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## **Minutes City Council's Community Sustainability Technology Sustainability Sub-Committee April 17, 2009**

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Minutes of the meeting of the City Council's Community Sustainability – Technology Sustainability Subcommittee held on Friday, April 17, 2009, 8:00 a.m., in the 3<sup>rd</sup> Floor Conference Room, Tempe City Hall, 31 E. 5<sup>th</sup> Street, Tempe, Arizona.

**Sub-Committee Members Present:**

Vice Mayor Shana Ellis

**City Staff Present:**

Lisa Collins, Deputy Development Services Manager and Committee Liaison

Kathy Gasperich, Comm Dev

Mary Helen Giustizia, Solid Waste Svcs Dir

Jan Hort, City Clerk

Lisa Lathrop, Dev Svcs

David McNeil, Water Utilities

John Osgood, Dep Public Works Mgr

Alex Smith, Com Dev

Mark Vinson, Principal Architect/City of Tempe

Nancy Woods, Mgmt Asst

**Guests Present:**

Rajat Gupta, Visiting Scholar, ASU

Janet Holston, Asst. Dean, Applied Research, ASU

John Kane, Architekton

Greg Piraino, Applied Engineering

Greg Pitz, Logos Solar

Anne Reichman, Prg Mgr, Sustainable Cities Network

Vice Mayor Ellis called the meeting to order at 8:05 a.m. and everyone introduced themselves.

**Agenda Item 1 – Public Appearances/Call to the Public**

None.

**Agenda Item 2 – Sustainability Through Preservation**

Mark Vinson distributed a paper entitled "Sustainability Through Preservation" and summarized that this item is a work in progress and he desired comments and feedback. It discusses issues pertaining to preservation that may pertain equally to other aspects of sustainability. The essential components of sustainable development are widely identified as environmental, economic, and social/cultural. Historic preservation may be one of the few development strategies that actually addresses all three of those at the same time and makes the point that sustainability and preservation movements have much in common. The paper discusses some of the problems of quantifying preservation with metrics that have not addressed it too well, but the new version has a lot of promise.

Lisa Collins stated that it is not staff's goal to send supporting documents out in paper form, but staff will try to have a link for each of the agenda items so that the information can be accessed.

John Kane added that there is a wonderful body of mid-century architecture that is now becoming historic, and there is a lot of debate. One example is ASU's Manzanita. He suggested a policy or dialogue should start to occur from a public relations standpoint. ASU has an RFP out to determine keeping that building or pulling it down. The other side of the coin is that many of these buildings are energy hogs. It will be intriguing to apply the metrics to that.

Mr. Vinson added that one of the philosophical discussions is the fact that many of the buildings from the modern era displaced even older buildings.

Vice Mayor Ellis asked Mr. Vinson if he would like this to be agendaized for the next meeting or whether people should contact him informally.

Mr. Vinson suggested leaving it informal at this point. He would bring it back to the committee if needed.

Mr. Kane added that from an engineering standpoint, you could take an old building, and retrofit the mechanical, lighting, insulation, etc., until it basically behaved almost as a new building. There could be a tremendous jump in efficiency to new standards with the new systems and the cost would be a fraction of teardown and rebuild. He is in favor of historic preservation.

### **Agenda Item 3 – Hudson Baylor Recycling Update**

Mary Helen Giustizia distributed a handout on the City's recycling programs. The contractor is Hudson Baylor on University Avenue in Phoenix and their contract will expire in 2013.

- The revenue to the City from recyclables is 30% of the tonnage taken to the transfer station, with a minimum amount guaranteed at \$25.40 per ton. Based on the previous year, staff calculated that the City would receive about \$37.50 per ton.
- In addition to the regular tonnage, Hudson Baylor remits \$3 per ton to the City for use in recycling education programs.
- In 2007, the contractor was CRINC and the participation rate was 74%, with a revenue share of approximately \$400K. The contamination level was 23%.
- In 2008, with Hudson Baylor, the tonnage remained the same, the participation rate dropped slightly to 62%, the revenue increased to \$557K (due to changes in contractor, higher revenue per ton was achieved for some of the materials), and the contamination rate dropped to 21.8%.
- Audits are done twice a year to identify participation areas and where contamination rates are higher.

She continued with the education program.

- Steady increase in the number of multi-family housing participants.
- Shred-A-Thon will be held this weekend.
- Reuse-A-Shoe Program
- Bag Central Station
- ERIC will be completed by June 30, 2009, and was partially funded by ADEQ grant of \$60K.

Alex Smith asked about the drop in participation and whether that is due to a drop in the housing market.

Ms. Giustizia responded that it is predominantly from single-family. During the audits, staff tries to determine where the rates have increased or decreased.

Vice Mayor Ellis questioned why the tonnage would stay the same, when the participation rate dropped, especially because in the previous contract, there were fewer things that could be recycled.

Ms. Giustizia responded that it is probably a factor of education. The people who recycle are recycling more, so it is a representation of the volume that is being recycled, even though there could be potentially fewer people doing it.

Vice Mayor Ellis asked if she felt the ERIC program will help that.

Ms. Giustizia responded that other municipalities are waiting for ERIC and hope to borrow it to educate some of their communities. Schools are a big part of it, and it will also go to commercial businesses and events.

John Kane added that Valley Forward held a Livability Summit yesterday. The final cycle of recycling is letting the public know about all of the products made with recycled products and he asked if ERIC covers this.

Ms. Giustizia stated that the purpose of ERIC is to focus on the three "R's" of recycling. It will walk the visitor through a series of displays, some interactive. One display shows a raw product and what can be recycled from it. The unit itself will be made from as many recycled products as possible.

Mr. Kane added that some new vinyl architectural products are made from recycled products and they are a new generation of materials. We need to make sure that during the approval processes, the design review people know about these materials.

John Osgood added that the focus is clean reusable recyclables. He urged everyone not to bag recyclables which contributes to the contamination rates. Shredded paper should be in clear bags. We have been with Hudson Baylor for one year and staff is trying to drill down into the participation rates and develop the methodology to make sure it is consistent. The goal would be to put this on a GIS map to show the rates for each area. Also, tonnage might be decreasing because of a reduction in newspaper.

Ms. Giustizia added that people are starting to pay attention and use more reusable grocery bags and water bottles. That will cause a drop in tonnages, but it is a good thing. A pilot program is underway where ten solid waste vehicles have a product called Zonar, a GPS system to allow staff to improve routing, track fuel consumption, etc. In the future, staff would like to incorporate a mechanism on the arm so that every time that arm is activated, it can weigh the container before it goes into the vehicle. That would provide accurate tonnage and show accurate participation rates.

Vice Mayor Ellis asked about a future tour of the recycling plant.

Ms. Giustizia stated that Hudson Baylor is in the process of developing a room as an education area for the public. Because of liability issues, they are not able to take visitors through their recycling line, but there are tours of the plant in North Phoenix that has viewing bays to view the different processes. Staff would be able to set up other tours.

#### **Agenda Item 4 – South Water Treatment Plant "Green Campus" Concept**

David McNeil stated that the white paper is not yet available, but he will send it electronically at a later time.

- There are parallel challenges on the water and wastewater side of the utility that can be merged to create a win-win situation.
- This is an energy-intensive industry. Movement, collection and treatment of water and wastewater comprises 3% of the nation's energy consumption.
- The South plant uses 1.2 megawatt hours per month of power at a cost of \$1M per year. Utility-wide, the energy budget is close to \$5M.
- Upcoming regulations are requiring the consideration of technologies that increase the footprint. Staff steered away from very capital intensive technologies for the removal and disinfection of byproducts that resulted in a

large amount of waste product and opted for more sustainable water treatment processes. Those processes are more energy-intensive, however.

- On the wastewater side, the most challenging and costly problem is grease. It results in hundreds of thousands of dollars annually in operations and maintenance and increases biological oxygen demand in the wastewater and increases cost.
- Grease is emerging as a resource, however.
- The concept is to remove grease from restaurants before it enters the sewer system, convert it at the South Tempe plant to usable fuel and offset as much energy consumption as possible, at least as much as it will take to meet emerging regulations through additional treatment and possibly fuel the entire treatment plant.
- This would be a phased approach.
- Staff is partnering with ASU on bio-fuel conversion and has begun to make contacts with restaurants which might be willing to participate on a pilot scale. Stanley Nicpon (Uno's) has offered whatever resources are necessary.
- This will be a small scale plan to convert grease to bio-fuel at the site and use that finished product to fuel a small portable generator. The generator could also be moved to events as a "green" demo.
- The second phase would be a larger scale conversion of grease to be used either by a large generator to fuel part of the treatment process at the South Plant and/or conversion on-site into fuel that could be used potentially by some of the fleet.
- This has not been done with a systemic approach at an on-site industrial energy consuming facility, and this would generate fuel on site and burn it on site. This third phase would be done through a public/private partnership, privately funded.
- There is a possibility of applying for grant monies for the first phase and possibly the second phase.
- Staff hopes to have the pilot scale project operational by the end of this calendar year.

Ms. Collins asked how the grease would travel from the restaurants to the facility.

Mr. McNeil responded that currently restaurants are prohibited from dumping fryer grease and it is hauled away by grease haulers, historically to landfills.

Greg Piraino noted that they did a study of this about ten years ago. Grease is collected at various restaurants and is transported to large central tanks. Some of that goes to the dog food industry and some gets reprocessed and sold to Mexico for use as cooking fuel.

Mr. McNeil added that San Francisco has converted fleet vehicles. Most of their challenges have been with the public/private partnership. Grease collection might be out-pacing the conversion.

Mr. Piraino added that the grease business fluctuates with the dynamic of the commodity itself. There are companies that are collecting grease, turning it into bio-fuels and selling it. He would suggest not trying to compete with the private sector. This project is unique because the City would create the stream and use the end product. Essentially, the third party vendors would have a good situation because they have their client and their source. All they have to do is get efficient with their program.

Mr. McNeil stated that it is similar to a solar power purchase agreement whereby an investor pays for the infrastructure, they generate the power on your site, and then charge for the kilowatt hour. There is a large scale plant in Texas that processes vegetable oil by itself. There was a wastewater plant in California, as well, where they planned to collect grease from their restaurants, bringing it to the wastewater plant, and not converting it to bio-fuel, but using that grease to hyper-inject their wastewater process, a fuel for their wastewater process. It would create methane and the methane would be a source to power the wastewater plant.

Mr. Piraino suggested weighing those three options against each other. Burning waste oil is very doable. A straight diesel engine can be run on grease.

Mr. McNeil added that the methane process wouldn't work for the City since this might be the first water treatment plant. The California plant was a wastewater treatment plant so they have the gas-creating process.

Vice Mayor Ellis asked how the grease for the pilot project would be transported.

Mr. McNeil responded that City vehicles would pick it up in drums. In response to a question about using restaurants outside of Tempe, he stated that the preference would be to benefit the Tempe sewer system. The fuel is a valuable resource wherever it is, but in order to achieve the synergy, the focus would be to get grease out of the Tempe system. There are approximately 1000 restaurants that could feasibly power this.

Mr. Piraino added that this is an education issue. In San Francisco, they had containers on the curb along with their trash and recycling containers.

Mr. McNeil added that the City has an active outreach program for restaurants and has literature available.

Vice Mayor Ellis suggested that McNeil return to the committee when the white paper is finished.

Nancy Woods added that England has a program to use human waste as fuel, for example, for City buses.

Mr. Piraino added there are two local firms that are recycling manure and wastewater, and he would like to meet with Mr. McNeil regarding programs using manure. He could provide local contacts for more information.

#### **Agenda Item 5 – Future Agenda Items**

- Global Waters presentation - Jason Bethke
- South Tempe Water Treatment Plant Update – David McNeil
- City Building Flat Roof Demo Project
- Availability of Energy Grants for Arizona Municipalities for Energy Audits
- Alley Maintenance

#### **Agenda Item 6 – Future Meeting Dates**

The subcommittee will meet every other month, with the next meeting on June 12<sup>th</sup> at 8:00 a.m.

#### **Agenda Item 7 - Announcements**

None.

*Meeting adjourned at 9:05 a.m.*

Prepared by: Connie Krosschell

Reviewed by: Lisa Collins

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Jan Hort, City Clerk