



# Transportation Planning for Sustainable and Resilient Communities

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Presented to

Coalition for Sustainable Communities

New Mexico

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# *Creating Paradise*

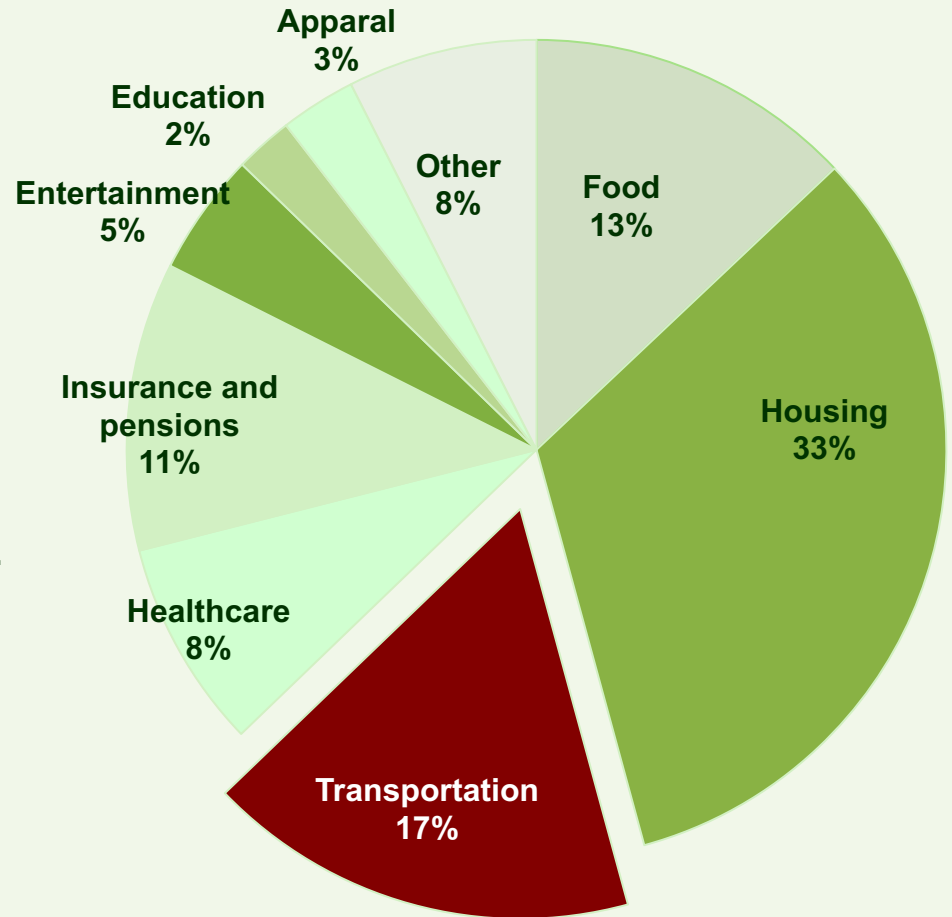
Paradise is not a distant destination, it is something we create in our own communities.



# *Transportation Affects People*

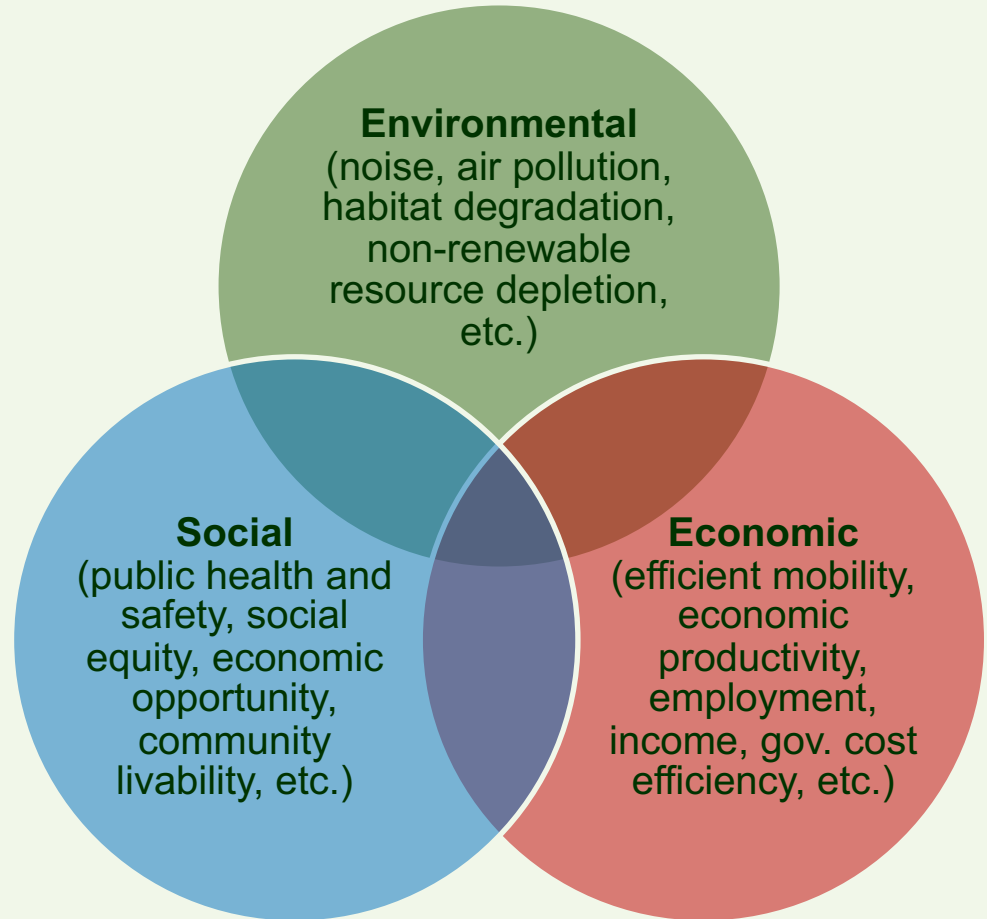
## **Transportation affects people and Communities in many ways**

- 60-90 minutes of our day.
- 15-25% of household budgets.
- Affects economic opportunities.
- Housing affordability and location.
- Major health and safety impacts.
- Public realm and community livability.
- Affects local economic development.
- Public expenses and fairness.
- External costs (public infrastructure, congestion, crash risk and pollution).



# *Sustainability*

Sustainable development balances environmental, social and economic goals.



# *Sustainable Transportation?*

Is a transport system sustainable if all vehicles are electric powered?



# *Electric Power Does Not:*

- Reduce traffic congestion
- Reduce accidents
- Reduce roadway costs
- Reduce parking facility costs
- Reduce vehicle purchase costs
- Improve mobility for non-drivers
- Improve social equity
- Improve public fitness and health
- Reduce sprawl
- Protect threatened habitat



# *Impact Evaluation*

<b>Planning Objectives</b>	<b>Expand Roadways</b>	<b>Efficient and Alt. Fuel Vehicles</b>	<b>Efficient Modes &amp; Smart Growth</b>
Reduce traffic congestion	✓		✓
Roadway cost savings			✓
Parking cost savings			✓
Consumer cost savings			✓
Improve mobility options			✓
Improve traffic safety			✓
Energy conservation		✓	✓
Pollution reduction		✓	✓
Land use objectives			✓
Public fitness & health			✓

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# *Transportation Equity Objectives*

Horizontal Equity		Vertical Equity		
Fair Share	External Costs	Inclusivity	Affordability	Social Justice
<ul style="list-style-type: none"> <li>• Everybody contributes to and receives comparable shares of public resources.</li> <li>• Serve non-drivers as well as drivers.</li> <li>• Affected people are involved in planning.</li> </ul>	<ul style="list-style-type: none"> <li>• Minimize external costs.</li> <li>• Favor resource-efficient modes that cause less congestion, risk and pollution.</li> <li>• Compensate for external costs.</li> </ul>	<ul style="list-style-type: none"> <li>• Accommodate people with disabilities and other special needs.</li> <li>• Basic access (ensure that everybody can reach essential services and activities).</li> </ul>	<ul style="list-style-type: none"> <li>• Favor affordable modes.</li> <li>• Provide discounts for lower-income users.</li> <li>• Provide affordable housing in high-accessibility neighborhoods.</li> </ul>	<ul style="list-style-type: none"> <li>• Protect and support disadvantaged groups (women, youths, minorities, low-income, etc.).</li> <li>• Affirmative action programs.</li> <li>• Correct for past injustices.</li> </ul>

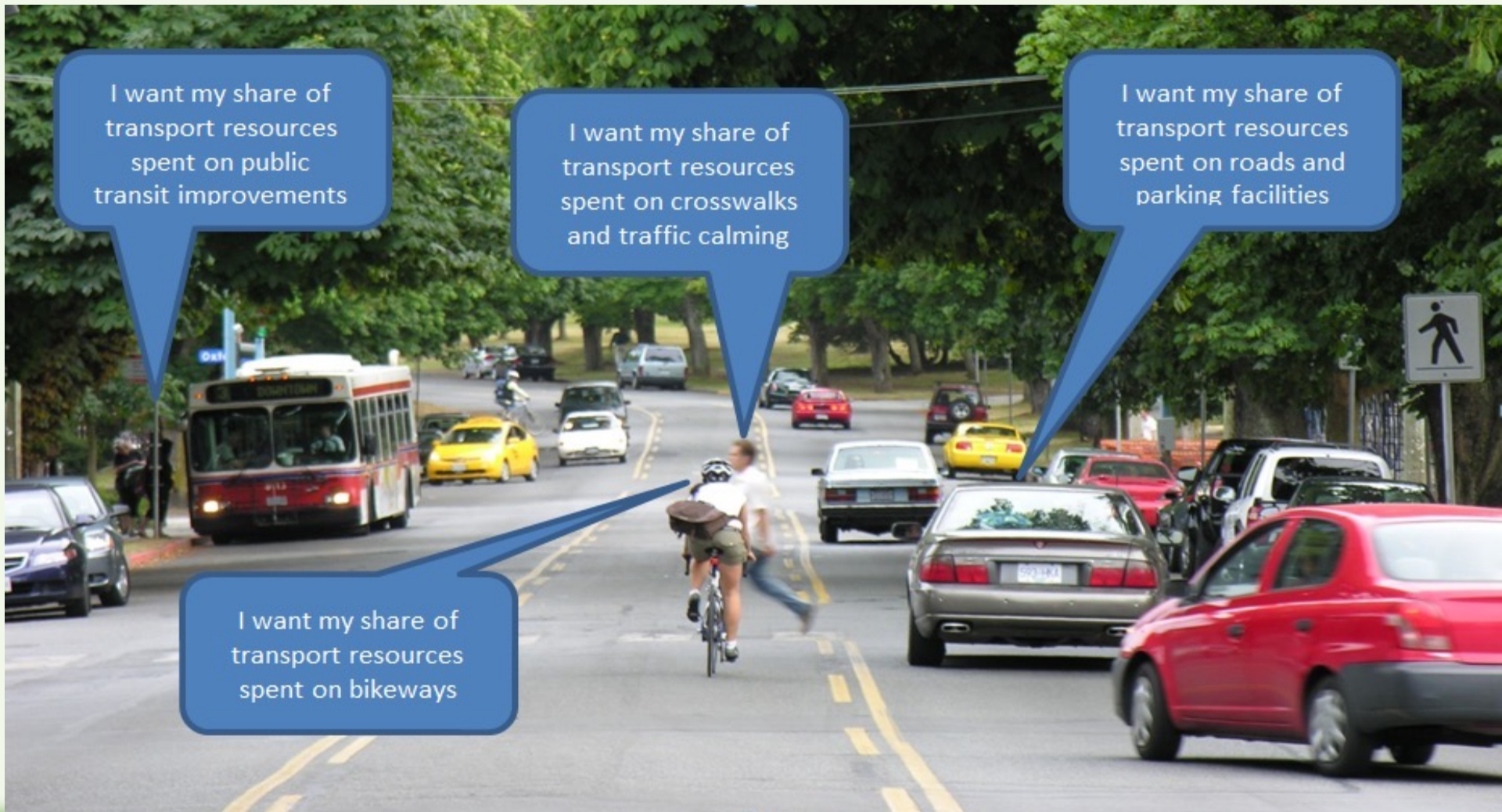
# *Two Cities*

Attribute	Multimodal (Mainly Walking, with Biking and Transit)	Driving (Windshield View)
<i>Travel speeds</i>	5-15 kilometers per hour	20-80 kilometers per hour
<i>Distance (for errands and commute)</i>	1-5 kilometers	5-30 kilometers
<i>Geographic scale</i>	Neighborhood	Regional
Design scale (streets, building, signs).	Fine. Pedestrian oriented	Gross. Driver oriented.
Transportation priorities	Multimodal: walking, bicycling, public transit, auto	Automobile-oriented
Auto ownership	Less than 0.3 per capita. Most vehicles are shared.	More than 0.7 vehicles per capita. Most adults have a personal vehicle.
Road and parking supply	Constrained.	Abundant – the more the better.

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# *Horizontal Equity - A Fair Transportation*



I want my share of transport resources spent on public transit improvements

I want my share of transport resources spent on crosswalks and traffic calming

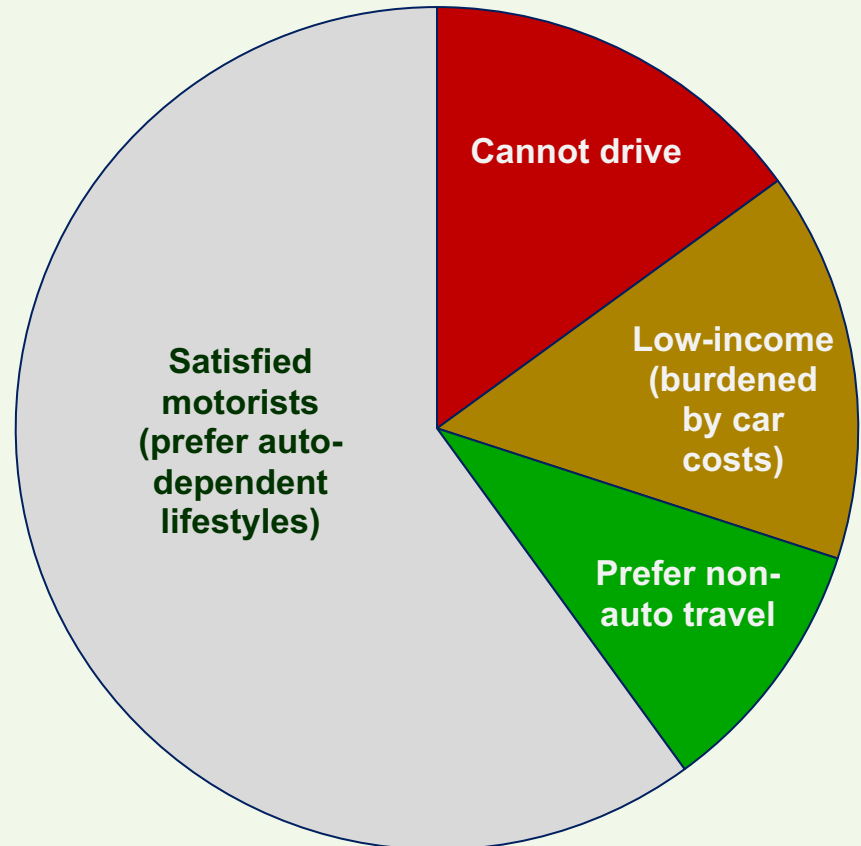
I want my share of transport resources spent on roads and parking facilities

I want my share of transport resources spent on bikeways

# *Non-auto Travel Demands*

In a typical community 20-50% of residents cannot, should not, or prefer not to drive for most trips.

Without suitable transport and housing options non-drivers lack independent mobility, bear excessive costs, require chauffeuring, or move to another community where there are better alternatives.



# *My Fair Share*

Considering expenditures on roads and traffic services, government-mandated parking facilities, and transit operating subsidies, the majority of transportation funding is devoted to automobile transportation.

As a result, non-drivers receive less public investment than motorists.

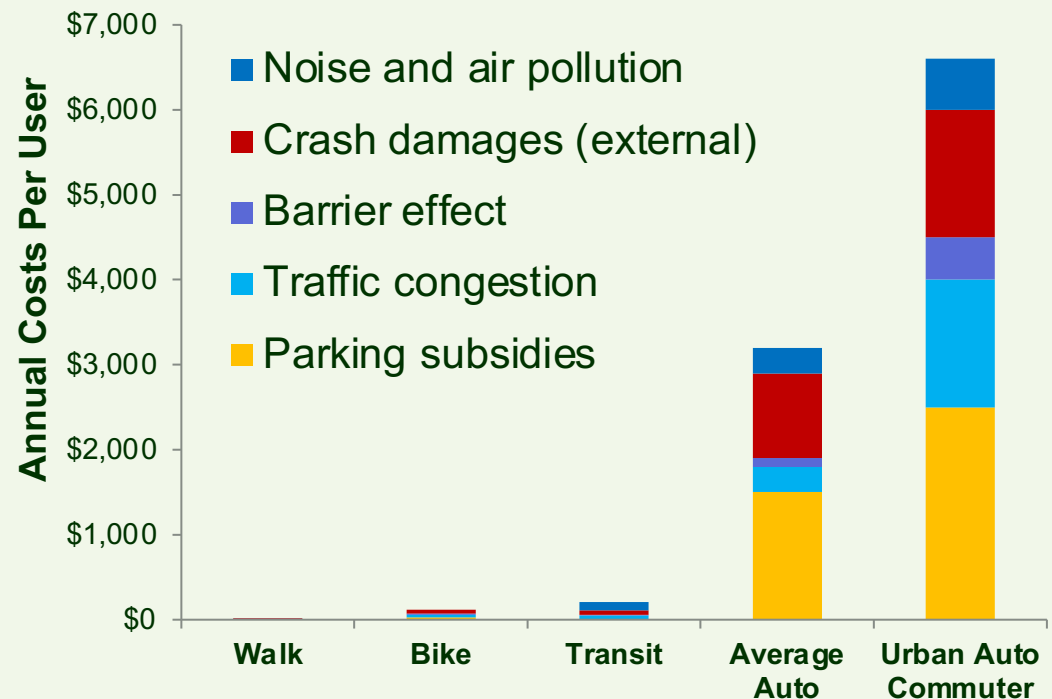




# External Costs

Because they are large, fast and resource intensive, automobiles require more expensive facilities and impose more congestion, risk and pollution per passenger-mile than most other modes, particularly under urban-peak conditions.

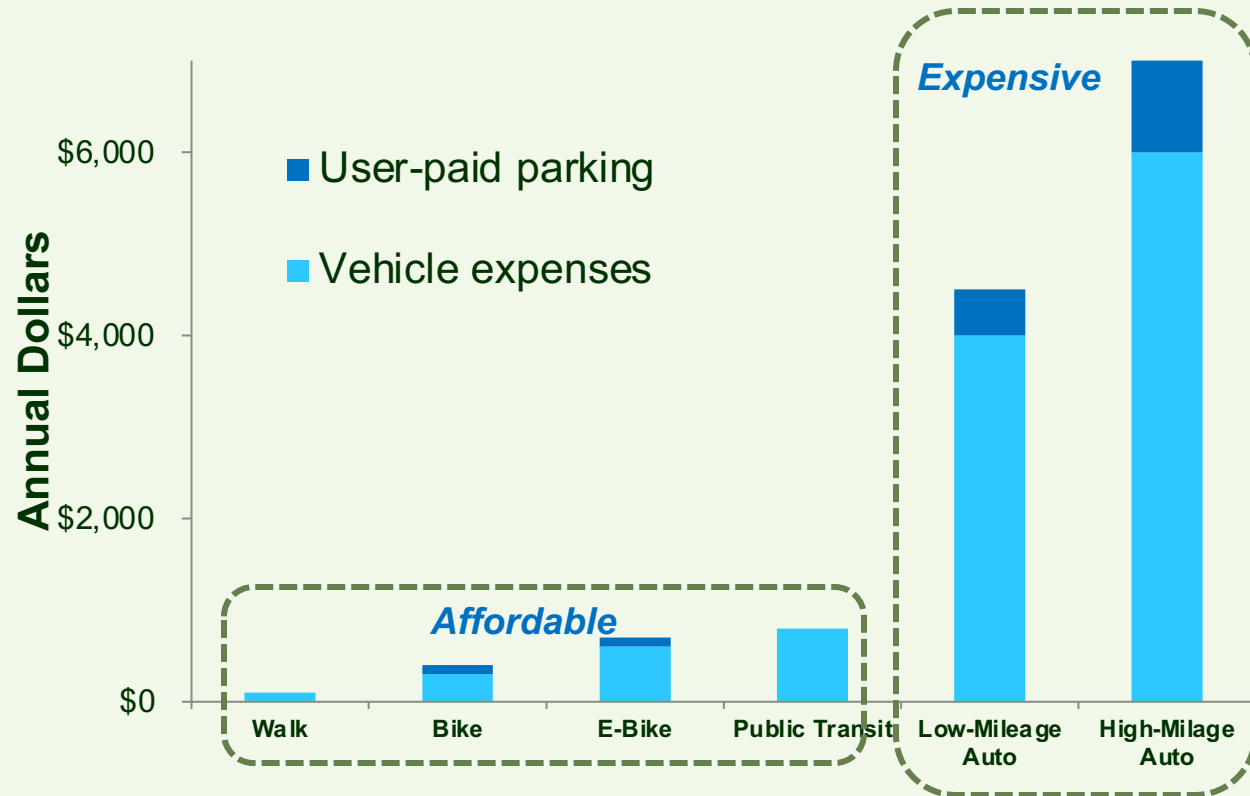
As a result, people who drive more than average impose net external costs on people who drive less than average. Since vehicle travel tends to increase with income, the external costs that automobiles impose on non-drivers tend to be regressive.



# Affordability

It is difficult to legally operate a vehicle for less than \$4,000 annually, or \$6,000 if it is driven high annual miles, and automobile travel sometimes imposes large unexpected costs due to mechanical failures, crashes or traffic violations which can cause household financial crises.

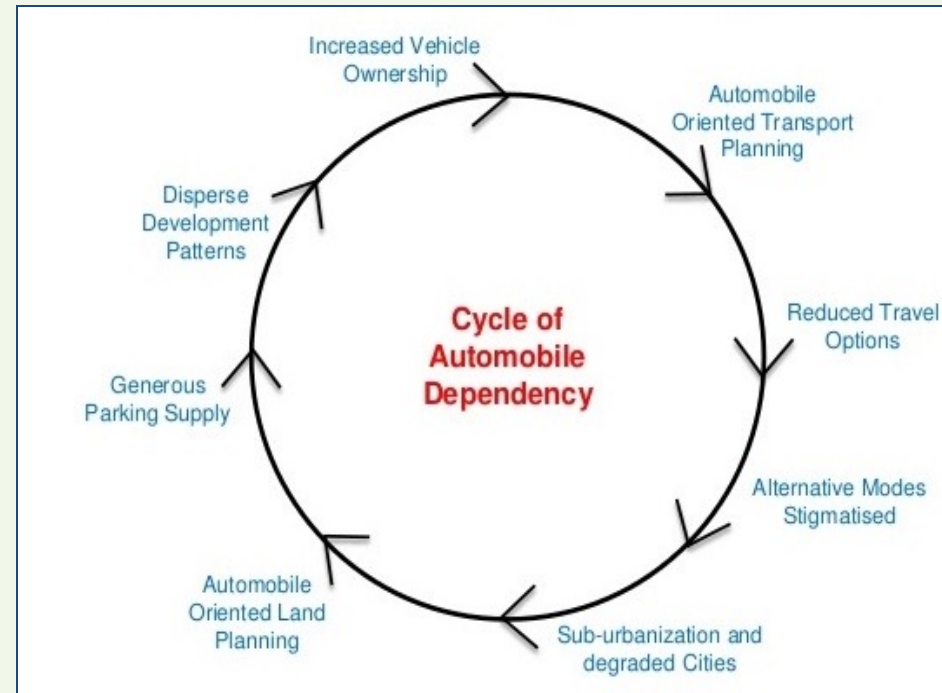
Equity requires improving and favoring affordable modes and accessibility options.



# *Cycle of Automobile Dependency*

For most of the last century public policies have favored automobile travel over other modes with abundant funding and road space dedicated to auto travel, parking minimums in zoning codes, and limits on compact infill development.

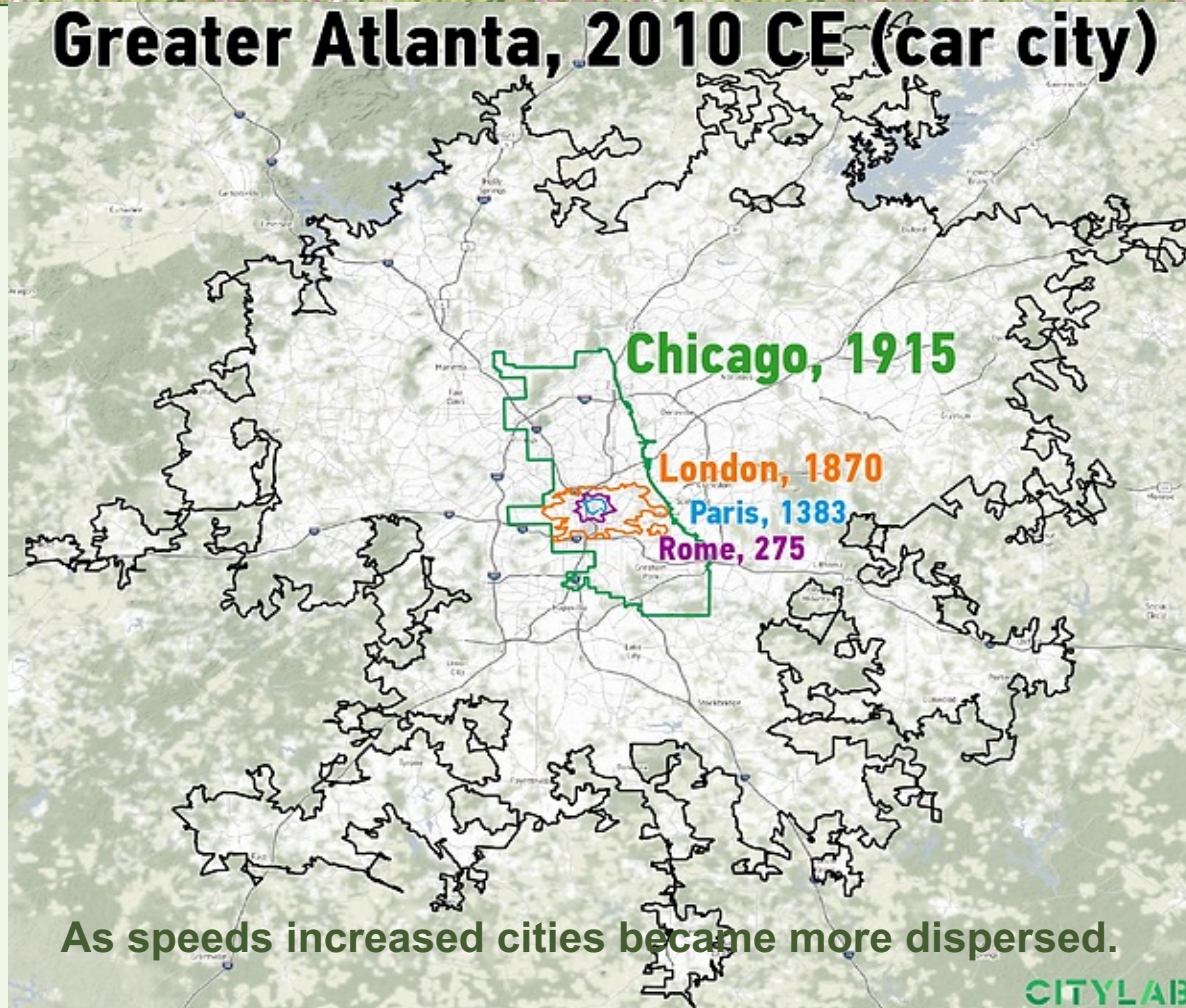
This has created a self-reinforcing cycle of automobile dependency and sprawl.



# *Faster Travel Increase Sprawl*

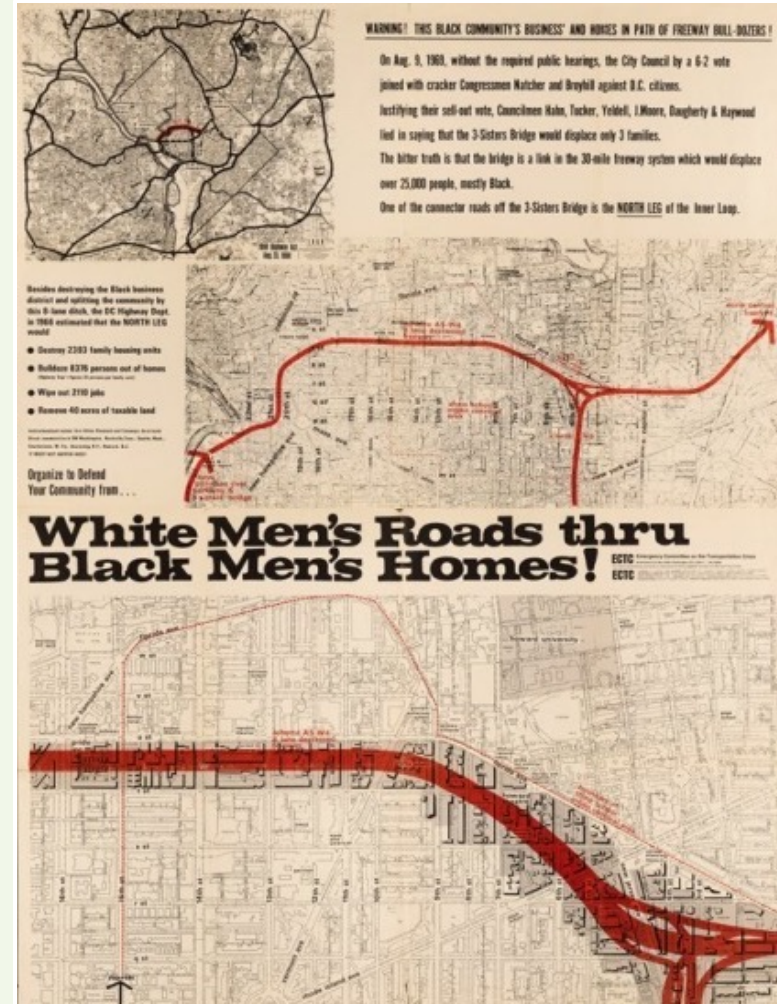
Abundant research indicates that **people tend to maintain a *fixed travel time budget***: most people spend 60-90 daily minutes on personal travel.

As a result, **over the long run faster travel doesn't provide time savings, it results in longer travel distances and more dispersed development.**



# Social Justice

- Social justice considers structural inequities such as racism, sexism, and classism.
- It can be evaluated by measuring disparities in benefits and costs between advantaged and disadvantaged groups, such as between non-drivers and drivers, lower- and higher-income travellers, and minority and non-minority communities.
- During the Twentieth Century highways displaced many low-income, largely minority urban neighborhoods. This is an example of how incomplete and biased planning can lead to unfair and harmful outcomes.

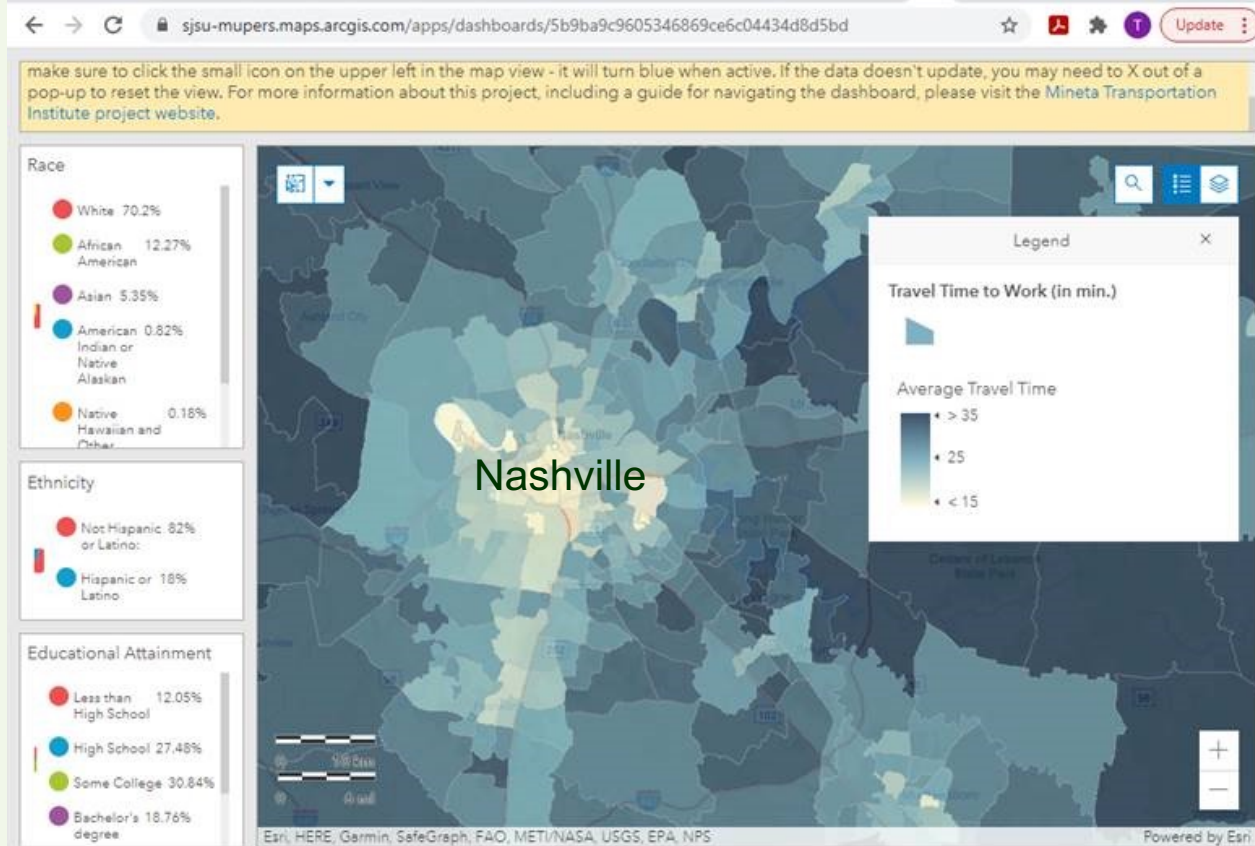


# *Transportation Health Impacts*

Impact	Healthy Community Strategy
<b>Traffic crash risk.</b> Auto-dependent, sprawled areas have high per capita traffic death rates.	Reduce total vehicle travel and traffic speeds. Create compact communities.
<b>Physical activity.</b> Inadequate physical activity increases physical and mental health problems.	Create more walkable, bikeable, compact and mixed neighborhoods.
<b>Pollution exposure.</b> Residents who live near major highways have high exposure to noise and air pollution.	Reduce total vehicle travel. Favor low-polluting vehicles. Local housing and jobs away from busy roadways.
<b>Affordability.</b> High transportation and housing costs leave low-income families with inadequate money to pay for healthy food, healthcare and other health-related goods.	Favor affordable travel modes (walking, bicycling and public transit) and increase affordable housing in walkable urban neighborhoods.
<b>Access to healthcare.</b> Inadequate travel options limit non-drivers ability to access healthcare services.	Improve non-auto modes and neighborhood healthcare services.

# Commuter Duration

Residents of compact, multimodal neighborhoods have much shorter commute duration than in automobile-dependent, urban-fringe areas. To really save travel time, planning should ensure that every household *that wants* can find suitable housing in a compact, multimodal

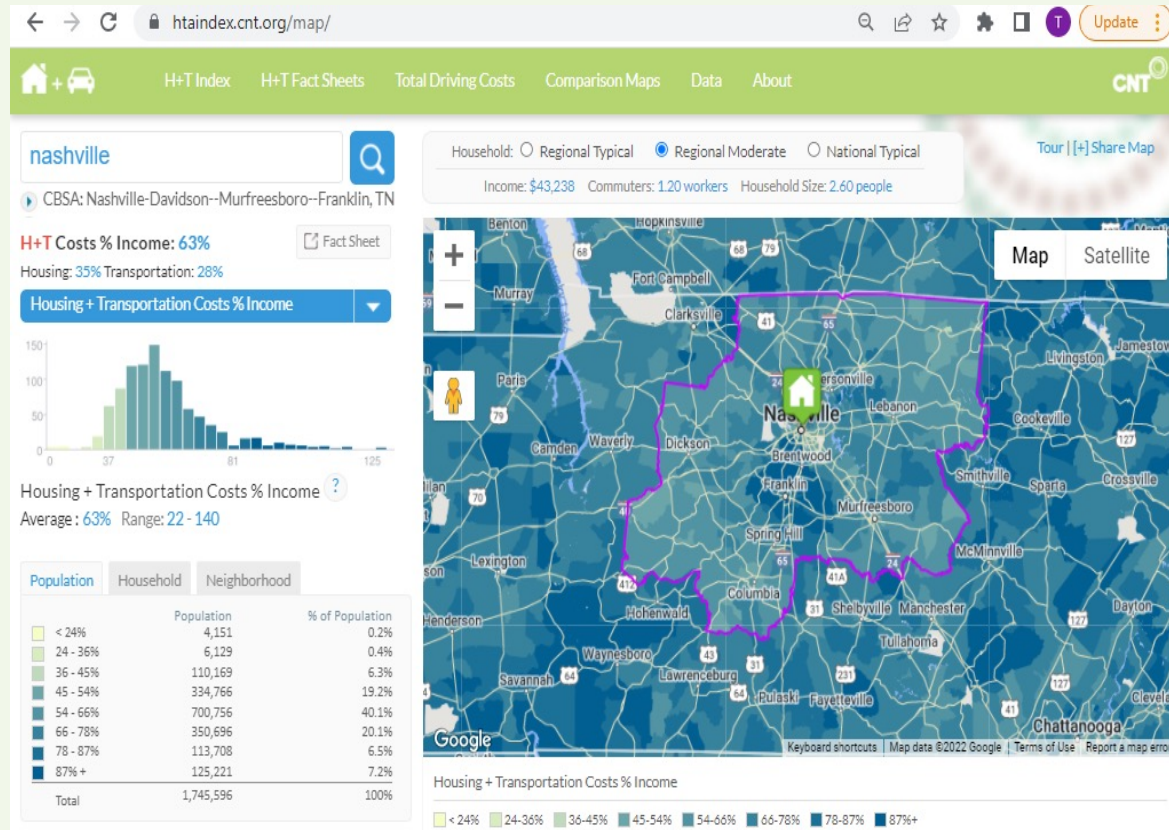


**Mineta Institute Commute Duration Dashboard**  
<https://transweb.sjsu.edu/research/2064-Commuter-Duration-Dashboard-Guide>

# Housing and Transportation Affordability

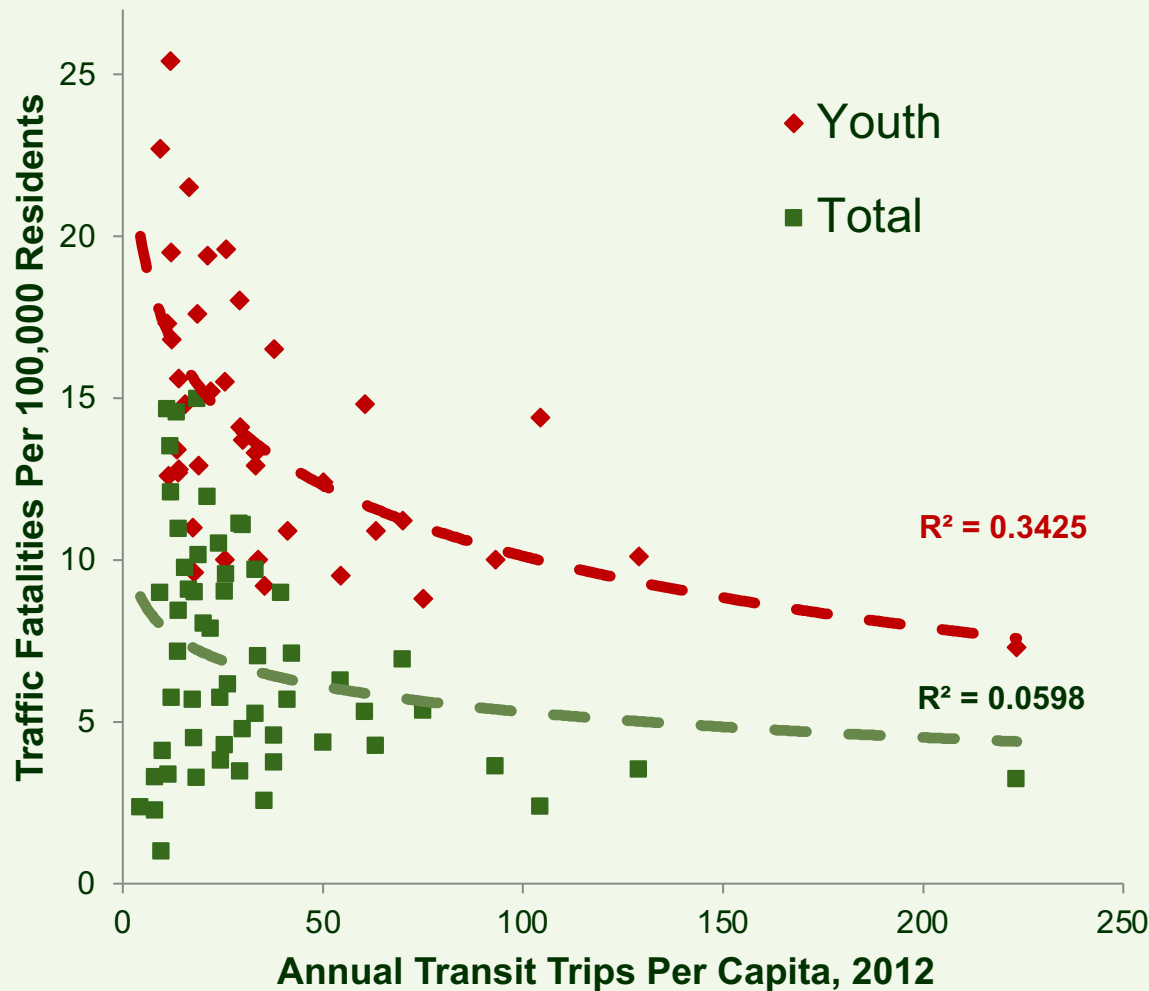
The Center for Neighborhood Technology's *Housing and Transportation Affordability Index* and the U.S. Department of Housing and Urban Development (HUD)'s *Location Affordability Index* use standardized data to calculate housing and transportation costs relative to incomes for U.S. communities.

They measure the affordability benefits of more compact, multimodal communities.





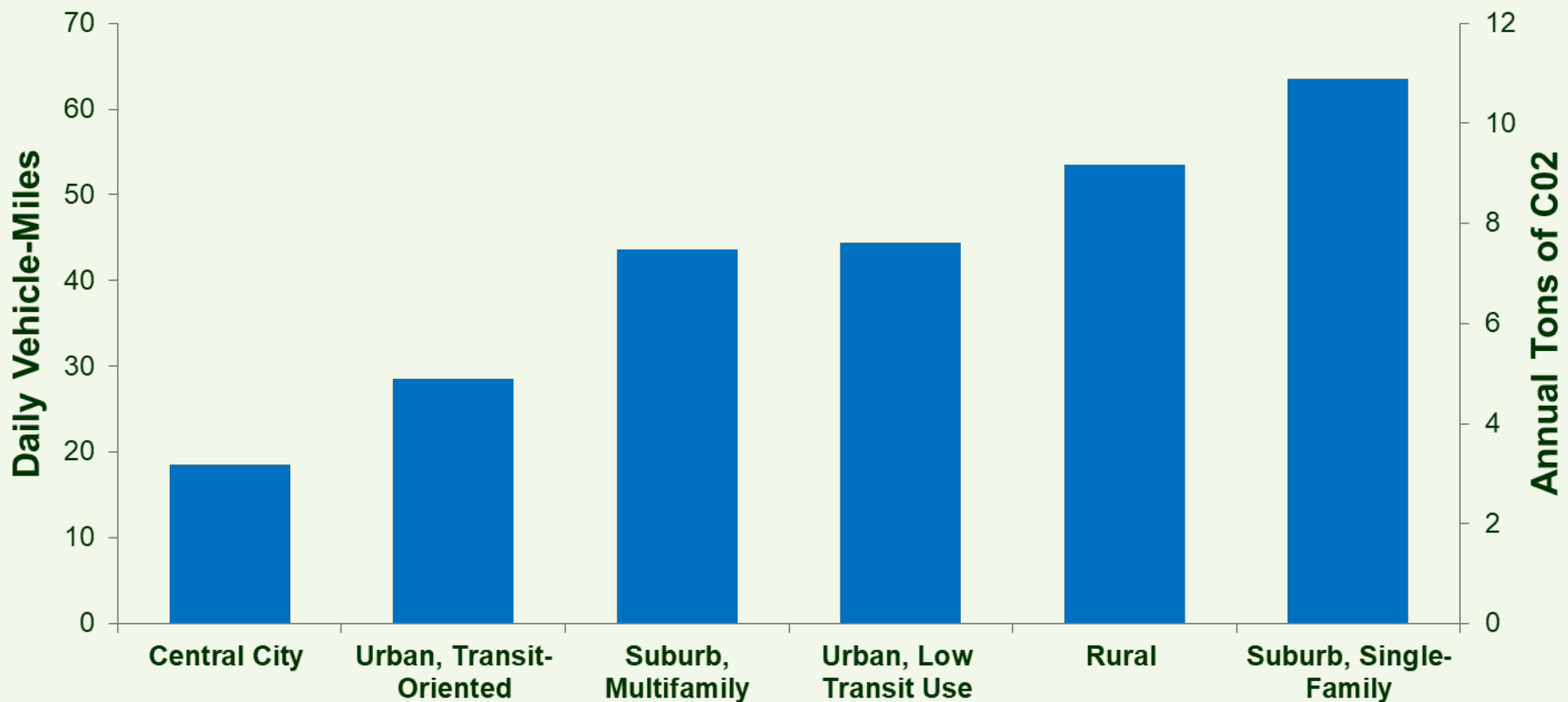
# Traffic Fatalities



Both total and youth fatality rates decline with increased transit ridership. Transit-oriented cities have about half the average Youth and Total traffic fatality rates as more automobile-oriented cities.

Youths (15-25 years old) have about twice the traffic fatality rates as the total population average.

# *Compact Development Reduces Emissions*



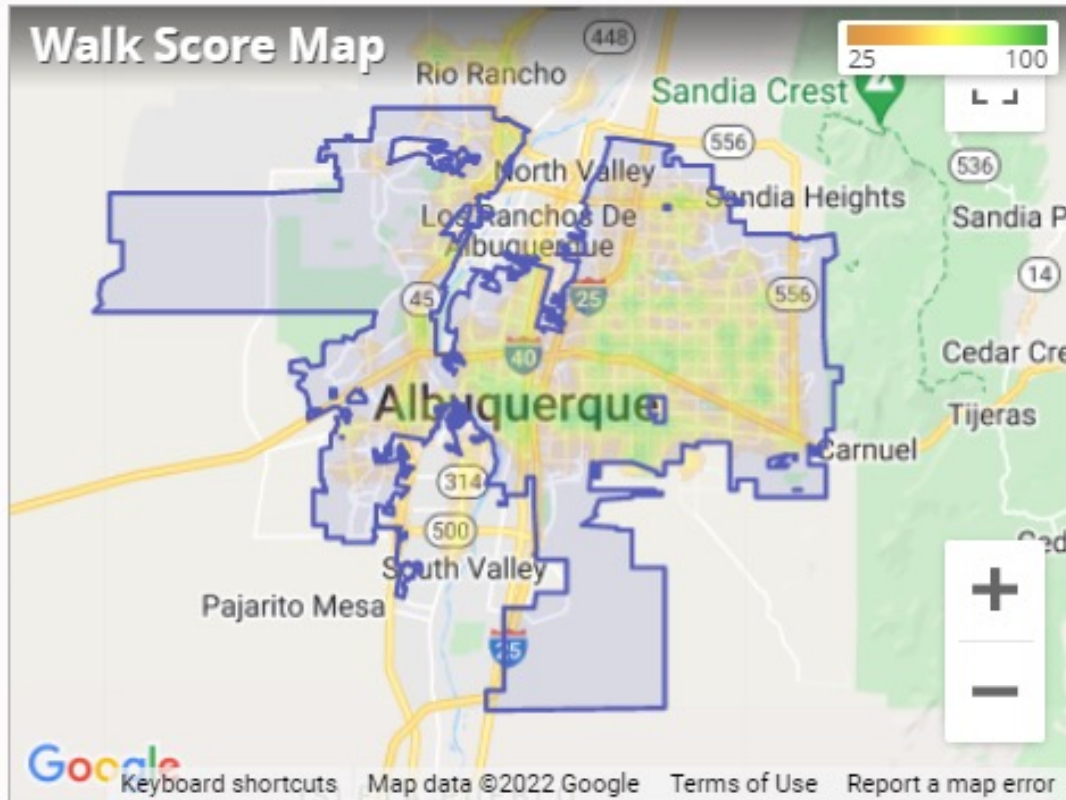
*Compact neighborhood households drive less, produce lower emissions, and impose lower transport costs. Allowing any that wants to locate in a compact, transit-oriented neighborhood achieves transport emission reduction goals. (Salon 2014)*

# Walk Score

Walk Score  
**43**

## Albuquerque is a Car-Dependent city

Most errands require a car.



Most errands require a car in Albuquerque is the 28th most with a Walk Score of 43.

# *Creating Multimodal Neighborhoods*

Many communities are redesigning streets to create compact, walkable and bikeable, mixed use neighborhoods.



Called:

- Sprawl repair
- Smart Growth
- New Urbanism
- Complete communities
- 15-minute neighborhoods
- Urban villages



# *Linking the Centers across US29*

*by Dan Burden, Walkable & Livable Communities Institute*



*Ped/bike bridge from mall to transit stop/garage*



# *Mixed-use redevelopment on mall parking lot*



# *Landscaping matures*





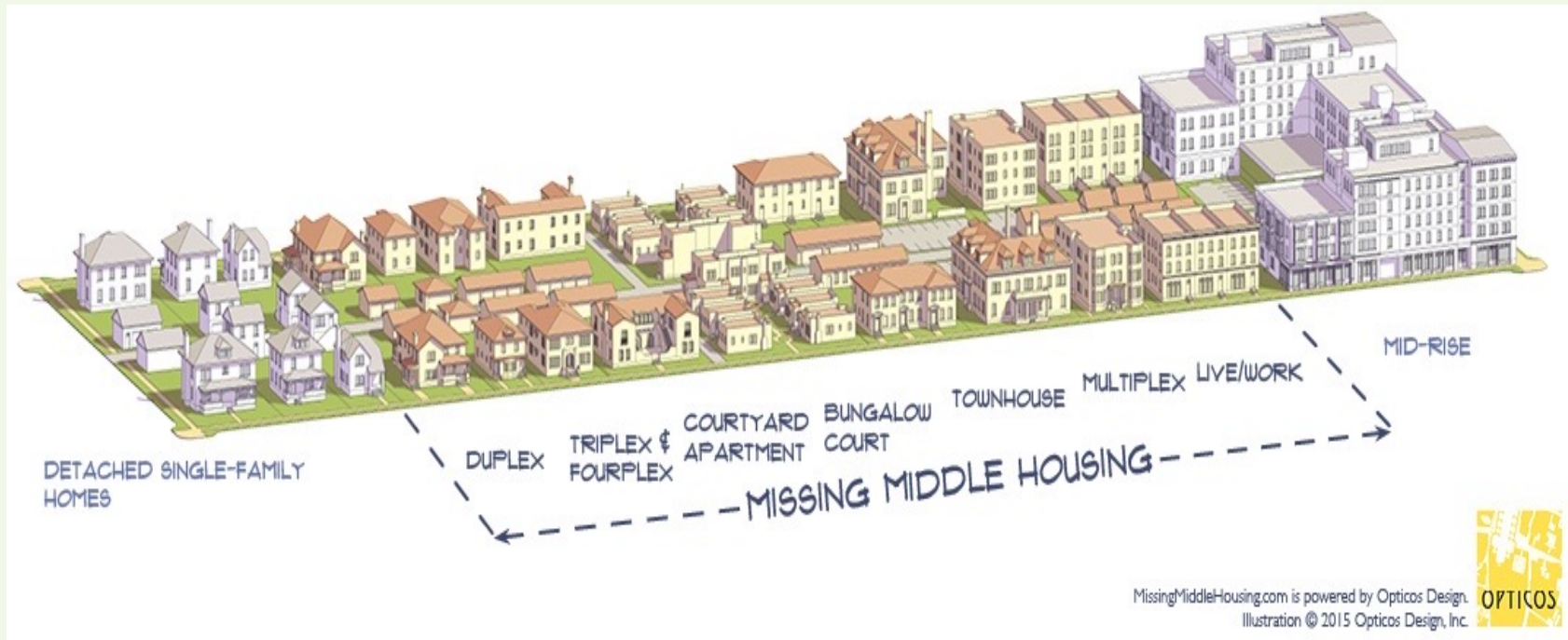
# *Additional redevelopment*



# *Landscaping matures over time*



# Missing Middle Housing



*The most affordable housing types include townhouses, multi-plexes and low-rise apartments, called missing middle housing since they are denser than single-family housing but less dense than high-rise, and so are suitable for urban neighborhoods.*

# Residents Per Parcel

## Land Needed Per Home



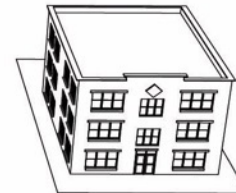
Single Family Home



Home + ADU



Rowhouses



Sixplex



5 Story Apartment



1-4 People



2-8 People



3-12 People



6-24 People



12-48 People

## Population Per Building

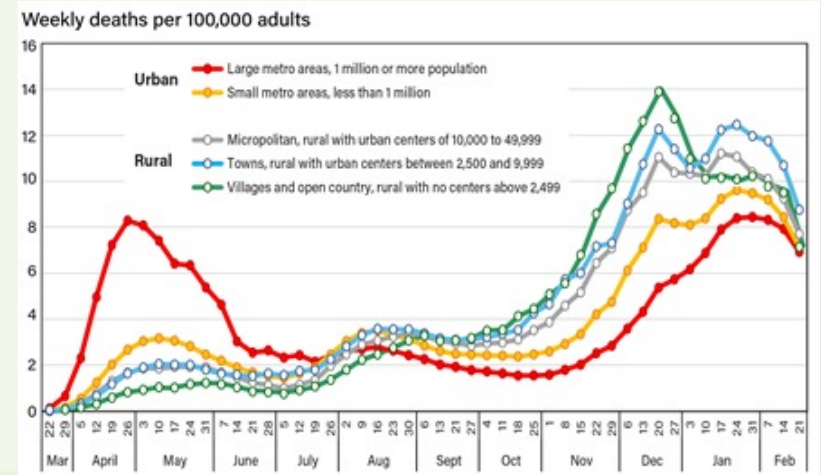
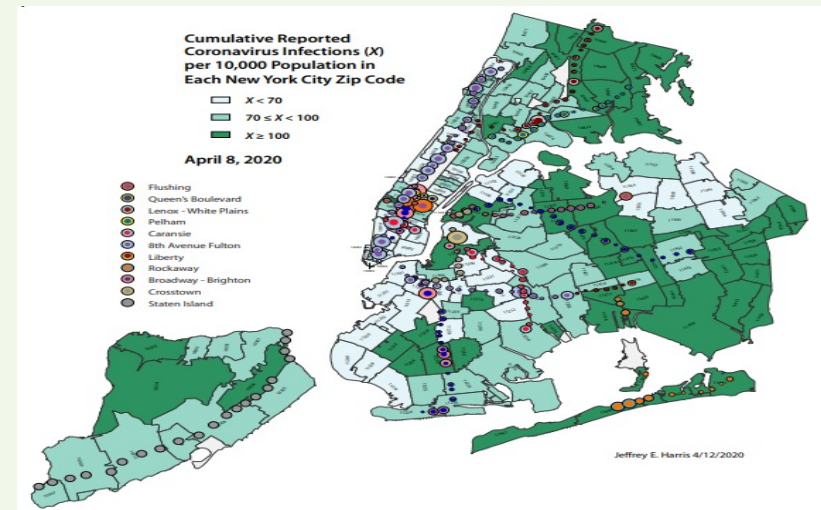
@pushtheneedle

Ryan DiRaimo (2021), *Seattle Has the Space*, The Urbanist ([www.theurbanist.org](http://www.theurbanist.org)); at [www.theurbanist.org/2021/03/25/seattle-has-the-space](http://www.theurbanist.org/2021/03/25/seattle-has-the-space).

# Lessons from the Pandemic

## Contagion Risks

- Covid infection rates were much lower in central walkable and transit-oriented neighborhoods than in automobile-oriented suburbs.
- Although infection rates were initially highest in dense gateway cities (cities with large globally-connected airports), once the disease spread more widely, infection and death rates became much higher in lower-density suburbs and rural areas.





**“Not So Fast: Better Speed Valuation for Transport Planning”**

**“Evaluating Public Transit Benefits and Costs”**

**“Understanding Smart Growth Savings”**

**“Evaluating Transportation Equity”**

**“Transportation Affordability”**

**“Online TDM Encyclopedia”**

**“Our Accelerated World”**

**“Selling Smart Growth”**

**and more...**

**[www.vtppi.org](http://www.vtppi.org)**