



DENVER
THE MILE HIGH CITY

Office of Climate Action, Sustainability, and Resiliency

2020 Budget Overview
“Combating Climate Change”

Mitigating climate change by advancing carbon-free strategies to reduce greenhouse gas emissions; cultivating resiliency in the face of potential climate change-related emergencies; and securing an economically, socially and environmentally sustainable city for generations to come.



Data Collection,
Management,
Analysis, and
Reporting



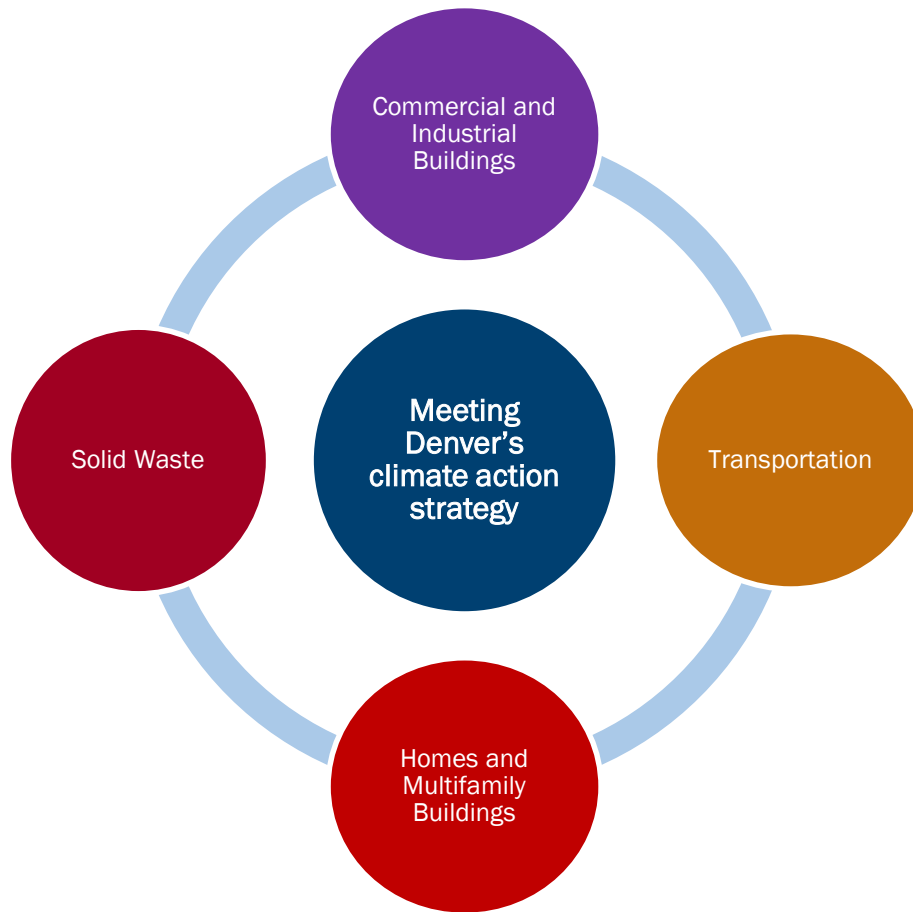
Community
Engagement,
Outreach, and
Partnerships



Policy,
Regulatory, and
Legislative
Activities



Implementation,
Programs,
Incentives, and
Actions





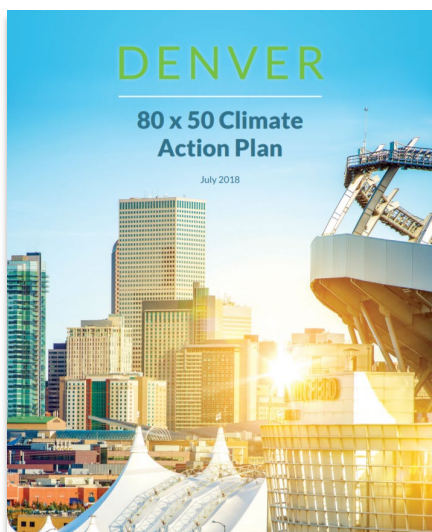
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Key Strategic Metrics



Denver's long-term climate goal: Reduce GHG emissions 80% by 2050 from 2005 baseline

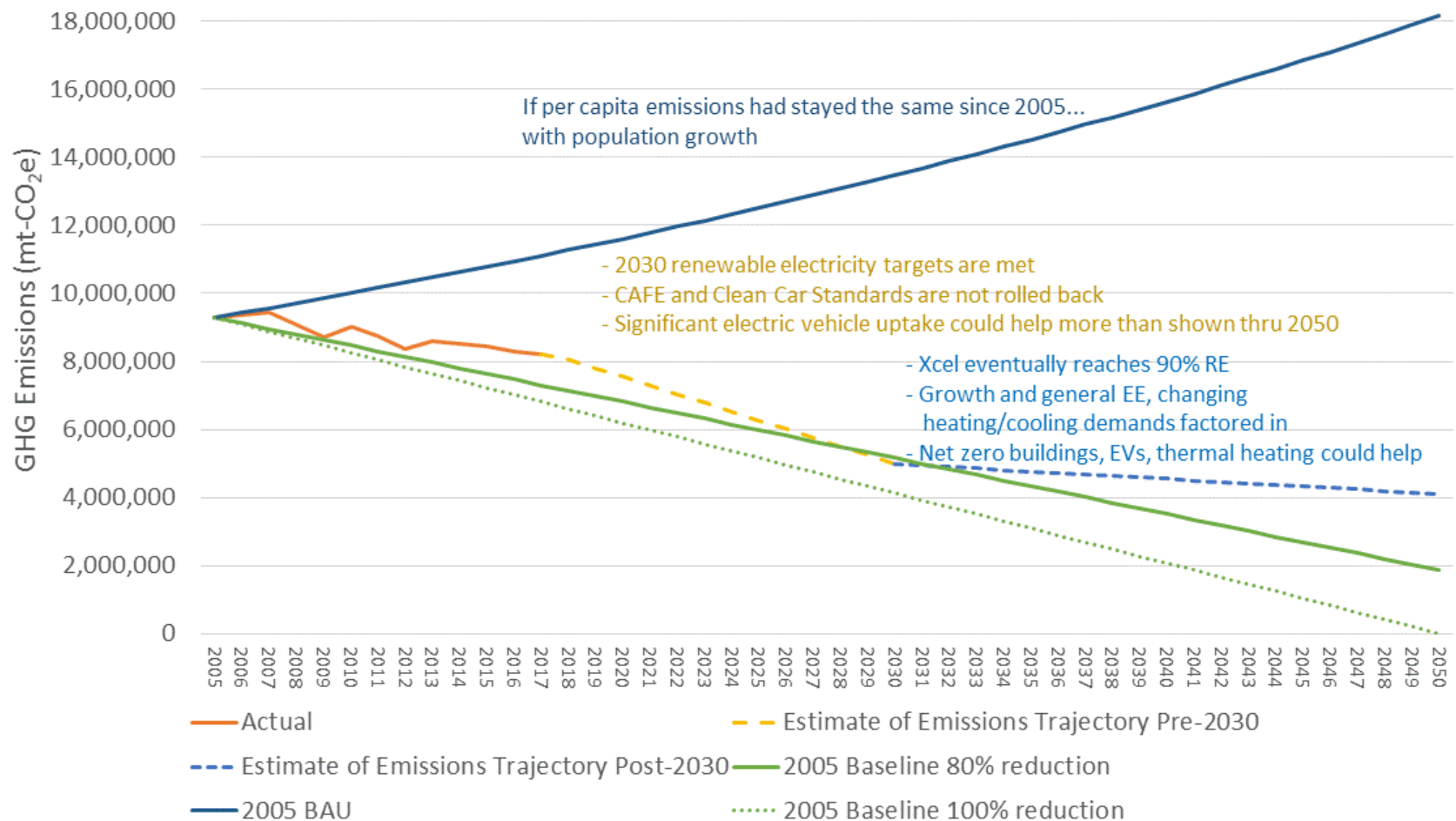
IPCC – requires cutting emissions in half by 2030 and be carbon free by 2050



EVERY ACTION MATTERS
EVERY BIT OF WARMING MATTERS
EVERY YEAR MATTERS
EVERY CHOICE MATTERS

Green House Gas (GHG) Emissions

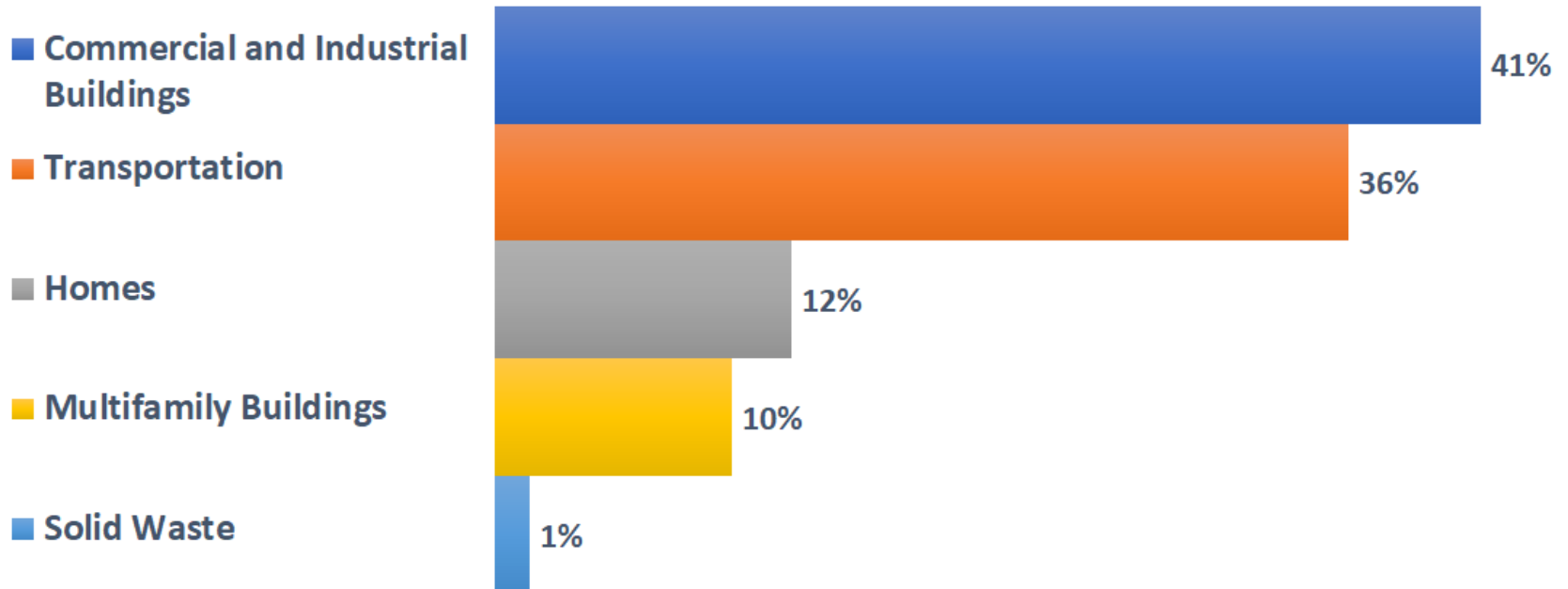
Denver Core GHG Emissions Relative to Business as Usual (BAU), Known Reductions, and Needed Reductions to Meet 80x50 or 100x50 Goal



Climate and Transportation

Meeting Denver's climate goals will require a reduction in carbon emissions and the elimination by 2050

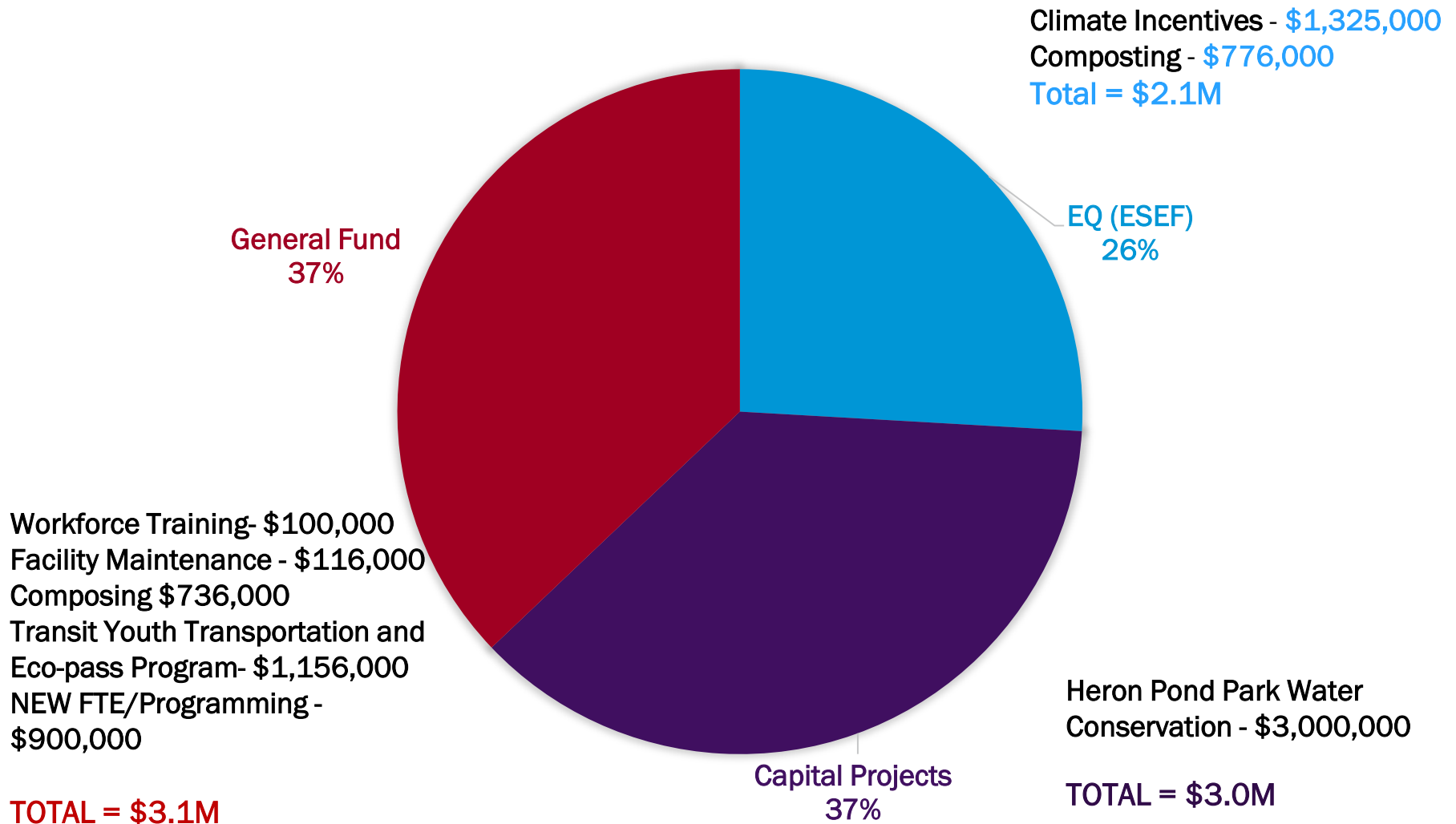
Denver's Greenhouse Gas Emissions



2020 New Investments

| Agency | Investment |
|----------------------------------|--------------------|
| Community Planning & Development | \$116,000 |
| Office of Children Affairs | \$150,000 |
| Human Resources | \$344,000 |
| Public Works | \$2,174,000 |
| Public Health & Environment | \$2,325,000 |
| Parks & Recreation | \$3,000,000 |
| TOTAL | \$8,109,000 |

2020 New Investments



| Agency | Investment |
|----------------------------------|---------------------|
| Community Planning & Development | \$116,000 |
| Office of Children Affairs | \$150,000 |
| Public Works/General Services | \$460,000 |
| General Services | \$1,700,000 |
| Human Resources | \$1,799,000 |
| Parks & Recreation | \$3,000,000 |
| Public Health & Environment | \$5,000,000 |
| Public Works | \$28,286,000 |
| TOTAL | \$40,511,000 |



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Individual Agency Total Investment



Adapt to the Changing Climate and Limited Resources: Incorporate more climate-resilient landscape, protect and expand tree cover across Denver, and continue to develop best practices to maintain our Mountain Park forest and mitigate fire risk.



\$3,000,000 is being invested into Heron Pond Park that will move forward the water quality effort in Denver.

Public Works Investments

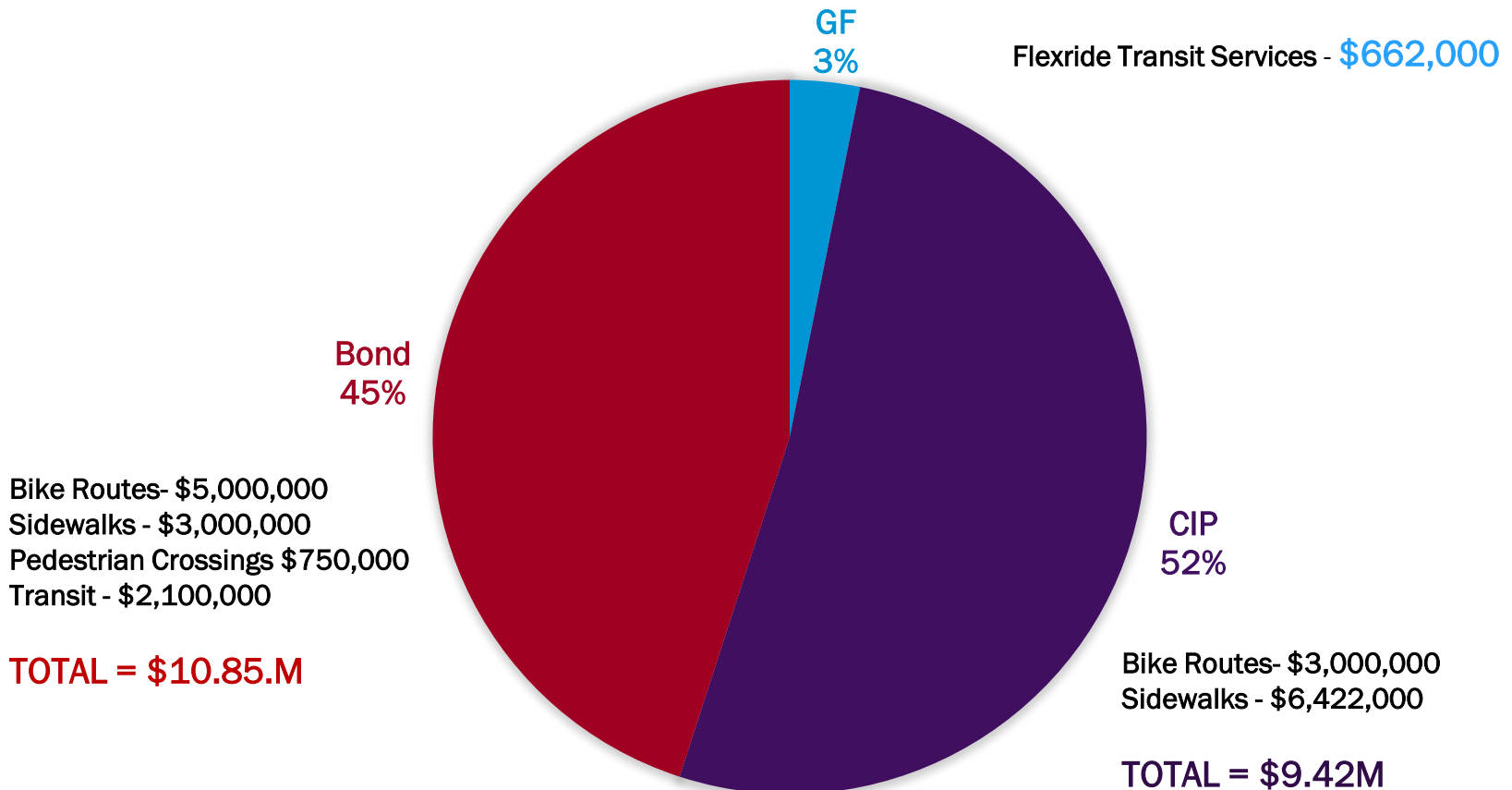
| | | | |
|---|---|--|---|
| Air Quality  Attain all National Ambient Air Quality Standards | Climate  Reduce Denver CO2 emissions to below 1990 levels. | Energy  Hold total energy use below 2012 levels, while cutting fossil fuels by 50% | Food  Grow and/or process at least 20% of food production in Denver in Colorado. |
| Health  Increase the % of youth in Denver at a healthy weight from 69% to 74% | Housing  Ensure 80% of neighborhoods are rated at affordable | Land Use  Move Denver's Walk Friendly rating from Gold to Platinum | Materials  Increase the citywide recycling rate to 31% or greater |
| Mobility  Reduce trips in single-occupant vehicles to no more than 60% of commutes | Water Quality  Make all Denver creeks and rivers swimmable and fishable | Water Quantity  Reduce per capita potable water usage by 22% | Workforce  Reduce single-occupant work commutes in transit deserts to less than 60% |

The Department of Public Works is dedicated to achieving the Mayor's goals of

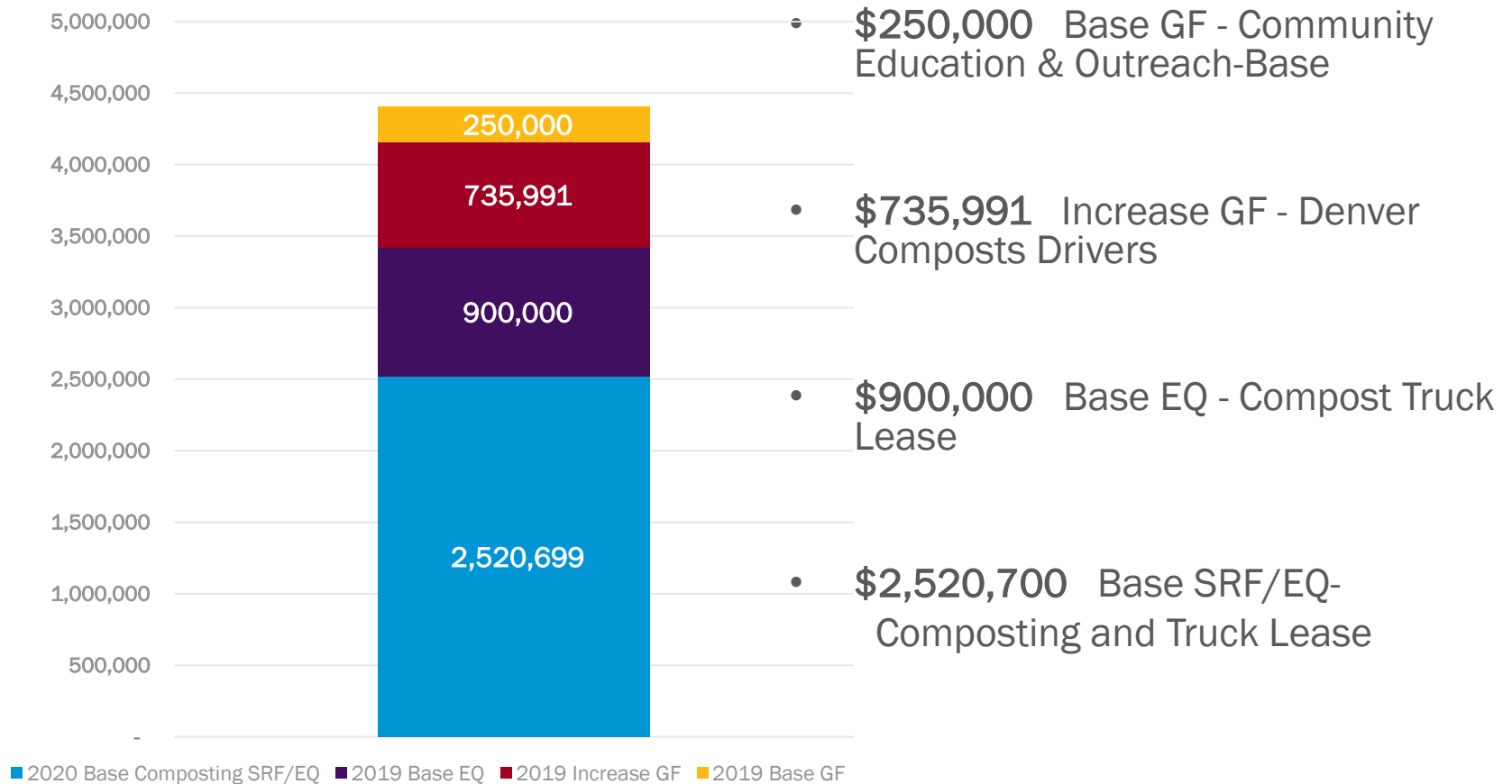
- reducing our carbon footprint,
- safeguarding our historically marginalized communities of color who are disproportionately affected by the health impacts of climate change,
- powering our city with 100% renewable electricity, and
- ensuring environmental justice and equity as Denver transitions to carbon-free energy and transportation systems.

Public Works TOTAL 2020 INVESTMENT = \$27.06M

Public Works Investments



Public Works Waste Diversion Investments



Public Works and General Services are working together to achieve the goals under the **80x50 Climate Action Plan** to maintain and update the City's building automation system and heating, ventilating, and air conditioning systems to be more energy efficient by reducing fossil fuel use and other environmental impacts.

| 2020 CIP Projects | Investment |
|------------------------|------------------|
| DFD Station #12 HVAC | \$68,000 |
| Montbello Library HVAC | \$90,000 |
| 700 W Colfax HVAC | \$250,000 |
| 700 W Colfax BAS | \$50,000 |
| TOTAL | \$458,000 |



**80x50
CLIMATE
ACTION
PLAN**

\$1,700,000 is invested in the Energy Conservation Capital Projects Fund

General Services' goal is to achieve **100% renewable electricity** for 256 City and County of Denver municipal buildings by **2025**, utilizing an **Energy Savings Performance Contract (ESPC)** through **Energy Service Companies (ESCO)**.

- This is an alternative financing mechanism used to accelerate energy conservation investments.
- Guarantees improvements will generate energy cost savings to pay for the project.
- These reduced energy costs guarantee utility cost savings to be reinvested and pay for more capital projects.
- At contract completion, additional cost savings accrue to the agency.
- General Services is evaluating proposals and will award ESCO contract(s) in Q4 2019 for the \$1.7M in existing funds.

Public Works Electric Vehicles Investments

By the end of 2020

\$6.8M investment (\$2.9M in 2020)

22% of electric-eligible fleet will be converted by 2020

2018 Lifecycle Emissions Profile (mg/mile)

| Pollutant | New Gasoline Car | New Electric Vehicle | % Reduction |
|-----------|------------------|----------------------|-------------|
| NOx | 108 | 31 | 71% |
| VOC | 135 | 2 | 99% |
| GHG | 323,060 | 213,270 | 34% |

NOx – nitrogen oxide

VOC – volatile organic compound

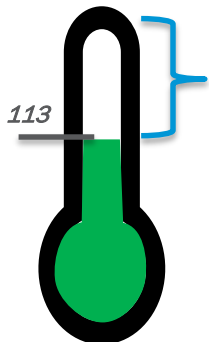
GHG – greenhouse gas



Beyond 2020

Because electricity becomes cleaner each year, existing EVs will also reduce their emissions every year. The same 2018 Nissan LEAF, if on the road in 2030, would have improved its mpge from 52 to 150 mpge, while a comparable new gasoline vehicle bought in 2018 would at best maintain its original fuel economy of 34 mpg.

Mayor's 2020 EV Goal = 200



Adding 87 Vehicles in 2020

22 for DPW

16 for DFD

40 for DPD (Incl. 30 Zero Motorcycles)

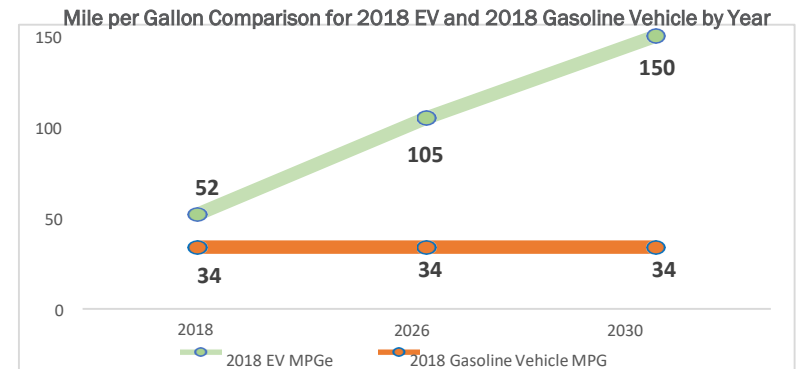
5 for DPR

1 for DEH

1 for DHS

1 for DMV

1 for CAO



27% of fleet is electric-eligible (900 vehicles)

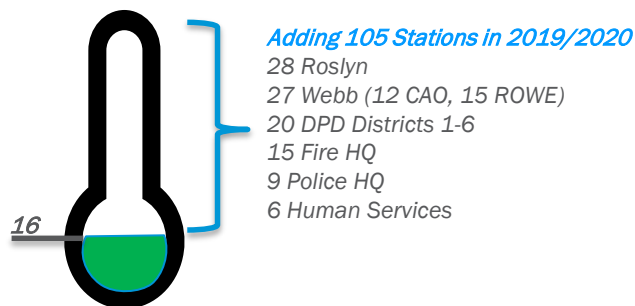
By the end of 2020

*\$1.3M Contribution by Xcel Energy
for load testing and load capacity expansion*

*\$500K City Investment from EQ/ESEF
for charging stations and installation*

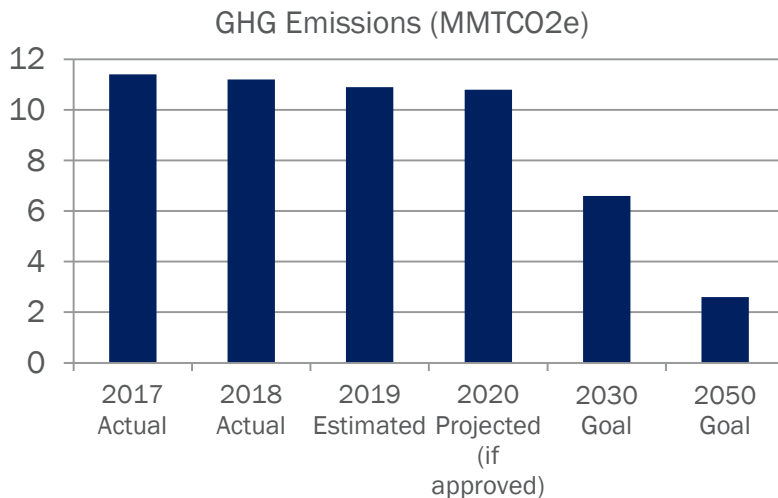
121 charging stations = 230 ports

Charging Stations

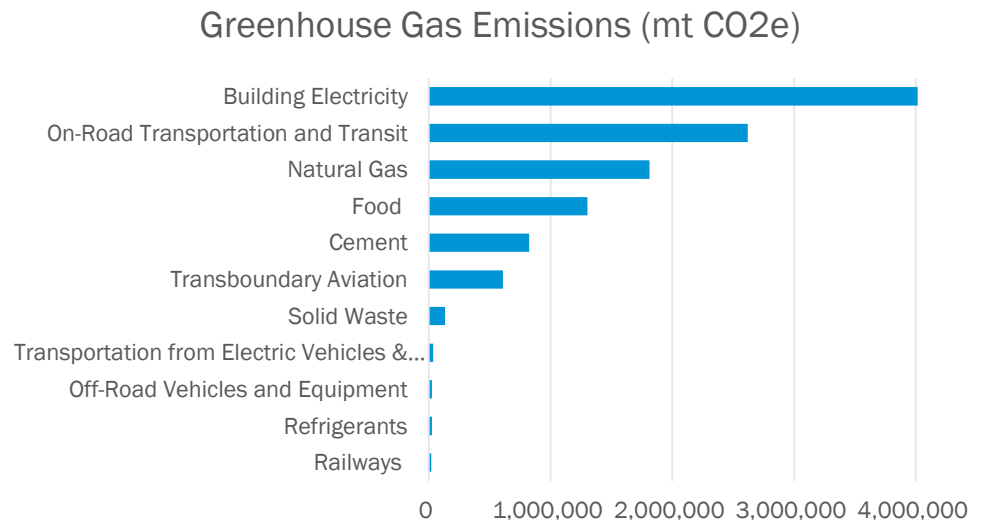


| | Expenditures | Revenues | FTE | Revenue Duration |
|---------------------|--------------|-------------|-------|--|
| NEW FTE/Programming | \$2,325,000 | \$1,325,000 | 11.12 | \$1,775,000 onetime transfer from ESEF |
| FTE TRANSFER | \$2,200,000 | \$2,200,000 | 16.5 | Temporary |
| TOTAL | \$4,525,000 | \$3,525,000 | 27.62 | |

Establishes new Office of Climate Action, Sustainability and Resilience to accelerate action towards climate and sustainability goals. Includes a new General Fund investment and moves EQ's Climate Action Team & Office of Sustainability staff to the new office; funded by ESEF transfer.



80x50 plan 2020 GHG goal = 11.26M tons (15% below 2005)



\$116,000 invested in 1 FTE for Green Buildings Compliance



RTD EcoPass Program



OHR and OCA working together to invest \$2.0M in the RTD Eco-pass program to provide access and options for youth and employees to help reduce climate emissions.



DEN Energy Programs

- **DEN hosts 7 solar photovoltaic arrays totaling over 15 megawatts of power generating capacity**
 - 4 arrays interconnected at DEN electric meters
 - 2 on-site Community Solar Gardens
 - Xcel-owned solar canopy at Peña Station NEXT parking lot, part of a microgrid/battery storage demonstration project
- **Renewable energy purchasing**
 - Xcel's Renewable*Connect Program
 - Off-site Community Solar Gardens
- **Energy efficiency**
 - Xcel Energy Annual Achievement Awards in 2014, 2016, and 2018 for lighting, HVAC, and control projects
- **Green building**
 - 4 Leadership in Energy and Environmental Design (LEED) certified buildings, including LEED Platinum hotel
- **Over 50 electric vehicle charging stations for passengers and employees**

DEN Energy Projects

- **Energy Master Plan**
 - “Ensure that Denver International Airport can meet its future energy needs with energy that is low-carbon, cost-effective, reliable, and resilient”
- Comprehensive energy audits/Energy Performance Contract
- New large-scale solar project
- Planning first net-zero energy building
- DEN Real Estate energy goals
- Xcel Community Resiliency Initiative application



DEN Sustainability Highlights

- **Climate**

- 28% reduction in DEN-controlled greenhouse gas emissions between 2013 and 2018 despite passenger growth

- **Food**

- DEN's partners donated 177,836 pounds in 2018 – almost 150,000 meal-equivalents

- **Materials**

- Over 20 separate materials diverted from the landfill
- Composting increased from 65 tons in 2013 to 144 tons in 2018
- New glass program recycled 325 tons in the first 12 months

- **Mobility**

- All DEN city employees offered RTD EcoPass

- **Water Quality**

- DEN collects an industry-leading 70% of the deicing fluid applied to aircraft each winter season