

**CITY OF DENTON SUSTAINABILITY  
FRAMEWORK ADVISORY COMMITTEE MINUTES  
July 28, 2023**

After determining that a quorum was present, the Sustainability Framework Advisory Committee of the City of Denton, Texas convened in a Regular Meeting on Friday, July 28, 2023, at 1:00 p.m. in the City Council Work Session Room at 215 E. McKinney St, Denton, Texas.

PRESENT: Chair Keely Briggs, and Members Brand Richter, Ed Soph, and Adam Briggie

LEGAL REPRESENTATION: Marcella Lunn

ABSENT: Wendell Stevens

**REGULAR MEETING**

**1. ITEMS FOR INDIVIDUAL CONSIDERATION**

**A. SFAC23- 026** Consider approval of the May 26, 2023 minutes.

Member Richter moved to approve the minutes. Briggie seconded. Motion carried.

AYES (4): Chair Briggs, and Members Richter, Soph, and Briggie

NAYS (0): None

At this time in the meeting, Chair Briggs called Item D.

Following Item D, Chair Briggs directed the meeting to Item B.

**D. SFAC23-031** Receive an update from the City Secretary regarding Sustainability Framework Advisory Committee membership, terms, and appointment process.

The item was presented by Eric Chasco and discussion followed.

Following discussion, Eric discussed appointment vetting and membership terms. Three terms end on Aug 31st, Ed Soph, Brand Richter, and Keely Briggs. If you would like to be considered for reappointment, we ask that you just complete the online form on the webpage and contact your nominating Council Member. For Ed it would be Mayor Pro Tem Beck, for Brand Richter it's Brandon Chase McGee, and for Keely Briggs it's Chris Watts. They will then email the City Secretary's Office and we put you in for vetting again. We just check your residency again and it takes less than 2-3 days. It can take up to a week for the re-vetting. An email was sent out on June 9, 2023, going over the term expirations. Just go to the webpage and reapply.

Soph – Where on the website would I go to do what I need to do?

*Chasco said to search Boards and Commissions.*

Briggle - If we are not listed, does that mean our term expires a year from now?

*Chasco said yes. It will have present terms expiration dates listed on there.*

Briggs - Are there empty seats that need to be nominated as well?

*Eric said yes. There are two that need to be nominated. We sent out emails last week to Council that they have vacant spots. I think they are in the process of vetting those spots.*

**B. SFAC23-029** Receive a report, hold a discussion, and give staff direction regarding Climate Action and Adaptation Plan emissions reductions and community priorities.

The item was presented via Zoom by Maurya Braun from SSG.

We will be looking at Denton's likely Greenhouse gas emissions trajectories in three different scenarios: On this graph, the top blue line is from 2019-2050 representing Denton's emissions in the Business as Planned (BAP) scenario. That reflects the expected growth of the community with the population doubling in this time frame. It also includes expected trends, for example what the NCTCOG is forecasting EV uptake will be over the next 27 years. It also reflects the climate changes we are expecting in Denton. More heat waves, overall higher average annual temperature, and the need for air conditioning and so on. It includes work already planned and approved by your City Administration. Such as installing the anaerobic digester at your Water Reclamation Plant. All these expectations put together is on that line. Emissions are projected to increase by 31% by 2050 relative to 2019.

The purple line at the bottom, in 2030 your goal is to have eliminated 46.3% of your emissions. If you were to reach that goal, you would need to emit no more than 704,000 tons of greenhouse gasses. From there emission would continue to trend downward until they reach 0 in 2050.

Green line represents Denton's trajectory if all the climate actions that we modeled for you are completed over time. We modeled more apartments, taking fewer trips in vehicles, more biking and walking, faster uptake of EV's and more renewable energy sources.

Low carbon pathway is a dramatic 87% reduction in 2050. Modeling did not include policies, incentives, and programs that are used to make these changes happen. This is a representation of what Denton's emissions would be if this set of actions are completed.

The graph was further explained, and questions followed.

Briggle – Can you explain what non-energy is on this graph?

*Braun - Emissions from waste sources, such as emissions from Wastewater, sludge, and the Landfill.*

Richter - Could you give us the values of low carbon reduction and the target reduction on the 2050 marker?

*Braun believes 170,000 but will come back to this.*

Soph – Is “RNG” Renewable Natural Gas?

*Braun said yes.*

Soph - How is it different from natural, natural gas?

*Braun- Natural, natural gas is fossil fuel based natural gas. RNG is produced transforming waste often organic waste, and Wastewater sludge into gas by purifying it. RNG is considered emissions neutral. Using it does not contribute to your inventory.*

Braun went on to discuss financial components that were included in the analysis. The numbers shown are cost and savings for the whole community. Some costs will be borne by businesses, others by the city, similarly savings will be realized by homeowners, by the city and by businesses. It is a combination of all those participants for which we are showing the values today. Values calculated included at a high level of Capital cost being the upfront purchase cost of new materials and equipment and so on. Operations and Maintenance costs, such as regular vehicle maintenance. And finally, Energy and Fuel cost. Each of these types of cost include: buildings, equipment, vehicles, energy production (i.e. solar, wind production), land use, and infrastructure.

To reduce Denton’s emissions by 87% by 2050, it would require a total investment of \$3.25 billion over the period of 2023-2050, an average of \$120.3 million annually. It would return a \$7.25 billion in savings or revenue \$268.5 million annually. Overall, a net savings of \$4.003 billion and from an investment standpoint, 8.3% ROI annually or \$2.23 for every dollar invested and save \$3,280 for every metric ton CO<sub>2</sub>e eliminated.

Briggle – Can you explain to us how this plan would generate an overall savings of just over 4 billion dollars by 2050?

*Braun - Details of actions in following slides.*

Braun went on to discuss renewable energy. Modelled action included by 2048, Denton would have 149 MW of rooftop solar, by 2050, 68 MW of generating capability from local renewable sources with control. Divert organic waste into wastewater processing to produce RNG, and wind power processed to produce green hydrogen. Savings of 4.6 megatons of emissions between now and 2050. And a 17.8% total in reductions.

Soph – The City currently bases a lot of renewable energy capabilities on purchase of RECs, are they included in what is presented here?

*Braun said yes. All of that is still in place in this plan they were already in place, so they are modeled throughout plan.*

Soph – How would that effect discussions for more community solar, there's frequently a reply that we are already all renewable because of recs and that could be used, I assume, as an excuse to not do for not actually installing community solar. How does that work that we still have recs but go beyond that?

*Braun said having solar locally and on your own home improves your resilience. It's possible to have battery storage connected to a solar system, a definite benefit in a situation when the climate is warming. We want to produce electricity locally as much as possible, so you aren't in need of offsetting fossil fuels you're using. As the DEC ages, you will want to look at other alternatives and options locally installed, the easier that transition will be. Looking ahead and planning for 2050. Local solar is a positive option and energy savings could make home ownership more affordable?*

Soph - Do you think it's vital or a really good idea that the City continues to incentivize residential solar installations? That's currently what was done in our GreenSense program, but they have removed the solar incentives, as far as I know, at this point. Would it be better to continue incentives such as that.

*Braun - I would let the City respond to that because they'll have more specific knowledge on the factors that go into in that decision, but as much as a city can incentivize, all of these actions is positive. But as you can see, even from the cost relative to the amount of greenhouse emissions savings, some actions are more effective than others. Our own modeling confirmed that for example, retrofitting buildings to make them more energy efficient has a greater impact on emission reductions than installing solar. There is an argument for the idea that, this is a more effective effort in a time of limited funding to spend dollars.*

Richter – It would be helpful to dig into more details on the solar question when we hit that agenda item. I wanted a little more on the renewable natural gas since that's a really high volume of emissions that we're looking at reducing. Curious, the cost, could you high level the sources that the city emits from renewable natural gases that, that reduction target is coming from? And two, you shared most of this is somewhat industry related, curious, what types of strategies the city could push that sort of reduction if that is an industry concern for where that emission source is coming from?

*Braun – I can answer your first question now. The sources of natural gas that we targeted overall in the plan are all types of buildings, so any heating system, a natural gas furnace, would be one of our main targets. We did however, in the case of most buildings, replace those in our modeling with heat pumps so either ground or air source heat exchange systems. The RNG is not replacing that use of natural gas, that's already being done with heat pumps. The area where natural gas has unique qualities and can't really be replaced by heat pumps is in industry. Everything from*

*vehicle manufacturer, steel manufacturer. Any sort of heavy-duty manufacturing generally uses renewable natural gas for a clean alternative in future cases.*

Braun went on to discuss Challenges.

There are state restrictions on regulating renewable energy. It makes it more difficult for a community set up regulations about the types of heating and cooling systems that are used in buildings. Question if we electrify everything will we be able to provide enough electricity? Furnaces are generally 96% efficient, while heat pumps are 300-400% efficient. ICE vehicles are 12-30% efficient and EV's are 77+% efficient. Those two changes alone are cutting down on electricity that you will use.

Slide 13 - Electricity Share 2019, 2050 BAP, 2050 Low Carbon

Briggle – EV's- I understand there is 77+ efficient, when you consider the electricity already being there and translating that electricity into forward momentum of a car? Isn't it still going to be the case that you have a lot of the efficiency losses across the transmission and distribution lines to get the electricity to the vehicle?

*Braun – That's a very strong argument in favor of localizing as much of that electricity as possible. The shorter the transmission distance, the less you lose. It is included in our calculations. The loss is due to transmission and distribution are not sufficient to affect those final slides that I showed.*

Braun discussed opportunities for renewable energy and approaches for energy. Three approaches - Require/Mandate, Incentive, Encourage. Most communities we recommend switching to net zero systems for homes be mandated for building code. Exploring different ways to reach that standard but that will be looked at through legal review.

Richter - Renewable natural gas for industry and ways that as a Municipality like the City could push for that sort of adoption.

*Braun said she will get back to Richter on his question.*

Richter - Creative fuel agnostic energy intensity standards; we have discussed in the past the stipulation by the state when Carol was here; SSG has worked with other cities within Texas, correct?

*Braun said not within Texas, but within other states.*

Richter - Curious, have you seen our situation played out in a way that other cities created approaches since we can't mandate the type of energy used in a building, if you've seen that play out in other cities where that has worked, is there a model, or is this going to be creative on the city side to push for that sort of reduction on the buildings?

*Braun - Creativity is going to be really important and will depend on local specifics. Fossil Fuels are not able to be as efficient so there are other ways to encourage shift.*

Braun went on to discuss Buildings.

By 2025, start retrofitting 5% of all the buildings in the city gradually over time, making them more energy efficient. By 2028, all new construction will be net zero energy ready. These two actions eliminate 2.8 megatons of emissions, which is 10.8 % of the total emissions that we eliminated. Once buildings have made more efficient, two additional changes were modeled, in 2024 new warehouses use waste heat and industry reduces energy use by 30%. Beginning in 2025, new and existing buildings switch to heat pumps; 25% by 2030; 50% by 2035; and 75% by 2040. Those changes together would eliminate 2.2 megatons and 8.6% in total reductions.

Richter - Curious, on this issue, can you vocalize some of the equity challenges on incentivization and requiring as far as housing affordability goes?

*Braun - Lots of approaches. Multi-use residential buildings are a great opportunity for the City to step in for funding. Government funding, coordinate funding and to assist communities in accessing funding, programs may not be easy for people who need it most. City can facilitate funding and coordinate without an unreasonable impact to someone not used to handling that type of coordination. Using city zoning for small homes, require essential services and food are available in all neighborhoods in the city. Simplifying application to make it as simple as possible for people to apply for funding.*

Soph - How many substandard homes in Denton could take advantage of incentivization program for making their homes for energy efficient?

*Barnett - I don't have numbers right now, we can check with Community Development.*

Briggs - Affordability- In other cities that you've worked on, have you come across builders or anyone in new construction that say those requirements are too restrictive, to keep the project affordable? If so, is incentivizing or zoning the only way we deal with that or do they eventually come around?

*Braun - It's a common problem. Use all tools described. Education is a big part of it. Getting people involved and understanding why it's being done. Working with building industry why this work is being done. You will always have some that will push back.*

Braun discussed Transportation.

By 2030, 8% work from home and 12% of trips are biked or walked. By 2050, 20% of trips are biked or walked and establish 3 car free zones. By 2030, 60% of City fleet produces zero emissions. And by 2050, 100% of City fleet produces zero emissions. These actions together eliminate 429,500 tons and a total of 2% emissions eliminated.

Decarbonizing vehicles potential – By 2030, 60% of new vehicles registered in Denton are zero emissions. By 2050, 100% of new vehicles registered in Denton are zero emissions.

Transit is fully electric by 2030, train is electric by 2035. These actions together eliminated 14.9 megatons, which is 57.5% total eliminated.

Roadblocks to 2030 target were presented.

Challenges and Opportunities for Transportation were presented

Richter – Effectiveness of active transit, curious, selling point for the mode shift, how the model returned a 1% emissions reduction for the mode shift category but a 49% reduction on the conversion to EV's? Mode shift response – emissions reduction and targets to hit.

*Braun - Reality is that for active transit there is about 2 miles maximum you can expect for walking and 7 miles maximum for biking. So, it's the short trips that are shifted to active. There are more benefits that could be captured for active transportation and more incentivization ideas.*

Briggs - Is I35 included in any of this data? Are we talking about 18 wheelers traveling throughout the city or just small, local streets?

*Braun- It is included. Freight, I can get you exact classes I don't know off hand. Any vehicle used for transport of goods.*

Water, Solid Waste, and Wastewater

Land use is in with buildings

By 2040, decrease waste generated per capita by 40%. Increase waste diversion rate to 50% by 2030.

By 2023 reduce potable water lost due to leaks by 10% and reduce gallons of water used per capita by 30%, in part by reducing irrigation by 50%.

Soph - Decrease in water consumption - In terms of new developments requiring or incentivizing Xeriscaping and permeable sidewalks and driveways, would those be viable options as well?

*Braun said yes, those are excellent ideas. Both increase resilience to more significant storm events, which are expected in the future. It improves our drainage and reduces the likelihood of flooding and pooling in neighborhoods. Its positive in all ways.*

Richter - Can we get a copy of this presentation?

*Barnett said yes, we will email out.*

Briggs - Local solar, was battery storage included in investment cost?

*Braun said yes.*

**C. SFAC23- 028** Receive a report and hold a discussion regarding the City of Denton's tree canopy goals.

The item was presented by Haywood Morgan, Urban Forester.

Morgan went on to discuss what exactly an Urban Forest and Tree Canopy is. A couple years ago, the City subscribed to a software that allows us to consistently monitor our tree cover. Within the city limits, Denton's Tree Canopy is 24%. Public Property 29%, Private Property 23%, ETJ One 28% and ETJ Two 19%.

Denton's Tree Canopy goal was set to reach 40% over 20 years (canopy was 29% at that time)

How do we increase canopy?

By preserving more trees. The current development code 20-30% is required with current development. We can plant more trees, directly through the city efforts along trails, streets, medians, anywhere that will positively impact our users. Single family development is another way. New commercial and new industrial. We also do Tree Giveaways, through the Redbud Festival, and children's Arbor Day events. We also have our Tree Rebate Program. The rebate is \$50 up to \$250 with bigger sized trees with a maximum of \$500 annually per household. We have had a strong response with this.

Soph - Will there be any reassessment of goals in light that temperatures are getting higher and droughts getting longer?

*Morgan - We are looking at our recommended tree list. We're looking at trees that are able to take an extended period of drought with high temperatures combined. We are also looking at trees that are native to Texas but grow more in the South where temperatures get higher and in the drier areas. Last Spring, for the first time, we planted Mexican Sycamore, it should do well here. Another is Monterrey Oak.*

Briggle – Have we thought about an adopt-a-tree or adopt an urban forest program where you can partner with citizens who are really committed and give them the resources they need if they're willing to put in the volunteer time? How can we up the number of trees planted by tapping into folks who might be really energized? We get the trees every year from the



giveaway, but are there other things we can do or what other cities are doing to tap into an energetic populist?

*Morgan - The biggest thing cities do is the tree giveaways. Having availability to irrigate the tree, if there are spots where there's 1 -2 -3 trees can be planted, it's not generally cost effective for us to add irrigation if it's not there. Maybe that's something we can look at in neighborhoods where residents can take care of a tree for a few years until it gets established.*

Richter - Could you vocalize where you see the biggest opportunities for growing our canopy? When you look at the numbers where our current goal is at, do you see that playing out in public rights-of-way or specifically just in residential areas, what would your goal be about what you're capable of doing?

*Morgan - all the above. I'm looking at areas where we have activity in our parks, shade for individuals using our trails, shade the pavement, anywhere we can reasonably plant trees and have them irrigated. I'm open for planting. Pushing tree giveaways. We have a neighborhood tree giveaway where we will deliver up to 100 trees in a neighborhood that are in need of trees and we will deliver them on a Friday, and they'll do a giveaway on a Saturday.*

Richter – PlanITGeo software – Have you discovered more than what we knew when we originally adopted the master plan?

*Morgan said he has not noticed a lot.*

Richter – Target numbers that you have your out planting. On the net, is that accounting for trees that might get lost due to development or some other disturbance? Or are you counting that net plus or is that just the number you put out in a 5-year period?

*Morgan stated it would be what we would need to plant. Some numbers include development, they don't include commercial or industrial. Working with our permitting department to get those numbers. With residential, it's a little bit easier.*

Briggs - Do we have percentage of survival of new trees?

*Morgan - We have 90% survival rate. Irrigation issues specifically on University Dr. We are waiting for that to be repaired to replant, hopefully this Fall.*

Briggs – So this is just trees planted to reach canopy goals? Does it not account for trees that will cut down? Are we just assuming no more trees are cut down to reach this goal as we add more?  
*Morgan said it's just for what's planted. I don't really know how to predict what's going to be developed and how much we're going to lose. It would also include trees being planted as because of new development. When the goals were set in the Master Plan, our consultant looked at percentage required for single family/commercial/industrial if that property was developed out as a zone. It didn't really look at what's being lost, rather the potential of what's being planted with those developed properties.*

Briggs – Irrigation on new trees is a big deal. They need a lot of water. Are we looking at that plan? Are we communicating with our new plan that's coming up as far as what kind of water we need for the survival of these trees?

*Morgan said we haven't looked at it yet, it's my first time knowing that the plan was happening. We always try to plant lower water use trees. That's our main avenue. As far as irrigation, we use bubblers so there's not water spraying, its more directly applied to the tree. We are generally watering in the overnight or evening hours, so we have less evaporation of water.*

Briggs – As far as the plan goes, heat islands; we need more protection for biking, is that something when you are looking to plant trees, that you keep into account walking or biking to make sure things are shaded, are you looking for those areas as well?

*Morgan said yes, anywhere there's an impervious surface whether it's some of the larger trails that are paved, anywhere we can add more shade for pedestrians we target those areas.*

Soph - What is 100% tree canopy?

*Morgan says it means no development. There's no roads, no houses, its underdeveloped land, everything is covered.*

- E. SFAC23-030** Receive a report, hold a discussion, and give staff feedback regarding updates to the GreenSense Energy Efficiency Program.

The item was presented by JT Douglas and discussion followed.

Douglas went on to discuss the incentive program background, current program performance, through the fiscal year 2022 and proposed program changes and next steps.

The program started in 2009. The current program incentive levels have been in place since 2018. Energy Efficiency focused on heating and cooling (HVAC, Insulation, Smart Thermostat, etc.) The program is administered by Environmental Services and Sustainability and funded through DME. (Only DME customers are accepted.) The current funding levels are \$250k annually and we recently launched our online application in January 2023. We have seen a good number of applications come in thought online application and 3.7 days is the average review time.

Soph – HVAC categories - Can they be both natural gas or electric?

*Douglas – that's correct yes.*

Soph- would like to discuss a different pricing or different incentive pricing.

*Douglas said that is listed in the proposal.*

Douglas went on to discuss the proposed program changes. Reviewed the percent of cost funded by the rebates by fiscal year. Program participation generally decreasing over time. The assumed annual budget increase to between \$500,000 and \$1,000,000. Increases to current rebate offerings, priority increases were given to those current offerings that had the largest impact on consumption and demand reduction. New offerings in proposed program include HVAC tune up, electric bike, weatherization kits, and dedicated funding for annual fan giveaway.

The top three cost effective incentives are HVAC, insulation, and solar screens.

Douglas continued discussing next steps. We will continue to follow budget discussions with City Council. We will prepare updated GreenSense Incentive Program Manual based on feedback, continue to update and implement online application platform for ease of use and staff time savings. We will still offer the paper application as well. Track effectiveness of new program allocations and continue to update the program as needed.

Briggle - Is this an ongoing rolling basis throughout the year? Are we always paying out on these rebates or is there a limit?

*Douglas said yes, it's the \$250k annual allocation. The funding has not yet run out for this particular program. The last time it did run out was in 2017 when we had those higher dollar*

*amounts. It's something we have been looking into adding more money to this program. Once the "pot of money" opens in October, it would first come, first served.*

Richter - Exciting to see E- bikes in this program. We just spent a lot of time talking investments to make to transition ourselves, you made a compelling and effective argument. Hope we will get the funding from Council to get a better return on this program. Congratulations and good luck.

*Soph – I understand DME is conducting a value of solar study.*  
Douglas said yes.

*Soph – They are also updating the Denton Renewable Resources Plan and that is not complete as far as I know.*  
Douglas said yes.

*Soph- Those are pretty important things on the horizon, it could possibly have an effect on the GreenSense program. I just want to make sure we are not jumping the gun here until we get those in as see what the future from DME's perspective looks like on this. I think City perspective is fine, it just seems like there are some big question marks.*

Barnett - This would start October 2023, if funding is available. We have wanted to make changes for a couple years, we're lagging. We need to update; we can come back and look at the GreenSense program again. Its authorized for funding every October.

*Briggs - In regard to heat pumps, is there something we can do on education for those? It's not well known, is the funding enough to meet those reduction requirements in that plan?*

Douglas said it would make a dent, especially when we talk about the percentage retrofit goals. We met with DME communication folks just this week and will work closely with them to revamp that and getting the word out about this program to both developers and homeowners.

Briggs – The question was asked about the number of structures that need to be retrofitted – If we have that as we start along the process of starting to retrofit that data going hand in hand, the percentages being reduced; that would be helpful to have as we continue to fund. Can IRA funding go hand in hand with GreenSense?

*Douglas - We have talked about getting the most bang for the buck with all programs that are out there. With Denton Utilities being that advantage, having that local piece is really important and having folks being able to speak directly to city staff.*

*Barnett - We can create those connections to some of this IRA funding. A new program was just announced yesterday specially targeted at weatherization energy efficiency improvements. That money will go to the state so we'll watch that closely and see how we can connect our residents with that funding.*

Richter – Should the Climate Action Plan be adopted; do you see a lot of those incentive structures being built into this kind of existing program or potentially a new avenue for those incentives? Specially the building retrofitting.

*Douglas - said there's a lot of opportunities there, especially the tracking with the new online form, there's a real opportunity to see the progress with this program as it relates to the CAAP as a whole.*

#### **F. SFAC23-027 Staff Reports**

The item was not presented, and discussion followed.

Following discussion, general changes were added to the Matrix.

Barnett discussed the PACE update and said that a presentation could be set up later in the year.

Briggle - What is PACE?

*Barnett said Property Assessed Clean Energy Program. Basically, you can get a loan, tied to an assessment in your property tax and get funding to do your energy or water efficiency upgrades on an existing commercial structure. It's not for residential right now, it's just commercial.*

Soph – Last year, I asked about the carbon sequestration of the current Tree Canopy, I don't know if that could be answered today because under status it says July 2023.

*Barnett will get back on this.*

Soph - San Antonio has established a pilot program called “cooled pavement program”. It's a Street paving process that removes heat island problems, and wanted to know if the city looked into that pavement program? Barnett said we can add that.

Briggle – Transportation for August 2023. Are we looking at that for next month?

*Barnett said she is working with Development Services and should be here in August.*

Richter – Asking for that land use planning component and details for that if that could be passed down to us.

Briggs – Three car free areas. Incentives or ideas for City of Denton employees to walk or bike to work. For rebates, for landscape, there is a lot of people who want to replace their lawn and they

are kind of stuck. Is there a rebate or incentive that will help encourage residents to install low water landscape or drought tolerant plants, rock, etc. – If that's an option.

*Barnett - Stephen mentioned that when he presented the One Water Plan. We can look at ideas for the interim until that plan is ready.*

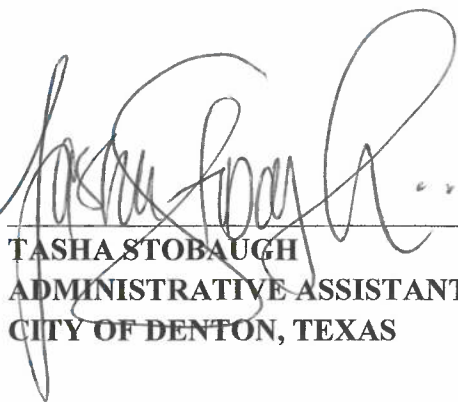
### **CONCLUDING ITEMS**

With no further business, the meeting was adjourned at 3:11 pm.

Sustainability Framework Advisory Committee Minutes July  
July 28, 2023



KEELY BRIGGS  
CHAIR  
CITY OF DENTON, TEXAS



TASHA STOBAUGH  
ADMINISTRATIVE ASSISTANT III  
CITY OF DENTON, TEXAS

Minutes approved on: 8/25/23