea before we go to the other portion of the thing. Are there any questions on what this proposed system is or any questions I can answer?

BY CHAIRMAN ROBINSON:

This proposal is a 20 percent increase?

BY SPEAKER ROBINSON:

This is a 50 percent increase. Can we go off the record for a minute?

BY MR. STEVENS:

You're on the record anyway.

BY SPEAKER ROBINSON:

I want to point out -- if the written record says that we are going to have a permanent expansion from 25 to 30, they could say, "hey, you don't need to double 50 percent in capacity; this could be picked up some place." To go to 30 MGD, we're going to be on a very stringent

operational requirement. We can push it to 30 but it's a 25 MGD plant and we don't want to claim it being a 30 MGD plant. Our Facility Plant Update points out this is temporary. It's a temporary expedient until we get our plant expansion, then we will reduce the solids back to a more controllable level and then go on up with our normal design factors.

BY CHAIRMAN ROBINSON:

How long is temporary?

BY SPEAKER ROBINSON:

Until we can get the Update which we are trying -- the State wants to fund and go right away, we're talking maybe two or three years. If this latest advancement comes along and if we do the expansion at the same time we are doing the Update, then this biological system, basically we are still operating at 25 instead of 30; the rest of the capacity is in these other facilities. In other words, at 30 MGD, the operators have to stay right on top of it; we are carrying more solids than we want to but we can meet 30-30 with careful operation. We lose our buffer capacity in case an industry hits us so I was careful to say in here that it was temporary, so the 30 is a temporary expedient until we can put this and this in (indicating).

BY CHAIRMAN ROBINSON:

Well, I guess my question is what is your estimate in terms of time that 30 MGD will serve this community?

BY SPEAKER ROBINSON:

Oh! I'd hope that that would, uh -- well, of course, the economy turn around, if the interest rates drop and everything blow, maybe a couple of big industries come in in two years but I would expect the way things are going now, maybe five years. By that time we should have the rest of the expansion completed.

BY MR. DENT:

If we add the additional clarifiers, would they be utilized also during this time or would they just stand idle?

BY SPEAKER ROBINSON:

No, we have enough capacity we will use them all if they are placed in service.

BY MR. DENT:

Well, I wouldn't want something setting there remaining idle.

BY SPEAKER ROBINSON:

No, no. The expansion which also will include other improvements will also be designed, of course, with a -- if 37-1/2 million gallons, it may be 40; in fact, the board may elect to build even more capacity than E.P.A.

will fund. We have done this in other places. In other words, if E.P.A. would fund 40 MGD and you opt to go to 44 MGD, that other 4 MGD in cost you would have to pay 100 percent of the cost for that other 4 million. This is really dependent on your feeling of how fast the county is going to expand. Now, with the proposal we are tentatively looking at with a coinceneration (phonetic) that might make it attractive for industry to come in providing steam and power that could also rapidly increase the growth potential in the area. But under the normal situation right now, even without this, and this, (indicating) with careful operation we could probably go another five years.

BY MR. DENT:

What is the capacity of the existing lines coming into the plant now?

BY MR. MULL:

The main line coming in is probably 60 MGD or 70 MGD.

BY MR. DENT:

There is no problem then as far as feeding it in.

BY CHAIRMAN ROBINSON:

This is probably premature but if we went to the 50 percent capacity or 37-1/2 MGD, what is the difference in these numbers?

BY SPEAKER ROBINSON:

I haven't dealt at all with--

BY CHAIRMAN ROBINSON:

Is this what you said you could have in April or May would be the alternate in terms of dollars--

BY SPEAKER ROBINSON:

Yes, that is correct. We will have the whole thing completed, hopefully there -- all the dollar values--

BY CHAIRMAN ROBINSON:

But then this is based on what E.P.A. will approve in terms of grants?

BY SPEAKER ROBINSON:

That is correct. If, and you might be considering this, if E.P.A. says we will only fund 37-1/2 and you figure, hey, this city is going to take off as soon as the interest rates go down, you might consider, as we have in other communities, 100 percent funding on additional capacity; that is a legitimate alternative. So if we wanted to not go 50 percent but let's just go all the way to 100 percent, if we went to 100 percent, we would put another basin on this side, (indicating) we would put two more basins here and then, of course, we would double -- we don't have to add the 25, these are adequate so we would have to put two more here, we would have to double this system, double the pumping and change our sludge handling facilities. So, you know,

if we are talking about going to 50 million from 25, that's what it would look like.

BY MR. MULL:

If I might, I'd like to make a comment on the capacity we are talking about here where it's coming from the plant. It's a 25 MGD plant and it's been operating about at design capacity for a year or so. We applied to E.P.A. over a year ago, year and a half ago, I guess, to enlarge the plant expansion. Normally you would expand 50 to 100 percent, maybe go from 25 MGD to a 50 MGD or 37-1/2 are good increments so you've got another 15 or 20 years of growth. They told us it would take at least eight years, possibly longer, to approve all the paperwork, construction and get that done. In the interim we are sitting with a plant that's not going to meet effluent limitations probably another year or so and that was a year and a half ago because we are operating at capacity and we're putting a lot of energy into disposition of waste so this study was to really look at the plant and say what can we do now that we've discussed with E.P.A. What can we do now to try to improve the efficiency of this plant so that we can treat the 25 million gallons coming down plus maybe 26 or 27 million gallons, 28, whatever it might turn out to be until we can get this plant

expansion approved and the study showed that with some additional clarifiers, a change in aeration equipment, both in the basin and the blowers, that we could adequately treat what's coming in the pipe. We would still have a 25 MGD plant; we would add another clarifier to allow us to treat 25 MGD quite adequately which means that we can probably produce an increment of 20 parts per million in the normal secondary treatment. You can always overload any design that you put in so we can effectively go above the 25, maybe go to 30 MGD and meet 30-30, but not 20-20 limits. So this is going to give us some breathing room until the State and E.P.A. approve of a design capacity for us to enlarge the plant. And the stuff that we plan to put in now would simply complement what we put in later on, we wouldn't have to replace anything. So it's a false number but we can treat up to 30 million gallons with a 25 MGD plant if we do the necessary modifications to it. Does that cloudy it more? (pause) And that's on the main plant, I think Dean wants to talk on the hydro project.

BY SPEAKER ROBINSON:

All right. If there are no further questions then the, incidentally, this Facility Plan Update has been submitted in four volumes. The Executive Summary

describes Volume 1, which is a narrative description of what I have very, very briefly went over on the Update. Volumes 2 and 3 are a compilation of the analytical data supporting Volume 1. Volume 4, which Mr. Huber will discuss in just a moment, is the portion of the Update dealing with the proposed hydroelectric project. Volume 5, which will be submitted after this meeting and concludes these comments and the minutes of this meeting and will be completion of the Phase 1 portion of the Update. We will go from there to the amendment to the main facility plant which can only be completed after the State has agreed to the flows and loads, translated, the size that they will fund in our plant expansion and if MSD decides that they want to fund 100 percent any capacity beyond that. So these five volumes will include or complete the presentation for the Update and the hydro project. The remainder can be submitted as soon as we can get a resolution with the Board and with the State on the size of the expansion. Now, I will turn it over to Mr. Huber to describe the hydro project.

BY MR. DEAN HUBER, Harry Hendon & Associates, Inc.:

I don't believe there is anyone in the room that has missed the previous presentation on the hydroelectric project so I'll be rather brief with it. The main

purpose of presenting it at this time, again, is that one of our recommendations, when it was presented initially, was to see if we could get some funding to help pay for the cost of the facility. E.P.A. is a likely source for those funds, we believe it is eligible for E.P.A. funding. The first step in making it eligible for E.P.A. funding is to get it incorporated as part of the 201 Facility Plan, and that's what we are doing here. So for the record, I'll go through the proposed project briefly. The proposed project is to reactivate the old Weaver hydroelectric facilities. The project consists of building a new intake structure at the Craggy Dam, reconstructing a raceway or flume between Craggy Dam and the old Weaver Power Plant and installing three 800 KW generating units at the old Weaver Power Plant foundation. The estimated annual generation of this facility is 16,870,000 KWH. The MSD plant need for electric power in 1971 was 6,660,000 KWH; last year, the year 1981, the energy usage was 8,370,000 KWH. The energy usage at the plant is in general directly proportioned to the flow so we have projected your flow increases into the future and I have figures for 1991, which was estimated at 33.3 MGD and the energy usage for that - 13,150,000 KWH. The year 2001, which is the 20-year planning period that is

normally considered by E.P.A., is approximately 40 MGD with an energy consumption of 16,380,000 KWH, or approximately the average annual generating capacity of the proposed hydroelectric facility. The estimated cost of the project is $5,455,500 in 1981 dollars; the O & M cost estimate is $77,100/yr in 1981 dollars; from a schedule standpoint from authorization to proceed with design and construction approximately 2 years. Following E.P.A. guidelines, we did a cost effective analysis. The cost effective analysis consists of evaluating two alternatives: alternative 1 is purchase all power from Carolina Power & Light, precisely what you are doing now. In 1981 your KWH used as I stated previously is 8,300,000 plus; your 1981 power cost was $292,000; that translates into a cost per KWH of 3-1/2 cents. Alternate number 2 is to build a hydro-electric facility. Taking the Capital Cost, $5,455,500, the present worth of the Operation and Maintenance Cost and the present worth of your standby power and purchase power from Carolina Power & Light less sales of surplus power to Carolina Power & Light, total of $1,529,100 which translates into an annual power cost of $148,600 or 1.8 cent per KWH at your 1981 power usage at the plant. Those alternatives were both evaluated based on not what will happen 10 or 15 years

from now but on actual estimates and costs and power consumption in 1981. Everything is evaluated with 1981 dollars. From an environmental standpoint, we do not expect any significant environmental impact because we are reinstalling a system that existed from 1904 to 1963. We expect to have some problems to overcome and address with the fish and wildlife people; they have already sent a letter on the project and I think Mr. Mull will be mentioning that letter later. The last item is the cost to the sewer user. There will be no affect to the sewer user charge in the way of an increase as a result of this project. The affect will be that the sewer rate will likely decrease or could decrease or it could delay future increases. That's the end of my presentation. Are there any questions?

BY CHAIRMAN ROBINSON:

I assume that concludes our public hearing. We will declare the public hearing closed; it's now 2:52.

(END OF PUBLIC HEARING).

STATE OF NORTH CAROLINA)
)
COUNTY OF BUNCOMBE)

CERTIFICATE OF NOTARY PUBLIC

I, Edrie L. Strader, a Notary Public for the said County and State, do hereby certify that the foregoing is a true and accurate transcript of the public record given at the office of the Metropolitan Sewerage District, Riverside Drive, Asheville, North Carolina on Tuesday, March 23, 1982, commencing at 2:00 pm.

Sworn to this 26th day of March, 1982

Edrie L. Strader

Notary Public for the State of N. C.
My Commission Expires 12/13/86

TABLE 1

SO. BUNCOMBE INTERCEPTOR SEWERS

(Current Estimate & Distribution)

March 1, 1982

	Current Estimated Total	Local Share	MSD Share	Buncombe Share	Henderson Share
Design Engineering	$ 137,843(1)	$ 20,395	$ 3,792	$ 10,303	$ 6,300
Environmental Surveys	5,860(1)	964	167	517	280
Land Acquisition	450,000(2)	450,000	58,500	220,000	171,500
Appraisals	40,000(2)	27,750	3,330	14,700	9,720
Construction:					
Sect. 1 & 2	394,241(1)	49,280	--	49,280	--
Sect. 3	1,987,550(1)	258,918	86,306	86,306	86,306
Sect. 4 & 5	1,000,000(2)	125,000		62,500	62,500
ɔnst. Contingencies	219,100(2)	30,000	6,000	13,800	10,200
ɛchnical Services	244,372(1)	30,547	6,109	14,052	10,386
Total	$4,478,966	$992,854	$164,204	$471,458	$357,192

TABLE 2

SOUTH BUNCOMBE INTERCEPTOR SEWERS

Status Report and Billing Data

Date March 1, 1982

Work Element	Actual Expenses to Date	Local Share	MSD	Buncombe County	Henderson County
Design Engineering	$137,843	$ 20,395	$ 3,792	$ 10,303	$ 6,300
Environmental Surveys	5,860	964	167	517	280
Land Acquisition (1)	338,903	338,903	43,738	163,873	131,292
Appraisals	29,141	16,891	1,916	8,924	6,051
Construction (2)					
Inspection (2)					
Total to Date	$511,747	$377,153	$49,613	$183,617	$143,923
Less Previous Payments			38,181	144,770	118,891
Amount Due			$11,432	$ 38,847	$ 25,032

(1) Includes legal, surveying, land costs, and negotiating expense.
(2) Construction & inspection costs not included - to be submitted on separate schedule.

TABLE 5
SOUTH BUNCOMBE INTERCEPTOR SEWERS
Budget - Cost Analysis

March 1, 1982

	Budget as of April 1, 1981	Expended or Committed as of Approx. Jan., 1982	Revised Projected Budget
Design Engineering	$ 140,000	$ 137,843	$ 137,843
Environmental Surveys	4,000	5,860	5,860
Land Acquisition	250,000	338,903	450,000(1)
Appraisals	18,000	29,141	40,000(1)
Construction	4,180,000	0	0
Sections 1 & 2		394,241	394,241
Section 3		1,987,550	1,987,550
Sections 4 & 5			1,000,000(2)
Construction Contingency			219,100
Technical Services	245,655	244,372	244,372
	$4,837,655	$3,137,910	$4,478,966

(1) Will depend on condemnation proceedings.

(2) Project not bid as of March 1, 1982.

TABLE 1

HOMINY VALLEY INTERCEPTOR SEWERS

(Current Estimate & Distribution)

March 1, 1982

	Current Estimated Total	Local Share	MSD Share	Buncombe Share
Design Engineering	$ 142,665(1)	$ 17,833	$ 5,707	$ 12,126
Environmental Surveys	2,990(1)	374	114	260
Land Acquisition	380,000(2)	380,000	101,200	278,800
Appraisals	30,000(2)	18,867	4,200	14,667
Construction:				
Sect. 1	1,295,804(1)	161,975	14,082	147,893
Sect. 2	2,383,768(1)	297,971	126,114	171,857
Sect. 3	1,343,186(1)	167,127	61,618	105,509
Const. Contingencies	180,000(2)	45,000	14,472	30,528
Technical Services	227,567(1)	28,446	9,148	19,298
Total	$5,985,980	$1,117,593	$336,655	$780,938

TABLE 2

HOMINY VALLEY INTERCEPTOR SEWERS

Status Report and Billing Data

Date _

Work Element	Actual Expenses to Date	Local Share	MSD	Buncombe County
Design Engineering	$142,665	$ 17,833	$ 5,707	$ 12,126
Environmental Surveys	2,990	374	114	260
Land Acquisition (1)	282,864	282,864	75,291	207,573
Appraisals	19,498	8,365	1,869	6,496
Construction (2)				
Inspection (2)				
Total to Date	$448,017	$309,436	$82,981	$226,455
Less Previous Payments			78,871	208,357
Amount Due			$ 4,110	$ 18,098

(1) Includes legal, surveying, land costs, and negotiating expense.
(2) Construction & inspection costs not included - to be submitted on separate schedule.

TABLE 4

HOMINY VALLEY INTERCEPTOR SEWERS

Budget - Cost Analysis

	Budget As Of April 1, 1981	Expended Or Committed As Of Approx. Jan. 1982	March 1, 1982 Revised Projected Budget
Design Engineering	$ 142,665	$ 142,665	$ 142,665(2)
Environmental Surveys	4,000	2,990	2,990(2)
Land Acquisition	250,000	282,864	380,000(1)
Appraisals	20,000	19,498	30,000(1)
Construction	5,375,000		
Section 1		1,295,804	1,295,804(2)
Section 2		2,383,768	2,383,768(2)
Section 3		1,343,186	1,343,186(2)
Contingency			180,000
Technical Services	150,514	227,567	227,567(2)
Total	$5,942,179	$5,698,342	$5,985,980

(1) Will depend on condemnation proceedings.
(2) Contract amount or final cost.