

Impacts of Occupancy on BU Emissions and Energy Use

Amid coronavirus pandemic, air pollution declines in Boston and elsewhere

Air pollution has dropped significantly as travel, economic activity ground to a halt

By David Abel Globe Staff, Updated March 28, 2020, 4:47 p.m.



A man sits under a star magnolia tree in the Public Garden in Boston during the coronavirus state of emergency. CRAIG F. WALKER/GLOBE STAFF/THE BOSTON GLOBE

CLIMATE CHANGE

Covid-19 paused climate emissions – but they're rising again



(image credit: Getty images)



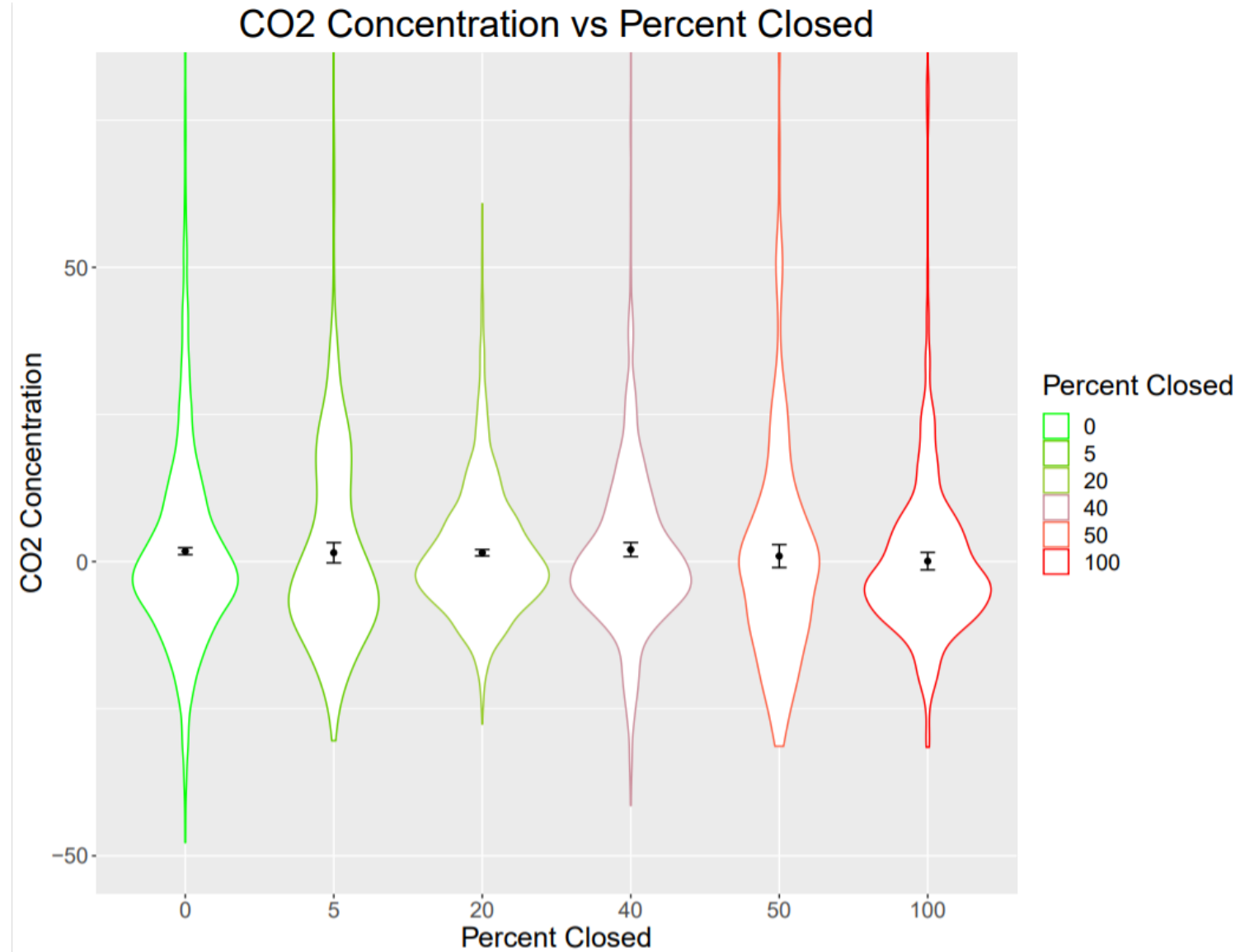
Yes, the Air Was Better During Lockdown

The drop in traffic-related air pollution in the Boston area found by Tufts researchers offers lessons for the future



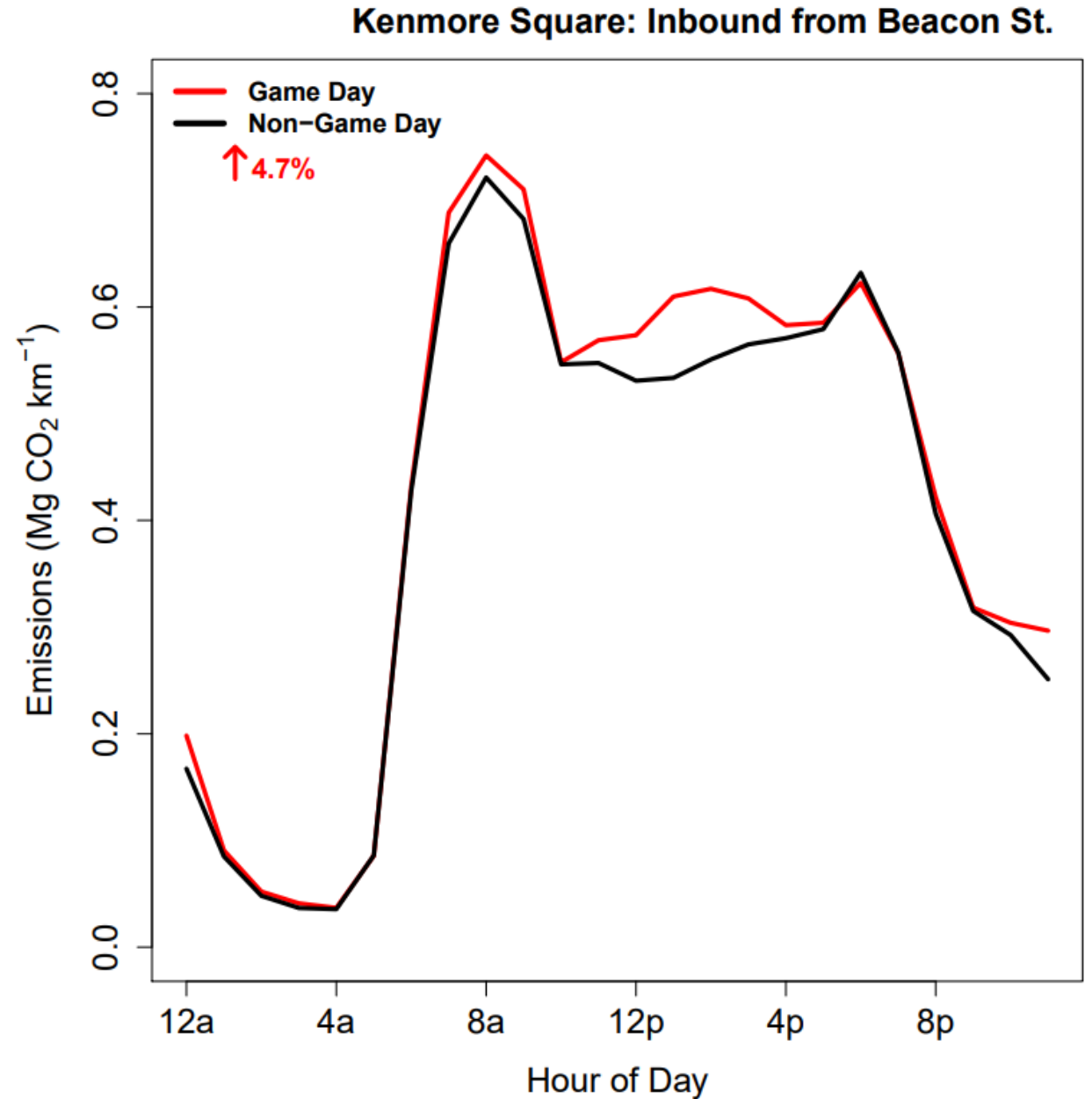
CO2 Signal

- No COVID signal seen in the CO2 data
 - Occurred during a time of high variability due to changes in energy use and photosynthetic uptake
- Little correlation seen between percent closure and CO₂ concentration



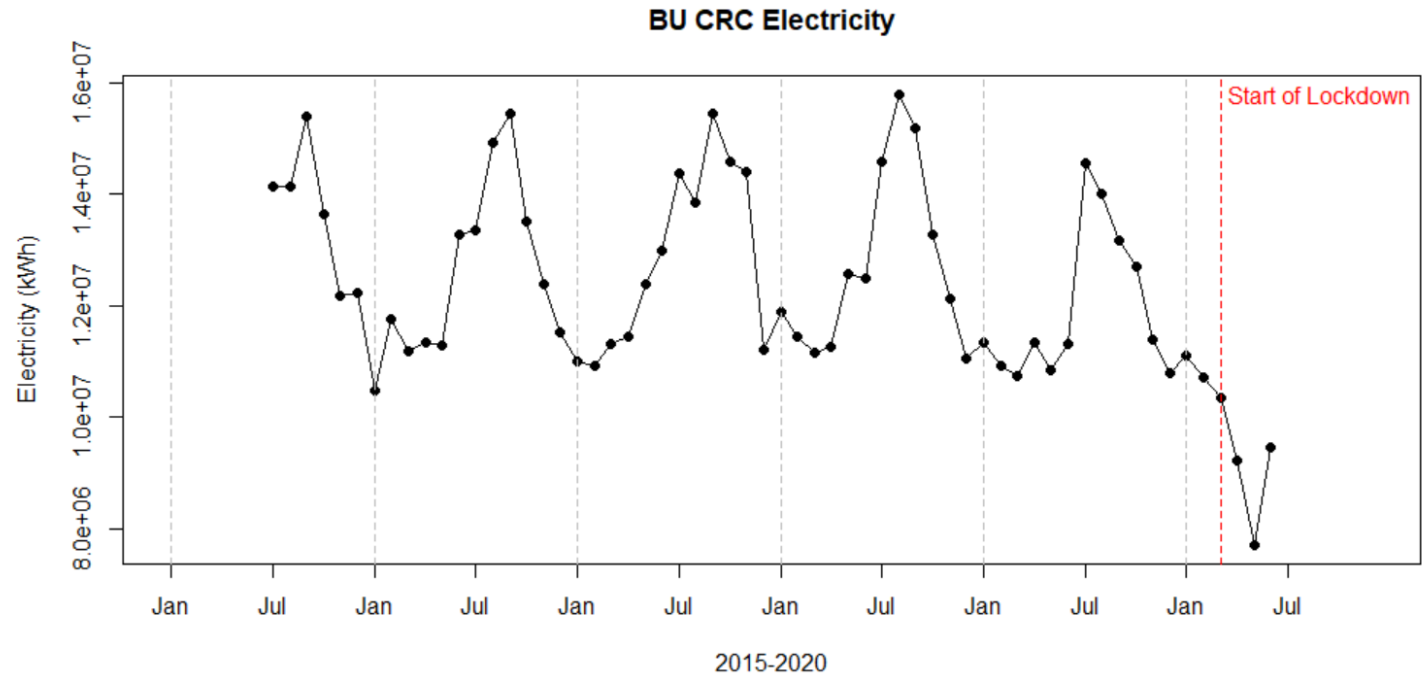
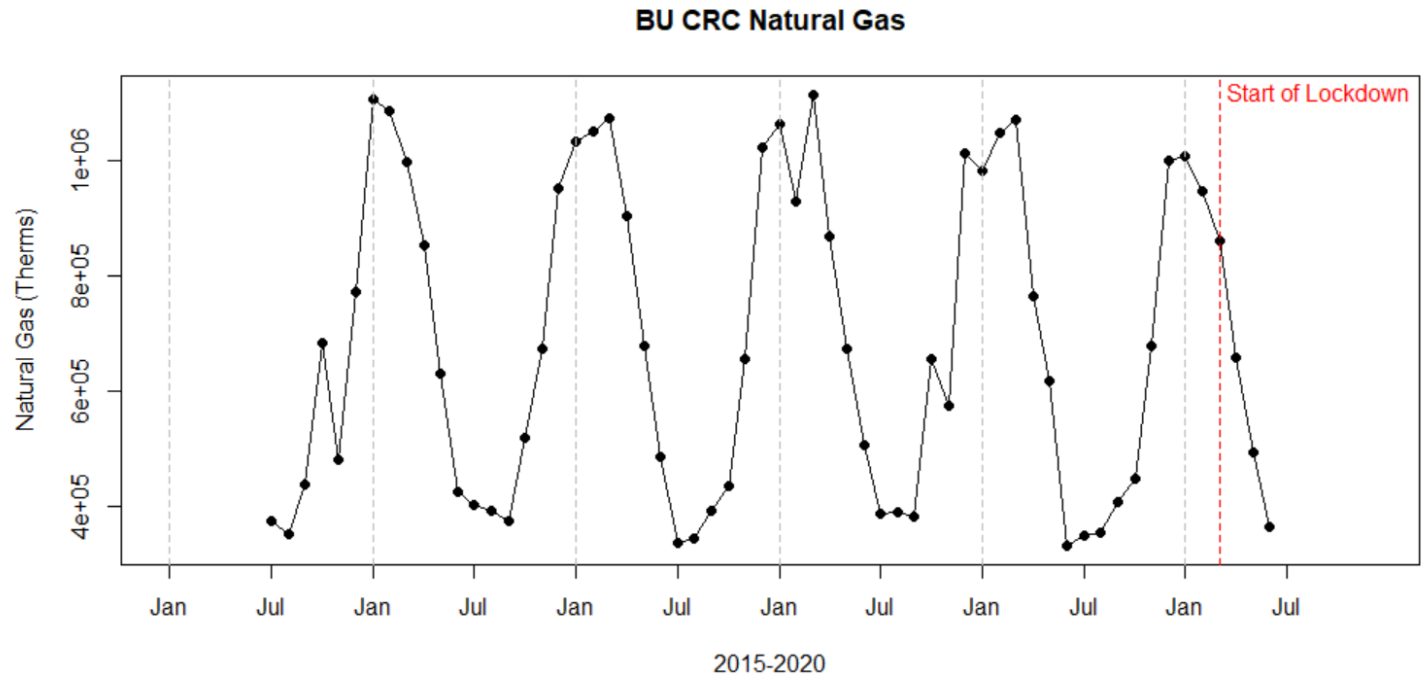
CO₂ emissions and Red Sox games

- Data is for weekday daytime games
- CO₂ emissions increased by 4.7%
- Commuters may adapt their departure times to avoid games
 - Less pronounced emissions effect



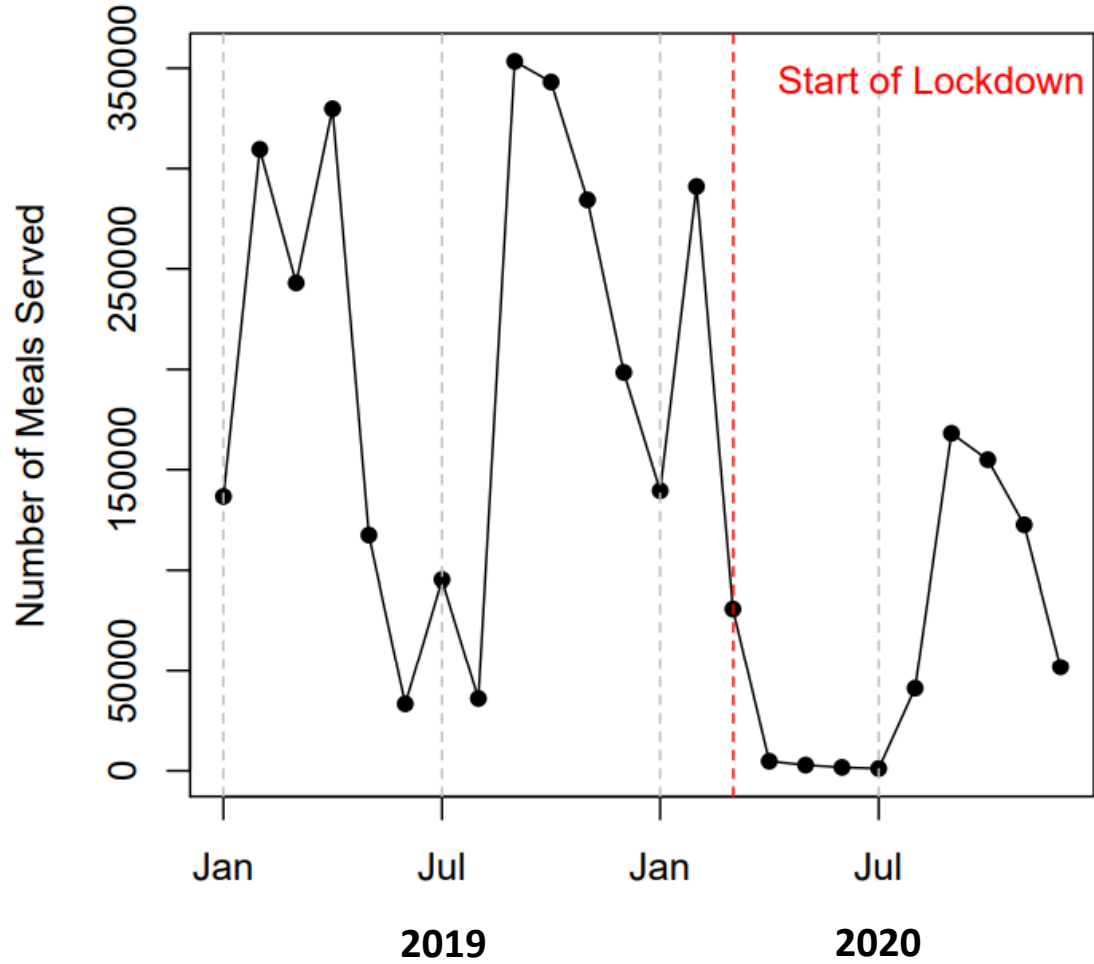
BU Energy Use

- Natural gas use did not decrease
 - Building temperatures were not modified
- Electricity use decreased by 22-37% compared to past years

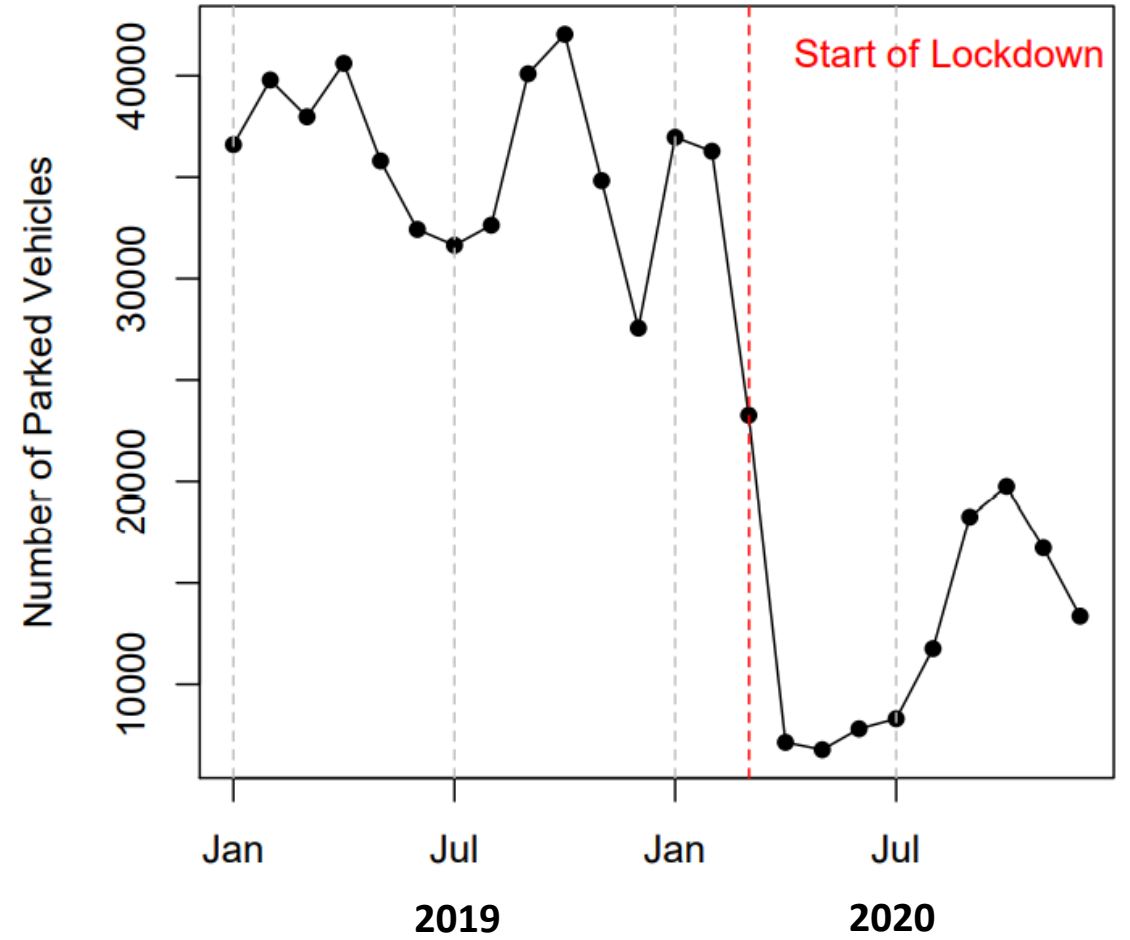


BU Occupancy Data

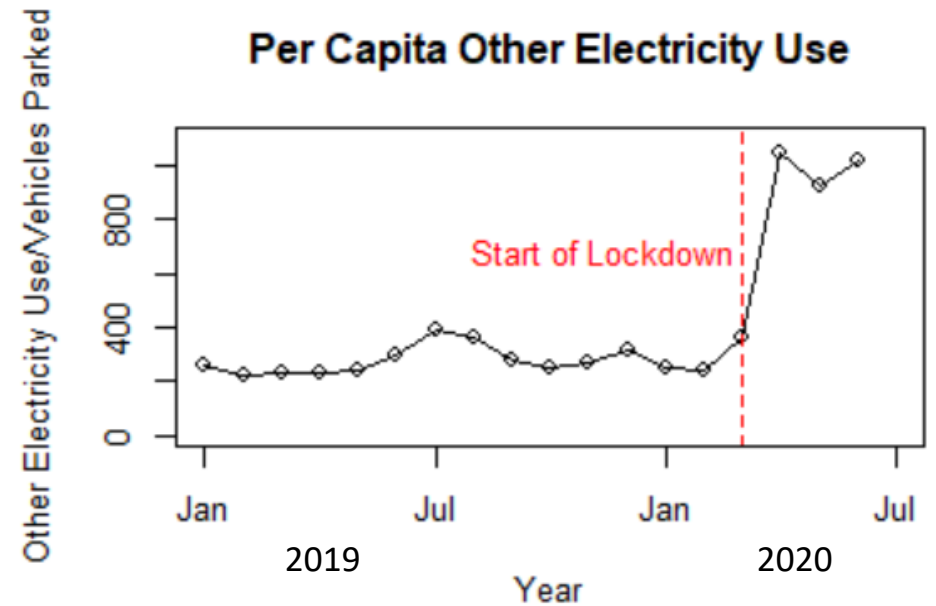
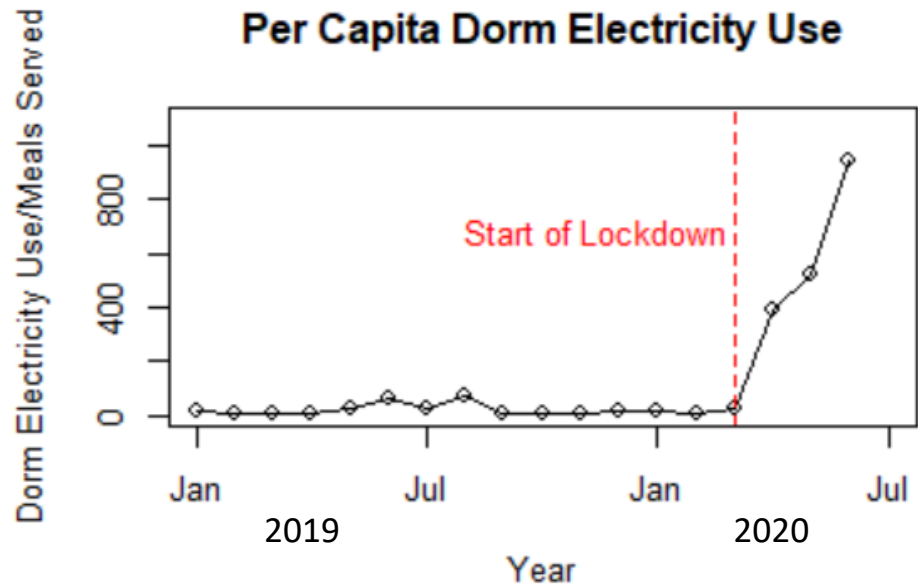
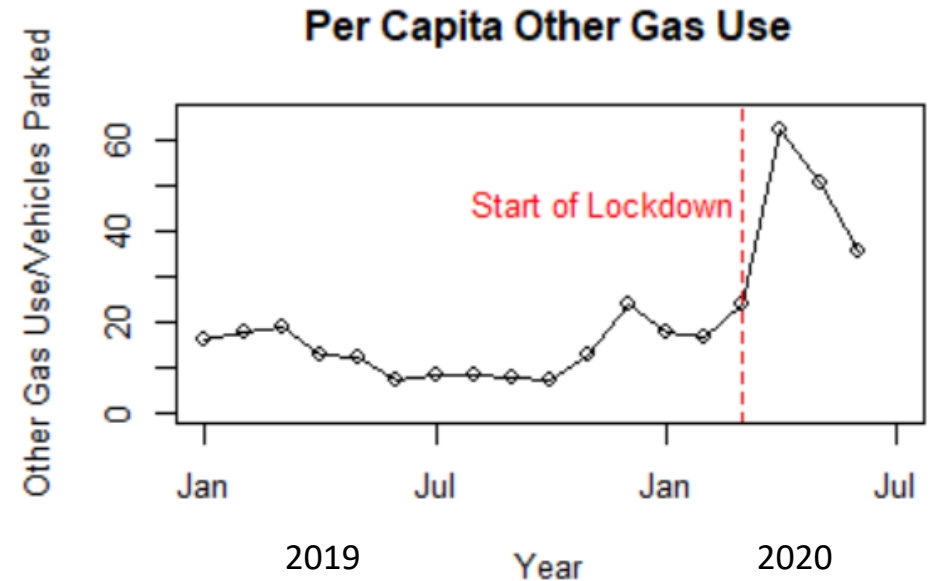
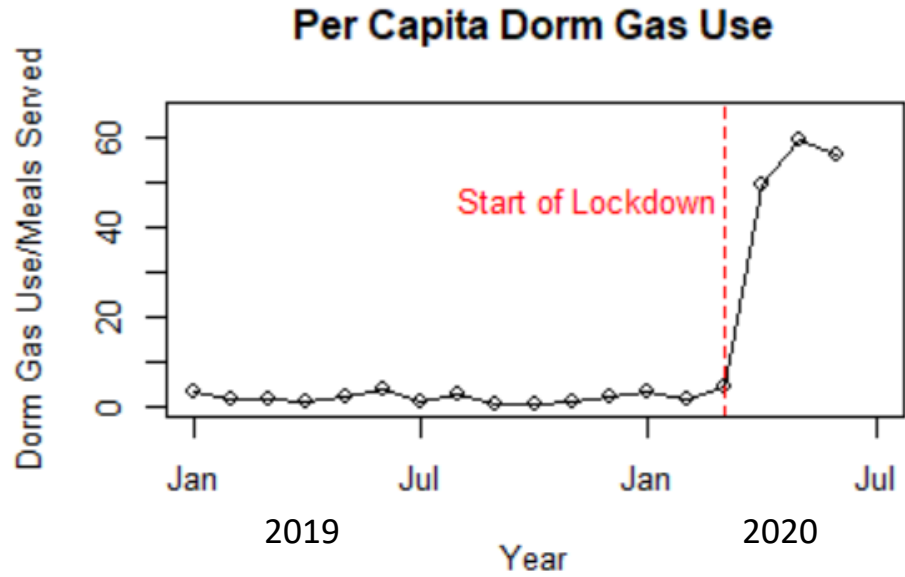
BU Monthly Meals Served



BU Monthly Parked Vehicles



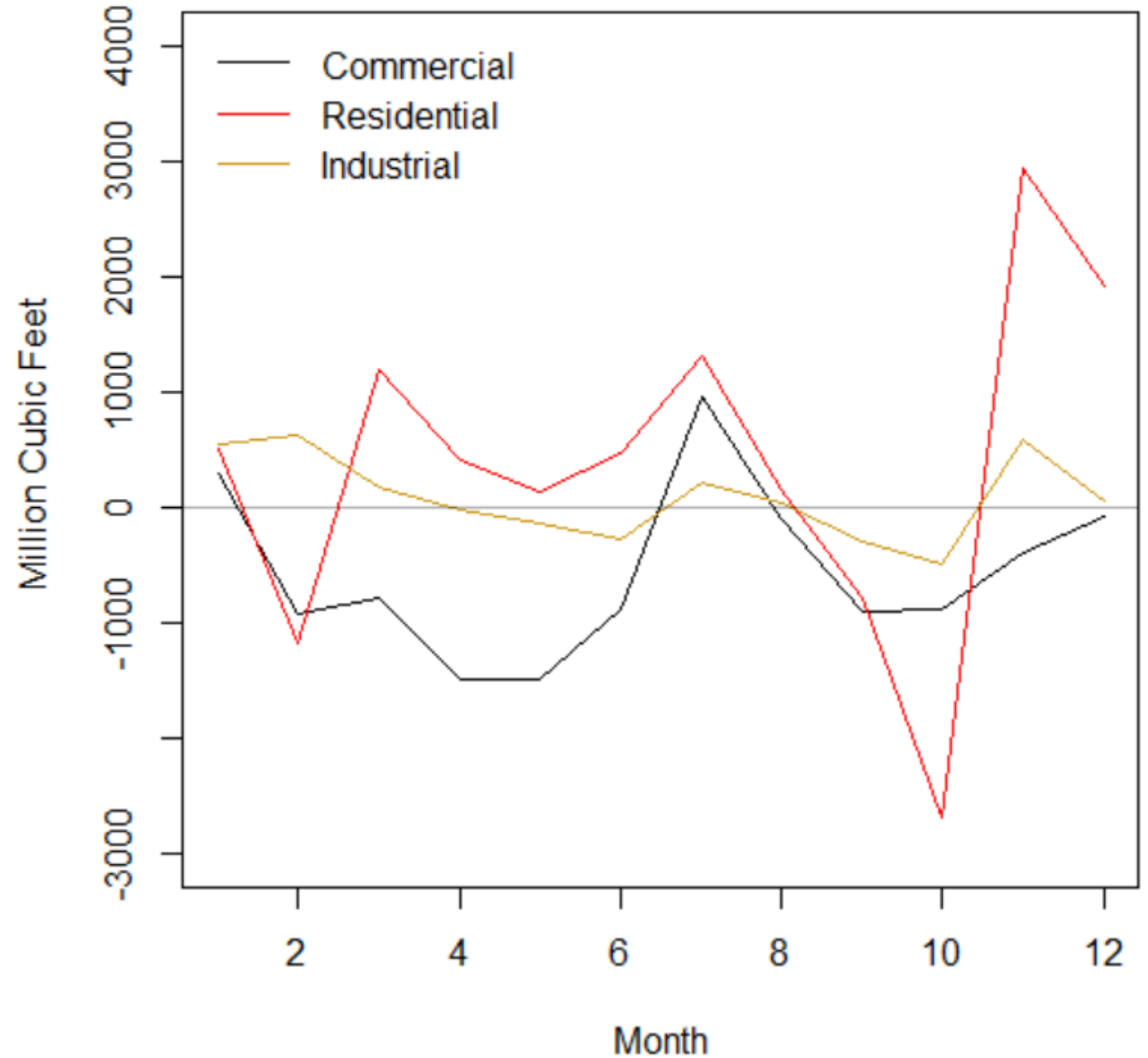
Energy Use During COVID



Massachusetts Energy Use

- Compared observed 2020 data to a prediction of 2020 based on past years had COVID not occurred
- Natural gas use does decrease for commercial sector
- Net change in gas use is a 1293 million cubic feet decrease or 0.5%
 - The commercial decrease was offset by an increase in residential gas use

2020 Gas Use Difference



Lessons Learned & Next Steps

- Started this research with expectations about CO₂, early data did not support our hypotheses
- Learned from COVID about how our buildings use energy
- Opportunities for emissions reduction during moments of lower occupancy
- Next steps: Write a short paper bringing together BU and state data



**RECOMMENDATIONS OF THE CLIMATE ACTION TASK FORCE
FOR BOSTON UNIVERSITY'S CLIMATE ACTION PLAN**

SYNTHESIS AND OVERVIEW
December 2017