SUSTAINABLE TRANSPORTATION ACTIONS
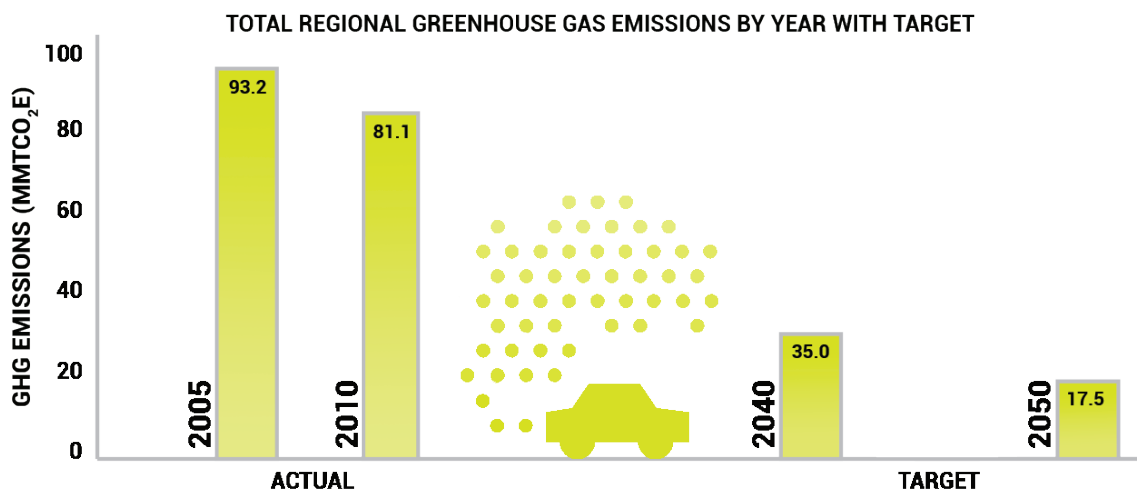
How We Can Apply Sustainability to our Transportation Network

"SUSTAINABLE DEVELOPMENT IS DEVELOPMENT THAT MEETS THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS" — THE BRUNDTLAND REPORT

Burning fossil fuels like petroleum in order to fuel vehicles contributes to increased greenhouse gas (GHG) concentrations, and rapidly accelerates climate change. Transportation is a significant contributor to increasing atmospheric GHG emissions. **77 percent of the region's trips were in private automobiles in 2013.[1] Walking, cycling, and using public transportation—more sustainable modes of travel—account for just 19 percent of trips.** Agencies throughout Greater Philadelphia are working to expand the region's sustainable transportation infrastructure (transit, bike, and pedestrian facilities, and the Circuit regional trail network) and are issuing a challenge to everyone to travel more sustainably.

The *Connections 2040: Long-Range Plan for Greater Philadelphia* has set a target to reduce GHGs by 80 percent from 2005 levels, including emissions from transportation, buildings, and electricity generation, by the year 2050. Regional emissions are currently 14 metric tons per capita. A reduction to under 3 tons per capita is possible. Getting there will take significant action from state agencies, municipalities, businesses, and most importantly you to make this happen.

TOTAL REGIONAL GREENHOUSE GAS EMISSIONS BY YEAR WITH TARGET

GHG EMISSIONS (MMTCO$_2$E)

Year	Value
2005	93.2
2010	81.1
2040	35.0
2050	17.5

ACTUAL   TARGET

01

SOURCE: *ENERGY USE & GREENHOUSE GAS EMISSIONS IN GREATER PHILADELPHIA 2010 SUMMARY*. DVRPC, 2014.

The following pages outline Greater Philadelphia's transportation network and how it can become more sustainable through technology, pricing, and design. Sustainable actions are identified for businesses, neighborhoods, governments, and individuals.

GHG EMISSIONS PER CAPITA + JOBS BY MUNICIPALITY (2010)

LOW

HIGH

SOURCE: *CONNECTIONS 2040: PLAN FOR GREATER PHILADELPHIA*. DVRPC, 2013.
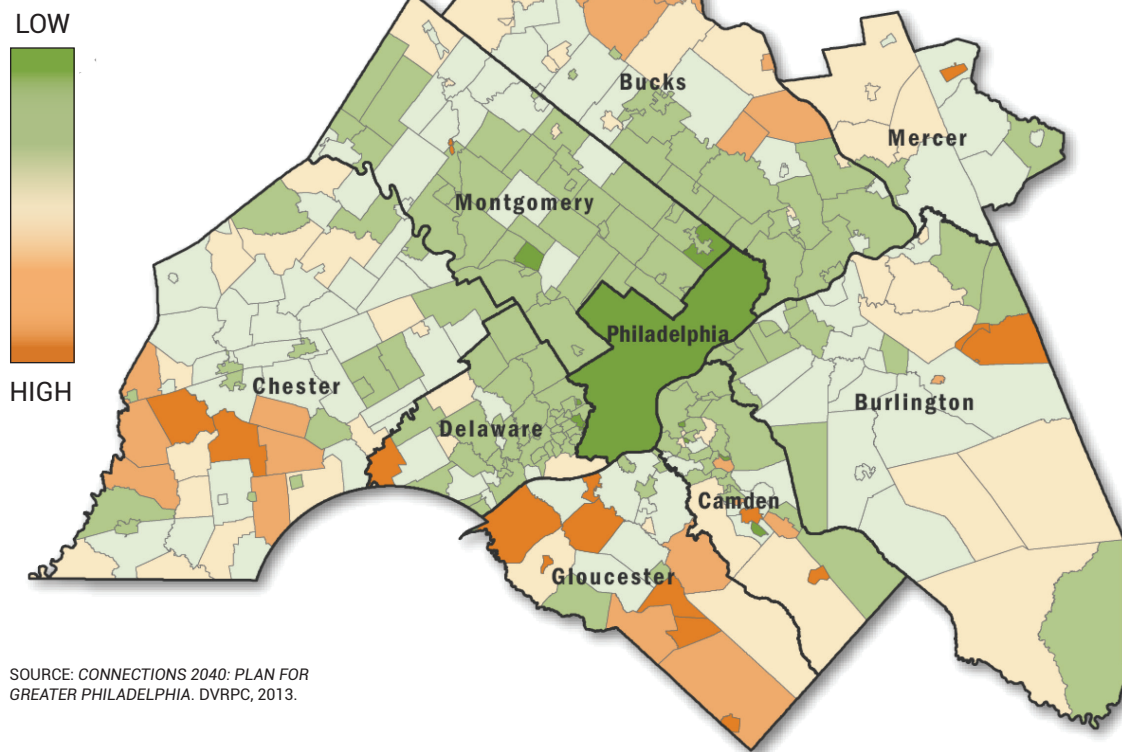
DENSE, MIXED-USE DEVELOPMENT PATTERNS, WHICH ARE FOUND IN THE REGION'S OLDER CITIES, TOWNS, AND BOROUGHS, CAN SHORTEN TRIP LENGTHS AND REDUCE TRANSPORTATION ENERGY NEEDS.

GREATER PHILADELPHIA **CONTRIBUTES**

1.2%

OF GHG EMISSIONS IN THE ENTIRE UNITED STATES

79.6 MMT

79.4 MMT
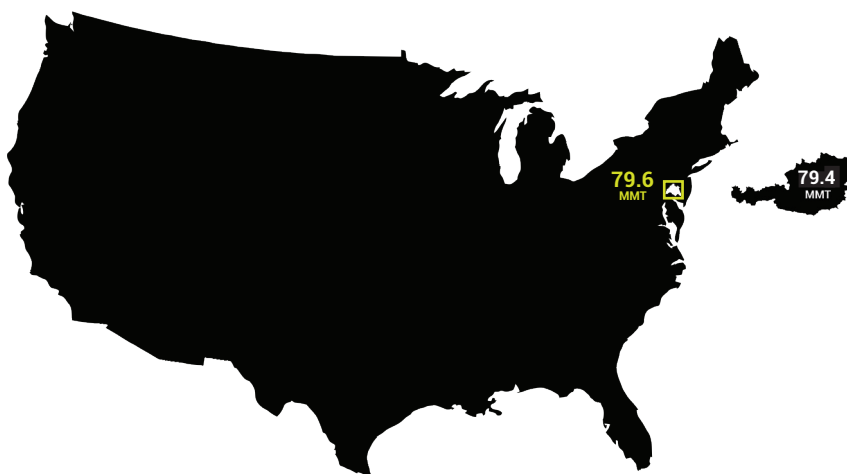
OUR REGION PRODUCES MORE EMISSIONS THAN ALL OF AUSTRIA, A COUNTRY WITH DOUBLE OUR REGION'S POPULATION.

SOURCE: *DVRPC, 2013.*

TRANSPORTATION IS A SIGNIFICANT SOURCE OF GHG EMISSIONS.

Decreased dependence on fossil fuels for personal mobility is crucial to lowering levels of air pollution and GHG emissions. As a region, we should promote energy efficiency in our transportation network.

SOURCE OF GHG EMISSIONS BY SECTOR

36%

32%

22%

11%

COMMERCIAL & INDUSTRIAL ENERGY

TRANSPORTATION ENERGY

RESIDENTIAL ENERGY

NON-ENERGY EMISSIONS

NOTE: FIGURES MAY NOT ADD UP TO 100% DUE TO ROUNDING.

The region's road and transit systems are aging. Both require extensive investment to bring them up to a state-of-good repair, and even more to maintain them into the future. This presents an opportunity to rethink transportation. Public transit and shared mobility services are gaining popularity and could take pressure off the roadway network. More private automobile use leads to higher pollution and increased fuel dependence, harming the natural and built environment.

GREATER PHILADELPHIA MODE SHARE FOR ALL TRIPS

10.7% walking

6.9% transit

4.5% other modes

0.9% biking

77.0% private auto
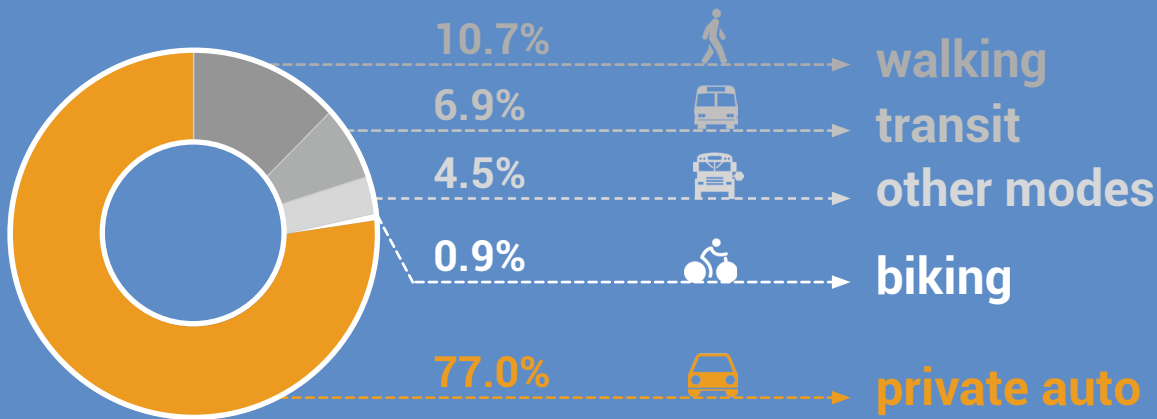
SOURCE: *2012-2013 HOUSEHOLD TRAVEL SURVEY FOR THE DELAWARE VALLEY REGION. DVRPC, 2015.*

AVERAGE TRAVEL TIME TO WORK = 28.5 MINUTES

SOURCE: U.S. CENSUS BUREAU 2010–2014 ACS 5-YEAR ESTIMATES MEANS OF TRANSPORTATION TO WORK.

BY 2045, THERE WILL BE 650,000 MORE PEOPLE USING GREATER PHILADELPHIA'S TRANSPORTATION NETWORK

SOURCE: DVRPC.

20% OF A HOUSEHOLD'S ANNUAL INCOME GOES TOWARD TRANSPORTATION

SOURCE: *TRANSPORTATION AND HOUSING COSTS,* DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, 2015.
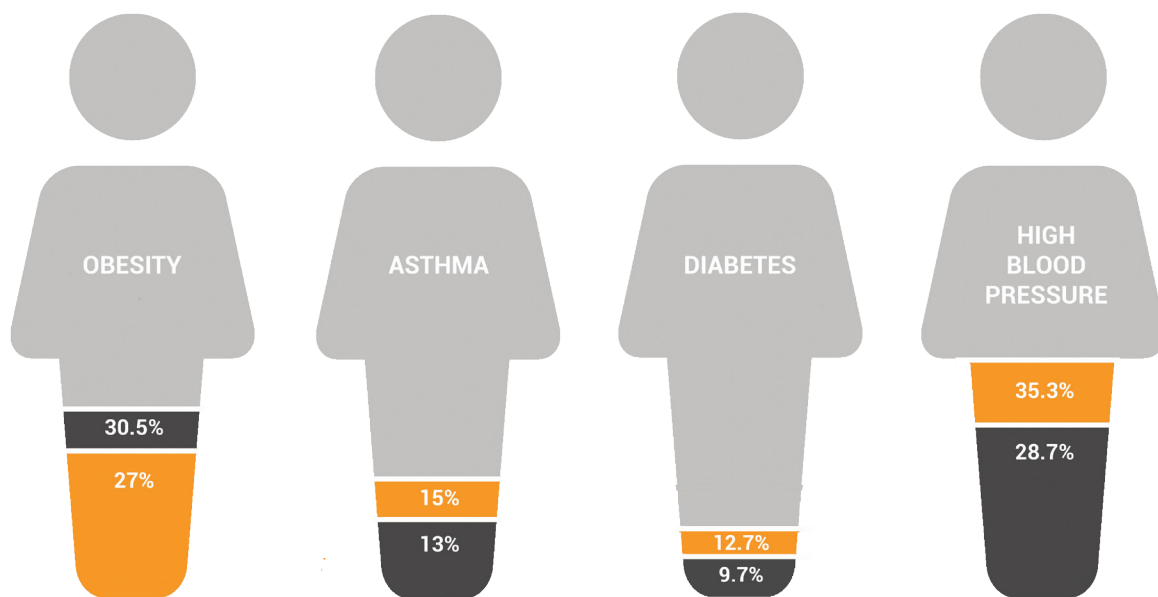
04

Current levels of air pollution due to dependence on the private automobile can lead to serious health issues, such as lung cancer, heart attacks, and respiratory illness.

Recent research from Duke University reports that the United States currently experiences about 200,000 early deaths each year due to emissions from heavy industry, cars, trains, and ships. A 75 percent reduction in transport emissions would save 120,000 lives by 2030.[2] Currently, the regional average in illnesses is above the state average in every category except obesity.

Research shows people with longer home-to-work commutes have a higher body mass index, waist circumference, and blood pressure.[3] They also spend less time exercising, which contributes to obesity, asthma, diabetes, and high blood pressure.[4] In addition, the *International Journal of Transportation Research* has published studies that show that driving alone has a direct correlation to higher levels of depression, anxiety, and elevated blood pressure compared to people who walk or cycle to work. Illnesses are more likely to occur as the commute lengthens.

PERCENTAGE OF PEOPLE WITH ILLNESS RELATED TO AUTO-CENTRIC LIFESTYLES

OBESITY
30.5%
27%

ASTHMA
15%
13%

DIABETES
12.7%
9.7%

HIGH BLOOD PRESSURE
35.3%
28.7%

05

■ REGIONAL LEVEL   ■ STATE LEVEL

SOURCE: *STATE OF PENNSYLVANIA NUTRITION, PHYSICAL ACTIVITY, AND OBESITY PROFILE*. NATIONAL CENTER FOR CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION, 2012.

A SUSTAINABLE TRANSPORTATION SYSTEM IS:

EQUITABLE through ensuring affordability and availability to all ages, races, and sexual orientations throughout the entire Greater Philadelphia region.

SAFE by striving toward goals outlined under Vision Zero (which aims to achieve a transportation network with no fatalities).

INNOVATIVE by incorporating recent technological advancements in all modes of the transportation network, as well as allowing for new modes to emerge.

EFFICIENT through improving operations of existing transportation facilities, as well as increasing capacity allowing more users.

GREEN by incorporating alternative fuel sources such as electricity into transit, and reducing the direct impacts of automobile emissions on air and water quality.

ACCESSIBLE by promoting compact development patterns that are conducive to increased transit service, as well as higher levels of active transportation such as cycling and walking.

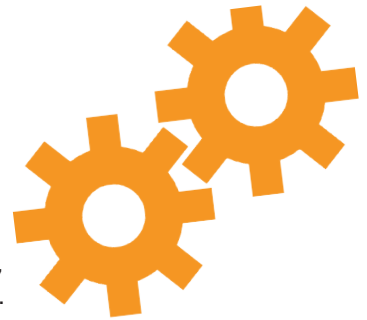**COMPETITIVE** through strategic investments that save both time and money.

RESILIENT by better preparing infrastructure to deal with the impacts of severe weather.

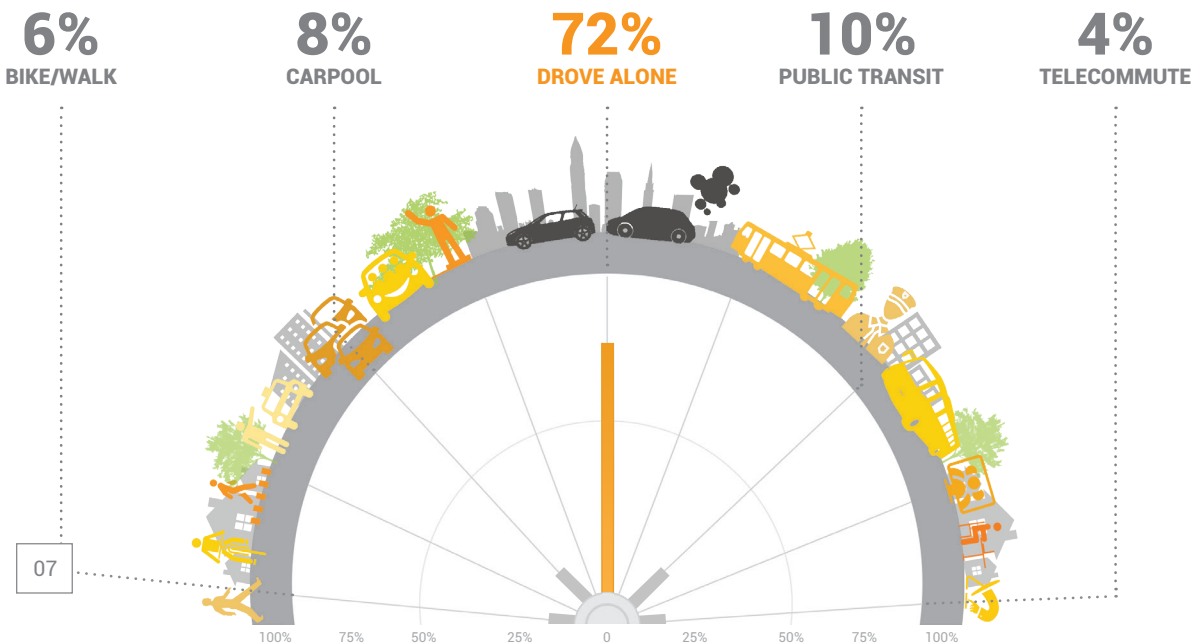**MULTIMODAL** through creating an integrated network for all modes of travel.

Efficiency is about doing more with less. We ignore a surplus of transportation capacity every day, especially in the **85** percent of cars traveling with only a single occupant. This results in millions of empty seats and a countless amount of wasted space.[5] By increasing occupancy we can capitalize on an opportunity to add one, two, three, or even four more people to a car, absorbing excess supply.

Transit ridership has increased **9.8** percent in the past decade throughout the Greater Philadelphia region. By carrying more people, public transit is more sustainable than the private automobile. Transit requires less space to operate in, and supports denser, more efficient development patterns. Transit is a large part of the solution in attempting to reduce climate change and our dependence on foreign oil.

While the number of vehicle miles traveled (VMT) is trending down, commute time and the percentage of commuters who drive alone is still increasing. More than **72** percent of commuters travel to work by single-occupant vehicle in the DVRPC region. The number of commuters driving alone to work has increased at a faster rate than the total number of commuters from 2000 to 2012 (**6.4** percent compared to **6.0** percent). With an **11** percent increase in both population and employment in the region, and a limited ability to increase our roadway capacity, altering commute patterns is crucial. Policies that support transit, safe bicycle lanes, and walkability should continue to be a priority.

COMMUTE TO WORK MODE SHARE

SOURCE: DVRPC, 2015.

6%	**8%**	**72%**	**10%**	**4%**
BIKE/WALK	CARPOOL	DROVE ALONE	PUBLIC TRANSIT	TELECOMMUTE

100%   75%   50%   25%   0   25%   50%   75%   100%

TRANSIT RIDERSHIP HAS INCREASED

BY 10% IN THE PAST DECADE

GREATER PHILADELPHIA AVERAGE VEHICLE OCCUPANCY

1.58

PASSENGERS

THE NUMBER OF PEOPLE BIKING TO WORK IN THE REGION INCREASED MORE THAN
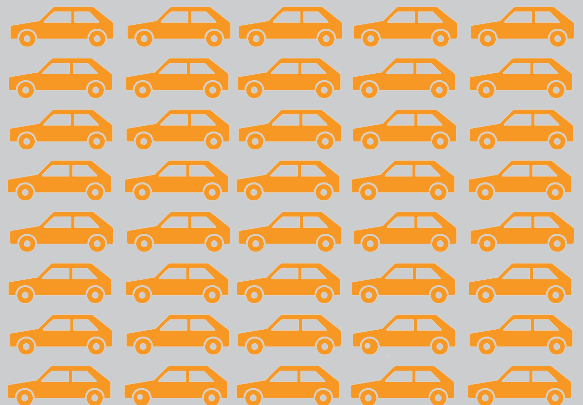
⬆ **40%**

BETWEEN 2000 AND 2014, A GREATER INCREASE THAN ANY OTHER MODE.
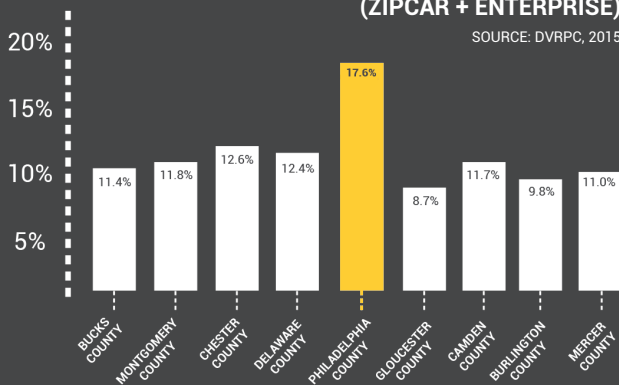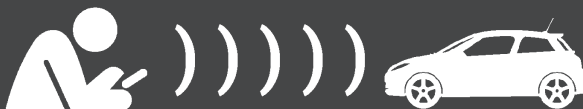
SOURCE: *LEADING INDICATORS*. DVRPC, 2015.

ONE FULL BUS CAN REMOVE UP TO 40 CARS FROM THE ROADWAY NETWORK IN GREATER PHILADELPHIA

RESIDENTS WITH A CARSHARING MEMBERSHIP (ZIPCAR + ENTERPRISE)

SOURCE: DVRPC, 2015

County	Percentage
Bucks County	11.4%
Montgomery County	11.8%
Chester County	12.6%
Delaware County	12.4%
Philadelphia County	17.6%
Gloucester County	8.7%
Camden County	11.7%
Burlington County	9.8%
Mercer County	11.0%

OF PEOPLE WHO HAVE STARTED USING SHARED MOBILITY IN THE NATION

20% POSTPONED BUYING A CAR

21% SOLD A CAR AND DIDN'T REPLACE IT

18% DECIDED NOT TO BUY A CAR

68% OF ADULTS OWN SMART PHONES

15% OF ADULTS USED RIDE-HAILING APPS

SOURCES: *SHARED MOBILITY AND THE TRANSFORMATION OF PUBLIC TRANSIT*. AMERICAN PUBLIC TRANSPORTATION ASSOCIATION, 2016, *SHARED, COLLABORATIVE AND ON DEMAND: THE NEW DIGITAL ECONOMY*. PEW RESEARCH CENTER, 2016.

The next major shift in transportation will be the "digitization of mobility," with an embrace of real-time information, big data, and shared mobility. The shared mobility market has grown into a disrupting force reshaping transportation. Greater Philadelphia offers:

BIKESHARING through Indego. Indego has more than 1,000 bikes in over 100 locations throughout the city.

CARSHARING refers to a specific type of service that offers members short-term vehicle access. Zipcar is an example of a company that offers this service in Greater Philadelphia. According to the California Air Resources Board, carsharing can reduce carbon emissions up to 16 percent and cut VMT up to 18 percent for every carsharing member.

RIDESPLITTING services generally move multiple passengers in one trip throughout the region using UberPOOL and Lyft Line.

RIDESOURCING services such as Uber and Lyft allow the user to summon a driver and travel to any given destination for a predetermined fee.

While these alternative forms of transportation may place more cars on the road in the short term, over time these services could reduce emissions and congestion, and eventually eliminate the need to own a car.

USING NEW TECHNOLOGY TO BECOME MORE SUSTAINABLE

ELECTRIC VEHICLES

Battery-powered electric vehicles can help regulate energy demand in a vehicle-to-grid system by becoming energy sources during peak daytime hours and recharging to smooth demand curves during low-demand overnight periods.

RIDESHARING SERVICES

Ridesharing is an on-demand car pool service that arranges rides for multiple passengers traveling the same general route. Services such as RideFlag connect riders and drivers through mobile devices in real-time. Ridesharing is a way to better utilize empty seats in vehicles, especially in areas not served by transit.

CARSHARING SERVICES

Carsharing services grant members access to a vehicle. Companies like Zipcar let individuals book a vehicle to run errands or make other personal trips. Although carsharing could increase VMT if it enables people to drive more, it could also decrease VMT if it allows people to give up their private automobile, thereby driving less overall.

ELECTRONIC PAYMENT

E-tolls and virtual ticketing make it easier for the rider to commute by enabling the user to skip wait times at the counter and pay via smartphone through a connected bank account. This technology has been recently implemented in Greater Philadelphia with the introduction of the new SEPTA KEY contactless chip card.

RIDESOURCING SERVICES

Ridesourcing allows an individual to e-hail a vehicle for a trip using a smartphone app. The cost of the trip is indicated before the request is finalized. The app guides a Transportation Network Company driver to pick up and take the passenger to a destination, and payment is handled digitally, so the driver has no need to carry cash.

SYSTEM EFFICIENCY

Software and apps can improve travel efficiency. Waze and PennDOT have recently teamed up to offer crowdsourced real-time travel conditions, maps, and routing. In addition, they offer 5-1-1 and Intelligent Transportation Systems that provide information about incidents, construction, weather, and even current road speeds. Other technologies, such as Google Maps, and E-ZPass help to increase system efficiency.

MULTIMODAL APPS

Multimodal apps integrate real-time information about different modes of transportation. Multimodal trip planning apps such as Moovel allow the user to choose options based on mode, price, time, and even calories burned for any given trip.
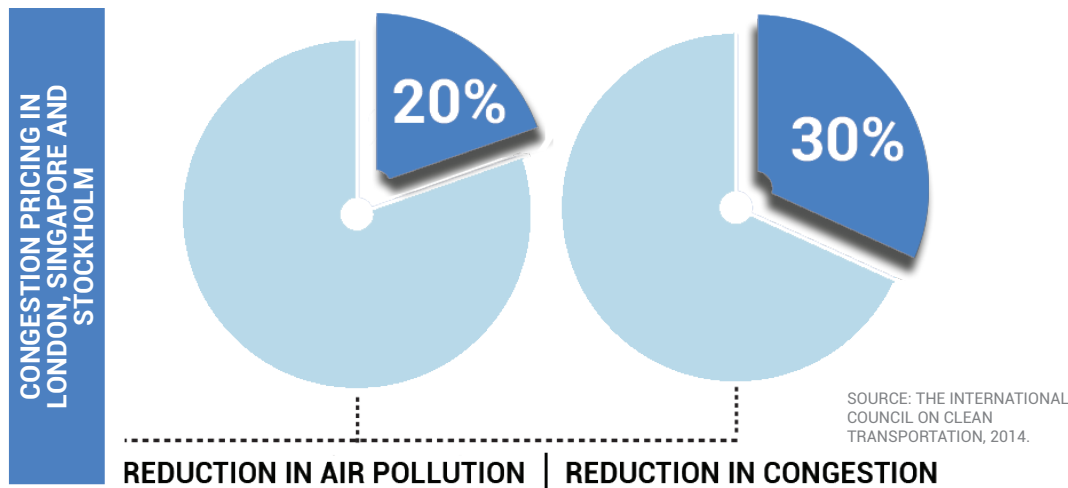
REAL-TIME TRANSIT INFORMATION

Real-time transit informs the rider when the bus or train will be arriving, whether or not to expect delays, and if a bike is available at a nearby bikeshare station all through a mobile application.

"EVERY TECHNOLOGY THAT HAS TAKEN OFF HAS FIGURED OUT HOW TO TAP INTO AN INEFFICIENCY OR AN INFORMATION GAP, AND FOR SOME REASON IN TRANSPORTATION WE DIDN'T THINK THESE EXISTED, EVEN THOUGH THEY WERE PERVASIVE." — TYLER DUVALL, MCKINSEY & COMPANY

The millennial generation has shown strong preferences for biking, walking, and transit over driving. Services such as regional bus lines, bikesharing, carsharing, and ridesourcing show a desire for lower-cost, more personal, and broader transportation options. Mobile apps are increasing access to transportation information and are, in turn, increasing ridership and user satisfaction. The next step is to take the data that these apps are generating and use it to adjust transportation services in real time to meet demand, comparable to how Uber can show the location of both drivers and customers to each other.

Congestion pricing increases the cost to use a transportation facility when demand for it is high. Up to 20 percent reduction in air pollution, and up to 30 percent in congestion have been achieved from implementing congestion charging systems in London, Singapore, and Stockholm (based on empirical data).[6]

CONGESTION PRICING IN LONDON, SINGAPORE AND STOCKHOLM

20%

30%

SOURCE: THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION, 2014.

REDUCTION IN AIR POLLUTION | REDUCTION IN CONGESTION

WAYS PRICING CAN INFLUENCE DEMAND AND REDUCE CARBON EMISSIONS:

VMT

Drivers are charged by the mile. This can reduce individual VMT by 12 to 15 percent.[7] This is a possible alternative for the gas tax.

CARBON TAX

Assessed as a tax to fossil fuel distributors. Revenues could be used to develop sustainable transportation infrastructure.

INSURANCE

Pay-as-you-drive insurance incentivizes car owners to drive less. Pricing insurance in this way is estimated to reduce VMT by 8 percent nationwide.[8]

TRADABLE DRIVING CREDITS

Each person receives an allotment of miles each year, those who drive fewer miles can sell them to those who drive more.

In urban areas, free parking is not really free. Providing parking drives up the cost of development, which we all end up paying for in higher prices. Subsidized parking creates shortages, making it difficult for drivers to park during peak periods. This increases the amount of time drivers spend "cruising" for parking and increases congestion as well as pollution. If cities charged the "right price" for curb parking, more spots would become available, decreasing congestion. Free parking leads to more urban sprawl by continuing automobile-centric development patterns and inhibiting alternative modes.

Most municipalities in Greater Philadelphia have minimum parking requirements, meaning that every new development, whether retail or residential, must build a large number of parking spaces per residential unit or square feet of commercial space. This leads to unnecessary parking in some of our most valuable areas. Reducing parking requirements can stabilize supply and demand, and still provide an adequate amount of parking. Contrary to common wisdom, less parking actually means less traffic.[9] In addition, pedestrians are more likely to engage in commerce than an individual in a private automobile; pedestrians also usually spend more than drivers.[10]

Parking pricing can make the city and region more sustainable. By accurately pricing automobile transportation, including parking, the Greater Philadelphia region can reduce the environmental impacts of driving.
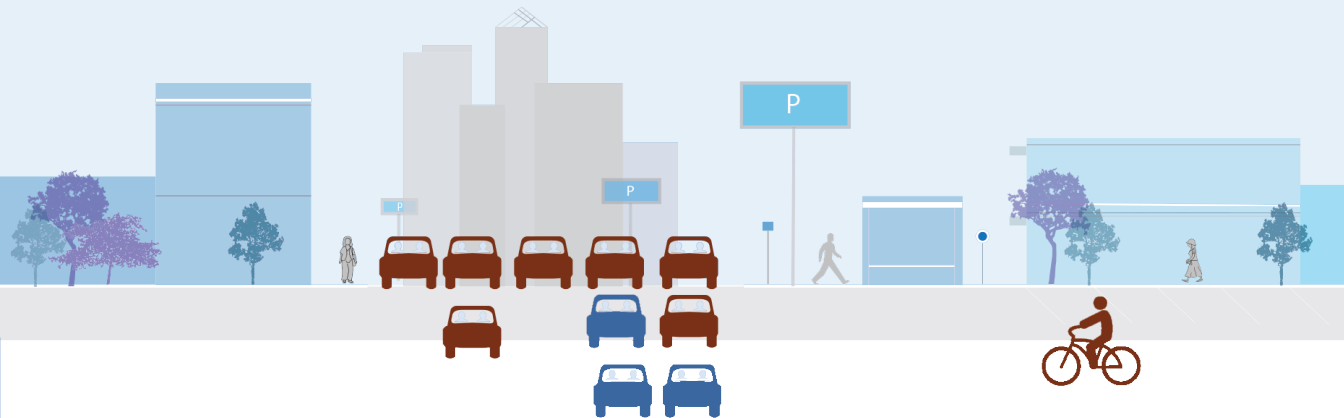
30% OF TRAFFIC

IN CENTRAL BUSINESS DISTRICTS IS FROM VEHICLES "CRUISING" FOR PARKING

12

SOURCE: DONALD SHOUP-*THE HIGH COST OF FREE PARKING.*

Complete streets are for everyone! They put an emphasis on safety, allowing people to travel on foot, bicycle, and public transit. Automobiles are of course included; however, complete streets make active modes of transportation more attractive, convenient, and most importantly, efficient.

2/3

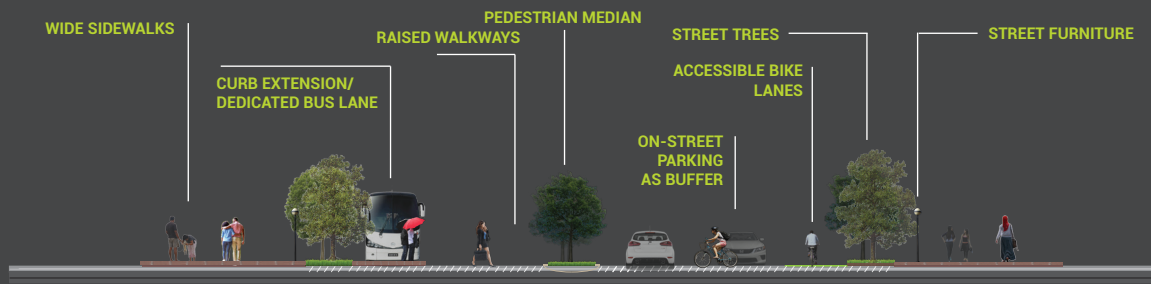**OF AMERICANS SAY THEY WANT MORE TRANSPORTATION OPTIONS**

SOURCE: *THE BEST COMPLETE STREET POLICIES OF 2015.* NATIONAL COMPLETE STREETS COALITION, 2015.

"WE NEED A SMOOTH, SAFE, AND SMART TRANSPORT NETWORK THAT BALANCES ALL MODES."

-Camden County resident

There are many ways to design a complete street; each one is unique and tailored to the community context. A complete street allows all users to travel safely no matter what the environment. Complete streets reward short trips and disincentivize long trips, creating place and minimizing GHG emissions. According to Smart Growth America, design characteristics that are often associated with complete streets include:

COMPLETE STREET ELEMENTS

WIDE SIDEWALKS

CURB EXTENSION/ DEDICATED BUS LANE

PEDESTRIAN MEDIAN
RAISED WALKWAYS

ON-STREET PARKING AS BUFFER

ACCESSIBLE BIKE LANES

STREET TREES

STREET FURNITURE

SOURCE: DVRPC.

How do we get complete streets? It all starts with us, the region's citizens. Working and advocating with neighbors, policy makers, and governmental staff is the most effective way to 'get it done.'

- Identify particular problematic and unsafe streets.
- Pinpoint major pedestrian areas that lack sidewalks.
- Notice bus stops that are not wheelchair accessible.
- Recommend crosswalk locations.
- Highlight good examples of complete street designs.
- Advocate for reduced speed limits, which exponentially increases safety.

13

PRIORITIZE PLACE
Good design connects communities and does not create physical or social barriers. Sustainable transportation aims to reconnect places, and make them more accessible through a variety of modes.

PRIORITIZE PEOPLE
Achieving a walkable community is not about balance; it is about priority. When creating a street, people should be as visible as automobiles. This involves designing for people of all ages and mobility levels.

PRIORITIZE MODE
Support design that favors pedestrians and bicyclists. Active transit leads to fewer GHG emissions, fewer accidents, and healthier lifestyles. The built environment has a strong influence on how we move around.

PROPOSED SCHUYLKILL YARDS INNOVATION CENTER

SOURCE: SHoP ARCHITECTS PC/ WEST 8.

The Circuit is one of America's largest multi-use trail networks. It is currently composed of more than 300 miles of completed trails with a vision of more than 750 miles of interconnected trails across the nine-county region in Pennsylvania and New Jersey. Endorsed in *Connections 2040*, the network connects people to jobs, communities, parks, and waterways.

50%

OF GREATER PHILADELPHIA'S POPULATION WILL LIVE WITHIN ONE MILE OF A CIRCUIT TRAIL WHEN COMPLETED.

THE CIRCUIT TRAILS

100s OF MILES OF HAPPY

To Bethlehem

To Easton, the Poconos & Wilkes-Barre

To New Brunswick, Newark, and NYC

BUCKS

MONTGOMERY

MERCER

To Reading, Pottsville & Appalachian Tr.

To New Egypt

PHILA

To Tom's River

To Harrisburg

CHESTER

DELAWARE

BURLINGTON

To Wilmington, Baltimore, and Washington, DC

GLOUCESTER

CAMDEN

EXISTING TRAILS
TRAILS IN PROGRESS
PLANNED TRAILS

◊dvrpc

To Bridgeton

A SUSTAINABLE TRANSPORTATION NETWORK WILL ULTIMATELY BE ACHIEVED THROUGH THE DECISIONS WE ALL MAKE EACH DAY. BECOMING MORE SUSTAINABLE IS A PROCESS, NOT AN END STATE. THE AVERAGE PERSON MAKES AROUND 35,000 CONSCIOUS DECISIONS EACH DAY. CHANGING A HANDFUL OF THESE DECISIONS CAN INCREASE YOUR QUALITY OF LIFE AS WELL AS THE NATURAL AND BUILT ENVIRONMENT AROUND YOU.

WHAT CAN NEIGHBORHOODS DO?

- Establish a carpool to work for neighbors going the same general route.
- Facilitate a walking-school bus and lead children in your neighborhood safely to school by walking or cycling.
- Look into educational opportunities for promoting awareness of sustainable transportation.
- Plant street trees and facilitate sidewalk repairs.

WHAT CAN EMPLOYERS DO?

- Offer a commuter benefit program, such as RideECO.
- Provide alternative mode services (sponsored shuttle, etc.).
- Institute preferential parking for carpoolers.
- Offer a guaranteed ride home program for employees who commute by transit.
- Construct exercise facilities, such as showers, lockers, or bicycle racks for physically active commuting.

WHAT CAN LOCAL GOVERNMENT DO?

- Revise zoning codes to encourage development of livable/walkable communities.
- Make decisions that support alternatives to private automobile travel, such as complete streets that emphasize walking and cycling through design.
- Reduce or eliminate minimum parking requirements.
- Strive to achieve goals outlined in Vision Zero.
- Make decisions that reflect the triple bottom line, accounting for social, environmental, and financial considerations.
- Lower speed limits. Reduced speeds make walking and cycling safer and more appealing.

11 | HOW TO BE **MORE SUSTAINABLE**
ACTIONS YOU CAN TAKE

LIVE IN A WALKABLE **COMMUNITY**
Residents in dense, mixed-use neighborhoods are more likely to drive less, thus decreasing carbon emissions. The U.S. Department of Transportation reports that people living in compact neighborhoods drive 20–40 percent less.

WALK AND **CYCLE**
If you are going a distance of less than one mile, walk instead of drive. Climate Central reports that cycling can reduce emissions by 11 percent worldwide by 2050, saving $24 trillion over time if urban dwellers use bicycles for 10 percent of their trips.

TAKE **TRANSIT**
Using public transit reduces VMT and emissions. A single person who has a 20-mile round trip and switches from an automobile to existing public transportation can account for a 10 percent household reduction in greenhouse gas emissions.[11]

BUY LOCAL, **SHIP SMART**
Shipping burns fuel. A 5-pound package shipped by air across the country creates 12 pounds of CO_2 (compared to 3.5 pounds if shipped by truck).[12] Consider whether an online purchase really needs to be delivered in 2 days.

APPLY **INNOVATION**
Use technology like real-time transit information, multimodal apps, and virtual ticketing to make your trip more efficient. However, don't use your phone while driving!

COMBINE **TRIPS**
Try to reduce your number of trips in general. Combine errands, shopping trips are estimated to account for 30 percent of all VMT, and time trips to avoid traffic congestion. The region's households take an average of 8.4 trips per day, 6.7 of which are motorized.[13]

SHARE **RIDES**
The California Environmental Protection Agency reports that carsharing can reduce VMT up to 26.9 percent, reducing carbon emissions by 34.5 percent. Carsharing in the United States prevents between 160,000 and 225,000 metric tons of GHG emissions per year.

DRIVE **ECO-FRIENDLY**
Accelerate slowly, cruise at more moderate speeds, avoid sudden braking, idle less, remove unnecessary weight, and select routes that allow for more of this sort of driving. Eco-friendly driving can lead to a 12 percent or more decrease in fuel consumption.[14]

PURCHASE THE **CLEANEST VEHICLE YOU CAN AFFORD**
If 53 percent of U.S. vehicles are electric by the year 2050, transportation GHG emissions could be reduced by 52–60 percent.[15] If purchasing an electric vehicle is not an option, consider purchasing a model with high fuel economy.

KEEP A TRAVEL **LOG**
Travel logs allow you to examine your travel behavior. Research shows that people recording their commutes reduced VMT by 5–8 percent and led to reductions of 4.4 percent in GHG emissions.[16]

MAINTAIN YOUR **AUTOMOBILE**
Get regular tune-ups by following the manufacturer's maintenance schedule. Keep your tires properly inflated. A well-maintained car is more fuel efficient and produces fewer GHG emissions. According to the Environmental Protection Agency, you can improve gas mileage by 1–2 percent just by using the recommended motor oil.

TELE**COMMUTE**
Telecommuting is the practice of employees working from home. Telecommuting can reduce VMT per individual up to 90 percent with an average savings of 1.7 gallons for each telecommuting day.[17] However, be aware of energy usage in your home office.

The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment, and enhancing the economy.

We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region - leading the way to a better future.

PUBLICATION: #17030 | REFERENCES

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