



AGENDA
COMMISSION ON THE ENVIRONMENT
Wednesday, March 17, 2021
6:00 PM – Remote Access Only

NOTICE OF REMOTE ACCESS ONLY

In accordance with the current Santa Cruz County Health Order outlining social distancing requirements and Executive Order N-29-20 from the Executive Department of the State of California, the Commission on the Environment meeting is not physically open to the public and in person attendance cannot be accommodated.

To join Zoom:

- Join the Zoom Meeting with the following link:

<https://us02web.zoom.us/j/83518201394?pwd=ejhOQkRjNUp5bE0vVEFKNXhidXEyUT09>

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Enter the Meeting ID#: 835 1820 1394

To comment via email:

Comments and additional material may be sent to the Commission via CapitolaDPW@ci.capitola.ca.us by 12NOON on the day of the meeting for distribution to Commission members.

AGENDA

CALL TO ORDER AND ROLL CALL

Commissioners: Cathlin Atchison, Bryce Ebrahimian, Michelle Beritzhoff-Law, Meredith Keet, Margaux Keiser, Peter Wilk

WRITTEN COMMUNICATIONS *(No action may be taken)*

All correspondence received prior to 12 NOON on the day of the meeting will be distributed to the Commissioners to review. The Committee Members may not discuss Written Communications to any significant degree but may request issues raised be placed on a future agenda.

APPROVAL OF MINUTES – February 17, 2021

OTHER BUSINESS

1. 2021 Meeting Schedule
2. Work Plan
 - a. Compostable and Biodegradable Take Out Materials/Restaurant Guide
 - b. Rispin Park Riparian Restoration – staff information update only
 - c. Climate Action Plan
3. Gas Powered Leaf Blower Ban – information only

ITEMS FOR FUTURE AGENDAS

ADJOURNMENT to April 21, 2021

Notice: The Commission on the Environment meets monthly 6:00 PM. Meetings are Remote Access Only.

Agenda and Agenda Packet Materials: The Commission on the Environment Agenda is available on the City's website: www.cityofcapitola.org/ on Friday prior to the Wednesday meeting. If you need additional information, please contact the Public Works Department at (831) 475-7300.

Americans with Disabilities Act: Disability-related aids or services are available to enable persons with a disability to participate in this meeting consistent with the Federal Americans with Disabilities Act of 1990. Assisted listening devices are available for individuals with hearing impairments at the meeting in the City Council Chambers. Should you require special accommodations to participate in the meeting due to a disability, please contact the City Clerk's office at least 24-hours in advance of the meeting at 831-475-7300. To accommodate individuals with environmental sensitivities, attendees are requested to refrain from wearing perfumes and other scented products.

DRAFT MINUTES
Commission on the Environment
Regular Meeting
February 17, 2021

CALL TO ORDER

Commissioners Present: Michelle Beritzhoff-Law, Bryce Ebrahimian, Meredith Keet, Peter Wilk
Commissioners Absent: Cathlin Atchison, Margaux Keiser
City Staff Present: Steve Jesberg, Danielle Uharriet

WRITTEN COMMUNICATIONS

None

APPROVAL OF MINUTES

None

OTHER BUSINESS

1. Elect Chair and Vice-Chair

Peter Wilk was unanimously elected Chair (Beritzhoff-Law/Keet)
Meredith Keet was unanimously elected Vice-Chair (Wilk/Beritzhoff-Law)

2. 2021 Meeting Schedule

The Commission unanimously agreed to meet monthly to accomplish work plan goals, and then reduce meetings to every other month.

Proposed monthly schedule on the third Wednesday at 6:00PM

March 17, 2021

April 21, 2021

May 19, 2021

June 16, 2021

July 21, 2021

August 18, 2021

September 15, 2021

October 20, 2021

November 17, 2021

December 15, 2021

3. Work Plan

#1 Compostable and Biodegradable Take Out Materials

Peter Wilk stated that the Planning Commission recently approved a use permit for mobile food service at the Capitola Mall. Permit conditions require the food vendors comply with the city ordinance for environmentally acceptable packaging materials. Peter suggested the Commission continue developing an informational guide/leaflet for restaurants and food vendors about Capitola food packaging regulations.

Meredith Keet supported continuing to working on educating and informing the restaurants and food vendors about the city's ordinance and to establish enforcement guidance. Meredith suggested offering informational assistance to businesses to seek more cost-effective food packaging options.

Michelle Beritzhoff-Law stated the ordinance is a valuable tool for the city; and suggested clarifying the enforcement fee structure for implementation. She also suggested providing clear information about the proper disposal of to go containers.

Meredith Keet stated the BIA has been discussing new signage to clearly mark the appropriate container for each type of waste: trash, recycling, compostable.

#2 Soquel Creek/Peery Park Riparian Restoration

Staff commented that 100% of the work permitted by Fish and Wildlife has been completed; maintenance is ongoing. Expansion of invasive species removal/riparian restoration area will require a proposal, permitting and funding.

Peter Wilk noted the Rispin Park Plan has been moving forward; and suggested expanding the invasive species removal/riparian restoration area to the lower bank of Soquel Creek below Rispin Park. He suggested using the Community Development Department Tree Fund to finance the project.

Michelle Beritzhoff-Law supported the expansion of the invasive species removal/riparian restoration area to tie into the Rispin Park project.

Steve Jesberg commented the tree fund could be used to hire George McMEnamin to prepare a project proposal, but adequate funds are not available to initiate the work. There may be Regional Conservation District grants available for the work.

#3 Climate Action Plan (CAP)

Peter Wilk commented there was a lot of effort by the previous Community Development Director (CDD) to identify specific reduction measures for ongoing implementation to achieve the goals of the CAP. Peter suggested staff give a presentation on the status of the CAP.

Michelle Beritzhoff-Law stated ongoing implementation of CAP reduction measures should be a priority item. Michelle inquired on the status of the Pure Water Soquel Project and the role it may play in the CAP process.

Steve Jesberg stated the Community Development Department is responsible for the implementation of the CAP. The City of Capitola has met the CAP goals through participation in the legislation that formed the Monterey Bay Community Power/Community Choice Aggregation. The Pure Water Soquel project can be incorporated into the CAP update.

Peter Wilk stated the CAP is a generalized document with goals to develop and meet reduced carbon emissions, exceed established green building plans, and create a local bike plan.

Meredith Keet suggested the Commission receive a CAP update presentation before proceeding the further plans to implement goals.

Michelle Beritzhoff-Law advocated educating the COE before adding more work items.

#4 Heritage Tree Investigation

Peter Wilk provided a brief background for a new work item pertaining to the tree ordinance. He stated the existing tree ordinance mentions a Heritage Tree Fund but there is not a list of heritage trees. He suggested development of a heritage tree list could enrich the community by preserving significant trees by maintaining valuable trees in Capitola on private property. He recommended the COE review the tree ordinance and suggest modifications, including highlighting specific trees for inclusion in a heritage tree listing to the Community Development Department. Additionally, the COE could assist with the research and re-writing the tree ordinance. Peter stated that a list of heritage trees for

preservation would be a helpful tool for the Planning Commission to evaluate tree removal permits. He suggested a heritage tree list like the historic homes list.

Michelle Beritzhoff-Law inquired about the problematic nature of the existing ordinance and what existing city data is available to begin researching significant trees in Capitola. Michelle agreed to adding the item to the work plan at an investigative and information gathering stage.

Meredith Keet commented the COE could recommend guidance principals, such as species and size for consideration when listing a heritage tree.

#5 Composting Investigation

Meredith Keet commented there is a lack of composting opportunities for businesses and residents. Because of COVID-19, the increase of take-out business is significant and most of the compostable restaurant ware is thrown into the recycling or trash. Meredith recommended the COE explore available options and strategize about ways to encourage composting.

Steve Jesberg stated currently there is no place within Santa Cruz County to take compostable material. However, on July 1st Greenwaste, under the State mandate, will be allowing residential food waste in the green bins. Staff will inform the COE when the City Council will be reviewing the item.

Peter Wilk stated the approved use permit for the food trucks at Capitola Mall include conditions requiring all to go food ware to be compostable, but the reality is there is no place to compost. Peter supported better signage for trash and recycling bins.

Meredith Keet stated proper bin signage is not clear for users. The BIA is working on a revised signage plan for the bins.

Native Milkweed Campaign

Past Commission actions included developing an informational flyer, adding the information to the city website, and creating plan to distribute packets of donated native milkweed seeds.

Meredith Keet commented that the milkweed campaign should be considered a sub-work item under a larger work category. Michelle Beritzhoff-Law concurred that the Commission should consider how the milkweed campaign fits into a wider category of the environment, or potential to be incorporated into a larger work item. Peter Wilk suggested placing this item on hold until Cat Atchison is available to discuss the progress further. The Commission unanimously concurred.

4. Gas Powered Leaf Blower Ban

Michelle Beritzhoff-Law stated several city's currently bans gas powered leaf blowers. Additional information is needed to consider how other jurisdictions enforce the blower ban.

Peter Wilk inquired about why gas-powered leaf blowers are an issue in Capitola and if there have been several complaints to raise this as a problem?

Meredith Keet inquired about the environmental impact of gas-powered leaf blowers and the effects on the blower operator.

Steve Jesberg responded a city council member had received a complaint. Gas powered leaf blowers impact emissions blow particulate material into the air.

Peter Wilk requested comparison information on the emissions impacts from gas powered leaf blowers, gas powered mowers, gas powered tree/hedge trimmers and similar gas-powered equipment.

Michelle Beritzhoff-Law supported reviewing comparative data to evaluate the various impacts of gas-powered equipment and the efficiency of battery powered equipment. She commented there is pollution created by expired batteries.

Staff will bring back comparative information on various gas-powered equipment including emission and noise data.

ITEMS FOR NEXT AGENDA

Work plan items

Gas-powered equipment information

ADJOURNMENT to a Regular meeting on March 17, 2021

Approved at the meeting of March 17, 2021

Danielle Uharriet
Environmental Projects Manager

**CITY OF CAPITOLA
COMMISSION ON THE ENVIRONMENT**

Agenda Report

Meeting Date: March 17, 2021

Agenda Item: 1

2021 Meeting Schedule

Proposed monthly schedule on the third Wednesday at 6:00PM

March 17, 2021
April 21, 2021
May 19, 2021
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October 20, 2021
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**CITY OF CAPITOLA
COMMISSION ON THE ENVIRONMENT
Agenda Report**

Meeting Date: March 17, 2021

Agenda Item: 2a

Subject: Compostable and Biodegradable Take Out Materials/Restaurant Guide

Work Item #1: Develop an informational guide for restaurants and food vendors about Capitola's disposable food service ware ordinance and enforcement guidance.

Possible topics to be included in guide:

- ◆ Ordinance requirements or highlights
- ◆ Informational assistance for cost-effective food packaging options
- ◆ Information on proper disposal of to go containers (trash, recycling, compostable)
- ◆ Explanation of enforcement
- ◆ Resources

Other:

- ◆ Design/Production/Publication/Distribution

It is recommended the Commission discuss the next steps to proceed with developing a guide.

**CITY OF CAPITOLA
COMMISSION ON THE ENVIRONMENT
Agenda Report**

Meeting Date: March 17, 2021

Agenda Item: 2c

Subject: Climate Action Plan

In February AMBAG presented the City of Capitola 2018 Community-Wide Greenhouse Gas Inventory Report to staff. This report is the most recent accounting of GHG emissions that occur as the result of Capitola's activities. The report is used to determine the largest sources of GHG emission so that the highest contributors can be analyzed and targeted for further reduction. The report looks at the carbon emissions from six sectors, including Residential, Commercial, Transportation, Solid Waste, and Wastewater. The 2018 date is compared to previous studies completed in 2005, 2010, and 2015 to determine how the City is doing in reducing carbon emissions.

The State of California has mandated the following reduction targets:

1. A 15% reduction from 2005 levels by 2020
2. A 40% reduction from 2005 levels by 2030
3. Carbon neutrality by 2045

Based on the 2018 data the City of Capitola has achieved a 40% reduction from the 2005 levels, meeting the first two targets. The data in the report shows that two biggest sectors of emissions are transportation 45.6% and the residential/commercial emissions at a combined level of 46.9%. The transportation emissions are the measure of emissions based on vehicle use within the city. The residential/commercial emissions are a combination of natural gas use and electrical use. Of these two uses the natural gas use is significantly higher than the electrical use contribution. This is due to the switch to Central Coast Community Power purchasing renewable energy sources.

The takeaway from the report identified by AMBAG staff was that the transportation contributions have been going down and will continue a sharper decline with the increased use of electric cars and reduced Vehicle Miles Traveled. The reduction of natural gas emissions will take the conversion of gas appliances to electricity.

Details on the data are contained in the attached report and related spreadsheet.

A quick review of the city's adopted Climate Action Plan revealed multiple references to transportation and natural gas reduction steps. The Commission can review the Climate Action Plan at: https://www.cityofcapitola.org/sites/default/files/fileattachments/community_development/page/3953/capitola_climate_action_plan.pdf

It is recommended that the Commission review and discuss the City of Capitola 2018 Community-Wide Greenhouse Gas Inventory Report.

City of Capitola

2018 Community-Wide Greenhouse Gas Inventory Report



DRAFT CITY OF CAPITOLA 2018 COMMUNITY-WIDE GREENHOUSE GAS (GHG) INVENTORY

PREPARED FOR:

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FUNDED BY:

Central Coast Community Energy

FEBRUARY 2021



Executive Summary

The City of Capitola’s 2018 Community-wide GHG Inventory totals 36,351 metric tons of carbon dioxide-equivalent (CO₂e). This represents a 40 percent reduction from the 2005 Baseline Community-wide GHG Inventory. This decrease is the result of emission reductions across four sectors primarily. It is important to note that while analysis of GHG inventory data can identify the amount of change this type of analysis does not specifically identify the factors that contribute to the changes and their level of contribution. Certain general factors that are able to be identified are noted below, but it should be understood that these are only general contributing factors and not the sole factors responsible for the total GHG changes. Figure 1 shows the 2005 to 2018 GHG emissions by sector.

In the residential sector, emission reductions of 32 percent occurred from 2005 to 2018. This can be attributed, in part, to the specific composition of electricity delivered by Pacific Gas & Electric Company (PG&E) and Central Coast Community Energy (3CE) to include both more renewable energy and energy generated from large hydro operations in their energy mix during this time period. The transportation sector emissions decreased by 35 percent from 2005 to 2018. During this period there was a decrease in Vehicle Miles Travelled (VMT) on local roads in Capitola. In the solid waste sector, a decrease in the actual tonnage of waste sent to landfills caused a 22 percent decrease in emissions. In the commercial and industrial sector there was a 61 percent reduction in emissions from 2005 to 2018. This can be attributed, in part, to decreases in electricity and natural gas usage, as well as to policy changes at the state level regarding energy use data access.

Figure 1:

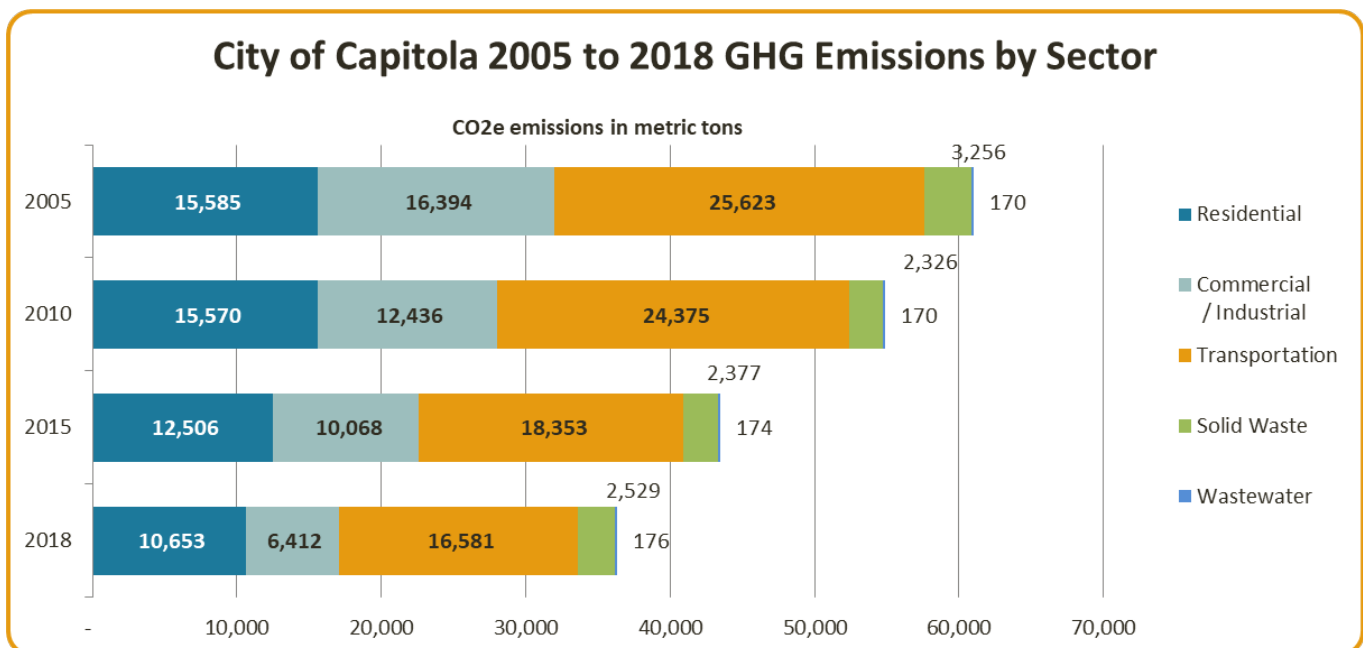


Table 1 summarizes the results of the 2005 Baseline Community-wide GHG Inventory, 2010 Community-wide GHG Inventory, 2015 Community-wide GHG Inventory and 2018 Community-wide GHG Inventory, broken out by sectors. The percentage change from the 2005 inventory to the 2018 inventory is a reduction of 40 percent.

Table 1:

Community CO2e Emissions by Sector	Residential	Commercial / Industrial	Transportation	Solid Waste	Wastewater	Total
2005	15,585	16,394	25,623	3,256	170	61,028
2010	15,570	12,436	24,375	2,326	170	54,877
2015	12,506	10,068	18,353	2,377	174	43,478
2018	10,653	6,412	16,581	2,529	176	36,351
% change 2005- 2018	-32%	-61%	-35%	-22%	3%	-40%

2018 Community-wide GHG Inventory Report

Introduction

A community-wide GHG emissions inventory is an accounting of the GHG emissions that occur as the result of a community's activities in a given year. GHG inventories can be used to determine the largest sources of GHG emissions from within a community, to set GHG emission reduction targets and to better understand how GHG emissions evolve across inventory years. The City of Capitola completed its 2005 Baseline Community-wide GHG Inventory as part of an Association of Monterey Bay Area Governments (AMBAG) regional effort to develop the 2005 baseline GHG inventory reports for all of the AMBAG jurisdictions. Subsequently, the 2010 and 2015 GHG inventories for all AMBAG jurisdictions were also completed by AMBAG. This year, AMBAG received funding from 3CE to complete 2018 Community-wide GHG inventories for all 3CE member jurisdictions which received 3CE electricity generation service as of January 1st 2020.

The Capitola 2005 Baseline, 2010, 2015 and 2018 Community Wide GHG inventories have been completed by following the US *Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions* as per the California Air Resources Board (CARB) 2017 Scoping Plan. The ICLEI ClearPath tool suite was used to perform the emissions calculations for all inventories in accordance with guidance from the Governor's office of planning and research. The methodology used in this 2018 Community-wide GHG Inventory is included in Appendix A.

California's Climate Change mandates

The State of California has adopted bold goals to reduce GHG emissions and address climate change. In order to meet these goals, the state supports local action on climate change by providing guidance for local jurisdictions to develop GHG emissions inventories and climate action plans. Local jurisdictions are required in many instances, and incentivized in others, to address greenhouse gas emissions under the California Environmental Quality Act (CEQA), AB 32 (California Global Warming Solutions Act of 2006), SB 375 (Sustainable Communities and Climate Protection Act of 2008), SB 32 (California Global Warming Solutions Act of 2006: emissions limit, 2016) and various California Executive orders, regulations, and programs.

A part of the effort to address climate Change the California Legislature has laid out clear GHG emissions reduction targets. AB 32 established a target of reducing GHG emissions back to 1990 levels by 2020, which corresponds to a 15% reduction from 2005 level. SB 32 set a GHG emissions reduction target of 40 percent below 1990 levels by 2030. Finally, Executive Order B-55-18, issued in 2018 by Jerry Brown, established a goal of reaching carbon neutrality by 2045 and maintaining negative emissions in subsequent years.

2018 Community-wide GHG Emissions by Sector

Many local governments find a sector-based analysis most relevant to policymaking and project management, as it assists in formulating sector-specific reduction measures and climate action plan components. This inventory evaluates community emissions from the following sectors:

- Residential
- Commercial and Industrial
- Transportation
- Solid Waste
- Wastewater

The community of Capitola emitted 36,351 metric tons of CO₂e in 2018. As visible in Figure 2 and Table 2, 45.6 percent of emissions are from the transportation sector, and were generated by fuel use from travel on local roads. Emissions from electricity and natural gas usage in the residential sector generated 29.3 percent of emissions, while electricity and natural gas consumption in the commercial sector generated 17.6 percent of emissions. The disposal of waste generated by Capitola residents and businesses caused 7 percent of total emissions. The remaining 0.5 percent of emissions was generated from wastewater treatment processes.

Figure 2:

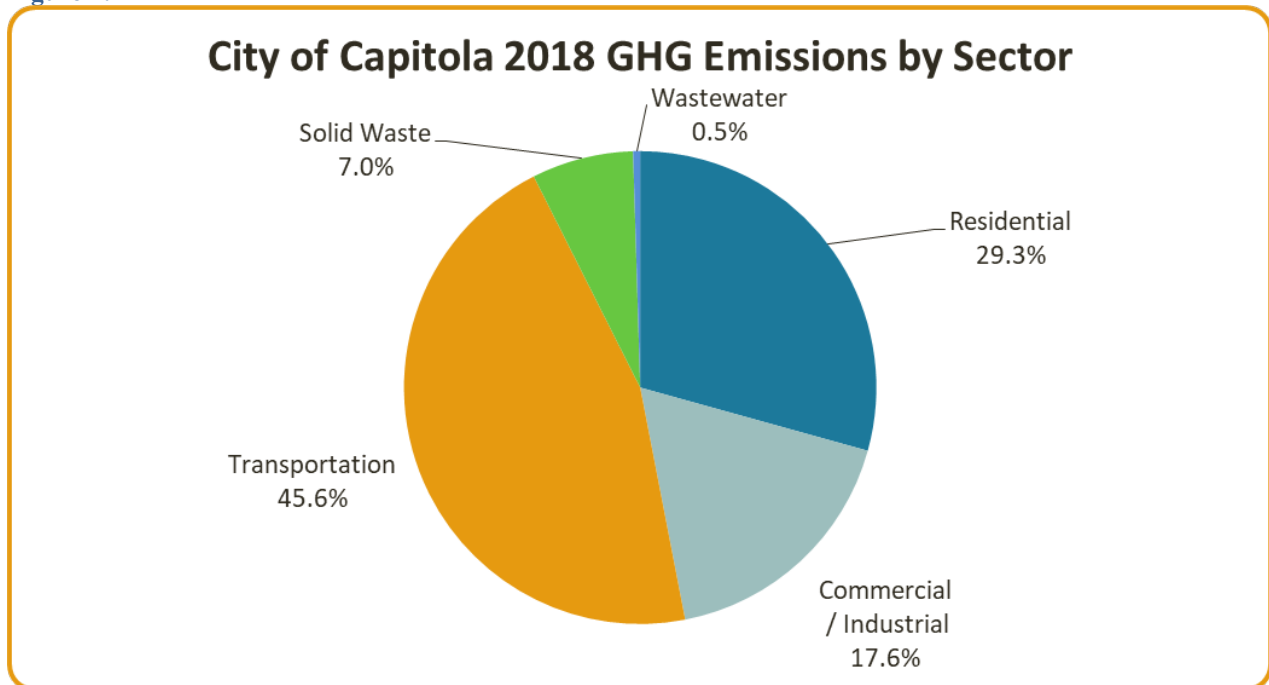


Table 2:

2018 Community Emissions by Sector	Residential	Commercial / Industrial	Transportation	Solid Waste	Wastewater	Total
CO ₂ e (metric tons)	10,653	6,412	16,581	2,529	176	36,351
% of Total CO ₂ e	29.3%	17.6%	45.6%	7.0%	0.5%	100%

Built Environment: Residential, Commercial and Industrial Sector

The City of Capitola’s built environment generated 46.9% percent of community-wide GHG emissions in 2018 or 17,065 metric tons of CO2e. Emissions were calculated using 2018 electricity and natural gas consumption data provided by PG&E and 3CE.

The residential sector accounted for 10,653 metric tons of CO2e and only includes emissions arising from the consumption of energy in residential buildings. The combined commercial and industrial sectors accounted for 6,412 metric tons of CO2e and include emissions arising from the consumption of energy in both commercial and industrial buildings. PG&E was not able to provide a breakdown between commercial and industrial electricity and natural gas consumption due to the California Public Utilities Commission’s (CPUC) 15/15 rule¹.

Figure 3 and Table 3 show the breakdown of natural gas to electricity emissions in Capitola’s built environment. The residential sector natural gas usage comprised 56 percent of emissions while the commercial and industrial sector natural gas comprised 30 percent of emissions.

Figure 3:

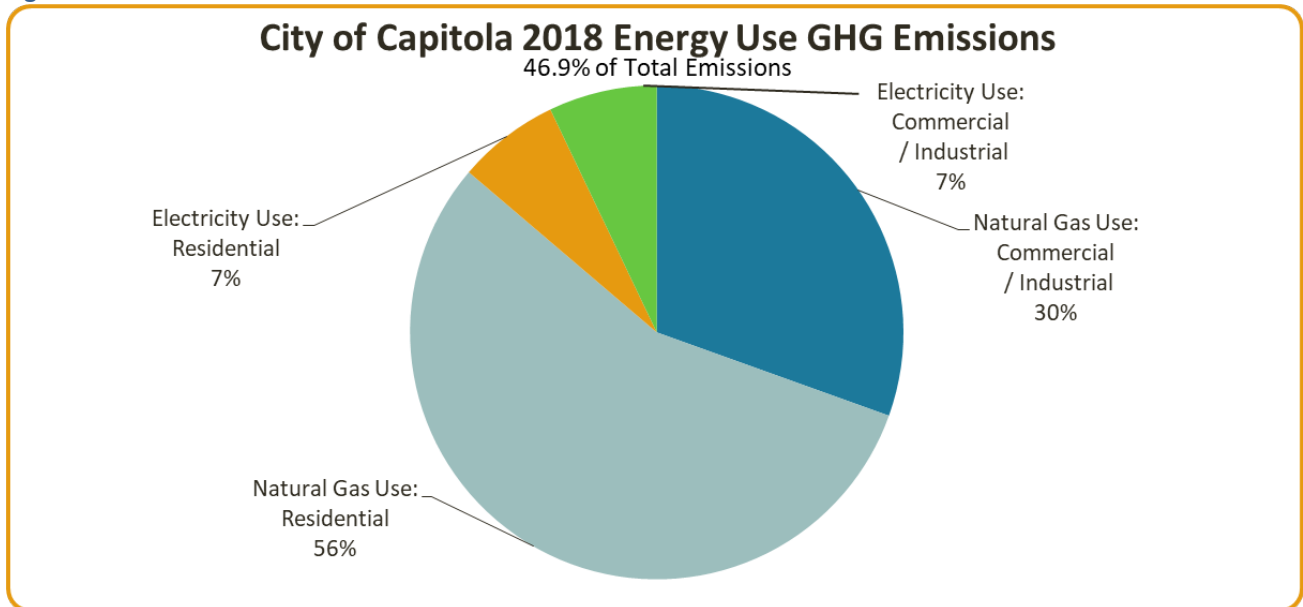


Table 3:

Natural Gas Use Emissions (CO2e):		Electricity Use: Emissions (CO2e):	
Commercial/Industrial	Residential	Commercial/Industrial	Residential
5,201	9,513	1,210	1,140

¹ The 15/15 Rule was adopted by the CPUC in the Direct Access Proceeding (CPUC Decision 97-10-031) to protect customer confidentiality. If the number of customers in the compiled data is below 15, or if a single customer’s load is more than 15 percent of the total data, categories must be combined before the information is released.

Transportation Sector

As mentioned previously, The City of Capitola's transportation sector generated 45.6 percent of community-wide GHG emissions in 2018, or 16,581 metric tons of CO₂e. The transportation sector analysis includes emissions from all vehicle use on local roads within Capitola's jurisdictional boundaries. Emissions from air travel of Capitola's residents were not included in the transportation sector analysis.

Solid Waste Sector

As mentioned previously, the solid waste sector accounted for 7 percent of community-wide GHG emissions in 2018 or 2,529 metric tons of CO₂e. Emissions from the solid waste sector are an estimate of methane generation from the anaerobic decomposition of organic wastes (such as paper, food scraps, plant debris, wood, etc.) that are deposited in a landfill. Transportation emissions generated from the collection, transfer and disposal of solid waste are included in transportation sector GHG emissions.

Wastewater Sector

As mentioned previously, the wastewater sector accounted for 0.5 percent of community-wide GHG emissions in 2018 or 176 metric tons of CO₂e. This sector accounts for the operation of wastewater treatment facilities used to treat Capitola's wastewater. Emissions from the treatment of wastewater through septic tank systems are not included in this inventory.

Conclusion

The City of Capitola has taken steps toward reducing its impact on the environment by quantifying its 2005 baseline community-wide GHG emissions and regularly updating the inventory in 2010, 2015 and 2018. The City of Capitola has already met the 2020 AB 32 GHG emissions reduction targets. This inventory will now allow the city to look ahead and chart a path towards meeting the SB 32 2030 GHG emissions reduction target as well as the 2045 carbon neutrality goal.

Using a comprehensive approach to reduce community-wide greenhouse gas emissions, this inventory provides an important foundation for the City of Capitola to update its Climate Action Plan. Specifically, this inventory serves to:

- Establish a guideline for setting future emissions reductions targets.
- Identify the largest sources of communitywide emissions.
- Track changes to community emissions over time.
- Evaluate progress towards emission reduction goals.
- Support the development, implementation and evaluation of strategies to reduce emissions

Appendix A: Inventory Methodology by Sector

This appendix, describes in detail the data sources and processes used to calculate emissions in this community-wide GHG inventory.

Overview of Inventory Contents and Approach

The community inventory describes emissions of the major greenhouse gases from the residential, commercial and industrial, transportation, solid waste, and wastewater sectors. Emissions are calculated by multiplying activity data—such as kilowatt hours or VMT —by emissions factors, which provide the quantity of emissions per unit of activity. Activity data is typically available from electric and gas utilities, planning and transportation agencies, and air quality regulatory agencies. Emissions factors are drawn from a variety of sources, including PG&E, the Community protocol, and air quality models produced by CARB.

Built Environment Methodology: Residential, Commercial and Industrial Sectors

Data on electricity and natural gas sold by PG&E to customers as well as data on electricity sold by 3CE to customers was provided by PG&E and 3CE. Bundled PG&E electricity emissions were calculated in ICLEI's ClearPath software using PG&E-specific emissions factors provided by PG&E as well as 3CE specific emissions factors provided by 3CE. All natural gas emissions were calculated in ClearPath with default emissions factors from the community protocol.

Transportation Sector Methodology

On-road transportation emissions were derived from local jurisdiction vehicle miles traveled (VMT) data and regional vehicle and travel characteristics. Observed VMT on non-state facilities (referred to in the inventory as “local roads”) was obtained from Caltrans' Highway Performance Monitoring System reports. The EMFAC 2017 model developed by CARB was used to calculate emissions from these VMT figures. EMFAC defaults for each county include regionally-specific information on the mix of vehicle classes and model years, as well as ambient conditions and travel speeds that determine fuel efficiency. The model estimates carbon dioxide, methane, and nitrous oxide emissions from these factors as well as from inputted vehicle activity data.

For purposes of this inventory, AMBAG Sustainability Program staff ran the model for each of AMBAG's three counties (Monterey, Santa Cruz, and San Benito), leaving all CARB default values in place (including VMT). Staff then used the EMFAC output to calculate local fleet mix and emissions factors for each vehicle type. Different emissions factors were calculated for CO₂, CH₄ and N₂O. The total VMT was then distributed among the various EMFAC-defined vehicle types according to percentages derived from the EMFAC output. The appropriate emissions factor for each vehicle type was then applied for these greenhouse gases. Finally, global warming potentials were factored in and the total emissions from each vehicle type were summed to reach the total CO₂e emissions from the transportation sector.

Solid Waste Sector Methodology

Emissions from solid waste were captured by estimating future emissions from decomposition of waste generated in the inventory year (“community-generated solid waste”). Community-generated solid waste emissions were calculated in ClearPath using waste disposal data obtained from the California Department of Resources Recycling and Recovery (CalRecycle) Disposal Reporting System, which records tonnages of municipal solid waste and alternative daily cover by local jurisdiction.

As some types of waste (e.g., paper, plant debris, food scraps, etc.) generate methane within the anaerobic environment of a landfill and others do not (e.g., metal, glass, etc.), it is important to characterize the various components of the waste stream. Waste characterization for community-generated solid waste was estimated using the CalRecycle 2003, 2008 and 2014 California statewide waste characterization study.² Most landfills capture methane emissions either for energy generation or for flaring. The EPA estimates that 60 percent to 80 percent³ of total methane emissions are recovered at the landfills to which the City of Capitola sends its waste. Following the recommendation of the community protocol, AMBAG adopted a 75 percent methane recovery factor and a 10% oxidation rate.

Recycling and composting programs are reflected in the emissions calculations as reduced total tonnage of waste going to the landfills. The model, however, does not capture the associated emissions reductions in “upstream” energy use from recycling as part of the inventory.⁴ This is in-line with the “end-user” or “tailpipe” approach taken throughout the development of this inventory. It is important to note that recycling and composting programs can have a significant impact on greenhouse gas emissions when a full lifecycle approach is taken. Manufacturing products with recycled materials avoids emissions from the energy that would have been used during extraction, transportation and processing of virgin material.

Wastewater Sector Methodology

Wastewater coming from homes and businesses is rich in organic matter and has a high concentration of nitrogen and carbon (along with other organic elements). As wastewater is collected, treated, and discharged, chemical processes can lead to the creation and emission of two greenhouse gases: methane and nitrous oxide. Emissions from wastewater treatment were calculated by first assessing the treatment steps used to transform Capitola’s wastewater. Staff then used the ClearPath tool and a population-based method to estimate treatment process emissions, in accordance with the methodology delineated in the US Community protocol.

² CalRecycle Waste Characterization Studies available at <https://www2.calrecycle.ca.gov/WasteCharacterization/Study>

³ AP 42, section 2.4 Municipal Solid Waste, 2.4-6, <http://www.epa.gov/ttn/chief/ap42/index.html>

⁴ “Upstream” emissions include emissions that may not occur in your jurisdiction resulting from manufacturing or harvesting virgin materials and transportation of them.

Appendix B: Glossary

This Appendix provides a brief description of technical terms used in the inventory.

Activity Data:

Data on the magnitude of a human activity resulting in emissions or removals taking place during a given period of time. Data on energy use, metal production, land areas, management systems, lime and fertilizer use and solid waste production are examples of bodata.

Baseline year:

A specific year against which emissions are tracked over time. For this inventory, the baseline year is 2005.

Boundaries:

GHG accounting and reporting boundaries can have several dimensions, i.e., jurisdictional, operational or geopolitical. The inventory boundary determines which emissions are accounted and reported.

Carbon Dioxide Equivalent:

A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as metric tons of carbon dioxide equivalents (MTCO_{2e}). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP. See appendix A.

Community-wide GHG Inventory:

A calculation of GHG emissions generated as a result of activities within a community.

Consistency:

Consistency means that an inventory should be internally consistent in all its elements over a period of years. An inventory is consistent if the same methodologies are used for the base and all subsequent years and if consistent data sets are used to estimate emissions or removals from sources or sinks.

Direct GHG emissions:

Emissions from sources that occur within a jurisdiction's operational or geopolitical boundaries are called direct GHG emissions.

Emissions Factor:

A unique value for scaling emissions to activity data in terms of a standard rate of emissions per unit of activity (e.g., grams of carbon dioxide emitted per kWh of electricity use or per therms of natural gas use).

Fugitive emissions:

Emissions that are not physically controlled but result from the intentional or unintentional releases of GHGs. They commonly arise from the production, processing transmission storage and use of fuels and other chemicals, often through joints, seals, packing, gaskets, etc.

Global Warming Potential:

A measure of the total energy that a gas absorbs over a particular period of time (usually 100 years), compared to carbon dioxide.

Greenhouse gases (GHGs):

Gases which when released in the atmosphere have a warming impact. The GHG's considered in this inventory are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O).

Indirect emissions:

Emissions that are a consequence of activities inside a jurisdiction, but occur from sources outside of the inventory boundaries, e.g., as a result of the import of electricity, heat, or steam.

Intergovernmental Panel on Climate Change:

The IPCC was established jointly by the United Nations Environment Programme and the World Meteorological Organization in 1988. The purpose of the IPCC is to assess information in the scientific and technical literature related to all significant components of the issue of climate change. Leading experts on climate change and environmental, social, and economic sciences have helped the IPCC to prepare periodic assessments of the scientific underpinnings for understanding global climate change and its consequences. With its capacity for reporting on climate change, its consequences, and the viability of adaptation and mitigation measures, the IPCC is also looked to as the official advisory body to the world's governments on the state of the science of the climate change issue.

Methane (CH₄):

A hydrocarbon that is a greenhouse gas with a global warming potential estimated at 25 times that of carbon dioxide (CO₂). Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion. The GWP is from the IPCC's Fourth Assessment Report (AR4).

Nitrous Oxide (N₂O):

A powerful greenhouse gas with a global warming potential of 298 times that of carbon dioxide (CO₂). Major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, manure management, fossil fuel combustion, nitric acid production, and biomass burning. The GWP is from the IPCC's Fourth Assessment Report (AR4).

Process emissions:

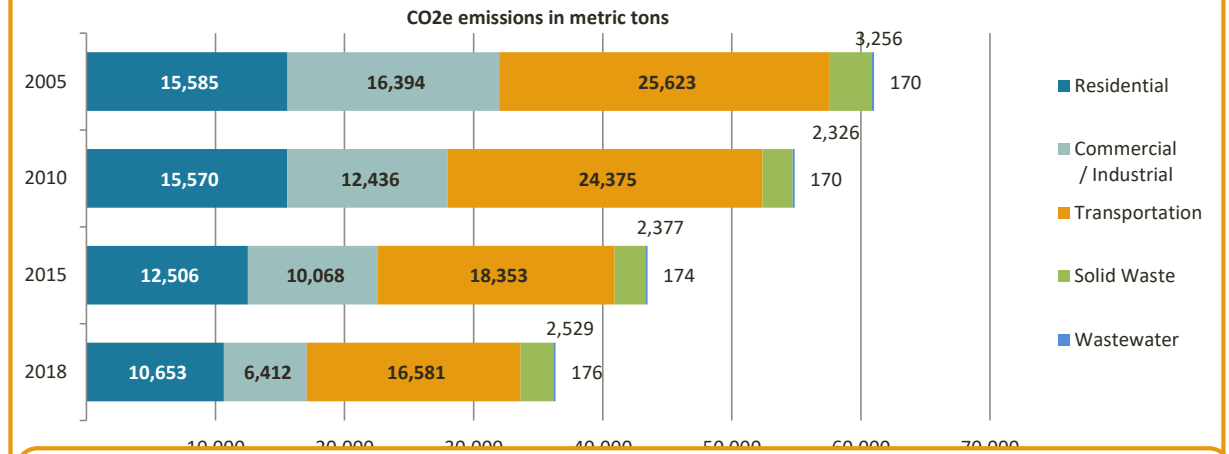
Emissions from industrial processes involving chemical transformations other than combustion.

GHG Emissions Summary

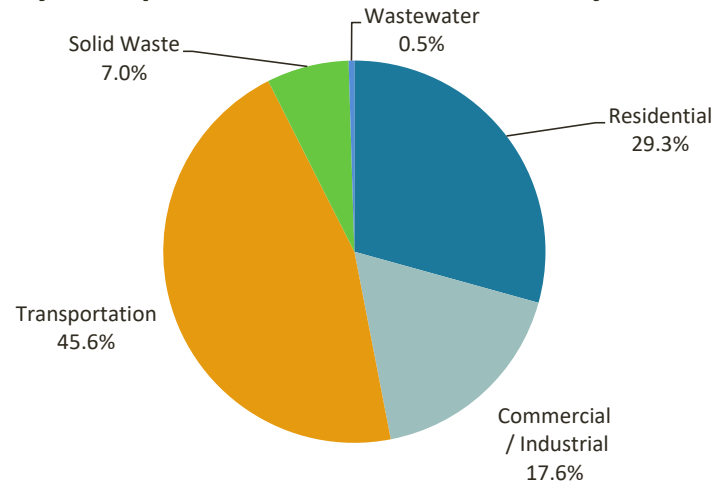
City of Capitola 2005-2018 Community-wide GHG emissions						
Community CO2e Emissions by Sector	Residential	Commercial / Industrial	Transportation	Solid Waste	Wastewater	Total
2005	15,585	16,394	25,623	3,256	170	61,028
2010	15,570	12,436	24,375	2,326	170	54,877
2015	12,506	10,068	18,353	2,377	174	43,478
2018	10,653	6,412	16,581	2,529	176	36,351
% change 2005- 2018	-32%	-61%	-35%	-22%	3%	-40%

Energy Use GHG Emissions Summary table			
Natural Gas Use:		Electricity Use:	
Commercial / Industrial	Residential	Residential	Commercial / Industrial
5,201	9,513	1,140	1,210

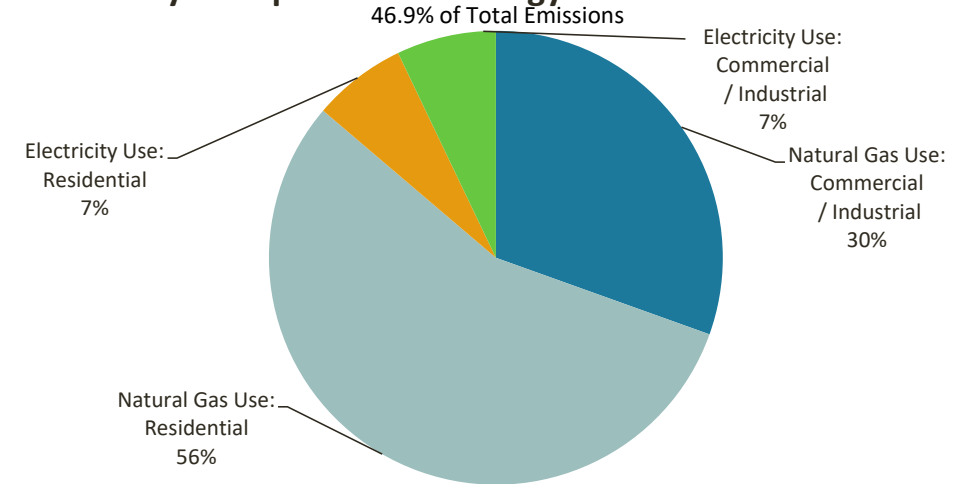
City of Capitola 2005 to 2018 GHG Emissions by Sector



City of Capitola 2018 GHG Emissions by Sector



City of Capitola 2018 Energy Use GHG Emissions



Data Summary

Sector	Inventory Record	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)	Activity data	Units	Data Source
Transportation	Aggregated On-Road Transportation	16317.98	0.98	0.89	16581.27	39790490	VMT	EMFAC / HPMS VMT data
Residential	Residential County Electricity PG&E	0.022425633	3.70132E-06	4.35449E-07	0.022644664	240	kWh	PG&E data
Residential	Residential Non Government Electricity PG&E	978.0475628	0.161425326	0.018991215	987.6001439	10467103	kWh	PG&E data
Residential	Residential City Electricity PG&E	2.406737669	0.000397229	4.67328E-05	2.430244253	25757	kWh	PG&E data
Residential	Residential Electricity - CCCE	143.6866	0.110797879	0.013035045	150.2432274	7184330	kWh	PG&E data / CCCE data
Residential	Residential Non Government Gas	9482.754248	0.894262	0.01788524	9512.533173	1788524	Therms	PG&E data
Residential	Residential County Gas	0.307516	0.000029	0.00000058	0.3084817	58	Therms	PG&E data
Commercial / Industrial	Commercial County Electricity	13.47883354	0.002224662	0.000261725	13.61048118	144251	kWh	PG&E data
Commercial / Industrial	Commercial District Electricity	14.11338553	0.002329394	0.000274046	14.25123083	151042	kWh	PG&E data
Commercial / Industrial	Commercial City Electricity	10.90278234	0.001799488	0.000211705	11.00926971	116682	kWh	PG&E data
Commercial / Industrial	Commercial Non Government Electricity - CCCE	633.42392	0.488438218	0.05746332	662.3279698	31671196	kWh	PG&E data / CCCE data
Commercial / Industrial	Commercial County Electricity - CCCE	11.16958	0.008612952	0.001013288	11.67926409	558479	kWh	PG&E data / CCCE data
Commercial / Industrial	Commercial City Electricity - CCCE	9.22776	0.007115599	0.000837129	9.648836039	461388	kWh	PG&E data / CCCE data
Commercial / Industrial	Commercial District Electricity - CCCE	9.1031	0.007019473	0.00082582	9.518487622	455155	kWh	PG&E data / CCCE data
Commercial / Industrial	Commercial Non Government Electricity	473.564344	0.078161105	0.009195424	478.1896423	5068104	kWh	PG&E data
Commercial / Industrial	Commercial City Gas	51.302152	0.004838	0.00009676	51.4632574	9676	Therms	PG&E data
Commercial / Industrial	Commercial District Gas	71.884516	0.006779	0.00013558	72.1102567	13558	Therms	PG&E data
Commercial / Industrial	Commercial Non Government Gas	5048.214468	0.476067	0.00952134	5064.067499	952134	Therms	PG&E data
Commercial / Industrial	Commercial County Electricity	13.81171	0.0013025	0.00002605	13.85508325	2605	Therms	PG&E data
Wastewater	Process N2O Emissions from wastewater treatment			0.032704	8.6666	10220	population based	State of California Department of finance
Wastewater	Process N2O emissions from effluent discharge			0.63001	166.95	10220	population based	State of California Department of finance
Solid waste	Solid Waste Disposed of Outside Jurisdiction		90.3168198		2528.870955	8839	Tons of waste	Calrecycle

**CITY OF CAPITOLA
COMMISSION ON THE ENVIRONMENT
Agenda Report**

Meeting Date: March 17, 2021

Agenda Item: 3

Subject: Gas Powered Leaf Blower Ban

Previously, the City Council has asked the commission to advise the Council on consideration of prohibiting gas-powered leaf blowers in the city. Following Commission discussion, the commission requested staff provide comparison information on the emissions and noise impacts from gas powered landscape equipment and the impact and efficiency of battery powered equipment.

Preliminary research provides general comparison information for small gas-powered engines. The California Air Resources Board has represented that although automobiles produce more carbon dioxide, small engines generate more toxic emissions. Operating a gas-powered leaf blower for one hour is equal to driving a 2017 Toyota Camry about 1100 miles, or approximately the distance from Los Angeles to Denver; and operating a gas-powered lawn mower for one hour is equal to driving a 2017 Toyota Camry about 300 miles, or the distance from Los Angeles to Las Vegas.

Noise from gas-powered leaf blowers is ~65–78 dB(A) at 50 feet; and noise from an electric leaf blower is ~74 dB(A). Noise from gas-powered lawn mower is ~95 dB(A) at 50 feet; and noise from an electric lawn mower is ~75 dB(A).

Gas operated equipment is used by landscaping and gardening businesses, primarily because of the machine's ability to minimize the time per job and limited access to electricity. Although electric and battery powered equipment reduce pollution, save on fuel and maintenance of the equipment, they offer less power, performance and increase the time per job. Corded machines limit use to smaller residential yards while battery-operated equipment can require multiple battery changes to complete a large landscaping maintenance project. Lithium-ion batteries used to power equipment can run for 20 to 60 minutes and typically has a six-year shelf life, depending upon the number of times it is charged. Once lithium-ion batteries are non-functioning, there are no requirements or guidelines for disposal of lithium-ion batteries and are disposed of in the normal municipal waste stream. They can be recycled but have limited scape value and most end up in the landfill.

It is recommended that the Commission review and discuss the general comparison information.