



MURRAY CITY MUNICIPAL COUNCIL COMMITTEE OF THE WHOLE

The Murray City Municipal Council met as a Committee of the Whole on Tuesday, July 7th, 2015, in the Murray City Center, Conference Room #107, 5025 South State Street, Murray Utah.

Council Members in Attendance:

Blair Camp, Chair	Council Member, District #2
Diane Turner, Vice-Chair	Council Member, District #4
Dave Nicponski	Council Member, District #1
Brett Hales	Council Member, District #5
Jim Brass	Council Member, District #3

Others in Attendance:

Ted Eyre	Mayor	Janet Towers	Exec. Asst. to the Mayor
Janet M. Lopez	Council Administrator	Tim Tingey	ADS Director
Jennifer Kennedy	Recorder	Scott Bartlett	Murray Journal
Jan Wells	Chief Administrative Officer	Kellie Challburg	Council Office
Doug Hill	Public Service Director	Sherry Tenney	Resident
Russ Kakala	Public Services	Dwayne Woolley	Trans-Jordan
Tiffany Doncouse	Candidate District 1	Josh Doncouse	Resident
John Lin	University of Utah	Martin Buchert	University of Utah
Daniel Mendoza	University of Utah	Amanda Smith	University of Utah

Approval of Minutes- Budget & Finance Committee Meeting

Budget Chair Jim Brass asked for approval on the minutes from the Budget & Finance Committee Meeting held on May 14, 2015. He had one correction, and Chairman Camp had a correction. Mr. Hales moved approval of the minutes with the corrections. Ms. Turner seconded the motion. All were in favor. Mr. Brass adjourned the meeting.

Chairman Camp welcomed everyone in attendance to the Committee of the Whole. All council members were present.

Approval of Minutes-Committee of the Whole Meeting

Chairman Camp asked for approval on the minutes from the Committee of the Whole on May 5, 2015. He noted one correction. Mr. Brass moved approval with the correction. Mr. Hales seconded the motion. All were in favor.

Business Item #1

Hestia Project, Carbon Dioxide Emissions- Diane Turner, Daniel Mendoza, and John Lin

Ms. Turner stated that she was pleased to hear the information this evening. She said she was at the earlier presentation to the administrative staff and it was a wonderful presentation.

Amanda Smith introduced herself as a professor with the Department of Mechanical Engineering at the University of Utah. She specifically studies building energy consumption and emissions related to buildings.

Ms. Turner introduced Daniel Mendoza, a post-doctoral fellow with Atmospheric Sciences, and Inter-University Training for Continental-Scale Ecology at the University of Utah. She introduced John Lin, an associate professor at the University of Utah, also in the Department of Atmospheric Sciences, College of Mines & Earth Sciences.

Mr. Mendoza introduced Martin Buchert with the City of Metropolitan Planning Department at the University of Utah, and a senior research assistant with that associated lab. He is a former member of the Murray City Planning and Zoning Commission.

Mr. Mendoza described the Hestia project, which was originally developed at Arizona State University, led by Kevin Gurney. Hestia received its name from the Greek Goddess of the Hearth, which seemed appropriate for a sub-city scale project.

There is a large group at the University of Utah working on the project, collaborating with researchers at Arizona State University.

The main reason for the interest in pollutants is because they make people sick. There are many ways to ingest pollutants. Utah is very familiar with the inversion in winter, and the ozone days in summer, which are the pollutants most concerning in the valley. Inhalation of pollutants is the primary focus. Pollutants can be emitted from smoke stacks, vehicles, and other sources. Pollutants get transported through the atmosphere, and could be inhaled downwind as far as hundreds of miles.

The Salt Lake Valley population will double in the next twenty to thirty years, according to most estimates. The topography in the valley is conducive to pollutant accumulation, especially in the winter.

There are definite health risks associated with personal exposure.

The intermountain region has been understudied when compared to large cities and countries. It hasn't really hit the national radar yet because it is very complex to study the

meteorological aspects of the intermountain region. Atmospheric transfer is very difficult to evaluate with mountains and valleys.

There are multiple data streams at the University of Utah: modeled emissions/concentrations, stationary measurements, and mobile and satellite measurements. Remote sensing and satellite measurements are available now due to the orbiting Carr Observatory.

Mr. Mendoza showed a photo of an inversion in the Salt Lake Valley. An inversion occurs when cooler air traps the pollutants.

Hestia uses the GIS layer, which is a graphical information system layer, showing a resolution of the pollutants. The point sources would be the smoke stacks and large industrial facilities. The line sources would be roads and railways and the polygons represent buildings. There is also a gridded hourly product that shows the fine resolution. The emissions can be compared to the National Emissions Inventory, which is EPA (Environmental Protection Agency) approved.

Hestia is being used in all of Salt Lake County. He showed a map showing emissions for both residential and commercial buildings in the County.

Emissions are separated by fuel types. There are three main types of fuel: coal, natural gas, and petroleum. Coal is mostly for industrial use, petroleum is used for road and airport emissions, and natural gas is used for commercial/residential heating and utilities. The on-road sector emits approximately half of the carbon for the County. He showed a graph of the total emissions that showed roads, residential housing, the commercial sector, and the railroad.

Hestia has six measurement stations that measure CO₂ in the winter. They are: Kennecott, Hidden Peak (the clean air baseline), Sugarhouse, Murray, Rose Park, and the University of Utah. During the winter, Sugarhouse has a large proportion of emissions from the residential sector. During the evening hours, it peaks when the heating is turned on at their homes, and the commercial sector peaks during daytime work hours. Murray is really the opposite of a bedroom community. More people flow into the City and the commercial sector is larger than Sugarhouse. There is a similar pattern, with the peaks being traffic hours.

In the summer, the heating element takes a backseat to the on-road sector. The natural gas used for heating has decreased, but the on-road sector is still large.

He showed a chart of emissions from January 2012, showing commercial and residential patterns. The on-road emissions peak during commute times, and the residential emissions peak during evenings.

The on-road sector in Murray makes up roughly 75% of the carbon emissions, whereas in Salt Lake County, the on-road sector is less than half of the emissions. When cities are compared, the focus needs to be on what is really driving the economy. Murray's emissions mostly come from petroleum, due to the on-road sector. A large fraction also comes from natural gas, driven by electricity production.

In Murray, Intermountain Medical Center is a large producer of emissions, as well as some residential areas. There are about 30,000 roads in Murray that have emissions estimated. Some of the large industrial contributors include the power plants, the asphalt concrete batching plant, and Karman's Kitchens.

Hestia is going to look next at criteria air pollutants, including nitrogen oxide, which is a precursor to ozone. There are additional health concerns with lead, sulphur oxide, and carbon monoxide. Carbon monoxide and nitrogen oxide are mostly contributed by vehicles in the on-road sector.

The main message is that different pollutants have different spatial signatures.

Part of the project looks at socioeconomic attributes versus emissions. A map showed two very toxic pollutants, acetaldehyde and benzene, both associated with birth defects and spontaneous abortions. The large point sources of these pollutants are located in low income areas. The higher percentage of minorities are usually associated with areas of lower income, and higher pollutants and toxins. He noted that these maps simply show emission sources, and not necessarily where the pollutants end up.

Hestia has the longest urban running CO2 measurement network. The fastest growing areas of CO2 emissions are Kennecott and Murray. It doesn't necessarily mean that population is growing, but may mean higher traffic volume.

A mobile van was driven across the valley to measure pollutants. The higher CO2 measurements were in the downtown and University of Utah areas. Studies have shown that when CO2 reaches 1,000 parts per million, there are cognitive problems found in children, and 800-1,200 parts per million, children get a little sleepy, and above 1,600 parts per million, children perform worse on standardized tests.

The Mountain View Corridor that will be built connecting 1-80 south has shown some CO2 levels above 1,600 parts per million. That corridor will run adjacent to six schools and he believes will be a detriment to education.

Hestia is working with UTA (Utah Transit Authority) and evaluating the effect that public transportation has on CO2 emissions. They are comparing the data of public transportation versus single vehicles and the air quality effect.

Hestia is also working with the Wasatch Front Regional Council and looking at growth projections for the Wasatch Front. Based on the growth projections, estimates of air quality can be made. The objective is to meet reduction goals for emissions, particularly from the transportation sector.

Salt Lake City is working on a project called "Skyline" with the University team. They are looking at large commercial buildings, over 25,000 square feet, and trying to reduce emissions by 15%. Salt Lake City is trying such things, as improving insulation, installing LED lighting, etc.

Mr. Mendoza showed different growth scenarios from the Wasatch Front Regional Council.

Ms. Smith wanted to discuss where emissions are coming from in the environment, and specifically from buildings.

She pointed out that when emissions are attributed to a building, it is for one of two reasons: First, there could be something typically burning on-site, such as natural gas consumption. Secondly, emissions could be attributable to electricity that a building consumes.

She added that Murray is interesting because there is a municipal power plant and utility. In most urban areas, the electricity consumed within the city is not produced in the city. It is called *Site vs. Source*, when comparing energy used at the site, or energy used at a source after being transported. She noted that she would refer to electricity emissions as indirect and site emissions as direct emissions. She showed a slide of a medium office building as an example and most of the emissions were attributable to grid electricity. The site emissions were small, mostly for domestic hot water and perhaps a small kitchen. They added an automatic shade for the windows to reduce air conditioning needs and total emissions. The total CO2 emissions were reduced, but at the building site, the same amount of emissions were created.

Ms. Smith uses a software called *Energy Plus* to model buildings that can be custom designed. She also uses a software called QUIC-EnvSim, which is an environmental simulation tool. The software accounts for air flow and vegetation in an urban environment. Using these two software programs, it gives the ability to couple a detailed energy model.

Ms. Smith showed a Google image of Murray City, and the model they created of the different buildings. Wind patterns in the area were calculated, as it flowed through the community and transported pollutants.

Mr. Hales asked if this was a research project for Ms. Smith at the University. She said that was correct and she is attempting to make the buildings more interactive.

Ms. Turner commented that as a municipality, there were things they could do to help the community reduce emissions. She asked if Hestia could help with research and the determination of pollutants. Ms. Turner said she is specifically concerned with vehicle idling and the impact it has on the community.

Mr. Mendoza said that Hestia has modeled every single road and building individually. He mentioned the Skyline project in Salt Lake City as an example because they wanted to specifically target buildings over 25,000 square feet. It was very easy to point out individual buildings and look at characteristics. Building owners are volunteering such data as consumption, and it is especially helpful if they can get the data before and after improvements, such as LED lighting, green roofs, shaded windows, etc. He noted that very simple improvements can reduce emissions, and therefore reduce costs of electricity bills by thousands of dollars.

Mr. Mendoza said that incentives could be given to every single home to reduce their emissions, possibly a cash incentive, to improve the insulation or water heaters in their homes. He speculated that the results would be beneficial for local air quality and electricity consumption. He noted that Rocky Mountain Power has offered regulators that

turn off air conditioners for several minutes at a time during peak demand, and has given financial incentives.

Hestia is policy and health driven. It is great to look at the atmospheric quality, but the data needs to be used for health purposes.

Mr. Mendoza said he is working with a team at IMC. He has received intake data from the emergency rooms for the last five years, approximately 980,000 emergency room visits. His team is collocating where the patients were ten days prior to their admission. These were patients with chronic pulmonary disorders, and now after obtaining their address, possible exposures can be evaluated. He said they are trying to determine whether the cause is from a low level chronic particulate matter that occurs in the winter, or if it is a high event, such as a strong inversion or a high ozone day.

This could be one of the largest epidemiological studies done looking at urban pollution and the effect. He said Utah has the scientific advantage, but maybe not the health advantage to have both a winter and summer with pollutants that cause adverse health effects. Hestia will be the backbone of this study, he noted.

Mr. Nicponski asked Ms. Smith the single most important thing that a building owner could do to decrease the carbon footprint. Ms. Smith replied that it depends very much on the building. She said the best thing for a typical commercial building to reduce its carbon footprint is to reduce electricity consumption. She added that to get electricity from the power source to the wall outlet takes about three or four times the amount of energy that is received in kilowatt hours. Natural gas is only about 1.1 times the original source amount.

Ms. Turner asked if they could elaborate specifically on the impact of vehicle idling. Mr. Mendoza replied that idling definitely impacts the community. Vehicle idling is one of the worst polluters, in terms of on-road emissions. If a car is going anywhere from 0 to 2.5 miles per hour, the emissions are approximately 20 times worse than driving at regular speeds. He said many groups have looked at reducing idling in schools, hospitals, etc., and added that many cars have a feature that automatically shuts the car off when idling. Many pollutants are involved in idling, mostly carbon monoxide and nitrogen oxide. This issue is concerning to citizens and car manufacturers as well.

Ms. Turner noted that there are "hot spots" found at the schools. Mr. Mendoza said that was correct and many parents run their car while stopped, particularly in summer. He said health effects for pollutants are most marked in the first eight years of life, and elementary schools are typically one of the worst places for idling.

Mayor Eyre asked if Ms. Smith or others could give the City suggestions for new buildings to reduce emissions. Ms. Smith replied that she would love to help with that. She said they have the ability to select different options with the required codes. The actual number would not be exact but the relative effects could be determined. She said she would just like to follow up and get some operational data after construction to validate the predictions.

Chairman Camp thanked the group for their presentation.

Business Item #2

Solid Waste Collection. Recycling and Disposal- Doug Hill

Mr. Hill stated that the garbage contract with Ace Disposal expires at the end of this year. He would like to get a RFP (Request for proposals) out by the end of the summer, so a company could be chosen and begin by January 1, 2016.

He wanted to discuss some of the key components in the RFP. Mr. Hill invited Dwayne Woolley, the General Manger of TransJordan Landfill to attend the meeting. He said Mr. Woolley has some good perspectives on what happens after the garbage is picked up. Mr. Woolley would discuss some of the practices and challenges occurring at the landfill.

Mr. Hill said he also received a letter from WFWRD (Wasatch Front Waste & Recycling District), and would discuss that. He introduced Mr. Kakala, the person in charge of garbage collection in the City.

Mr. Hill said that for this RFP, he requested prices on every possible service. He would like input from the Council on any additional services that they would like to see in the RFP.

Currently, the residents receive waste collection of a a black can every week and a green recycling can every other week, which is called the *basic service*.

In addition, the RFP would request a price for weekly pick up on the green recycling cans. He said he isn't sure if there is enough demand for a weekly pickup. He occasionally gets requets for weekly service from residents. Residents can currently request an additional green can for an extra charge.

Mr. Kakala said additional green cans would need to be purchased by the City. Currently, there are 84 extra recycling cans, and 4,862 extra black cans. Mr. Hill noted that very few people have two green cans.

Mr. Hales commented that he and others visited the Rocky Mountain Recycling Center and they made the comment that if the green can only has a little bit in it, it shouldn't go out to the curb. Mr. Hill said the can will get picked up regardless and the charge is still the same. Ms. Lopez noted that the reason could be possible emissions by the trucks stopping and starting.

Mr. Hill said an additional request in the RFP would be pricing to add curbside yard waste collection, for example grass clippings and small branches. Mr. Hill said there would be a request for both a mandatory program and a voluntary program. Currently, WFWRD which picks up in the area of Murray east of 900 East, offers a voluntary program; only those residents that want yard waste collected actually pay for the service. Mr. Hales asked if there had been requests for yard waste collection. Mr. Hill replied there had been a few requests. He added that it would involve a separate additional can, so the City would need to make an upfront capital purchase for cans to implement the program.

Mr. Hill noted that the only real option currently is to put the yard waste in the black can. Mr. Brass said that yard waste collection is a targeted subscription in the WFWRD area, and it is a special vented can to help with the odor. He said that WFWRD is only about a

month into this service, and the charge is approximately \$80-\$90 signup fee, plus a monthly charge.

Mayor Eyre asked how a business is able to price a voluntary plan. Mr. Hill said the company would require a minimum number of subscribers. He said there would probably need to be several thousand interested residents to make it cost effective.

Mr. Hill said that currently yard refuse goes straight to the landfill. If there was a curbside yard collection, the idea would be to recycle the yard waste and keep it out of the landfill.

Mr. Hill stated that the roll-off container rental program would still be offered. It consists of a thirty yard dumpster that residents can reserve and pay for the rental. Everything except hazardous waste can be put in those containers. Mr. Kakala said that in June, twenty dumpsters were rented. Mr. Hill noted that other cities and WFWRD have a program that dumpsters are delivered once or twice throughout the year as part of the base fee. Instead of charging everyone for the service, Murray has made the dumpsters part of a rental program for interested residents only. He added that a request for pricing on a neighborhood cleanup would be made, as an additional fee service.

A price would be requested for the addition and collection of recycling cans in the parks, including the inspection of the containers and pick-up. Ms. Turner asked if there could be a separate request for recycling in Murray Park only. Mr. Hill replied that could be done.

He said they would request a glass collection and disposal program. Currently, there are two dumpsters in the City designated for glass recycling.

Murray residents are allowed to bring leaf bags and Christmas trees to several parks free of charge, and a price would be requested for that service also.

Mr. Hill asked Mr. Wooley to speak on how curbside green waste recycling would impact the landfill, and recycling in general.

Mr. Woolley complimented the Hestia presentation and remarked that there are a lot of things we can do to help the environment. He added that sometimes the solution is worse than the problem. Certain materials that save energy sometimes actually take more energy to build. He said it is important to look at the whole carbon footprint in society. He added that for many years, solar panels took more energy to build, than the solar panel could ever produce. He added that sometimes it takes doing something wrong to figure out how to do it right, and the manufacturing of solar panels has improved. He said initial testing is often better than mass producing. He added that people need to be willing to pay the extra costs to produce more efficiently and save energy.

He mentioned that 25 years ago, there was a huge demand to get the green waste out of the landfills because it caused methane gas. This was before landfills collected the methane gas, and now many states have lifted the bans against green waste in the landfills. There were seventeen states that banned green waste, but they are now reconsidering since the problem has been mostly solved, and are now making it optional.

In Murray, any green waste diverted from the landfill would limit the amount of methane produced and therefore reduce the amount of electricity produced, he noted. Chairman Camp asked if the life of the landfill would be extended without the green waste. Mr. Woolley said that was correct. He added that the landfill has a limited life because of the proximity of South Jordan neighborhoods. Fifteen years ago it was believed the houses would surround the landfill today, and that has not happened yet, but he believes it is coming. He said there would always be a need for a landfill.

West Jordan and WFWRD both offer a green waste program and bring it to the landfill. Currently, he has all the green waste he can sell. There isn't a market for additional compost. Ms. Turner asked if there was a market for mulched green waste. He replied that there was a market, but it was pretty saturated. He spoke with two private composting companies recently and they replied that they would probably have to truck the compost to California. He noted that the carbon footprint produced by trucking it to California exceeds burying it. There are a lot of variables that need to be considered, he noted.

Mr. Nicponski asked if anyone could buy the compost. Mr. Woolley replied that compost is sold to everyone. Trans-Jordan is the preferred seller of compost because the County has had some composting challenges. The County currently has an RFP (Request for proposal) out to privatize their composting operation to produce a better compost.

Mr. Woolley said he believes the market is saturated on green waste and it may need to be diverted from the City. He added that grinding it might take less space than compacting. At this time, he cannot guarantee that it would not end up in the landfill. Mr. Brass asked if grinding the waste would decrease the methane. Mr. Woolley replied that it would make the methane slower to produce. His recommendation is that cities do not offer green waste programs at this time.

He added that West Jordan gets free green waste disposal currently, but he has had to charge them \$6 a ton when it does not come in clean. Residents don't always do a good job separating waste from green waste, or waste from recycling. He has two employees that hand pick every green waste can and pull out such things as batteries and plastic. He said the free disposal of green waste may change if more cities start bringing it.

Mr. Nicponski commented that the decision maker for him is that the green waste in the landfill produces methane, and therefore electricity, and that would decrease. Mr. Woolley agreed that it would take away from the methane production. He noted that they are not able to capture all of the methane from the green waste, and some of the initial methane produced escapes. He said the composting doesn't produce the same volume of methane.

Mr. Brass said it hasn't been a problem for Central Valley to get permits for composting. Mr. Woolley said they have switched to an aerated static pile system, which sucks the air in and the pile is covered, in an attempt to control the odor. Mr. Woolley agreed the smells are a problem, especially with the encroaching homes, and that is one reason they stopped taking green waste from South Valley Sewer District. Now every citizen in the South Valley Sewer District has to pay more money to dispose of the sludge differently.

Mr. Woolley said he believes the dumpster programs are a great benefit to the residents. Mr. Kakala replied that that current charge for a dumpster is \$200 for residents. Mr. Woolley said one problem with the dumpsters is that people put everything in there, including refrigerators, and there is a \$10-\$20 charge to remove Freon from refrigerators. The City is responsible for those additional charges.

Mr. Woolley said that recycling costs money and often residents don't realize that. The national dilemma for recycling is that recycling companies are coming back to cities asking for surcharges so that they do not lose money. Some of the original contracts written state that the cities share the benefits and the sale of the commodity, but also share the risk. Mr. Kakala said the City contracts are not written that way.

The problem is that recycling costs the recycling companies \$65 a ton to separate and process. He said that new technology makes it easier and cleaner to separate, but still costs money. Mr. Woolley said there is still a lot of manual labor involved, and they are not able to pull out all the unrecyclable items. Mr. Woolley said the average return on recycling is 28% to 37% because of items that are not recyclable. He added that single stream recycling is used in the valley. It is the preferred way nationwide because it increases the amount that goes into the can, but added the contamination level is high. The volume of the product is higher, but has less quality. He noted that California had seven different garbage trucks picking up garbage. The product was premium because it was separated at the curb.

He said Rocky Mountain doesn't want to have to adjust their machinery to accept glass collection. Many people are asking for glass collection, but glass shards can contaminate an entire can of recycling. He said the current buzz is called a "dirty MRF", which means everything goes into one can and is separated at the station. The problem now is that there is wet garbage that contaminates it, but there is also more material to work with. He said the price of the commodity currently, is less than the price to separate it. He added that recycling companies today are not making money. Mr. Kakala noted that residents pay \$2.11 per recycling can.

Ms. Turner added that the more practice the residents get, the better they will become at recycling, with better education. Mr. Woolley agreed that it is getting better. Mr. Brass commented that the issue is the market. He said it costs a lot more to recycle than the companies are making, resulting in a stockpile.

Mr. Hill stated that he received a letter from WFWRD stating that their board asked Murray City to consider joining their district. He said that after discussion with the Mayor, the decision was made not to become part of their district, and sent a letter saying such. Ultimately, it is a legislative decision, and he wanted to make the Council aware of the situation. Mayor Eyre commented that it seemed fairer to open it up to an RFP, rather than just accept WFWRD's pricing.

Chairman Camp asked Mr. Hill when he would like feedback on the RFP. Mr. Hill replied by the end of July and he had noted some comments made in the meeting. He said if there is something that is definitely not wanted, he would like to remove it from the RFP so all the work isn't done on pricing, if there is no interest.

Mr. Hill said he would come back with a recommendation after he receives the responses.

Mr. Nakamura added that ultimately, ordinances would need to be passed.

Announcements

Ms. Lopez said that there were orange t-shirts provided for the Council from the Mayor's office for the upcoming City ice cream day on July 13th from 11:30-1:00. All council members are invited to participate and help scoop ice cream for the employees.

Chairman Camp adjourned the meeting.

Kellie Challburg
Council Office Administrator II