Transit Equity and Climate: Moving to a Cleaner Future

GREATER CHARLOTTESVILLE - VIRGINIA
1. Introduction and Background
2. Community Surveys
3. Focus Groups and Survey Analysis
4. Scenario Analysis
5. Electrifying Transit
6. Recommendations
7. Conclusion
1. Introduction and Background

- Inequitable transportation burdens → structural barriers
- Car-centric planning → more air and climate pollution

Good news!

→ More affordable, equitable, convenient, and clean transportation is within our reach
1. Introduction and Background

**ESTIMATED ANNUAL COSTS OF TRAVEL MODES**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Internal Fixed</th>
<th>Internal Variable</th>
<th>External</th>
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</thead>
<tbody>
<tr>
<td>Average Automobile</td>
<td></td>
<td></td>
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<tr>
<td>Auto Used For Commuting</td>
<td></td>
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<tr>
<td>Transit</td>
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<tr>
<td>Bicycle</td>
<td></td>
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<tr>
<td>Walk</td>
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</table>

- Average Automobile: $11,000
- Auto Used For Commuting: $6,500
- Transit: $2,000
- Bicycle: $500
- Walk: $100
Climate Emissions

1. Introduction and Background

Charlottesville GHG Emissions in 2016

- Total Wastewater: 0.02%
- Total Waste: 6.3%
- Residential Energy: 29.8%
- Commercial Energy: 27.0%
- Community Transport: 26.6%
- Municipal Transport: 1.7%
- Municipal Energy: 2.9%
- Other Governmental Energy: 5.7%
- Industrial Energy: 0.002%

Albemarle County GHG Emissions in 2018

- Transportation: 51.4%
- Residential: 19.7%
- Commercial: 11.4%
- Industrial: 0.6%
- Government/Other: 7.7%
- Waste: 4.2%
- AFOLU: 5.1%
1. Introduction and Background

CAT - SIX YEARS RIDERSHIP TREND

- 2015: 2,430,794
- 2016: 2,261,575
- 2017: 2,093,365
- 2018: 1,863,600
- 2019: 1,846,613
- 2020: 663,934
Transit Equity and Climate: Moving to a Cleaner Future
Benefits of Transit Investment

- 2x1 return on investment
- Jobs
- Reduced emissions
- Reduced congestion
- Access to essential services
1. Introduction and Background

Transportation Equity
2. Community Survey
2. Community Survey

How often did you use CAT’s services?

- 18% 20 or more round trips per month
- 24% 16 to 20 round trips per month
- 14% 11 to 15 round trips per month
- 25% 6 to 10 round trips per month
- 19% 0 to 5 round trips per month

How long was your average trip when using CAT’s services?

- 29% 21 to 30 min
- 25% 31 to 40 min
- 9% 41 to 50 min
- 8% 50 to 60 min
- 13% 11 to 20 min
- 3% 10 min or less
- 13% more than 60 min
2. Community Survey

Riders

Why did you choose to use CAT?

- It is more eco-friendly
- It is more pleasant than driving
- It is my only transportation if my car is not available
- I do not own a vehicle
- Other
- I do not have access to other means of transportation
- I do not have a driver's license
- Parking
- Differently Abled
2. Community Survey

How would you rate CAT’s services for the following categories?

- Respect from CAT’s Staff
- Respect Among Users
- Frequency
- Bus Stops
- Route Designs
- Cleanliness
- Customer Service
- Convenience
- Affordability

Legend:
- Very Good
- Good
- Moderate
- Unsatisfactory
- Unacceptable
WHAT FEATURES OR SERVICES DO YOU THINK SHOULD BE ADDED OR ENHANCED AT CAT?

- Better pedestrian and bike infrastructure around bus stops: 57
- More flexible payment and fare pass options: 48
- Higher frequency: 40
- More routes options to n’hoods within or near C’ville: 38
- Extended service hours: 35
- Better design of existing routes: 32
- CAT’s services should be free: 32
2. Community Survey

Non-riders

WHY DON’T YOU USE OR WHY DID YOU STOP USING CAT’S SERVICES?

- Currently, I do not need to use CAT’s services: 105
- I moved to where CAT’s services are not as convenient: 34
- CAT’s services no longer meet my transportation needs: 32
- Inconvenient or infrequent service: 28
- I often commute to areas that are beyond CAT’s services: 27
- Information is not provided in a user-friendly way: 16
- Prefer to bike or walk: 10
- I live outside CAT’s services area: 10
3. Focus Groups & Survey Analysis

- Service Reliability/Safety
- Geographic Coverage
- Service Hours and Days
- Equity/Accessibility
# 4. Scenario Analysis

## Key Results for Each Scenario

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<tbody>
<tr>
<td>Avoided non-transit VMT/year</td>
<td>4,550,438</td>
<td>3,514,486</td>
<td>9,100,875</td>
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<td>9,100,875</td>
</tr>
<tr>
<td>Net CO₂ emissions (MtCO₂)</td>
<td>-109</td>
<td>567</td>
<td>-3,074</td>
<td>459</td>
<td>-3,354</td>
</tr>
<tr>
<td>Avoided car-fuel costs</td>
<td>639,066</td>
<td>493,576</td>
<td>1,278,131</td>
<td>516,834</td>
<td>1,338,357</td>
</tr>
</tbody>
</table>

- **Scenario 1**: Ridership ↓, Equity =
- **Scenario 2**: Ridership 2x, Equity =
- **Scenario 3**: Ridership ↓, Equity ↑
- **Scenario 4**: Ridership 2x, Equity ↑
5. Electrifying Transit

**Pros**
- Performance
- Efficiency
- Emissions
- Fuel cost predictability
- Lower operational costs
- Environmental justice

**Cons**
- Higher upfront costs
- Complex planning
- Reduced operational range
- Unfamiliarity

![Graph: Cumulative Net Present Cost Diesel vs BEB]

- Diesel Vehicle Purchase: $2,491,000
- Electric Bus Purchase: $3,028,000
6. Recommendations

Increase Equity and Affordability
1. Making fare-free transit permanent.
2. Doubling transit ridership by 2024, emphasizing bus-occupancy.
3. Having route frequencies every 30 minutes or less.
4. Restoring and expanding pre-COVID service hrs.

Invest in Rider Experience
5. Relaxing overly restrictive rules (e.g., related to drinking or carrying bags on board).
6. Investing in tech upgrades to improve customer experience.
7. Increasing safety at and around bus stops.
8. Complementing main routes with on-demand services.
6. Recommendations

Increase Collaboration and Coordination

9. Ensuring that community voices have a role in all steps of transportation planning.
10. Developing comprehensive regional transit policies (beyond Cville and Albemarle).

Invest in Zero-Carbon Transit for Charlottesville

11. Developing a pilot program to introduce BEBs to CAT’s system
   ➢ Set a target to transition to a fleet with at least 50% of buses being zero emission by 2030.

Beyond Transit

12. Providing better pedestrian and bike infrastructure
13. Building more affordable housing in the urban core of Charlottesville.
14. Reforming zoning policies to allow denser and more transit-oriented developments.
7. Conclusion

Equity

Sustainability

Prosperity

An opportunity to make Charlottesville better for everyone
Thank you!

Join our Transit and Equity Campaign!

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