

TRANSCRIPT OF JULY 23, 2008

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1. *Chris Avery, Tucson Water: National and State Infrastructure Issues/Tucson Water Capital Improvement Program*
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Presenter #1

CHRIS AVERY, INTERIM DEPUTY DIRECTOR FOR TUCSON WATER: NATIONAL AND STATE INFRASTRUCTURE ISSUES/TUCSON WATER CAPITAL IMPROVEMENT PROGRAM

Water
Infrastructure,
Supply & Planning
Study

Planned New Infrastructure

Chris Avery, Acting Deputy Director, Tucson Water
Eric Wieduwilt, Acting Deputy Director, Pima County
Regional Wastewater Reclamation Department

July 23, 2008

A City of Tucson
and Pima County
Cooperative Project

The slide features a blue background with a white header containing the text 'Water Infrastructure, Supply & Planning Study'. Below the header is a row of four small images: a dam, a water treatment facility, a water tower, and a water pipe. The main title 'Planned New Infrastructure' is in large blue letters. Below the title is the names of the speakers, Chris Avery and Eric Wieduwilt, and the date 'July 23, 2008'. At the bottom right, there are logos for 'A City of Tucson and Pima County Cooperative Project'.

MR. AVERY: Good evening. We've been asked to address the Committee about National and State Infrastructure Issues, as well as the local water and wastewater infrastructure needs in Pima County. And I think to understand the nature of the infrastructure needs that we have in Pima County, it's important, first, I think to

look at a national and regional scale.

Cost of Aging Infrastructure

Nessie Curve Analyses of Individual Utilities

For these 20 Utilities over the next 30years:

- Infrastructure could cost \$10,000 per Household
- Current Revenue will fall short by \$550 to \$2,300 per household

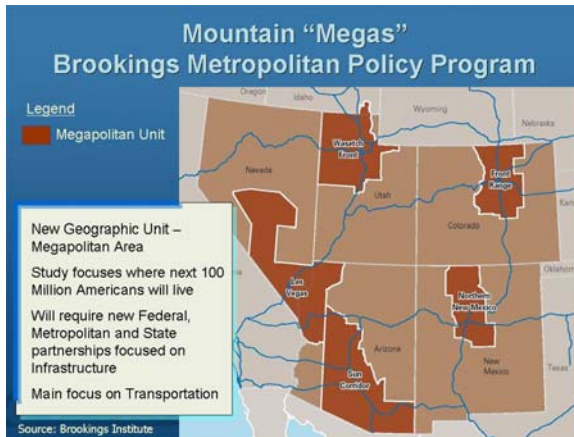
Source: AWWA 2001

The slide has a blue background. At the top left is a photo of a large pipe being installed. At the top right is a map of the United States with blue dots indicating the locations of 20 utilities. At the bottom right is a photo of a large pipe break with a red crane. A text box on the left contains the title 'Cost of Aging Infrastructure' and the text 'Nessie Curve Analyses of Individual Utilities'. Below the text box is a list of two bullet points. At the bottom left, it says 'Source: AWWA 2001'.

In 2001, the American Water Works Association published a study of 20 different water utilities around the country and found infrastructure needs for all of these utilities. The photograph at the top left is our 96-inch main break from 1999. The photograph at bottom right is a main break in the Chicago area in

the - in the middle of winter, which is another difficult issue.

The AWWA study found that in these 20 utilities over the next 30 years infrastructure costs could reach, in constant 2001 dollars, about \$10,000 per household over that period of time. And that, depending on the financial state of the respective utility, that current revenue could fall short by between \$550 to \$2,300 per household; essentially, you know, between 5% and 25% shortfalls in revenue that are needed - that is needed for infrastructure improvements.



If you read today's *Citizen*, there's an article in there about this study. The Brookings Institute out of Washington, D.C. just published a study on the mountain megapolitan areas, basically identifying five megapolitan areas in the inter-mountain west, all of which have their respective needs for infrastructure.

And one of the major components of the Brookings' study was to look at the fact that the infrastructure needs in these five megapolitan areas, Salt Lake City, essentially, Denver, Las Vegas, Phoenix, Tucson, Prescott, and the Albuquerque/Santa Fe area, are so extensive that they will probably require some new sort of private State and Federal partnerships in order to build the infrastructure that's needed for these areas. One of the primary focuses of this study is transportation infrastructure, but it also mentions the need - that all of these areas have a similar need for water and wastewater infrastructure and resource over the next 20 years.

Total Arizona Infrastructure Needs 2008 - 2032

Energy

- \$74 to \$86.5 Billion

Telecommunication

- Broadband Connections \$1 to \$2 Billion
- Fiber Optic additional \$23 Billion

Transportation

- Road/Highway \$198.8 to 257 Billion
- Transit \$35.8 Billion
- Railways \$5.9 Billion
- Airways \$12.1 Billion

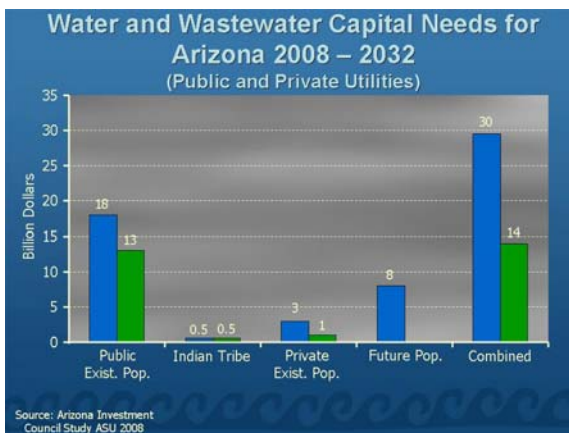
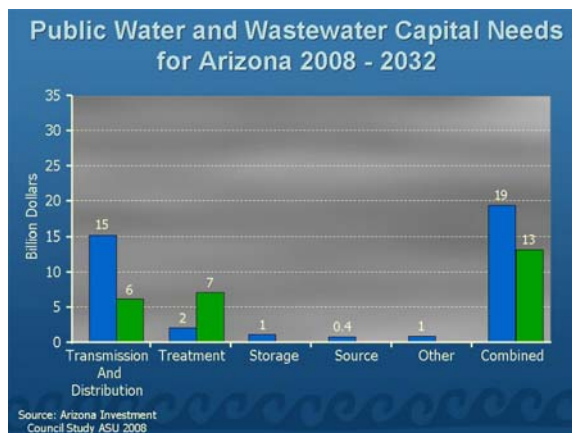
Water/Wastewater \$109 Billion

Source: Arizona Investment Council Study ASU 2008

Just this year, the W. B. Carrey School of Business at Arizona State published a study looking at infrastructure needs in Arizona, and identified, essentially, three or four areas of infrastructure need for the State, so it's not a complete look, but it looks, basically, at energy, telecommunications, transportation, water and

wastewater. And, depending on the - the scenarios and the outcomes of this study, the study identifies somewhere between \$400 billion and \$475 billion worth of infrastructure needs just in Arizona between now and 2032; of this, transportation is by far the largest component, somewhere between \$200 billion and \$257 billion worth of transportation improvement. And you can see the bulk of those improvements are needed in - in roads and highway, with smaller components in mass transit, railways and - and airports.

So, let's look a little bit about how the W. P. (sic) Carrey Study looked at water and wastewater infrastructure for the State. This is a graph that, essentially, shows the total capital needs for water and wastewater in the State of Arizona between now and 2032. The bulk of the new infrastructure needed is in public utilities to serve existing population. About \$18 billion in water infrastructure, and about \$13 billion in wastewater infrastructure just in Arizona. Some smaller component to meet Indian tribal needs, relatively small investments for



private water companies to meet the needs of their customers and - and \$8 billion allocation for future population needs. You can see that this future population allocation is divided all in water, but the study makes clear that there's some division between future water needs and future wastewater needs. And that adds up to a total of \$44 billion worth of infrastructure needs just in Arizona for water and wastewater infrastructure over the next 25 years or so, in terms of capital improvement. The - the rest of the \$109 billion figure that's mentioned in the study is O&M funding.

UNIDENTIFIED MALE SPEAKER: What - what are the green versus blue bars?

MR. AVERY: The green bars are wastewater infrastructure - we're trying to keep our color coding - and the blue bars are water infrastructure.

This is the way it breaks out just for public utilities and for existing customers, so this just separates out private water companies and wastewater companies, and separates out future growth.

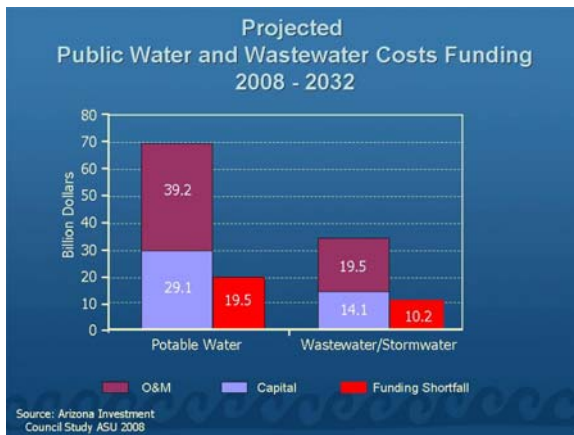
Again, you see there's some severe needs for water and wastewater infrastructure over the next 25 years; much of it in transmission and distribution on the water side and needs for treatment and production capacity on the wastewater side, and you'll - you'll see some of those same figures start to duplicate themselves as we talk about our needs here in Pima County.

One of the interesting things that this W. B. Carrey Study did was look specifically at shortfalls in funding. So, on the side - on the left side of these bar charts there's, basically, the water and wastewater component broken out by O&M - which is up here in the maroon color - and capital needs - which we've already talked about - in blue and, basically, the funding shortfalls that are identified going forward in order to meet the needs of water and wastewater infrastructure in the State. And, essentially, of the \$109 billion in water and wastewater infrastructure needs, they've identified about \$30 billion worth of shortfall. So, statewide, the shortfall's about 30%.

So, as we move forward to try to address our needs in Pima County, I think it's important to remember that much of this country - not - not just of Arizona - but, much of the rest of the country was built after World War II, and a lot of the water, wastewater transportation, airports, and energy infrastructure is starting to reach

the end of that 50-year life cycle that we've been talking about for the last few weeks.

This number can vary; there's a lot of different ways to slice it. There's a recent study that came out from the EPA that estimated a \$534 billion funding gap over the next 11 years nationwide. It's - it's hard to compare apples to apples in many of these cases because there - the studies range in scope and they cover different areas in different time periods. But, the essential message is the same between the AWWA study, the Brookings study, the W. B. Carrey and the Morrison Institute study on megapolitan corridors that you'll be talking about in a few weeks, and that is: There is a funding shortfall; that funding shortfall is significant; it may be 20%; it may be 10%; it may be 30%, but it's identified and it's out there.



What we'd like to do today is talk about our funding basically in a five-year block between now and 2013.

UNIDENTIFIED MALE

SPEAKER: Chris (inaudible; not speaking into a microphone) in the shortfall, is it more - where are the - where are these billions that currently - evidently

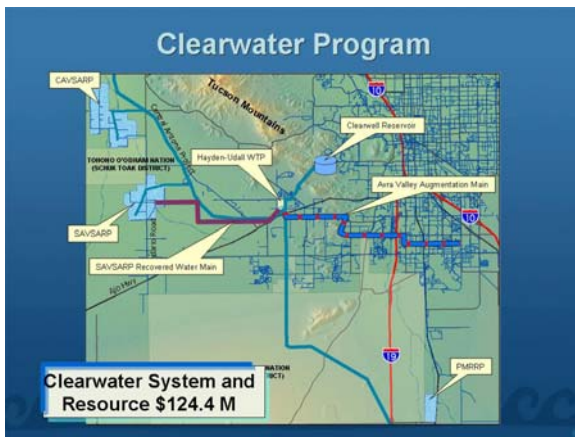
somewhere - where are they being held right now or - where are they exactly to come from, basically?

MR. AVERY: Basically, what the - more - the W. B. Carrey Study did is look at the overall rate structures for the identified utilities. They looked at Flagstaff, Sierra Vista, the valley - basically, the tri-county area - Maricopa, Pinal, and Pima County - and looked at the rate structures of the existing utilities, including CAP and, basically, added those numbers together with some projection of future rate increases and future CIP budgets, and so that aggregate total of - between necessary funding and available funding is what ends up with this shortfall.



So, let's talk about Tucson Water for a minute. This is the graphic that we've been looking at now for a while; it, basically, breaks up the infrastructure in the area to Colorado River Storage and Recovery, our main Distribution System that's primarily founded on our pre-existing groundwater Distribution System, the

wastewater system that collects water and delivers it to Pima County Wastewater Treatment Plants and the Reclaim System. And what we've tried to do today is break our CIP on the basis of future infrastructure needs, and - and tried to clump them together as best we can on a resource basis.



So, the - the primary chunk of the CIP over the next five years for Tucson Water is related to Colorado River Storage and Recovery, and we talked two weeks ago about the existing Recharge Basins and capacity at CAVSARP and SAVSARP. The bulk of the funding over the next five years is related to developing the SAVSARP

Wellfield and increasing our transmission and distribution capacity in order to actually bring the water that's recharged into the Tucson Water Distribution System and distribute it out to customers.

And one of the main components of that is the SAVSARP recovered water main which will be a large diameter pipeline to bring water from SAVSARP the Hay Needle Treatment Plant where water can be treated and delivered over the mountain to the Clear Well Storage Reservoir. The construction of the SAVSARP Wellfield, as well as a future Avra Valley augmentation main that will give the City redundancy in its ability to bring water in from these increasingly important Storage and Recovery Facilities in Avra Valley to the Distribution System.

Ground Water Resource



As for a groundwater resource, there's relatively no money at all in the capital budget in order to make increasing use of our groundwater resource over the years; that doesn't mean that we won't spend a small amount of money on rehabilitating wells and, perhaps, re-equipping and redrilling some wells, but

that amount of funding is - is so small that it doesn't really show up as a significant component of our CIP. Remember, we've talked about the fact that Tucson has used its groundwater resource for a long time, and that going forward groundwater becomes a decreasing important part of our portfolio, and that's reflected in the CIP.

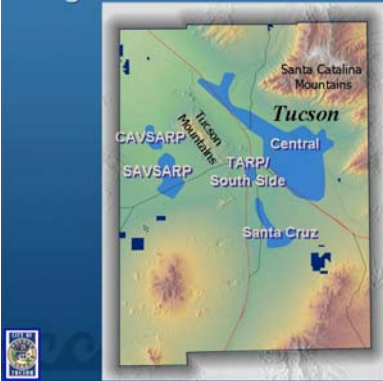
Reclaimed System



The next component is Reclaimed Water. Reclaimed forms about 11% of our Five-Year CIP. You might recall from our resource discussion that our reclaim deliveries are about 8% of our total, so that number more or less corresponds. Generally, as we talked about two weeks ago, we just established a new Peak Day

Demand on our Reclaim System this summer, and that Peak Day Demand is close to the ability of our existing facilities to serve our customers. So, the next components of our Reclaim System are to construct a set of boosters here near the reclaim reservoir at Roger Road that will allow us to deliver additional Peak Day supplies and, in some sense, a redundant ability to provide supplies out into the Distribution System. And then a set of new recharge basins that'll be located here, adjacent to the Roger Road Facility that will allow us to increase the amount of water that we put into the ground and pump out every year and deliver to the Reclaim System. There's also a significant component of - of this budget that 's for a new treatment on - in the Reclaim System if it's needed in order to meet Pima County's needs for the ROMP Project.

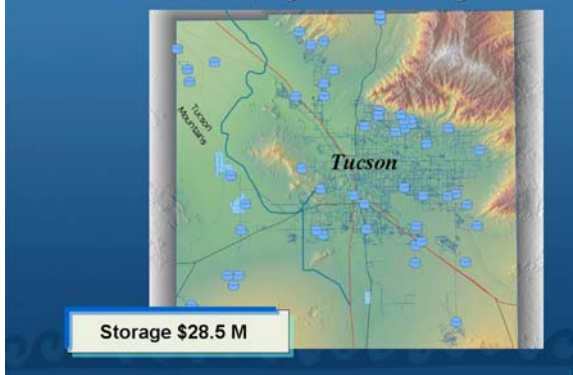
Integrated Wellfields & Isolated Systems



All right. What we've tried to do is identify then those components of the CIP budget that are based on serving existing customers versus those components of the CIP budget that are needed to serve new customers on Tucson Water System over the next five years, and those needs are relatively modest. One of the major components

of that is, basically, drilling that large Wellfield at SAVSARP. Some component of that Wellfield is needed to serve existing customers with the water that's recharged from CAVSARP and SAVSARP; and some component of that Wellfield will be needed to serve additional new customers.

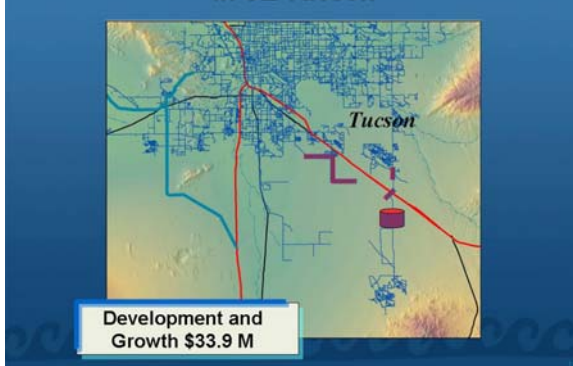
Reservoirs, System Storage



In addition, as we talked about two weeks ago, we try to keep two days' worth of peak demand in our reservoirs in order to meet our customers' needs for water. And as our amount of water that we deliver to our customers increases over time, we'll need to increase our storage capacity in the system in order to

accommodate that two-day peak demand figure; and, in the CIP, we've identified about \$30 million in reservoir improvements and additions in order to meet that need.

Development & Growth – Stair Step Res. In SE Tucson



In addition to those components, one of the significant components in - in Tucson Water's Five-Year CIP is what we're calling, essentially, a stair-step reservoir system on the southeast side, and that would consist of relatively large-scale transmission mains in more or less a zig-zag fashion south of

Interstate 10 that would connect a high-water storage, also

located south of the interstate, that would allow to feed water north and, to some extent, west in order to meet the needs of new growth along the State land on the Houghton Road Corridor and elsewhere in this area, largely on the southeast side of Tucson; and that component is \$33.9 million, \$34 million.

MEMBER JOHN CARLSON: Now, is this over five years or is it 25 years that you've

MR. AVERY: That's over five year - that's a five-year slice.

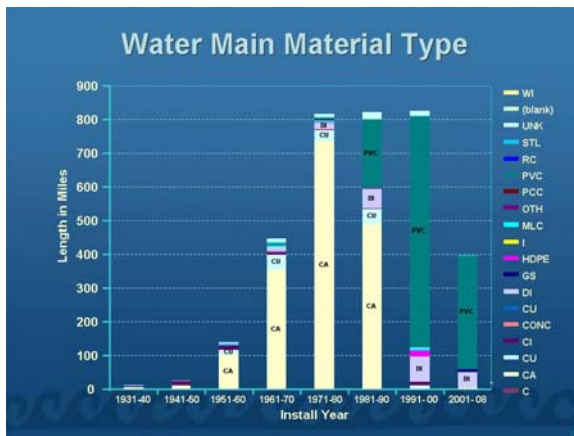
MEMBER JOHN CARLSON: Yeah, 'cause your figure up there always said '08 to '32 and that's 25 years, so -

MR. AVERY: Yeah.

MEMBER JOHN CARLSON: - I got confused.

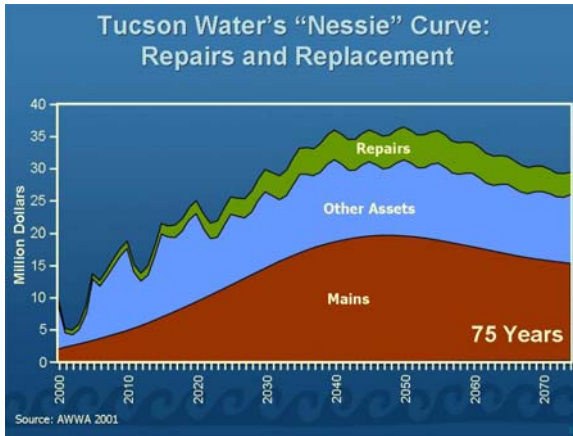
MR. AVERY: Yeah, that - the - the W. B. Carrey Study had 2008 to 2032 and that was, essentially, a 25-year slice, and that's their - their figures are looking at - at 25-year studies. Some other studies look at ten-year slices. We do - CIP and - and Pima County also does CIP in five-year increments.

So, that, essentially, ends the discussion on new infrastructure that's needed either to meet the needs of our existing customers and to connect them with the resources that we have, or new infrastructure that's needed to meet the new - the needs of new customers and connect them with those resources.



But, one of the major components of Tucson Water's CIP is the need to replace and repair the infrastructure that we already have. And two weeks ago we talked about this graph which is, essentially, a graph that shows the miles of pipes that were installed in Tucson Water's System, and the material that was

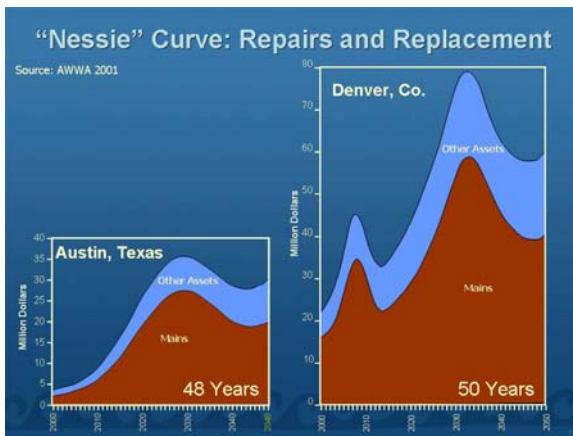
used to build them - and there's a lot of - of very small slices of this graph that I don't want to talk about too much - but, essentially, the large pieces of this graph are the cement, asbestos pipe that dominated the Tucson Water Distribution System from the post-war period up until the mid-'80s, early '90s, and the PVC material that's been the dominant material used in our system since then.



And when you take a look at the expected life span of our materials, and the age at which those materials were installed in Tucson Water's System - and, again, we're talking about existing Distribution System more or less needed to serve existing customers - you end up with a diagram that looks like this. And this is

called a "NESI Curve" and it comes from the 2001 AWWA Study, and it's named for its resemblance to some mythical slices of the Loch Ness Monster, and it looks like Tucson's version of the Loch Ness Monster was based on some sort of stegosaurus, or something. But, essentially, what it does is relate, sort of, if you want to be really imaginative, it relates back and forth to the materials and the age of the - of the assets of our system, and as those - as those materials and assets wear out, they need to be replaced according to a schedule.

This particular NESI Curve for Tucson looks at a 75-year pattern, so our CIP is about here, and we'll talk a little bit about that later. If you look at the NESI



Curves for other utilities on essentially the same scale - this is Austin, Texas, on the left, and Denver, Colorado, on the right. This is - this is a 75-year slice; this is a 50-year slice. So, we've tried to compress it in order to give you a visual effect. But, essentially, the Austin curve is very

similar to the Tucson curve; our curve might do a little bit more of this, and it's a lot more jagged; they're a little more smooth in Austin than we are. And, in Denver, you've got a big curve; larger system. Denver has a significantly higher peak day than the City of Tucson does; and they've got a big bill coming in about 30 years.

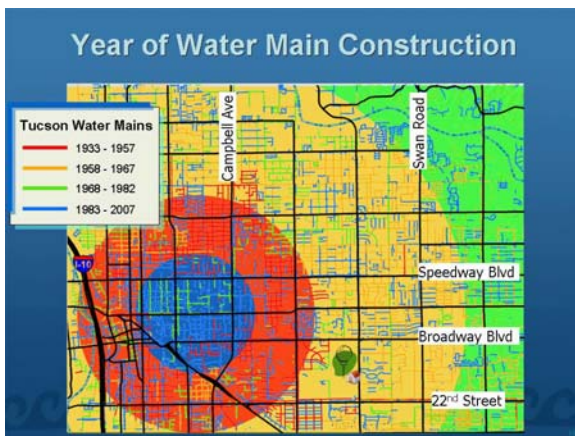
One thing to mention about this - this study - and I've mentioned it before - I'll reemphasize that point as we move forward - that these dollars for the AWWA Study

are in constant 2001 dollars. So, the - the NESI Curves would be exaggerated even more if inflation were part of the - of the study; and it, essentially, means that these water utilities, just like Tucson, face the same issue of aging infrastructure and how to replace it.

So, how are we going to try to attack that problem in Tucson? Well, one way is to try to take advantage of any of the Regional Transportation Authority projects. It's a lot easier to replace infrastructure in concert with road construction; it saves a little bit on utility replacement and it saves a little bit on paving, and it allows you opportunities to get in and use trenches that are already available in the roadways and disrupt your customers one single time, rather than coming back later and rebuilding the infrastructure from the very start.



This is a map of some of the proposed - I think all of the proposed RTA projects - Mr. Sullivan would be able to tell me if I missed an intersection here or there - in the Tucson area; and, in some ways, that map resembles our needs for infrastructure.



And, basically, the Tucson Water System was constructed in kind of a series of concentric rings, starting with the early downtown area of Tucson, and then expanding through the pre-war and post-war years, and then out in the boom period of '60s. This is kind of an overly-simple representation of what the

real data looks like. But, essentially, Tucson Water has spent a significant amount of money during the past ten or 15 years replacing infrastructure in the inner City; cast-iron mains that have been rehabilitated; older mains that have been replaced entirely. This is where we are today at Randolph, and you can we 're right at the - at the

verge - the part of the City that was built in the 1950s and '60s. This is what the real data looks like. And, if you squint hard enough and are under enough hallucinogenic substances, you can see - but, basically, you've got the inner City, you've got this sort of 1930s to 1950s post-war ring of subdivisions that were constructed in the City of Tucson, and then 19- - the 1950s and '60s period where you had large-scale infrastructure projects and really rapid expansion and growth in the Tucson area.

One thing to point out with this graph - and I'd like you to think about when Pima County's doing its presentation - is that many of these assets that were installed for the first time were also wastewater assets that were installed during - when these same subdivisions were being built.

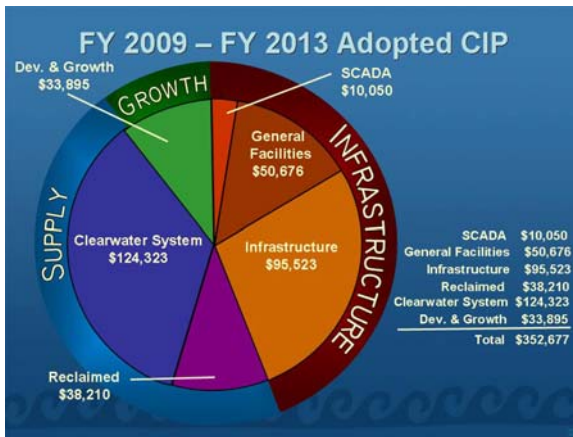
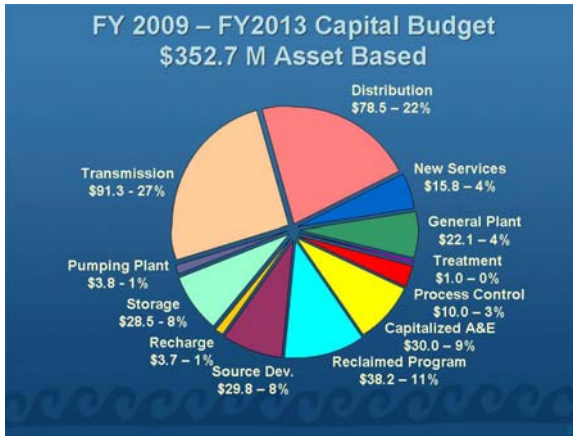


So, how does new - new infrastructure get constructed? And one of the ways that it happens primarily in Tucson Water System is that developers pay for it when they build new subdivisions. So, the infrastructure that we just saw in this graph was largely constructed piece-by-piece by

developers. You can see, you know, Colonia Solona - where's Poet's Corner? As those subdivisions were built, and that's still happening today.

At - in - in fiscal year 2007, Tucson Water reviewed about 150 master plans for new infrastructure in its Service Area; it installed about 3,300 new meters. Again, we're talking about - a month ago we talked about how many new customers have come on to Tucson Water System over the past few years while our demand has stayed relatively flat. Those new customers show up here in new meter installations.

And developers pay for about \$10 million a year of new infrastructure that doesn't necessarily show up in Tucson Water's CIP, but is a significant component of our asset base and our budget. And, in 50 or 60 years, or whenever this infrastructure starts to reach the end of its useful life, it will be the utility's obligation to repair it or replace it.



So, let's talk a little bit about how we pay for it. In addition to the \$10 million a year or so that developers install for - for Tucson Water System, we spend about \$70 million

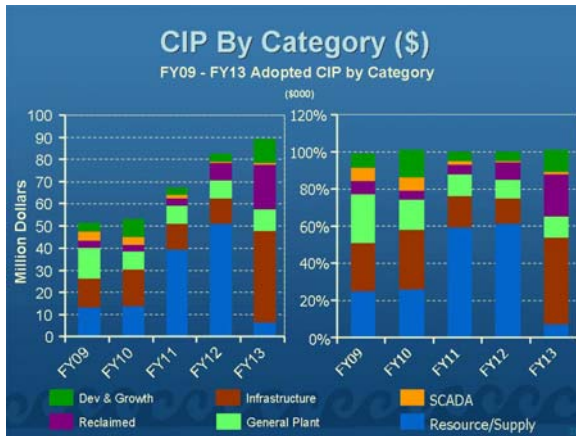
a year on our - on our CIP Program, and this is broken out on a - on an asset-based basis. Some of the interesting parts here - or some infrastructure that we haven't talked about yet - this is general plant; that's basically office space and buildings. Again, Tucson Water's Administrative Offices, our - our plant facilities, our maintenance facilities, et cetera, are as much of Tucson Water's infrastructure piece as just water and boosters and pumps

and reservoirs.

This slice here is - capitalized A and E - is essentially Staff time and overhead that's necessary in order to administer review and put together the capital budget for the Department, and those expenses average about \$6 million a year.

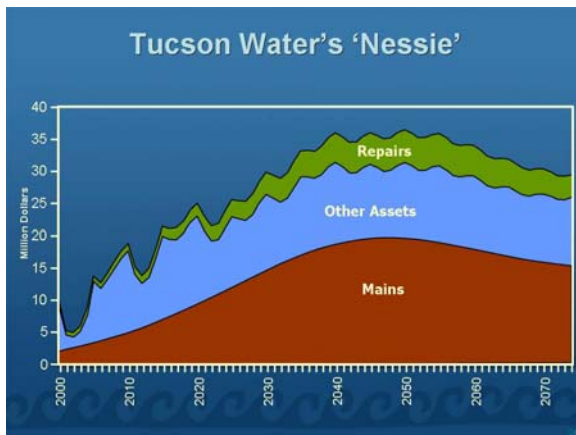
Here's the 11% for the Reclaim Program. Here's some more source development, transmission lines and distribution. One - we've tried to aggregate this by sort of rough categories in order to get a more complete picture of the way the CIP works, and this is one way to do it. If you think about our resources in terms of new supply, you can see that the new supply picture is dominated by the Clearwater Project and by the needed improvements in the Reclaim System. Some component of development and growth that's related to those stair-step reservoirs on the southeast side and, perhaps, you know, some component of the Clearwater System, it's hard to identify exactly which wells are needed for new growth, which diameter of pipeline is needed for new growth; if you're going to install a five-foot diameter pipeline to meet existing demands, and a six-foot diameter pipeline to meet new growth, what - how do you allocate

those costs? And then the bulk of the - of the CIP is on general facilities and infrastructure.

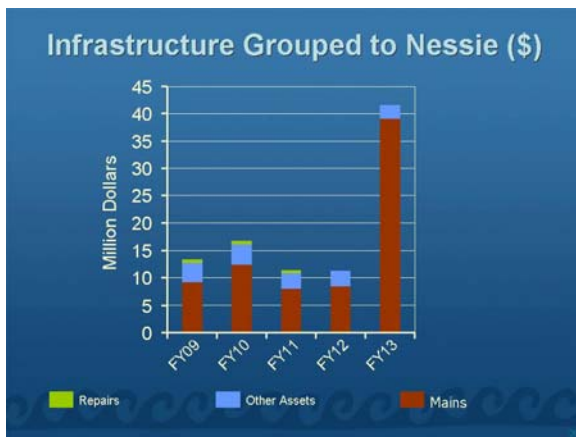


This is another way to look at it by category over the next five years. You can see that Tucson Water is spending a significant amount of its CIP over the next five years in making those Recharge and Recovery Facilities operational and delivering wet water from the Wellfields and

Tucson Water's customers. So, this is by number of dollars per year, and this is by percentage; again, you can see a large percentage of Tucson's CIP over the next four years goes toward putting Colorado River Water to use.

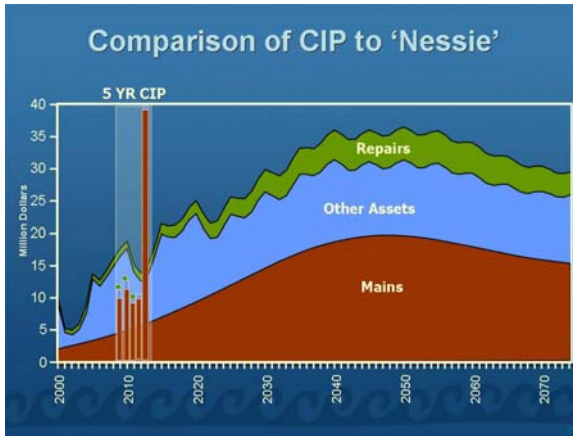


Let's go back to the NESI Curve and look how we stack up in terms of actual expenditures. And one way to look at that is to take that portion of the NESI Curve - basically about in here - that's related to our Five-Year CIP. And, when you - when you - when you try to break out Tucson Water's expenditures, in



terms of the categories that are identified in that NESI Curve, this is what you end up with: About ten to \$15 million a year over the next four years, and then a large jump in fiscal year 2013 as we finish the CAVSARP and SAVSARP Projects, those large diameter pipelines that are necessary to bring water to Tucson Water's Service Area, and we can

start addressing some infrastructure needs.



And this is how those CIP budgets stack up on the NESI Curve. and this diagram looks pretty good, especially this part of it - it's not exactly correctly, and I'd like to explain to you why. First of all, the Five-Year CIP is done in terms of constant dollars. The NESI Curve is done in -

in terms of constant 2001 dollars. So, if you were to project the NESI Curve out with the inflationary factor, the NESI Curve would probably, you know, end up being a little bit more this way.

The other thing to remember is that a substantial component of the infrastructure needs for Tucson Water are related to the RTA Projects, and it is true that some of the RTA Projects are associated with aging infrastructure that would otherwise need to be replaced by the utility. It's also true that some of the RTA Projects will require us to replace infrastructure that's not at the end of its useful life and that could otherwise - those monies could otherwise be spent on critical infrastructure, rather than infrastructure that needs to be relocated as part of a road reconstruction project.

But, moving forward. Tucson Water has a large CIP; it has relatively large rate increases that are going to be asked of its ratepayers over the next five years in order to pay for that CIP, and that CIP is, essentially, dominated by Colorado River Resource and Recovery for the next four years; after which point, we begin to address our infrastructure needs.

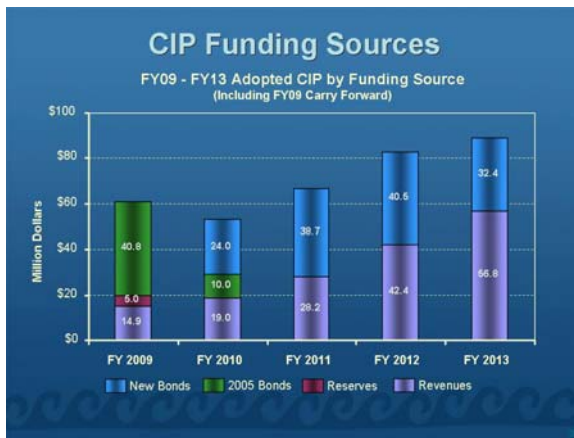


One of the things that the CIP doesn't do is fund everything it needs to. This is a general map of some of the unfunded needs in the CIP. These are projects that are identified by Tucson Water Staff that didn't make it into the CIP priorities. Again, you can see that we've done a relatively good job of

taking care of our resource needs over the next four to five years.

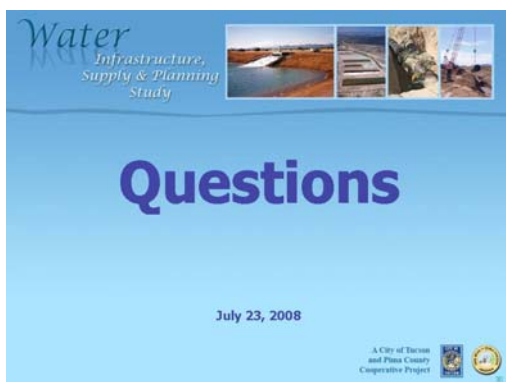
We have a large need to upgrade our SCADA; that's, basically, the electronic instrumentation in Tucson Water's System, and some unfunded development in growth needs, as well as a large component of, basically, general plant, you know, office facilities, maintenance facilities, storage yards, et cetera.

And you can see, in some way from this unfunded infrastructure needs that we're spending a large amount of money again on Colorado River resource; on putting those renewable assets and supplies to use; and we're taking some money to - in order to do that, that might otherwise be spent in other areas.



Going forward for Tucson Water, though - and you're going to hear a lot about this in two weeks - the most critical need for Tucson Water, in addition to managing the CIP, is managing the funding for the CIP. And, if you look at the CIP going forward over the next five years, this is how we're going to pay for

next year's CIP: About \$15 million next year in revenues; about \$5 million out of reserves; and about \$40 million out of our last bond authorization. We'll be going to the voters of the fall of 2009 for a new bond authorization; and, without that bond authorization, our CIP goes down into the magenta. And these 20 - beginning \$24 to \$40 million a year in CIP needs that are - that will be funded by bonds - that were anticipated will be funded by bonds will not be able to be funded without that bond authorization going forward in 2009.



If there are any questions, I'd be happy to entertain them now.

CHAIRMAN JIM BARRY: Bonnie?

MEMBER BONNIE POULOS: Chris, one of the questions we hear over and over again is if a lot of the Capital Improvement Program is dependent on revenues, and the community decides to conserve to a much greater extent than they already do, then what do you do? Do you raise rates even steeper to pay for the water to make up for the revenues that you're not getting from conservation, or what is the scenario if there is a community-wide effort to actually conserve water on a grand scale?

MR. AVERY: Well, we're - we're - we are seeing, as we discussed a month ago, we are seeing that the amount of water that we're delivering is remaining relatively flat, and that's already happening. So, conservation is already happening. We're already accommodating it in our budget.

One of the ways we're accommodating it on the short-term is by dipping into some reserves. The other way we're accommodating it is by looking carefully at our expenses and at our capital budget and, as we move forward, we'll continue that process.

We think that - that this year, you know, at the end of fiscal year '08, which just ended July 1st, that we will have some small shortfall in revenues, but that we'll be able to offset that small shortfall in revenues by reduced expenses. And some of those reduced expenses are directly related to the water that we're not serving our customers. There's some significant savings, for example, in terms of electricity.

But, going forward, we think we'll be able to put together a budget. We think we'll be able to fund it with a combination of revenue and bonds, and be able to - to progress. The fact is that in - in any large utility there's a certain amount of inescapable costs that are going to be incurred, whether you serve a small amount of customers, or a large amount of customers, and then there are costs that are variable depending on exactly how many customers come in or don't.

And one of the points I guess I'd like to make is that it's important for us to understand exactly what's going on in terms of conservation, and in terms of what's going on in terms of community demand for water, because that starts to inform our CIP. We talked a month ago about our - and - and also two weeks ago - about our Peak Day Demand and how we have to size our infrastructure in order to meet that Peak Day Demand. If our Peak Day Demands don't increase as fast as we anticipate, then the CIP that

's necessary to meet those Peak Day Demands also may become delayed. So, we think we're in pretty good shape with respect to that equation, and we keep balancing it year to year.

MEMBER BONNIE POULOS: Has there been any thought to restructuring how water bills are collected from the community in terms of splitting out infrastructure costs in a water bill as a flat amount per water user versus water rates for the amount of water that you consume? It seems to me that part of the problem with public perception is: Why should I conserve if all I'm doing is promoting more growth? And so it seems to me by looking at the financial structure of how you fund that, that might be one of the ways that you can balance that equation.

CHAIRMAN JIM BARRY: Bonnie can I make suggestion that you hold that and bring it up at the next meeting? 'Cause that's the - finances is the - is the topic for the next time. Very good questions, though.

Rob, I saw your hand.

MEMBER ROB KULAKOFSKY: Yeah. In the CIP, \$33.9 million is budgeted for, like, major alliance to go to the southeast side -

MR. AVERY: Yeah.

MEMBER ROB KULAKOFSKY: - for growth; that's a lot; that's, like, 9% of the CIP. Will that be recouped from developers and impact fees proportional to the capacity that their development will use, or is that just something that ratepayers are going to have to pay to support the development community?

MR. AVERY: I - I think the answer to that question is that we don't know exactly, and the reason that we don't know exactly is that the - the rules for how developers pay for infrastructure are still in the midst of a shift. When infrastructure was installed in the 1930s and '40s and '50s, and probably even up to the '70s and '80s, Tucson Water installed infrastructure at developers' requests. I went through a neighborhood I used to live in and was looking at some records and found Tucson Water installing the mains in advance of development in the 1920s. So. that was the model that was pursued for a long time in water and wastewater.

Recently, Tucson Water be- - began requiring developers, and wastewater also - and I don't know exactly what their timing is - but, we began to require developers to install the smaller-scale transmission mains, generally larger - or smaller than 12 inches, eight-inch mains, six-inch mains, smaller-scale distribution infrastructure,

and deed that infrastructure over to Tucson Water, and that's a significant component of that - \$10 million a year - in infrastructure that's currently deeded over.

I would say over the last ten years, you've started to see a shift where larger-scale pieces of infrastructure are now being built by developers. For the first time - in fact, we just received a bid opening on this project last week - we have a reservoir up in the Tangerine and Thornydale area that's going to be funded - essentially, a majority of the funding for that reservoir will be assessed on a - against the developers in the area on a - on a per-unit connection basis.

So, you're starting to see a trend from an era when the utilities paid for all of the infrastructure, to a trend where utilities are - are breaking even larger-scale infrastructure down in discreet pieces and asking developers to pay for it.

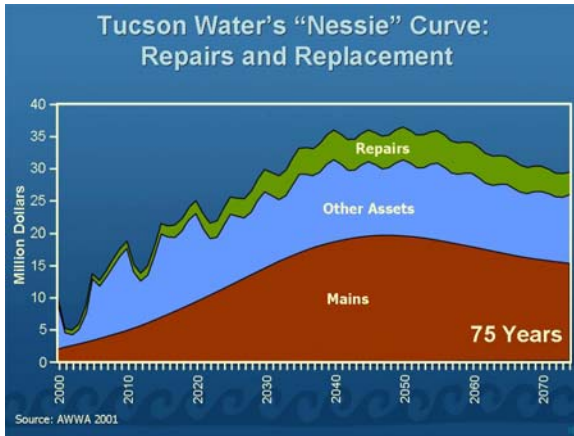
Going forward to 2013, which is when a lot of that southeast area growth starts to happen, it's hard for me to predict exactly what the rate structure will look like; whether, by that time, the Council will have issued direction to start a development impact fee and use those revenues to pay for this kind of growth or not.

But, one of the things that is interesting when you look at the CIP is that this is a relatively large individual component, but in terms of the overall CIP, the funds that you can point to directly and say, "That's the part of the CIP that's devoted to new growth exclusively" is relatively small; it's probably not exactly 10% if you try to thin-slice the CAVSARP and SAVSARP improvements, but it's not - it's not 50% either.

So, the - the question of how to pay for that going forward is a continuing question that the community answers, and - and it seems to me that the community continues to answer that question by asking developers to make larger and larger contributions toward the costs of new growth.

CHAIRMAN JIM BARRY: John?

MEMBER JOHN CARLSON: Chris, again, I'm - you've got the four-year look at - and you guys should be pretty accurate at that - I give you credit for that maybe - your NESI is 70 years; another thing up there's 25 years; but nowhere do you mention what kind of increase in population and usage, and then your one slip of the tongue when you said, "Oh, we'll pay for it with bonds" and you had the revenue shortage. Well, bonds make a need for increased revenue in the future, so -



MR. AVERY: Mr. Carlson, I would like to point that the NESI Curve is just based on replacing existing infrastructure. When - so, when you look at the AWWA Study, and when you look at those - those NESI Curves and those replacement costs that are faced not only by us, but other utilities throughout the country,

you're not looking at replacing new growth, you're looking at existing infrastructure.

MEMBER JOHN CARLSON: That's zero population growth then?

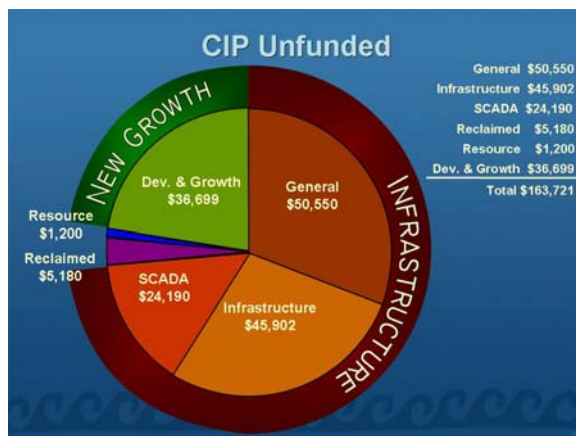
MR. AVERY: You're - yeah, the NESI Curve, for example, you know, it may be that - it may be that in 2070, you're finally starting to replace some of the infrastructure that was built in 2000 and 2010 -

MEMBER JOHN CARLSON: Yeah.

MR. AVERY: - but, for purposes of the NESI Curve, and purposes for the first 50 years of the NESI Curve, you're not talking about new infrastructure, you're talking about repairs and replacement of infrastructure that's already in the ground to serve existing customers.

MEMBER JOHN CARLSON: Okay. As long as that's understood.

CHAIRMAN JIM BARRY: Any other questions from the Committee? Audience have any questions? Bob?



ALTERNATE MEMBER BOB COOK: I'd like to discuss your pie chart because I think there's something misleading here. When you say infrastructure is only existing system, and then you describe components of infrastructure as being the - the build-out of the major Recharge Projects issues on the west side, the recharge

projects that will bring our - our pool allocations, CAP, into recharge . . . situation for access, and when you go back to the earlier presentations where you say that we're going to accommodate growth from the increased capacity of

our recharge basins, in fact, you've got new growth built into infrastructure. You can't just say that - that infrastructure is existing system when, in fact, you know, part of the reason for your Recharge Project is to increase the capacity of - of - of having the full allocation of CAP, because we're going to be relying more and more on that pool allocation of CAP.

MR. AVERY: Let me say that it's difficult to - we - we - what we've done, Bob, is tried to do a good job of breaking this out in terms of the cost of infrastructure for existing customers, and the cost of infrastructure for new customers. And to try to lump a - a - a part of our budget and a methodology in a way that it's not traditionally lumped.

But, I - I tried to make it clear when we talked about this - if you'll go forward to that - that source chart - I tried to make it clear when I talked about this, Bob, that some component of this Clearwater System is, in fact, the difference between what we currently serve today and what we plan on serving in the future. But, exactly how you - how you thin-slice that analysis isn't clear to me - even after thinking about it for a while - and that's because right now, today, our current deliveries in potable and reclaimed to our current customers are about 136,000 acre-feet a year. Our full Colorado River allocation is 144,000 acre-feet a year today, and our existing capacity from CAVSARP is about 70,000 acre-feet a year, depending on which wells are in service and which aren't. So, we have 50 million gallons of capacity at SAVSARP that we have to make up just to serve existing customers.

My question then is: How do you identify which of - of the wells is going to serve new customers and which not? Do you - do you multiply everything by 5/7 and say, 5/7 of the costs goes to serve existing customers, 2/7 of the costs goes to serve new customers? When you build a large-scale transmission main, as I talked about in my presentation, it's very difficult to say, five feet of that transmission main go to serve existing customers, the other one foot in extra diameter goes to serve addi- - extra customers. And I - I tried to make it very clear during my presentation that some component of this Clearwater System is going to serve new customers.

By the time we're done building the - the - the CAVSARP and SAVSARP Recovery, Recharge Projects, and the transmission lines associated with those projects, we - we will be able to serve our existing population plus new population. But, because of the economies of scale in

large-scale water infrastructure projects, it's really hard to split that out, and I - we've tried to do that. I'll - I'll try to make it as clear as possible that we're not trying to deceive anybody here. We are trying to lump something that isn't traditionally lumped this way, and - and try to - to present a picture of how - how this - this works together.

ALTERNATE MEMBER BOB COOK: Since - since we've passed the Smart Growth Amendments to General Planning in 2001, the community has demanded increasing transparency in the cost of growth and how we're budgeting for them. One way to do that is take the growth component and actually have a separate pie chart that gives you all those categories within that growth wedge, because that's, in fact, what we need to understand. We understand that growth is embedded in each of these components, because - because of what you just described. So, we need a better understanding - I - to make communities' decisions about we manage growth and how we fund growth so that we really have a true picture of what that growth -

MR. AVERY: And -

ALTERNATE MEMBER BOB COOK: - really is.

MR. AVERY: - and I - I agree with you in one respect. I want to point out, though, that it's not quite that easy. And one way to think about it is I-10. You know, I-10 was built in the 1950s; it had two lanes; there wasn't a frontage road; now we're building it with, you know, eight lanes, three lanes of frontage road on either side and a nice little sculpted concrete in the middle. What percentage of I-10 is new growth?

ALTERNATE MEMBER BOB COOK: But if it's a (inaudible; not speaking into a microphone) question, it's - it's (inaudible) medical issue, you just, you know, what component of - of infrastructure serves existing? What serves the growth component really?

CHAIRMAN JIM BARRY: Okay. I think - Chris, I think we've identified an issue that - that the Committee's probably going to want to look at further. I - I want to give other people a chance to - to ask questions. And if you are in the audience and you want to ask questions, please come up to the microphone so the - the cameras can - can catch you. If anybody wants to come up, please, come up. Yes, sir, come on up . . . and give us your name, please.

CLYDE STAGNER: My name is Clyde Stagner (ph.) I request that you, Tucson Water, determine the quality of the water that you are going to be distributing that would

go into all of this magnitude of spending. You are now working on the salt, gray water, the who, management for gray water, cites 141 maximum milligrams for liter for TDS. Your water average, the last month to everybody in this city was 377. You haven't come up with a TDS in milligrams per liter. You are distributing water which exceeds the MCLG for radon by the United States Protective Agency, as established by the National Academy of Sciences. Your - Tucson Water System is ignoring the radon. You are ignoring the potassium 40 with a 9 billion - your (inaudible) that's in the water. You are not measuring the radioactivity in the Colorado River.

In short, you don't know how much water you're going to be able to put out when things come down a few years from now, until you come up with some standards and pass some laws here in the Codes of the City of Tucson.

UNIDENTIFIED MALE SPEAKER: Let me ask: Is there a question (inaudible; not speaking into a microphone).

CHAIRMAN JIM BARRY: This is - it was kind of a Call to the Audience. The gentleman made a statement and we're going to record it, and I think it's an issue that we'll - we will address at a later meeting in - in detail. I - I can - Trace, you have a question you want to ask -

TRACE ENGLISH: Right.

CHAIRMAN JIM BARRY: - right? Okay.

TRACE ENGLISH: Thank you. My name's Trace English. Given the definition of infrastructure that you're using, can you provide us with a per-capita cost of the future infrastructure cost for repair and maintenance and replacement of the system that we currently have?

MR. AVERY: I - I think so. I mean, in - in terms of - if you - if you want to do rough math, we have about - now probably about 800,000 customers -

TRACE ENGLISH: Okay.

MR. AVERY: - and you got \$352 million in our CIP budget over the next five years to spread out over 800,000 customers, so I'm going to guess that's, you know, \$700 per - per household.

CHAIRMAN JIM BARRY: Anybody else in the audience that's going to ask a question now of water infrastructure? We have a Call to the Audience.

TRACE ENGLISH: I can -

MR. AVERY: Trace, I'm - I'm - I'm missing my math there. Let's do - let's do \$500 per - per customer, and about \$2,000 per household over the next five years.

UNIDENTIFIED MALE SPEAKER: I'd like to ask some questions. First concerns about waste; and second about do

we have more water than we know what to do with? This start off with a small, and I'll go to the big and I'll - stop me when you think I've gone through too many items.

CHAIRMAN JIM BARRY: Let me - let me interrupt a second. We - we do have Call to the Audience, and it sounds to me like you might want to be making a general statement about the study, rather than asking Chris a specific question about what he said about the Tucson Water CIP. If you have a general statement you want to make, then I'm going to ask you to wait until Call to the Audience. If you have a specific question, then please do it now.

UNIDENTIFIED MALE SPEAKER: Well, I was going to ask why they replaced water meters -

CHAIRMAN JIM BARRY: Okay.

UNIDENTIFIED MALE SPEAKER: - after one and a half years of use at -

CHAIRMAN JIM BARRY: Okay.

UNIDENTIFIED MALE SPEAKER: - a cost of -

CHAIRMAN JIM BARRY: All right.

UNIDENTIFIED MALE SPEAKER: - \$200.

CHAIRMAN JIM BARRY: Well, that - that's a - that's a specific question.

UNIDENTIFIED MALE SPEAKER: I have a house that I think had the same water meter since 1950 until 2005, then they logically replaced it; it was getting less accurate. Then, guess what? A year and a half later, they replaced it again; it makes no - that waste and poor judgment.

A second is: Why do we read water meters every month? Why can't we do it every other month and use half as many employees to read water meters? I believe the natural gas company does something like that where you can get it -

MR. AVERY: Well, I can tell you - I'll tell you why in one instance, and that's my own. I - I talked about this with my Staff today and my family's singlehanded attempts to try to balance Tucson Water's budget all on its own.

But, basically, we went on vacation and left the hose running and so . . . my wife and I still haven't settled responsibility for that, nor are we likely to in the future. But, I will say it was a \$672 water bill, and I'm glad that they billed it on a monthly basis and not on a bi-monthly basis.

UNIDENTIFIED MALE SPEAKER: Recharge.

MR. AVERY: So, in terms of conservation, we all know now that I do not practice what I preach, but there is a human error factor anytime an Avery is involved, so . . .

UNIDENTIFIED MALE SPEAKER: But, I still ask the question: Why can't it be read -

MR. AVERY: And one of the -

UNIDENTIFIED MALE SPEAKER: - every other month?

MR. AVERY: - reasons is - that's exactly one of the reasons is that we have some issues in terms of our customer base with making sure that we get bills out and totaled and - and to our customers so they can be paid. And we tend to find that when customers - we - we tend to find that it's easier to thin-slice those bills into monthly amounts and get 'em out, especially over the summertime, than it is to hit customers with large bills.

UNIDENTIFIED MALE SPEAKER: Well, that wasn't quite the question. Is - you send out an estimate for the one month. The next month you adjust it to what the actual water use is -

MR. AVERY: Yeah.

UNIDENTIFIED MALE SPEAKER: - so that you're only reading it every other month.

MR. AVERY: And that is a good question. As we start to adopt more automated meter reading, we may be able to incorporate new technology.

CHAIRMAN JIM BARRY: Sir, I - I want you to make sure, if you have other comments you want to make, please remember we do have the Call to the Audience. I don't want you to think I'm cutting you off. Yes, ma'am?

COLETTE ALTAFFER: Yes, Colette Altaffer. Just two questions. Early on, you were talking about building Recharge Basins for recharging of effluent. Is the purpose to recharge it and then, at some point in time, pull it back up out of the ground and just stick it into the Reclaimed Water System, or are we actually using that water at some point in time as potable water? And -

MR. AVERY: Okay.

COLETTE ALTAFFER: - two -

MR. AVERY: Let me stop you right there, 'cause -

COLETTE ALTAFFER: Oh.

MR. AVERY: - I don't want to get any further down this than we have to.

COLETTE ALTAFFER: Okay.

MR. AVERY: The - the Reclaim System operates based - and we - on two sources of supply: The first source of supply is a large bank of what are, essentially, pool filters that - that serve 10 million gallons a day of

demand on the Reclaim System; the other source of supply for the Reclaim System is an annual Storage and Recovery process that involves recharging reclaimed water, essentially, on a - more or less a steady-state basis, accumulating credits during the wintertime, and pumping those credits during the summer. We accumulate a small surplus in - in our storage account that way, but reclaimed water's produced and delivered, essentially, on annual Storage and Recovery, and this is a recharge of - of effluent simply to supply the Reclaim System and not for any long-term potable purposes.

COLETTE ALTAFFER: Okay. So, are we storing that underground?

MR. AVERY: Yeah. We, essentially, store it underground on an annual basis. We pump - the way ADWR allows us to operate our storage system is that we recharge a specific volume on an annual basis through our - our storage - our recovery - or, basically, through our Recharge Basins, and then we pump that water primarily during the summer to supply our customers' needs. And, depending on how - the demand might be variable, we - we run that system with a small surplus of credits in order to be as flexible as possible in meeting our customers' needs. But, it's fair to say that it's a put-and-take facility where, on an annual basis, more or less, all the water that we recharge is also recovered and delivered to our customers.

COLETTE ALTAFFER: Just out of curiosity, how do we keep it separate and keep it from migrating into the potable water that's in the ground?

MR. AVERY: Because the Camino Del Serro Landfill is just downstream of the Recharge and Recovery Facility, so we have to be very careful to make sure that we don't migrate excess water down into that area. And, essentially, what happens is we build up a small amount of water in the wintertime, and then we pump that amount of water through strategically-located wells in the summertime, and that results in, essentially, a cone of depression that keeps the water that's recharged in the general area.

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(Recess taken.)

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Presenter #2

ERIC WIEDUWILT, ACTING DEPUTY DIRECTOR FOR PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT: NATIONAL AND STATE INFRASTRUCTURE ISSUES/PCRWRD CAPITAL IMPROVEMENT PROGRAM



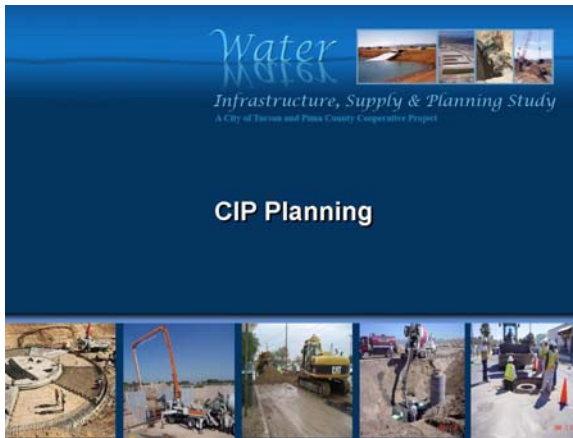
MR. WIEDUWILT: Good evening. As you know, there's always some good news and bad news; right? The bad news is we're halfway done. The good news is we get to talk about wastewater now.

The presentation today from Wastewater's standpoint is going to be in two parts: I'll do an

introduction with our planning and what we call our "Core, Capital Improve Program," and our Director, Mr. Mike Gritzuk, will be presenting the second half, which is focusing on our Regional Optimization Master Plan and what we have in store for the Metropolitan Area.

Just to respond to the question about potable water used for flushing, preventative maintenance. We use 4.8 million gallons a year, which is equivalent to about 60 households.

And, as you know, we are discussing with Tucson Water the use of reclaimed water. One of the biggest impediments we have now is that the Reclaimed System is not as far distributed as the area we need to maintain, so if we commit solely to reclaimed water, we'll have to drive many more miles to get to that water, and that's not efficient or energy-efficient, or even environmentally-friendly. So, it's a balancing act, but we are continuing that discussion.



Without any further ado . . . I'll start with what we call "CIP Planning." Tucson Water does it, we do it.



We look at a 20 to 30-year planning horizon, focusing on four key drivers; and, obviously, the first one is the regulatory world; trying to look ahead at the regulations coming from the EPA, from Arizona Department of Environmental Quality, and gearing toward building plants that might be suitable. One of the great

examples - and Mike will talk in a little bit more detail - is our look ahead that phosphorus may become an issue of concern. We're planning for that with the improvements we're doing right now.

Second driver, of course, is Asset Management. The Nassy Curve that Tucson Water showed, we're no different. We have to look ahead to keep the useful life of our infrastructure in place by either extending it or replacing it. From the Conveyance System, we talked of our visual inspection, monitoring every foot of pipe and analyzing whether it's in good enough quality to last another five to ten years, or needs immediate repair.

With treatment plants, it's a little different; that's also a visual, but it's - this pump is rusting and falling apart, we need a new one. And, when we expand for capacity, we're always retro-fitting the old facility, so it's almost like putting on a new suit.

Population. We'll talk a lot about that in the future but, obviously, when we look ahead to that 2030 horizon, we're doing it to look at population. Where is the capacity going to occur from the growth? And where do

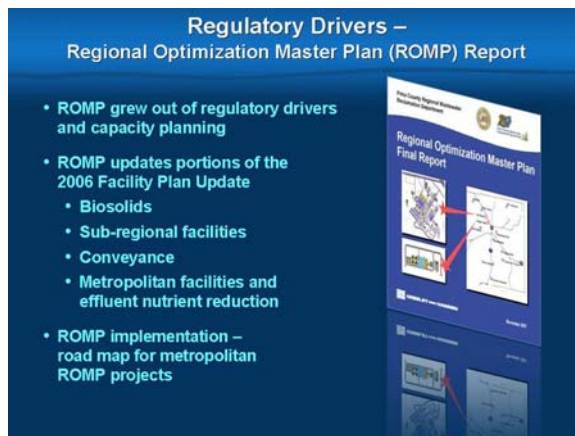
we have to look at our line infrastructure capacity and treatment plants?

Finally, being a good neighbor, both the aesthetics of the plants and the control of odor are key to everything we do.



The 2006 Metropolitan Facility Plan is our latest major plan; that outlines not only our look ahead to 2030, but also our Five-Year CIP, and this was a pretty significant activity. You saw the previous plans are at the top: 1978, 1990, and then this one. And, of course, through our Five-Year CIP and look

ahead, we also start to flush out where we need bond funding to complete those capital projects. This plan estimated \$1.4 billion through 2030, so Nessy Curve is here in our yard as well.



Part of that closer look at the regulatory environment moved us into a separate Master Plan called a "Regional Optimization Master Plan." We knew that when we did major upgrades at the Ina and Roger Facilities we'd have to address water quality issues, and this study was directed at additional

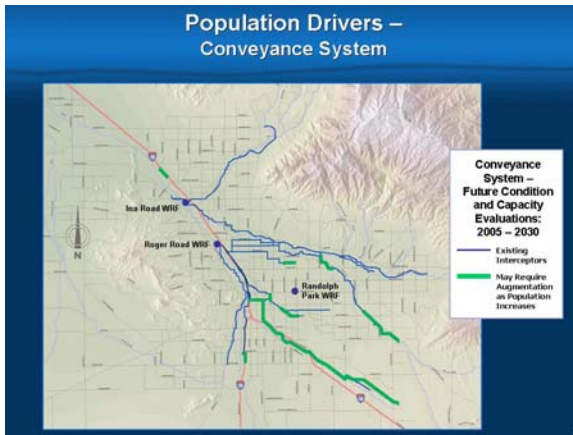
nutrient removal for the large plants, but we also took it as an opportunity to revisit our Biosolids Master Plan; what our sub-regional facilities are going to look like; what is the general treatment processes we want to move and standardize; and put some framework, so when we have to expand capacities, it's all been mapped out, and Mike will talk in a lot more detail about that.



When we talk about asset management, 25% of our pipe is over 50 years old. The Nussy Curve, that Tucson Water and Chris showed, was based on a replacement after a 50-year useful life, I'm assuming; that's what our infrastructure is, a 50-year useful life.

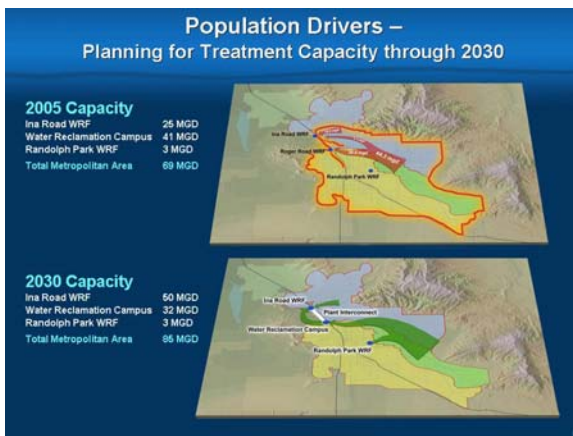
We've taken a different tack; that we have 100-year-old sewers that are still operating perfectly. So, we, instead chose to go in and visually inspect and replace when it needed it and let the stuff that's working fine just stay there. I mean, the clay pipe that was installed in the 1900s is great stuff; it won't erode or decay for the most part but, of course, root intrusions, and odd other defects, would require us to repair it.

We've taken a different tack; that we have



Population Drivers. I told you we looked ahead to 2030 with our population model, and it shows the areas in green are interceptor systems that if growth occurs where we're projecting it to, would require some type of augmentation. This is a planning tool for us to look ahead, know where the

impacts might be, and spend a little more time monitoring this as additional population comes up.



For the treatment plants, it's about the same exercise. This is an example of what we did for the Metropolitan Area. But, right now, we are approaching capacity at the Roger Road Facility. We are in the design phases of an interconnect to transfer a lot of that capacity that is occurring in the south side

of town and moving it to the Ina Facility where we have a free 12-1/2 MGD capacity right now.

The 12-1/2 was planned prior to the Pygmy Owl we told you the story of. We thought all the growth was going to occur in the northwest. The Pygmy Owl came, stopped growth there, moved it the other way. We had to do some quick reactions. And these are the things that you can't project or plan very well for. These facility plans are sort of hazy crystal balls; nothing's completely shiny. But, in addition to addressing capacity or expanding Ina Road to 50 MGD and a new Reclamation Plant, but I won't steal the thunder from Mike too much.

Good Neighbor Drivers – System-wide Odor Control Plan




Interim odor control projects completed by June 2008
Achieved noticeable reduction of odors
Funded with 2004 Bonds and System Development Funds

Odor control at Ina Road WRF and new Water Reclamation Campus will be incorporated into ROMP
\$40 M requested in 2009 Bond Authorization

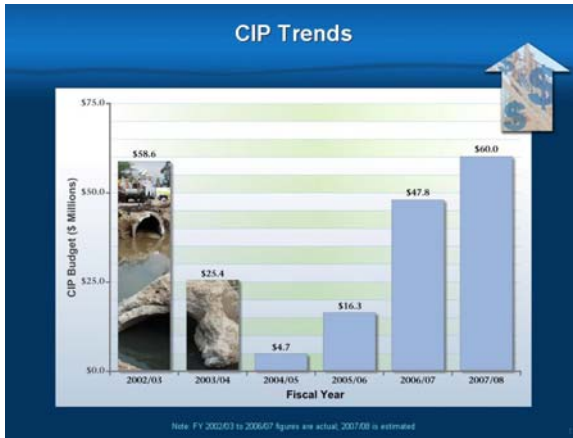
And we talked about odor control to a great extent two weeks ago, and I'll only say that we've got \$40 million in our 2009 bond request to address odor control at these facilities.

Water
Infrastructure, Supply & Planning Study
A City of Tucson and Pima County Cooperative Project



Core 5-Year CIP – Fiscal Years 2008/09 to 2012/13

Let's move into our Five-Year Core CIP. I'll define "Core" as being all those improvements that need to be in addition to ROMP, and you'll hear about the magnitude of ROMP in a minute.

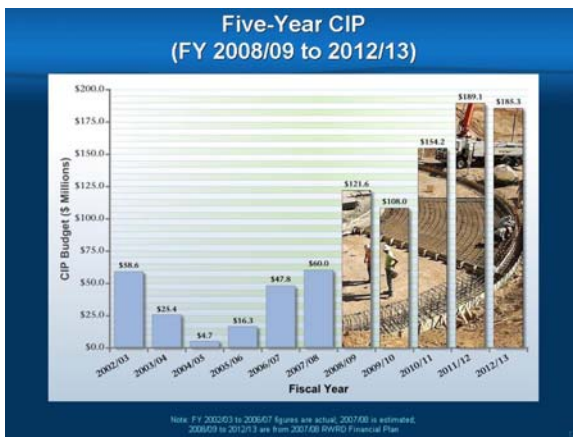


To back up to see where we are. This is the previous six fiscal years, including the current fiscal year that just ended, June 30th, where we are estimating a \$60 million expenditure.

Now, I think this is pretty unique for our utility. We had the Speedway sinkhole in 2002 and, concurrent to that, we

were doing a Randolph Park Facility and an Ina Road expansion, and what we learned was that: When things go wrong and you don't plan for it, or plan well enough, it puts us in a pretty dramatic fiscal solution or fiscal problem. So, in 2004/2005, we hardly spent anything on capital projects, because we had a financial house to improve and correct.

Now, the advantage of going through this curve as we think we're approaching capital improvements smarter, we're increasing the amount of retention that we have available for emergencies, and being a lot more proactive on addressing problems before they occur.



Looking ahead to our next five years, we have a large increase. A dominant portion of that is the ROMP, but I'll show you how much is still maintaining the existing system, other than the two facilities. Also to point out that this process taxes our infrastructure, our resources, as well as our processes, going from

\$4.7 up to \$60 million in three years with internal staff to begin with and now, also, pulling in some external to help has been quite a learning experience, but it looks like we'll be able to make that top curve.



This is dividing that Five-Year CIP into the blue, which is ROMP funding; yellow is treatment; and green is conveyance. And I think the point to come across that after you see Mike's slide show of the magnitude of ROMP, we still have a lot of infrastructure that needs to be taken care of through this period, and

all the effort can't go to the two new plant upgrades; that we've got to take care of other places as well.

The large chunk of green - I mentioned we carryover a chunk of money to put toward rehabilitation - and that's the large conveyance portion going there. Our treatment plants, most of them, have been expanded due to capacity, and I told you when we do a capacity upgrade, we're usually building a new plant, or repairing the old stuff, so the infrastructure needs for rehabilitation are not that high.



Some examples of the treatment upgrades in the Core. We're currently in construction for Avra Valley - and I showed these to you two weeks ago, so they mostly should not be a surprise.

For Marana, we have to look ahead. Will we need an additional expansion there? Green Valley and Roger Road rehabilitation. The sad thing is that we have a lot more rehab work that needs to get done on a plant that's not going to be around much longer, but we have to do it now to have it operational through that 2015 period.



Conveyance Projects. Total \$41 million for the miscellaneous rehab repair; that list is always changing, but we have a bucket of money to pull from to take care of those.

Santa Cruz Interceptor. Another enlargement in a large-diameter pipe to put in more capacity and take it off the northwest outfall which is a line that is nearing capacity now.

Park and Eighteenth. That was a small segment in the green line that I showed you earlier, so we're addressing pieces as we see a need.

And Prince and I-10 also improving some infrastructure concurrent with an ADOT enlargement of that area. So, trying to spend our money when it's being ripped up by somebody else.



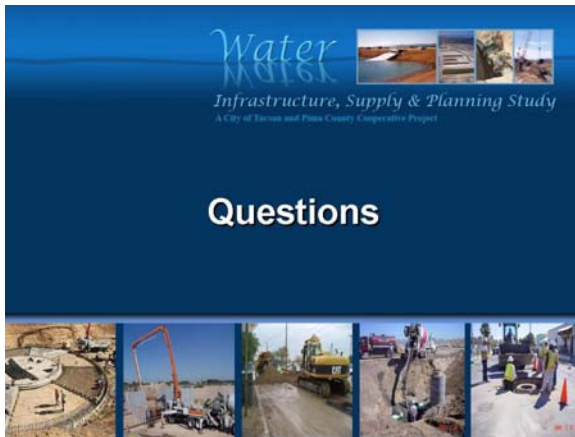
Coming around to the funding part - and we'll spend a lot more time in two weeks talking about the bonding - but, I thought it was important to put that our proposed 2009 bond request that we're asking for, totaling \$565 million, has a \$445 million component for ROMP, but we do have additional other capital

projects that are funded out of that.



Of course, looking ahead, this is sort of the scary part. We see a large hump right now that we have to spend and put our resources to, to address ROMP, and Mike will talk about that large blue one, but we expect that there's going to be ROMP II in the future, and probably a III and a IV,

as we go through the cycles of needing advance treatment for water quality and some more significant investment and rehabilitation.



So, with that lead-in, I'm going to move right to questions and, if it's anything to do with ROMP, we'll wait till Mr. Gritzuk gives his presentation and answer it then.

CHAIRMAN JIM

BARRY: Committee, any questions? Audience, any questions?

Michael, you're up. You all know Mike Gritzuk, who's the head of Regional Wastewater Reclamation? Yeah, it says it on the slide. You didn't need me.

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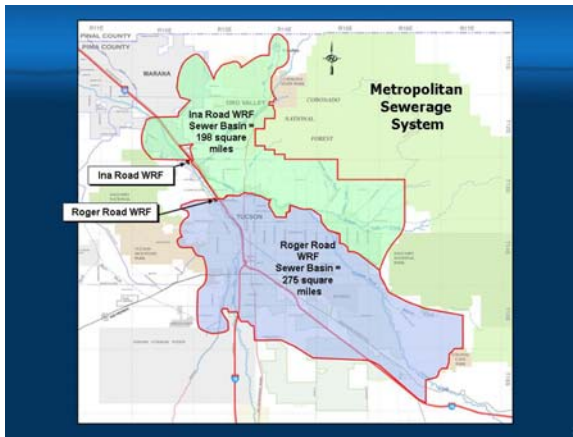
Presenter #3

**MIKE GRITZUK, DIRECTOR FOR PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION DEPARTMENT: NATIONAL AND
STATE INFRASTRUCTURE ISSUES/PCRWRD REGIONAL
OPTIMIZATION MASTER PLAN**



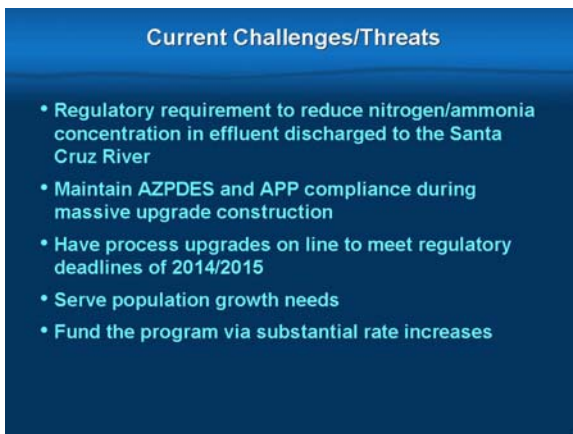
MR. GRITZUK: Good evening. I'm going to give you some detail of the ROMP Program, the Regional Optimization Master Plan, and want to stress that the initiation of this Master Plan was regulatory-driven, but as we started to develop what was required in the regulatory program, we just added a lot of other ingredients to this

program, such as rehabilitation, modernization, and planning for growth. So, let's go into this.



The primary focus of ROMP is primarily the two Metropolitan Regional Facilities: Ina Road and Roger Road. And this is Roger Road and you see the Service Area of Roger Road is rather large, 275 square miles of Service Area for Roger; and for Ina Road, the Service Area is about 198 square miles, so in total

somewhat short of about 500 square miles of Service Areas to be served by these two major facilities.



What are the challenges that we envisioned when we started to put together this program? Top of the list, of course, was the regulatory requirements to reduce nutrients in the form of nitrogen and ammonia in the effluent that we discharge to the Santa Cruz

River; that was a driving force. But then, with a massive program like this, as I'll describe, we also have to maintain our existing facilities to make sure that they're in compliance while we're actually beating these facilities up. So, that's another major challenge that we had to address in the development of this program.

Everything had to be completed by regulatory time dates, 2014 for one facility; 2015 for the other. I'll get into that. We also have to serve population growth needs in this program. And last, but not least, fund a program somehow; and the way it will be funded, in reality, is with substantial rate increases, wastewater rate increases, as we move ahead with the program.

**Regional Optimization Master Plan
Scope of Work**

- ✓ Develop the optimal treatment process and plan to comply with regulatory requirements to reduce total nitrogen concentrations in discharged effluent
- ✓ Master plan foreseeable future regulatory requirements
- ✓ Determine the long-term capacity needs of the County



Ina Road WRF Headworks

So, the scope of work that we've developed for the program is as follows:
Develop the optimal treatment process and plan to comply with regulatory requirements to reduce total nitrogen concentrations in that discharged effluent. In this process, we had to select a treatment process that would meet this

requirement, and that the process also, in the event of increasing regulations or new regulations, would be easily adaptable to new requirements.

So, that leads into the second item: Master Plan Foreseeable Future Regulatory Requirements, and put as much of that master planning in this program. And let me give you a couple of examples: DEQ, Arizona Department of Environmental Quality, just completed something that they call the "Triennial Review Process," and they're coming up with new regulations, proposed regulations. One of the proposals is to ratchet down on ammonia concentrations. So, we think we're there with this program.

Another future regulation that we know is on the horizon, but we just don't know when it's going to kick in, is to reduce phosphorus concentrations in the effluent that we discharge. With the process that we've chosen, we think that we can comply with that regulation. We're planning for it when it happens.

On the sludge side, the biosolids, the solids that we have in our process, right now we have a Class B

sludge that can be used for certain purposes and cannot be used for other purposes. On the horizon, we see that we will be required to upgrade our solids to something called "Class A" which has more reuse potentials. So, we're looking at that as a horizon that may happen, and we're planning for that.

And then, even into the distant future, what is becoming kind of popular now is the discussion of pharmaceutical waste products and personal care products, and a lot of these products, of course, wind up in the wastewater stream, and what do we do with those? Will there be future regulations about that? And we feel that there will be. So, how could we plan for that eventuality today? So, this was the crystal ball that we were looking in, in this process.

Determine the long term capacity needs of the County as it relates to these two facilities; in fact, in everything that we're designing in the ROMP Program, we're designing to the year 2030. What are our needs at that point in time? So, both of these facilities will accommodate growth up to the year 2030; after which, certain expansions have to happen.

Regional Optimization Master Plan
Scope of Services

- ✓ Develop long-term plan for the treatment, handling and reuse of system bio-solids and bio-gas
- ✓ Develop a detailed implementation schedule to meet regulatory implementation deadlines
- ✓ Develop a financial plan to support the system's regulatory and other needs for the next fifteen years



To continue, determine a long-term plan for the treatment, handling and reuse of system biosolids and bio-gas. These are byproducts of wastewater treatment and, traditionally, the sludge that was generated in the wastewater treatment process was a waste product and it was disposed of as a waste.

What we do today is that the sludge that we generate, which is Class B, as I indicated, is used for farming operations. We have a contractor that takes it in a semi-dry fashion and delivers it to properties where it's used for growth of crops.

More importantly, the bio-gas that we have in a digestion process, primarily methane gas, is currently used at Ina in our co-generation facility. We generate electricity through the use of this as a fuel. And we will concentrate all of our solids in the future at Ina, so we'll have more bio-gas there and we'll have more bio-gas to run the power generators that we have at that plant, so

we'll fully utilize the bio-gas that's generated in this plant.

The last two items: Develop a detailed implementation schedule - and the schedule is how to roll out this program over a 15-year period of time - but, more importantly, in a nine-year period of time, which is the regulatory portions of this program, and I'll go into that.

And last, but certainly not least, is to develop a financial plan to support the system's regulatory and other needs for the next 15 years. What this is meaning to say is that we have to develop a financial plan not only for the ROMP Program, but also for all of the other financial needs that we have in our department, as Eric had described.

Eric indicated that the facility plan that we have shows a need of \$1.4 billion, and that is 2006 cost estimates, but that program will be built over the next 20, 25 years; and of the overall CIP needs in our department, \$1.4 billion, about half of that is ROMP.

Regulatory Implementation Requirements to Reduce Total Nitrogen Concentrations		
	Ina Road WRF	Roger Road WRF
<ul style="list-style-type: none"> ✓ Complete initial engineering study ✓ Recommendation for upgrading treatment plants ✓ Submit recommended plan letter to ADEQ 	February 1, 2007	January 30, 2007
<ul style="list-style-type: none"> ✓ Award contract for construction 	December 31, 2010	January 30, 2011
<ul style="list-style-type: none"> ✓ Treatment of effluent to non-toxic nitrogen levels 	January 30, 2014	January 30, 2015

This is the schedule that we are required to adhere to, and you see one for Ina Road, one for Roger Road, and they're almost the same except for the last item. For both Ina and Roger, in early 2007, we had to present: What is our plan to comply with these regulations? So, we have conceptually developed the

plan at that time.

We went to our Board of Supervisors and presented the plan to the Board of Supervisors with the cost impacts of this regulatory requirement. We've got their endorsement, conceptual endorsement, of the plan. And then we went to ADEQ and presented the plan to them in early 2007, and they accepted the plan; in fact, they gave us quite a lot of compliments on how we've developed the plan. So, we met the first regulatory dates for Ina and Roger.

The next dates are actual award of the construction contracts for these upgrades at both of the facilities. We have to award the contract for Ina at the end of December, at the end of 2010, and then shortly thereafter, a couple months thereafter, for the Roger Road facility.

And then, finally, the most important compliance date here is that these facilities have to be online operating, running, and in compliance with the new regulatory requirements by January 30, 2014, at Ina and, a year later, 2015, at the Roger Road facility. So, these are the driving forces of the ROMP Program.

By the way, if you have any questions as I go along, by all means just chime in if you have anything that you'd like to ask me.



The ROMP Plan at a Glance. One is a Plant Interconnect which, basically, interconnects the Service Areas of Roger and Ina. The intent here is to convey flow from the Roger Road Service Area up to Ina where we have additional capacity, as Eric indicated in his presentation, and that is an up-front construction

project, because we're approaching capacity at Roger.

Expand the Ina Road facility to 50 million gallons per day. I'll get into more detail on that. Construct a new 32 million-gallon-per-day Water Reclamation Campus in the vicinity of the existing Roger Road Facility. To have good neighbor facilities. And we want to stress here that everything that we do in our programs now, good neighbor is a high priority of ours, and good neighbor has various components to it. One, these facilities have to be architecturally-pleasing to our neighbors. They cannot have huge sounds, sirens going off and, of course, odor control.

Odor control also is a major priority item with us. We've gone a long way in some recent improvements, and improvements will continue. As Eric indicated, in the ROMP Program, \$40 million in that program is for odor control at Ina and Roger.

And then, finally, when the new Campus is online, decommission the existing 41 MGD Roger Road Facility, retire it, give it a gold watch and say, "Job well done" for the last 50, 60 years that that plant has been in operation, and then meet the growth needs to the year 2030. So, that's it at a glance.

ROMP Cost Estimate
(2006 dollars)

Ina Road WRF Upgrade/Expansion	\$243,900,000
Electrical Upgrades	\$35,000,000
Plant Interconnect	\$22,300,000
Water Reclamation Campus	\$211,000,000
Roger Road WRF Demolition	\$23,800,000
Total Estimated Cost	\$536,000,000*

* Cost estimate includes design costs, UV disinfection and 5% contingency.

The cost estimate for ROMP. I want to go down to the bottom line here, and notice total cost of \$536 million, but let me stress a couple of points here. These cost estimates are in 2006 dollars, and here we are in 2008 already, and we haven't put a shovel in the ground on this program yet, but we will very shortly. So, the

asterisk there indicates that these cost estimates include design costs, a disinfection method that we're trying to avoid because of the high cost, and a 5% contingency, maybe stressing the contingency here.

Construction costs in recent years have been much more inflationary than 5%, and we're hoping that there's some leveling off with this inflation that we're experiencing in these costs; maybe 5% will do it; maybe it won't do it.

Some of the major components are the Ina Road Facility you see at \$244 million there, but then a lot of this next component, this \$35 million, which is our electrical upgrades are at Ina itself. So, if you add about another \$25 to \$30 million, the Ina Road Project in the overall ROMP Program is the largest component and is the most complex component.

The Plant Interconnect I mentioned, about \$22 million; the new Water Reclamation Campus, about \$211 million; but then to this \$211, you probably should add the demolition costs of the existing facility, so you see, in combination, that's about \$230 million as well; it's a very large component; and, again, stressing, these are cost estimates that are 2006 cost estimates, they're old.

50 MGD Ina Road Water Reclamation Facility

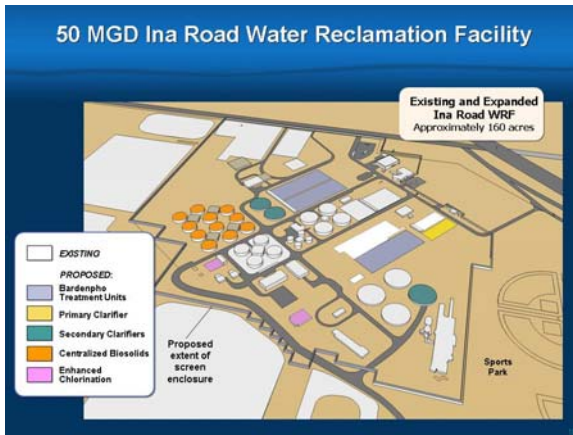
- Expand treatment capacity to 50 mgd
 - Convert existing processes to Bardenpho process
 - Additional 12.5 mgd expansion
- Centralized biosolids processing and handling
 - Reduces overall cost
 - Provides for co-generation bio-gas utilization at one location
 - Provides one point of distribution of final product



Some more detail. The expansion of the Ina Road Facility, as we indicated, to a capacity of 50 million gallons per day. Also in this program is the conversion of the existing processes that we have at Ina Road. We have a high-purity oxygen process. We also have a biological

nutrient removal process that does not meet the current requirements. So, both of these existing processes have to be upgraded to this new process that we're calling "Bardenpho," and that is in combination, 37-1/2 million gallons per day. And then, on top of that, an additional 12-1/2 million-gallon-day expansion with a Bardenpho process. So, the whole facility, the 50 million gallons per day, will all operate as one process when it's all done.

In addition, we will centralize all of our biosolids processing at Ina. In looking at the costs of doing biosolids at the new Campus versus and then doing biosolids at Ina, the costs estimates indicated to centralize that operation at one facility - and that will be at Ina - and then provide for co-generation of the bio-gas, and then it also provides for one point distribution of the final product, whether it's Class B or Class A, or something else. So, that's the plan for Ina, a massive, very complex expansion and upgrade program, and I should say it also includes a lot of rehabilitation. Ina is a newer facility than Roger, but there's also a need for a lot of rehab, and all of that will happen in this program.



An aerial view. This is Ina again and we have about 160 acres of property over there. This is kind of the outline of the property that we have and, color-wise, anything that's in color here are new facilities. What is not in color or white indicates existing facilities, but don't be misled by existing

facilities, almost everything that you see in white there will go through some type of upgrade and rehab, even though it's existing in nature.

And I also should point out that there is a sports park adjacent to Ina Road that all of you are aware of, and there was some early rumor out there that we were going to expand Ina into the sports park; that's not so. This entire expansion program is within the property that we own, so the sports park will remain over there.

32 MGD Water Reclamation Campus

- 32 mgd Bardenpho treatment train
- PCRWRD Central Laboratory Facility
- Showcase for cultural and biological resources
- Environmental enhancements partnered with City of Tucson
- Economic development
- Solar power project



The Water Reclamation Campus, it's a 32-million-gallon-per-day Bardenpho Treatment Train; that'll also house our Central Laboratory Facility. I'll talk about this in a little bit. We intended for it to be a showcase for cultural and biological resources, particularly in the setting that it will

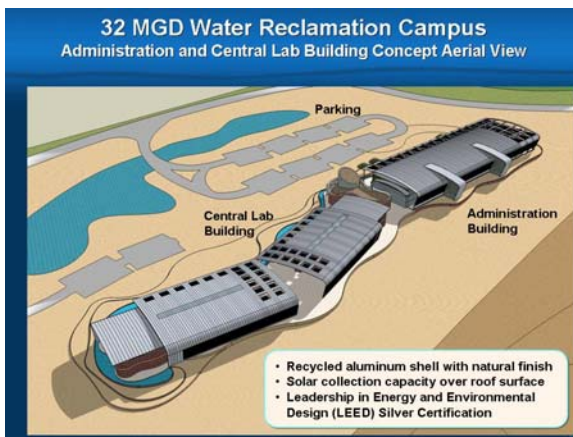
have along the banks of the Santa Cruz River, and it will lend itself to environmental enhancements partnered with the City of Tucson, parks development, cultural resources, and many other features that we hope to partner with the City.

In addition, there's hope that there could be some economic development around this new Water Campus, and I'll go into that in a little bit. And then, finally, a new ingredient, a solar-power plant, and let me describe that: The County has a Sustainability Program which has recently been launched and is getting to be quite popular. One of the goals in the Sustainability Program is sustainability in power and green power. So, we have a project that will shortly go out in advertisement for a solar-power plant that will be located between the existing Roger Road Facility and the new Water Reclamation Campus, in between both of those facilities, and this will be solar power. And, once that facility is up and running, it will provide power to the existing Roger Road Facility. When the new Water Campus is constructed and operational and Roger Road will be decommissioned, we'll take that electrical cord, unplug it from Roger Road and just plug it into the new Water Campus. Isn't that nice? So, it's not a dream; that project is being developed and very shortly it'll be advertised for a consortium to come in and build it.



nature.

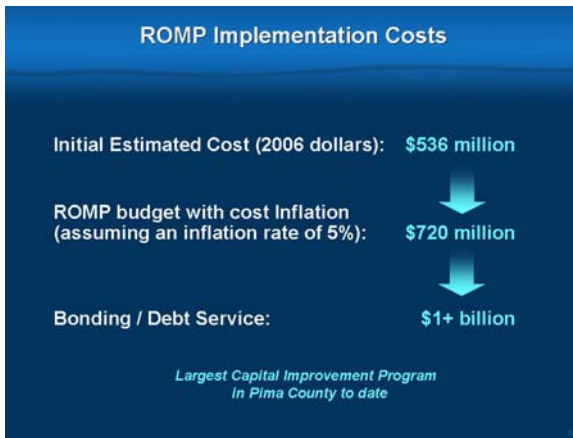
An aerial view just to stress that the facility will be built along the banks of the Santa Cruz River. The site is a very scenic site. We want this to be in a campus-type setting. And, as I indicated, there will be other projects surrounding this facility in the environmental theme type of



benefit from it. And notice they also said, "recycled" aluminum. I didn't understand what that meant, but I now understand that we can go out there and ask you, the community, to give us all of your empty soda cans and your empty beer cans and we could stockpile that and we could use it as recycled aluminum. There was a little humor in that, but you didn't get it, okay.

And to be stressed, also, is that everything that we do will be LEED-compatible. So, that's another major program that the County has endorsed and all of our facilities that will have some occupancy will go through the LEED review and will achieve the silver certification in the LEED program.

A more close-up look, and the only reason to show this slide is that our consultants are telling us that if you sway away from the traditional brick, mortar and steel, and use metal-type projects, like aluminum, you can incorporate solar-type panels in construction like this, get a solar energy



Now, to the bad news: Costs. I indicated that the initial cost estimate for the ROMP Program was \$536 million, and that was based upon planning-level cost estimates in 2006. We've since taken the program, we've divided it up into all of the various projects that need to be built in ROMP, also all of the consulting

services that need to be retained in both design, cultural resources, project management, construction inspection, and so forth, and we have taken that \$536 million, and we now have a ROMP budget of \$720 million.

Most of the difference between \$536 and \$720 is the inflation rate of 5%. We've inflated those costs up to the point of construction, assuming inflation at 5%, and we've come up with a budget of \$720 million.

MEMBER JOHN CARLSON: Mike, that's 5% per year?

MR. GRITZUK: Yes, yes. It doesn't stop there. If we had \$720 million in our bank account to build this program then, perhaps, we can build it for \$720 million. We don't have that kind of money in our bank account.

The way we will build this project is through the use of bond funds. And, as you know, when you use bonds, you have to pay them back, and you pay them back with interest; something called "debt service." So, when you factor in the bonding needs for a program like this, you are over a billion dollars by the time it's all said and done.

So, the accurate way is to look at this as a billion-dollar program, not a \$536-million program; also look at it as a regulated-forced-billion-dollar program. I need to point out one more thing: This is the largest capital improvement program in Pima County to date. Pima County has not seen anything like this in its history to the magnitude of the costs of this program and the complexity of it, and also the regulated schedule that's in this program.

Okay - yes, sir?

ALTERNATE MEMBER BOB COOK: I - I just wanted to stop right here and ask a couple questions -

MR. GRITZUK: Sure.

ALTERNATE MEMBER BOB COOK: - about the flexibility of the design. It's pretty obvious that this

is a showcase plan; there's no doubt about this is state-of-the-art, and it would be a wonderful thing if we could build this.

I'm looking at the - the areas of uncertainty: population growth, interest rates, and inflation of construction. And it seems to me that - that - that a - that a plan that addresses those three areas of uncertainty would - would develop a little more flexibility as these uncertainties become better understood. And let me just point out that the - that the inflation rate of construction is - is a - is a global financial phenomena, and it - and it - and it relates inversely to the value of the dollar, and - and also our Federal Reserve policy, which has been low interest rates. So, the value of the dollar has gone down because of our low interest rates, and that is now going to change. We see all indications that the Federal Reserve policy is going to be to raise interest rates to stem this - this - this dollar decline where we're buying on the world market the materials that we're going to building this thing with.

So, that 5% may be way low. That - that the - the population growth, some say that the housing crisis isn't going to actually work its way out of our economy until 2011. We're going to be going to - going to bid on this thing in an area of great uncertainty about really what the population actually is going to be between 2010 and - and 2030. How can we adjust this plan going out, you know, if we've already locked it in, in 2010 and everything changes? I mean, it seems like we got - we put all our - our - our eggs in one nest? I mean, we're - we're putting everything into this one plan and if - if any of these variables changes, I - I just see big problems.

MR. GRITZUK: All right. Let's take that in pieces. You said that inflation is there, but you really can't predict how much it will be. But, I think you said that 5% may be low? Is that what you said?

ALTERNATE MEMBER BOB COOK: Yeah, yeah. I mean -

MR. GRITZUK: Okay.

ALTERNATE MEMBER BOB COOK: - if you look at construction costs -

MR. GRITZUK: Yeah.

ALTERNATE MEMBER BOB COOK: - between 2002 and 2007 -

MR. GRITZUK: Yeah. So -

ALTERNATE MEMBER BOB COOK: - you - you see a lot more than 5% a year.

MR. GRITZUK: Yeah. So, if we're wrong in that projection, that billion dollars will get even higher; right?

ALTERNATE MEMBER BOB COOK: Right.

MR. GRITZUK: Okay. Keep in mind that we have no choice but to move ahead with this program because it's regulated, and if we argued that, hey, there's so many uncertainties in this program to DEQ, it wouldn't mean anything to them; it's regulated; you got to do it.

All right. Now, yes, we could provide different growth in this program. We provided growth to the year 2030, and that's based upon PAG projections - not our projections and, presumably, these projections are the best available today, put together by people that know how to put together population projections. We don't do that. Someone else has done it.

However, there is a possibility in this program that if growth does not continue, and we see this in the next couple of years, we can take the 32 MGD Water Campus and probably build 3/4 of that plant, 24 MGD instead of 32. So, there's a flexibility -

ALTERNATE MEMBER BOB COOK: That's what I was sort of getting at -

MR. GRITZUK: - of (inaudible; speaking over one another).

ALTERNATE MEMBER BOB COOK: - there's a flexibility.

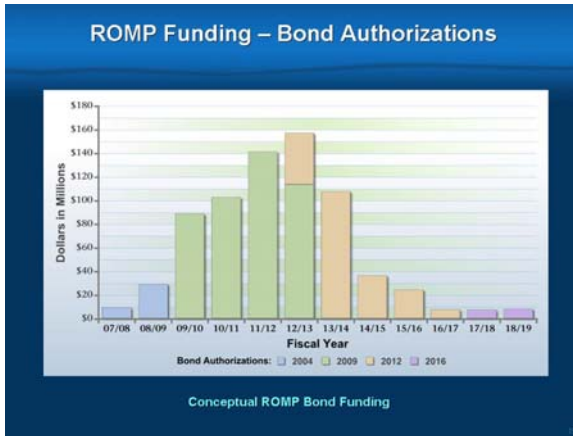
MR. GRITZUK: However, if you do that, and then you come back in the next five years or so and build that additional component, it'll probably cost you much more, so you have to weigh that.

ALTERNATE MEMBER BOB COOK: Yeah. Is there a way to - to create a more decentralized plan where - where, instead of having -

CHAIRMAN JIM BARRY: Bob, let me interrupt. Let's let him get - finish with his presentation, 'cause you've got a lot to talk about. So, Mike, finish your presentation -

MR. GRITZUK: Okay.

CHAIRMAN JIM BARRY: - and then we'll go to questions.

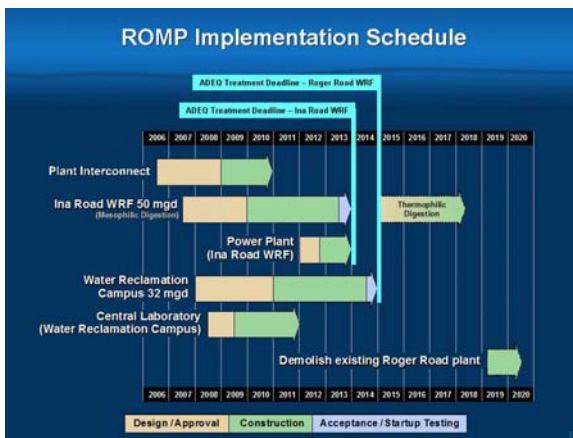


MR. GRITZUK: Okay. All right. How are we going to fund ROMP? And Eric got into this some - in a little way. Right now, all of that we're funding in ROMP is through the use of 2004 bond authorizations, and there's only very little money left in that 2004 bond authorization. The next component of funding ROMP is

with a bond issue that we hope to get voter approval for in 2009, and that's these components in green.

Now, Eric indicated that we have requested a 2009 bond authorization in the amount of \$565 million. Now, those who have a pen in the audience, if you add up \$90 million, \$105 million, \$140 million, and \$110 million, it doesn't add up to \$565 million; it adds to \$445 million. The reason I'm stressing this is that the bond request that we have, \$565 million, is for all of the CIP needs that we have in our Department for this short period of time; \$445 of that, which is on this bar graph, is for ROMP alone, \$445 out of \$565 million.

And then it doesn't stop there. As we continue to roll out this program, we envisioned that we need another bond issue in 2012, and then another one in 2016, towards the end here. But, if you feel that that's kind of going to bring us down here, that's a wrong assumption as well, because future regulations are going to start driving up something in that area. What it is, whether it's phosphorus, ammonia, Class A, pharmaceuticals, we don't know yet, but you know there's going to be something out there.



Here's our schedule, and I'll go through this more quickly. We indicated that the interconnect line is the most critical component of the ROMP Program because we're approaching capacity at Roger Road and we need to relieve that capacity, and the interconnect will do that by transferring that flow to Ina where we have

sufficient capacity.

Status-wise, the design contract has been let for this contract. We've also selected the contractor through a construction-manager-at-risk process; that design is in excess of 30% complete today, well on the way.

The next component is the Ina Road Facility, the most complex project of the ROMP Program; and here, too, we have let the design contract; that design is underway. We've also selected the contractor through a construction-manager-at-risk process; that contractor is aboard. And we've already received the first construction component proposal in that process where we're establishing a trailer park for all of the consultants, and so forth, that will be involved here, also to work on some of the cultural resources and other soil-type work at the plants. So, again, contract's let; project is on its way.

And the power plant which is at Ina, which is further out here, what we're looking for in here is some type type of a public/private partnership where maybe a private entity would come in and upgrade or build a new power plant through a public/private type of partnership arrangement.

And then the Water Campus. Recently, the consultants have selected a procurement method for this project, this Campus; it will be some form of a design-build project. We'll have that decision made very shortly, and we intend to move ahead as rapidly as we can with that project.

And the Central Lab, this is a necessity because of all of the compliance, sampling, and reporting we have to do, all of the monitoring we have to do. That new Central Laboratory will be located at the Water Campus.

And then, finally, way out in the program here, the demolition of the existing Roger Road Facility, which is about another \$23 million in itself. We pushed it out there because there isn't any urgency to demolish the facility, and we wanted to kind of spread out the costs of this program however we can, so that it's all not up front here, which could cause some real serious rate spikes. So, that's the way the program is laid out. Notice the compliance dates here for Ina Road, the beginning of 2014; and Roger Road, beginning of 2015. And Roger Road here, basically, is the new Water Campus.



Now, a dream: We will locate the New Campus along the banks of the Santa Cruz in an area around here, just north of the existing Roger Road Facility. And, as I said, somewhere in between the existing facility and new facility will be that solar-power plant that will be constructed.

But, in addition to that, there are plans by Tucson Water to expand their Reclaim Facilities, and this could be done in a very environmentally-pleasing way, and then our Natural Resources and Parks Department is talking about a regional sports complex of soccer fields, baseball diamonds. And then, finally, there's State-owned property alongside of I-10 that could be used for commercial development.

And all of this started with the presumption that the Roger Road Facility, with the odors that it was emitting, would go away and something else would come in and cause growth, economic development, environmental enhancement, and items like that. It's a dream, but studies have already been performed; for example, our Parks Department retained U of A, their Eller School to study this. They've submitted a very encouraging report that it can be done, and there are additional studies. We are being contacted now by national, international entities about the development of something like this around the new Water Campus.



That's the end of my presentation.

CHAIRMAN JIM

BARRY: Bruce?

MEMBER BRUCE

GUNGLER: Mike, from what - from what I got out of the presentation, Roger Road today's at

41-million-gallon-daily capacity, and the new Wastewater Reclamation

Campus is going to be 32-million-gallons-per-day, so that's a loss of nine million gallons per day capacity, and you're

adding 12.5 at Ina for a net gain of only 3.5 million gallons per day.

MR. GRITZUK: Right.

MEMBER BRUCE GUNGLE: Is that -

MR. GRITZUK: Yeah - and

MEMBER BRUCE GUNGLE: - going to adequately address our capacity issues?

MR. GRITZUK: - and the reason for that is our projection for capacity-to-growth needs in the year 2030 is 82 million gallons per day, and that also you have to add in there another three million gallons per day that we have in the Metropolitan Facilities -

MEMBER BRUCE GUNGLE: Yeah.

MR. GRITZUK: - there's the Randolph Park Plant, so it's 85 million gallons per day in the year 2030.

MEMBER BRUCE GUNGLE: Okay. So, the projection we're shooting for is 2030 -

MR. GRITZUK: Correct.

MEMBER BRUCE GUNGLE: - right across the top; not the (inaudible; not speaking into a microphone)?

MR. GRITZUK: Yes.

MEMBER BRUCE GUNGLE: All right.

CHAIRMAN JIM BARRY: Rob?

MEMBER ROB KULAKOFSKY: Yeah, a couple things that I think you need to make clear for - for members of the Committee and also for the audience, and that is the life span of the Water Reclamation Campus and the - the new facilities at Ina, as well as the consequences of not meeting the regulatory deadlines in 2014 and 2015.

MR. GRITZUK: Okay. Life span, you mean how long will these facilities last? Okay. That's a good point. In the construction of new facilities, it is no longer viewed as a 20, 30-year, 40-year type of facilities. These facilities are designed to last much longer, and the way they're designed is that, yes, there will be mechanical equipment change-out, there will be, certainly, instrumentation change-out, so all of that's taken into consideration, but the basic structures themselves are intended to last for 50, 60, 70 years, so, you no longer look at short life of the facility.

Let me also go back to pipe. Traditionally, large sewer pipes were reinforced concrete pipe, and they had a design life of 25 years, 35 years, thereabouts. The interconnect will have a design life, in the material that we use there, for 100 years.

As we rehab line today, the rehab techniques that we use are, basically, resins that line existing pipe.

When we rehab an old, reinforced concrete pipe that had a life of 25, 30 years, in the rehab process, that pipe will last another 100 years. So, this is the way we have to look at these facilities today. You design them for much longer life, understanding that instrumentation and so forth needs to be changed out.

The other point here, as far as compliance with the regulations, these facilities will be highly-automated. They'll be automated to such a point where they're fail-safe, in that if anything goes wrong, other equipment will kick in. If we see some sway in our compliance requirements, it will be detected and those adjustments oftentimes can be automatically made.

The stress I'm making is that, even though we have great operating and maintenance people, the way instrumentation has taken over in treatment plant process, it is state-of-the-art. I mean, these process controls are really fantastic, and that will be incorporated in this program. So, we are comfortable that, when we build these facilities, they will be in compliance. And the way we write our design contracts, our construction contracts with the schedules, there's a lot of penalty that the consultants may be encountering if they sway from the compliance state and from the quality requirements of this program.

MEMBER JOHN CARLSON: Mike, this his guy that takes your Class B refuse, do you pay him or he pays you? It becomes Class A, is it a saleable product?

MR. GRITZUK: No, we pay him. And if it goes to Class A, we will bid that out as Class A and we go to the marketplace with it.

Let me also mention that, yes, we do pay for the disposal of our solids, but we have one of the lowest, lowest sludge disposal rates in the nation, all right? For example, years ago, New York City used to barge its sludge 109 miles out to sea, and that became prohibited. Now they incinerate it, or something like that, at a very high cost.

You have California with their sludge disposal - and maybe some of you don't know this - a lot of the California sludge that's generated in California is hauled to Arizona for disposal at very high cost. So, today, with our Class B sludge, we have one of the lowest sludge disposal rates in the country; that doesn't mean we should stop there. We think that Class A is on the horizon; that should have some value; it should have higher value than the Class B. And will there be a break-even point? Well, we can dream.

CHAIRMAN JIM BARRY: Anybody else on the Committee, any questions? Audience, questions?

ALTERNATE MEMBER BOB COOK: Well, I'd like to -

CHAIRMAN JIM BARRY: Take the microphone, please, Bob.

ALTERNATE MEMBER BOB COOK: Yeah, I won't give a speech, I - I just - I'm very interested in this issue of - are there more decentralized and flexible plans because -

MR. GRITZUK: Okay.

ALTERNATE MEMBER BOB COOK: - because we're - what - what you're doing is - is saying that we're going to increase the capacity of our wastewater system and the quality of it, and the reliability of it, for an increment of 30% growth in this area, and we're going to have to decide that, as a community, that we're going to pay for this thing before that growth actually comes -

MR. GRITZUK: Yeah, but this -

ALTERNATE MEMBER BOB COOK: - and, at - at the same time, we have enormous demands in other infrastructure.

MR. GRITZUK: All right. But, could you pause for a moment -

ALTERNATIVE MEMBER BOB COOK: Yeah.

MR. GRITZUK: - and let me address that? In the ROMP Master Plan we also looked at the entire region, the entire Service Area, and we have 11 treatment facilities in our inventory, two of which are Ina Road and Roger Road. So, we've looked at all of these other facilities for what their future needs are, both from a quality point of view and a capacity point of view, and we are developing sub-regional plans for the outlying areas.

What I've just addressed here is just the Metropolitan Area. But, yes, it doesn't end there, there are sub-regional facilities that we have out there now, and all of them need to go through some degree of upgrade, or expansion, or abandonment. We still have several facilities that are just open lagoons, and those facilities need to be abandoned and that needs to be incorporated into these sub-regional areas. So, I feel that we have addressed that. And, in addition to the regional metropolitan facilities that I've described here, we have sub-regional areas and we've also addressed.

CHAIRMAN JIM BARRY: Okay. Who's next? And give your name, please.

GEORGE HUBBARD: I have the microphone, so I guess next, huh?

CHAIRMAN JIM BARRY: Yeah.

GEORGE HUBBARD: Yeah, I'm George Hubbard, and I just want to know: Is the sludge considered hazardous material?

MR. GRITZUK: No. And the reason it's not is that there's another federal requirement called "Industrial Pretreatment Program" where we have to regulate industrial discharges to our system to make sure that those industrial discharges do not cause any harm to our system, any harm to our employees, and any harm or to make the end product, the solids, unusable -

GEORGE HUBBARD: Thank you.

MR. GRITZUK: - so it's not a hazardous waste.

MACK HUDSON: My name is Mack Hudson and I'm wondering if your regulation is based on a bond issue and that doesn't pass, what do you do?

MR. GRITZUK: I retire. Because . . . I need to give you more of an answer, though. This is a regulated program, and I want to argue that this program will happen whether we have the funding for it with the way that we are proceeding, and if this fails and if we fail on these dates, the regulatory agency will come into the picture, they'll initiate litigation, we'll get into a Consent Order, or Consent Decree, and that will require us to move ahead and build these facilities. Unfortunately, when you get into that type of regulatory atmosphere, there are penalties that will be paid, you'll be paying much more for this program, and it's not the way to go. If you can do it, the way you're planning on your own dime, that's the most efficient way to get this program done. I've had programs on both sides of that fence; this is the better way to go.

And if we don't get the bond issue - the other part of your question - we have to come up with other funding mechanisms. There's something called "COPS," which is Certificate Of Participation type of funding, and we also have spoken to private sector funding, even though that's not planned, but that is an option that we should always keep out there, and short-term financing and, last resort, use cash. Cash is still good; it's still being used. However, if we use cash, watch out for your rate increases. The only answer to that is: "Wow".

CHAIRMAN JIM BARRY: Sir?

UNIDENTIFIED MALE SPEAKER: Question: I notice you had 14 soccer fields throughout there. If that's the case, do we need to tear down the historic Rillito Racetrack - -track for 15 soccer fields?

MR. GRITZUK: Talk to our Parks Department -

UNIDENTIFIED MALE SPEAKER: Okay. Number two -

MR. GRITZUK: - not my project.

UNIDENTIFIED MALE SPEAKER: Number two: You said you're going to recharge some water there at that -

MR. GRITZUK: Yeah.

UNIDENTIFIED MALE SPEAKER: - Roger Plant, is that for then repumping out from that effluent or what?

MR. GRITZUK: Chris, can you answer that one?

MR. AVERY: Yeah, it's the same answer I gave earlier; it's (inaudible; not speaking into a microphone) Recharge and Recovery (inaudible) supply.

UNIDENTIFIED MALE SPEAKER: Well, my only question is: What's the quality of the water that's going into the Santa Cruz River now? And what will be the quality - quality of the water that is being processed at that plant?

MR. GRITZUK: There are levels of treatment: Primary treatment, secondary treatment, tertiary treatment, advance wastewater treatment. These regulations bring us beyond tertiary treatment to advance wastewater treatment; that is the highest degree of treatment required in the wastewater industry today.

UNIDENTIFIED MALE SPEAKER: So, it'd be repumped for our use? Probably, I would presume.

MR. GRITZUK: Pardon me?

UNIDENTIFIED MALE SPEAKER: You're then repumping it out for commercial and home use?

MR. GRITZUK: Okay. At that quality - advance wastewater treatment - we feel that we will meet Class A+ quality of water, which is reclaimed water quality.

UNIDENTIFIED MALE SPEAKER: So, the old toilet-to-tap thing does prevail up -

MR. GRITZUK: We don't intend to drink it yet.

UNIDENTIFIED MALE SPEAKER: Yeah. The water that's Class B that goes down the Santa Cruz River, why don't you create a catch basin down there in Marana and let the farmers pump that water out for use on their farms, 'cause the nitrogen and the phosphorus that you identify is what you pay many bucks for at Home Depot to put on your plants to make 'em grow?

MR. GRITZUK: Yeah.

UNIDENTIFIED MALE SPEAKER: Now, if you use sludge on farms, why can't you use that water, too, and save a \$211 million water treatment plant?

MR. GRITZUK: There are various components to this answer: One is that you have to remove the nutrients because of the aquatic life that's created with this

discharge; that's one part; and that's why we, in fact, have to reduce the nutrient level. But, also, a lot of this water winds up in underlying aquifers and we have to reduce the nitrogen level in the effluent so that there's no nitrogen contamination of the groundwater. So, those are some of the requirements for this degree of effluent.

UNIDENTIFIED MALE SPEAKER: Okay. So -

CHAIRMAN JIM BARRY: All right. Sir -

MR. GRITZUK: So, it's not an option to leave all the nutrients in the effluent so the farmers downstream can pump it out and use it for irrigation purposes. If you like to argue that, join me in meetings with DEQ, see how far you get.

CHAIRMAN JIM BARRY: I'm going to ask you to relinquish the microphone so other people can ask questions, all right? Huh? Anybody else have another question? Okay. Bonnie?

MEMBER BONNIE POULOS: Okay. At some of the previous meetings - that's on? - we heard a discussion about the amount of water that agriculture uses in the State of Arizona, and from your presentation it seems like there's another side to that story, because agriculture is one of the primary users of the biosolids that are generated from the wastewater. So, when you're looking at the issue of agriculture and their impact, in terms of water use, it seems to me that we also need to balance that with the benefits that we get from being able to have them utilize the biosolids that are a product; is that accurate?

MR. GRITZUK: Yes. I can look at it that way, yes.

MEMBER BONNIE POULOS: Thank you.

CHAIRMAN JIM BARRY: All right. Let's - okay -

MR. GRITZUK: That was a statement; it wasn't a question.

MEMBER BONNIE POULOS: No, I just wanted to know if that was an -

MR. GRITZUK: Okay.

CHAIRMAN JIM BARRY: Okay.

MEMBER BONNIE POULOS: - accurate -

MR. GRITZUK: I think so.

MEMBER BONNIE POULOS: - reflection of the two discussions that we've had.

MR. GRITZUK: Yeah.

COLETTE ALTAFFER: Colette Altaffer. I just have one - one quick question. If we're removing nitrogen from the water, is it ending up in the biosolids? Is that where it's going?

MR. GRITZUK: Yes.

COLETTE ALTAFFER: If - if - that's our - so, when we put the biosolids on the fields, we have nitrogen going on the fields, which, you know, is a fertilizer, but if we have excess amounts of nitrogen, how are we preventing that from running off the fields and winding up back in the aquifer?

MR. GRITZUK: Same as if you use fertilizer out on those fields; it does - some of that percolates down into the groundwater levels.

By the way, when you compare the nutrient level of our solids to fertilizer, at best, this is a very mild fertilizer. In addition, because it is organic in nature, it does provide a soil-enhancement quality to farmland in addition to the nutrient value that it has.

CHAIRMAN JIM BARRY: All right. I'm going to do a Call to the Audience so that we get that done, give people a chance. Tracy?

TRACY WILLIAMS: Thank you, Mr. Chair, for acknowledging my birthday and everyone. I just want to say it's a pleasure to be here this evening, and I want to compliment all the Committee members for your due diligence and perseverance.

Tonight I want to speak to you about the process

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CHAIRMAN JIM BARRY: Tracy, let me interrupt one second. Michael -

MR. GRITZUK: I'm done?

CHAIRMAN JIM BARRY: - thank you very much. You're done. Thank you.

TRACY WILLIAMS: Thanks, Mike.

CHAIRMAN JIM BARRY: You did a great job.

(Applause.)

CHAIRMAN JIM BARRY: Thank you. Tracy, go ahead.

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CERTIFICATE

I hereby certify that, to the best of my ability, the foregoing is a true and accurate transcription of the audio recording of (Presentations, and Questions & Answers with Presenters) excerpts of the City/County Water & Wastewater Study Oversight Committee Meeting held on July 23, 2008.

Transcription completed: August 29, 2008.

DANIELLE L. KRASSOW-TISDALE