Climate Change, Energy, and Environment Commission (C2E2)

Summary of May 20, 2024

Hybrid meeting

Members Present: Cindy Lewin, chair; Joan McIntyre, vice chair; Mikaila Milton, David Evans, Doug Snoeyenbos, Rob Sandoli, Kevin Vincent, Mark Greenwood, Jonathan Morgenstein, Trevor Montano, Elizabeth Whitney

Members Virtual: Joe Trivette

Members Absent: Majdi Shomali, Eric Gibbs

Guests Present: Kate Beysselance, Sustainability Manager with Turner Construction

Guests Virtually: Demetra McBride (DES-OSEM), Liz Thurber (DES-OSEM), Eric Harold (Civic Federation), Conor Leitender (Resident), Sandy Chesrown (Spout Run Working Group and Waverly Hills Civic Association)

Staff Present: Jenna Peabody (DES-AIRE)

Public comment

William Edmisten emailed a comment which was shown to the group requesting that the County provide written guidance to building operators that will encourage operators to conserve energy and lower emissions. He noted that in Arlington there is a significant needless source of carbon pollution occurring at a 330- units boiler-heated complex due to misunderstanding of the Administrative Code 3VAC5-63-540. Section 602.2. The code language can easily be construed to absolutely require that heat be pumped into units until May 1 of each year, regardless of outdoor temperature (or interior temperatures). He understands that the Enforcement Division occasionally receives complaints about buildings that are too hot so this is probably not an isolated problem.

He asked if the commission could identify other building complexes that are generating this needless pollution and encourage a responsive use of heating systems to help Arlington meet its C02 reduction goals. Building operators and residents would welcome a chance to save money by not over-heating the units, but operators will need to have assurance that they are not running afoul of regulations. Perhaps some written guidance can be provided to building operators. The guidance might include language that states clearly that when the 68 degree interior temperature requirement is met there would be no need to further heat those units. Operators might also be encouraged to rely on weather forecasts so that they can plan heat usage based on appropriate data. Operators would be more likely to have a responsive plan if

this were provided to them as written guidance from an appropriate Arlington agency. He attached the code: === Administrative Code 3VAC5-63-540=== Section 602.2 Heat supply.

Kate Beysselance, Sustainability Manager with Turner Construction

Kate, the Sustainability Manager for Turner Construction in DC, Maryland, and Virginia, discusses her role and the company's commitment to sustainability. Turner Construction is a large international company with over 10,000 employees worldwide, undertaking $15 billion of construction per year across 1500 projects. Kate's role was created a few years ago to influence sustainability within the company. She has been tracking fuel, water, and electricity on all projects over $20 million in the Mid Atlantic region for the past two years using a proprietary in-house program. Turner Construction has been involved in green building since the 90s and has been the leading green building contractor in the US for over 15 years. They have worked on many LEED projects and other lesser-known building certifications.

The company has made commitments to reducing operational carbon, planning to be net zero for operations by 2030 and net zero up and down their supply chain by 2045. They are also looking at resilience, working with clients to plan for more resilient buildings, and starting to look at biodiversity and habitat protection.Kate emphasizes the importance of early contractor involvement and the value of having a sustainability brainstorming session as early as possible to get key players at the table. She also mentions that the company's influence varies based on the type of contract, with greater influence possible with early involvement or design-build projects.

In terms of waste management, Turner Construction has been diverting waste more and more every year. In the metro area, this is relatively easy due to the lack of construction and demolition landfills, but it becomes more challenging in areas like Virginia where landfills still exist. Overall, Turner Construction is making significant strides in sustainability, both in their operations and in the services they offer to clients. They are also training all their staff to understand the metrics they are using and start showing improvements on every project.

Kate discussed the importance of early involvement of all stakeholders in a construction project, including contractors, developers, and governments, to align on sustainability goals. They emphasized that Turner Construction tracks fuel, water, and electricity usage on all projects, regardless of what the project documents specify. Kate mentioned that Turner Construction is owned by a German company, which influences their sustainability practices. They also noted that their California projects are ahead in terms of sustainability, and they expect this trend to spread across the country. Kate highlighted the challenges of implementing sustainable practices, such as the high upfront cost of using hybrid generators instead of diesel generators. However, they argued that these practices can lead to significant carbon and cost savings in the long run.

Kate also discussed the importance of educating clients about sustainability and the need to reduce carbon emissions during the construction process. They mentioned that while some jurisdictions have strong sustainability requirements, others lack knowledge about what

reducing carbon emissions entails. Finally, Kate mentioned that Turner Construction has made a commitment to engage with all clients on sustainability points, and they are working on educating their teams about these issues. They expressed optimism about the future of sustainability in construction, noting that it is the right thing to do for the planet and future generations.

Kate had been educating young engineers in the region about sustainability. A mandate from headquarters required everyone to learn about sustainability. Starting in 2024, all new clients had to go through bullet points of sustainability priorities. Kate believed that getting everyone at the table and discussing sustainability could help overcome financial implications. Kate also discussed the importance of biodiversity and how focusing on it could bring along other sustainability aspects. They mentioned that many people in cities lacked enough contact with nature, and anything that could get people engaging with nature could emphasize the importance of sustainability. Kate mentioned that they offered resilience planning services. Clients who were unsure about the best location for their building could have a resilience analysis done on different locations, which could influence their decision.

Kate also discussed the possibility of developing a new business line where they could consult with developers before construction. They mentioned that they tried to get paid for everything, but there were some things they would do anyway, like tracking fuel, water, and electricity, and diverting at least 80% of waste away from landfills. Kate mentioned that they hadn't personally seen how financing or the cost of capital played into decisions about sustainability, but it did come up in conversations. They knew that there were people in their business unit who were aware of what monies were available through legislation and incentive programs. They also mentioned that the greenhouse gas reduction fund could lower the overall cost of capital for certain types of projects. Finally, Kate mentioned that they were holding the capital improvement plan to the next month to have more time on all of their items. They took a moment to look through their notes to see if there was anything else they wanted to discuss. They were ready to answer new questions.

Kate was looking through their notes when Demetra commented on the details of an average program they were planning to implement. Jenna had been discussing with Paul, their green building incentive program manager, about a six-month education workshop to engage with stakeholders and discuss cost barriers. They were planning to implement this in the near future. Kate had looked at the online information about Arlington County's incentives and found them to be heavily focused on energy optimization and commitment to LEED 4.1 Gold. Kate was pleased with the priority credits and the density incentive but noted that LEED didn't address the current issues with embodied carbon and operational carbon. Kate suggested that the County could talk to developers and contractors about these issues and possibly put incentives in place. Kate confirmed that they were doing embodied carbon accounting as a business standard. They had been doing upfront assessments for the past couple of years to establish a baseline and learn where they could have the greatest impact. In the current year, every business unit was required to do embodied carbon accounting for concrete, steel, asphalt, wood, and glass on at least two projects.

Kate discussed the concept of low carbon concrete and how it was gaining market penetration. They explained that the concrete industry was pushing the envelope by finding new supplementary materials and ways to make concrete. Kate also mentioned the importance of not overdesigning buildings and designing smarter. Kate confirmed that they were working on renovation and restoration projects, including a major renovation of the AIA headquarters in DC. This project was probably the first net-zero major renovation in the country. Kate emphasized that the lowest carbon building was the one you didn't build, highlighting the importance of reusing and repurposing existing buildings. Finally, Kate mentioned that they were trying to get paid for everything they did, but there were some things they would do anyway. They offered a variety of services, including resilience planning and embodied carbon accounting. They encouraged owners to ask for information about the global warming potential of their mixes and the cost of reducing it by different percentages. This would allow them to get the best offer from competing concrete suppliers. Kate was ready to answer more questions.

Mark asked about the easiest and the hardest thing to raise when talking to the client.

Doug Snoeyenboes asked if low carbon is getting any penetration or adoption.

Joan mentioned the buildings in Arlington only commit to the minimum for energy efficiency.

Demetra asked about the differentiations between the developers who come to Kate with the designs and what were the value propositions that would be persuasive for the ones who do not?

Rob asked about the costs.

Trevor asked about the financial benefits.

Kate had been on a panel at Greenbelt the previous year. She believed she could get permission to share the information from that panel. Demetra McBride mentioned that their Green Building Incentive Program (GBIP) was less of an update and more of a complete overhaul. For the first time, they had added existing buildings and adaptive reviews to it. Kate thought it was great and appreciated that the information was shared in a chat instead of a presentation. She found it very helpful. Demetra McBride thanked Kate for her time and expressed hope that the conversation could continue.

Risk Assessment and Management Plan (RAMP) Presentation

The discussion was about the Risk Assessment and Management Project (RAMP). Demetra McBride, who led the discussion, shared her screen to present a PowerPoint. She warned that the presentation might be dense and allusive at times, as the RAMP was a four-year, highly technical exercise. She invited participants to ask clarifying questions and mentioned that Liz Thurber, the lead engineer on the stormwater program, was also present. Demetra announced that the RAMP had been completed after four years and that briefings with the county manager and the board were upcoming. She explained that the project was a technical manual executed administratively, not something the board would adopt or accept.

She discussed the cycles of intense flooding in 2017, 2018, and 2019, and the likelihood of such cycles recurring due to climate change. She showed photographs of the damage caused by these floods, including water rescues, property damage, and destruction of civic infrastructure. Demetra also addressed the cascading impacts of these floods, including environmental risks, economic disruption, impacts on insurance and bonding, and potential population displacement. She emphasized the need for jurisdictions to not just plan, but execute risk mitigation and planning strategies. She concluded by explaining the need to pivot from a conventional approach to stormwater, particularly flood mitigation, to a full resiliency portfolio and set of strategies. This involved mapping out new requirements and strategies, identifying vulnerabilities, conducting risk analyses, and building adaptation strategies. She noted that the risk analyses calculated the cost of action versus inaction up to the year 2100. She mentioned a general split between projects and strategies in the RAMP.

Demetra discussed capital projects that amplify the system's capacity and storage, such as the detention vault at the Cardinal school. She mentioned the addition of programmatic strategies to the scope of the RAMP. She criticized Atlas 14, a tool developed by NOAA and widely used nationally, for being outdated and based only on historical data and present trends, without taking into account future climate projections. Demetra explained that the RAMP extended beyond Atlas 14 to include climate projections for 2040, 2070, and 2100. She mentioned the use of an RCP of 8.5, which assumed less progress in emissions reductions. She discussed the risks of inland flooding, sea level rise, and storm surge, particularly at the bottom of Four Mile Run. She also mentioned the addition of present and future 2D flood mapping within key watersheds identified as flood vulnerable.

She highlighted the watersheds most intensively analyzed in the RAMP and explained that additional watersheds were included in the full analysis after climate projections showed inundation maps and vulnerability in the southern part of the county. Demetra discussed the potential for more intense hurricanes due to climate change and the risk of these storms dumping enormous amounts of water in watersheds while pushing large amounts of water upstream, leading to flooding. She provided an overview of the final document suite of the RAMP, which included an executive summary, a full report, and an appendices report with over 600 pages covering all the technical memoranda. She mentioned the core RAMP elements, which started with updated climate projections, inundation maps, and updated IDF curves. She emphasized the importance of updating the IDF curves based on these inundation maps to determine changes needed in the design model for capital projects.

Demetra also discussed the vulnerability assessments focusing on critical civic and civil assets, environmental impacts, and social vulnerability. She explained the risk assessments and the four main direct impacts calculated into the loss projection: total loss or replacement of an asset, lost revenue, increased costs of O&M, and loss of economic activity. She mentioned the cost-benefit analysis done for capital projects and the market impacts and analysis. She concluded by stating that the RAMP covered a wide range to mitigate and manage flooding in Arlington County. Demetra was glad that Liz Thurber was present to explain the total area flooded by watershed. Liz Thurber explained that they calculated inundation areas and used

these to rank priority locations for analysis. Demetra then showed an example of an inundation map for Spout Run, explaining that the linear inundation corridors followed the paths of original streams that had been piped and built over during development. She showed how the flooding area would expand and deepen in intensity by 2070 in a 500-year storm.

Demetra discussed the updated IDF curve projections, which would be used to develop new storm design standards for both private and public sector capital programs. She explained that they chose an RCP of 8.5 for their climate projections, which assumed less progress in emissions reductions. Demetra mentioned the main critical facilities identified using future inundation maps and working with all departments across the county. She discussed the critical facilities cost-benefit analysis, noting that most mitigation measures recouped their costs and benefits. Demetra explained the importance of risk assessments, noting that the projected loss for Roaches Run in a 100-year storm in 2070 was over $800 million. She discussed the cost-benefit analysis of recommended projects, including the Cardinal School vault and the Ballston Wetlands Park. She explained that the Ballston Wetlands Park could mitigate 25 to 30% of overtopping from Lubber Run in an intense storm. She concluded by discussing the capacity and co-siting of projects under the RAMP.

Demetra quickly showed more inundation maps, illustrating the projected improvements with the recommended conveyance and storage projects. She explained that these projects would reduce the flooded area in a 10-year storm. She also mentioned that these recommendations were based on engineering surveys and studies conducted before the project. She highlighted the individual recommended conveyance projects and possible recommended storage concepts. She also mentioned the programmatic and policy recommendations, including the voluntary property acquisition approved by the board three years ago, and the improvement and expansion of real-time rainfall and stream gauges. Demetra discussed the internal and public engagement, mentioning the working group that was internally formed and the major organizations they worked with, primarily the Civic Federation. She mentioned that the RAMP has informed actions, provided necessary data, and influenced capital development and focus.

She mentioned that the RAMP project would continue to generate projects, programs, and policies, and would also spin off other main design studies, such as the flood resilient design and construction guidelines manual. She explained that flood resilient design and construction standards typically adopt many of the core recommendations or mandates of the FEMA floodplains. Demetra mentioned the Energy Assurance Plan, completed in February 2022, and future plans to look at urban heat islands and urban metabolism and heat management. She concluded by inviting any questions and offering to answer any questions that may come up in the future. Jenna thanked Demetra for her presentation and asked about assessing social vulnerability. Demetra explained that social vulnerability often involves older buildings in disadvantaged communities, which were built before effective building codes and stormwater codes. She mentioned the heightened vulnerability of these buildings to flooding and the greater possibility of displacement as a result.

Demetra explained that social vulnerability often involves older buildings in disadvantaged communities, which were built before effective building codes and stormwater codes. She mentioned the heightened vulnerability of these buildings to flooding and the greater possibility of displacement as a result. In response to C2E2 member Joan's question about conveyance and storage, Liz Thurber explained that conveyance mostly involves larger culverts and pipes, and helps determine overland flow paths. Storage, which can be above or below ground, provides sufficient capacity to allow water to move through the system. She mentioned that they did not combine storage and conveyance, but this would be considered as part of the feasibility of specific projects. Demetra added that they would also be looking at opportunities in redevelopment to maximize storage and develop wider setbacks and more green infrastructure. Liz Thurber emphasized that specific projects still need to have a feasibility study, and that finding feasible solutions and getting all the components in place to implement them is one of the challenges they are still working through.

In response to Rob's question about risk-informed budgeting and project development, Demetra confirmed that the planning and analysis has helped identify capital improvement projects, increase the budget, and prioritize projects. She mentioned that every two years there is a review of the Capital Improvement Plan (CIP), and that the fluid and flexible nature of this process allows for the consideration of new vulnerabilities and opportunities. She noted that the stormwater program, now a stormwater utility, is an enterprise fund that pays for itself, which does not add to the debt service or affect the county's bond rating. Demetra mentioned that the fourth year of the project was on track, but there might be some modifications inserted into the Capital Improvement Plan (CIP). She explained that when there's a guaranteed fund from fees or a tax coming in, it's different from a capital program that has to be funded out of the general fund.

David asked about the degree to which environmental capital is taken into consideration when looking at various kinds of remediation plans. Demetra explained that when talking about runoff and water quality, green infrastructure factors heavily into achieving those goals and objectives. However, when talking about flooding, particularly in flood-vulnerable areas, green infrastructure has a role, but it's not going to mitigate that flooding. Liz Thurber added that they specifically addressed environmental resources like Resource Protection Areas (RPAs) and streams as receptors for the flooding they analyzed. Demetra agreed, mentioning the impact on natural resources.

Cindy thanked Demetra and everyone who worked on the project for their presentation. She asked about getting a copy of the full study. Demetra mentioned that they had been working on a website for the project, which would be completed by the end of the week. When they launch the website, they will also attach the executive summary, the full report, and the appendices with all the technical memoranda. Joan asked about the CIP, and Demetra explained that the CIP had been a moving target, with new scenarios being run every 24 hours. She mentioned that they were waiting to get an actual timeline when they could start sharing the CIP. Demetra mentioned that she would be on vacation the following week, but there would be people available to distribute or give a link to the proposed CIP as soon as it's available.

Joan suggested going back and looking at the letter they wrote two years ago when the project first came up. She mentioned that transparency was probably the top issue, along with not knowing enough detail on the projects to understand how they advanced the Community Energy Plan (CEP) and other climate agendas. She also mentioned the opportunity to think more about embodied carbon, as many of the expenditures, like road construction, use a lot of concrete. Demetra mentioned that if Joan was looking at the CIP, the sidewalk program was subject to the utilities CIP. Liz Thurber clarified that the sidewalk program was part of paving and streets, not stormwater. Demetra mentioned that she always hears Mike Collins speaking to the sidewalk program, and that's utilities. Liz Thurber clarified that utilities were just water and sanitary, but Demetra insisted on focusing on where the high intensive use of concrete is.

FY 2025-2034 Capital Improvement Plan (CIP)

The discussion revolved around the focus on the Capital Improvement Plan (CIP). The group acknowledged the importance of resilience and considered a divide-and-conquer approach to tackle different subject areas. They proposed that subject matter experts within the group could review relevant parts of the CIP and offer their thoughts. They also discussed the process of reviewing meeting minutes. Instead of going through them during meetings, they decided to handle any changes online and approve them in the next meeting. In terms of updates and discussions, there were several topics, including testimony on solid waste, updates from the Energy Committee, and the issue of virtual meetings. They also discussed the idea of deploying subject matter experts within the group to review specific areas, such as green building and stormwater management.

Demetra McBride mentioned that she would be out the next week and suggested that any questions from C2E2 should be collected and directed to the appropriate divisions and bureaus inside DES. The group also discussed the use of email for communication. They agreed that it was okay to send questions to staff via email, but they should avoid having email discussions among the committee due to state meeting laws. They also discussed the potential for email discussions to be discoverable if they related to committee business. They agreed to use Google Docs to consolidate and track changes, making it easier to manage their communications. They planned to continue this discussion in future meetings.

Review April Summary

Will do this in June.

Updates and Discussion

The Energy Committee was considering drafting a letter to urge APS to increase the extent to which climate change is taught in their curriculum. A presentation was given by one of the Energy Committee members, Malinowski, who is a school coordinator. He went through each grade level, showing what was taught and what wasn't. The committee was surprised by how little climate change was included in the curriculum. The commission also discussed the possibility of having more virtual meetings. They now have the option to meet virtually more often, but they can't do two virtual meetings in a row. The idea of having virtual meetings during

the winter months was proposed, but some members expressed a preference for in-person meetings, citing better engagement and productivity. There were concerns about the rules for virtual meetings, including the requirement to have the camera on at all times.

The commission also discussed the issue of quorum for in-person and virtual meetings. If someone can't attend due to a disability or because they're a caretaker for someone with a disability or medical issue, they can count towards the quorum. The commission considered using virtual meetings when there might not be a quorum or business to vote on. The commission currently meets 11 times a year, excluding August, and has three virtual meetings. They were considering adding one more virtual meeting in the winter months. The current schedule for virtual meetings is February, July, and November.

Demetra McBride announced that they have received final authorization from the Department of Energy (DOE) to launch their E-bike rebate program, which they plan to take to the board in June. They are also awaiting final approval and all formal documentation from the Environmental Protection Agency (EPA) for their G2G grant. The meeting concluded with thanks from all participants.

Next meeting: June 24 (Hybrid)