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ALLEGHENY COUNTY SANITARY AUTHORITY (ALCOSAN)

PUBLIC MEETING

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IN RE:

ALCOSAN DRAFT WET WEATHER PLAN PRESENTATION AND PUBLIC COMMENTS

- - - - -

Sheraton Station Square Hotel
300 West Station Square Drive
Pittsburgh, PA 15219
Wednesday; October 17, 2012;
10:00 a.m.

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PRESENT: Nancy Barylak, Manager of Public Relations of ALCOSAN and Moderator
David W. Borneman, P.E., Director of Engineering and Construction, ALCOSAN

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TRANSCRIPT OF PROCEEDINGS

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Reported by:

Ronda J. Weinell
Registered Professional Reporter

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P R O C E E D I N G S

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(At 10:00 a.m., the public comments session commenced. No comments were made until 10:55 a.m.)

MR. McCLELLAND: I'm Dick McClelland, a 30-year homeowner in Ross Township. My address is 220 Tombey Drive, Pittsburgh, PA 15237.

As a way of background, I have a bachelor's degree in civil engineering and a master's degree in engineering administration. Both are from Case Institute of Technology. I have many substantial gas utility management experience from which I retired.

I've also put on the web, www.alcosancost.com. That's alcosancost all stuck together. My comments today can be viewed and even downloaded from that site.

Thank you for the opportunity to briefly comment on ALCOSAN's $2 billion Wet Weather Plan. It's 1200 plus pages are a comprehensive and impressive document. Obviously, a lot of work went into it.

RICHARD McCLELLAND

However, I think there is a significant danger that it will cost more than $2.8 billion when the construction dust settles, but I'll get into that later.

In my written comments color graphics are included that make them more understandable. To make life easier, they are in the hard copy and on the CD that I've submitted.

To those of you in the audience, who are minimal at the moment, I have a few copies you can look at, and I'll be around to answer any questions.

Probably more usefully, I have put these remarks with full color graphics on the web at alcosancost.com. Simply Google alcosancost all stuck together. The site will be your first hit. Then go to its main page and look at the top for the red arrow with the yellow type.

Clicking will enable you to view and even print these documents as well as even supporting materials like the reading list documents in Figure 11.

RICHARD McCLELLAND

As a start it must be useful to those of you who are new to get a bit of an understanding of how we got here.

Figure 1 shows a typical ALCOSAN home and residential user. In this case I've shown the typical 30-year residence. It's two-story with 1700 square feet of living area. As an average customer it puts up to 52,000 gallons a year into the sewer. That's tough to visualize. However, imagine its living area filled with four feet of water. That's 52,000 gallons worth.

As shown, all that water that's going into the sewers is supplied through a water meter. If, like me, you live in the North Hills, your water company is West View Water. They're an efficient, competent, low-cost supplier. They pump your water from the river, filter it, chlorinate it, pump it through pipes they own, and also own and read the water meter. Those 52,000 gallons cost me $295 a year.

For the average ALCOSAN customer shown in Figure 1, this sewer service costs

RICHARD McCLELLAND

$440 a year. An average of $180 a year of this goes to your local municipality or sewer authority. Some municipalities take more than $300 a year.

In any event, ALCOSAN gets $260 of your sewer bill, and all their customers pay the same rate for a thousand gallons of water use.

The bottom line is that the water which costs you $295 to buy will cost you $440 to throw away back into the river from which it came.

As shown on the bottom left, by 2027 that throw-away sewer cost will be $1,340 a year. In other words, what cost you $295 to buy today will cost you almost five times as much to throw away.

As shown, $600 or almost 50 percent of that $1,340 a year are the Wet Weather Plan costs we're discussing today.

Before we leave Figure 1, look at the right-hand side. This shows the home's roof. Rain will make about 19,000 gallons a year into your downspouts. That's 40 percent

RICHARD McCLELLAND

11:00:32 of your sewer flow.

11:00:35 Indeed, the annual run-off from your 11:00:38 roof on a 70-foot driveway would about equal 11:00:41 the sewer flow from your home. Moreover, just 11:00:46 the rain on seven parking spaces at a local 11:00:50 store or mall will equal a home's sewer 11:00:58 discharge.

11:00:58 Furthermore, the rain flows occur in 11:00:59 only a few hours, rather than spread over a 11:01:02 month like your sewer use. If rain flows get 11:01:06 into a sewer carrying your home's own sewer 11:01:12 discharge, that's a serious change.

11:01:19 Figure 2 shows a typical ALCOSAN 11:01:22 home and its sewer connections. The upper half 11:01:25 shows potential sewer inputs. They are a 11:01:29 typical ALCOSAN home, its roof, and nearby 11:01:35 roads and parking lots. The arrows show how 11:01:40 these flows are connected to the region's sewer 11:01:44 types and the resulting issues, if any.

11:01:47 The bottom half of the figure shows 11:01:49 our area's two sewer types. The left half is a 11:01:54 typical county suburb. As shown, suburbs 11:02:06 typically have a separate sanitary sewer and 11:02:09 also a storm sewer for rainwater. There are

RICHARD McCLELLAND

about 145,000 households using this type of separate system in ALCOSAN's service territory.

Most were built after the 1940s as suburban population boomed and environmental sewer rates started to tighten.

Moreover, just the rain from seven parking places at your local store or shopping mall will equal a home's sewer use. These flows go into a separate storm sewer.

The bottom half, the bottom right-hand half side of Figure 2 shows an older combined sewer system. Here both the sewage from your home and the rain from street curbs go into a single pipe. This applies to about 155,000 households in ALCOSAN's service area.

Up to the 1900s these old pipes ran directly into the river without treatment. In the 1950s ALCOSAN was formed due to environmental pressure. It built tunnels along the river to pick up sewer flows and transport them downstream to a new treatment plant. It's on the north shore of the Ohio River near Pittsburgh's Brunot Island.

Diverters called regulators were

RICHARD McCLELLAND

then installed in the region's combined river sewer outlets. A regulator is a fancy version of a flat, horizontal plate in the sewer. Flows underneath the plate go to ALCOSAN for treatment.

During rainstorms known as wet weather, the excess flow of mixed sewage and rainwater are discharged into the rivers. This might be from a few to over 50 locations, depending on the rainfall event.

Depending on the specific combined sewer, the total annual overflow duration could range from a half a day to over ten days.

Obviously, in combined sewer areas, a major problem are roofs, parking lots, and streets feeding into the sewers. Remember, an area equalling only seven parking spaces produces as much sewer input as a home.

Figure 3 shows the seven ALCOSAN planning basins. These include Pittsburgh, known as Main Rivers, in the center. The six surrounding basins border rivers like slices of a pie. They are named for the key river or creek in them.

RICHARD McCLELLAND

If you want to know which basin you're in, you can go to Figure 3 or look up the plans, Figure 1-7 on Page 1-10.

Table 1 shows the ALCOSAN planning basins and highlights their profiles. It's pulled together from key information scattered throughout the Plan.

The data shows that 23 percent of the households are in the main river's Pittsburgh basin. As could be expected, houses in the Main Rivers are 90 percent on older combined sewers, the main source of river pollution.

The other six basins individually range from 7 to 15 percent of the ALCOSAN households. Within this ring of six basins, two-thirds of the households are on far less polluting separate sewers.

The next columns show combined and separate sewer flows to the rivers. This is the cause of the Wet Weather Treatment Plan that we're talking about today.

Combined sewer overflows total over 8,300 million gallons a year. In comparison,

RICHARD McCLELLAND

overflows from separate sewers are only 672 million gallons a year. Thus, combined sewers represent an astonishing 93 percent of the problem.

Main Rivers, Pittsburgh, represents nearly 30 percent of the problem, but the Upper Allegheny Basin is not far behind at 23 percent.

Essentially, ALCOSAN proposes in 2027 that all of today's homeowners will have a sewer bill averaging $1,340 a year. As shown on Table 1, all would pay the same for equal water meter use. This is how things are done now.

Alternately, you could imagine a concept where the new Wet Weather costs are allocated back to the basins based on their sewer overflows. This, after all, is what caused a problem in the first place and its total cost.

Table 1 shows the resulting cost to homeowners if allocated by basin overflows. Then the annual homeowner cost would range from $842 a year in Turtle Creek to over $1,850 a

RICHARD McCLELLAND

year in Chartiers. Thus, in the equal homeowner ALCOSAN billing lottery, some basins win and some loss. The winners are Chartiers, Main Rivers, Upper Allegheny, and Upper Mon Basins, all shown in green. Each sees their basin's total household costs go down by some ten million annually per basin.

Under equal household cost billing, the losers subsidizing other basins are Lower Ohio/Girty's, Saw Mill River Run, and Turtle Creek. Their total household subsidization of other basins ranges from 10 to 18 million per year.

The third-party review of ALCOSAN's Regional Long Term Wet Weather Control Concept Plan is a remarkable 2002 report. It is an innovative and thoughtful report where Section 9 addressed cost issues like uniform household cost versus inter-basin overflow allocation billing. While no longer available on the ALCOSAN site, it remains available at alcosancost.com.

However, and as ALCOSAN indicates in the Plan, essentially nothing has been done to

RICHARD McCLELLAND

consider anything other than uniform billing throughout the basins using homeowner water meters.

Alcosancost has looked at a couple of options. For example, a $250 a year vehicle tax would bring in about 40 percent of ALCOSAN's 2027 consumer revenues.

This would essentially start to address the runoff to combined sewers from parking lots and streets. It might also take some pressure off seniors, who are unlikely to own multiple cars per household.

Alternatively, an impervious area combined sewer tax of $600 per year per thousand square feet on commercial and industrial sites would bring in the same amount per gallon that residential owners are paying for their own sewer use.

Another option would be to say to the state or federal government, quote, "You have X miles of roads whose runoff contributes Y gallons of combined sewer overflows. Our homeowners will be paying Z million dollars a year to fix their share. Send ALCOSAN a check

RICHARD McCLELLAND

of D dollars each year for your share."

However, given the current state of play and the lack of interest by any of the other parties, it is unlikely that any innovative revenue approaches will be considered unless one or more key municipalities aggressively seize this issue.

Lastly, the far right-hand column of Table 1 shows the related ALCOSAN and municipal Wet Weather Plan capital costs. These total 1.981 billion, essentially, for all intents and purposes, two billion dollars in 2012 dollars.

Inflation and escalation will bring this to at least 2.8 billion by 2027. It's tough to grab all of these kinds of costs. Here are a couple ways to put the billions of dollars into perspective.

That 2.8 billion is equivalent to an eight and one half thousand dollar investment for you that you must pay off in 20 years. Alternatively, the cost and complexity is equivalent to building a new Hoover Dam and related canal to California.

However, Hoover was the largest and

RICHARD McCLELLAND

most complex construction of the 1930s decade, except Hoover Dam was paid for by 30 million households. It had design, planning, and construction legends during it.

The Pittsburgh Hoover Dam is going to be paid for by only 330,000 families, including yours. The previous table provided a sneak preview of the $1,340 annual homeowner sewer bill in 2027. Table 2 surfaces a few initial issues to that proposed bill.

The upper bullet section of Table 2 has to do with ALCOSAN's normal non Wet Weather cost. It is expected to increase from $260 a year now to $410 a year by 2027.

This is principally due to normal ALCOSAN operation and maintenance expenses that are increasing at four percent a year. Indeed, during the previous ten years to 2009, these costs actually grew at a 4.7 percent rate.

In contrast, future customer incomes are projected to grow at two and a half percent a year. As shown by the upper red action arrow, ALCOSAN needs to better control its O&M expense growth.

RICHARD McCLELLAND

The lower bullet has to do with how municipal and ALCOSAN Wet Weather Plan costs yield different homeowner sewer bill markups.

There are $530 million of projected municipality capital costs in the Wet Weather Plan. Yet the Wet Weather Plan outlays by municipalities are estimated to cost residential households a new $210 a year in 2027.

However, this projected consumer bill is almost 50 percent higher when a municipality spends a dollar on Wet Weather Plan construction compared to when ALCOSAN spends the same dollar on its Wet Weather Plan construction.

Why the difference? Is it municipal operating costs, or is it inefficiency? There is essentially no cost details for these municipal outlays in the Plan.

Indeed, they are not even labeled by municipality, nor is there any indication of the cost impacts on consumers by municipality.

As the red action arrow indicates, ALCOSAN should promptly tabulate and release

RICHARD McCLELLAND

the preliminary projected municipal cost portion of the Plan. For each municipality this should include project summaries, estimated capital costs, and projected annual cost to homeowners.

There will be more on capital costs and reliability in a few minutes, but first a few comments on estimating the affordability of these costs to consumers.

Median Household Income or MHI for short is the middle household income. For example, assume you've grabbed 21 people from this audience -- we don't have 21 people -- and line them up in the order of increasing incomes. Then the middle person in the line is the median or middle income.

This is felt to better represent the typical income than calculating an average which would usually be biassed upward by a small number of high end incomes.

The EPA measures cost impact by dividing the applicable sewer bill by the MHI. The first part of the Plan costed the impact by keeping everything in today's 2012 dollars and

RICHARD McCLELLAND

then using present MHIs. However, the final part of the Plan projected costs out to 2027 and then compared these costs with a projected MHI in 2027.

To make that projection, the Plan assumes that incomes would grow at 2.5 percent a year based on long-term historic data. In comparison, Figure 3 shows MHI growth for Pennsylvania and for Allegheny County from 1999 to 2011.

The growth rates measured 1.9 percent a year for Pennsylvania and 2.1 percent a year for Allegheny County. As a matter of fact, Pennsylvania MHI has been flat for the last three reporting years.

Considering how the economy is still stalled, I think the Plan could have made a convincing case for using 1.9 or 2.1 percent growth a year in MHI incomes, rather than the 2.5 percent growth that the Plan used. The result would have been a projected MHI of 61 to 63,000, compared to the same 67,000 used in the Plan to measure sewer bill impacts. This would have raised the resulting cost impact by six to

RICHARD McCLELLAND

nine percent.

Thus, the ALCOSAN Plan potentially left cost impact dollars, quote, "on the table," unquote, by using too high a projected MHI.

Furthermore, as noted on the bottom of Figure 4, Allegheny County has an exceptionally large population of fixed income retirees. 65 and older represents 16.6 percent of the population. This was relegated to one page in Section 6 of the Plan. Even more noteworthy but uncovered is that 31.7 percent of the county's households are on some type of Social Security income.

These factors make our households particularly sensitive to increased costs like sewer bills. It would have been useful to weave these observations into the final affordability section of the Plan.

The Wet Weather Plan has very impressive maps showing the cost impact with future sewer cost increases. The EPA requires this impact to be measured by sewer cost as a percent of the Median Household Income or MHI

RICHARD McCLELLAND

for short.

Impacts are considered objectionably high when the sewer cost is over two percent. Section 11 of the Plan shows that this would apply to about three-fifths of the households. A four-percent impact would apply to one in every 20 households.

The Plan also looks at 83 municipalities in ALCOSAN's service area. About half are rated as high impact, over two percent, and four municipalities have a sewer cost of over four percent. However, a look at detailed census data reveals much more alarming sewer cost impacts.

The top of Figure 5 tabulates the household income for Pittsburgh and for suburban owners and renters in ALCOSAN's service area. The red lines are for Pittsburgh, blue lines are for the surrounding suburbs, solid lines are for owners, dashed lines are for renters.

How is this data developed? Many people don't realize that all of the census data is reported by numbers of people in

RICHARD McCLELLAND

various categories. Moreover, both Pittsburgh and Allegheny County both report census data.

Thus, suburban data can be calculated by simply subtracting Pittsburgh numbers from Allegheny County numbers. For example, this yields 130,000 households in Pittsburgh and 390,000 in Allegheny County suburbs.

Moreover, census tabulations are available for both owners and renters at stated income bands.

Since ALCOSAN's households are known, the net result is that Pittsburgh plus 52.6 percent of Allegheny County's suburbs is an excellent proxy for ALCOSAN's service area households.

More detailed work yields the resulting household income distribution shown in Figure 5. These curves show the percent of groups that were within $5,000 income bands.

Pittsburgh and suburban renter household incomes are the two upper curves on the left. Owners are the lower, flatter curves. Two things are striking.

RICHARD McCLELLAND

Pittsburgh and suburban renter curves look markedly alike, as do owner curves to each other. The difference is that renters have a lot more numbers in households under $30,000 worth of income. In contrast, the owner curves are much flatter and more spread out at the high end of incomes.

Given the curves and the percentages, getting an accurate median or middle household income or MHI, for short, is a remarkably trivial exercise.

The results are tabulated at the top of the chart. This includes the number of households for each group and it's related median Household Income. Pittsburgh owners, as well as suburban owners and renters, are each about equal in size at about 65,000 households each.

The big contrast is that suburban owners represent twice as many households as each of the other groups. Median incomes for renters are on the 25,000 range but as might be expected, owners have much higher incomes. Owners are in the 50 to $65,000 a year MHI

RICHARD McCLELLAND

range.

Generally, suburban MHIs are about 20 percent higher than those of the equivalent Pittsburgh group. Instead of using census tables to roughly approximate the ALCOSAN cost impact, exact census records can be used.

This powerful tool is a downloadable graphic census database called PUMA, P-U-M-A, short for Public Use Microdata Area. This is a custom set of actual census records for individual households that also include applicable statistical weighting data.

For example, PUMA household census records for Allegheny County are described by 3,600 records with weights ranging from 15 to almost 500 households per record.

Moreover, unlike census record tables, available companion information can be custom tailored for each record such as own or rent; incomes; number of people living in the household; complete household costs such as rent, mortgage payments, utility bills, and sewer and water; and many other items.

Because these form a database set,

RICHARD McCLELLAND

companion calculations can also be performed, For example, sewer bills based on the number of persons in the household. To do this analysis, the $1,340 annual sewer bill per household in 2027 was deescalated back to 2010 dollars by two percent per year and then divided by the average 2.38 persons per household.

This yields $402 per year of sewer costs in 2010 per household member.

Records can be sorted and totaled by such thing as household income bands. Thus, operating on the PUMA databases yields a very powerful tool for actually opening the hood and inspecting how key parts of the car's engine actually work.

Based on stated MHIs and own-rent database segregation, very specific ALCOSAN costs impacts can be discovered and refined with remarkable accuracy. The results are shown at the bottom of Figure 5.

Pittsburgh and suburban owners show a sewer cost impact of 2.2 and 1.9 percent of MHI. The impact on renters is even more dramatic. The ALCOSAN plan's cost impact on

RICHARD McCLELLAND

renters is 5.1 percent in Pittsburgh and an almost equally excessive 4.1 percent in the suburbs.

Indeed, the household weighted cost impact on all four groups is a very high 3.0 percent. These ALCOSAN cost impact appear to be far more concerning than those actually discussed in the Plan.

A major reason for the increase is a selected 2.0 percent income adjustment. However, the dominant factor appears to be that persons per household at the Median Household Incomes are generally higher than expected from group census averages.

This increases all of the applicable ALCOSAN sewers costs in the MHI sectors. Thus, a lot could be gained by a discussion in the Plan about the impact of Pittsburgh and suburban owners and renters.

Figure 6 shows the water use breakdowns and thus sewer billing for the two key suppliers of water within the ALCOSAN system. These are for Pittsburgh Water and Sewer and for West View Water. Residential use

RICHARD McCLELLAND

is shown in blue, commercial and local uses are in shades of red. What little industrial use left is shown in yellow.

In making this analysis, some commercial use in Pittsburgh Water was moved to residential. It was obvious from internal numbers that some apartment building master metering in Pittsburgh Water was classified as commercial. Again, the charts report water meter use and thus show sewer bills.

Residential households have no recourse when their sewer costs go up. However, most commercial users do and will pass their cost increases through to their own customers. One way or another, due to such cost increases, the chicken will ultimately come home to roost on the doorstep of residential users.

To the area's taxpayers' chagrin, schools and municipalities have become very good at raising taxes to cover costs, including water and sewers. One reason is that they are not hampered by the inconvenience of tax rate increases being subject to voter approval. The

RICHARD McCLELLAND

increased sewer cost will rapidly appear on residential users' doorstep from these groups.

Significant healthcare users exist in the system. These organizations will be just as good at marking up sewer bills as they are at marking up aspirin. The residential consumers will wind up paying that tariff in either insurance costs or direct bills.

Restaurants and the full gamut of commercial establishments will also pass increased sewer costs along to their consumers. It's a fallacy to assume that any commercial enterprise has excess profits laying around to simply absorb these kinds of costs as the EPA might assume.

Thus, most, if not all, of the increased commercial sewer bill costs will also come out of the residential household's pocket in the end. The only exceptions to local household impacts might be office buildings and hotels.

However, a Florida and a national EPA composite survey put office building water use at only ten percent of commercial,

RICHARD McCLELLAND

hospitality at 10 to 15 percent.

These household pass-through commercial sewer costs are significant. They total another 44 percent of the direct sewer cost to households. In other words, the planned $1,340 dollars per year in 2027 may actually become something like a $1,930 cost to residential households.

As Figure 6 indicates, ALCOSAN can and should make the argument in the Plan that these indirect costs add another potential $590 a year on residential households and that the $590 addition is both real and significant.

Failure to cite this adder also misleads consumers as to what the real cost actually is when the plan's construction is complete.

An interesting side note is the possible impact on home prices as shown in the bottom of Figure 6. If the Wet Weather Plans increase a homeowner's sewer cost by a thousand dollars, then all of the other things being equal, a smart home buyer would pay $14,000 less for a home inside ALCOSAN's service

RICHARD McCLELLAND

territory as compared to a similar home outside ALCOSAN's service territory.

As if all of this wasn't enough, I would like to spend the last few minutes discussing a significant concern that overhangs all of the aforesaid issues: The Plan and its cost to households is based on a projected construction cost of $1.981 billion today, which will cost $2.772 billion in 2026 when the construction is complete at the work sites.

What if this estimated cost is wrong? What if there are substantial cost overruns? Is either likely? How have other projects faired? This is, indeed, the elephant in the room. What could go wrong, and how bad could it get?

Remember that projected future homeowner costs are the direct result of construction costs. If construction costs go up 40 percent, then the projected $600 a year of the Wet Weather component increases to $240 a year, and your annual household sewer bill is no longer $1,340 a year but rather $1,600 a year.

RICHARD McCLELLAND

Figure 7 shows how some key projects have fared, two of which are of local interest. The poster child of what can go wrong with an EPA consent decree is Jefferson County, Alabama. When they signed the consent degree, they thought the project cost was 1.2 billion. When the dust settled, their construction cost was 3.3 billion, 175 percent cost overrun.

Their project implementation was plagued with mismanagement, cronyism, and questionable financial practices. Moreover, their new treatment plant had to be rebuilt, and under-river tunneling costs increased 67 percent before being abandoned. Jefferson County is now bankrupt.

The second is of significant local interest, PAT's North Shore Connector. It is only 1.2 miles long and was initially estimated at $350 million. The final cost will be $550 million, even after deleting parts of the project. This is an 80-percent overrun.

More significantly is a significant warning to ALCOSAN. 30 percent of ALCOSAN's projected construction cost is for deep

11:39:22 conveyance tunnels along Pittsburgh rivers. A
11:39:24 similar overrun would increase ALCOSAN's
11:39:27 projected 2026 construction costs by almost
11:39:32 $700 million. Not a happy prospect.

11:39:38 The third project is the infamous
11:39:41 Harrisburg incinerator. Estimated to cost $104
11:39:52 million, it failed new environmental
11:39:54 regulations. After a revamp and expansion
11:39:59 project projected at $80 million and even
11:40:05 switching contractors, Harrisburg is now $320
11:40:11 million in debt, of which an astonishing $50
11:40:17 million is for financing fees.

11:40:23 The city now faces bankruptcy. The
11:40:23 icing on the cake is that one of the Harrisburg
11:40:27 Authority board members is publicly pleading
11:40:30 ignorance in knowing what was going on. To my
11:40:35 mind any public authority board member that
11:40:38 screws up this badly with public dollars should
11:40:42 go to jail for at least a year.

11:40:48 Major construction cost overruns
11:40:51 are, unfortunately, not uncommon. In fact, as
11:40:57 shown in the table to the right of Figure 8,
11:41:02 Boston Big Dig was expected to cost $2.8
11:41:10 billion. By the time it was done, its cost was

RICHARD McCLELLAND

$14.6 billion. The cost overrun was an astounding 460 percent. In that cost estimating combined with poor-some say almost criminal-construction management created its cost overrun.

The Denver airport over ran almost 200 percent. Seattle's light rail system overran by over 50 percent. Indeed, it looks like a relative of the PAT North Shore tunnel.

DOD overruns like the Raptor are perhaps understandable, but things like roads, bridges, and airports are pretty well defined. They should be relatively easy to accurately cost estimate. After all, they are all above ground, unlike tunnels where you can't see the project work area.

Why do so many projects have significant cost overruns? The basic answer is, quote, "hubris," unquote. As one contractor put it, engineers' cost estimates are for projects built in heaven. Helping the effect of hubris along is Murphy's Law. We've all run into it.

It basically says, quote, "If

RICHARD McCLELLAND

anything can go wrong, it will," unquote. Both interfere with making good project cost estimates and with successful cost management to help control costs. Either is bad enough, but taken together, they yield catastrophic cost overruns like Boston's Big Dig.

Even normal projects experience major cost overruns. Bent Flyvberg, a well-published Danish expert, looked at 258 large transportation projects. Their average size was $350 million. Thus, each was large enough to have spent substantial amounts on getting good cost estimates.

They no doubt used quality estimating procedures and tools. Figure 9 shows the results for the applicable 33 bridge and tunnel projects. The estimated cost at the time the project was approved for construction was compared with the project's actual cost at construction completion. The results are striking.

As shown on the green side, only 30 percent of the projects had cost underruns. In contrast, 70 percent of the projects had

RICHARD McCLELLAND

overruns, with the average being a 55-percent cost increase over the initial construction estimate.

Thus, bridge and tunnel projects were consistently underestimated, even with the best of tools. Flyvberg cautions that decision makers and the public should take any estimate of construction costs with a grain of salt, especially for bridges and tunnels.

Indeed, there may be a bias toward underestimating construction costs, or perhaps Murphy's Law simply happens more often to bridges and tunnels.

The title of another instructive article worth reading is Victor Romero pretty much says it all. Cost estimating for underground transit is too dangerous to guesstimate.

Again, underground tunnels along the rivers represent a troubling $850 million of ALCOSAN's projected construction costs. ALCOSAN's cost estimates were developed through a Philadelphia Water model, called ACT, as shown on the first bullet in Figure 10.

RICHARD McCLELLAND

Its description, which occupies four pages of the Plan, states it yields a Class 4 estimate. This means the actual constructed cost should be in the range from 30 percent less to 50 percent more than the ALCOSAN estimate and Plan.

This is shown in bullet points and black text. Recommended ALCOSAN action items are shown in red along with an action red arrow.

The Plan itself provides no real validation or tables of ACT estimates versus actual construction costs. Thus ALCOSAN needs to provide assurance via a published report.

The second bullet deals with a key element called construction cost contingency. As highlighted in the figure, contingencies are added to Stage 4 estimates because experience shows that these added costs are likely and expected to be incurred, even though they cannot be explicitly defined at the time the estimate is prepared.

In other words, a contingency is not merely a nice to have comfort. For a good

RICHARD McCLELLAND

estimate it's absolutely necessary. For example, even a run-of-the-mill utility power plant will have a 30-percent contingency at this stage in the estimating process.

Such a contingency is not even mentioned anywhere in the Plan, let alone in the construction or capital cost sections of the Plan. Thus, it is not clear if any construction cost contingency has been added anywhere or any place to the plan's estimates.

Thus, as highlighted in red, ALCOSAN needs to promptly report and justify the size or nonuse of construction cost contingencies in the plan's capital estimates.

The next figure addresses some key capital cost management issues. This goes to the heart of the customer cost issue. Figure 11 of the Plan refers to adaptive management as highlighted at the top of Figure 11.

However, this adaptive management refers to demographic financing and municipal flow changes. Conspicuously absent are adaptive plans for capital cost overruns,

RICHARD McCLELLAND

except a few sentences dealing with the cost impact as a percent of Median Household Income.

As highlighted by the red action arrow and by the red text, any adaptive management plan should include construction cost as a distinct component, even if the EPA isn't particularly interested in it.

As keyed by the second red arrow, ALCOSAN also needs to clarify with the EPA what happens if, and more likely when, construction costs overrun. Is ALCOSAN supposed to keep blindly building to its consumers' billing detriment? Is there even a reset button? If so, at what point?

A second critical capital cost management issue is how ALCOSAN will perform, design, estimating, bidding, and construction management. These are vital components.

As you've seen in Figure 7, Figure 8, and Figure 9, a less than stellar performance can and will cost ALCOSAN customers hundreds of millions of dollars. This area's largely unaddressed in the Plan except for one page in Section 11.

RICHARD McCLELLAND

ALCOSAN indicates that for Woods Run it used internal design and construction supplemented by outside consultants. ALCOSAN then states it will do the same for the Wet Weather Plan, which I suspect is ten times larger.

Is this a good idea? Maybe. Or maybe not. As shown by the red action arrow, ALCOSAN needs to develop and publish a detailed construction Plan. It should look at design and estimating, bidding, and construction management from the viewpoint of resources, performance, costs, and risks. Then municipality engineers should review and comment.

As indicated, these are highly important and potentially quite expensive issues. Even an informed public is highly desirable. In blue at the bottom of Figure 11 is some recommended reading. These are listed in the suggested order of reading.

Rather than give complicated links, simply type the name into Google, and you'll be taken to the article. All of the searches have

RICHARD McCLELLAND

been tested. Use PDF where shown to get the best link.

ALCOSAN is about to embark on a very serious cost endeavor, unlike anything they've ever undertaken in magnitude. Board of directors are supposed to be experienced ship captains that guide such things to untraumatic conclusion.

The top of Figure 12 highlights the present status. While not meaning to be disparaging, ALCOSAN's board is composed mostly of elected politicians and union organizers. None of them appears to have an engineering degree.

No objective person could reasonably conclude that such a composition is qualified to oversee capital construction undertakings costing hundreds of millions of dollars a year.

There are also some warning flags. ALCOSAN's O&M budget has been growing at four percent a year for a decade, and that four-percent annual cost increase is embedded in the Plan.

In contrast, the income of ALCOSAN's

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customers has been growing at only two percent a year. Minutes of board meetings are not even available on ALCOSAN's website.

The first red action item and arrow simply shows some sunshine into the mix with easily available minutes. Actually, the videotaping is also critical. It gives you a good idea of what's actually going on in terms of interactions and experiences without having to trudge down to ALCOSAN's plant in the dark hoping to get a good seat at a board meeting.

The second action is crucial, considering where we're heading. ALCOSAN is entering a new $3 billion construction future. The board and we need to think now about how we are going to get there.

It is very timely for the board to commission a public assessment. It would detail current practices and potential future savings and issues associated with fundamental construction options such as PLAs or non PLAs, union or nonunion construction, and any other such money saving or risk reduction options deemed even remotely possible.

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Potentially at stake are tens if not hundreds of millions of dollars of customer costs or savings. As far as future status, it is probably unlikely that the board will be reconstructed with one having more appropriate management and construction experience.

However, there, is an alternate option that appears reasonable, suitably productive, and nonconfrontational. This would be to form a Capital Project Supervisory Committee under the board.

This CPSC would have responsibilities for monitoring, reviewing, assessing, and recommending elements to and for the board relating to design, estimating, bidding, and project management of capital project constructions.

The CPSC would report to the board. The board would have to accept or reject any CPSC proposal within 30 days. Also, municipalities could request a meeting with the CPSC to broach an issue of concern.

The CPSC would have five members. One would be appointed by the board and one by

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the municipalities. The other three would be by a CPSC search whose results were approved by the board and the CPSC. Moreover, a CPSC member would have to have an engineering degree, substantial management experience with a hundred million dollars a year responsibility, must not be holding political office or affiliated with any key contractor, et cetera.

Additionally, a CPSC would have to select and participate in AACEI or other seminars. Board members and municipal engineers could also attend these.

In effect, establishing a CPSC would add a valuable additional resource to successful implementation of the Plan and potentially broaden municipal support. Moreover, the CPSC has the potential to detect and solve a lot of problems while potentially mitigating, if not avoiding tens of millions of misspent customer dollars in cost overruns.

I very much appreciate your and the audience's patience and attention. I hope these constructive comments will prove useful

RICHARD McCLELLAND

and helpful. The Wet Weather Plan is an awesome responsibility and cost. It will be the equivalent of building Hoover Dam paid for by only 300,000 families. The end success will depend not on hope but rather on good people, good plans, and on good contractors, and still even then on a fair amount of luck. As PAT found out with the North Shore Connector, Murphy is very much alive and well.

Again, you can download a virus-safe PDF of this presentation at alcosancost for viewing and printing. At the top of its main page is a red arrow with yellow letters to view and print these comments and graphic material. Thank you very much for your time.

MR. BORNEMAN: Thank you.

(Mr. McClelland's comments were concluded at 12:00 p.m.)

(Whereupon, the above-entitled portion of the public comments taken by this Court Reporter was concluded at 1:00 p.m., this date.)

C E R T I F I C A T E

I hereby certify that the proceedings and evidence are contained fully and accurately, to the best of my ability, in the stenographic notes taken by me on the hearing of the within cause and that this is a correct transcript of the same.

S/RONDA J. WEINELL

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ALLEGHENY COUNTY SANITARY AUTHORITY (ALCOSAN)

PUBLIC MEETING

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IN RE:

ALCOSAN DRAFT WET
WEATHER PLAN
PUBLIC COMMENTS

- - - - -

Sheraton Hotel
Station Square
300 W. Station Square Drive
Pittsburgh, PA 15219
Wednesday, October 17, 2012
1:00 p.m.

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BEFORE: Nancy Barylak, ALCOSAN
Mary Kay Meanor, ALCOSAN
Joseph Day, ALCOSAN

- - - - -

TRANSCRIPT OF PROCEEDINGS

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Reported by:

Candace Gabeletto,
Registered Professional
Reporter

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P R O C E E D I N G S

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(A meeting was held for public comment on Wednesday, October 17, 2012, at Sheraton Hotel, Station Square, 300 West Station Square Drive, Pittsburgh, Pennsylvania 15219. The hall was open and available for testimony from 1:00 p.m. to 5:00 p.m. No individuals appeared during the allotted time to give testimony.)

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C E R T I F I C A T E

I hereby certify that the proceedings and evidence are contained fully and accurately in the stenographic notes taken by me of the proceedings of the within cause and that this is a correct transcript of the same.

S/Candace Gabeletto, RPR, FPR
