



PHILADELPHIA DELIVERY

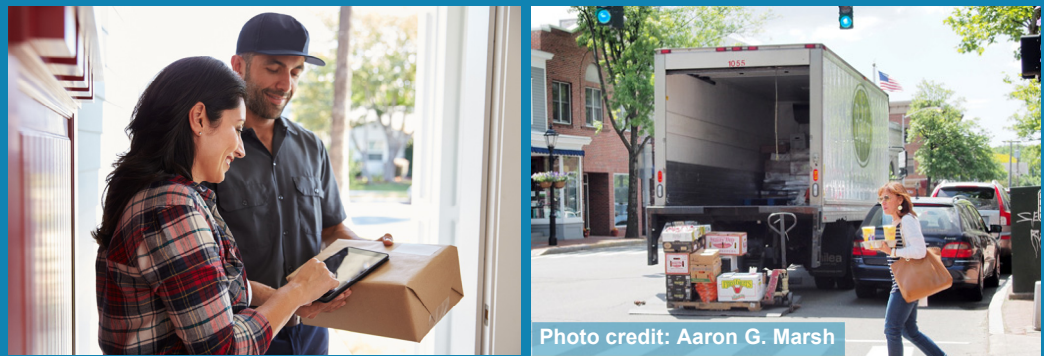
Handbook



The Philadelphia Delivery Handbook

The City of Philadelphia, Pennsylvania is home to a wondrous mix of vibrant neighborhoods—from Center City to the Great Northeast—and bustling streets—like Market Street and Germantown Avenue. The 24-hour-a-day display of vitality and dynamism make Philadelphia irresistible and a world-class city.

Philadelphia’s liveliness and prosperity is fueled by the transport, delivery, and pick-up of all kinds of goods—packages, supplies, and groceries—at homes, offices, and businesses. The relentless shipment of consumer goods and necessities collectively amount to a remarkably important part of the urban landscape, yet they often play out in an unheralded and behind-the-scenes fashion.



Residential and business deliveries: A topic of growing importance and the subject of the *Philadelphia Delivery Handbook*.

The *Philadelphia Delivery Handbook* addresses a fascinating and complex topic. Ultimately, the goal of this handbook and related follow-up work is to lay the groundwork for fostering a delivery-friendly city, one where deliveries are executed in ways that are equally as conducive and sensitive to business interests as they are to individual communities.

The highlights and key takeaways of the *Philadelphia Delivery Handbook* are contained in five distinct sections:

- Introduction..... page 4
- Trends page 6
- Mechanics page 8
- Best Practices page 12
- Next Steps..... page 21

Information and data contained in the Background and Trends section provide fundamental information and a solid foundation for understanding the factors and forces shaping and governing delivery practices. The section identifying best practices in managing deliveries are culled from recent scholarly research and from experiences and lessons learned across the world. The best practices are grounded in stakeholder outreach and offer near-term solutions and immediate fixes to help treat and guide delivery activity.



The *Philadelphia Delivery Handbook* has been prepared by the Delaware Valley Regional Planning Commission’s (DVRPC’s) Office of Freight and Aviation Planning. While the geographic focus of this document is the City of Philadelphia, the

principles, findings, and strategies contained herein have direct application to other cities and communities located within the Philadelphia-Camden-Trenton region.

Partnerships Hold the Key

Delivery issues are complicated and all too familiar, no matter on which side of the delivery equation you sit. Some of the hot-button issues that crop up on city streets every day include:

- [No designated spot to unload or load](#)
- [Trucks blocking passenger vehicles, bikes, or pedestrians](#)
- [Undelivered or stolen packages](#)

Everyone has a stake in making deliveries work more smoothly. Constructive dialogue and *Freight as a Good Neighbor* strategies, such as the best practices presented in this handbook, offer the best solutions. To enhance the character of neighborhoods, shippers and receivers (e.g., shops and restaurants), carriers (e.g., truck companies), residents, and other stakeholders must all have a voice and find common ground.

Several agencies and organizations have roles and responsibilities pertaining to the various aspects of deliveries (e.g., operations, permitting, and enforcement). Each entity has dedicated staff that may provide invaluable assistance and perspective in tackling a delivery issue head-on. A partial list of these organizations includes:

- [Pennsylvania Department of Transportation](#)
- [Pennsylvania Motor Truck Association](#)
- [Philadelphia Association of Community Development Corps.](#)
- [Philadelphia Department of Commerce and Office of Business Services](#)
- [Philadelphia Parking Authority](#)
- [Philadelphia Streets Department and Office of Transportation and Infrastructure Systems](#)

In preparing this handbook, DVRPC gratefully acknowledges the exceptional support of the study steering committee and the members of its standing freight advisory committee, the Delaware Valley Goods Movement Task Force.

What Exactly is a Delivery?

A delivery is the final step of the physical conveyance of a procured item and typically embodies an elaborate transaction between:

- **a shipper**, such as a manufacturer or online retailer, with whom an order may be placed;
- **a carrier**, such as a trucking company or courier service, tasked with handling and completing the delivery;
- **and a receiver**, such as a shop or household, who bears the cost of the item, including any related transportation charges.

A common element in any delivery is often a small, carefully packaged item that is transported to its ultimate destination in a metropolitan area, like the Delaware Valley. In their most recognizable forms these packaged items often make up the contents of a delivery truck. If we peer inside a delivery truck, we might find anything from the latest clothes fashions to fresh fruits and vegetables, electronics, and critical medical supplies.

Deliveries are all around us; they're in perpetual motion, and an indelible part of a city's makeup. In everyday life, we encounter delivered items as satisfied customers at their final destination. More often than not, though, we experience and come into contact with deliveries as uninvolved third parties while they're in transit to someone else.

Deliveries are a unique sub-set of all transportation. In their successful fulfillment, deliveries represent the economy in motion. They are directly related to rewarding careers and family-sustaining wages for many of those who have a hand in creating, transporting, or receiving a finished product. This irrevocable connection to the economy highlights the need for greater appreciation and recognition of the value of delivery and pick-up activity.

Bursting at the Seams

A number of powerful forces are fueling the growth of deliveries in Philadelphia in an unprecedented and perfect storm fashion. The intensification and flurry of delivery activity is a real trend that is not expected to end anytime soon.

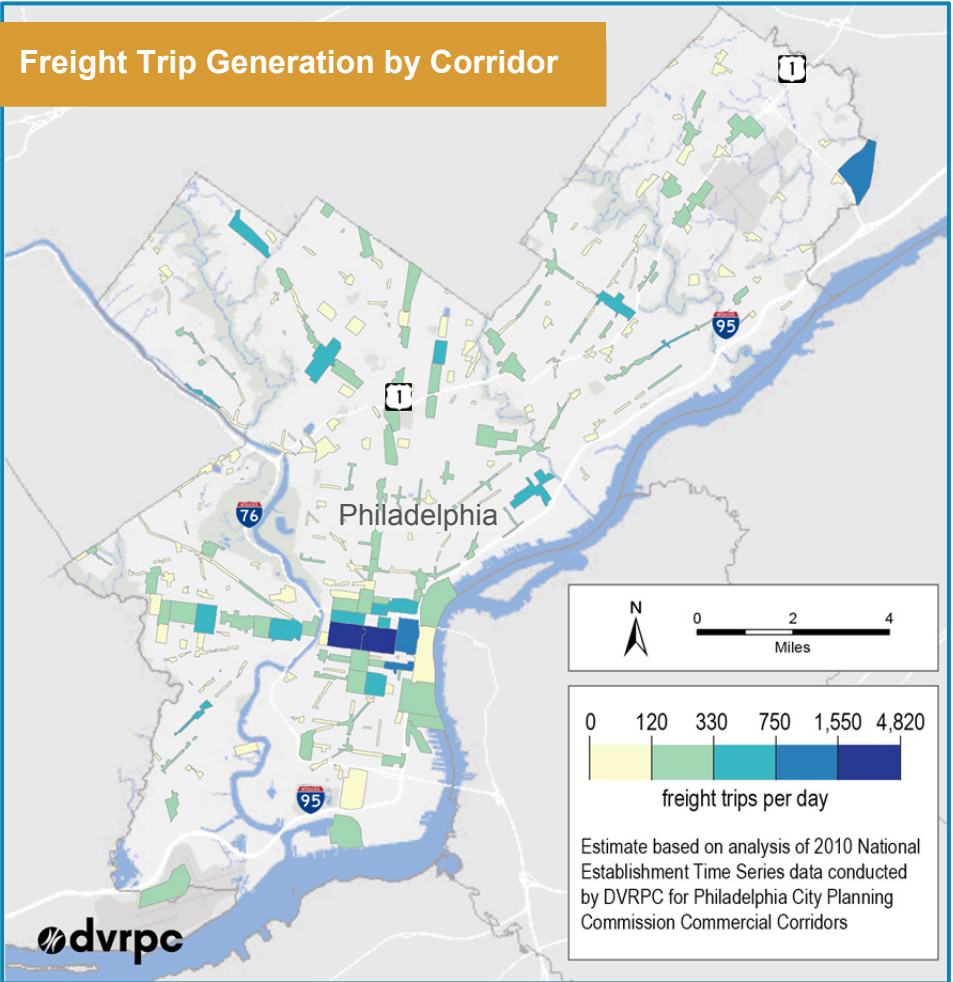
The current and anticipated future growth of deliveries can be attributed to the various factors cited below. Under any future economic scenario, a highly likely byproduct will be noticeable increases of truck volumes on city streets.

- More high-rise buildings (i.e., structures over 75 ft. tall) and in-fill development.
- Proliferation of jobs and work sites in the office, service, and retail sectors.
- Greater occurrence of smaller businesses and more multi-business office buildings.
- The appearance of nationally recognized stores with less storage space and high inventory turnover.
- Growth of deliveries to buildings and residences that are not equipped with the appropriate facilities (external and internal).
- Higher demand for same-day and just-in-time deliveries.
- Population resurgence and gentrification pressures.
- Increased per capita purchasing power.
- Changing lifestyles and millennial generation influences which impact discretionary spending and non-essential purchases.
- The ease and convenience of e-commerce purchases and options.
- Consumer insistence on fresh and ethnically diverse food items.

Delivery Generation

In order to plan for urban deliveries, it is essential to understand existing freight activity. The map below shows the estimated freight trip generation along each of Philadelphia's primary commercial corridors. For planning purposes, this data provides a foundation for implementing appropriate measures to accommodate the real or anticipated volume of freight deliveries. Being adequately equipped to handle deliveries is a critical livability amenity for these corridors.

Freight Trip Generation by Corridor



From There...to Here

The items we purchase and consume do not just magically appear on store shelves or at our front doors. In many cases, products must travel long distances, using different modes of transportation and different forms of shipping, to reach their final destination.

These complex journeys are referred to as “supply chains.”

The supply chain for any individual item is unique and subject to change over time. To effectively illustrate this point, the attributes of the various ingredients that make up and complement a Philadelphia classic, the cheese steak sandwich, are noted below.

Cheese Steak Supply Chain Profile

	Bread/Hoagie Rolls	Ribeye Steak (beef)	Yellow Spanish Onions	Cheese “Sauce”
Production Location	Delaware Valley	Midwest U.S. or International	New York, Northwest and Southwest U.S.	Midwest U.S.
Packaging Format	20 fresh rolls per box	25 frozen rolls per 40 lb. box	25 lbs. fresh, whole onions per box	Six 6.5 lb. bags/case
Final Mode of Delivery	Step van	Refrigerated straight truck	Refrigerated straight truck	Tractor-trailer
Frequency of Final Delivery	1-4 times/day	Weekly	Weekly	Every six months

Source: DVRPC interviews. Presented information was gathered from a representative purveyor. Details may vary by establishment. Intermediate/processing locations are not indicated.

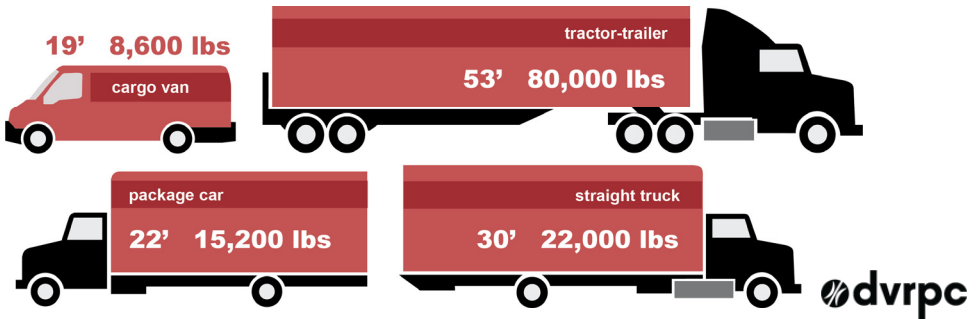


The Last Mile

While goods may be shipped long distances to reach cities and metropolitan regions, the final segment of the total journey, the so-called “last mile,” holds particular significance. It is here that the shipment, now very nearly consummated as a delivery, has the most pronounced and dynamic contact with the host community.

In professional literature, the last mile has been documented as the most problematic, expensive, and treacherous portion of a shipment’s full arc. Tricky problems navigating the urban core may creep up from factors such as sheer traffic congestion, outdated intersection geometry, and inadequate directional signage and lane striping. Operational challenges may be encountered on urban arterial roadways, the final city block, or even the last 25 feet of sidewalk.

The trucking industry proudly proclaims, “If you bought it, a truck brought it,” and this is very often the case. For deliveries, the most typical types of trucks and representative lengths and gross vehicle weights are:



Trucking services are handled either by for-hire companies on the open market or by in-house private fleets.

A variation of the last mile concept is the “first mile” of a shipment cycle. The first mile label generally pertains to imported shipments (either from international or domestic sources) that emanate from a port terminal, airport, or railroad intermodal facility.

It's All in a Day's Work

A day in the life of a truck driver is always eventful and rarely the same. Professionally trained, vetted, and credentialed less-than-truckload (i.e., LTL) drivers are the ones most often found on the front line of city streets and the ones most relied upon for on-time and just-in-time deliveries.

The chart below is a real-world example pulled from a truck driver's daily log book. Imagine driving a large vehicle with utmost care for more than eight hours, making seven deliveries and two pick-ups, adhering to prescribed delivery windows, and handling more than 12,000 lbs. of goods!

Delivery				
Stops	Bills	Pieces	Weight	Returns
7	7	8	5,258 lbs	1

Pick-up				
Stops	Bills	Pieces	Weight	Stop No Freight
2	5	10	6,756 lbs	0

Stop	Enroute	Arrive	Miles	Stop Time	Status
--	10:43	10:58	--	0:00	Terminal
1	10:58	11:42	17	0:32	Delivery Clear
2	12:14	12:53	5	0:39	Delivery Clear
3	13:32	13:32	2	0:01	Pick-up
4	13:33	13:41	1	0:44	Delivery Clear
5	14:25	14:34	2	0:17	Delivery Clear
6	14:51	15:14	5	0:21	Delivery Clear
7	15:35	16:00	5	0:58	Delivery Clear
8	16:58	16:59	1	0:53	Delivery Clear
9	17:52	18:51	12	0:31	Pick-up
--	19:22	19:38	6	0:00	Terminal

Source: YRC Freight

We the People of Philadelphia, in order to form a more Complete Street...

Philadelphia’s mesmerizing street-level vibe traces its roots to William Penn’s original city plan and foresight. It’s easy to imagine early colonists strolling along the bustling cobblestone streets of a young nation, and now we’ve come full circle as another kind of revolution draws people back to the outdoors.

Complete Streets, the concept that public streets are civic assets that must meet the needs of all users, is no longer a mere whim but a mandate bolstered by mayoral decree. Philadelphia, in fact, enjoys a national reputation for its Complete Streets initiative. The trick is to devise transportation networks and block-by-block schemes that accommodate a cornucopia of potentially incompatible users (including freight deliveries) in a confined space.

Current Example of Downtown Street Cross-Section

WALNUT STREET

Limits: 17th Street to 18th Street

Land use: Intensive commercial/residential

Travel direction: One-way westbound

Lane 1: Buses, bicycles, and right turns

Lane 2: Vehicular/mixed traffic

Total length of block: 420 ft.

Car parking availability: 333 ft (temporal restrictions)

Truck loading availability: 353 ft (temporal restrictions)

Total cross section width: 56 ft.

Sidewalk width (two sides): 30 ft.

Travel lanes width (two lanes): 18 ft.

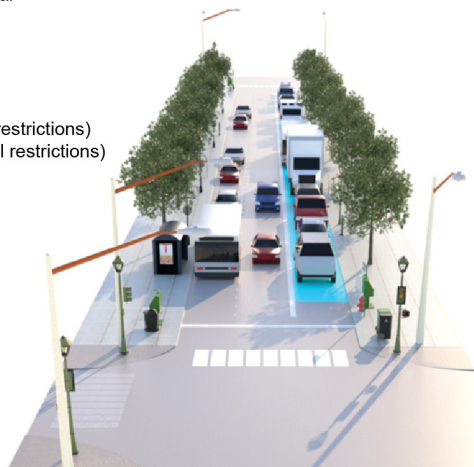
Parallel parking width: 8 ft.

No. of parking signs: 9

No. of parking regulations: 16

Bus stop: One

Bike travel: Unprotected



15 ft. sidewalk	9 ft. lane 1	9 ft. lane 2	8 ft. park	15 ft. sidewalk
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Best Practices in Urban Deliveries

A number of international and U.S. cities are distinguishing themselves by tackling the delivery issue head-on. Effective delivery programs must now be considered a hallmark of a livable, inviting city.

An exhaustive literature review has unearthed eight best practice approaches that hold the greatest potential in Philadelphia. These strategies have demonstrated track records and many are already in place in select locations in Philadelphia. The measures can be effective as stand-alone initiatives, or they be packaged together in a complementary fashion.



#1: Deliveries by Design (Off-street Parking)

The density of activity on urban streets can limit opportunities for delivery zones and stopping areas. Land development strategies that seek to internalize delivery facilities can help to alleviate conflicts and improve the total capacity of right-of-way dedicated to other uses. Implementation of delivery considerations into the development process can create opportunities for buildings to design alleys, off-street loading bays, and even internal or underground delivery facilities.



Off-street loading at the American College of Physicians Building

Provisions for off-street loading are required as a part of the City

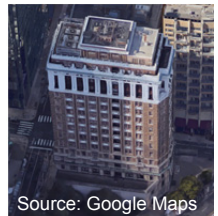
of Philadelphia Zoning and Planning Code under § 14-806. The City mandates that new construction provide off-street loading spaces. The requirements are spelled out in the zoning ordinance and are based on the Gross Floor Area of construction, but for illustrative purposes let us consider two office building examples.

Building A: Similar in Size to the Comcast Center
1701 John F. Kennedy Blvd., Philadelphia, PA



Source: Google Maps

Building B: Similar in Size to the Verizon Building
17th and Arch streets, Philadelphia, PA



Source: Google Maps

*Assumes construction in Center City (CMX-4 or CMX-5)

#2: Curb-side Orchestration (On-street Parking)

The urban street, rich with activity and life, helps to dictate the character of many of Philadelphia's neighborhoods. It is a finite commodity to be shared by passenger vehicles, transit, pedestrians, cyclists, and trucks. The management of curb space is crucial to influencing this character and managing the efficiency of the street.

As this document has demonstrated, deliveries are increasingly important in our consumer economy. Access for delivery vehicles is, and will continue to be, an important component of the urban street. Providing loading zones at the appropriate locations with the necessary supporting infrastructure improvements can lead to a more livable street.

Strategies for Accommodating Deliveries at the Curb:

- Provide the appropriate amount of loading zones to support the commercial activity and character of the street.
- Provide longer loading spaces to accommodate multiple vehicles and allow for better access.
- Assign preference to end-of-block loading zones.
- For mid-block loading zones, provide curb cuts and ramps to allow access for hand trucks and pallet jacks.
- Provide a buffer of at least five feet between loading zones and curbside bike lanes.
- For streets with wide sidewalks, develop shared-use space delineated by striping or textured pavements and pedestrian protection devices.
- Provide longer-term parking for general contractor vehicles (e.g., construction and utilities) that is separate from loading zones (and which may not be located immediately in front of a particular building).

#3: Carpe Noctem (Seize the Night)

No one likes sitting in traffic or circling the block for parking. When it comes to truck deliveries in urban areas, these challenges translate into impacts on business operations. Parking tickets, late or missed deliveries, and lost time due to congestion are costs incurred by these freight carriers and they are also reflected in increased costs passed on to businesses and ultimately consumers.



9 PM Delivery, Broad & Walnut Streets

One freight demand management strategy to address these conflicts is the adoption of off-hours deliveries. By encouraging off-hour deliveries, freight delivery activity can be shifted to a period of the day when roads are less congested and loading facilities are more easily accessible.

There are several direct benefits to both carriers and receivers through off-hours deliveries.

Carriers and receivers have a higher reliability of on-time deliveries, ensuring fewer lost hours waiting in traffic or manning a loading dock awaiting a delivery. This also ensures products arrive when they are expected, preventing a disruption to business operations.

Off-hour programs largely depend on the willingness and ability of a business to receive shipments during non-traditional hours. Education and incentive programs are crucial to help implement this demand management strategy and to instill an awareness among receivers and building operators about the important role they can play to better support deliveries and pick-ups (e.g., provide large capacity freight elevators, suitable package storage areas, access to bathrooms, etc.).

#4: Consolidated Deliveries and Pick-ups

In urban commercial districts, the nature of the private supply chain can result in multiple inefficiencies. Individual businesses may receive multiple deliveries each day, resulting in higher total logistics costs. In addition, it is common for multiple delivery vehicles from the same company to make deliveries along the same corridor at different times during the day.

In order to reduce this redundancy, receivers can implement programs to consolidate deliveries and pick-ups. Utilizing technology or advanced planning, receivers can initiate changes in the supply chain for their products that result in fewer total deliveries in the service area.

How it Works:

Consolidation from Multiple Shippers

Receiver A wants to reduce the current practice of receiving one delivery a day from six different shippers. Receiver A works with the shippers to coordinate the consolidation of all shipments. The result is a single daily delivery of all shipments to Receiver A. This initiative can be implemented by shippers as well as receivers.

Consolidation from a Single Shipper

Multiple receivers located on Corridor X determine that they have an opportunity to reduce the quantity of trucks making deliveries from Shipper A. Through a coordinated scheduling tool provided by Shipper A, the receivers collectively agree to take receipt of deliveries at the same time of day, resulting in just one trip to the corridor by Shipper A.

#5: Alternate Delivery Sites

Improving efficiency and reducing the number of truck trips to residential delivery sites as e-commerce grows is an important goal in many neighborhoods. Offering alternate delivery sites is an effective means to consolidate many trips to residential locations, while improving the security and reliability of deliveries.

Neighborhood Pick-up Points (PPs)



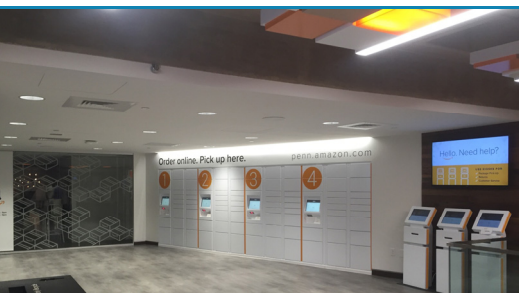
Source: UPS

Sample UPS Access Point

Examples: FedEx Office, UPS Store, UPS Access Points

These neighborhood locations can be formal retail outlets run by carriers or a third-party. They provide a reliable location to receive packages for consumers. When returns are necessary, these locations also serve as a drop-off point for returned packages. An added benefit for PP operators, such as a family owned shop, is the increased foot traffic of potential customers.

Automated Parcel Systems (APS)



Amazon@Penn

Examples: Amazon Lockers, UPS Access Lockers, Amazon@Penn

A technology driven solution, APSs provide a fully automated, secure point of access for customers. As simple as getting money from an ATM, these locations offer a kiosk and attached lockers for consumers to pick up packages. While most APSs are unstaffed, hybrids between these and PPs do exist (e.g., Amazon@ locations).

#6: A Healthy Mix of Vehicles

As downtown environments grow and thrive with new business, the expectation of increased freight deliveries is inevitable. For purposes of efficiency, these deliveries are often made by large trucks. However, new technologies and evolving demands have highlighted opportunities for a new mix of vehicles to assist in the delivery of freight in urban environments.

Smaller, more urban-scaled trucks and vans pose less of a danger to pedestrians and cyclists. These vehicles are often more “friendly” to dense urban environments, consuming less space and producing less noise than larger freight vehicles. While smaller vehicles can enhance the livability and safety of these environments, there is an efficiency trade-off in smaller vehicles. As a result, a shift in vehicle size can often mean an increase in vehicles needed to handle the same number of deliveries and pick-ups.

In some urban markets, freight bicycles, tricycles, and e-bicycles have become commonplace. Quiet, safer to pedestrians and cyclists, and emission-free, freight deliveries by bicycle can provide an economical alternative in dense urban environments. This modal shift works best with lightweight commodities that are travelling shorter distances or from centralized consolidation centers.

For many delivery types, modal shift and downsizing of vehicles is simply not feasible. However, carriers and communities can seek to enhance the safety of larger freight vehicles through innovative safety technologies, such as truck side-guards and high visibility cabs, allowing for safer interaction with other road users.

#7: Stewards of the Environment

Companies making or receiving deliveries in Philadelphia can increase their eco-friendly prowess and, best of all, save money through U.S. EPA's SmartWay program. This voluntary program champions strategies that simultaneously lower transportation costs, fuel consumption, and minimize adverse environmental impacts. It promotes the use of cleaner fuel options and fuel-saving technologies, and provides a comprehensive system for tracking and documenting information about fuel consumption and carbon emissions.

The SmartWay program delineates two membership categories:

- **Partners**
- **Affiliates**

A Partner is defined as a company or organization that ships, manages, or hauls freight. An Affiliate can be any industry association, environmental organization, or academic institution that spreads the word about SmartWay to the freight transport industry.

SmartWay Partners enjoy tangible benefits, such as access to data to reduce their carbon footprint through a variety of sustainability measures. SmartWay has a proven track record; since the inception of the program in 2004, Partners nationwide have realized savings of over 7 billion gallons of fuel, lowered fuel costs by \$24.9 billion, and reduced carbon emissions by 72.8 million metric tons.

Joining SmartWay is free and easy, and merely requires the completion of an application found online at the following link: <https://www.epa.gov/smartway/participate-smartway>. U.S. EPA Region III, which is headquartered in Philadelphia, has successfully enlisted several local companies in the program, and there is a distinct and superb opportunity to add additional Partners and Affiliates to the program.

#8: Making Safety a Top Priority

Urban streets are shared corridors of fast-paced activity. Vehicles and people of all shapes and sizes converge in restricted space, and there is ample opportunity for conflict and dangerous situations. In order to ensure safety and harmony, all users must respect inherent differences, vigilantly follow the prescribed rules of the road, and faithfully support Philadelphia's Vision Zero and Americans with Disabilities Act initiatives.

General Safety Tips

- Stay on designated routes and in designated lanes/spaces.
- Keep to the right and pass on the left (as a general rule).
- At intersections, be on high alert and make full stops at red lights and stop signs.
- Anticipate other travelers and types of users and be cognizant of their blind spots.
- Use clear signaling to convey where you intend to maneuver.
- Be courteous and defensive...not aggressive or distracted!

Truck Driver Tips

- When making temporary stops, use assigned locations.
- Don't block bike lanes, crosswalks, curb ramps, or sidewalks.
- Don't obscure the visibility of stop signs and traffic signals.
- Use turn signals well in advance of turning or changing lanes.
- Take extra precautions when backing up or re-entering traffic.

Cyclist Tips

- Wear brightly colored clothing, a helmet, and proper shoes.
- Don't use headphones or phones while riding.
- Equip your bicycle with bright lights, reflectors, and a bell.
- Be aware of the blind spots of trucks, and anticipate a truck's turns and movements.

There's Money Out There

There are several public funding programs available to stakeholders as they conceive of and devise initiatives to improve conditions for deliveries. These programs are typically competitive in nature, cover a wide range of transportation modes, and require a formal application and a funding match from the applicant. Sponsoring agencies always favor impactful, innovative projects that provide a good return on the investment and advance programmatic goals.

The funding programs with the greatest direct tie-in to deliveries, their administering agencies, and sample categories of eligible projects are listed below. Deliveries may be the sole focus of a candidate project or they may be one integral component of a larger project. Expanded program details, funding cycles, updates, and guidance are available from the indicated agencies.

Congestion Mitigation and Air Quality Improvement Program (DVRPC)

- Funds: projects that alleviate freight operational inefficiencies; electric vehicle and natural gas vehicle infrastructure; diesel engine retrofits; travel demand management strategies; idling reduction projects

Diesel Emissions Reduction Act (U.S. EPA)

- Funds: replacement of diesel-powered vehicle engines to more stringent emission standards; installation of emission reduction systems

Multimodal Transportation Fund (PennDOT and PA Department of Community and Economic Development)

- Funds: community enhancements; streetscapes; connectivity improvements; transit-oriented development

Transportation and Community Development Initiative Planning Grants (DVRPC)

- Funds plans to: enhance community character; improve overall quality of life for residents; improve the regional transportation network; improve the climate for redevelopment

Philadelphia: A City That Delivers

It's abundantly clear that deliveries deserve special attention and regard from a broad spectrum of stakeholders. Working together and employing best practice approaches identified in the *Philadelphia Delivery Handbook* will position each Philadelphia neighborhood to enjoy the benefits of delivery activity and, at the same time, minimize any negative impacts.

The *Philadelphia Delivery Handbook* constitutes an effective foray into treating and managing deliveries. Follow-up undertakings which are more systemic in nature and which should be pursued include:

- Designate a truck highway network and share the network with GPS routing providers.
- Identify existing and potential overnight truck parking locations (for both long-haul drivers and Philadelphia residents).
- Promulgate street geometry standards and design configurations that account for truck and delivery activity.
- Standardize and simplify loading and parking signage.
- Promote routing efficiency apps and minimize “empty miles.”
- Identify underserved neighborhoods (i.e., “delivery deserts”).

The delivery industry is changing at warp speed, and new delivery methods and alliances are literally sprouting up daily. Who could have ever imagined how easy it would be to order virtually anything from the Internet and have it delivered in mere hours? Continuing along this path of innovation, freight carriers continue to push the envelope and investigate other breakthroughs and technological advances such as autonomous, driverless trucks and drones.

In the coming years, fundamental and radical changes about how we live, work, and play are inevitable. However, one thing will undoubtedly remain constant: deliveries will sustain and form the bedrock of a flourishing Philadelphia.

About DVRPC

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.

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