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Interviewee: Vince Seibold
Interviewer: Charles Cold
Date: October 25, 2010, 10:00 AM
Location: Vince Seibold's Office
407 North Laura Street
3rd Floor
Jacksonville, Florida 32202

Cold: I am interviewing Vince Seibold, the Chief of the Environmental Quality Division for the City of Jacksonville. Can you tell me about that award over there?

Seibold: Well, that's a historical award that the division and the Environmental Protection Board earned, that's about ten to fifteen years ago, so it's an older award. It's kind of a hand-me-down as a reminder of the tradition of excellence within the division for environmental achievement. It preceded me by many years. I started here in March of 2007.

Cold: Why did you change from the state agency for environmental protection over to the City of Jacksonville?

Seibold: Good question, I worked for the state both in the Jacksonville office and the Tallahassee office and then again in the Jacksonville office through my nearly seventeen years with the Department of Environmental Protection (DEP).

Coming out of school it was a question of-go consulting, go industry, or go regulatory. And with the evolution of environmental engineering degree that I had, these were kind of the pathways for career choices and folks said, well go regulatory and get experience in lots of areas, and then you become more marketable. Best if you get your professional engineers license. Well, I was working with DEP and got my P.E. (Professional Engineer) and I had co-oped with Gainesville Regional Utilities and also with JEA here. So I had some utility experience and I used that to my advantage; progressed up the chain of command, because of my co-oping time, fairly quickly.

I got my P.E. and looked around, and well I can go outside or I was seeing a pathway of retirements and attrition, so I decided to go back and get further education. I actually went back to UNF and did my MBA, at night school and plugged away at it and then an opportunity came along in Tallahassee. So I moved there in 1998 to run the industrial wastewater program for the entire state

doing rule making and permitting and some major projects. Tampa Bay desalination plant was one of them; the big desal plant in Tampa Bay for drinking water.

Cold: That stayed on schedule, didn't it? (sarcasm)

Seibold: Yeah, really and I also played a role in several paper mill permits due to my experience here in the Jacksonville office. My old boss retired in 2004, and I came back in 2005 to run the Water Facilities Program for DEP back in the Jacksonville office.

Cold: At what point did you move from the state?

Seibold: The City approached me and asked me to consider this job, and I looked into it and what I'm doing is basically possibly downsizing DEP to one county, as opposed to nineteen counties, but I expanded my personal horizons from water into adding hazardous wastes, solid wastes, air pollution, emergency response, petroleum clean-up, tanks inspection. So I added all the media that are related to the environment so that's what was attractive to me. It was to expand my horizons. And then on top of that, you add in the local ordinances, and the local rules like odor control, and noise pollution, air emissions, and so there's a lot of local issues you have to deal with. So, I'm still regulatory, a little smaller scale, but a lot bigger media horizon. You know multi-media.

Cold: I saw your biography, and I was wondering how does the MBA degree support what you're trying to do?

Seibold: Well, at first I thought it was going to give me a pathway to go to the private sector, that was always the thought, but then you know, I actually wanted a Masters of Engineering Science and Engineering Management which would be partly technical, partly management. I always had an affinity, or at least a skill I could rely on, dealing with people. That social skill, that leadership skill, and so the MBA helped me fine tune those, you know get better managing money and budgets. So now I've got seventeen accounts, eight million dollars in my budget here that I've got to manage.

Cold: You've got over one hundred people in the division?

Seibold: I have 110 people. I have seventeen accounts that are, half of it is general fund, you know the City's tax dollars. The other half is state grants and federal grants and contracts. We are delegated, if

you will, the Title V Air Program, the EPA Region Four directly out of Atlanta. They come directly and partner with us. They contract with us and we have to perform all their duties, review their applications, issue permits, do the inspections, and make enforcement for everything in Duval County. There's dollars that flow for that activity. So, the MBA has really helped me with management of the dollars and understanding the managerial skill sets needed to run the division.

Cold: Speaking of budgets, with the storm water fees, how do fees play into your area?

Seibold: It does actually. We have only three full-time players that are funded out of that account. That's managed out of our Public Works Department Stormwater Utility Fee, but the connection is that the City is a permit holder; we hold a National Pollutant Discharge Elimination System – NPDES permit for stormwater. And it's called an MS4, and MS4 stands for municipal separate storm sewer system. The government loves acronyms, MS4. And that is the connection to the river, as a matter of fact, a good segue, because we have 844 square miles over a couple of thousand outfalls. You've got to figure every little ditch and conveyance system that drains, that's been constructed with a culvert or some outfall that leads to one waterway, which eventually leads to the river. We have to take the quality of that and improve it by reducing the nutrient loading into those tributaries and directly to the river by 150 tons per year. That's our total maximum daily load –TMDL- that's our allocation and our BMAP if you read online, our Basin Management Action Plan. So every stakeholder was given an allocation. Ours is 150 tons of Total Nitrogen, JEA 800, and so on, and so forth, from Mayport all the way to Palatka.

Cold: One of my questions was, there are so many agencies and organizations, both at the city and state, and the federal level, how do you all kind of integrate your actions so that you come up with the shared outcomes that you're trying to achieve? How does that work, because there are so many organizations involved?

Seibold: With the BMAP there are quite a few organizations. The City is a permit holder, so we hold that permit. Public Works provides funding to us. Because you asked about the budget, let me finish that discussion. The City, John Pappas is the permit holder. He needs assistance in complying with that permit. That permit, the NPDES permit, requires water quality monitoring. It requires inspections for erosion and sediment control, high priority

industries. We have to visit all of the high priority industries that are within our drainage shed, like refineries and facilities like Union Camp and others that take by-products of pulp and paper and create products, fragrances, or paint, pigment or whatever, Talleyrand, the whole industrial corridor. We have to visit those and make sure they control their stormwater. Is their rainwater coming in contact with open containers? Machinery that has not been maintained? Is it creating dirty run-off. Contaminated run-off that's running into the city system. So, under that permit we are required to have these inspection programs as well as monitoring. We monitor 100 tributary sites per quarter and, monthly, twenty-five stations in the river for ambient quality. That's all required under that NPDES permit. Since we have the skill of monitoring and I have a laboratory as part of my organizational structure, that's offsite at First Street over by Shands, so we have an environmental lab that is certified, nationally certified to run a suite of parameters, both to support my air program and my water program. Since we have those skill sets in-house, Stormwater Utility funds three of my players to do those inspections I mentioned, and to take analytical samples and run those results. And the Basin Management Action Plan goes to your next question. It is the collaborative stakeholder driven effort with all those players. The DEP is kind of lead because they're the state agency saying we have an impaired water. The river's impaired for too many nutrient inputs. We need to get that down based on the modeling Water Management District conducted and approved by EPA. This is the allocation for your drainage shed, 150 tons of total nitrogen. Now, that 150 includes the Beaches communities and DOT. The state DOT is a co-permittee under that MS4 permit. So, we have the City being the main permittee, we've got DOT as co-permittee, and you've got Atlantic and Neptune Beach. Jax Beach has got their own MS4 permit, they chose to go a different route. Atlantic and Neptune co-permitted with us, and they have their own allocation for their geographic area. DOT has it for their geographic area contained by state roads. The rest of it is the City. After you boil it all down, there is about 110 tons that were allocated to COJ. Of that 110, they gave us from 1995 forward, and this was all done in 2008. So that thirteen year period, when that BMAP was issued, we got credit for projects from 1995-2008. Of those projects, there were stormwater projects for which we got 20 tons of credit. So now we're down to 90. Of that 90 we get credit for implementing ordinances. So we have the fertilizer ordinance, which has direct connection to nutrients. Irrigation ordinance, because if you over-water you're going to take those nutrients and carry them off, whether it's in the form of detritus, the materials,

the plant material you've mowed, or over-applied fertilizer. So, those two are in tandem. We have a pet waste ordinance, where you have to pick up behind your pets. And then we have the Florida Friendly Landscape ordinance that just passed and we also fund the University of Florida IFAS, Duval County Ag Extension Service for the Florida Yards and Neighborhoods Program. Since we fund that, those five areas, the DEP gives us up to a five percent credit off of that 90 tons. So, you're whittling it down, and then we came up with another 20 tons of projects and they gave us, I should say, the BMAP gives us a fifteen year timeline to comply with our 110 load allocation. So, over those fifteen years the Stormwater Utility is going to build ponds, and the ponds are going to be prioritized on flooding, water quality and cost.

Cold: Is that in addition to what is required in development areas where they have to build retention ponds?

Seibold: In addition. Consider that retrofitting, urban retrofitting. Building ponds that have the primary objective of addressing flooding and water quality. So that was twenty tons. We whittled away about 85 or so; we are roughly at around 77 left. So, we say we can meet the rest of our allocation through septic tank phase out. And that adds a whole other discussion, but you asked about retrofitting, so if you have a question on septic tanks...

Cold: Septic tanks is my research project.

Seibold: Okay, make a note and we'll come back to that. You asked about the coordination but then the new development. Our ponds are focused on urban retrofit. The way that planning and building process takes place, this was I learned and didn't really know about, which has been interesting here in the local government, because when developers approach the City to get approval to put in a subdivision, they have to design the right of ways and the utilities to meet our design standards. And then they go to the state to get their permit for their pond. They do all of that, and then they hand over for free all of that property and that right of way and the utilities in the ground. That's the infrastructure, and if it met our design criteria, then the City will maintain it going forward. The same with JEA, if it's built to JEA's standards then JEA will maintain the water and the waste water, possibly the reuse or reclaimed water line, depends on whether the reclaimed is available or not. The other thing I'd like to circle back to is low impact development.

Cold: I've got that on my questions because I saw your Power Point presentation. But on your division's website, you really highlight a focus on the river. The River Accord Annual Report is featured. And then deeper within your website you did a presentation recently, on, I guess, an update on the status of the Accord. Again, how is that integrated with all that other stuff that is going on and why is that so important to your division? And why is it that you are the one providing an update on that?

Seibold: Good questions. Good questions. The sequence of events happened in 2005 when the river really turned green and really had the big algae bloom. That's what is imbedded even in my presentation. The toxins that were released, that was a whole big issue, so the Mayor, Mayor Payton, his reaction to that was to form the 2006 Mayor's River Accord. And that was a 700 million dollar partnership, and you can read that online. You know the state DEP, Water Management District, then you had the City of Jacksonville, you had JEA, you also had another independent authority which was WSEA-Water Sewage Expansion Authority, as kind of the main partners.

Cold: That (WSEA) was created just several years earlier like '03 or something?

Seibold: Correct, that was created in '03 and their main goal is to seek funding to extend water and sewage lines in the neighborhoods that don't have it. And now we're re-prioritizing further as we adapt and learn more. As where should we go with our efforts, our funding and whatever is available. And, that goes back to septic tank phase-out which is what they are really going after. If they need water, then that can be added to the project. So, the 2006 Mayor's River Accord set up annual reporting criteria. Since it was the mayor's effort, it got imbedded in the City. The City takes the lead and since it was environmental, a lot of data regarding it, then the Environmental Compliance Department and down to my division, kind of took hold of it; the responsibility of doing the annual report. Now all of those partners I mentioned, we always collaborate, we use electronic media to fill in the blanks and update year to year, just a coordinating effort. I got one of my staff members next door that does the coordination and works with our information office and pulls together a report every year. And it just so happens that the timing of it, since it was in July of 2006, we try to target July/August of every year to go out with the annual report and that is about the time that the environmental protection board has their annual conference. So, the report you saw, we are now trying to link those two together,

since they made sense, annual Environmental Protection Board and annual environmental conference or summit will release their report. And the State of the River report too, that JU and UNF collaborate on. So those are staples, or the last two agenda items of the day. We always try to reserve enough time to really discuss those in detail.

Cold: You mentioned the 700 million dollars, my understanding was that was supposed to be made available over a ten-year period and the reality of the amount of money that has been made available, I mean I look at as 70 million dollars a year, give or take, but isn't the number more like 10-13 million a year? Isn't the commitment to funding, way behind the desired funding?

Seibold: My answer would probably be no because the 10-15 million a year is just the City's part. 700 million, all those partners contributed money, the city committed 150.

Cold: So to some extent, that means within their existing structure, they're now making a commitment...

Seibold: We had 150, I think Water Management had 150, so that leaves you 300 million, and I think JEA had 400 million. So, we are on schedule on a ten-year time frame to do 150 million, that's about 15 million a year. The Storm Water Utility Fee is pulling in, now that they've finally got the fee issue worked out to where we are getting a steady stream of the revenue that was associated with that Storm Water Utility. It's now coming in at 18 million a year, and 16 million a year is being allocated to ponds, which is that core effort. And the other portion of that pie is closer to 20 million, 16 million towards the ponds, and there's 2 million toward septic tank phase out since they are everything to do to comply with that permit. The utility was derived to comply with the BMAP and the permit to reduce the impact to the river, improve the health of the river. So, you got ponds to address flooding and water quality, phase out septic tanks and then storm water enhancement projects or low impact development- 2 million dollars a year. So that comprises the City's part of that Accord Partnership. JEA is spending 400 million, and they've almost spent all of it already, upgrading their wastewater plants, closing out some older ones, and extending reuse lines to take the discharge from going to the river. Either improve what's going to the river or not go there in the first place by going to reclaim water. And then the state Water Management District is funding projects up and down the whole lower basin from Palatka to the mouth. They're doing reclaim water projects. They're partnering

with the potato farmers, and agricultural operations in Hastings, St. Johns, Putnam County area, and they're partnering with the smaller communities up and down the river.

Cold: I think I read two or three years ago about how at the state level trying to get 13 million for the river was becoming difficult, so this is a lot clearer.

Seibold: We are separate from that, just to go a tangent a little bit related, is that the late Senator King was able to secure almost 12.7 million of state appropriation to the City of Jacksonville for septic tank phase out projects, and Water Management District kicked in another 2 million to make it 14.7. Two million of their ad valorem dollars to help us make that a more fruitful project and so there's 14.7 million dollar contract that's continued to live on as we phase out Oak Wood Villas and Lincoln Villas. You will see different phase out projects on the WSEA webpage and so those are ongoing and that funding is paying for that right now. So, that's a separate state appropriation, but is part of the overall state commitment to get funding here for River Accord projects.

Cold: You already touched on it a little bit, but on page seven, I'm getting detailed on that 2010 River Accord Report, it says that there is now a 100% cost share agreement between the City of Jacksonville to remove the septic tanks in failing areas, in the areas that have been identified as having septic tank failure. I wasn't clear on how that differs from historical funding and how does that factor in to what the WSEA is planning on doing to address the septic tanks in those designated areas.

Seibold: Yeah, I guess the caveat is that is an evolving field of understanding as the impacts that septic tanks have. Not only do they contribute nutrients, but they can also contribute pathogens or fecal coliform, and we have, just as a side note, we have 152 tributary segments in Duval County alone that make it to the river. Sixty-two of them are impaired for fecal coliform. So, pretty significant percentage, and those are definitely part of our 100 tributary sampling sites. We do fecal, pH, different field parameters to see what impacts there are. Under that BMAP we also have two other, that's our main stem BMAP, we call it the main stem of the river. It includes the drainage shed for nutrient contribution. Separate from that we have two other BMAPs, tributary one and tributary two. Tributary one had fifteen tributaries in it for fecal coliform, and the next one had ten tributaries in it, for a total of twenty-five for fecal coliform. And there we not only, the synergy is if you reduce septic tanks in

those areas, two birds with one stone, the nutrient and the fecal issue, the sources of fecal coliform are going to be pet waste, failing sewer infrastructures, so JEA is rehabbing their lines, failing or even operating septic tanks, and I will elaborate on that if you like. Those can contribute, and also the homeless community. These all have been identified by the DEP as the sources. So, if you go online and look at their TMDLs for a particular Hogan's Creek or a particular tributary, and they have it available online, they'll list the sources. And they'll say you have to reduce to meet this water quality standard, you're going to have to reduce it by ninety percent. The other major source I forgot to mention is wildlife. So you could have a rookery, either natural or man-made because people are feeding wildlife, the ducks, the geese, whatever, those can contribute fecal coliform. So, under our inspection, that's part of our analysis, we will walk tributaries looking for miscellaneous pipes. They could be drain field pipes, where a septic tank system failed; the unscrupulous plumber plumbed it right to the creek instead of going through the drain field. Or, it could be an open sewer line, we don't know what the sources are, so that's part of our high priority, and part of our NPDES permit. We will walk the water bodies looking for these pipes. And we can use contractors, but they can't go onsite, so we have to do follow-up, go knock on doors, do dye tests, whatever. But we will take samples periodically and try to narrow down where we are getting hotspots for fecal coliform, and then you can narrow it down. Maybe there's sub-surface flow that's just a septic tank system that's impacting, or a cumulative effect from a sub-division. But that's also contributing nutrients so we need to figure out, is it human source, or is it animal source? And there's microbial source tracking technology using DNA to determine that. Pretty expensive, but it gets down to that level of detail. If you keep getting a hotspot, but you don't see any obvious sources, then you get to, okay our last ditch effort is to go the expensive route and do this sampling and determine is it human or not. In the field you document, oh there's a duck pond here, or there's a lot of wildlife activity in the woods over here-you document your sources, and DEP takes that as your level of effort on our tributary BMAPs. So, I think I need to get back to answering you question, which was what?

Cold: Well its now 100 % funding? As opposed to what, I guess is kind of the question.

Seibold: All that research I was mentioning brings us back. USGS (U.S. Geological Survey) had done some sampling of pre- and post-septic tank phase out to see the level of improved water quality.

So using all this new research, we have baseline data and impact data, using all this, DEP is also funding a study to see how far from a flowing water body, is it 50, 100, or 300 meters away. That if we phase out a septic tank, we get credit for it. Is it cumulative, or based on our soil types, rainfall, how fast is it moving, is it hitting our sub-surface flow, ground water levels? So, that distance may meander and change. So that has been changing the priorities for WSEA. Leading back to the funding, Chapter 751 of the ordinance code establishes eight criteria for determining a ranking of failing neighborhoods. That criteria was based on Department of Health, or Duval County Health Department's prioritizing their inspections under their septic tank inspection program. It had a water quality component that EQD provides data to Duval County Health Department. Public Works provides the flooding/zoning issues to Duval County Health and they turn out this ranking and give a score. In that ordinance, if it scored over 56, then the city was committed to phasing it out. So, that's where the 100% comes in, and if it scores over this level, it's a nuisance area, and the City shall, upon funding phase out those septic tanks.

Cold: So, that's what, thirty-one areas, or something like that?

Seibold: Yeah, it's like thirty-seven now, but it was thirty-one. So that list is produced annually. The new science, I was mentioning USGS, they have that ongoing study to determine how far away water bodies, and WSEA is thinking we probably need a better metric to more clearly identify or include water quality impact into that ranking. Because the number of repair permits and number of permits that septic tank owners that Duval County Health Department identifies is heavily weighted, and that may or may not be reflected in our water quality data.

Cold: The result versus the effort.

Seibold: Right, so it would make more sense, especially if our science says, and DEP says in our BMAP, that we get credit for removing septic tanks. Well let's pick TMDL zone, if you will, along our waterways within a certain distance from the waterways, even our conveyance ditches, if you're in a neighborhood that you're going to make it mandatory that they hook up and that's where that 2 million dollars a year from Storm and Utilities can be set aside for funding septic tank phase out. So there's a 100% funding in that 2 million dollar a year which can be used for bonding or pay as you go methods of payment.

Cold: So, those in those areas, the homeowner's cost is sort of taken over by the funding that's made available to deal with these problem areas, because if it's done voluntarily, converting, then there is a cost to the home owner, isn't there?

Seibold: Right, right. The current program envisions under Chapter 751 and envisions that the sewer line will be made available as a stub out to each property. And the homeowner is on the hook for getting their plumbing hooked in, and abandoning the tank. You pump out its contents, you crack holes in it, and fill it in with sand to meet the states requirement for proper abandonment, because you don't want to create a pit that kids could fall into. So, you go ahead and poke a hole in it, so it doesn't hold water, and you fill it up with clean sand, and then recover it. There's a cap there, you don't have to dig up the whole yard. So, that's a proper abandoning. I mean you can yank it out of the ground if you want, but it's more dollars. So, the evolution of the septic tank program is now we're seeing that it's probably more cost effective to take utility dollars that the taxpayers are paying and use that to go ahead and hook people up. Pay for that connection. JEA gets a permanent customer, and we get a septic tank offline. With the theory being if it's failing, that's even a worse scenario, but you can be conservative. Let's say it's functioning, the septic tank is functioning, and if human waste contains roughly 45mg/liter in raw sewage, and if total nitrogen that septic tank can treat it to 25ppm or mg/liter, JEA can treat it to three. Six easily, three with a little more technology involved, so let's just say it's six. Well, there's a differential of nineteen mg/l. So, we remove 21,000 and we get 77 tons, is how we get back to complying with that. So you work the numbers. So now if we take priority and identify corridors where septic tanks are impacting our water quality, they need to be hooked up.

Cold: So, what's going to be happening? I think you alluded to this with putting out the lines into the areas, but what about the other 60,000 or so septic tanks that are not currently included in the high impact failure areas? What's the long-term plan for getting, to them, because is true that there is a target of no-net gain in septic tanks? I mean, there are no septic tanks being added anymore? Is that true?

Seibold: It's not true. It's not true because city sewer can't be everywhere. It's not cost effective to be everywhere. Northside, Black Hammock Island, it's not cost effective, nor will it probably ever be for a public utility to run all the way out there. So, there's going to be pockets, or parts of the county where septic tanks are

viable using the best technology. They're not going to have the environmental impacts, and that's the way to go.

Cold: But then what about maintenance oversight?

Seibold: That's the crux of the issue. It's that when people pull their permits to put a septic tank in. It may be three or four homeowners that didn't know when they got the septic tank permit, and the permit says, shall have it pumped out every three-five years and inspected. It's in the construction permit, but there is no operating permit, and a lack of resources from the state to go out and inspect all of them. So, they inspect them on a response basis. And I'm in the same mode, I don't have enough staff to schedule routine inspections of every construction site, of every activity that may cause a pollution problem in the city. So, we have this citizen active response system-CARe. You call 630-CITY and we'll respond if you see turbid water. If you see dead fish. If you see somebody watering on the wrong day, whatever. Then we respond to that, and we have metrics to get out there in so many hours. If it's an open, burning issue we try to get out there in four hours. If it's a noise complaint twenty-four hours. Different metrics that we get out there within reason to respond to activities. So, the other 60,000 tanks you're saying, well 21,000 will be phased out, and the others may be perfectly fine, if maintained. We had proposed in 2006, before I started here, and when I started working here it was a bill before our city council to require maintenance. It kind of got caught up in some issues, so we pulled it back, plus we heard that the state was looking into it. Finally, after years of trying, it passed the last legislative session in 2009 and required Department of Health at the state level to do rule making to have home owners maintain their system, and prove they've done it by proving they pumped it out and had a certified inspector come out. So, January 1 they are supposed to start rule making, and then generate a revenue stream so that they can do routine inspections. So those 60,000, or whatever the number is, will be inspected.

Cold: And the contractors, the inspection will be at the state level right?

Seibold: Correct, not part of our purview.

Cold: I am not sure that we might be rehashing, but historically why do you think septic tanks have been so problematic here in Jacksonville? Why were there so many to begin with, and what's been the difficulty in getting off of them? And, you've spoken to getting off of them and converting to the municipal waste water

management systems. Isn't the history that so much of this is based on sprawl?

Seibold: Sprawl is part of it. Just a little tidbit of history, back in the '80s the environmental protection and my division, obviously way preceding me, identified a problem. We had 400+ wastewater plants in Duval County. That was typical around the whole state. Developers come to the city, city couldn't get the sewer out to them fast enough, and so they built their own package plant. Their own treatment plant, and had a large drain field or perk pond, or even had surface water discharge in some cases into our tributaries. Where 150 to 200 homes or a strip mall, or whatever were on package plants. Well, we went through a regionalization ordinance and the Environmental Protection Board issued a rule that said no more of this and we phased out all but twenty-four of them. Now that includes sixteen of them that are JEA. Some of them are shopping centers in Normandy Village for instance that are on the periphery where it's still not reasonable to get JEA's system to it. So, we phased out a bunch of package plants. Now at the same time, you're running sewer out there, so anyone that builds next to a sewer line that eliminates a future septic tank too, because now sewer is available. So, there's been an effort to get there, so it is part of the growth issue and growth planning is where are you going to build, and what density are you going to build, whether septic tanks or a package plant and them..

Cold: I am sure that is a requirement for developers, in terms of density, the number of septic tanks per acre has to be...there's some metric involved, but I'm sure that metric is also dependent upon the type of soil and water.

Seibold: That's the state's rules on those densities and metric issues. So, it depends on the developer, are they going to do multi-family and high density, then they build their own wastewater plant. Now days they build the infrastructure and turn it over to the city, and JEA has a public service area where they know they can provide service, and they have capacity to accept that wastewater.

Cold: So, what does your division spend most of its time and effort on water issues, and are those the ones that matter most, because of all the demands that are made on the department? Are those the most important in terms of water quality and environmental quality? I mean where do you spend most of your time, and is that the most effective?

Seibold: I guess I have to break it down. We have a water quality branch,

an air quality branch, hazardous materials branch, petroleum, so I segment my organization into those major areas. So, if you pull off the trunk line, this goes to water quality. Of my time, if you're asking that, I'd say it's probably 30 percent or so. I've got to administer the whole division to some degree. So, those folks are all focused on water quality in one way or another, either through inspections or permitting. We also do ground water too, so there's a connection there. The entire water quality branch, about 30-40 people, are all focused on water quality in some aspect whether it's compliance, inspections, or doing sampling.

Cold: Where does public education come in?

Seibold: It's woven throughout the entire program. For instance, for our ticketing enforcement the first box is warning. And at the warning stage we're knocking on doors talking to people, handing them material. We have irrigation and fertilizer enforcement handouts. You may have seen those online. We have "frequently asked questions" online. When we implemented those two ordinances for instance, we spent a year and a half educating, before we even started writing tickets. We went to CPACs, Citizen Policy Advisory Committees. They are six CPACs that split up the city; Arlington, Beaches, Northside, Westside, and these are citizen groups, and you can go online to the Housing and Neighborhoods Department that kind of runs them. So, they have a city liaison and then Code Compliance goes out there. We'll go out there on occasion. It's a good venue to educate, to talk to the key concerned citizens and hopefully they will take it down the line to their neighbors. We targeted homeowner associations and got on their agendas and went out and did that. Earth Day, all the clean water day, MOSH day, all these outreach symposia, all these different avenues we handout and educate. So the education is throughout all this, even if we have to contact a homeowner, there's this miscellaneous, mysterious pipe coming out of their yard. Well it could be the air conditioning system. It's legal, but we don't know that until we investigate. If it's their pool discharge, we say, "Well, you shouldn't straight pipe it, you need to run it over land let it filter out the solids over some grass and let the chlorine dissipate before it hits our water. The city's public policy, the city's maintained drainage system shouldn't have chlorine going in there, because you could be impacting the biological life." Just common sense approaches and education. So that's all part of it.

Cold: I have a pool. Thank goodness I don't have to do it very often, but when I backwash, I do it in the backyard.

Seibold: Yeah, you backwash your sand filter just let it run overland, flow for a little bit before it hits open water, so you minimize your impact.

Cold: Yes, one of the first things I did a few years ago, I'm retired, was I got a Master Gardener's certification. We learned about Florida Friendly Yards. That was four or five years ago, so I am familiar with a lot of that. My backyard has no grass, it's just mulch and plants and things like that.

Seibold: Do you have a cistern or a rain barrel?

Cold: I have the composter and I have the rain barrel. And I don't use fertilizer in the front yard anymore. It's the only place I have grass, I don't fertilize it, and I just weed it by hand. So, why don't you tell me about this low impact development initiative?

Seibold: Sure, sure, low impact development is another tool in the toolbox; I mean we have this nine step strategy for minimizing impact to the health of the river. And LID, low impact development, can come into play in lots of places. Stormwater projects, and also through the city's practices and educating homeowners and developers if they approach the city and want to get a permit for implementing LID practices. Then we want to make it easier to come through the city. Right now you have to get a variance, because it's not in our design standards. So, if you go to our land development procedures manual, and look at designing a swale, designing a roadway, designing a sidewalk, it doesn't incorporate pervious concrete, bio-swales, bio-retentions, and rain gardens. You know all these aspects of LID, it doesn't have a design spec for them, so the city goes "we need a deviation, you've got to come around this route." So, I'm trying to create a manual that will give equal time getting through this route getting to get to an acceptance by the city. Also, to collaborate and bring in consensus from Water Management District, that if they follow these design standards they'll get X credit of volume reduction for their storm water treatment. X credit for nutrient removal credit, because whatever leaves the subdivisions the city has to bear the burden after that. So, LID, to sum it up, is kind of replicating the natural hydrology. Treat storm water where it hits. So, you're doing that with your own yard, and it's kind of taking that picture...if 340,000 parcels of Duval County did a little bit to capture storm water on their site, what an impact that would have. It would be tremendous. Whether it was just holding it for a little while, or actually using it to irrigate their lawn and fertilize at the same time.

Cold: Well, Suzanne said I should ask you because this is perfect fit, you said stormwater-leave it on your property. What is this permeable concrete you mentioned? Is permeable a new product?

Seibold: There's the Subdivisions Standards Policy Advisory Committee-SSPAC-you type in Subdivisions Standards. That's a body that's made up of public sector and private sector, and they operate in the Sunshine Law, and

what they say goes in the design manual that the city will accept. So, you've got private practice land surveyors, developers, engineers, as well as city players. So I am on that and I asked, "is LID included in our policies and our designs," and they didn't know what it was, so I got chosen to chair a subcommittee. You speak up, you get work. So, in that subcommittee identified, I've been to conferences, and Sarasota County has a manual they got passed. They hired a consultant, took those practices that are LID, that people up north in Portland, and Washington State, Chesapeake area, Maryland have been doing for years and customized them, what's applicable for Florida. Because you have to design them for Florida and our high water table and all those factors. So, the idea is to take those design practices and customize them for our soil types, our weather patterns and everything, and put them in a manual that people can follow. Pervious pavement, whether it's concrete or asphalt, is now out there. The research and development that the industry themselves have been embarking on. Pervious concrete came out in the '70s and '80s. They thought of it way back then. In Manhattan, pavement paradise. So if you're just shunting the water away, and trying to capture it in a large pond somewhere else and treating it or having open pipes right to the river, like we do downtown. That's how downtowns are built all across the nation. We engineer to get the water away as fast as possible. And now we've created this impact, so storm water needs to improve on their thoughts on how do they minimize the peak flows. If rainwater hits and drains right off as fast possible, well that's not replicating what Mother Nature had there. Previously it would filter through the soil structure, over land flow, and ease its way into the river. So, that freshwater input into the river was slow and gradual, so your peaks were shallower for rainstorms. Now we concrete everything. You got a peak, and it falls off on our freshwater input or volume of water. So, if we can reduce that, pervious concrete ran into difficulties because of operation and maintenance problems, silted in, and didn't maintain its capability to infiltrate. Well the concrete industry and the asphalt industry have come a long way, and they are able to treat it much better now.

Cold: So, that's available for private use?

Seibold: Yes, it is.

Cold: I need a new driveway and I have been trying to figure out how to do that.

Seibold: That's an option. Pervious concrete, and nowadays they have a design outfit demonstration site that we're going to take my LID subcommittee to on November 18th. Up in Alta Road, that's Florida road materials, and they have, you color it, put dye in there, and so you can be creative and artistic.

Cold: Yeah, because I've thought about those open bricks, but with those you've got to deal with the weeds and all that.

Seibold: Yeah, the open brick ones, you've got to weed and grass it or ...

Cold: The Palm Beach approach, where they have the large concrete slabs with spaces like three or four inches apart and then grass in between.

Seibold: The other part of that is larger cities are using it in downtown areas and get credit for reducing the heat island effect. Because a porous concrete is going to allow water *and* air to go down, so now it's naturally cooler. So, you're not creating this heat island effect. Plus you put it around trees. The reason trees crack concrete is because the roots are searching for water and air, and if the porous concrete is there, they are going to continue going down instead of coming up. So, it has lots of tangential benefits besides holding back the first flush of storm water. Holding back and treating, so in theory in a subdivision scenario, you could have a developer who can put in these pervious concrete roads, these bio-swales, and these different technologies throughout their subdivision and then reduce the size of their pond. They reduce the size of their pond; they got more land to sell. So, that's the trade-off. It's more expensive to put the concrete down, so that's a given. You've got a twenty-five to thirty percent markup because of supply and demand right now with the porous concrete, but if you can sell more lots, then you can more than make up for that, plus the whole concept of replicating the natural hydrology is that you don't tear down all the trees to begin with. So, your costs could be a little lower on the front end rather than coming in and clear cutting everything. So, there's the whole balancing issue of how you want to design our community, but we want to make sure we incentivize that option for low impact use.

Cold: What is the local company that provides this type of concrete?

Seibold: CEMEX has it, Florida Rock. I mean all the concrete manufacturers have it, but the demonstration site we are going to is Florida Road Materials. They're up on Alta Road and they have a demonstration site, they're actually building a porous paved road that their taking their concrete batch trucks up and down. That's been the major criticism, it hasn't been engineered, they add an additive to it to hold it up, and keep it porous and also hold up to the wear and tear of functioning in a real life situation. CVS and Publix are now using it in some of their parking lots situations, so it is starting to get entrenched. For example, in Gainesville there is a CVS that is the one and only CVS that is two stories.

Cold: We stopped there yesterday on the way home. We were in Gainesville for the weekend.

Seibold: Well that has, their whole parking lot is pervious. They were able to get away with not building a pond. They used all the storage that's in the parking lot as their credit. But, that's why they had to make their footprint smaller, and everything went two-story.

Cold: I recall the store because my wife said she had never seen a two story CVS. Not sure what was on the second floor. I guess there are offices up there.

Seibold: So, low impact development is doing things we did years and years ago, I don't want it sound like it's a brand new thing, but it's been done in the right place, with the right application, so the manual will a great benefit. Here's the draft of our manual and here's Sarasota's, so we've got a ways to go. In here they have design specs and drawings. It talks about standard designs that engineers can follow. They will know that if they follow those, they get state credit and local acceptance, so they have got calculations in there. So, pervious concrete is an example. The manual, its guidelines on how to build things, whether it's a bio-retention swale for a parking lot situation. These designs are not cookie cutter to put it right into Duval County because our water table is entirely different from Sarasota. We have got to customize it. That's why we will need to hire somebody to do that. Appropriation is going through city council right now.

Cold: What do you think is the general health of the river these days, and the direction in which it is going?

Seibold: I think it's trending better, I mean the algae blooms are going to happen, and guess to put a perspective on it, algae blooms happen naturally every year at some level. So if you have excess nutrients going into it, and you have the right flow conditions, you have freshwater input, and storm water runoff at the right time of year, and the right temperature, all these factors coincide in our summers, then we're probably going to see something, because we just have too much going there. Whether it's from the lower part down by Vero Beach, the middle part by Sanford and Orlando, or our upper part here, upper, middle, lower, I got it backwards, flowing north. You've got the cumulative effects of all that loading going in there, so it's going to happen, and there's the nitrogen fixing characteristic of Lake George, because it slows down the bacteria in there, will fix nitrogen out of the air, and create another atmospheric load besides what's being input at ground level. It's just a phenomenon that's getting better and better known through studies and water quality samples, but I think it's trending upwards. You look at the State of the River Report that third parties, JU and UNF, put out. They have their trends and they show where it's going. One way is to characterize it through all the Clean Water Act regulations that the federal government came out with in the '70s. That kind of

spawned environmental engineering, if you will, because UF didn't offer the degree until '78, and I started in '82, and went into it, so kind of stepped away from civil engineering and created its own little niche. Those technologies came out and targeted pipes; they targeted the domestic wastewater. If you've seen the Tanzler's video, where in 1977 Jacksonville got all of its raw sewage finally treated. And that improved the health of the river practically overnight. It's just the continued growth, continued level of input, and the sensitivity of the streams, it's gotten to where it's reached its maximum point. So now the focus is off, still on those pipes they're continuing to reduce, but they've done yeoman's work, the un-ignored gorilla in the closet was stormwater. So it's the impact that human activity has on the environment, so that's part of the education awareness.

Cold: Yeah, I've lived here in Jacksonville before. The first time I lived here was '77 to '80, and then I moved back in late '88, and I'll tell you the difference in just the general health of the city's environment changed dramatically in those eight years. When I lived here in the late '70s, it stunk. Everybody talked about how dirty the river was.

Seibold: The Environmental Protection Board did the regionalization of sewer I mentioned, because we were having tributaries overwhelmed with package plants. The river just couldn't handle it, the biological oxygen demand loading, the nitrogen, and then the air, the quality, you mentioned, the odors. It was a local effort. The Environmental Protection Board took that on, that was a big bite of the apple, and implemented local ordinances that we go out and verify five complaints of odor, we can take enforcement. That was unknown anywhere and we finally got our air cleared up. The paper mills, the power plants and the paper mills byproducts were used by the Royal chemicals to create those fragrances, and those paint pigments, that's just a byproduct, and it was an odorous byproduct.

Cold: Do you have any recommendations? I'm trying to do the septic tank paper on what's happened over the years and the environmental impact? Do you have any recommendations on sources I might go to? I'm just looking for additional sources of information.

Seibold: Septic tank specific, I mean the symposium we had the presentation by Dr. Rick Hicks that gave an update on the nutrient study. You know, how far from a water body, so that's going to be an interesting read. Last year's presentation had the USGS information, so the 2009 symposium did a presentation on that baseline study we talked about earlier, pre and post-results. That's another published study, you can probably internet search for that. I bet one of your students is already going to talk to; your colleagues will talk to Dana Morton on my staff. He's been with the city

twenty-four years. He's the aquatic biologist for the city, so he's got a head full of knowledge. Dana Morton, he's at 255-7213. And he's got a wealth of knowledge and reports, and he can lead you to both internet or hardcopy that's septic tank specific.

Cold: I really appreciate your time, your schedule has got to be immensely busy, so this has been very good. It will help me and I think it's going to be a good record for the archive.