



CENTER CITY REPORTS

# KEEP PHILADELPHIA MOVING

MARCH 2018

CENTER CITY DISTRICT,  
CENTRAL PHILADELPHIA DEVELOPMENT CORPORATION &  
CENTRAL PHILADELPHIA TRANSPORTATION MANAGEMENT ASSOCIATION

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PETER TOBIA

## THE PROBLEM OF CONGESTION

On weekday afternoons in Center City, Chestnut and Walnut streets and many of the north/south streets in the core are often snarled with barely moving traffic. Delivery trucks are parked in travel lanes; taxis, ride-sharing vehicles and private cars stop unpredictably mid-block; doors open unexpectedly. As signals turn yellow, frustrated motorists surge into the intersection, blocking cross-traffic and crosswalks to guarantee they finally make it through when the signal turns green again. SEPTA buses perform their slow-motion slalom, navigating around illegally parked obstacles. Often immobilized, they block two moving lanes. Motorists trying to turn left or right face a river of moving pedestrians. As they wait for a chance to surge through, they obstruct vehicles behind them seeking to cross through the intersection. Absent a dedicated lane, cyclists navigate a challenging environment, thread the narrow spaces between trucks and buses, cutting in front of, or sliding alongside of cars. Some pedestrians use the barrier of an illegally parked truck to shorten their mid-block crossing and can pop out suddenly in front of a moving bus.

Is this chaotic ballet the result of bad habits of local residents, or the fate of all cities that have come back to life? Or, if this is a manageable problem, whose job is it to set things right? And how do we do that? This report is an effort to *start the conversation* about traffic congestion, focusing on why it occurs, how it is currently managed (or unmanaged) and what Philadelphia can do differently to improve conditions that at a minimum are frustrating, sometimes dangerous and an emerging challenge to vitality, attractiveness and competitiveness of a downtown that generates the lion's share of jobs and tax revenues that support services citywide.

## THE CENTER CITY CONTEXT

All successful cities have congestion at some times and in some places. Philadelphia's challenges are compounded by DNA we inherit from William Penn's 1682 plan: very narrow roadways compared with most North American cities. At the same time, this pre-auto scale gives Philadelphia's downtown a significant competitive edge. It creates the intimate feel and walkability that encourages tourism, ground-floor retail and cafes in commercial areas and fosters a sense of sociability in residential neighborhoods. But challenges emerge as typical streets like Arch, Chestnut, Race, Spruce and Walnut and most north/south streets, which are between 50 and 60 feet building line to building line, need to accommodate significant volumes of buses, trucks and automobiles in a cartway that is 40 to 50 feet in width. Typically these are divided into three lanes, with one parking/loading lane and two one-way travel lanes in commercial areas and two parking/loading lanes and a one-way travel lane in residential areas.

In 1776, the developed city extended west from the Delaware River only to 7th Street. Today, 61% of William Penn's original street grid, Vine Street to South Street between the rivers is filled in with buildings; 8% of land area is devoted to his four planned public squares, plus new parks added in the past two centuries. Sidewalks account for another 192 acres, 14% of land area, allocating 17% or 242 acres for roadways, the majority of which were originally designed to carry pedestrians, horses and horse-drawn carriages.

The revival in Center City in the last 30 years has contributed to the problem, bringing a greater density of development: taller office towers, more hotels, expanding health care and educational institutions, conversion of parking lots, older industrial and office

**FIGURE 1: CORE CENTER CITY LAND USE AND STREET TYPOLOGY**



buildings to residential use and the addition of new retail, restaurant, entertainment, cultural and tourist destinations. Greater density means more people at more time times of day animating the 2.2 square miles (1,419 acres) that correspond to William Penn’s original plan. A city, largely of rowhouses, that held just 40,000 people along its eastern edge at the time of the Declaration of Independence, now accommodates in high-rises, mid-rises and historic rowhouses, well over 500,000 workers, resident, students, visitors and shoppers each day.

This density and diversity of land-use means more sidewalk vitality, more employment, more business and more tax revenues from Greater Center City, a place that is just 7% of the city’s total land area of 135 square miles, but holds 42% of the city’s jobs, about 80% of the tourism destinations and generates 45% of the wage tax and 32% of the real estate tax revenues that support municipal services and public schools across the city.

Between 2008 and 2017, Philadelphia added 51,600 new jobs. At the beginning of 2017, there were 45 major developments that had just been completed or were in the midst of construction, representing \$5 billion in new investment. Fifteen more developments of all types were in the pipeline. So, if Philadelphia does not plan for this growth and manage better the scarce resource of its pre-auto era street grid, we can expect more traffic congestion, lost time and a potential backlash against further development.

Within Penn’s original grid, two streets, East Market and Broad, were designed much wider at 100 feet, building façade to building façade. Arterials like Washington Avenue, Christian Street, Spring Garden Street and Girard Avenue were added in the 19th century, as the surface trolley emerged as the primary mode of transportation. Delaware Avenue was originally filled with train tracks serving the port. The broad diagonal of the Benjamin Franklin Parkway was created between 1907 and 1917 as an alternative to congestion and industrial density and as a connection to Fairmount Park. John F. Kennedy Boulevard and West Market Street were the byproduct of 1950s renewal and the demolition of the elevated Pennsylvania Railroad tracks west of City Hall; similarly 5th and 6th streets resulted from the renewal of Independence Mall and were specifically designed to carry high volumes of cars. I-95 and the Vine Street Expressway are interstate, high-speed highways created with federal funding between the 1950s and 1980s to facilitate auto access into and out of downtown.<sup>1</sup>

But it is the typical 60 foot wide corridors (roadway + sidewalks) on the numbered and main east west streets that define the central challenge for managing mobility in Center City, especially when approximately 20% of the cartway is generally reserved for legal parking and loading most of the day.

**1:** Finally, there are several dozen smaller alley streets – which are essentially one lane and most frequently used for trash dumpsters in the commercial core. In 2008, the CCD counted 43 alleys within the boundary of the Center City District, cumulatively measuring more than three miles in length. Most are located south of Market Street with 27 alleys (63% of Center City alleys) located east of Broad Street and 16 alleys (37%) located west of Broad Street. In surrounding residential neighbors these alleys serve both as intimate-scale residential streets and as the entrance way to



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## CAUSES OF CONGESTION

Congestion occurs when demand for street space exceeds the available supply. This can be a function of (a) the number of users trying to fit in the same space at the same time; (b) what modes of travel users have selected; (c) the presence or absence of thoughtfully calibrated regulations governing the use of limited space; (d) whether users are observing posted regulations or if they believe they can ignore them without serious consequences.

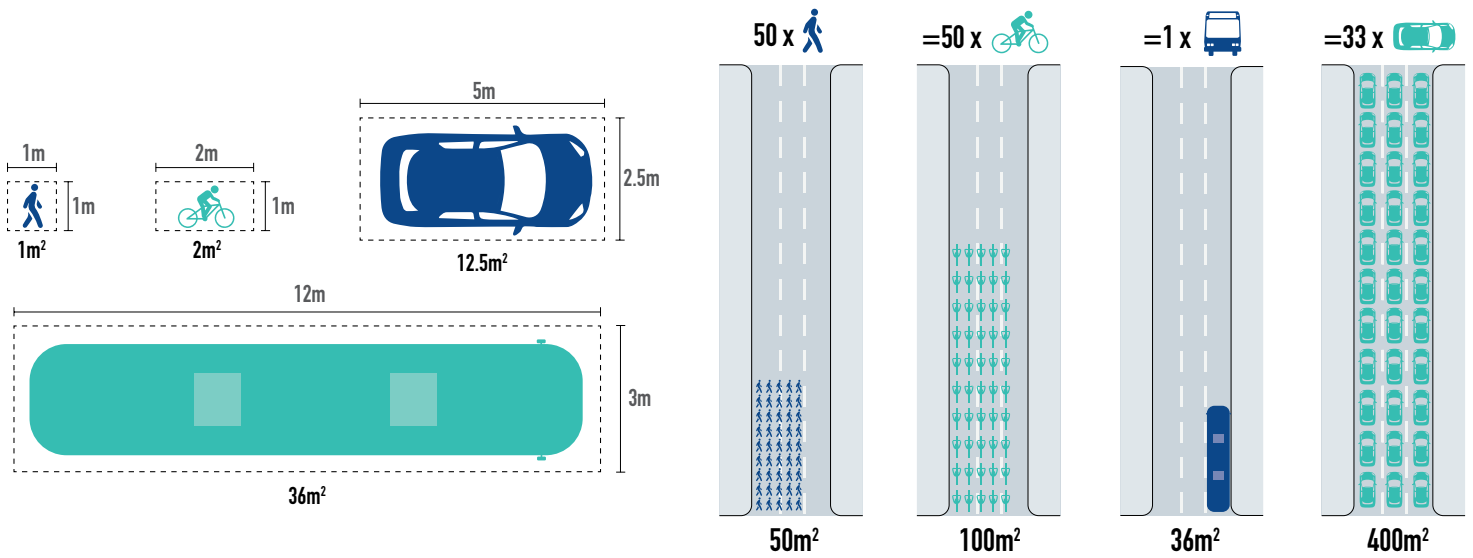
**Increased Volumes:** Parking and traffic regulations remain essentially unchanged in the central business district from the era when Center City was a 9-to-5 downtown with two rush-hour peaks. But today Center City is filled with office workers freed from their desks by digital technology, eating lunch and holding meetings in restaurants and cafes. It's a destination for tourists and shoppers, animated by tens of thousands more residents, students and visitors to medical and cultural institutions. It's become a place pulsing with vehicular and pedestrian volumes continuously throughout the day and evening hours.

**Choice of Diverse Travel Modes:** Transportation professionals have long used the illustration in Figure 2 to demonstrate the impact of different mode choices for 50 people trying to move along the same city street. One bus can carry 50 passengers, while cars average 1.5 passengers. The street is only fully filled when all 50 individuals chose the automobile.

The advantages of the car are its privacy, climate-control and weather-protection, freedom of choice over the route, and the speed at which one can travel long distances quickly. Cars perform best in low density environments where origins and destinations are farther apart, high speeds can be achieved frequently, where there is less of a premium on space and free parking is easily accommodated in surface lots. The primary disadvantage of the car is apparent in the traffic jams that result when everyone chooses that mode for the same route at the same time. The second disadvantage is the frustration that comes when drivers bring suburban speed expectations into dense urban cores. A third shortcoming is cost: the cost of car ownership, the cost and the amount of space required to store it in the city when not in use and the less visible costs of air pollution. (Cabs and ride-hailing services eliminate many of the cost and inconvenience of finding a place to park in cities, but contribute to congestion and air pollution, as noted below.)

The advantages of transit are the ability to leave the frustrations of driving and parking to someone else, allowing passengers the ability safely to conduct other activities; and the ability to move quickly if there is a dedicated right of way. The disadvantages come with infrequent, unreliable or unknown schedules; routes that don't easily accommodate planned travel; lack of information about fares and routes; passenger overcrowding if capacity is insufficient; and unmanaged traffic congestion that slows or blocks the movement of transit vehicles.

**FIGURE 2: SQUARE FOOT BY MODE; SPACE OCCUPIED BY 50 PEOPLE USING EACH MODE**



Source: Global Designing Cities Initiative/NACTO, Global Street Design Guide

When reasonably priced, convenient and high-quality alternatives are provided, particularly during rush hour, most Philadelphians choose them to avoid the frustration of being stuck in traffic. A recent CPDC survey of workers in the West Market Street office district found that public transit was the primary mode of daily commuting for 61% of office workers with regional rail carrying 37%, the subway 17%, the bus 6% and the trolley 1.5%. Walking was the next largest mode with 16%, a result of the fact that 42% of Greater Center City’s 190,000 residents now work downtown. For 14%, the primary mode was a car with most of that group driving alone, followed by 9% who bike. By contrast, in the suburbs, 62% commute to work alone in their own car.

Center City’s high level of transit use is a direct result of a hub-and-spoke transit system that performs at high-frequencies during the morning and evening rush hour with 13 rail lines, 3 rapid transit lines, 5 trolley lines (all with their own dedicated right-of-way downtown) and 29 bus routes that carry 310,000 passengers into Center City on a typical weekday. If downtown workers relied on cars to the same degree as commuters across the region, those workers would require a surface parking lot of 2.6 square miles to store these vehicles, an area almost 20% larger than William Penn’s original city. Thus, one obvious way to reduce congestion is to improve the reliability, quality, frequency and convenience of public transit.

Bicycle commuting has the same advantage of flexibility and independence that automobile and pedestrian commuters enjoy, but at a significantly lower cost than a car and at much greater speed than walking. Where there are dedicated and protected bike lanes, vehicular speeds are often reduced and cyclists enjoy a greater sense of safety and camaraderie. Sheltered places to park increase the conveniences of cycling. The disadvantages of cycling come with



**SEPTA:**  
 — Broad Street Line  
 — Market-Frankford Line  
 — Norristown Highspeed Line  
**PATCO:**  
 — PATCO  
 — Regional Rail Lines

inclement weather, unprotected lanes and the absence of signage, markings or enforcement of rules that protect bikes from motor vehicles. Where streets are narrow, the trade-off is harder between dedicated lanes and less space for motorists.

**Regulation and Enforcement:** Given major business, shopping and entertainment uses downtown, the driving public is well accustomed to active enforcement during the morning and evening weekday rush hours, as well as during the growing evening, weekend entertainment and dining peak. Regulations like no parking during weekday rush hours or evening valet zones are clearly posted and enforced by tow trucks from the Philadelphia Parking Authority. Double parking by private vehicles and parking in bus stops are also enforced by the Parking Authority. But the growing volume of delivery trucks that serve Center City poses a significant challenge in that these companies treat tickets for illegal parking as an acceptable cost of doing business. FedEx, UPS and US Postal Service trucks, as well as food and beverage delivery trucks, often park illegally with impunity, eliminating entire moving lanes for between 5 and 30 minutes. Based on data provided by the Philadelphia Parking Authority, these companies collectively received 77,456 tickets in the 6th and 9th Police Districts in 2017 and paid \$5,362,442 in fines. But the companies apparently have decided that the cost of the tickets is worth the gain in operational time and convenience. So ticketing has not been a deterrent for this practice

Private automobiles, taxis, Uber and Lyft frequently will stop in travel lanes to pick up or drop off, departing before any citations are written. But the ripple effect of these stops can produce congestion that lasts much longer than the infraction itself. Finally in the absence of a dedicated platoon of “traffic police”, there is little to no enforcement at intersections of block the box regulations and these violations can quickly spiral out of control producing congestion that stretches many blocks back from the congested intersection.<sup>2</sup>

Enforcement regarding cycling should work both ways: ensuring that motorists respect the cyclist’s right-of-way and that cyclists observe all the rules relating to traffic lights, stop signs, one-way streets and the prohibition against riding on sidewalks. But currently, no one is tasked with or sufficiently staffed to do this job.

## CONGESTION IS INCREASING

In 2007, following a period of sustained economic expansion, the Center City District measured crosstown travel times between Broad and 23rd streets on Chestnut, Sansom, and Walnut by having surveyors walk, bike, drive and ride the bus on each street during representative times of the day. In 2012, the study was repeated, while the economy was just coming out of recession at a time when car use was at an all time low and transit use reached its highest point in major cities and new construction was minimal. Not surprisingly, travel times actually decreased from 2007 to 2012.

In the fall of 2017, CCD repeated the study, utilizing more sophisticated data collection methods for the driving and bus travel times.<sup>3</sup> Those counts suggest that the time it takes to drive a car from Broad to 23rd streets on Chestnut, Sansom, and Walnut increased

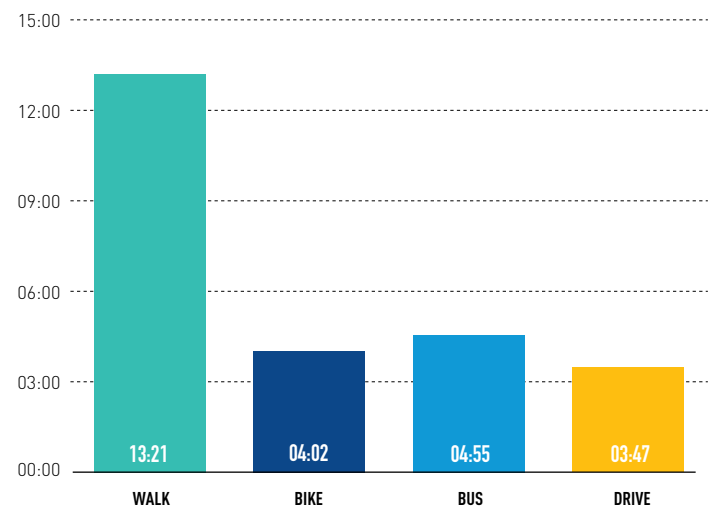
by 10% to 20% between 2013 and 2017. The duration of bus travel on the same blocks increased by 25% to 40%. Bicycle commuting times rose slightly, while walking times remained unchanged.

In 2017, a congestion-free benchmark was again established by traveling these blocks by four different modes on a Sunday morning at 6 a.m. (Figure 3).

When few other vehicles and people are around to cause congestion, the quickest way to travel the roughly three-quarter miles between Broad and 23rd streets is by car; a bicycle is the second fastest mode, followed by the bus (which has few passengers to pick up at 6 a.m.); walking is the slowest mode. As congestion for vehicles increases during the day, walking becomes the least impacted by crowding (although increased pedestrian volumes do impact vehicular traffic speeds, as noted below). Pedestrian traffic actually moved the slowest on Saturday evenings, when sidewalks are crowded with nightlife. For modes traveling on the street, midday registers the slowest travel times, with no rush hour clearance lanes or any deployment of traffic police. Bicycling on Chestnut Street or Walnut Street (where there are no dedicated cycle lanes) takes about almost *twice* as long during lunch time than it does when there is no traffic, assuming cyclists observe all red lights. In a car it took more than 50% longer, and on a bus it took about three times longer. The midday timings confirm what many bus riders suspect: Taking the bus can be slower than walking when streets are congested.

What happens in Center City on weekdays around noon? People go out for lunch and to shop. With an increase of both workers and places to eat, pedestrian volumes surge and remain high into the early afternoon. Weekday pedestrian traffic peaks around noon on

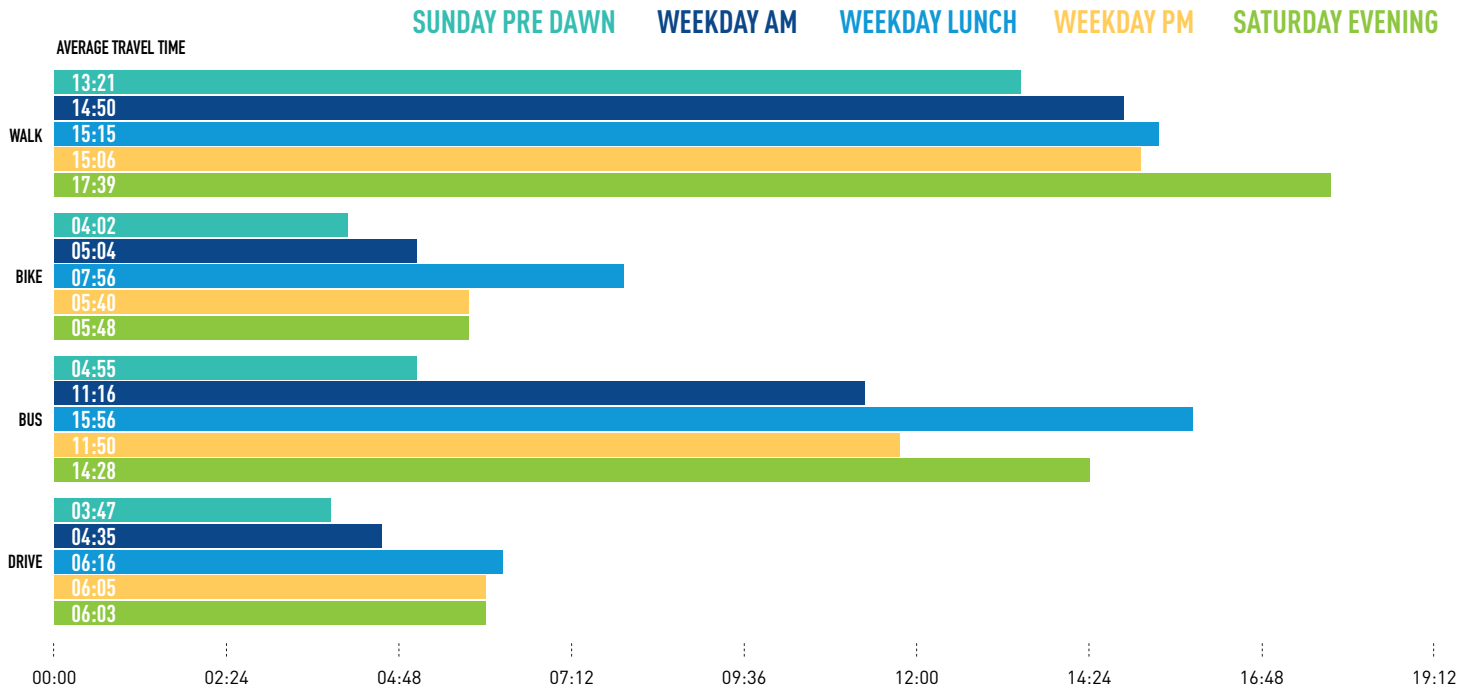
**FIGURE 3: AVERAGE “FREE FLOW” (SUNDAY @ 6 A.M.) TRAVEL TIME BY MODE BETWEEN BROAD AND 23RD, WALNUT AND CHESTNUT AVERAGED TOGETHER**



<sup>2</sup>: Traffic jams at Broad and Chestnut and 15th and Chestnut, for example, have immediate impacts at 15th and Market and 15th and JFK Boulevard.

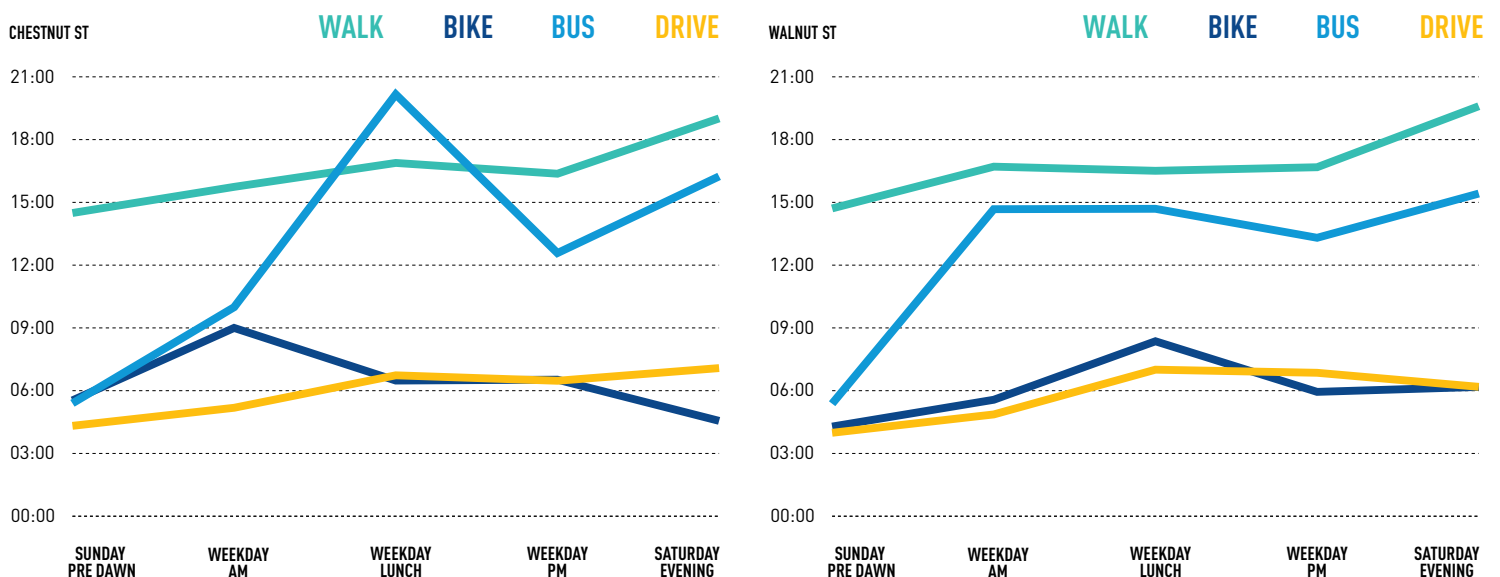
<sup>3</sup>: Drive times provided by DVRPC and PennDOT, using data from INRIX, which crowdsources anonymous GPS data from mobile devices to monitor traffic flows. Bus times were collected by SEPTA using Automatic Passenger Count, which is based on-board GPS units.

FIGURE 4: TRAVEL TIMES BY MODE BY TIME OF DAY: CHESTNUT AND WALNUT AVERAGED TOGETHER

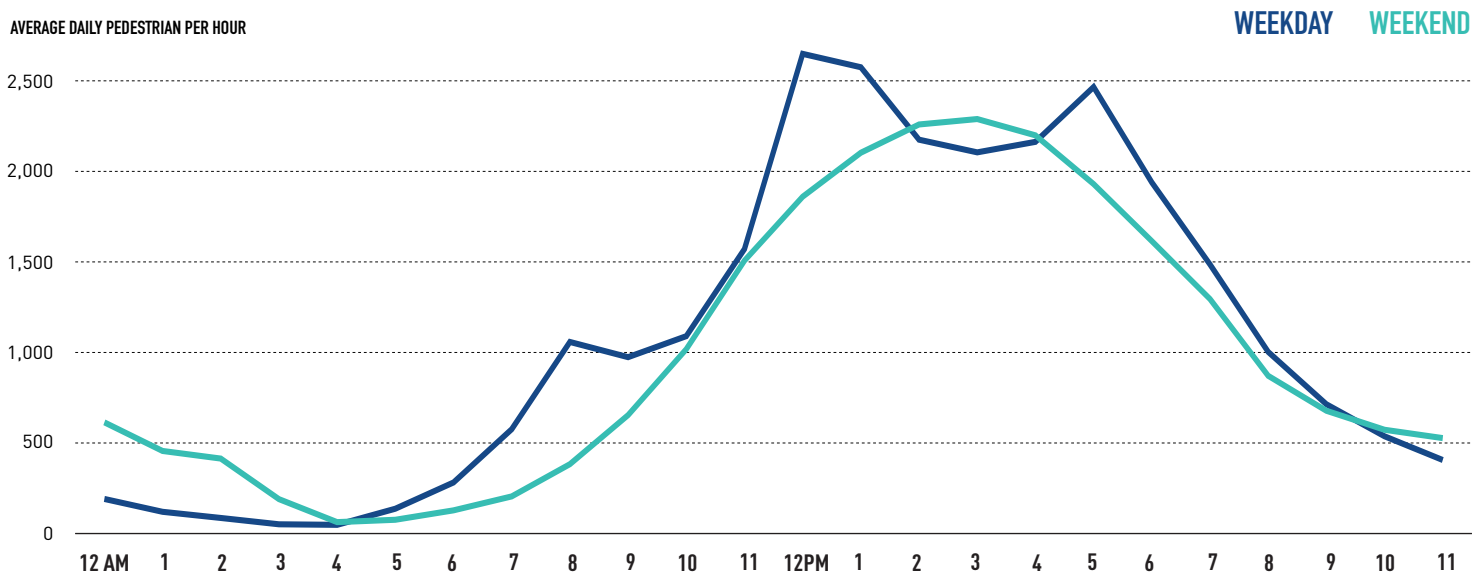


TRAVEL TIME BY BUS, THE MOST EFFICIENT MODE OF MOVING THE MOST PEOPLE, MORE THAN TRIPLES DURING THE EXTENDED LUNCH HOUR DUE TO TRAFFIC CONGESTION

FIGURE 5: TRAVEL TIMES BY MODE BY TIME OF DAY: CHESTNUT AND WALNUT SHOWN SEPARATELY



**FIGURE 6: AVERAGE DAILY PEDESTRIAN VOLUMES ON WEST WALNUT AND CHESTNUT, FALL 2017**

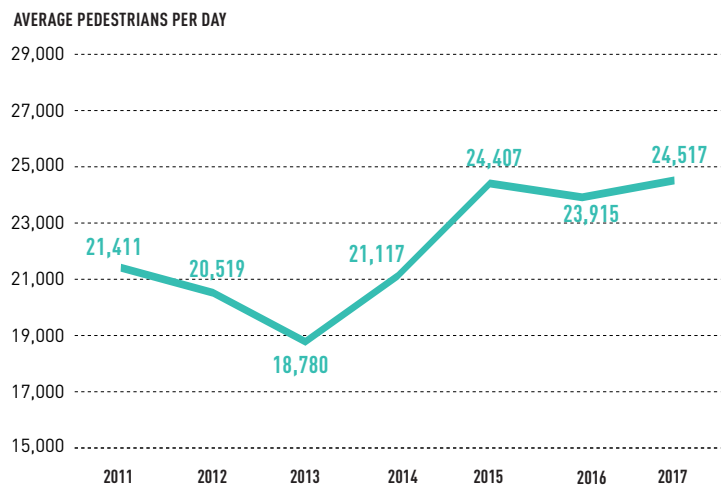


West Walnut and West Chestnut streets. In October, for example, an average of 3,619 people per hour passed through the intersection of 16th and Chestnut at lunch hour. The volume of pedestrians is a positive indicator of vitality, but it causes a conflict for motorists trying to make turns. Since pedestrians have the right of way, motorists must wait for the intersection to clear before turning. In the absence of dedicated turning lanes, vehicular and bus traffic, trying to proceed straight through the intersection, backs up behind vehicles waiting to turn. Frustration then engenders the impulse to surge into the intersection at the next green cycle, even if that means blocking the box. Add in a healthy volume of construction, which occurs during the daytime; sprinkle delivery trucks along the block, commandeering travel lanes; remove any traffic enforcement officers and that creates all the conditions for gridlock.

Figure 6, based on 24-hour, automated, pedestrian counting technology installed by the CCD, shows that pedestrian volumes on West Walnut and Chestnut surge before the lunch hour and remain high throughout the afternoon into the evening commute on weekdays. On Walnut Street’s sidewalks, pedestrian counters register an average of 20,000 pedestrians per day. On Chestnut Street, volumes range between 20,000 to 30,000 pedestrians per day, depending on the block. On the roadways, PennDOT estimates the average vehicle count is around 11,000 vehicles per day on Walnut Street and 7,400 vehicles per day on Chestnut Street.<sup>4</sup> **So for every one vehicle that drives on Chestnut Street, there are, on average, three to four pedestrians walking on the sidewalk and trying to cross at intersections with the ratio of pedestrians to vehicles jumping significantly in the afternoon.**

Compared to the 2012 post-recession nadir of pedestrian traffic, 2017 counts are up by a full 31%, exacerbating the conflicts between pedestrians and vehicles at the crosswalks, given how intersections are currently configured.

**FIGURE 7: AVERAGE DAILY PEDESTRIAN VOLUME ON WALNUT AND CHESTNUT, WEST OF BROAD**



<sup>4</sup>: [www.dot7.state.pa.us/BPR\\_pdf\\_files/MAPS/Traffic/Traffic\\_Volume/County\\_Maps/Philadelphia\\_TV.pdf](http://www.dot7.state.pa.us/BPR_pdf_files/MAPS/Traffic/Traffic_Volume/County_Maps/Philadelphia_TV.pdf)



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## UNCHECKED, CONGESTION WILL ONLY GET WORSE

Multiple factors, some demographic, some economic, cultural or technological, will continue to compound the challenges of mobility in Center City.

- Since the end of the Great Recession, cities have been steadily outperforming the national economy in job growth and Philadelphia has been regaining regional, business market share. This is very good for Philadelphia's neighborhood residents, 25% of whom already work downtown and can rely on SEPTA to get to their jobs.
- Philadelphia's remarkable growth in cultural attractions and fine dining restaurants has drawn huge volumes of regional residents into the downtown on evenings and weekends. Similarly, the growth in tourism has animated streets and sidewalks far beyond the business day.
- A 30% increase in people living in the core of Center City since 2000 has meant a substantial increase in the number of people on the sidewalks since 38% of residents in Core Center City, between Vine and Pine streets, walk to work. They also likely walk to retail and grocery stores, to restaurants, cafes, day care centers, schools and sports and exercise facilities.

- The increase in e-commerce and just-in-time delivery for many businesses has meant a dramatic increase in delivery trucks, cars and bicycles throughout the day and evening hours.
- Traditional taxi service has been augmented, and increasingly replaced, by so-called "transportation network companies" (TNCs) like Uber and Lyft (more commonly referred to as "ride-hailing" or "ride-sharing" services) and these new arrivals have added many private vehicles to Center City's streets.
- Forty percent of Greater Center City's population is between the ages of 20 to 34 and this demographic is far more likely to use a bicycle for commuting and other errands. They have added to the volume of cyclists of all ages in Center City. To respond, the city has created a plan to enhance pedestrian safety and install a bikeway network. But implementation in some areas has prompted resistance to the conversion of travel lanes to dedicated cycling lanes.

Two of these changes — deliveries and ride sharing — have the most visible impact on mobility.

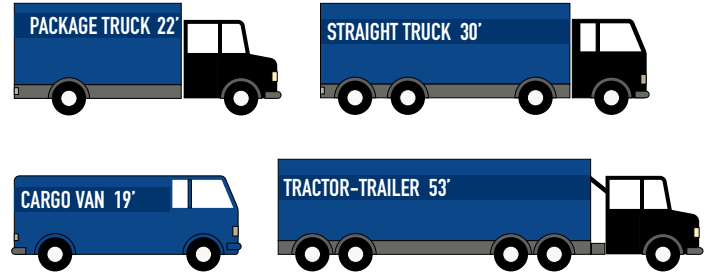


## DELIVERIES

Fifty years ago, the typical shopper visited a store and left with bags filled with purchases. A number of major department stores — Strawbridge and Clothier, John Wanamaker and Gimbels, among others — had their own fleets of delivery trucks and large warehouses nearby for product storage. Specialization and diversification in retail in the last several decades has meant the down-sizing or elimination of department stores and the proliferation of many smaller shops.

Since the turn of the century, online sales have increased nationally by 2400% — from \$4.4 billion at the end of 1999 to \$111.5 billion in 2017, now constituting 8.9% of all retail sales.<sup>5</sup> More online sales produce more deliveries and more vehicles on the street — delivering books, clothing, consumer electronics and food. At the same time, retailers are seeking to save costs by minimizing the area devoted to back room inventory and to allocate more space for customers. This means relying on frequent deliveries for *just-in-time inventory*. Similarly, high volume restaurants serving fresh food may require multiple deliveries per day in order to have enough product on hand. Rather than being scheduled and controlled by the recipient in overnight or early morning hours, these deliveries are programmed by package companies throughout the day to maximize efficiency and synchronize with plane arrival and departure schedules. With an increase in a Center City population requesting and receiving deliveries, an increase in the number of retailers, restaurants, and businesses downtown generating or accepting deliveries, and an increased reliance on third-party delivery services — all combine to create a dramatic increase in trucks on Center City streets throughout the day. National statistics show UPS deliveries up 19% since 2010, while FedEx reports a 44% increase. In Center City, one researcher estimated 18,000 deliveries on an average day.<sup>6</sup>

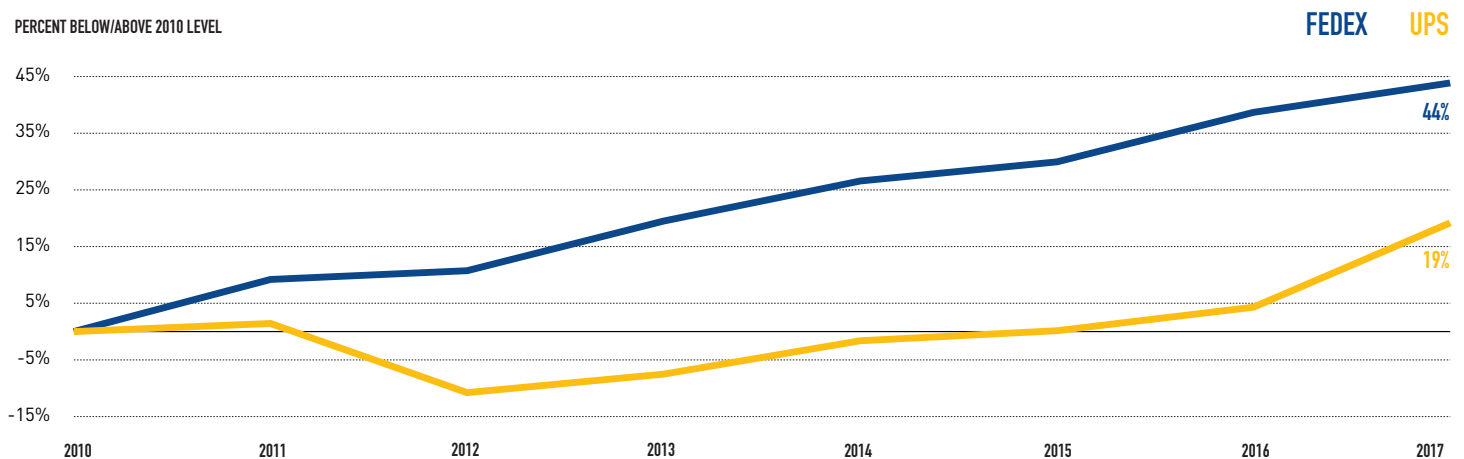
FIGURE 8: DELIVERY VEHICLES



Source: DVRPC, Philadelphia Delivery Handbook

The delivery vehicles that usually come into Center City during the daytime are generally 20 to 30 feet long — making it difficult to find curbside parking, especially if existing loading zones are occupied. This is compounded by preference of drivers to have unimpeded access to their cargo doors, to make multiple deliveries from one stop, and a reluctance to put vehicles in reverse on crowded streets. It is not surprising to see delivery trucks commandeer travel lanes for sustained periods of time and to treat the expense of parking violations as just another cost of doing business. To an organization the size of UPS, each minute of time — when tallied per driver per day across the US — is worth \$14.6 million annually.<sup>7</sup> Hence, their operations protocols put a high premium on time savings. According to statistics provided by the Philadelphia Parking Authority, between 2013 and 2017, companies making deliveries citywide in Philadelphia cumulatively received more than 420,000 tickets

FIGURE 9: AVERAGE DAILY PACKAGE VOLUME (DOMESTIC), PERCENT CHANGE FROM 2010



5: Retail Indicators Branch, U.S. Census Bureau

6: Jose Holguin-Veras, as reported by Inga Saffron - [www.philly.com/philly/columnists/inga\\_saffron/how-the-delivery-economy-is-disrupting-philadelphias-street-grid-20170608.html](http://www.philly.com/philly/columnists/inga_saffron/how-the-delivery-economy-is-disrupting-philadelphias-street-grid-20170608.html)

7: UPS, Presentation to Downtown Delivery Forum - July 2015, [www.dvrpc.org/Committees/DVGMTF/Presentations/2015-07.pdf](http://www.dvrpc.org/Committees/DVGMTF/Presentations/2015-07.pdf)

**FIGURE 10: NUMBER OF TICKETS AND FINES INCURRED BY DELIVERY COMPANIES IN PHILADELPHIA**

YEAR	TOTAL 6TH & 9TH		CITYWIDE		TOTAL IN 6TH & 9TH POLICE DISTRICTS	
	TICKETS	FINES	TICKETS	FINES	TICKETS	FINES
2013	58,636	\$3,795,773	78,123	\$5,173,297	75%	73%
2014	63,185	\$4,277,566	78,314	\$5,192,670	81%	82%
2015	65,962	\$4,513,791	84,840	\$5,694,325	78%	79%
2016	78,728	\$5,440,548	94,444	\$6,423,700	83%	85%
2017	77,456	\$5,362,442	93,171	\$6,345,194	83%	85%
5 yr Total	343,967	\$23,390,120	428,892	\$28,829,186	80%	81%

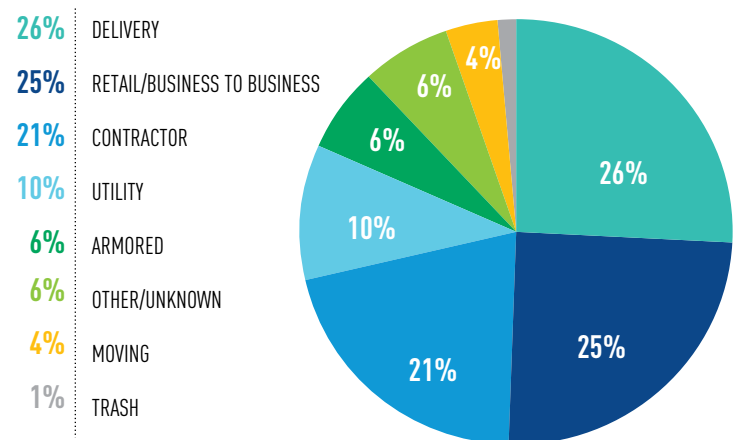
Source: Philadelphia Parking Authority

**DELIVERY TRUCKS PAID \$5.3 MILLION IN FINES FOR ILLEGAL PARKING IN CENTER CITY IN 2017, BUT THE NUMBER OF VIOLATIONS HAS STEADILY INCREASED BY 32% SINCE 2013. MAJOR, NATIONALLY BRANDED DELIVERY COMPANIES ACCOUNT FOR ONLY 26% OF TRUCKS STOPPING ILLEGALLY IN THE RIGHT-OF-WAY.**

and almost \$29 million in fines. The 6th and 9th Police Districts in Center City, Poplar Street to Lombard Street, river to river in Center City accounted for 80% of the tickets and 81% of the fines during that period.

On three Wednesday mornings in December 2017 and January 2018, CCD staff conducted a survey of trucks stopped in travel lanes on Chestnut, Walnut, 10th, and 13th streets.<sup>8</sup> In approximately a one-hour time frame, surveyors found 72 illegally parked vehicles on 81 total blocks — an average of almost one per block. But the major package companies are only part of the delivery truck volume. The survey found that the major delivery companies were responsible for only 25% of the vehicles observed obstructing travel lanes. Another 25% were either branded retail or business to business deliveries, around 20% were contractor vehicles, 10% were utility companies, and the remaining 20% was comprised of armored vehicles, moving companies, and various other trucks (Figure 11).

**FIGURE 11: TRUCKS OBSERVED PARKING IN TRAVEL LANES, BY TYPE**



<sup>8</sup>: CCD's Community Service Representatives (CSRS) walked Walnut and Chestnut from Broad to 23rd, and 13th and 17th from Arch to Locust in Center City at 11:00 on three Wednesdays and counted trucks parked in the travel lane.

## TAXIS/RIDE HAILING

Taxis have long been a fixture on city streets. Rarely used for commuting (less than 1% according to the American Community Survey), taxis enable short, one way point-to-point trips on demand. Traditional taxis have been heavily regulated, requiring the purchase of a medallion (a license to operate as a taxis), and governed by a host of regulations about operating procedures and pricing. The number of medallions is capped by law in Philadelphia and managed since 2004 by the Philadelphia Parking Authority. In 2014, when the number of medallions was set at 1,600, a medallion sold at auction for \$545,000.<sup>9</sup>

In 2009, a new operating model for taxi-like services emerged in the form of ride-hailing companies like Uber and Lyft, also referred to as Transportation Network Companies (TNCs). Leveraging the broad adoption of GPS-enabled smart phones, an app enables passengers to connect directly to drivers operating their own vehicles — bypassing the medallion system and associated regulations. Ride-hailing companies first entered the Philadelphia market in 2014, in violation of local law. After a period of negotiation, the services were legalized in Philadelphia in 2016. The legalization also brought some regulation around safety, background checks, and insurance, and set up a 1.4% tax on gross receipts to be paid to the Philadelphia Parking Authority (PPA). PPA's 2017 Annual Fiscal Report estimates there are at least 20,000 vehicles operating in Philadelphia in ride-hailing mode, compared to less than 2,000 medallion taxis.<sup>11</sup> Recent reports suggest that the cost of medallions has plummeted as ride-sharing caught on and they now are valued as low as \$10,000. A study of Manhattan's Central Business District found that the addition of ride-hailing companies resulted in vehicle miles traveled by taxis and TNCs increase by 33% between 2013 and 2017. The same study found that traffic slowed by 18% during the period.<sup>12</sup>

The ability to summon rides on demand in advance without standing on sidewalks in inclement weather or without competing with others is a key advantage of ride-hailing services. So too is the ability to rate the performance of drivers. Since ride hailing is relatively new to the market, vehicles are usually in better condition than Philadelphia's taxi-cabs. A 2017 study from the Institute of Transportation Studies (ITS) at the University of California, Davis found that 21% of adults in major cities use ride-hailing services personally, and another 9% had used the services while riding with friends.

The UC Davis study found that the ability *not to worry about parking* was the top reason (cited by 37%) that urban passengers chose ride hailing over their personal vehicles. The emergence of ride sharing thus can reduce demand for parking in urban areas where



it is constrained. This may partially account for the Philadelphia City Planning Commission's finding that parking garage occupancy fell 1.7% between 2010 and 2015, despite the fact that the total number of parking spaces declined 7.2% over the period. The recession and rising parking taxes were also significant factors.

But the UC Davis study found that more than half of ride-hailing trips would not have been made at all, or would have been made by more space-efficient modes like walking, biking, or transit, thereby adding more vehicles to urban streets and adding more stops in traveling lanes for the pickup and discharge of passengers. A separate study by a researcher in Denver, who drove over 400 ride-sharing shifts, found that when he factored in the additional miles waiting/cruising for a ride, driving to the pickup location, and returning home at the end of a shift, he had traveled 1.7 miles for every passenger-serving mile traveled, compounding the potential congestion impact. The emergence of autonomous vehicles, which ride-sharing companies are actively exploring, will add even greater complexity on Center City streets.

9: <http://planphilly.com/articles/2015/03/10/philly-taxi-medallion-values-still-searching-for-the-bottom>

10: [http://www.philly.com/philly/news/politics/20161105\\_Wolf\\_signs\\_bill\\_making\\_Uber\\_Lyft\\_legal\\_in\\_Philly.html](http://www.philly.com/philly/news/politics/20161105_Wolf_signs_bill_making_Uber_Lyft_legal_in_Philly.html)

11: Philadelphia Parking Authority, 2017 Annual Fiscal Report <http://www.philapark.org/wp-content/uploads/PPA-Annual-Report.pdf>

12: Schaller, "Empty Seats, Full Streets" <http://www.schallerconsult.com/rideservices/emptyseats.pdf>

13: [https://itspubs.ucdavis.edu/wp-content/themes/ucdavis/pubs/download\\_pdf.php?id=2752](https://itspubs.ucdavis.edu/wp-content/themes/ucdavis/pubs/download_pdf.php?id=2752)

14: Henao, Impacts of Ridesourcing – Lyft and Uber – On Transportation, 2017 (PhD Thesis Civil Engineering, University of Colorado)

## MANAGEMENT: WHO'S IN CHARGE OF THE STREETS?

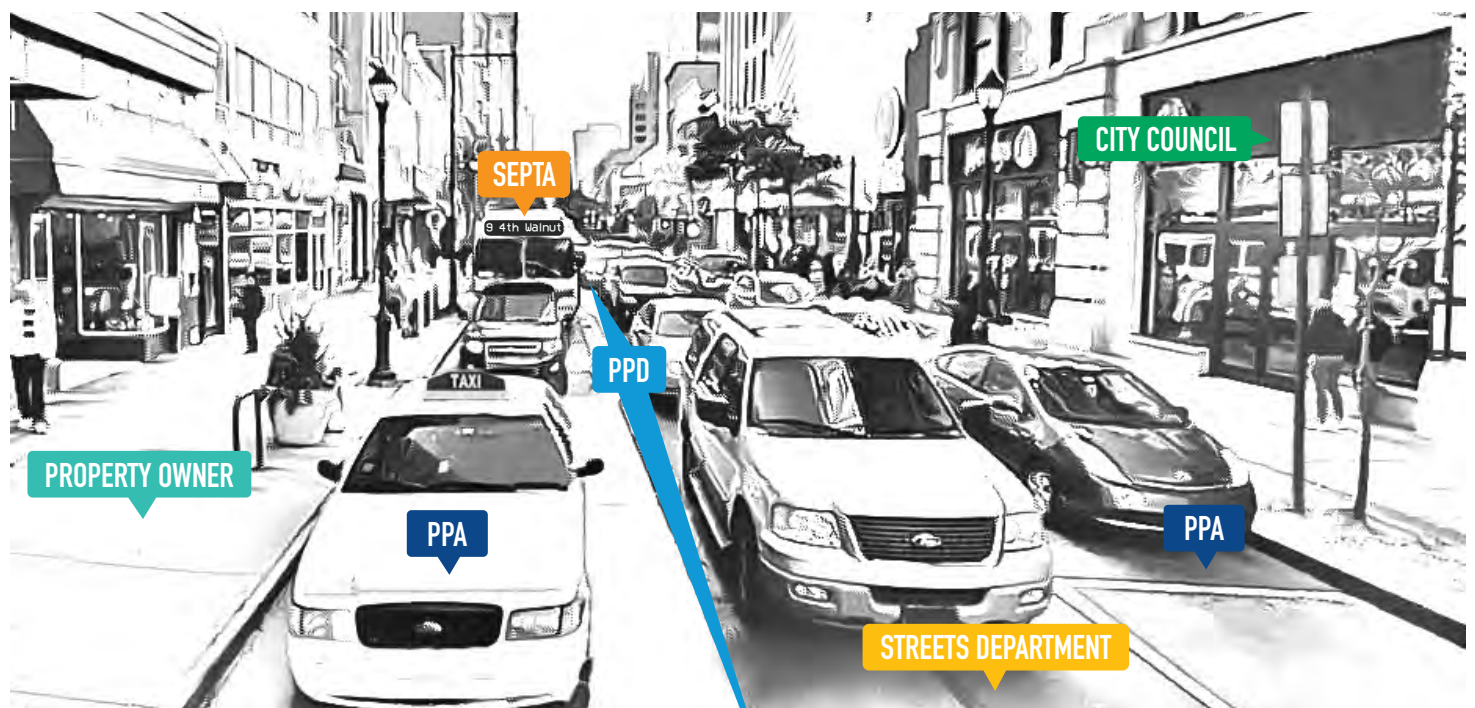
In all major cities, multiple agencies are involved in managing the streets. Since the legal framework, departmental names and functions vary significantly from place to place, it is difficult to make clear comparisons. Figure 13 offers a preliminary comparison. As a general rule: the fewer the agencies the greater the ability there is for coordinated, comprehensive and effective management. It also follows that the more robust and reliable the funding, the more professionalized, technologically current and proactive the agencies assigned to manage traffic.

From this preliminary comparison, Philadelphia appears more fragmented than most. While a Mayor's Office of Transportation and Utilities (MOTU) existed in the Nutter administration and an Office of Transportation and Infrastructure Systems (OTIS) exists in the Kenney administration for coordination purposes, Philadelphia has long lacked an integrated and adequately funded Department of Transportation with authority over all departments and agencies required to minimize congestion on streets. Who determines the allocation of space on the roadway between private vehicles, buses, bicycles and delivery vehicles? Are they adequately staffed and funded to carry out the task? Who then establishes, posts and enforces the corresponding regulations?

Circulation is also hampered by the poor condition of streets, and road markings. The infrastructure the City is responsible for maintaining — roadways and traffic marking — has steadily deteriorated as the amount of money allocated annually for street resurfacing and repair has declined over the past 20 years, only rebounding slightly since 2014 (Figure 14).

If it were solely a matter of dealing with winter potholes, the Streets Department would be challenged. But given the volume of construction in Center City, streets are routinely either partially opened or completely blocked off to traffic by contractors, utility, and telecom companies for various above-ground and underground projects. Further complicating this process is the fact that major companies will often pay the city a large, upfront fee for an open permit at the beginning of the year, which allows them to conduct maintenance and other street work whenever necessary without needing to apply for repeated permits. The "open permit" hinders coordination and preparation efforts between companies and city agencies that would otherwise allow for reasonable notice and planning around projects to prevent further congestion issues.

FIGURE 12: WHO MANAGES CENTER CITY'S STREETS?

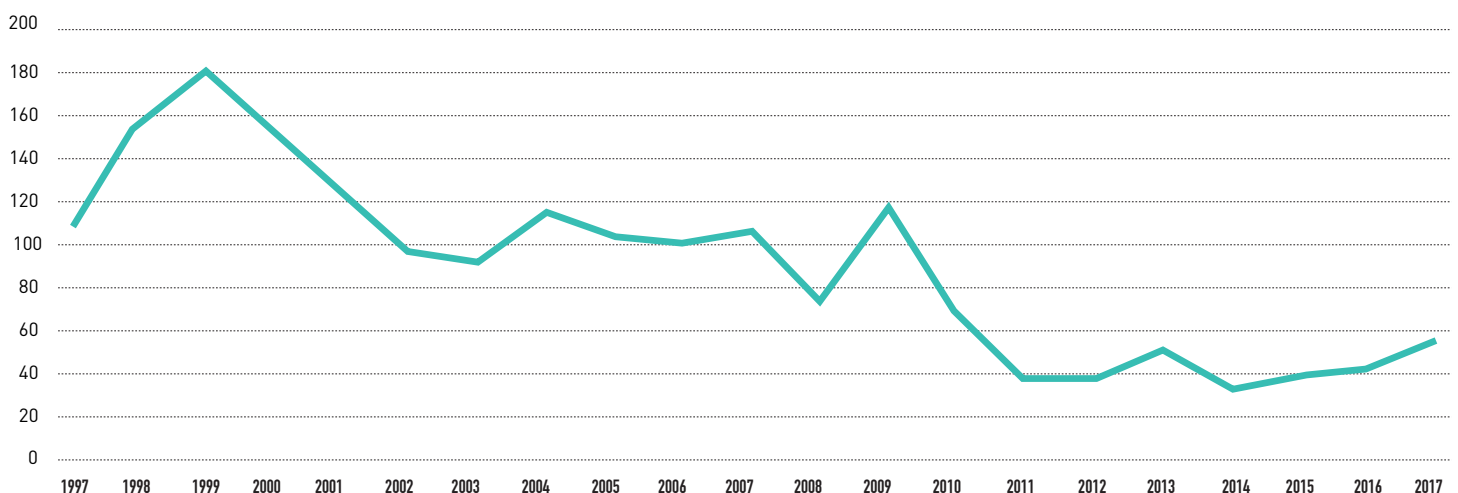


**FIGURE 13: MULTI-CITY COMPARISON: MANAGING URBAN STREETS**

FUNCTION	PHILADELPHIA	NYC	DC	BOSTON	SAN FRANCISCO	TORONTO
Sidewalk maintenance	Property owner	NYCDOT	DDOT	Dept of Public Works	San Francisco Public Works	Transportation Division
Local street maintenance	Streets Dept	NYCDOT	DDOT	Dept of Public Works	San Francisco Public Works	Transportation Division
Traffic enforcement	PPD	NYPD plus uniformed civilians	Metropolitan Police Department	Boston Police Dept	SF Police Dept	Toronto Police Service
Parking enforcement	PPA/PPD	NYPD	Dept of Public Works	Dept of the Parking Clerk	SF Municipal Trans. Agency	Toronto Police Service
Public transportation	SEPTA/PATCO	MTA	Washington Metro	Mass. Bay Trans. Authority	SF Municipal Trans. Agency/BART	Toronto Transit Commission
Taxi regulation	PPA	NYC Taxi & Limousine Commission	Dept of For-Hire Vehicles	Boston Police Dept (Hackney Carriage Unit)	SF Municipal Trans. Agency	Municipal Licensing & Standards
Parking policy	PPA/Streets/City Council	NYCDOT	DC Municipal Regulations	State of Massachusetts	SF Municipal Trans. Agency	City Council
Construction disruption	License and Inspections	NYCDOT, Inspections	DDOT	Dept of Public Works	San Francisco Municipal Trans. Agency	Transportation Division
<b>TOTAL NUMBER OF INVOLVED ENTITIES</b>	<b>9</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>5</b>

**IN COMPARISON WITH 5 OTHER NORTH AMERICAN CITIES, PHILADELPHIA APPEARS TO HAVE THE MOST FRAGMENTED SYSTEM OF TRANSPORTATION MANAGEMENT.**

**FIGURE 14: STREET MILES RESURFACED 1997-2017**



Source: Philadelphia Streets Department



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## CONCLUSIONS AND RECOMMENDATIONS

This is a problem of abundance, rather than a problem of scarcity. Increases in employment, residents, visitors and shoppers have all generated more intensive use of Center City’s streets and sidewalks, generating more tax revenues to support citywide services and schools. Changes in technology, business practices and personal preferences are altering the mix of vehicles on the street. If it is any consolation, traffic congestion in many other cities is worse. According to INRIX data, Philadelphia drivers do not spend as much time in peak hour congestion as to commuters in other large cities. They rank Philadelphia 17th out of the top 25 most congested cities. The 38 hours spent annually stuck in traffic jams in Philadelphia is less than half of the top 3 — Los Angeles (104 hours), New York City (89 hours), and San Francisco (83 hours). But few gauge their frustration with traffic based on how much worse it may be elsewhere. We measure against how it used to be here. So, enhanced, well-funded and proactive management is essential to prevent this problem from escalating further.

However, minimal resources are devoted in Philadelphia to the basics: maintenance of walkways and roadways; routine traffic counts and observations; diagnosis of points of congestion; systematically analyzing and calibrating on-street regulations; and evaluating the evolving impact of different modes.

- ***Assembling in one place traffic and congestion data, budgeting and staffing to keep it current is a good place to start along with a commitment to adequately fund the city Streets Department.***

Cities with the most advanced traffic management systems have cameras to observe traffic conditions and sophisticated, computerized

traffic signals that can be adjusted based on remote camera and sensor observations of levels and speed of traffic flow. But given how the Streets Department is challenged by inadequate funding for the basics, it is no surprise they have limited resources for new technologies and must compete for grants to make such investments.

- ***Budgeting for an investment both in basics and in more advanced technology is thus a second critical step.***

But these investments only make sense if Philadelphia’s traffic planning and management agencies have the authority and resources to implement coordinated policies.

- ***Philadelphia would thus be well-served by a benchmarking study to compare with peer cities on how we organize transportation management and how we compare on such basic measures as: dollars devoted to street repair per mile of street, traffic officers assigned per volume of traffic, bus delays in rush hour congestion, number of intersections routinely blocked by traffic.***

Once objective, as opposed to anecdotal, information is in place, a range of strategies can be evaluated.

**Travel Demand Management:** London, England is well known for its policy of congestion pricing, an effort to reduce the number of commuters who choose the automobile by assessing fees on cars entering the central area of the city at specific times of day. Few believe Philadelphia’s congestion has reached such a crisis point where this solution is required and such an approach would likely have both adverse economic impacts and political repercussions for anyone who proposed it.

But demand can be impacted as well by the allocation of space and the priority given to different modes. The most visible and contentious discussion of this sort currently occurs over bike lanes. Many cities focus successfully on enhancing the priorities given to transit vehicles on busy city streets. Among the techniques are establishing dedicated and enforced lanes for transit and traffic signaling priority through the use of technology that allows buses to move more quickly through intersections. An increase in the frequency and reliability of bus service is the simplest way to encourage the public to shift from auto to transit.

**Efficiency Improvements:** There are places in Center City, such as 17th Street at Chestnut Street and 10th Street at South Street, where parking has been eliminated on the east side of the southbound street to create a dedicated turning lane so through traffic can continue without waiting for some vehicles to make left turns. These could be systematically evaluated throughout congestion zones to determine their impact on traffic flow, bicycle movements and pedestrian safety. The capacity of some streets could be significantly enhanced if all on-street parking was eliminated during the daytime and some of the space devoted instead to short-term loading and deliveries, including pickup and drop-off zones for taxis, Uber, Lyft and paratransit vehicles. Bus zones could be moved to different parts of the street so as not block intersections; buses could also stop on every other block on some streets. A requirement, where practical, that covered sidewalks be put in place during construction could keep pedestrian traffic on sidewalks rather than in the street. Finally, everyone’s favorite: better coordinate the street openings required by utility and communications companies and, where possible, align them with major street resurfacing efforts, or at a minimum, require those who open the street to restore all the markings and materials that were in place. There are trade-offs that would accompany any changes to the configuration of Center

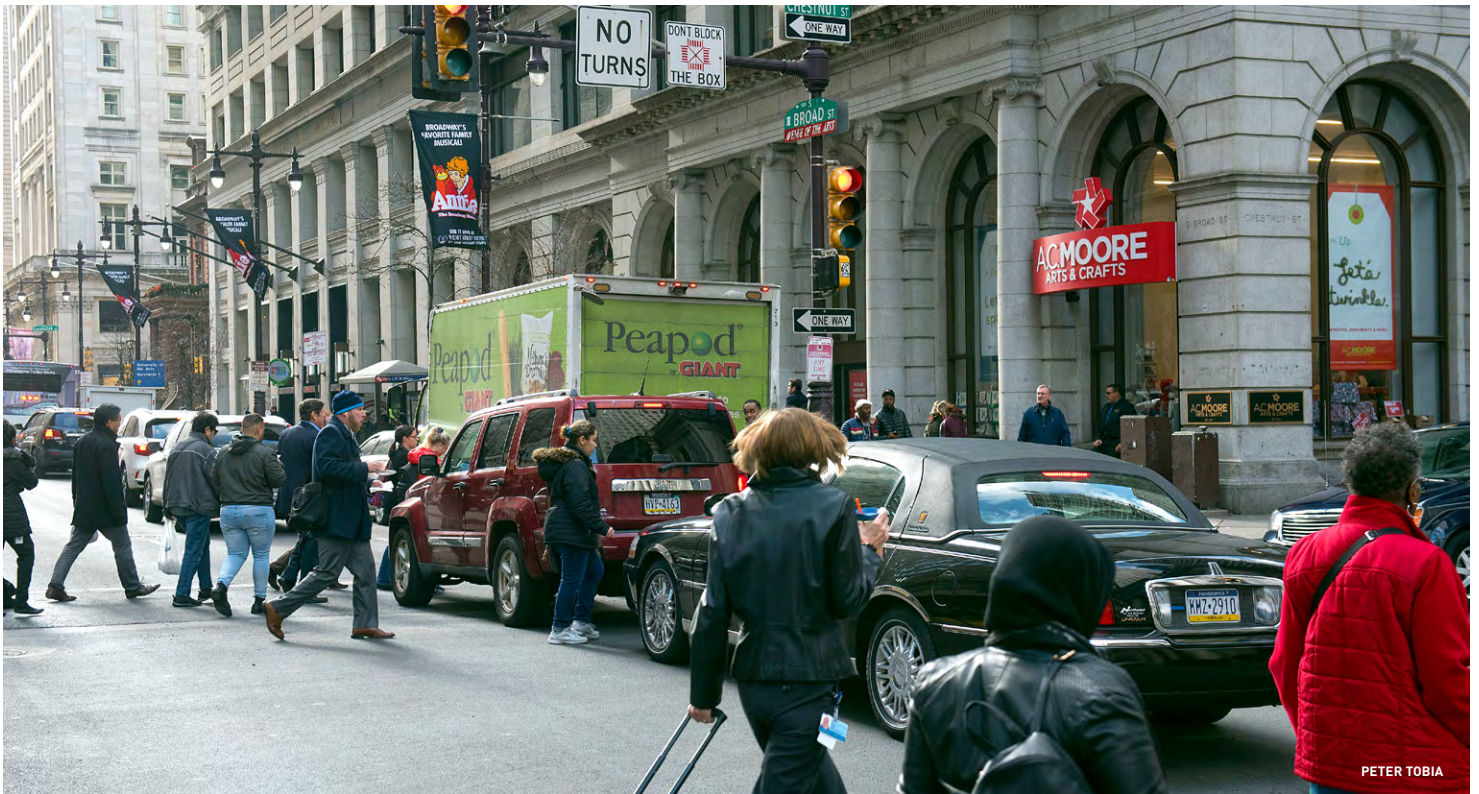
City streets, but the overarching goal should be to better balance the needs of different modes, including pedestrians, and to optimize the efficiency of the transportation system as a whole.

**Enforcement:** The PPA enforces parking rules in regulated areas — those with time restricted parking, rush hour clearance and neighborhood parking permit areas (which are established by City Council). In other areas, parking enforcement falls to the Philadelphia Police Department (PPD) — with whom it competes with other higher priorities. According to the Pennsylvania Vehicle Code, the enforcement of moving violations must be the responsibility of the police, but there is no routine deployment of traffic police in the central business district; they are deployed only for special events. By contrast, New York City for several decades has deployed a cadre of uniformed civilians, who are under the direction of the police. They are well trained, but deployed at a much lower cost than sworn police officers.

*Philadelphia would be well-served by a comprehensive review of traffic enforcement practices in other large North American cities.*

SEPTA’s buses (which carry 18% of Philadelphians to work) must rely on PPA and PPD to achieve the city’s transit-first policy: keeping lanes clear for buses. But as noted earlier, tickets have proved ineffective in addressing illegal parking by delivery vehicles, ride-hailing services are increasing and “blocking the box” goes largely unchecked. The curbside lanes of both Walnut and Chestnut are marked for Bicycle, Bus, and Right Turn Only, but almost no one pays attention, nor are they likely to do so if designated moving lanes remain gridlocked. City Council has reserved for itself the right to approve by District bike lanes that remove parking or travel lanes. No one really devotes the resources to ensure that bike lanes remain clear or that cyclists stay off of sidewalks.





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**Dedicated Funding:** Philadelphia should look closely at the advantages of having a well-managed, professional organization with a dedicated revenue stream devoted to achieving the valuable public purpose of managing the multiple functions that can achieve improved mobility. When the City of Philadelphia first authorized the Philadelphia Parking Authority to manage on-street parking at the beginning of the 1980s, it was able to consolidate in one place the planning, posting, enforcement and revenue collection for parking regulations that had been scattered ineffectively across multiple agencies. New revenues were pledged for new equipment and technologies for meters, tow trucks and other tools for enforcement. The PPA was organized to work with merchant associations on tailoring regulations to benefit business and with residential associations to craft permit parking programs that give priority to residents. Revenue generation and job creation were to be a byproduct, not the primary purpose of those efforts.

A key difference between the PPA and the Police Department is that PPA is a single purpose organization that controls the dedicated income stream created by its operations, uses it to cover its operating costs and potentially to invest in new solutions and technologies. The Police Department is tasked with multiple forms of enforcement and must compete at budget time for its share of the city's limited operating budget.

In responding to the current controversies concerning some management decisions made at the PPA, Philadelphia shouldn't lose sight of the baby when discarding the bathwater. At the same time it is worth considering if a well-funded, professionally managed Parking

Authority might *expand* beyond its role as just "bad cop" into other areas that might be more welcome by the general public, such as enforcing "block the box" regulations and thereby enhancing mobility for all; providing reliable information about public transportation alternatives; and playing a constructive role in developing and managing bicycle parking facilities. If just a small portion of \$6.3 million in fines levied again most delivery trucks parked illegally in the 6th and 9th Police Districts in 2017 were devoted to trained personnel, the city could deploy a tactical team of a dozen or more officers to manage congested intersections, putting some on foot and others on bikes to enforce the behavior of all modes.

Today's fragmented and underfunded management is not sufficient for the task. Philadelphia would be well-served to look creatively at how the multiple modes that make a city a success — walking, cycling, automobiles, buses and delivery vehicles — can best be coordinated. Then, after assembling and analyzing the data recommended above, a multi-disciplinary team of transportation professionals, business and residential leaders should be challenged to refashion how we fund and manage mobility and make recommendations to local and state government how best to keep Philadelphia moving in the 21st century.