Transportation Equity and Climate Justice

Tony Cherolis, Transport Hartford Coordinator, Center for Latino Progress

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October 1, 2020

Special series:
Equity and Environmental Justice in Climate Solutions

Archive: https://portal.ct.gov/DEEP/Climate-Change/GC3/Webinars
Transportation is the highest emitting sector

Since 1990, Connecticut has not made progress in reducing greenhouse gas emissions from this sector

How can this sector reduce emissions while reducing inequity?

<table>
<thead>
<tr>
<th>Connecticut Emissions by Sector (MMTCO₂e)</th>
<th>1990</th>
<th>2001</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>15.6</td>
<td>17.8</td>
<td>15.4</td>
<td>15.5</td>
</tr>
</tbody>
</table>
Note – Car ownership (or zero car ownership) tracks with average income. Surprisingly high % of zero car households in many Hartford neighborhoods.

Low Car Ownership Rate in Hartford Lines up With Resident Transportation Mode

- Hartford Walking Mode Share 8-9%
- Hartford Transit Mode Share 17% (bus riders have walking component)
- Hartford Bike Mode Share 1%
Safety for those outside of cars must be a priority

Connecticut has seen a steady rise in pedestrian fatalities

Crash fatalities in cities disproportionately impact pedestrians

Priority for speed and flow of cars results in less safety for those on foot

43% of Households in Frog Hollow are Zero-Car
Hartford, 32% of Households with Zero Car
New Haven, 29% of Households with Zero Car

CT’s lowest car ownership cities don’t have connected bike route networks
Transportation and Climate Initiative

Cap-and-invest to reduce emissions from gasoline and diesel

1. CAP POLLUTION
2. POLLUTERS PAY
3. COMMUNITIES BENEFIT

35% of revenue (minimum) dedicated to projects that benefit overburdened and under served communities

Equity Advisory Body in each state, including residents

Annual reports will include equity projects and level of investment

Get more info here

Under the proposed policy, suppliers of fossil fuels will be required to both cut and pay for their pollution. States will invest these payments in clean transportation solutions that benefit communities.

Image: Jessica Russo, NRDC
CT CHEAPR Electric Vehicle Rebates

Focusing on EV cars is inequitable and not accessible by low income households

CT’s electric vehicle rebate program provides state-level incentives to those purchasing electric vehicles. **Current Funding:** $3 million per year from a $5 emissions reduction fee on vehicle registrations through 2025

**Proposals to Update CHEAPR Rebates in 2021:**
- Add low- and moderate-income (LMI) additional incentive for households making less than $75k, or individuals making less than $50k
- Add rebate for used EVs, but only applying to low- and moderate-income households
- Considering temporarily higher stimulus rebates in 2021 in response to reduced EV sales during the pandemic and underspending the 2020 budget

E-Bike Rebates – An [e-bike rebate pilot was proposed for 2021](#), but CT DEEP has defined an e-bicycle as “not a battery electric vehicle”
Equity considerations in the transportation section (LINK)

- Labor and community-based organizations were at the forefront of the process
- Not a car-centric report, the recommendations are multimodal
- Benefits to low income households and overburdened communities throughout
- Detailed section on the Transportation and Climate Initiative (cap-and-invest)

Opportunity to review and comment on the draft report

- Transportation topics are on pages 77 through 117 of the Mitigation Strategies report
- Email comments to deep.climatechange@ct.gov, Due by Wednesday, Oct 21st
- Questions? - Email tony_cherolis@ctprf.org, call 860-247-3227 ext 20
What is your vision for CT’s Transportation Future?

TAKE THIS SURVEY

We need to understand what residents think, post pandemic

Learn more about Transport Hartford
Air pollution from vehicles: who bears the burden?

Maria Cecilia Pinto de Moura
Senior Vehicles Engineer

October 1, 2020
Climate and local emissions

Greenhouse gases
- Nitrous Oxide: 7%
- Fluorinated Gases: 3%
- Methane: 10%
- Carbon Dioxide: 81%

Criteria air pollutants
- Particulate Matter
- Nitrogen Dioxide
- Ground-level Ozone
- Sulfur Dioxide
- Carbon Monoxide
- Lead

Complex interactions

Greenhouse effect and global warming

Local air pollution and health impacts

https://www.epa.gov/ghgemissions/overview-greenhouse-gases

Global warming is making it harder to protect human health

https://www.epa.gov/criteria-air-pollutants
Air pollution creates more air pollution

Combustion of fossil fuels

- Particulate matter (direct)
- Nitrogen oxides (NOx)
- Volatile organic compounds

Emissions

- Particulate matter (indirect)
- Ground-level ozone
PM2.5 is about 30 times smaller than the diameter of a single human hair

- The particles are small enough to penetrate deeply into the lungs
- The smallest can even enter the bloodstream

PM2.5 pollution is responsible for:

- Almost all of the 3 to 4 million annual deaths attributed to air pollution worldwide
- About 95 percent of the global public health impacts from air pollution

In the U.S., it is the largest environmental health risk factor, responsible for 63 percent of deaths from environmental causes

- Increased risk of death from cardiovascular and lung diseases, including slow lung function in children.
- Increased risk of lower birth weight and infant mortality
- Link between prenatal exposure and autism
- Damage to nervous system, including cognitive effects

An increase of 1 µg/m³ in long-term exposure to PM$_{2.5}$ is associated with an 8% increase in mortality from COVID-19 in the U.S.

Most major sources of diesel emissions, such as ships, trains, and trucks operate in and around ports, rail yards, and heavily traveled roadways. These areas are often located near highly populated areas.

https://ucsusa.org/resources/ready-work
https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health
Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic

Who Bears the Burden?

In the Northeast and Mid-Atlantic region, transportation is a significant source of both global warming emissions and air pollution (EPA 2019). The region contains four of the 20 US metropolitan areas that are most polluted by year-round fine particulate matter. This air pollution has a significant impact on the health of the region’s residents, and varies greatly geographically and across different types of community. This analysis from the Union of Concerned Scientists (UCS) quantifies the formation of fine particulate matter from on-road vehicles in the Northeast and Mid-Atlantic, covering the District of Columbia and 12 states: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia. The analysis identified the locations and populations most exposed to fine particulate matter by measuring the annual average concentration using a 2014 estimate of emissions as input data (EPA 2014). Research links exposure to particulate matter smaller than 2.5 micrometers in diameter (PM2.5) to the development of increased risks for respiratory and cardiovascular diseases. The use of vehicles that burn fossil-fuel-based fuels in the Northeast and Mid-Atlantic directly produces PM2.5, and at the same time, produces gases that lead to the formation of additional PM2.5.

The UCS analysis of annual average PM2.5 concentrations due to cars, trucks, and buses in the Northeast and Mid-Atlantic finds that:

- Millions of residents in the Northeast and Mid-Atlantic live near highways and suburban areas, and are exposed to high levels of vehicle air pollution, in certain New York City neighborhoods, pollution levels are 3-4 times the national standards. People of color are disproportionately exposed to more of this pollution.

https://blog.ucusa.org/cecilia-moura/quien-respira-el-aire-mas-contaminado-por-emisiones-de-vehiculos-en-california
**PM$_{2.5}$ exposure in Connecticut**

Disproportionately high exposure for people of color

![Map showing PM$_{2.5}$ exposure in Connecticut](https://www.ucsusa.org/sites/default/files/attach/2019/06/Inequitable-Exposure-to-Vehicle-Pollution-Northeast-Mid-Atlantic-Region.pdf)
What are some of the drivers of air pollution inequity?

- Residential segregation
  - Housing market dynamics

- Other segregation
  - Communities and individuals have distinct vulnerabilities and adaptation responses
  - Impact of pollution on particular individuals

- This is a very complex subject!
**CO₂** mitigation policies reduce local air pollution and have many other benefits

**Climate target in study:**
- **40% reduction in CO₂ by 2030**
- **80% by 2050** (relative to 1990)

**Reducing Emissions from Transportation in the Northeast and Mid-Atlantic**

HIGHLIGHTS

Our transportation system—how we move people and goods around—is complex, inefficient, costly, and unhealthy. Our gasoline- and diesel-burning vehicles are not only a major source of air pollution but also the largest source of climate pollution in the Northeast and Mid-Atlantic, responsible for almost 60 percent of regional emissions. By investing in three proven strategies for reducing** CO₂** emissions in transportation, we can reduce our carbon footprint, improve public health, and save consumers money.

1. **Cut climate-damaging carbon dioxide (CO₂) emissions from on-road transportation by 17 percent in 2030, relative to 1990 levels, and by 71 percent in 2050.**
2. **Reduce consumer spending on gasoline and diesel fuel by more than $125 billion by 2030 and more than $1 trillion by 2050.**
3. **Improve air quality, leading to more than $1 billion in cumulative avoided health impacts by 2030 and more than $10 billion by 2050.**
4. **Save almost $26 billion in environmental damages region-wide by 2030 and almost $156 billion in 2050, by reducing the risk of property damage from extreme climate events, preserving ecosystems, and avoiding climate-related changes in agricultural productivity, among other benefits.**
5. **Together with efforts to provide residents with more transportation options through investments in public transportation, walking and biking infrastructure, and affordable housing near transit, these investments in clean vehicles and fuels can put the region on track to build a clean and modern transportation system.**

Furthermore, by directing investments toward the communities that need them the most, the region can make its transportation system more equitable (see boxes, p. 2).

### Benefits of a climate policy in CT

#### Investments

<table>
<thead>
<tr>
<th>CLIMATE MITIGATION STRATEGY</th>
<th>2030</th>
<th>2050</th>
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</thead>
<tbody>
<tr>
<td>Vehicle technology</td>
<td>$2.91</td>
<td>$12.60</td>
</tr>
<tr>
<td>Charging infrastructure</td>
<td>$1.19</td>
<td>$9.20</td>
</tr>
<tr>
<td>Incremental electricity cost</td>
<td>$3.64</td>
<td>$27.28</td>
</tr>
<tr>
<td>Low carbon fuel standard</td>
<td>$1.09</td>
<td>$3.06</td>
</tr>
<tr>
<td>Low carbon grid</td>
<td>$0.02</td>
<td>$0.69</td>
</tr>
<tr>
<td>Gasoline and diesel savings</td>
<td>$6.66</td>
<td>$53.78</td>
</tr>
<tr>
<td>Utility net revenue from EV charging</td>
<td>$1.15</td>
<td>$7.19</td>
</tr>
<tr>
<td>Monetized GHG mitigation</td>
<td>$1.29</td>
<td>$10.09</td>
</tr>
<tr>
<td>Monetized NOx reduction</td>
<td>$0.06</td>
<td>$0.60</td>
</tr>
<tr>
<td>Monetized PM2.5 reduction</td>
<td>$0.10</td>
<td>$0.90</td>
</tr>
</tbody>
</table>

#### Revenue

| Net investment                          | -$8.81 | -$51.46 |
| Net revenue                              | $9.25  | $72.56  |
| NET FINANCIAL + ENVIRONMENTAL BENEFITS   | $0.44  | $21.10  |

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Are EVs really better for the climate?

94 percent of people in the US live where driving an EV produces less emissions than using a 50 mpg gasoline car.

https://blog.ucsusa.org/dave-reichmuth/are-electric-vehicles-really-better-for-the-climate-yes-heres-why
Are EVs affordable for everyone?

EVs will see big cost reductions

EVs are much cheaper to fuel and maintain:

- Even with today’s relatively low gasoline prices, every electricity provider surveyed in the 50 largest US cities offers a rate plan that would save the average EV owner on fuel costs, with median annual savings exceeding $770.

Should we be concerned over used EV batteries?

Used batteries, once removed from a vehicle, are considered hazardous waste.

Recycling and second use are beneficial for the environment.

In order to enable widespread reuse of EV batteries, policy will play an important role in reducing barriers and ensuring responsible, equitable, and sustainable practices.

https://blog.ucsusa.org/hanjiro-ambrose/a-quick-guide-to-battery-reuse-and-recycling

Thank you!
Essential Workers and Transportation Justice

Presentation by Taylor Mayes, Communications Coordinator for CT Roundtable on Climate and Jobs
About the Roundtable

The Connecticut Roundtable on Climate and Jobs seeks to build alliances among diverse constituencies to combat climate change, create jobs and promote racial, economic and environmental justice.

Our primary focus areas regarding climate have been around the expansion of Offshore Wind and Transportation Equity (and of course you will all know that John was actively involved in the GC3).

You can learn more about our work and partners at [https://ctclimateandjobs.org/](https://ctclimateandjobs.org/).
Major Take-Away
(From Two Years of Organizing Transit Equity Day Events)

• Transportation is an issue of *Civil Rights*.

• We need to think *holistically* about the impacts transportation has on access to employment, healthcare, polling sites*, education opportunities, libraries, green spaces...

• Which is part of the reason why we continue to highlight and celebrate Rosa Parks as a key figure in the modern-day movement for Transportation Equity.
We know that transportation provides access to opportunity and serves as a key component in addressing poverty, by providing avenues to good paying jobs and employment opportunities.

Greater New Haven NAACP 2013 Report on Urban Apartheid:

• **The lack of reliable public transportation**, combined with the sprawling distribution of jobs across our metropolitan area, may be **the largest barrier that residents face in accessing employment**.

• **In New Haven County**, **African-American workers are 6X more likely to rely on public transportation than non-minority workers**. A very large share of our younger residents and low-income families are unable to afford a reliable vehicle, and many elderly or disabled residents are unable to drive.

• **To illustrate**, a recent Brookings Institution analysis showed that **the average resident of the New Haven Metropolitan Area was able to reach only 27% of the area’s jobs within a 90 minute commute by public transit**.
Underfunded Bus Transit

Connecticut continues to fail to invest in a robust bus transit system but instead continues to funnel resources into expanding interstates and state routes.

*Completed but Not Funded Recommendations:*
- **Hartford** - [Hartford transit improvement plan](#) from 2016/2017.
- **New Haven** - The [Move New Haven transit plan](#)

While skipping transit system investments, the state is still planning expensive interstate widening projects for I-84 and I-95, along with converting Rt 9 through Middletown to a full speed interstate.
Historical Impact of Highways on Black Communities

The growth and expansion of highways has its own significant history and impact on Black Community

- *Urban Renewal* (which took place in the 50’s - 60’s) was a nationwide federally supported program that gave cities massive federal grants to rebuild their downtowns

- After the Housing Act of 1954, cities could use federal money to pay private developers to erect highways

- Many have pointed out that the program amounted to “Negro removal” because of the way it destroyed sometimes thriving Black communities

“Many neighborhoods, predominantly Black, were wiped out and turned into surface parking and highways” Norton says noting Black Bottom Paradise Valley in Detroit, historical neighborhoods that were torn down to make way for I-375”

- Peter Norton, a historian at the University of Virginia
Bridgeport 1913
Bridgeport 2013
Bus Electrification Goals

Transit goals in the GC3 have been updated

- Last year, General Assembly committed to electrifying 30% of Transit Buses in CT by 2030
- 50% of School Transportation to be ZEVs by 2030 (New Goal)

ZEV = Zero Emissions Vehicle
Most likely that these will be “Battery Electric” but technology and affordability for Hydrogen Fuel Cells could advance

Current progress toward these goals is starting, but very slow

“State officials say each replacement of a diesel bus with an electric bus will avoid 230,000 pounds of carbon dioxide annually, which is equivalent to planting 5,000 trees.”
The responsiveness of CT’s transit systems to rider and bus driver health and safety during the pandemic has been inadequate to say the least. Transit advocates and bus driver unions have played an important role in making sure the transit system safety is a priority.

"I was asked to join the Action Committee with Milford Transit. ATU was making demands to the bus company around safety protocols, and I joined because safety was important with the coming of this pandemic... I was concerned not only with our clientele (I was in the paratransit unit, so mostly I’m dealing with folks who were going to chemotherapy or dialysis) ... [but also] the drivers ourselves, we mostly were older and had underlying conditions ourselves."

- Wilbert Elliott, Bus Driver, ATU Local 1336
References


• Move New Haven Transit Mobility Study: [https://static1.squarespace.com/static/57e3fd6fd1758e2877e24804/t/5dd576f6adca850cb1a54f01/1574270717562/Move+New+Haven+Study+Final+Report_FINAL+09272019.pdf](https://static1.squarespace.com/static/57e3fd6fd1758e2877e24804/t/5dd576f6adca850cb1a54f01/1574270717562/Move+New+Haven+Study+Final+Report_FINAL+09272019.pdf)

• CT debuts first electric buses: [https://www.newhavenbiz.com/article/ct-debuts-first-electricbuses?fbclid=IwAR0DWXzAJww8SkoygBgU_e6yKBVUMHBwSmqZHhgnT8crJXgwYo6et1ua1Ro](https://www.newhavenbiz.com/article/ct-debuts-first-electricbuses?fbclid=IwAR0DWXzAJww8SkoygBgU_e6yKBVUMHBwSmqZHhgnT8crJXgwYo6et1ua1Ro)