

TRANSPORTATION ALTERNATIVES: CARLISLE BOROUGH

Larissa Wright (Lead on Narrative) and Nick Dukach (Lead on Ordinance)

I. Introduction

With widespread concerns for the environmental issues of climate change and air pollution, people are recognizing a critical need for sustainability in society. One major initiative looks to combat those issues by reducing the use of typical passenger vehicles (TPV) and using other transportation methods.¹ Transitions have already begun from TVPs to different types of transportation alternatives including trip sharing, car-sharing, public transit, bicycling, walking, and the use of zero emission vehicles (ZEVs) or autonomous vehicles (AVs). These alternatives can be easier for people to benefit from depending on where they are located and the measures in place to assist in using them; transportation alternatives will not be used if they are not present or addressed.² The lack of alternative transportation options to utilize and the changes of infrastructure needed for these alternatives' present challenges for local governments in addressing and developing more sustainable practices. This narrative looks to speak to those challenges in local governments with a focus on Carlisle Borough, Pennsylvania. To address these challenges effectively, Carlisle Borough should adopt an ordinance that will develop protocols, regulations, and incentives to use transportation alternative methods.

Other municipalities from around the county confront problems associated with TPVs by adopting ordinances that are uniquely tailored to their area's goals and needs. These ordinances are established with the purpose of making their municipality more friendly to alternative

¹ Smart Growth and Transportation, United State Environmental Protection Agency, (2017), <https://www.epa.gov/smartgrowth/smart-growth-and-transportation>.

² *Id.*

transportation. They establish an installation process or processes whether it's for car or trip sharing services, biking and walking lanes, electric vehicle charging stations, etc. The installation is accompanied with incentives to give the alternatives greater success.

The ordinances are centered around each municipality's own needs including assessing the municipalities already in place alternatives, costs, and demographics. Nonetheless, all ordinances increase transportation alternatives available to residents. This results in better access to affordable transportation that can save residents money through the usage of municipality established transportation and less dependence on vehicle ownership.³ Furthermore, ordinances to establish transportation alternatives results in lower greenhouse gasses (GHGs) emitted from vehicles, allowing municipalities to benefit from better air quality and positively contribute to addressing climate change.⁴

The Sections below identify the problem and analyze appropriate solutions for Carlisle. Section II will briefly discuss climate change and air pollution followed by the challenges associated with transitioning out of the TPV. Trip sharing, car-sharing, public transit, bicycling, walking, and the use of ZEVs or AVs will all be reviewed with explanations as to why it is not a simple task to make use of the listed alternatives. Section III explains why existing ordinances in Carlisle cannot adequately address the problem, concluding that existing ordinances lack the specificity and planning that will be needed to make real change. Section IV shows what Carlisle can learn from other areas by reviewing their adopted ordinances. Section V describes a new proposed ordinance for Charlise. Detailed will be the benefits of the ordinance and how recommendations can be implemented.

³ *Id.*

⁴ *Id.*

II. The Problem: Transportation in Its Current State

As we as a society progress, we continue to learn more about what we can do to fight the environmental issues of climate change and air pollution—two issues stemming in part from the GHGs released from traditional transportation.⁵ Negative environmental effects of TPVs were recognized as early as the 1950s.⁶ Since then, federal, state, and local governments have all attempted to combat those known negative effects through legislation and relevant initiatives.⁷ Despite attempts and some success, there is still more to be done.⁸ Addressing these problems through using transportation alternatives in place of TPVs can alleviate some environmental damage and prove beneficial in more ways than just having a stable climate and clean air.⁹

A. Environmental Effects of Traditional Transportation

TPVs prove to result in environmental harms. The primary GHG resulting from transportation is carbon dioxide.¹⁰ Of all transportation methods, typical passenger vehicles are the largest source of carbon dioxide.¹¹ Typical passenger vehicles include passenger cars, light-duty and pickup trucks, and vans. The Environmental Protection Agency (EPA) reports these vehicles account for half of the GHGs of the transportation sector.¹² Notably, the number of vehicle miles traveled by passenger vehicles and light-duty trucks increased by 41.6 percent from

⁵ U.S. Department of Transportation: Ensuring Efficient and Reliable Transportation Choices for Consumers, U.S. Department of Transportation, (2012), https://www.transportation.gov/sites/dot.gov/files/docs/usdot_energy_blueprint.pdf.

⁶ Greenhouse Gas Emissions from a Typical Passenger Vehicle, United States Environmental Protection Agency, (2018), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100U8YT.pdf>.

⁷ Environment, U.S. Department of Transportation, (2019), <https://www.transportation.gov/policy/transportation-policy/environment>.

⁸ *Id.*

⁹ *Id.*

¹⁰ Sources of Greenhouse Gas Emissions, United State Environmental Protection Agency, (2017), <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

¹¹ *Id.*

¹² *Id.*

1990 to 2018.¹³ This is a result of multiple factors including a period of low fuel prices, which will be relevant in a later discussion on incentivizing individuals to use these vehicles less or not at all.

These numbers reflect across the county and in Carlisle. In 2016 and 2017 GHGs from transportation in Carlisle made up over twenty-nine percent of total GHGs produced from the Borough.¹⁴ Additionally, as of 2018, the majority of Carlisle Borough workers reported driving alone as their primary way of getting to work.¹⁵ Two consequences of our transportation sources are climate change and air pollution, both proving to have serious side effects.¹⁶ Some believe local governments' role in fighting such issues is moot because of the federal government's authority in regulating transportation related sectors to climate change.¹⁷ This just is not true, especially through local governments ability to mitigate impacts through local policies and laws.¹⁸

1. Climate Change

Earth is warming. The Earth's average global surface temperature as of 2020 is projected to be 0.9 degrees Fahrenheit warmer than the global previous temperature averages recorded from 1986-2005.¹⁹ This occurs when the GHGs, carbon dioxide, are released into the atmosphere and prevents heat from escaping to leave us with a hotter world.²⁰ Heat waves, unpredictable plant

¹³ *Id.*

¹⁴ Climate Action Plan & Climate Action Commission, Carlisle Pennsylvania, (2020), https://www.carlislepa.org/government/climate_action_plan.php.

¹⁵ Carlisle, PA, DATA USA, (2018), <https://datausa.io/profile/geo/carlisle-pa/#housing>.

¹⁶ *Id.*

¹⁷ Katherine A. Trisolini, Article: All Hands on Deck: Local Governments and the Potential for Bidirectional Climate Change Regulation, 62 *stan. l. rev.* 669 (2010).

¹⁸ *Id.*

¹⁹ Rebecca Lindsey and LuAnn Dahlman, Climate Change: Global Temperature, Climate, (2020), <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>.

²⁰ Climate Impacts: The Consequences of Climate Change are Already Here, Union of Concerned Scientists, <https://www.ucsusa.org/climate/impacts>.

and crop management, wildlife and insect changes, rising sea levels, and extreme weather are linked to climate change.²¹ Without significant reduction in GHGs, the global surface temperature will continue to rise.²²

2. Air Pollution

Vehicles not only emit carbon dioxide, but numerous other major pollutants as well. Particle matter, organic compounds, nitrogen oxides, carbon monoxide, and sulfur dioxide are all ingredients of air pollution caused from operating, manufacturing, and disposing of our vehicles.²³ These pollutants have dire consequences on human health, wildlife, and plants. Humans are currently at risk for respiratory pains and diseases as we are breathing in the pollutants every day. Those with pre-existing respiratory illnesses—children, elderly adults, and outdoor workers are especially vulnerable.²⁴ Animals and plants also reap air pollution harms. Air pollutants can alter the levels of nitrogen essential in plant development, leading to unpredictable growths that can affect human food supply. Pollutants can also affect wildlife animals and insects causing disruptions in their behavior, reproduction, and disease.²⁵

B. Getting the People of Carlisle to Use Transportation Alternatives

The problems of climate change and air pollution associated with the typical passenger vehicle leave us to look for more sustainable options. Not only do we see the issues of climate

²¹ *Id.*

²² Donald Wuebbles, David W. Fahey, and Kathy A. Hibbard, How Will Climate Change Affect the United States in Decades to Come? *Eos*, (Nov. 03, 2017), <https://eos.org/features/how-will-climate-change-affect-the-united-states-in-decades-to-come>.

²³ Cars, Trucks, Buses and Air Pollution, Union of Concerned Scientists, (Jul. 19, 2018), <https://www.ucsusa.org/resources/cars-trucks-buses-and-air-pollution>.

²⁴ Health Effects of Ozone Pollution, United States Environmental Protection Agency, (2017), <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>.

²⁵ Effects of Air Quality, U.S. Fish & Wildlife Service, (Jun. 16, 2015), <https://www.fws.gov/refuges/AirQuality/effects.html>.

change and air pollution, there is also the issue in addressing them. Using transportation alternatives such as car-sharing, trip sharing, public transportation, bicycling, walking, and the use of ZEVs or AVs is a way to reduce environmental harms.²⁶ Nevertheless, there lies another problem in making use of them. In order to do so we must look at if these means exist in the Borough. If so, are people using them? On the contrary, if they do not exist, what challenges exist in implementing? Once they are implemented, what challenges exist in ensuring Borough citizens use them? Areas with low automobile dependence tend to be more centralized, have more intense land use, and are thus more oriented to non-auto modes like public transportation, walking, and bicycling.²⁷ We see this at issue here, leaving us to seek solutions in sharing vehicles, and using ZEVs and AVs.

Cost is a common issue with implementing all of the proposed alternatives. Funding will be needed for partnering with services, and construction for new bus stops, bicycle lanes, and walkways. Individual costs are also a concern in promoting purchasing bicycles and ZEVs or AVs. There is no Borough established monetary fund for these purposes alone. Options and suggestions on relating to cost will be examined in Section V.

1. Car Sharing

Car-sharing is a service that allows people to have access to vehicles for a period of time.²⁸ This can be done simply by individuals sharing one's vehicle, such as friends carpooling. It can also be done through a private organization.²⁹ The organization provides vehicles and has

²⁶ Cleaner Air, U.S. Department of Transportation, (Aug. 24, 2015), <https://www.transportation.gov/mission/health/cleaner-air>.

²⁷ Mark Roseland, *Toward Sustainable Communities*, (1992), <https://files.eric.ed.gov/fulltext/ED380301.pdf>.

²⁸ Ranjit Godavarthy and Jill Hough, *Opportunities for State DOTs (and others) to Encourage Shared-Use Mobility Practices in Rural Areas*, The National Academy of Sciences, Engineering, and Medicine, (Dec. 2019), <http://onlinepubs.trb.org/onlinepubs/nchrp/2065/Task76Report.pdf>.

²⁹ *Id.*

them located in nearby neighborhoods and other easy access points.³⁰ Instead of owning a car, one can become a member of an organization participating in car-sharing services for a yearly or monthly fee, or one-time fee upon vehicle usage.³¹ The most popular companies for car-sharing as of 2019 are Zipcar, Car2go, and Enterprise. Currently, these popular services are not offered in Carlisle; their offered service areas are larger metropolitan cities.³²

The problem with establishing or partnering with a car-share service, will be getting Borough citizens to use it. Data USA does not have information on households in Carlisle that own a vehicle.³³ However, an inference on vehicle reliability resulting in renting and ownership can be appropriately drawn from data showing citizens primary means of transportation to their work being driving alone.³⁴ Vehicle reliance and the Borough's smaller population compared to areas with car-sharing services, may explain the absence of car-sharing services in the area. This all equates to the inference that there may not be a strong demand.

2. Trip Sharing

Trip sharing is the “formal or informal sharing of rides between drivers and passengers with similar origin-destination pairings.³⁵” This is usually done in larger vehicles, having a bigger pool of people to share operating costs.³⁶ Carlisle only has a trip sharing service offered for senior citizens that travel in the tri-county of Carlisle, York, and Gettysburg.³⁷ The problems with enacting an efficient trip sharing service are similar to those of car-sharing.

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ Carlisle, PA, DATA USA, *supra* note 15.

³⁴ *Id.*

³⁵ Mark Roseland, Toward Sustainable Communities, *supra* note 27.

³⁶ *Id.*

³⁷ Shared Ride, Rabbittransit, <https://www.rabbittransit.org/shared-ride/>.

3. Public Transportation

The CAT Bus services is the public transportation offered in Carlisle. The bus goes to downtown Harrisburg, Capitol Complex, Lemoyne, Camp Hill, Hogestown, New Kingstown, and Middlesex, offering two stops in Carlisle at the Courthouse and Commons Walmart.³⁸ As of 2018, only eighty-one Borough residents reported public transportation as their primary way of traveling to work.³⁹ Perhaps the bus route does not go where many workers need to be. Still, there will be a challenge in getting people to use the bus over their personal vehicles when personal vehicles can offer more convenience. A problem may lie in the limited number of stops in Carlisle as well. Research done in a New Jersey sample size found people living within a half-mile of a station are more likely to use public transportation than those who do not.⁴⁰ Getting people to use the bus may not easily happen without having more stops closer to residential areas.

4. Bicycling

In 2019, Carlisle received the bronze-level “Bicycle Friendly Community Award” from the League of American Bicyclists.⁴¹ The Borough has been doing successful work to provide bicycle paths for its people. Bike paths are centered in the middle of the Borough with routes extending in the central north, east, south, and west.⁴² Though successful, the Borough Council is

³⁸ Carlisle, Capital Area Transit, (2019), <https://www.cattransit.com/wp-content/uploads/sites/2/2020/03/Route-C-Public-Schedule-2019.11.04.pdf>.

³⁹ *Id.* at 15.

⁴⁰ Robert Noland Ph.D., Kaan Ozbay, Ph.D., Stephanie DiPetrillo, and Shri Iyer, Measuring the Benefits of Transit-Oriented Development, (Oct. 2014), <https://transweb.sjsu.edu/sites/default/files/1142-TOD-benefits-brief.pdf>.

⁴¹ Carlisle Borough Bicycle & Pedestrian Trail Network Map, Cumberland Trail Network, <https://transweb.sjsu.edu/sites/default/files/1142-TOD-benefits-brief.pdf>.

⁴² *Id.*

still seeking more ways to promote biking through education, funding, and focus groups.⁴³ To have more success, Carlisle must continue implementing more bicycle lanes and promoting their usage as a primary mean of transportation.

5. Walking

Utilizing walking more as a means of transportation is heavily dependent on proximity to where townspeople work, go to school, eat, shop, and enjoy recreation.⁴⁴ Having these types of places located close to one another and their residential areas is commonly known as mixed-use zoning.⁴⁵ Getting citizens to walk more to such places is difficult because of the already existing infrastructures. While mixed-use is somewhat incorporated, it is not to the fullest extent of other developed places. This leaves some still reliant on their vehicles for local travel.

6. Zero Emission and Autonomous Vehicles

ZEVs and AVs are both relatively new types of passenger vehicles that look nearly identical to typical passenger vehicles on the outside, but have a different makeup that proves them to be more sustainable by emitting little to zero GHGs.⁴⁶ By government regulation standards, ZEVs are considered to emit zero GHGs through varying degrees.⁴⁷ Government standards allow leeway when it comes to measuring GHGs emitted.⁴⁸ This means low levels of GHGs emitted can still be classified as zero emission under government standards.⁴⁹ A car being

⁴³ Tammie Gitt, Carlisle Earns Bicycle Friendly Designation, The Sentinel, (Jan. 1, 2020), https://cumberlink.com/news/local/communities/carlisle/carlisle-earns-bicycle-friendly-designation/article_51c233b6-6847-5c98-bc1d-58e351a575ab.html.

⁴⁴ Tyler Adams, Mixed-Use Zoning, Sustainable Development Code, <https://sustainablecitycode.org/brief/mixed-use-zoning-3/>.

⁴⁵ *Id.*

⁴⁶ What is ZEV? Union of Concerned Scientists, (Sep. 12, 2019), <https://www.ucsusa.org/resources/what-zev>.

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.*

a ZEV is done by vehicle design that allows them to run on electricity that can recharge through power charging stations.⁵⁰ Most will have to be plugged in and are referred to as electric vehicles (EVs).⁵¹ AVs are automated vehicles whose passengers choose the route, but the car itself is able to drive and operate itself.⁵² AVs result in lower GHGs because the majority are only being built to meet ZEV standards.⁵³ Those that will not meet ZEV standards are still able to still see environmental benefits if users take advantage of the car's ability to navigate itself allowing users more flexibility in sharing vehicles.⁵⁴

As of 2020, there are only five Charging stations within the Borough's zip code.⁵⁵ If just eight percent of Pennsylvanian's switched to ZEVs the state would need more than eight thousand charging stations.⁵⁶ The problems will be getting Carlisle citizens out of their TPVs and into the newer alternatives. This is a difficult task because citizens need the purchasing power to have one of these vehicles and more charging stations must be available in order to fully benefit from the purchase.⁵⁷

III. Why a New Ordinance is Needed

The problem cannot be adequately addressed because an appropriate borough ordinance in Carlisle does not exist. Currently, there is no ordinance for the borough focusing solely on

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² Jacques Leslie, Will Self-Driving Cars Usher in a Transportation Utopia or Dystopia? Yale Environment 360, (Jan. 8, 2018), <https://e360.yale.edu/features/will-self-driving-cars-usher-in-a-transportation-utopia-or-dystopia>.

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ Best EV Charging Stations in Harrisburg-Carlisle, Plugshare, (2020), <https://www.plugshare.com/directory/us/pennsylvania/harrisburg-carlisle>.

⁵⁶ Kathy Harris, It's Time to Fill the PA-Sized Hole in the EV Map, NDRC, (Mar. 26, 2020), <https://www.nrdc.org/experts/kathy-harris/its-time-fill-pa-sized-hole-ev-map>.

⁵⁷ *Id.*

transportation alternatives to the TPV. Consequently, there is also no current borough ordinance appropriately addressing implementing all the means to have such alternatives. A new ordinance will need to be adopted to state the Borough goals and put in place the means of achieving them.

What Carlisle does have is a Resolution to address reducing GHGs.⁵⁸ This Resolution states that Carlisle is committing to reducing GHGs twenty-six percent by 2025 and eighty percent by 2050.⁵⁹ It further expresses the desire to implement this along with other borough goals and is looking to approve an alternative pathway to meet borough goals in a separate plan within the year.⁶⁰ While helpful in expressing a need for action, this Resolution does only that, state a need to take action.⁶¹

Currently, Carlisle does have ordinances that can affect the construction of implementing some transportation alternatives. For instance, Article V Section 223-43 states the Council, by measure of resolution, may deem necessary the construction of sidewalks in areas where none exist.⁶² This will be helpful in making more pedestrian walkways that occupants can make use of. The Code also calls for conformity with the specifications adopted by the Borough Council, allowing adjustments for special circumstances.⁶³ This can be relevant to consider when designing and implementing sidewalks, bicycle lanes, public transportation lanes, and possible street sidewalks with electric vehicle charging stations. While relevant in establishing authority to direct construction for sidewalks if they are absent, this is certainly no plan in itself to

⁵⁸ A RESOLUTION OF THE BOROUGH COUNCIL OF THE BOROUGH OF CARLISLE, CUMBERLAND COUNTY, PENNSYLVANIA, TO DEVELOP AND IMPLEMENT A STRATEGY TO REDUCE GREENHOUSE GAS (GHG) EMISSIONS CONSISTENT WITH U.S. INTERNATIONAL PARIS ACCORD COMMITMENTS, RESOLUTION NO. 07-09-2020-01, Borough of Carlisle, <https://cms8.revize.com/revize/carlislepa/Climate%20Action%20Plan/Climate%20Action%20Resolution.pdf>.

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² Borough of Carlisle, PA, Code Part II art. V § 223-43 (1983).

⁶³ Borough of Carlisle, PA, Code Part II art. V § 223-30 (1983).

implement them and incentivize residents of Carlisle to make use of them. These codes are merely only helpful in acknowledging how construction changes should look aesthetically.

Carlisle also has a parking code that requires minimum parking spaces for specified land use types.⁶⁴ Currently, it requires no bicycle parking spaces in lots.⁶⁵ It does require a certain number of car parking spaces depending on the land use type. However, none of the required parking spaces are reserved for ZEVs or charging stations for them.⁶⁶ A new ordinance will be necessary to address this and ensure developments are incorporating spaces for bicycles and ZEVs.

Additionally, there is an ordinance that speaks to air pollution regulations. Article XXIII Section 255-180(A) states: “All uses shall comply with state and federal regulations on air pollution.”⁶⁷ Though important in assisting combating air pollution, the compliance with state and federal law is not doing enough. Relevant compliance deals only with TPV emission standards and does not focus on making use locally of the proposed alternatives in order to reduce GHGs.⁶⁸ Furthermore, air quality standards provided by federal law appear to have lax enforcement with an estimated one hundred fifty million US citizens living in areas that do not meet standards.⁶⁹

The Resolution is a good start in seeking a concrete plan for the Borough.⁷⁰ However, the problem will not be addressed without better guidance. Carlisle currently lacks any ordinances to establish and implement types of alternative transportations with the impact of reducing GHGs and improving air quality. Establishing a new ordinance is necessary in order to lay out the

⁶⁴ Borough of Carlisle, PA, Code Part II art. XXV § 255-205 (1983).

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ Borough of Carlisle, PA, Code Part II art. XXIII § 255-180 (1983).

⁶⁸ Clean Air Act Compliance Monitoring, United States Environmental Protection Agency, <https://www.epa.gov/compliance/clean-air-act-caa-compliance-monitoring>.

⁶⁹ Vehicles, Air Pollution, and Human Health, Union of Concerned Scientists, (Jul. 18, 2014), <https://www.ucsusa.org/resources/vehicles-air-pollution-human-health>.

⁷⁰ *Id at 56.*

protocols, regulations, and incentives to effectively make use of relevant transportation alternatives in Carlisle.

IV. Searching for Solutions

To help understand how Carlisle can be more sustainable through transportation alternatives, we look at other municipalities to understand their success and see if it can be helpful here. When it comes to municipality planning there is no, “one size fits all” ordinance solution. Different factors are taken into place depending on the focus area goals, size, population, resources, needs, demographics, demands, etc. Therefore, It’s best to analyze comparable places of similar geography and demographics. In their absence, we focus on the areas with the best existing ordinances. The best guidance comes from places that address more than one type alternative and are closest to Carlisle’s size. For our purposes, success is looked at through the ordinances’ environmental, social, and economic benefits.

A. Key Provisions

1. Car and Trip Sharing

Montgomery County, Maryland, and Golden Valley, Minnesota, developed ordinances establishing a car share program.⁷¹ The purpose was to reduce the number of motor vehicles and decrease the dependence on motor vehicle ownership.⁷² To do this the County partnered with private entities that would develop car-sharing programs.⁷³ Similarly, Walnut Creek, California, address car and trip sharing through their transportation management ordinance.⁷⁴ This ordinance

⁷¹ Montgomery Cty Code § Sec. 18A-22; Golden Valley Twsp Code § 113-97

⁷² *Id.*

⁷³ *Id.*

⁷⁴ Walnut Crk Cty Code § Sec. 6-1.01 (2020).

requires large employers in the area to “develop and implement trip reduction programs at work sites.”⁷⁵ These municipalities rely on employers to comply and develop incentives to get employees to make use of car and trip sharing.

2. Electric Vehicles

i. Mandatory Charging Stations

To encourage EV usage, municipalities are making structural changes to incorporate EV charging spaces in parking spaces. Montgomery County, Maryland, and Walnut Creek, California, provide ordinances in their county codes requiring charging spaces under certain circumstances. All parking facilities constructed after a specified date that contain more than one hundred parking spaces must provide one space ready to be converted to an EV station in Montgomery County.⁷⁶ Likewise, Walnut Creek, mandates EV charging spaces depending on the type of area and its dimensions.⁷⁷ Their code prioritizes maximum spaces for those in affordable housing, requiring a flat percentage of EV charging stations required as opposed to a percentage in other areas.⁷⁸ Walnut Creek also requires newly constructed areas or ones making “major alterations” to require a space or spaces for charging EVs.⁷⁹

ii. Optional Charging Stations

Other municipalities simply encourage the use of EV’s by making EV charging spaces optional in their Code. For example, the Township of Golden Valley, Minnesota, has an ordinance that makes implementing their charging stations somewhat optional.⁸⁰ This is done through a point system in which new developments are required to implement a fraction of

⁷⁵ *Id.*

⁷⁶ Montgomery Cty Code § Sec. 59-e-2.24

⁷⁷ Walnut Crk Cty Code § Sec. 9121.04 (2020).

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ Golden Valley Twsp Code § 113-123.

amenities listed in the code.⁸¹ EV charging stations are an option within the list.⁸² If this option is chosen, the development must dedicate five percent of the required parking spaces to EV charging spaces.⁸³

3. Bicycle Lanes

i. Mandatory Bicycle Parking Spaces

Walnut Creek, California looks to promote bicycling as a transportation means by having the appropriate designated areas to ride and park them.⁸⁴ The City has updated their city code to mandate bicycle spaces in places newly constructed, or places making “major alterations.”⁸⁵ The code calls for mandatory bicycle spaces to be either at least ten percent of the number of parking spaces or have at least one bicycle space, whichever is greater.⁸⁶ The code details the design standards and differentiates the difference between short- and long-term bicycle space requirements.⁸⁷ Another amenity listed for new builders to choose from also deals with accommodating shared vehicles or shared bicycles on new development sites.⁸⁸

ii. Optional Bicycle Parking Spaces

Golden Valley, Minnesota’s ordinance makes biking parking spaces somewhat optional.⁸⁹ The ordinance has biking parking spaces listed for new builders to choose from in a list of multiple amenities that are required for new developments.⁹⁰ New developments must

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ Walnut Crk Cty Code § Sec.10-2.3.202(G) (2020).

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ Golden Valley Twsp Code § 113-97.

⁸⁹ *Id. at 75.*

⁹⁰ *Id.*

meet a certain amount of points to meet building standards.⁹¹ Points are established by incorporating numerous amenities, such as bicycle parking spaces.⁹²

C. Municipality Results

Montgomery County, Maryland ultimately helps in increasing public transportation use, ZEV usage, and promoting bicycling and walking.⁹³ An annual report is required to cite the findings and make new recommendations.⁹⁴ After its first year of implementation there was about a thirty-one percent increase in carpools and an almost sixty percent increase in those using public transportation, walking, or biking.⁹⁵ By the 2016 fiscal year, 1,040 out of about 25,440 newly registered vehicles were electric, hence reducing GHG emissions.⁹⁶ The County discusses benefits of reducing GHGs to be, “GHG reductions improve public health because of better air quality; businesses become more profitable when they employ energy conservation measures that lead to savings on energy costs; community resiliency is strengthened through greater energy and food independence; expanded transit options reduce congestion and enhance mobility.”⁹⁷

As of this year, GHGs will have decreased by fifteen percent due to policy related changes in Walnut Creek, California.⁹⁸ This can be beneficial for all people within the Township. In preparing laws and policies, Walnut Creek looks to County recommendations in consulting environmental justice groups.⁹⁹ Walnut Creek policy makers advocate for including fair

⁹¹ *Id.*

⁹² *Id.*

⁹³ Montgomery Cty Code § Sec. 18A-22.

⁹⁴ *Id.*

⁹⁵ Mark Roseland, *Toward Sustainable Communities*, *supra* note 27.

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ Contra Costa County Sustainably Commission, (Dec. 10, 2018), <https://envisioncontracosta2040.org/wp-content/uploads/2019/05/12-10-18-agenda-packet.pdf>.

⁹⁹ *Id.*

distribution of power and look to see who is most impacted by climate change when coming up with solutions.¹⁰⁰ This helps to ensure social justice throughout. Golden Valley seeks to ensure its residents have the resources they need.¹⁰¹ The most vulnerable residents to climate change and air pollution impacts are identified and considered when creating Golden Valley's Comprehensive Plan to incorporate to ensure environmental, social, and economic equality.¹⁰² If the harms of climate change and air pollution are seen, minorities, the elderly, and low-income residents all face the greatest risk.¹⁰³ Considering this into the Comprehensive Plan can create more equality.¹⁰⁴ The Township mitigates these risks through incentivizing transportation alternatives through their ordinances.

V. Recommendations for Carlisle

A. Recommendations for Incorporating Transportation Alternatives

In drafting the Transportation Alternatives Ordinance, experience from other municipalities ordinances were considered along with Carlisle's unique circumstances. In the ordinance proposed for Carlisle, trip sharing, car-sharing, EVs, and biking, are all addressed. These alternatives are proposed as a first initiative into Carlisle being more friendly towards transportation alternatives. We chose these alternatives because findings show they are the most needed, likely to be successful, and feasible.

The Car Sharing Chapter seeks to reduce the amount of TPV's used by having less individual need to own a vehicle. It will be established by the Borough partnering with private workplaces

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ *Id.*

where multiple Carlisle residents all travel to work. Incentives such as priority parking spaces and financial savings will be offered to make use of this. This is offered and partnered with private workplaces in an attempt to get residents all going the same place to share vehicles. This seeks to reduce the number of TPVs on the road and therefore, reduce the amount of GHGs emitted. We emulated the discussed ordinances because of their success in their car-share programs.

The Trip Sharing Chapter seeks the same goals as car sharing. Trip sharing is established in said borough locations and is centered around Carlisle and its surrounding areas. Typically, we see successful trip sharing services in more populated areas.¹⁰⁵ We offer this provision to the borough with their discretion in welcoming a service when they see fit. Annual reports recorded after adoption of any transportation alternative services and Carlisle's yearly demographics will be important in the future in determining this alternative's potential success.

The Biking Chapter seeks the same goal of reducing TPV use. This chapter does so by promoting bicycle usage. Safety measures are prioritized by establishing where bicycles can be operated, ensuring bicycle parking spaces, and increasing bicycle lanes throughout Carlisle Borough. Establishing these serves to increase the usage of bicycles as a means of legitimate transportation, and not just recreation. We included this Chapter because of Carlisle's lack of mandatory bicycle parking spaces. Mandating them, along with increasing bicycle lanes, will hopefully promote bicycle usage as a means of transportation. In the ordinances we've assessed, we find more success in mandatory spaces rather than optional.

The ZEV Chapter also attempts to lower GHGs from TPVs, but does so by prioritizing a different type of vehicle use. This will be important as we already established Carlisle is car

¹⁰⁵ *Id. at 28.*

dependent.¹⁰⁶ Ideally, increasing in availability in charging stations will lead to residents purchasing, or at least thinking of purchasing, ZEVs. This Chapter establishes the need for more EV charging stations and describes where they can be located and when they are required. A minimum percentage of EV charging parking spaces will be required depending on the land use type. A mandatory provision is proposed to ensure new developments begin having these spaces. This is a start to begin installing more EV charging stations throughout Carlisle. Looking to the annual report in the future will give better indication if there is a demand for ZEVs.

B. Funding Options

Alleviating the costs in implementing these transportation alternatives in Carlisle can be done through partnering with private entities, incorporating costs in new building requirements, and state and federal resources. Discussed above car-sharing and trip sharing initiatives being done by partnering with private entities. The cost burden on these alternatives should be low in the borough because so.¹⁰⁷ If car-sharing is used, it should be rather inexpensive. Offering priority parking is an initiative to offer that results in little to no cost.¹⁰⁸ Furthermore, residents can even save money on car maintenance costs by sharing those costs and using their own vehicles less. The same goes for trip sharing.

Biking can be funded partly through new developments and partly through the state and federal resources. In order to get residents using bicycles as a means of transportation there needs to be both bicycle parking spaces and bicycle lanes. The proposed ordinance requires a percentage of bicycle parking spaces that will be accessible to residents. Adding bicycles parking spaces is a cost that will be incorporated in new developments. Therefore, whether it is a

¹⁰⁶ *Id.* at 15.

¹⁰⁷ Godavarthy, Hough, *supra* at 28.

¹⁰⁸ *Id.*

private or public entity, that entity will need to come up with the costs to receive building approval. Alternatively, there is the cost of building new bike lanes. If Carlisle is not interested in reevaluating taxes, there are state development impact fees, and planning assistance grants available to Pennsylvania communities.¹⁰⁹

Making use of ZEVs includes having the appropriate infrastructure, and citizens having the incentives to purchase these types of vehicles. When incorporating infrastructure, if taxes do not want to be used as an option, Pennsylvania offers incentives to private and public entities to alleviate building charging station costs. Pennsylvania offers the Alternative Fuels Incentive Grant Program for “for projects that improve Pennsylvania’s air quality and reduce consumption of imported oil using homegrown alternative fuels that will help the state’s economy and environment.”¹¹⁰ This applies to expanding ZEV resources through building EV charging stations.¹¹¹ There are also the Electric Vehicle Supply Equipment and Hydrogen Fuel Cell Infrastructure Grants and Electric Vehicle Supply Equipment Rebate. Both programs offer competitive grants for the acquisition, installation, operation, and maintenance of publicly available infrastructure.¹¹² Grant reimbursements can be up to six hundred thousand dollars through this program.¹¹³ Similarly, the Alternative Fuel Infrastructure Funding provides similar reimbursements but for private sites as well.¹¹⁴ Alike programs exist for citizens that want to

¹⁰⁹ How Communities are Paying for Innovative On-Street Bicycle Infrastructure, The League of American Bicyclists, (Jun, 2014), <https://bikeleague.org/sites/default/files/PayingForInnovativeInfrastructure.pdf>.

¹¹⁰ Electric Vehicles in Pennsylvania, Pennsylvania Department of Environmental Protection, (Oct. 2019), <http://www.depgreenport.state.pa.us/elibrary/PDFProvider.ashx?action=PDFStream&docID=13981&chksum=&revision=1&docName=ELECTRIC+VEHICLES+IN+PENNSYLVANIA&nativeExt=pdf&PromptToSave=False&Size=96296&ViewerMode=2&overlay=0>.

¹¹¹ *Id.*

¹¹² Pennsylvania Laws and Incentives, U.S. Department of Energy, <https://afdc.energy.gov/laws/all?state=PA>.

¹¹³ *Id.*

¹¹⁴ *Id.*

purchase a ZEV.¹¹⁵ Grants, rebates, and tax incentives are offered to help with purchasing ZEVs and equipment associated with home installation charging.¹¹⁶

VI. Conclusion

Globally, we are all facing the consequences from the TPV we have relied upon for so long. Consequences resulting from vehicle emissions are climate change and air pollution; Both produce harms for humans, animals, and plants that can disrupt our health and ecosystems.¹¹⁷ Local governments can play a key role in achieving sustainability through adopting area-specific policies. To mitigate the harms, we must look to leading actors who have already taken measures to reduce the use of the TPVs and transition into using transportation alternatives. Following their lead, we propose the Transportation Alternative Ordinance for Carlisle to begin implementing alternatives that can help reduce GHG emissions from the Borough.

Transportation Alternatives Ordinance

Ordinance NO. _____

AN ORDINANCE OF THE CARLISLE BOROUGH OF CUMBERLAND COUNTY,
PENNSYLVANIA, FOR LOCAL GOVERNMENTS TO DEVELOP PROTOCOLS,
REGULATIONS, AND INCENTIVES FOR TRANSPORTATION ALTERNATIVES.

NOW, THEREFORE, BE IT ENACTED AND ORDAINED by the authority of the
[Council/Board] of Carlisle Borough of Cumberland County, Pennsylvania:

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Id at 22, 23.*

CHAPTER 1

PRELIMINARY PROVISIONS

Section 101 – **Short Title**

This ordinance shall be known as the Transportation Alternative Ordinance for the Borough of Carlisle.

Section 102 – **Legal Authority**

This ordinance is authorized under 8 Pa. C.S.A. § 1202 (2) and (31) and 53 Pa. C.S. § 5505.

Section 103 – **Purpose**

The purpose of the Transportation Alternative Ordinance is to:

- (1) Reduce reliance on single-occupancy vehicles by individuals who travel regularly to and from their proposed destination.
- (2) Promote and encourage the use of transit, car sharing, bicycling, walking, trip sharing, and zero emission vehicles as a means to reduce to solo driving.
- (3) Reduce carbon emission and improve air quality.

Section 104 – **Definitions**

For the purposes of this ordinance, the words and phrases used herein shall have the meaning given to them in this section unless the text clearly indicates otherwise.

- (a) “Bicycle” – also known as a “bike”, is a device upon which any person may ride, propelled by human power through a belt, chain, or gears, and having either two (2) or three (3) wheels in a tandem or tricycle arrangement.¹¹⁸

¹¹⁸ City of Thousand Oaks, Cal. Municipal Code § 4-3.116

- (b) “Biking” – is the use of a bicycle by an individual.
- (c) “Bicycle Lane” – any lane within the roadway designated by signs and/or markings for the operation of bicycles.¹¹⁹
- (d) “Bicycle Rack” – a stationary fixture to which a bicycle can be securely attached.
- (e) “Borough” – Carlisle Borough located in Cumberland County, Pennsylvania.
- (f) “Car Share” – a mobility enhancement service that provides an integrated citywide network of neighborhood-based motor vehicles available only to members by reservation on an hourly basis, or in smaller intervals, and at variable rates.¹²⁰
- (g) “Car Share Vehicle” – a vehicle provided by a certified car-share organization for the purpose of providing a car share service.¹²¹
- (h) “Charging” – “charging” means an electric vehicle is parked at an electric vehicle charging station and is connected to the charging station equipment.
- (i) “Charging Station” – equipment that has as its primary purpose the transfer of electric energy by conductive or inductive means to a battery or other energy storage device located onboard an electric vehicle. ¹²²
- (j) “Charging Station Equipment” – the conductors, including ungrounded and grounded, and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, charging stations or apparatus installed specifically for the purpose of delivering electrical energy from the charging station to the electric vehicle.¹²³

¹¹⁹ City of Thousand Oaks, Cal. Municipal Code § 4-3.117

¹²⁰ S.F. Planning Code § 166

¹²¹ Id.

¹²² Kane City, Ill. Code of Ordinance § 28-1-1

¹²³ Id.

- (k) “Charging Station Space” – A dedicated, marked space that identifies the use thereof as exclusively for the charging of electric vehicles.¹²⁴
- (l) “Eating and Drinking Establishments” – any commercial use within which food or beverages are offered for purchase, and/ or are available to, or are consumed by customers or patrons.
- (m) “Electric Vehicle” – a motor vehicle which operates solely by use of a battery or battery pack and which meets the applicable Federal motor vehicle safety standards. The term includes a motor vehicle which is powered mainly through the use of an electric battery or battery pack, but which uses a flywheel that stores energy produced by the electric motor or through regenerative braking to assist in operation of the motor vehicle.¹²⁵
- (n) “Industrial” – land utilized in connection with manufacturing, processing, or raw materials storage.
- (o) “Institutional” – use of land, buildings or other structures for some public or social purpose but not for a commercial use or for a commercial business purpose and may include governmental, religious, educational, charitable, philanthropic, hospital or other similar non-business uses.
- (p) “Lodging” – a temporary dwelling place such as a hotel or motel.
- (q) “Long term bicycle parking” – designed for individuals to park their bikes for a period of several hours at a time.
- (r) “Medical” – any buildings used primarily by physicians to examine and consult with patients.

¹²⁴ Id.

¹²⁵ 61 Pa. Code § 60.14

- (s) “Multi-Household Residential” – a classification of housing where multiple separate housing units for residential inhabitants are contained within one building or several buildings within one complex.
- (t) “Office” – building that is used primarily for conducting business transactions other than retail sales.
- (u) “Residential” area” – land used in which housing predominates, as opposed to industrial and commercial areas. These include single-family housing, multi-family residential, and/or mobile homes.
- (v) “Retail establishments” – a place of business open to the general public for the sale of goods or services.
- (w) “Trip Share” – commuting in a motor vehicle as a group of two or more individuals. Trip share arrangements include carpooling, van pooling, and use of transit.¹²⁶
- (x) “Short term bicycle parking” – designed for individuals to park their bikes for a period of three hours or less.
- (y) “Zero Emission Vehicle” – a motor vehicle which is an electric vehicle, vehicle or another type of motor vehicle which produces no emissions of any criteria of pollutants under any operational mode and under any conditions and which meets the applicable Federal motor vehicle safety standards.¹²⁷

CHAPTER 2

CAR SHARE

Section 201 – **Purpose**

The purpose of this chapter is to:

¹²⁶ Montgomery County Code of Regulations § 42A.00.01.01

¹²⁷ 61 Pa. Code § 60.14

(a) Complement existing transit and bicycle transportation systems by providing a practical alternative to private motor vehicle ownership.

(b) Reduce over-dependency on individually owned motor vehicles

Section 202 – **Parking Establishment**

(a) The Borough is authorized to establish car share vehicle parking stalls on public streets in such places and in such manner as the Borough shall determine to be of the greatest benefit and convenience to the public. Every car share vehicle parking stall shall be designated by appropriate signs or markings installed by the Borough.¹²⁸

(b) Car-share spaces shall be generally permitted in the same manner as residential accessory parking. Any residential or commercial parking space may be voluntarily converted to a car share space.¹²⁹

Section 203 – **Parking Locations**

(a) The car share parking spaces shall be made available, at no cost, to a certified car-share organization for purposes of providing car-share services for its car-share service subscribers. At the election of the property owner, the car share spaces may be provided

(1) On the building site,

(i) The car shar space on the building site shall be either:

(A) On-street within 150 feet of the building, or

(B) In the building’s designated parking lot; or

(2) On another off-street site within 800 feet of the building.¹³⁰

¹²⁸ Salt Lake City, Utah Code of Ordinance § 12.04.075

¹²⁹ S.F. Planning Code § Sec. 166

¹³⁰ Id.

- (b) The parking areas for a residential building shall be designed in a manner that will make the car share parking spaces accessible to non-resident subscribers from outside the building as well as building residents.¹³¹
- (c) The parking area for a commercial building shall be designed in a matter that will make the car share parking spaces accessible to non-employee subscribers from outside the building as well as building employees.

Section 204 – **Signage**

- (a) A sign shall be placed above or next to each car-share parking space stating that the parking space is for car-sharing and cannot be used for private automobile parking.
- (b) The sign shall meet the Borough’s design specifications and shall include the name and contact information of a person to call for enforcement of this requirement and such other information as the Borough requires.
- (c) An informational plaque shall also be placed on the outside of the building location, which shall meet the design, location and information requirements established by the Borough.¹³²

Section 205 – **Permit**

- (a) A care share organization must obtain a permit from the Borough for its members to use any car share parking space,
- (b) *Fees.* In order to participate in the Borough’s cars hare program, a car share organization must pay an application permit fee of \$765 per car share organization.
- (c) *Application.* An application for a permit must be submitted on a form prescribed by the Borough which will include, but not be limited to, the following information:

¹³¹ Id.

¹³² Id.

- (1) Legal name of the care share organization; its “Doing Business As” (DBA) certificate; certified copy of the Certificate of Incorporation and proof of registration with the Pennsylvania Department of State; company address; contact name; contact telephone number; contact e-mail address.
 - (2) Proof of automobile insurance for all carshare vehicles intended for use in a car share parking space.
 - (3) Make, model, length, and combined city/highway miles per gallon (MPG) according to the U.S. Environmental Protection Agency’s MPG ratings of vehicles intended for use in a carshare parking space.
- (d) The Borough is authorized to issue car share permits to car share vehicles of eligible car share organizations upon completion of a completed application.
- (e) *Denial.* The Borough will decline to issue a permit to a car share organization if:
- (1) Does not provide automobile insurance as part of their carshare vehicle rental price;
 - (2) Uses vehicles that are not owned or leased by the car share organization; or
 - (3) Does not allow its carshare vehicles to be rented on an hourly or in smaller time intervals, and at rates which vary by time, and/or distance.¹³³
- (f) *Appeal.* A denial of an application must be appealed by the applicant in writing within ___ days from the date of the notice of denial or it shall be denied as untimely.
- (1) The applicant’s appeal must clearly state the reason(s) the applicant disagrees with the denial and must include any supporting documentation as evidence.

¹³³ New York City Department of Transportation, Notice of adoption car share <https://www1.nyc.gov/html/dot/downloads/pdf/notice-of-adoption-carshare.pdf>

(g) *Approval.* The approval of a permit shall allow each permitted car share vehicle to park in parking spaces designated for the exclusive use of car share vehicles. Each permit shall be assigned to a specific car share vehicle. The Borough shall provide direction to the eligible car share organizations on the proper display of the car share permit.¹³⁴

Section 206 – **Permit & Parking Enforcement**

- (a) No person shall stop, park or leave standing any vehicle in a parking space posted with an official sign or marking stating that the space is for the exclusive parking of car share vehicles participating in the Borough car share program, unless the vehicle has a valid car share permit displayed as directed by the Borough.¹³⁵
- (b) The police department is authorized to cite and/or remove or cause the removal of vehicles parked in violation of this section.¹³⁶

Section 207- **Eligibility Criteria for Car Share Organizations**

- (a) Participation in the Borough’s car share program is limited to car share companies or organizations that meet the following criteria:
- (1) Vehicle reservations are processed and paid for using an online system.
 - (2) Car share vehicles can be accessed where they are parked without having to go to a different physical location to execute a contract and/or pick up the keys.
 - (3) The car share organization was selected as part of a competitive process.¹³⁷

Section 208 – **Establishment**

The Borough shall partner with a private entity to develop a car share program.¹³⁸

¹³⁴ Fremont Municipal Code § 10.25.050

¹³⁵ Fremont Municipal Code § 10.25.040

¹³⁶ Id.

¹³⁷ L.A., Cal. Municipal Code ch. VIII § 80.58.1

¹³⁸ Montgomery Cty Code § 18A-22

CHAPTER 300

TRIP SHARE

Section 301 – **Purpose**

- (a) The trip share program is to provide personalized trip share services by:
- (1) Promoting and assisting in initiation and maintenance of new trip share arrangements;
 - (2) Providing a continuous effort to identify potential carpoolers, vanpoolers, and transit riders;
 - (3) Providing a personalized system to match applicants into carpools and vanpools;
 - (4) Providing continuous follow-up contacts to modify unsatisfactory arrangements and rematch individuals whose circumstances and requirements have changed;
 - (5) Soliciting the cooperative support of employers and property owners in encouraging trip share; and
 - (6) Promoting incentives to trip share.¹³⁹

Section 302 – **Establishment**

- (a) *Authority.* The Borough may establish trip share areas.
- (b) Trip share areas shall be established at locations other than trip share districts where concentrations of employment provide opportunities for a significant number of new trip share arrangements.¹⁴⁰
- (c) Any person may petition the Borough to establish a trip share area.¹⁴¹

Section 303 – **Composition of Established Trip Share Areas**

¹³⁹ Montgomery Cty Code § 42A-4

¹⁴⁰ Montgomery Cty Code § 42A-2

¹⁴¹ Montgomery Cty Code § 42A-3

(a) Each trip share area shall:

- (1) Be an employment center that has a minimum of two hundred thousand (200,000) gross square feet of existing office space within a one-quarter square mile area; or
- (2) A residential area with at least five thousand (5,000) existing dwelling units.¹⁴²

CHAPTER 400

BIKING

Section 401 – **Purpose**

The purpose of this chapter is to:

- (a) Provide sufficient safe and convenient bicycle parking and travel
- (b) Encourage bicycling as a form of transportation
- (c) Reduce traffic congestion, pollution, and wear and tear on roads, and fosters healthy physical activity.¹⁴³

Section 402 – **Operation**

- (a) A bicycle shall be operated only on
 - (1) The roadway as near to the right-hand side as possible, or
 - (2) Any bicycle lane
- (b) The operator of a bicycle shall obey all official traffic signals, signs and other control devices applicable to vehicles, unless otherwise directed by a police officer..
- (c) The operator of a bicycle emerging from a driveway or building shall yield the right-of-way to all pedestrians on the sidewalk and to all vehicles on the roadway.
- (d) The operator of a bicycle shall not indulge in any abnormal or trick riding and shall keep at least one hand on the handlebar at all times while in use.

¹⁴² Montgomery Cty Code § 42A-2

¹⁴³ Countryside Ill. Code of Ordinance § 10-10-8

- (e) Operators of bicycles shall not ride in any manner other than single file except on paths or parts of the roadway set aside for the exclusive use of bicycles.
- (f) Operators of bicycles shall not hitch onto vehicles or buses upon a roadway.
- (g) The operator of a bicycle shall park the bicycle upon the roadway at the curb, upon the sidewalk in a rack to support the bicycle, or against a building, except windows or glass doors thereof, in such a manner as to afford the least obstruction to pedestrians or vehicular traffic.¹⁴⁴

Section 403 – **Long Term Bicycle Parking**

- (a) Long-Term Bicycle Parking shall be located within an enclosed, limited-access area designed so as to protect bicycles from precipitation and from theft.
- (b) Long-Term Bicycle Parking shall be intended primarily to serve residents, employees or other persons who would require storage of a bicycle for a substantial portion of the day, for an overnight period, or for multiple days; however, it may serve other bicycle users as needed.¹⁴⁵
- (c) Long-Term Bicycle Parking may be provided within the following types of facilities:
 - (1) Enclosed spaces within a building, such as bicycle rooms or garages.
 - (2) Bicycle sheds, covered bicycle cages, or other enclosed structures designed to provide secure and fully covered parking for bicycles.
 - (3) Bicycle lockers or fixed-in-place containers into which single bicycles may be securely stored and protected.

¹⁴⁴ Tatamy Borough, Pa. Code of Ordinance § 73.03

¹⁴⁵ Cambridge Mass., Parking Ordinance § 6.102.5

(4) Weather-protected bicycle parking spaces that are monitored at all times by an attendant or other security system to prevent unauthorized use or theft.

(d) Long-Term Bicycle Parking shall be provided within the building containing the use or uses that it is intended to serve, or within a structure whose pedestrian entrance is no more than two hundred feet (200') from a pedestrian entrance to such building.¹⁴⁶

Section 404 – **Short Term Bicycle Parking**

(a) Short-Term Bicycle Parking shall be located in a publicly accessible space within fifty (50) feet of a pedestrian entrance to a building.¹⁴⁷

(b) Short-Term Bicycle Parking shall be intended primarily to serve visitors, such as retail patrons, making trips of up to a few hours to a particular use; however, it may serve other bicycle users as needed.

(c) Short-Term Bicycle Parking may be provided adjacent to public streets and sidewalks, or in some cases within the public right of way.¹⁴⁸

Section 405 – **Bike Racks**

(a) Long-Term Bicycle Parking or Short-Term Bicycle Parking requirements may be satisfied by the installation of Bicycle Racks which meet the design and layout standards set forth by the Borough

(b) A bicycle shall make contact with the bike rack at two (2) points along the length of the bicycle and shall allow one or both wheels to be locked to the stand by way of a cable, chain, U-lock or shackle.¹⁴⁹

Section 406 – **Bike Lane Establishment**

¹⁴⁶ Cambridge Mass., Parking Ordinance § 6.104.1

¹⁴⁷ Cambridge Mass., Parking Ordinance § 6.104.2

¹⁴⁸ Cambridge Mass., Parking Ordinance § 6.102.5

¹⁴⁹ Cambridge Mass., Parking Ordinance § 6.105.1

- (a) A bicycle lane that requires the removal of a parking lane, a travel lane, or both, may be designated upon a street only when authorized by the Borough.¹⁵⁰
- (b) The Borough is hereby authorized to determine and establish bicycle lanes at designated locations separated from vehicular lanes upon roadways and sidewalks not part of a state highway, or a county highway. When such determination has been made, the Borough is authorized to install, at each designated location, appropriate signs, striping, pavement markings or other traffic control devices as required by state law and as otherwise necessary to warn, guide and direct bicycle and vehicular traffic for public safety purposes.¹⁵¹

Section 407 – Bike Lane Usage

- (a) No person shall ride or operate a bicycle upon a roadway adjacent to which or upon which bicycle lanes have been designated, except within such bicycle lane or except as otherwise permitted by the provisions of this chapter.¹⁵²
- (b) No person shall ride or operate a bicycle within a bicycle lane in any direction except that permitted of vehicular traffic traveling on the same side of the roadway; provided, that bicycles may proceed either way along a lane where arrows appear on the surface of the lane designating two-way traffic.¹⁵³

CHAPTER 500

ZERO EMISSION VEHICLES

Section 501 – Purpose

The purpose of this chapter is to

¹⁵⁰ Phila., Pa. Municipal Code § 12-701

¹⁵¹ L.A., Cal. Municipal Code § 85.09

¹⁵² Visalia, Cal. Municipal Code § 10.40.060

¹⁵³ Visalia, Cal. Municipal Code § 10.40.070

- (a) Promote and encourage the use of electric vehicles by creating electric vehicle charging stations while
- (b) Promote public health and safety and prevent specific adverse impacts in the installation and use of such charging stations.¹⁵⁴

Section 502 – **Charging Station**

- (a) *Size.* A standard size parking space shall be used for an electric vehicle charging station where such a station is required or planned.¹⁵⁵
- (b) *Creation.* The Borough is authorized to develop and maintain standards for the design and construction of electric vehicle charging stations, as well as electric vehicle charging station locations.¹⁵⁶
- (c) *Installation Requirement.* All electric vehicle charging stations must meet all applicable health and safety standards and requirements, as set forth in Federal, State, Borough, and Municipal codes and regulations.¹⁵⁷
- (a) *Equipment.* Electric vehicle charging equipment must be designed and located so as to not impede pedestrian, bicycle or wheelchair movement or create safety hazards on sidewalks.

Section 503 – **On-Street Charging Stations**

- (a) On-street parking spaces shall be designated and equipped to be electric vehicle charging stations spaces for the exclusive purposes of electric charging.

¹⁵⁴ Riverbank, Cal. Code of Ordinance § 150.17

¹⁵⁵ Mountlake Terrace Code § 19.126.50

¹⁵⁶ Claire Cooke & Brian Ross Summary of Best Practices in Electric Vehicle Ordinances (2019)
https://www.betterenergy.org/wp-content/uploads/2019/06/GPI_EV_Ordinance_Summary_web.pdf

¹⁵⁷ El Segundo, Cal. Code of Ordinance § 13-21-4

- (b) For the purpose of reducing cable management issues and placing the electric vehicle charging station closer to crosswalks and curb ramps, such charging stations shall be installed to use the last space on a block face in the direction of travel wherever possible.¹⁵⁸

Section 504 – **Signage**

- (a) Information must be posted identifying voltage and amperage levels and any type of use, or safety information related to the electric vehicle charging station.
- (b) Public electric vehicle charging stations must be posted with signage indicating that the space is reserved for electric vehicle charging purposes only.¹⁵⁹

Section 505 – **Maintenance**

- (a) Electric vehicle charging stations must be maintained in all respects, including the functioning of the equipment.
- (b) A phone number or other contact information must be provided on the equipment for reporting when it is not functioning, or other problems are encountered.¹⁶⁰

Section 506 – **Required Number of Electric Vehicle Charging Stations**

- (a) Electric vehicle charging stations when the development is 10,000 square feet or more and one of the following occurs:
 - (1) new building or a new off-street parking facility is developed;
 - (2) An addition or improvement to an existing building is made;
 - (3) The parking capacity of an existing building, site, or parking facility is increased by more than 50 percent.

¹⁵⁸ Atlanta, Ga. Code of Ordinance § 16-28.07

¹⁵⁹ Kansas City, Mo. Zoning and Development Code § 88-305-10

¹⁶⁰ Id.

(b) The first column in Table 506-1 shows the type of land use for which electric vehicle charging stations shall be provided, pursuant to this section. The second column shows the minimum percentage of the facility’s parking spaces that shall provide a connection to electric vehicle charging stations.¹⁶¹

Table 506-1¹⁶²

Land Use Type	Percentage of Parking Spaces
Multi-Household Residential	10%
Lodging	3%
Retail, eating and drinking establishments	1%
Office, medical	3%
Industrial	1%
Institutional	3%
Recreational/entertainment/cultural	1%
Other	3%

Section 507 – Parking

(a) Electric vehicles may be parked in any space designated for public parking, subject to the restrictions that apply to any other vehicle that would park in that space

¹⁶¹ Mountlake Terrace Code § 19.126.40

¹⁶² Id.

(b) *Restrictions.* When a sign provides notice that a parking space is a publicly designated electric vehicle charging station, no person shall park or stand any non-electric vehicle in a designated electric vehicle charging station space. Further, no person shall park or stand an electric vehicle in a publicly designated electric vehicle charging station space when not electrically charging or parked beyond the days and hours designated on the regulatory signs posted.¹⁶³

(c) *Enforcement.* A Borough parking enforcement officer may provide for the immediate removal of a vehicle from public or private property to a place of safekeeping at the expense of the registered owner of the vehicle.¹⁶⁴

(1) The Borough is authorized to establish any fee required for the registered owner of the vehicle to retrieve their vehicle.

Section 508 – **Readiness Recommendation**

(a) In order to proactively plan for and accommodate the anticipated future growth in market demand for electric vehicles, it is strongly encouraged, but not required, that all new one-family and multiple family homes with garages be constructed to provide a 220-240-volt / 40 amp outlet on a dedicated circuit and in close proximity to designated vehicle parking to accommodate the potential future hardwire installation of a electric vehicle charging station.¹⁶⁵

(b) In order to proactively plan for and accommodate the anticipated future growth in market demand for electric vehicles, it is strongly encouraged, but not required, that all new and expanded nonresidential development parking areas provide the electrical capacity

¹⁶³ Auburn Hills, Mich. Code of Ordinance § 70-63

¹⁶⁴ Id.

¹⁶⁵ Kane City, Ill. Code of Ordinance § 28-1-4

necessary to accommodate the future hardwire installation of a electric vehicle charging stations. It is recommended that a typical parking lot have a minimum ratio of 2% of the total parking spaces be prepared for such stations. ¹⁶⁶

CHAPTER 600

INCENTIVES

Section 601 – **Authorization**

- (a) The Borough is authorized to provide individuals participating in any of the transportation alternatives mentioned in this ordinance with any of the incentives provided in this chapter.
- (b) *Multiple Incentives.* The Borough, upon their discretion, may provide to an incentive recipient any combination of incentives provided in this chapter.

Section 602 – **Car Share Incentives**

To incentivize the use of car share, the following incentives may be implanted:

- (a) Priority parking spaces for car sharers.
- (b) Financial incentive such as a discount / exemption from parking charges for car sharers.
- (c) A passenger allowance for staff car share on business. ¹⁶⁷

Section 603 – **Trip Share Incentives**

To incentivize the use of trip share, the following incentives may be implanted:

- (a) Activities to encourage and assist the formation of car, van, and bus pools, such as cash payments or subsidies, and

¹⁶⁶ Id.

¹⁶⁷ Why should I encourage car sharing? <https://www.thinktravel.info/media/16339/car-sharing.pdf>

- (b) Preferential parking charges and parking space location subsidized vans, and discounted transit passes.¹⁶⁸

Section 604 – Biking Incentives

To incentivize the use of biking, the following incentives may be implanted:

- (a) Installation of bicycle parking and storage facilities in convenient locations.
- (b) The construction and extension of bicycle paths and pedestrian walkways.¹⁶⁹

Section 605 – Zero Emission Vehicles Incentives

To incentivize the use of zero emission vehicles, the following incentives may be implanted:

- (a) Electric vehicles charging spaces shall be placed in convenient locations.
- (b)

CHAPTER 700

ANNUAL REPORT, SEVERABILITY, REPEALS, EFFECTIVE DATE

Section 701 – Annual Report

- (a) The temporary Climate Committee, before they dissolve, shall submit a report to the Borough the end of the calendar year that includes:
 - (1) Findings regarding the costs and benefits each transportation alternative; and
 - (2) Recommendations as to:
 - i. Whether the Borough should create, or provide incentives for the private sector to create each transportation alternative; and
 - ii. The type of transportation alternatives that best suits the Borough’s needs,

¹⁶⁸ Golden Valley Twsp Code § 113-123.

¹⁶⁹ Golden Valley Twsp Code § 113-123.

(b) *Cost and Benefits.* The Committee must evaluate the cost and benefits of creating transportation alternatives for the purpose of reducing the:

- (1) Number of motor vehicles in the township; and
- (2) Dependence of township residents and business on ownership of motor vehicles¹⁷⁰

(c) *Factors to Consider.* The Borough shall consider the following factors to determining whether the transportation alternative will help;¹⁷¹

- (1) Reduce traffic
- (2) Reduce carbon emission
- (3) Improve air quality
- (4) Increase the use of transit
- (5) Reduce parking demand
- (6) Promote walking and biking

Section 702 – **Severability**

(a) All chapters, sections, subsections, paragraphs, subparagraphs, clauses, or subclauses of this ordinance are severable. In the event that a court of competent jurisdiction declares any section or provision of this chapter are unconstitutional, illegal, or invalid, such decision shall not affect the validity of any of the remaining provisions of this chapter

Section 703 – **Repeals**

(a) No other sections of the ordinances of the Borough shall be repealed. All parts of the ordinance of the Borough are to be read together. To the extent that there are inconsistencies that cannot be read together, this ordinance shall be construed as to

¹⁷⁰ Montgomery Cty Code § 18A-22

¹⁷¹ Id.

supersede other ordinances for purposes relevant to the provisions and purpose of this ordinance.

Section 704 – Effective Date

- (a) The Transportation Alternative Ordinance shall take effect ninety (90) days after enactment.