

From: Clemm, Hallie (DPW) </O=DC GOVERNMENT/OU=FIRST ADMINISTRATIVE GROUP/CN=RECIPIENTS/CN=HALLIE.CLEMM>
Sent: Friday, November 15, 2013 11:20:18 AM
To: Corning, Bruce (Biff)
Cc:
Subject: RE:

in a meeting. Will call you after lunch. Sent from my Sprint phone. "Corning, Bruce (Biff)" <Bruce.Corning@arcadis-us.com> wrote:

So I thought I would give you my reaction by each of your thoughts:

1. The DC Plan is both a strategy and tactics. The Action Plan states: For example, it states that District will reduce styrofoam by 80%, etc. These are actions if not direction. We are not implementing any goals. All we are doing is providing DPW with a way to evaluate the potential choices they can make and how much money needed and value created (and employment) will be used/created and meet the Mayor' direction. We will make technology recommendations based on what we see the scenarios reveal.....so if, for example, we choose source reduction by 15% and see how that effects each module, we might realize that WTE can no longer work because there is not enough stock to feed it.....unless the District can take control of the waste stream in the District that it does not currently control via policy or whatever change.
2. I think I addressed the monetary issue yesterday, but we are going to absolutely have to consider financial data: costs, values, avoided costs, potential employment changes, etc. Does that make sense?
3. If I understand your point, you are saying that NCAM in and of itself maybe beautiful, but not a real product for DC? I would say that it is a powerful tool that we are creating for DC to use in their planning. It is like using excel to create graphs.....you don't really care about the tool, you just like to see the result. No?
4. I agree, sort of. We are not going to make any recommendations beyond pointing out the optimized scenario which includes technology. The RFI will be the source from which we/you can make a judgment about highest and best use.

I am in the office today recovering from the foolishness from yesterday. If you want to discuss, give me a call. I am out the door at 3 because I want to be. Biff

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ARCADIS, Imagine the result

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From: Clemm, Hallie (DPW) [<mailto:hallie.clemm@dc.gov>]

Sent: Thursday, November 14, 2013 9:27 AM

To: Corning, Bruce (Biff)

Subject:

Good morning.....I did some thinking last night about our afternoon discussion and I have several points that still make me a little uncomfortable.

1. Isn't the Sustainable DC plan really the strategic direction? What this project is meant to do is provide a valuation system to make the best choices as we move to implement the goals laid out in the plan. To that end....we cannot ignore the tactical side of the discussion....what technologies we think can meet the plans goals.
2. I have always thought that we would provide some monetary values for the paths that we are creating. Ideally....what we want to be able to say is that one path may use the least natural capital but may require more cash than DC is willing to spend. That way, we regulate expectations with what we are able to reasonably afford. Also, it brings the product back into the bottom line mindset that seems to be the most comfortable for the decision makers.
3. I am still concerned that NCAM will be more important in the final presentation than what is ultimately the best for the District....I guess I call that pride of ownership....If that is the case, this will not be a useful product.
4. Finally, I envision the end product of this project to be a decision to either contract for processing services from a facility outside DC, a decision to issue an RFI/RFP for processing/disposition facility/services in the District, or some sort of hybrid. The last thing I can suggest is yet another feasibility study to determine the best technology for us....

That said, I am still confident that this will be groundbreaking.....I am interested in your thoughts about my concerns and I would appreciate it if this will stay between the two of us for now.

Thanks.

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, November 18, 2013 7:45:33 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: Talk Todat?

Good Morning! What time works for you to speak today? Biff

Sent via Biff's mobile device

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, November 18, 2013 9:32:37 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: DPW

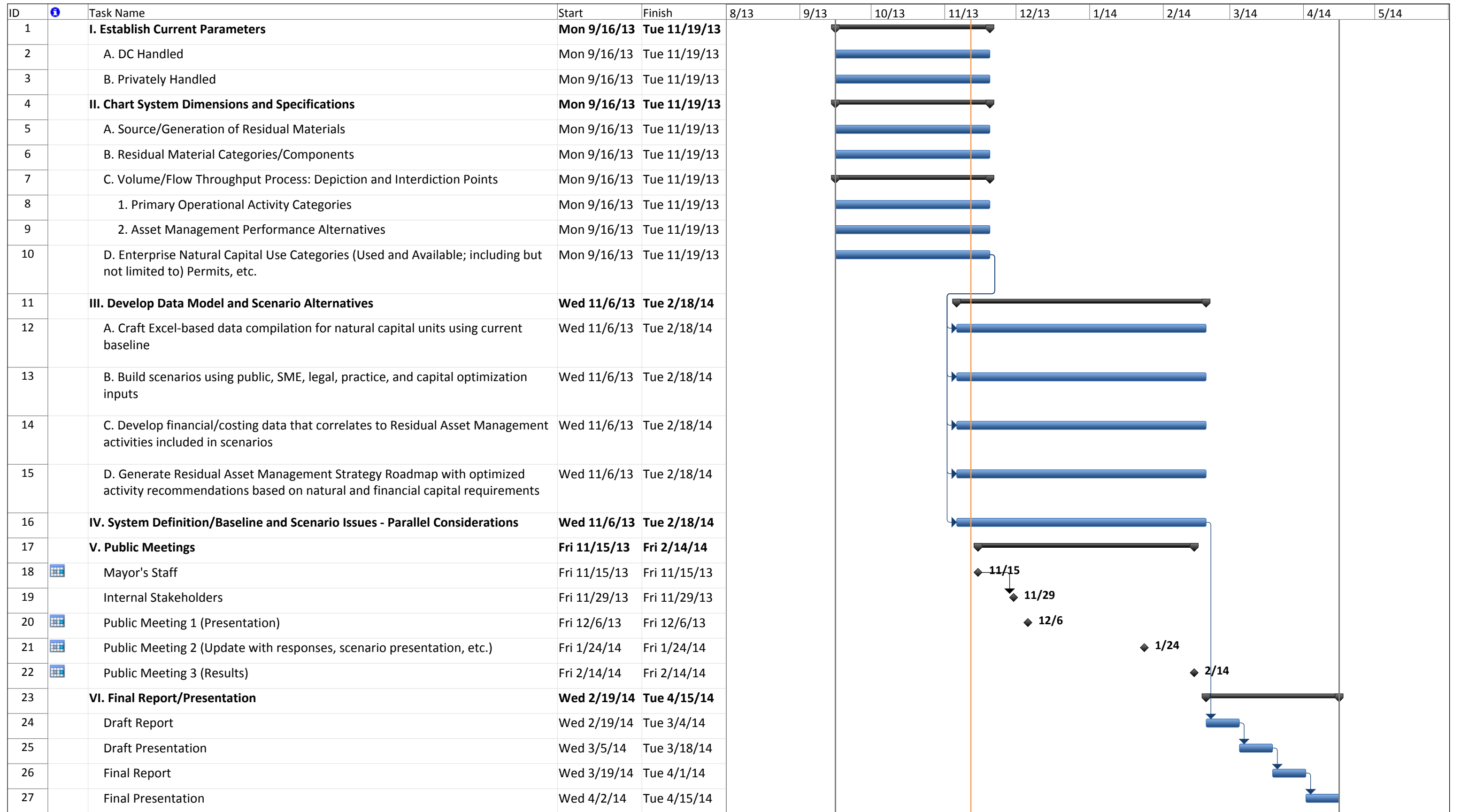
Hallie: I will call your office. Biff

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, November 18, 2013 12:32:15 PM
To: Clemm, Hallie (DPW)
Cc:
Subject: Our Schedule
Attachments: DCDPW Schedule.pdf

Hallie: I cannot remember if I have sent this to you....does this look familiar? Biff

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Project: DCDPW Outline of Projec Date: Tue 11/12/13	Task	Milestone	Project Summary	Start-only	Deadline
	Split	Summary	Manual Summary	Finish-only	Progress

From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, November 18, 2013 4:36:16 PM
To: Clemm, Hallie (DPW)
Cc:
Subject: Summary Notes
Attachments: DCDPWMeetNotes111213.docx

Hallie: Great talking to you as usual. Here are the notes as I summarized our meeting. I have not vetted them with Maureen, and she is about ten minutes from leaving on her cruise, so I suspect I will not hear from her. Let me know if there are things I have left out. Regards, Biff

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Meeting with Hallie Clemm, Tiffany Novak, Maureen Koetz to discuss Analytic Framework scenario development. Summary notes:

I. Key Parameters Identified

- During a project meeting with Hallie Clemm, the Arcadis “Strategic Framework Project” Team clarified the following strategic project goals and design/data elements:
 - Overarching Strategic Goals/Direction: The combination of future growth planning and sustainability planning/goals provides opportunities and economies of scale to the DC to:
 - Restructure and green its flow and management of solid materials
 - Design and operate the system to bring larger value and return to the DC economy and its citizens in the form of jobs, renewable energy, local control, energy resiliency, and technological advancement

II. Design Elements

- As identified, the DPW solid materials management system consists of four phases, each with possible location, technology, and process options that can optimize operations in conjunction with DC economic and sustainability goals. These are Generation, Collection, Diversion, and Disposition.
- Scenarios planned should include:
 1. “Baseline” Scenario comprised of air, land, water and cost elements of current (as is) system, including both internal (to DC) and external system elements such as landfills, transfer stations, collection processes, and “throw rates.”
 2. Source reduction in “throw rate” will be included in the Generation phase of each “could be” scenario in rates approximating the goals found in the DC Sustainability Plan
 3. The project analysis will craft “Alternative” scenarios of solid material system design and management that assess location, technology, and process options to see which can best implement the overarching strategic goals for economic and sustainability optimization. Scenarios will include:
 - a. An 80% diversion rate under the DC Sustainability Plan from optimized recycling and recovery with assets in the DC tax base
 - b. An 80% diversion rate under the DC Sustainability Plan from optimized recycling and recovery with assets in the metropolitan area.
 - c. An 80% conversion rate under the DC Sustainability Plan from optimized fuel/energy production with assets in the DC tax base
 - d. An 80% conversion rate under the DC Sustainability Plan from optimized recycling and recovery with assets in the metropolitan area.

4. The scenarios will also take into account DC sustainability/economic goals including (but not limited to) job creation, renewable energy, water savings, greenhouse gas reductions, density, and population increase.
- Key aspects of the analysis will include:
 - The recognition of residual solid material itself as both a still-usable assets
 - Advance economics of geographically internalized management as a positive economic activity for a municipality.
 - Financial implications: costs associated with choices
 - This concept has already informed successful solid material management programs in Seattle, San Francisco, Chicago, New York and San Jose

III. Background Data from DPW

- 900,000 tons SW managed in the District
 - 500,000 tons through its two transfer stations.
 - 100,000 additional tons are reported as recycled by commercial haulers, and
 - 300,000 tons of municipal solid wastes (MSW) are processed through private sector transfer stations.
- 135,000 tons per year DC DPW collected
 - 25,000 tons of recyclables and
 - 8,000 tons of leaves from residential properties. DPW collects an additional
 - 50,000 tons of materials through its street and alley cleaning program and citizen drop-off services
 - 42,000 tons from District government agencies and contractors servicing government building at the transfer stations
- 225,000 tons of solid waste exported to the Fairfax County Energy Resource Recovery Facility in Lorton
- _____ tons of recyclables and organics go to Maryland and Virginia facilities for processing.

From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Thursday, November 21, 2013 9:18:45 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: RE: Arcadis

I am not.

Sent via Biff's mobile device

----- Original message -----

From: "Clemm, Hallie (DPW)"
Date: 11/21/2013 8:14 AM (GMT-05:00)
To: "Corning, Bruce (Biff)"
Subject: FW: Arcadis

Are you available then?

Each One Give One! Help the DC ONE FUND reach our One City DC One Fund goal of \$1 million dollars to provide much needed support to so many in our region. Learn more at www.dconfund.org <<http://www.dconfund.org>> or www.onefund.dc.gov <<http://www.onefund.dc.gov>>

-----Original Message-----

From: Howland, William (DPW)
Sent: Thursday, November 21, 2013 8:06 AM
To: Hammond, Sybil (DPW); Clemm, Hallie (DPW); McIver, Viola (DPW)
Subject: Arcadis

Allen wants to meet on Wednesday at 3 pm. Is that possible.

Director
Dept. of Public Works
2000 14th Street, NW
Washington, DC. 20009
202.673.6833

Each One Give One! Help the DC ONE FUND reach our One City DC One Fund goal of \$1 million dollars to provide much needed support to so many in our region. Learn more at www.dconfund.org <<http://www.dconfund.org>> or www.onefund.dc.gov <<http://www.onefund.dc.gov>>

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Friday, November 22, 2013 8:36:22 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: Meeting Time

Good morning! So just in case things change again, I am no longer available on Monday. Have a crazy contractual issue that I have to meet with our attorneys about. Never a dull moment. Biff

Sent via Biff's mobile device

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Tuesday, November 26, 2013 10:48:03 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: Tomorrow

So as far as you know, the meeting is still going to be tomorrow at 10?

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Tuesday, November 26, 2013 11:27:22 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: Bulk Pick Up

Your guys took absolutely everything as promised. The system works! Biff

Biff Corning | Principal Consultant | biff.corning@arcadis-us.com
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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Tuesday, November 26, 2013 2:40:48 PM
To: Clemm, Hallie (DPW); Hammond, Sybil (DPW); Howland, William (DPW)
Cc:
Subject: Tomorrow's Presentation
Attachments: DCDPWLEwSlides1126.pptx

Hello Gang: In preparation for tomorrow's meeting, take a look at the presentation transmitted herewith. Look forward to it all. Regards, Biff

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Solid Waste Management Options for the District of Columbia: Sustainability-based Analytics



Today's Agenda

- **DCDPW State of Play**
- **Strategic Direction**
- **NCAM Model Use**
- **Opportunities from Study Data and Results**

Today's Take Away

- Now is the opportunity to re-think and re-structure the flow and management of solid materials reflecting a systematic, integrated approach to managing capital and the environment.
-
- The District must make informed decisions on choosing a resource management system and operations design that can secure value and return to the DC economy and its citizens in the form of jobs, cost control, renewable energy, energy resiliency, and technological advancement
-

State of Play

- DCDPW Moving Ahead to Incorporate the Mayor's Sustainability Plan and Goals in Operational Strategy and Planning
 - Zero Waste to Landfills
 - Waste Generation reduced by 15%
 - 20% reuse of Construction/Demolition Material
 - 80% Diversion of waste from landfills
 - 50% reduction in Greenhouse Gases
 - 50% Increase in Renewable Energy
 - Recast materials as reusable and extract asset value
 - Ensure capacity and capability for population growth

State of Play

- With no solid waste processing capacity of its own, the District of Columbia is outsourcing the management of valuable residual assets, and paying to do so (tipping fees, etc, with expiring contracts)
- To meet the Mayor's Sustainability program goals and long-term needs, DPW is identifying environmentally preferable and cost-effective methods for disposition that reward DC first
- Emphasis on recycling has a politically correct *feel* with little empirical evidence of financial or environmental validity.
- The primary focus on traditional recycling options may be foreclosing technology and processes that contribute to multiple goals and targets across the DC Sustainability spectrum

DCDPW Strategic Direction

- What is the strategy for managing the District of Columbia's solid waste over the next 30 years that is:
 - Fiscally responsible
 - Responds to stakeholders' priorities
 - Addresses sustainable practices
 - Uses the best technologies for the waste stream
- Use both an environmental and financial lens to identify and quantify residual material handling options

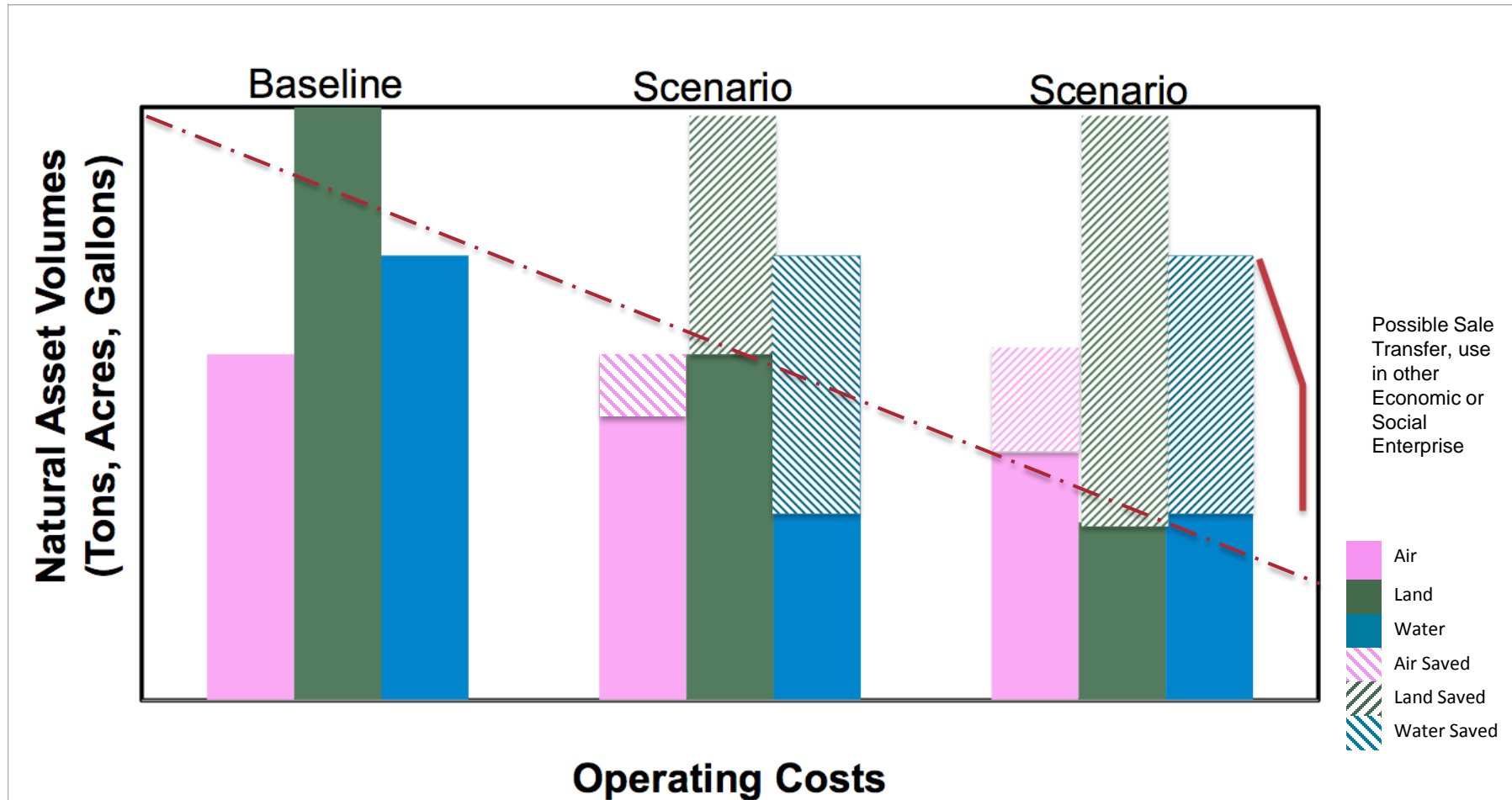
Purpose of the Study

- Develop an analytic framework to evaluate the highest and best use of air, land, water and money in selecting appropriate technologies and or process strategies to manage solid waste over the next thirty years
- Understand and integrate community priorities
- Identify technology and process options that contribute to the full spectrum of DC Sustainability targets and challenges

The Sustainable Basis for Decision-Making

- Usable supplies of Air, Land and Water are Shrinking Due to Regulation, Conservation and Development
- The District Benefits by Environmentally and Financially Managing Usable Air, Land and Water as Assets
- Natural Capital Asset Management (NCAM) Inventories Used and Reserved Air, Land Water Capacity as Asset with Operational and Potential Market Value.
- These values are the basis of the quantitative analysis applied to current and potential waste management system options to determine the best deal for the District.
- Enables Optimization Decision-Making, rather than Compliance or Avoidance Decision-Making

NCAM™ EVALUATION ILLUSTRATIVE RESULT



Opportunities from Study Data and Results

NCAM Study inputs and data will cross-cut with other agencies such as DOE

Stakeholder Participation will likely be of political interest

Technology and process scenario options included for value generation contribute to all DC Sustainability Goals, not just DCDPW (E.g., bankable GHG credits, water use reductions, renewable energy production, reduced fuel use, neighborhood energy sourcing)

Results and Recommendations will identify potential asset, development, offset, financial, and credit market values from all aspects of waste management (reduction to disposition) associated with DCDPW technology and process decision-making as current contracts expire.

From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, December 02, 2013 10:09:04 AM
To: Clemm, Hallie (DPW); koetz@koetzduncan.com
Cc:
Subject: Source Reduction, Healthy Eating Habits and Composting.....In One Easy Step!

Thought you both would find this interesting. Biff

December 1, 2013

Urban Schools Aim for Environmental Revolution

By [MICHAEL WINES](#)

Nothing seemed special about the plates from which students at a handful of Miami schools devoured their meals for a few weeks last spring — round, rigid and colorless, with four compartments for food and a fifth in the center for a carton of milk.

Looks, however, can be deceiving: They were the vanguard of what could become an environmental revolution in schools across the United States.

With any uneaten food, the plates, made from sugar cane, can be thrown away and turned into a product prized by gardeners and farmers everywhere: compost. If all goes as planned, compostable plates will replace plastic foam lunch trays by September not just for the 345,000 students in the Miami-Dade County school system, but also for more than 2.6 million others nationwide.

That would be some 271 million plates a year, replacing enough foam trays to create a stack of plastic several hundred miles tall.

“I want our money and resources for food going into children, not in garbage going to the landfill,” said Penny Parham, the Miami school district’s administrative director of food and nutrition.

Compostable plates are but the first initiative on the environmental checklist of the [Urban School Food Alliance](#), a pioneering attempt by six big-city school systems to create new markets for sustainable food and lunchroom supplies.

The alliance members — the public school systems in Chicago, Dallas, Los Angeles, Miami, New York and Orlando, Fla. — are betting that by combining their purchasing power, they can persuade suppliers to create and sell healthier and more environment-friendly products at prices no system could negotiate alone.

“We pay about 4 cents for a foam tray, and compostable trays are about 15 cents — but volume is always the game changer,” said Leslie Fowler, the director of nutrition support services for the Chicago school system. “We want to set the tone for the marketplace, rather than having the marketplace tell us what’s available.”

The compostable plates are the first test of the alliance’s thesis. This week, the New York City Education Department will open sealed bids to supply the roughly 850,000 plates it needs each day for breakfast and lunch programs in about 1,200 schools. New York is running a pilot program, like Miami’s, in four schools, with 30 more expected to join this month.

If a winning bidder is chosen, the other alliance members will be able to piggyback on the contract, placing their own orders without having to navigate a separate bidding process. The call for bids names all six districts and says they must all be allowed to place orders at the same price.

The alliance’s next target is healthier food. It is already looking at potential suppliers of antibiotic-free chicken. School officials say possible future initiatives include sustainable tableware, pesticide-free fruit and goods with less packaging waste.

The direct benefits of these efforts may not always be obvious, or even noticeable. To a child, antibiotic-free chicken tastes like any other chicken. And even a huge purchase by the alliance would have little effect on farmers’ preferences for giving animals antibiotics, much less on the danger the practice poses: spawning new classes of antibiotic-resistant bacteria.

But short-term environmental and health benefits are not the only goals, said Eric Goldstein, the chief executive of school support services in New York City. Using recyclable plates or serving healthier chicken sets an example that students may carry into adulthood, he said, and that other school systems may come to see as a standard.

“It sounds corny,” Mr. Goldstein said, “but we all believe in this.”

The six districts banded together in July 2012 at a school-nutrition conference in Denver. They received a lift later last year when the [Natural Resources Defense Council](#), a national advocacy group with a history of pressing governments for environment-friendly changes, met with Mr. Goldstein and other New York school executives to talk about recycling and healthier food.

“We were pleasantly surprised when they told us they were interested both in getting rid of polystyrene trays and moving forward on healthier chicken,” said Mark Izeman, the director of the council’s New York program.

The council has recruited a law firm to create a nonprofit corporation for the alliance and lent its environmental expertise to help the six districts decide what to buy next. “We’re delighted to work with them,” Mr. Izeman said. “What’s not to like?”

If the alliance succeeds, it could help change nutrition and sustainability policies across the nation. Already, other school districts are asking to join the group. Eventually, Mr. Izeman said, the alliance could be a template for sustainability efforts by other big food bureaucracies. What works for school districts, after all, should also work for institutions like hospitals and universities.

But first, it has to work in public schools. For now, that means producing a compostable plate that school systems can afford.

That may not be easy. Foam trays are made from petroleum byproducts and are stamped out at dizzying rates. Sugar-cane plates take longer to make and require more machinery to produce in volume, said an official at one manufacturer of recycled tableware who did not want to be named because his company is involved in the alliance bid.

Mr. Goldstein said that 21 manufacturers had expressed interest in bidding, and that he believed they would slash prices to win such a huge contract.

But if not, the manufacturing official said, there is a way for alliance members to recoup some of the cost. Demand for compost is high, and by late next year, schools may be deluged with it.

“Budgets are always tough,” the official said. “They could sell that mulch, a buck or two a bag.”

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Tuesday, December 03, 2013 10:08:46 PM
To: clundy@nspiregreen.com; Clemm, Hallie (DPW)
Cc: Veronica Davis
Subject: Re: Scheduling PI Meetings

Chancee: Thanks for getting on this with Hallie so quickly. So I am thinking now that we might want to hold off just a bit longer.....until we have had a chance to settle on the scenarios with Hallie. I want to set a public meeting date when we are truly ready to provide the public with a clear picture with which we are all on board. Regards, Biff

ARCADIS-US, Inc.
3101 Wilson Boulevard
Arlington, Virginia 22201

From: clundy@nspiregreen.com
Sent: Tuesday, December 3, 2013 11:27 AM
To: [Hallie Clemm](#)
Cc: [Veronica Davis](#), [Bruce Corning](#)

Hallie,

I hope that you had an awesome Thanksgiving. With the holiday season approaching fast, have you given any thought to the public meetings for solid waste management study?

I know that we want to have a smaller meeting and sometime soon after have the larger public meeting. Do you have any specific timeframe in January or February that you want to make these two meetings happen? Perhaps, we can have the smaller stakeholder meeting the 3rd week of January and the large meeting the first week of February.

We would like to start the outreach process so as soon as we get the dates locked in we can really start planning. We are excited to see the process moving forward.

Warmly,

--

Chancee Lundy
Partner/Principal Environmental Manager
Nspiregreen, LLC
601 Pennsylvania Ave NW | South Building, Suite 900
Washington, DC 20004

O: [202 434 8921](tel:2024348921)
Twitter: [@NspiregreenLLC](#)
Facebook: [NspiregreenLLC](#)

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Thursday, December 05, 2013 6:24:39 PM
To: Clemm, Hallie (DPW)
Cc:
Subject: Thursday Meeting

Hallie - Sorry you are stretched in so many directions. Mo can be here next Thursday, the 12th. See you around 10ish. Biff

Sent from my iPad

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Friday, December 06, 2013 4:34:31 PM
To: Clemm, Hallie (DPW)
Cc:
Subject: Accepted: scenario development

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, December 09, 2013 3:19:18 PM
To: koetz@koetzduncan.com; Clemm, Hallie (DPW)
Cc:
Subject: Our Meeting on Thursday and Other Marvels

Maureen and Hallie: I am looking forward to our meeting on Thursday morning. It comes with the great feeling of validation we had from our meeting Alan Lew who saw the merit and utility of what we are doing. Now, we have to do it. As you know, crucial to our project is the development of the scenarios. We are at the point where we have to agree on what they will be as it will drive our data needs and serve as the central focus of our public meetings. So, on Thursday, no one leaves the room until we have defined the four scenarios.

Maureen and I spoke earlier today and I believe she is going to flesh out more of what we hope to accomplish on Thursday, and certainly Hallie if you all have project issues to discuss, let's do so. Here are some talking points to start things going:

- Review of Lew comments
- Data development/model building status/data parameters
- Scenarios and the potential implications for each one chosen
 - Which phase(s) are focused
 - Mayor's sustainability plan
 - Technology choices
- Plan going forward on meeting with the public

This is by no means complete, I just want to start us all thinking.

Below is something I grabbed off the City of Alexandria Web Site. Hmm... competition for energy sources?

Compost at the Farmers Market

Utilizing a portion of the savings from the City's recent renegotiation of the operating agreement for our Waste to Energy facility, the City has expanded several recycling efforts.

In addition, the City created a [new pilot program](#) by operating Resource Recovery Stations at four of the City's Farmers Markets ([Del Ray](#), [Old Town](#), [West End](#) and [Four Mile Run](#)).

For \$5, you can pick up a compost tub, fill it up with food waste over the week, and bring it back the next weekend. In exchange, residents receive a mini-bag of compost.

So far the demand for this new effort has been very strong. The program will be formally launched in the Spring.

Regards, Biff

Biff Corning | Principal Consultant | biff.corning@arcadis-us.com
ARCADIS U.S., Inc. | 3101 Wilson Boulevard Suite 550 | Arlington, Virginia 22201
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Connect with us! www.arcadis-us.com | [LinkedIn](#) | [Twitter](#) | [Facebook](#)

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, December 16, 2013 11:40:57 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: Re: can report - debonis

You got to love it. That is ill conceived and totally not strategic thinking. What the hell?

Sent from my iPhone

On Dec 16, 2013, at 10:04 AM, "Clemm, Hallie (DPW)" <hallie.clemm@dc.gov> wrote:

From: Ousley, Susan (DPW)
Sent: Friday, December 13, 2013 11:42 AM
To: Clemm, Hallie (DPW); Hammond, Sybil (DPW)
Subject: can report - debonis

<http://www.washingtonpost.com/blogs/mike-debonis/wp/2013/12/13/vincent-grays-trash-can-plan-encounters-funding-objections/>

Look out for those in need this winter. When the temperature or wind chill is 32°F or below, the District issues a Hypothermia Alert. For assistance during an Alert, call the [Shelter Hotline](#) at **1-800-535-7252** or **311**.

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, December 30, 2013 10:06:54 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: RE: Natural Capital Asset Management Project

Good morning. I do have a draft which I will send when I get to the office later this afternoon. Am at a meeting now. Hope you are well. Biff

Sent via Biff's mobile device

----- Original message -----
From: "Clemm, Hallie (DPW)"
Date: 12/30/2013 9:00 AM (GMT-05:00)
To: "Corning, Bruce (Biff)"
Subject: FW: Natural Capital Asset Management Project

Good morning....and I hope you had a nice vacation....When we met on December 12th you indicated that you would memorialize what we decided so that we can provide the information to Bill, get his blessing and then proceed with planning the public meetings.

Have you had an opportunity to write that summary? When do you think I can see a version?

Please advise and thank you.

From: Lezinski, Stephen (DPW)
Sent: Tuesday, December 24, 2013 2:33 PM
To: Clemm, Hallie (DPW)
Subject: Natural Capital Asset Management Project

Hi Hallie – did you receive your summary (i.e. project basis) from Arcadis?

Thanks. -Steve

Stephen T. Lezinski
Associate Administrator, Chief of Disposal
DPW, Solid Waste Management Administration
4900 John F. McCormack Road NE, Washington, DC 20011
Tel. (o): (202) 698-4692
Tel. (c): (202) 438-8353
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Fax: (202) 576-6780
Email: Stephen.Lezinski@dc.gov

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From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Monday, December 30, 2013 1:30:24 PM
To: Clemm, Hallie (DPW)
Cc:
Subject: Draft Tech Memo 121213
Attachments: DPWTM1212.docx

Hallie: So here is a draft memo from our December 12 meeting. There is more here than what actually happened at the meeting, but you can read, I hope, that there is a lot of information around what led up to and will follow that meeting. I have left it in native format from which you can comment, and then once you approve, I can officially transmit it to you. I am out of the office most of the day, am just now hiding out at a Starbuck's to send this to you. My meetings here will end at around 3, and if I were a good employee, I would head back to my office. Having said that, I should be home by 4 if you want to chat then. I will be in the office tomorrow for most of tomorrow, but will try to escape early as, well, it is New Year's Eve and provides a good excuse to escape. Hope you are recovering from the garbage can kick in the stomach. Gotta love it. Regards, Biff

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Draft Tech Memo from December 12, 2013 Meeting

I. Background

Sustainability goals for the Department of Public Works (DPW) are part of a broader plan for *Sustainable DC* that includes a series of integrated goals encompassing job growth, economic development; city-wide health improvements from clean air and water along with healthier food supplies and lifestyles; diversity and improved social access to needed services; and protection of local environmental assets for citizens, wildlife, and future generations.

Among the goals directed at current waste management operations by Mayor Gray's *Sustainable DC* Plan is zero waste in 2032. Reductions in waste generated and value capture through reuse, recycling, composting and energy production are both considered integral to achieving this goal. For success, the District must develop an integrated solid waste management system that redefines solid waste from a burden that needs to disappear to a resource with economic, environmental and social value.

The inherent definition of sustainability is the wise and efficient use of natural and financial assets by current generations to assure viability for those in the future. The DC Department of Public Works (DCDPW) Strategy Roadmap is a planning tool to achieve that sustainability. It will provide identification and assessment of natural and financial capital investments relative to technology and process options that, in turn, provides an evidence-based guide for implementing future policies and programs to develop and sustain critical systems, as well as optimize outcomes that will meet the planned sustainability goals.

The Strategy Roadmap (SR) is evaluating alternative integrated solid waste management scenarios (including the current state) that can maximize the embedded value of DPW assets and management processes to meet *Sustainable DC* goals; develop an evaluation strategy and framework to quantitatively compare the investments necessary for each of these alternatives; and to evaluate the results. By quantifying and comparing investments needed to optimize baseline waste management operations for the future, the District will be in a better position to identify impact mitigation, cost savings, value creation and positive environmental justice outcomes that contribute to a *Sustainable DC* while making informed management choices regarding its future operations.

The SR study will map strategic and process options needed to achieve the spectrum of goals established in the *Sustainable DC* plan by more specifically evaluating whether and how to:

- Increase the District's recycling diversion rate
- Recapture the embedded energy and economic value of its waste (or residual material assets)
- Optimize the value of the waste (residual) stream while providing economic sustainability over the long term
- Interact with jurisdictional partners in operating a solid waste (residual material) management system
- Make the most efficient use of constrained air, land, and water assets within DC and in the surrounding jurisdictions to enable both conservation and future growth.

II. Study Design and Structure

The design basis of this strategic evaluation study includes depiction of the current system for use as a baseline, and compare future operational scenarios that meet *Sustainable DC* goals, improve operational efficiency, and optimize services. To develop these scenarios, the Arcadis Team met in workshops with DC

DPW representatives and experts to:

- a) confirm the component elements of the DC system to be addressed in the study,
- b) establish the Sustainable DC goals achievable or affected by DC DPW processes, and
- c) identify scenario designs that compare best practice structural and technical process alternatives to identify design and investment strategies best able to meet Sustainable DC goals.

This technical memo incorporates findings and direction developed in these workshops. Additional design and scenario development will occur as part of a public scoping process scheduled in 2014.

A. DPW Operational System Components

1. Locations and Participants

Solid residual material treated as “trash” or “garbage” in DC is a dual public/private system with both local and extra-territorial natural capital parameters to the system. Both DPW and private hauling companies carry out collection and storage processes within the DC geographic/natural capital scope, but full-cycle handling of residual material assets include natural capital of other jurisdictions. A simplified matrix of Arcadis’ current understanding of the system would be thus:

	Intra-borders	Regional
DPW/DC Government	Collection; Diversion (Water, Reuse), Sorting, Transfer	Sorting; Recycling, Fuel, Landfill
Private Haulers	Collection; Diversion (Reuse), Sorting, Transfer	Sorting, Recycling, Fuel, Landfill

2. Overview Data of System Loads

- 900,000 tons Residual Material managed in the District, 500,000 tons through its two transfer stations, 100,000 additional tons are reported as recycled by commercial haulers, and 300,000 tons of municipal solid wastes (MSW) are processed through private sector transfer stations.
- 135,000 tons per year DC DPW collected
 - 25,000 tons of recyclables and 8,000 tons of leaves from residential properties. DPW collects an additional 50,000 tons of materials through its street and alley cleaning program and citizen drop-off services;
 - 42,000 tons from District government agencies and contractors servicing government building at the transfer stations
- 225,000 tons of solid waste exported to the Fairfax County Energy Resource Recovery Facility in Lorton
- Recyclables and organics (tonnage TBD) go to Maryland and Virginia facilities for processing.

3. Volume/Flow Throughput Process Phases

The DPW system for material processing is comprised of four main operational activity phases:

- **Generation** - Residual material discarded by DC homes, businesses, and government entities; litter and street accumulation
- **Collection** - Vehicles and processes used to accumulate, transport, and deposit discarded materials for further management
- **Diversión** - Sorting, separation, and transfer of materials for a variety of follow-on options that can include, reuse, bio-reuse (compost), recycling, refining (energy production), or other options
- **Disposition** - final disposal of discarded material with no further use intended

4. *Opportunity Linkages between Sustainable DC Goals and DPW Operational Phases*

The following chart depicts the foundational mapping of the phases of the DPW processes to the *Sustainable DC* goals, thereby identifying the potential gains and contributions that process improvements in those phases could contribute to the Plan.

Sustainable DC/DPW Goal Map

DPW Phase	DC Sustainability Goal	Best or Available Practice Options	Natural Capital Capacity Affected (DC and Regional)
Phase I: Residual Material Generation	15% Reduction in Residual Material (RM) Generation Recast Materials as Reusable 20% reuse of Construction/Demolition Material Styrofoam Elimination	a. Bans b. Content Regulations c. FAR	DC A/L/W Regional A/L/W Banked Capacity/ Credits
Phase II: Collection	Reduce Greenhouse Gases by 50% (truck fuel)	a. Combined Collections b. Fuel Switch c. Shrink distances	DC A/L/W Regional A/L/W Banked Capacity/ Credits
Phase III: Diversion	80% Diversion of RM from landfills 50% reduction in GHG (methane leakage) 50% increase in renewable energy Ensure Capacity/Capability for Population Growth Grow DC Economy	a. DC-based Energy Refining b. Increased regional Energy Refining b. DC-based increased recycling c. Increased Regional recycling	DC A/L/W Regional A/L/W Banked Capacity/ Credits
Phase IV: Final Disposition	Zero RM to Landfill	See Phase III	DC A/L/W Regional A/L/W Banked Capacity/Credits

B. Scenario Development Parameters

Project workshop meetings held with DCDPW client representatives confirmed the strategic directions of the DCDPW, the linkages to the Sustainable DC goals, and preliminary scope of the comparative scenario structure:

1. Overarching Strategic Goals/Direction

The combination of future growth planning and sustainability planning/goals provides opportunities and economies of scale to the District to:

- Restructure and green its flow and management of solid materials
- Design and operate the system to bring greater value and return to the DC economy and its citizens in the form of jobs, renewable energy, local control, energy resiliency, natural capital capacity, and technological advancement

Key aspects of the analysis will be informed by the following precepts:

- Residual solid materials should be viewed as usable, recoverable, or refinable assets, and
- Geographically internalized management can be a potential positive economic and environmental activity for a municipality (this concept has already informed successful solid material management programs in Seattle, San Francisco, Chicago, New York and San Jose)

2. Goal and Future Practice Elements

As previously identified, the DCDPW solid materials management system consists of four phases (Generation, Collection, Diversion, and Disposition) each with possible location, technology, and process options that can optimize operations in conjunction with DC economic and sustainability goals. As a result of the mapping correlation between goals and process phases, the Generation and Diversion Phases provided the widest field of opportunity for meeting sustainability goals, and will be a primary focus of the scenarios. Using research, workshop discussions and reviews, and subject matter expert input, planned scenarios will be based on the following core concepts:

- A. A “Baseline” Scenario comprised of air, land, water and cost elements of the current system (including both internal/DC and regional system elements such as landfills, transfer stations, collection processes), and “throw” rates.
- B. A source reduction in “throw rate” equal to the planned Sustainable DC goal of 15% will be included in the Generation phase of each alternative scenario
- C. “Alternative” scenarios will use a matrix format to assess location, technology, and process options that best implement the overarching strategic goals for economic and sustainability optimization aligned with Sustainable DC goals and will include:
 - An 80% diversion rate under the DC Sustainability Plan from optimized recycling and recovery with assets in the DC tax base
 - An 80% diversion rate under the DC Sustainability Plan from optimized recycling and recovery with assets in the metropolitan area
 - An 80% conversion rate under the DC Sustainability Plan from optimized fuel/energy production with assets in the DC tax base
 - An 80% conversion rate under the DC Sustainability Plan from optimized recycling and recovery with assets in the metropolitan area

- D. The scenarios will also take into account District sustainability/economic goals including (but not limited to) job creation, renewable energy, water savings, greenhouse gas reductions, density, and population increase.

As a result of the system analysis and workshop activities, a scenario design has been developed as depicted in the following chart:

Alternative Scenarios Matrix

Scenario/Process Activity	Phase 1 Load Production	Phase 2 Load Collection	Phase 3 Load Diversion	Phase 4 Load Disposition
Baseline	Baseline	Baseline	Baseline	Baseline
Optimization A1	15% Source Reduction	TBD	80% Diversion through Recycling with DC Built and Natural Infrastructure	Landfill Minimization/Elimination
Optimization A2	15% Source Reduction	TBD	80% Diversion through Recycling with Regional Built and Natural Infrastructure	Landfill Minimization/Elimination
Optimization B1	15% Source Reduction	TBD	80% Diversion through Refining with DC Built and Natural Infrastructure	Landfill Minimization/Elimination
Optimization B2	15% Source Reduction	TBD	80% Diversion through Refining with Regional Built and Natural Infrastructure	Landfill Minimization/Elimination

C. Scenario Comparison Parameters

The District of Columbia’s material management system must be capable of meeting the Mayor’s Sustainable DC plan goals, achieving an economical increase in the District’s waste diversion rate, capturing embedded waste stream economic value, and optimizing system component choices among jurisdictional entities in order to provide sustainable economic growth over the long term. To do so, DCDPW will assess solid residual management process from the perspective of achieving sustainability goals, and develop factual, quantity-based, empirical data, info and knowledge to inform residual handling decisions with evidence-based alternatives analysis.

To structure a materials management system with these capabilities, DCDPW must develop program, process, and technology options to sustainably use natural and financial asset capacity. For purposes of this study, actual levels of air, land, and water consumption or other permanent use of natural infrastructure asset capacity available and accessible under regulatory and supply restrictions are considered primary sustainability criteria to evaluate system operation and future management strategy.

1. Capacity to Capability Analysis

Arcadis is providing the requested project evaluation using a *Capacity to Capability* analytic method that allows client decision-makers to build capability-based, sustainable system design strategies by first identifying and measuring capital asset capacity needed to meet capability goals, then developing scenario options that efficiently reduce or minimize capacity needed to generate the highest levels of system performance at the lowest capital use rates. The analysis captures reduced asset capacity use as equity value that can be made available to other system capability needs, economic development, or recorded as credits for future use.

Capability-based scenarios as further refined in public scoping meetings will include various technology and process elements whose natural, physical, and financial infrastructure capacity is sustainably available, accessible, and affordable to operate a system capable of attaining the project goals. Each scenario element will be inventoried for its use levels of natural, physical, and financial capital assets, whether available to the system or necessary to acquire. The evaluation process will address overall governance requirements, including siting, regulatory, legal, institutional and other requirements applicable or contingent to each scenario alternative. In addition, project analytics will include jurisdictional and operational partnering opportunities within the residual asset management system region-wide. Facilitated public participation activities will be included at key steps to provide review and input on the project progress and deliverables.

2. Natural Capital Asset Management (NCAM)TM

By focusing on the measurable volumes of natural, physical, and financial capital that are, or might be used to avoid, reduce, or handle materials managed by the residuals/waste system, this evaluation quantitatively identifies needed technology and processes capable of providing system-wide capability for handling residual materials at the lowest asset capacity use levels. As part of its analysis, Arcadis will use Natural Capital Asset Management (NCAM)TM to provide the framework for completing this work. NCAMTM is a relational database tool that has been developed to allow for the comparison of alternative solutions to complex problems and give decision-makers information they need to select solutions which uses the lowest or most efficient volumes of capital assets to achieve the greatest system capability performance, as well as consider other key capital factors.

An NCAMTM measures deeds, leases, permits, and other natural element access rights as natural infrastructure—an essential category of working capital to physical, financial, and workforce assets—whose usable and affordable capacity generally define the upper limits of operational capability for enterprise activities. NCAMTM records inventory levels, utilization rates, and cost/value elements for natural assets using analytic modalities comparable to these other enterprise capital elements. Operational alternatives under consideration by an enterprise system are measured and compared for the total amount of capital assets used in key categories indexed against the units of productivity achieved. Project and operational activities are thus evaluated for their sustainability, allowing decision-makers to optimize enterprise capability and output by selecting alternatives with the lowest capital use for greatest output.

The data elements are based on direct, or algorithmically or arithmetically derived, units of affected air, land, and water elements and sub elements thereof or thereupon, that are used or conserved by the client enterprise for economic or social goals both internal and external to its operations. Standard and client-specific configuration protocols are developed and used during

analysis phases to evaluate data source, availability, consistency, time and spatial factors, units of measure, and other data parameters needed for quality control and assurance in both design and operation phases. The NCAM™ activities in this Strategy/Roadmap project will use primary data correlations between the actual use rate of natural infrastructure assets (as informed by financial costs) and the waste materials avoided or managed to map a strategy for investment in environmentally preferable technologies and procedures that **meet Sustainability DC goals**

3. *Affected DC Natural Capital Assets*

DPW process phases use Natural Infrastructure Asset capacity in both Operational (OPS) and Residual Material Management (RMM) activities. Each DCDPW Process Phase uses a definable volume of air, land, and water that can be determined through actual measurement or formulaic calculation. The likely affected asset capacity is charted below.

Anticipated Natural Capital Asset Use Categories in DPW Systems

Air Asset Capacity (RMM)	Land Asset Capacity (OPS, RMM)	Water Asset Capacity (OPS, RMM)
Criteria Pollutants	Built Infrastructure (Stationary, Transport)	Process
Greenhouse Gases	Storage	NPDES
Hazardous Pollutants	Safety/Setback	Sanitary/Sewer
	Fill/Burial	

III. Implementation Activities

Tasks are underway as part of the project plan to collect data on the baseline activity phases and operational activity likely under the scenarios developed.

In articular, the proposed scenarios will be made available for review, comment, and revision in public meetings planned in the early art of 2014.

From: Corning, Bruce (Biff) <Bruce.Corning@arcadis-us.com>
Sent: Tuesday, December 31, 2013 9:52:07 AM
To: Clemm, Hallie (DPW)
Cc:
Subject: RE: Draft Tech Memo 121213

900 it is.

Biff Corning | Principal Consultant | biff.corning@arcadis-us.com
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From: Clemm, Hallie (DPW) [<mailto:hallie.clemm@dc.gov>]
Sent: Tuesday, December 31, 2013 8:51 AM
To: Corning, Bruce (Biff)
Subject: RE: Draft Tech Memo 121213

10 minutes????

From: Corning, Bruce (Biff) [<mailto:Bruce.Corning@arcadis-us.com>]
Sent: Tuesday, December 31, 2013 8:51 AM
To: Clemm, Hallie (DPW)
Subject: RE: Draft Tech Memo 121213

So when do you want to talk?

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From: Clemm, Hallie (DPW) [<mailto:hallie.clemm@dc.gov>]
Sent: Monday, December 30, 2013 3:51 PM
To: Corning, Bruce (Biff)
Subject: RE: Draft Tech Memo 121213

I read it....please call me when you have a moment....tomorrow is fine.

Look out for those in need this winter. When the temperature or wind chill is 32°F or below, the District issues a Hypothermia Alert. For assistance during an Alert, call the [Shelter Hotline](#) at **1-800-535-7252** or **311**.

From: Corning, Bruce (Biff) [<mailto:Bruce.Corning@arcadis-us.com>]
Sent: Monday, December 30, 2013 12:30 PM
To: Clemm, Hallie (DPW)
Subject: Draft Tech Memo 121213

Hallie: So here is a draft memo from our December 12 meeting. There is more here than what actually happened at the meeting, but you can read, I hope, that there is a lot of information around what led up to and will follow that meeting. I have left it in native format from which you can comment, and then once you approve, I can officially transmit it to you. I am out of the office most of the day, am just now hiding out at a Starbuck's to send this to you. My meetings here will end at around 3, and if I were a good employee, I would head back to my office. Having said that, I should be home by 4 if you want to chat then. I will be in the office tomorrow for most of tomorrow, but will try to escape early as, well, it is New Year's Eve and provides a good excuse to escape. Hope you are recovering from the garbage can kick in the stomach. Gotta love it. Regards, Biff

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