

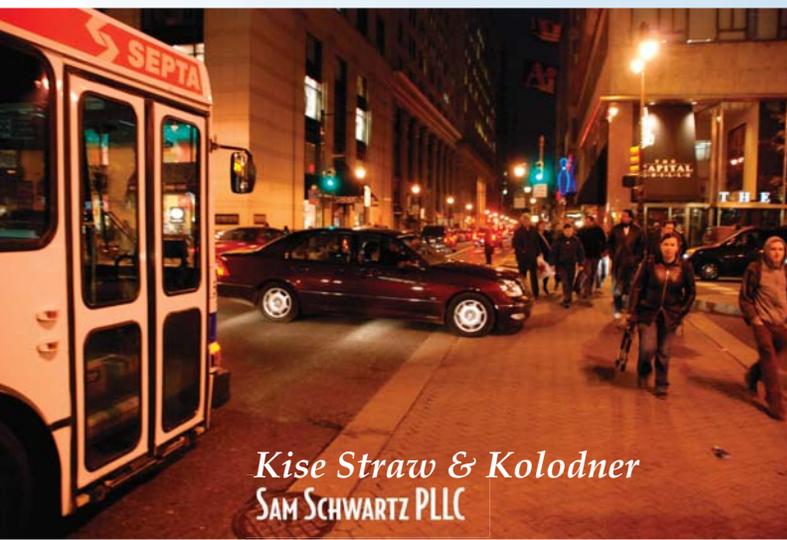


 **CENTER CITY DISTRICT**
Central Philadelphia Transportation Management Association



Managing Success in Center City:

Reducing Congestion, Enhancing Public Spaces



Kise Straw & Kolodner
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February 2008

Managing Success in Center City: Reducing Congestion, Enhancing Public Spaces

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Purpose of Report

Traffic congestion is emerging as a central challenge to the economic vitality and competitiveness of the downtown. Significant portions of Chestnut, Sansom and Walnut streets, as well as the streets that surround City Hall, are congested for several hours each day with many intersections repeatedly blocked. Rush hour traffic on 7th, 10th, 15th and 16th streets, and other connectors to the Vine Street Expressway, routinely jam up. Today traffic congestion is just a growing annoyance. But left unattended, it could soon snarl downtown mobility and push business, residents and visitors out of Center City.

Traffic congestion is the result of two decades of successful downtown revitalization, as arts and entertainment, tourism, restaurants and new residents have all added to the density and diversity of the largest concentrated center of employment in Pennsylvania. More people have more reasons at more times to be downtown. Some congestion is necessary and even desirable. Busy streets mean a healthy and vibrant city. But congestion that unnecessarily delays transit, commuters and emergency vehicles creates safety hazards, air pollution and a host of inefficiencies from lost worker productivity, to angry shoppers and visitors, to an inability to deliver business and municipal services in a timely manner.

Congestion has also emerged as a challenge due to both the absence of traffic enforcement and a comprehensive approach to transportation management in Philadelphia. Fortunately, Mayor Michael A. Nutter has re-established the Office of Transportation in Philadelphia and has appointed a deputy mayor for transportation, Rina Cutler, to coordinate the city's transportation policies and programs both within City government and externally, with SEPTA, PATCO, PennDOT and other quasi-public agencies and to coordinate all applications for federal and state funding for transportation.

To assist in this effort, the Center City District (CCD) and Central Philadelphia Transportation Management Association (CPTMA) prepared this report to: (1) document the problems and causes of traffic congestion in Center City; (2) offer a series of short-, medium- and long-term solutions that focus on delivery trucks, buses, cars, bicycles and pedestrians that can help Center City maintain its competitiveness as a place to work, live and visit and; (3) provide recommendations for an expanded transportation management function within government.

Paul R. Levy, President
Center City District
Central Philadelphia Transportation Management Association

Introduction: A Vibrant Downtown

Center City Philadelphia is the largest concentrated center of employment in the Commonwealth of Pennsylvania with almost 300,000 jobs, generating \$14 billion annually in salaries to residents of the city and region. Compressed into three square miles are 39 million square feet of prime office space, 20 major health care and educational institutions, 48 independent, public, parochial and charter schools, world-renowned arts and cultural institutions, visitor attractions, over 10,000 hotel rooms, an expanding convention center, 2,600 retailers, art galleries and 220 fine dining restaurants. Over the last 10 years, more than 10,000 new housing units were added in Center City, pushing the downtown population close to 90,000 residents, the third largest residential downtown in the United States.

A dense, compact 17th-century grid creates one of the most pedestrian friendly downtowns, a place where major hotels are within easy walking distance of the convention center and historical attractions and where 40% of downtown residents walk to work, the highest percentage in the United States.

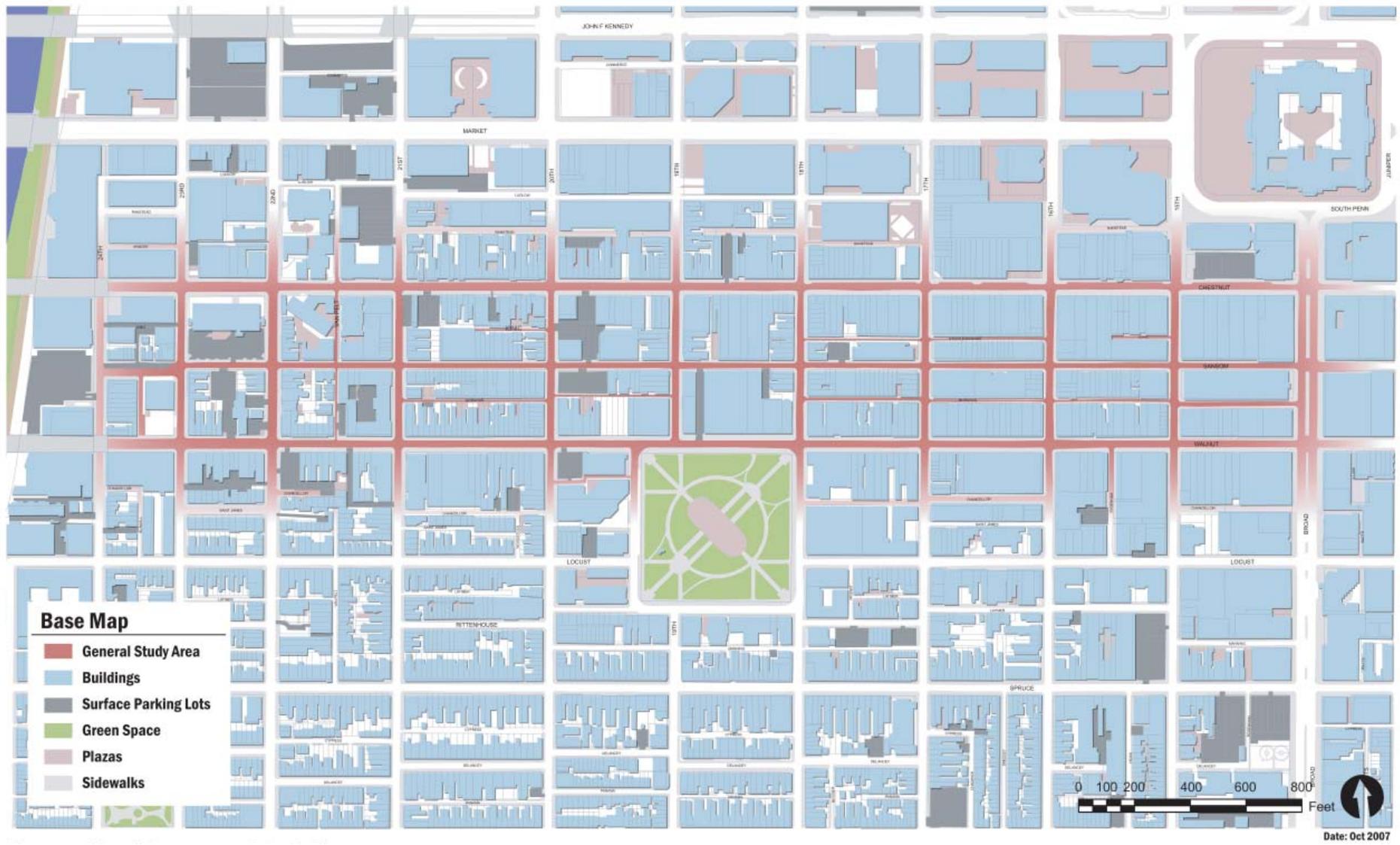
Center City's density is made possible because commuters and visitors do not need to rely just on automobiles, but can choose from seven regional rail lines, a speed line to and from New Jersey, two subway and five trolley lines, 41 local and four regional bus lines. The average number of weekday passengers using the region's transit providers -- SEPTA, PATCO and New Jersey Transit -- neared 291,000 in 2006. Without this transit system, Center City would have to quadruple its 65,000 off-street and 6,429 on-street parking spaces, removing many of the buildings and undermining the very fabric that makes downtown attractive.

As downtown has diversified, hotel occupancy has increased, retail growth has been strong, rents and occupancy rates have dramatically risen, and fine dining restaurants have increased by 240% from 65 in 1992 to 220 in 2007. Outdoor cafes, virtually non-existent in 1995, have flourished across Center City, numbering 205 in the summer of 2007.

All this has meant increasing volumes of people by day - workers, residents, shoppers, visitors and students - walking on sidewalks, crossing streets, getting in and out of taxis, cars and buses. Success has also brought significant increases in vehicular traffic, cars searching for parking, a proliferation of delivery vehicles throughout the business day, and valet parking operations during evening hours. Relatively flat topography makes Center City an easy location to navigate by bicycle and bike volumes have grown significantly as well in recent years.

This growing density of business, residential and leisure activity, along with related construction activity, has resulted in significant congestion, more pedestrian/vehicular conflicts, and plain old-fashioned traffic jams on narrow 20- to 26-foot-wide streets that were designed in the pre-petroleum age for horse-drawn carriages.

Some congestion is necessary and even desirous. Busy streets mean a healthy and vibrant city. Busy streets calm traffic, making it safer for pedestrians to walk and motorists to view adjacent attractions. If you could drive at 40 mph on Walnut Street at any time other than 4 AM, there wouldn't be much downtown worth being in. But congestion that unnecessarily delays transit, commuters and emergency vehicles is dangerous and contributes to air pollution. Conditions that frustrate drivers, as when it takes three green phases to move through an intersection, are bad for business, creating a host of inefficiencies from lost worker productivity, to angry visitors, to an inability to deliver business and municipal services in a timely manner.



Center City Philadelphia

Part One: A Congested Center

To respond to the challenges of traffic congestion, the Center City District and its Central Philadelphia Transportation Management Association, with funding from the Delaware Valley Regional Planning Commission (DVRPC), retained Kise Straw & Kolodner and Sam Schwartz PLLC, to document existing conditions and to make recommendations for improvement in a particularly impacted area between Broad Street and 23rd streets, Chestnut to Walnut streets.

Here, the consultants found symptoms and challenges that exist across Center City: delivery vehicles and private cars illegally double-parked, blocking traffic lanes; vehicles of all shapes and sizes straddling two lanes on streets with faded or non-existent pavement markings; vehicles routinely entering intersections on yellow lights and completely “blocking the box” inhibiting all perpendicular movement; cars unable to make turns because of the volume of pedestrians crossing; pedestrians walking in the street because construction obstructed the sidewalk; pedestrians jaywalking in other locations; buses delayed by congestion, stacked three in a row at the same intersection; and most important, virtually no traffic officers routinely assigned to enforce existing laws.

To insure multiple perspectives on the issue, the CCD convened an Advisory Committee with representatives from a broad cross section of public and non-profit transportation agencies, downtown employers and residents, and city departments with responsibilities related to mobility. The group worked closely with consultants, walking the streets to observe conditions, and ranking the most egregious problems.



Documenting Congestion

The CCD commenced the study by measuring crosstown travel times in the summer of 2007 between Broad Street and 23rd Street along Chestnut, Sansom and Walnut streets. Using Sunday morning as the least congested time, staff walked, drove and rode SEPTA buses (Routes 9, 21 and 42), and then repeated the experience during the weekday morning and afternoon rush hours, as well as at lunchtime and on Saturday evenings. In the winter of 2008, representatives of the Bicycle Coalition of Greater Philadelphia repeated these routes on bike. These provided simple measures of congestion: it takes on average five minutes to travel by bus on Chestnut Street between 23rd and Broad streets on a quiet Sunday morning; but it took 11 minutes, more than twice as long, to complete the same ride during weekday business hours. Walking the same distance only took four minutes more. Riding a bike on Chestnut Street at the same time took three minutes less than driving.

Average Travel Time (in minutes) by Mode

Street	Weekday				Weekend			
	Bus	Drive	Walk	Bike	Bus	Drive	Walk	Bike
Chestnut AM					5:00			
Chestnut	11:03	10:20	15:16	7:39	5:48	4:37	14:40	5:45
Sansom		10:35	15:39	6:34		4:58	14:56	5:39
Walnut	8:13	9:23	16:26	6:19	5:11	5:41	14:55	5:38

Source: Center City District, 2007.



Deliveries

Delivery trucks are essential to the competitiveness of downtown business. Few businesses today have their own delivery fleet and rely instead on the cost-effectiveness and speed of private carriers like FedEx, UPS, and DHL, along with bicycle couriers. Office tenants, design and engineering firms, medical practices, and retailers, who generally stock far less inventory, as well as small proprietors and home office businesses, rely on telephonic and electronic communications to order deliveries and pick-ups at all times of the day. As a result, scores of delivery vehicles move in and around Center City, stopping frequently on busy streets to make deliveries.

Today, more goods are shipped via truck than ever before. As a result, delivery truck fleets nationwide are on the rise. Since 2003, UPS has increased its national fleet of delivery trucks by 7% to more than 94,500 in 2007. The national number of DHL trucks increased by 125% in the past four years, from 32,000 in 2003 to 72,000 in 2007. This means more delivery trucks traveling and parking on the narrow streets of Center City.

To document the downtown impact, CCD staff fanned out across Center City to count on four separate occasions all the delivery vehicles on Chestnut and Walnut streets, between Broad Street and 23rd Street at both 10 AM and at 2 PM. The location of the vehicle was documented, along with the delivery company's name, whether it was blocking traffic, and the duration of its stay.

On Walnut Street, 49 delivery vehicles were counted, or an average of 1.8 per block, while 63 vehicles were counted on Chestnut Street, an average of 2.6 per block. The general practice of delivery trucks is as follows: while some use legal loading zones, many double-park at one location, load their packages onto a hand truck, and make deliveries to multiple locations both on the block on which they are parked and to adjacent blocks. In essence, they use the public right of way as a business staging area.

On three separate days, during both morning and afternoon hours, 18 delivery vehicles were more closely observed for their duration of stay, parking habits and delivery operations. The average length of stay of these vehicles was more than 16 minutes, with many double-parked in the travel or bus lanes. During this time, they cut in half the carrying capacity of the street, dramatically slowed buses making difficult maneuvers in the remaining narrowed space, and created even more dangerous conditions for the pedestrians who were using the reduced traffic capacity as a perverse incentive for more jaywalking, often popping out suddenly from the front side of the parked truck in the face of moving motorists.

The Philadelphia Parking Authority (PPA), the agency responsible for the city's parking regulations, aggressively enforces illegal parking, posting tickets on the windshields of delivery vehicles that for some companies add up to \$25,000 per month on a citywide basis. But the companies have apparently factored these fines into the cost of doing business and then pass them on to the consumers of their services.

In 2007, just within the study area, PPA issued 9,765 parking tickets to DHL, FedEx and UPS, resulting in roughly \$387,000 in fines.

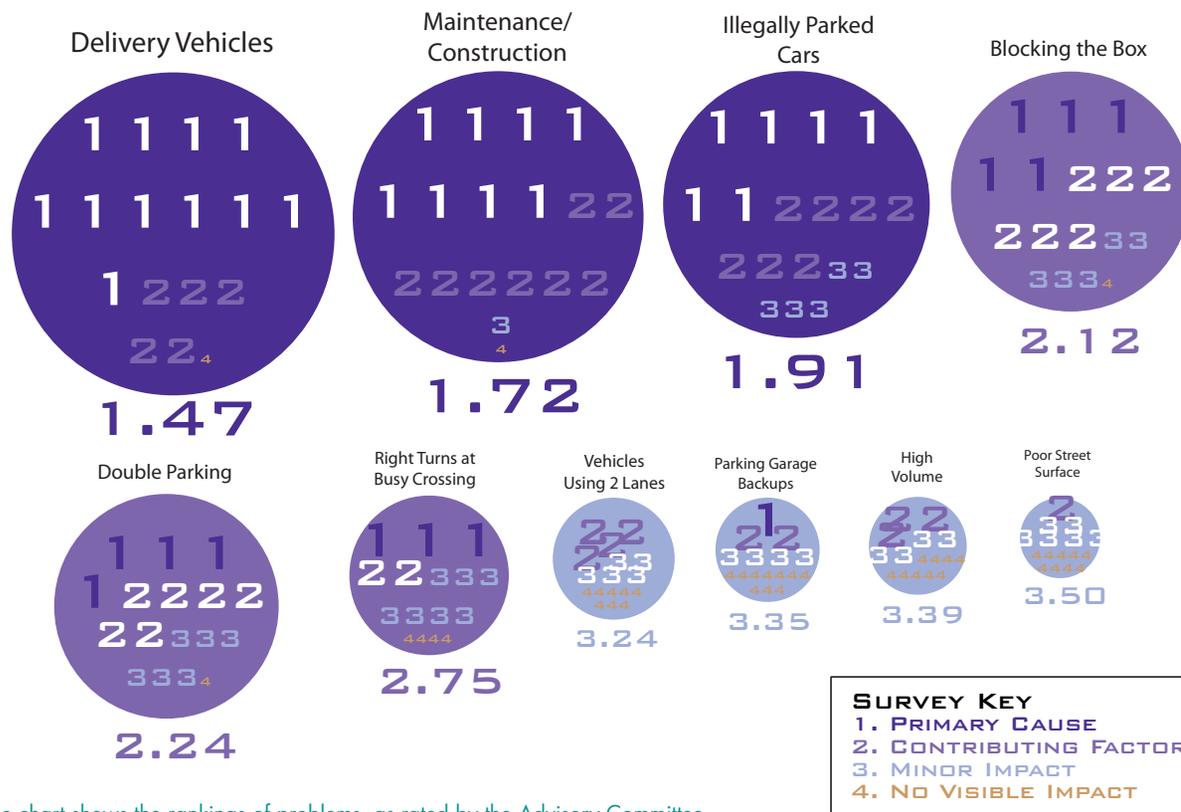


Observations by the Advisory Committee

The CCD convened a project advisory committee with representatives from SEPTA, the Parking Authority, the Streets Department, Planning Commission, Police Department, City Council, the Bicycle Coalition of Greater Philadelphia, Center City residents and representatives from downtown office, health care, and retail businesses (see Appendix A for a list of members). The committee conducted a walking audit of the study area to observe traffic congestion and to rank the severity of challenges and their impact on mobility. In depth, one-on-one discussions were also held with the Police Department, the Parking Authority, the Streets Department and SEPTA. A dozen people were interviewed for a video which was produced in conjunction with this report. While there was broad consensus on the need to better manage traffic in Center City and substantial agreement on most of the suggestions in this report, ultimately the final recommendations reflect the perspectives of the Center City District and Central Philadelphia Transportation Management Association, organizations that place a high priority on the business competitiveness and walkability of Center City.

Impacts on Traffic Congestion

Center City Congestion Advisory Committee Survey Results



The chart shows the rankings of problems, as rated by the Advisory Committee.

Priority Issues

Delivery Vehicles

Delivery vehicles are essential to the downtown economy, but their mode of operations is largely beyond the control of the businesses they serve. Fifty years ago, major department stores had their own fleets and one senior executive could direct their hours of operations and the places they parked. Today, thousands of diverse businesses and residents pick up the phone or go online to ship and receive packages, using a half-dozen different, competitive carriers. In a world of express delivery, it is not realistic to try to limit the hours in which delivery trucks can enter the downtown. But the city government can, working in partnership with the delivery companies, regulate the places they park and then enforce these regulations with tow trucks so that one business cannot commandeer travel lanes that are provided for use by all.

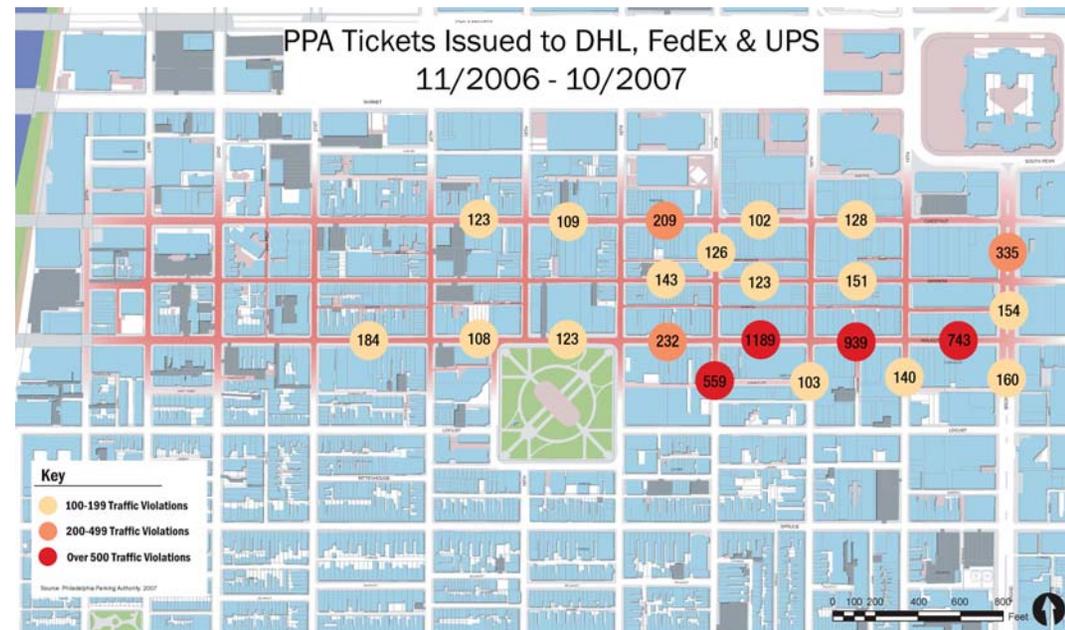
Construction Activity

The current volume of construction activity is one more indicator of downtown success. Contractors and developers, who are pushing to complete projects on time and on budget, must be able to stage construction efficiently, take deliveries of steel, pre-cast and poured-in-place concrete, and do this all on Center City's narrow streets. So some construction-related congestion is a necessary price of progress. But without a city department that has the resources to map and monitor multiple projects, motorists are frustrated by their cumulative impact. Many cities with strong departments of transportation have invested in sophisticated, computer traffic models for their *entire* downtowns that enable them to monitor multiple impacts on traffic flow and quickly take corrective actions, such as the temporary removal of parking meters and changes in other regulations.

The fragmentation of city departments also limits the amount of coordination that occurs prior to closing a street or sidewalk for repair work or construction projects. The Streets Department, SEPTA, Philadelphia Water Department, Philadelphia Gas Works and Police and Fire departments all regularly close streets and sidewalks. The CCD periodically blocks lanes for the installation of new pedestrian-scale lighting. In addition, private utilities, communications companies, special events and film shoots also close streets and sidewalks. All these activities need to be centrally coordinated.



Delivery trucks parked in travel lane on 1700 block of Walnut.



Map of PPA tickets given to delivery trucks in the study area.



Blocking the Box



“Blocking the box” is another significant cause of traffic congestion. “Blocking the box” occurs when a vehicle enters an intersection (“the box”) during a green or yellow phase and is unable to move forward when the light changes to red, blocking perpendicular traffic.

Many cities have launched “Don’t Block the Box” campaigns with signs, striping, public information announcements, positive reinforcement for compliance and strict enforcement of violations. Fines and points against the driver’s license (treating it as a moving violation as opposed to a civil violation) are often used as penalties for blocking the box. Both New York City and Seattle have rigorously enforced box blocking regulations. In New York City, particularly important “boxes” are marked by a grid of white lines throughout the entire intersection. The existing penalty is a \$90 fine and two points on the driver’s license while in Seattle, the fine for blocking the box is \$101.

Limited Enforcement

The Philadelphia Parking Authority issues and processes parking citations and is the only municipal government agency with a large fleet of tow trucks. While parking citations are issued by civilian parking enforcement officers, under Pennsylvania law, only Philadelphia police officers are authorized to issue citations for moving violations. Between January and June 2007, the Parking Authority issued 362,168 tickets for all types of violations in Center City. The Philadelphia Police Department issued 136,600 tickets citywide for moving violations, 17,000 fewer than during the same time period of the prior year, a 12% decrease. In Center City, traffic police are assigned to intersections only on a reactive basis, a marked contrast to three and four decades ago, when a contingent of officers routinely was stationed at downtown intersections and gateways.



New York City: The Box and a warning.

Part Two:

Managing Success in a 24-hour downtown

Center City cannot continue to thrive if we maintain the status quo. Today's problems have been building over the last decade as downtown has diversified. We are reaching a critical juncture. Without a comprehensive plan to manage traffic and enhance mobility and without a central place in city government empowered to coordinate this plan, we are on a self-defeating course that will undermine progress and limit growth, either because movement crawls to a stop or because civic frustration grows to the point where both residents and businesses oppose all new projects.

Short-Term Solutions

A series of short term, low-cost actions can be undertaken within the next 12 months that can produce an immediate and visible impact on traffic congestion in Center City.

A Can of White Paint

Across Center City, white lines denoting crosswalks, travel and bicycle lanes are faded or missing altogether. Every faded line and intersection marking in Center City should be repainted the minute the weather warms in the spring. They should then be routinely scheduled for restriping. As streets are resurfaced, the city can also restripe and could consider permanently noting crosswalks by installing different pavement types.

Leading Pedestrian Intervals

At some signalized intersections, turning vehicles present a danger to pedestrians crossing during the "Walk" interval. One solution is to allow pedestrians to cross just before traffic on the parallel street is given a green light. Legal pedestrian and vehicle movements are separated in time by the leading pedestrian interval (LPI) – allowing pedestrians to get a head start in crossing before vehicles are released. Typically, pedestrians are given a "walk" signal or solid white hand indicating that it is safe to cross while parallel traffic still has a red light. The Streets Department has already installed LPI signal systems at 20th and Market streets. These can be expanded to other intersections in Center City.

BEFORE

Day Lighting Intersections

By removing two or three parking spaces or loading zones near intersections, drivers will be better able to see pedestrians waiting to cross the street, improving crosswalk safety. This should occur at many intersections in the study area on Chestnut and Walnut streets. Additionally, at the following intersections where there is a left-turn movement onto Chestnut and Walnut streets, the curbside space should be striped as a turning bay:

- Broad & Chestnut
- 16th & Chestnut
- 17th & Chestnut
- 18th & Chestnut
- 20th & Chestnut
- 15th & Walnut
- 17th & Walnut
- Rittenhouse Square West & Walnut
- 21st & Walnut

This will significantly improve traffic flow by removing from a through lane those vehicles whose left turn is currently delayed (and backing up cars behind them) by the increasing volumes of pedestrians who are crossing at intersections. Based on a preliminary review, this same approach can be applied east of Broad Street at:

- 9th & Chestnut
- 11th & Chestnut
- 13th & Chestnut
- 8th & Walnut
- 10th & Walnut
- 12th & Walnut
- Broad & Walnut

AFTER

Day lighting an intersection: removing parking on the east side of 17th Street would facilitate turns onto Chestnut.



Every Other Block Bus Stops

Several members of our advisory committee suggested that SEPTA evaluate the impact of reducing bus stops in Center City to every other block. The disadvantages of this are obvious and it could actually discourage impulse use of public transit. On the other hand, transit could become a significantly faster crosstown alternative.

Valet Parking

Valet parking operators provide an important service to restaurants, but frequently remove scarce and needed on-street metered parking to stage their operations. Their employees often use both metered and illegal on-street spaces, rather than off-street sites, to store their customers' cars. Within the study area, there are 22 valet parking licenses issued by the Philadelphia Parking Authority for restaurants, clubs, hotels and condominiums.

Valet parking clearly has advantages for the business that gets its customers delivered to the front door. It is also reassuring for first time visitors and for individuals with limited personal mobility. But valet parking also has an adverse affect on nearby businesses, removing parking spaces that could be used by their customers and eliminating from the sidewalks pedestrians walking from garages and lots a block or so away. The need for valet parking could be substantially reduced by the introduction of technology that places on major streets digital signs that show in real time available spaces at nearby garages (see section on Advanced Parking Systems on page 31). The Nutter administration should undertake a comprehensive review of all existing valet licenses and review current enforcement practices.

On-Street Parking around Penn Square

In the last year several discrete events have combined to congest the streets that surround City Hall. Traditional morning rush hour traffic on 15th Street and evening rush hour traffic on West Market Street has been exacerbated by the removal of lanes for construction staging for the Residences at the Ritz, by the legalization of parking on East Penn Square in front of the Wanamaker Building, by illegal double-parking of delivery vehicles on southeast Penn Square, and by the parking of media vans and municipal vehicles on the north and west sides of City Hall.

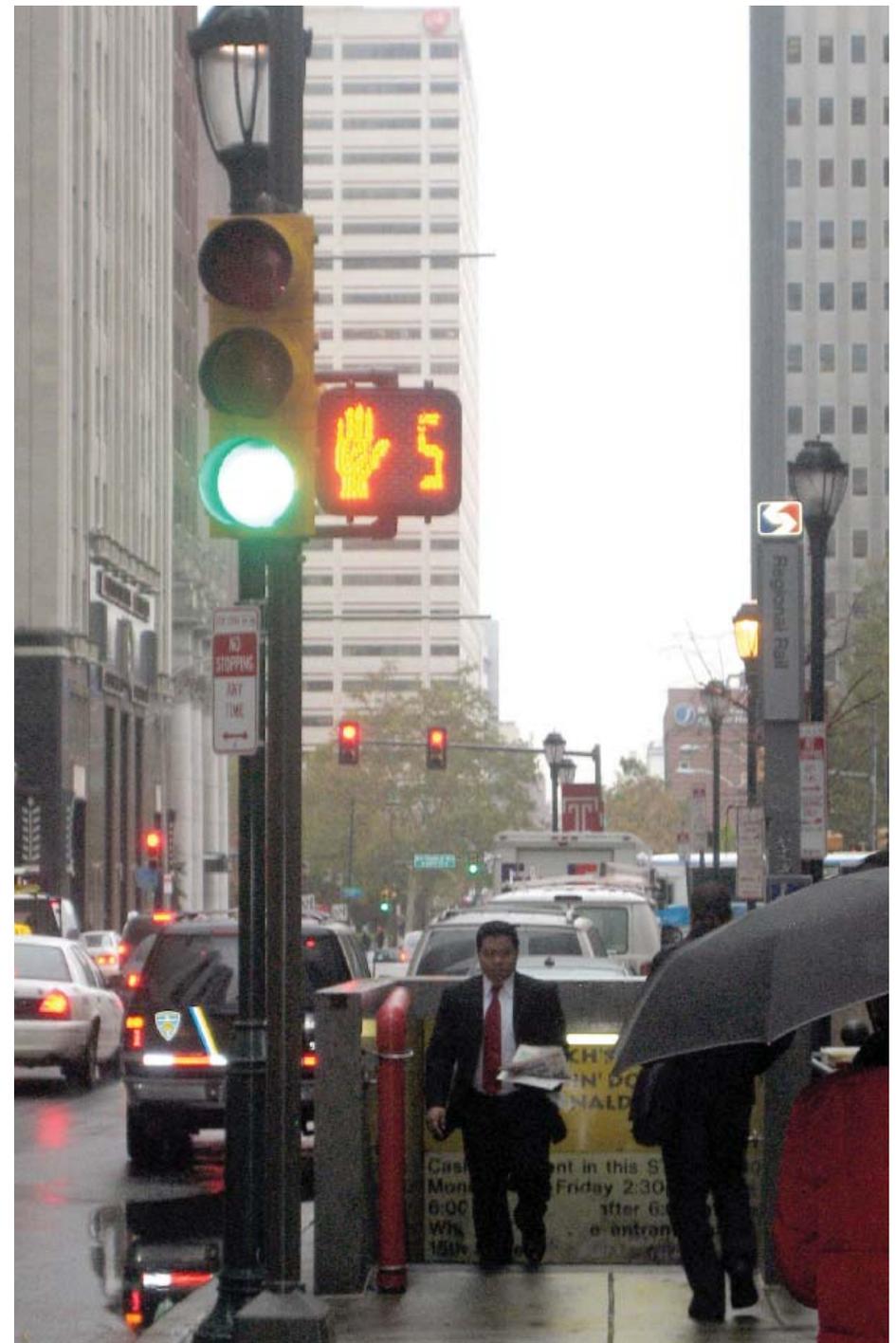
Construction is scheduled for completion on the Residences at the Ritz in October 2008, but action should be taken immediately to re-evaluate all authorized on-street parking around City Hall and enforce the laws for illegal parking. What message does it send if the epicenter of the city, the streets surrounding City Hall, is routinely snarled by illegal parking and by the absence of thoughtful management and enforcement?

Mid-Term Solutions

A number of actions could be taken in the next 12 to 24 months that would have greater impact on reducing congestion, but which cost more money.

Safer Pedestrian Crossings

Pedestrian countdown timers have been installed by the Streets Department at 16th and Market streets and at intersections on Market Street East between 12th Street and 7th Street on a demonstration basis. These provide information to pedestrians about how much time is left, safely and legally, to cross at signalized intersections. The countdown starts when there are 7-8 seconds left to cross safely. At the end of the countdown, the timer displays a zero and a solid orange hand appears. These not only reduce uncertainty for pedestrians, they also can prevent fatalities. Under the federal Manual on Uniform Traffic Control Devices, all existing traffic signals must be retrofitted with pedestrian countdown timers within the next 10 years. Further analysis by the Office of Transportation should determine priorities for early action intersections.



Alternative Locations for Loading Zones

All delivery trucks could be prohibited from parking on Chestnut and Walnut streets between 8 AM and 7 PM. Instead, based on a more thorough count of the average hourly quantity of delivery trucks that are parked in Center City, a new set of dedicated, time restricted delivery-truck-only loading zones could be created on several designated blocks of Sansom Street, some less traveled north/south streets, or on a few smaller adjacent streets such as Sydenham Street. Parking meters would be removed from these locations and replaced by dedicated spaces for which the delivery companies would pay. If the city were to set the price of a loading zone permit at one-half the amount these delivery companies are currently paying in parking violations, it would be a win/win/win situation. The delivery companies would save money, traffic flow would be significantly enhanced on Chestnut and Walnut streets, and – if City Council was to dedicate these permit fees to paying the salaries of newly hired traffic police – Philadelphia would gain a new source of revenue to restore depleted ranks of traffic police. Parking violation revenues from cars that illegally park in these loading zones could be dedicated as well.

Because many blocks of Sansom Street have thriving retail establishments, parking meters should be removed and time restricted loading zones created only on those blocks with minimal retail uses, specifically, the north side of Sansom Street:

- Between 8th and 9th streets, west of 1 hour parking limit to 9th Street.
- Between 9th and 10th streets; eliminate 1 hour parking and Authorized Vehicle designated parking areas; leave ample buffer at ingress/egress of surface parking lot.
- Between 11th and 12th streets west of the handicapped parking area to 12th Street; eliminate 1 hour parking areas.
- Between Juniper and Broad streets; eliminate Authorized Vehicle parking.
- Between Broad and 15th streets west of Chris Jazz Café to 15th Street and east of Union League Parking Garage to Broad Street.
- Between 16th and 17th streets, west of the handicapped meter parking (there are 5 meters for 2 hour parking) to the opening for the parking lot; west of the parking lot entrance to 17th Street (there are 5 meters for 2 hour parking).
- Between 19th and 20th streets, west of Oh! Shea's/parking lot entrance to 20th Street.



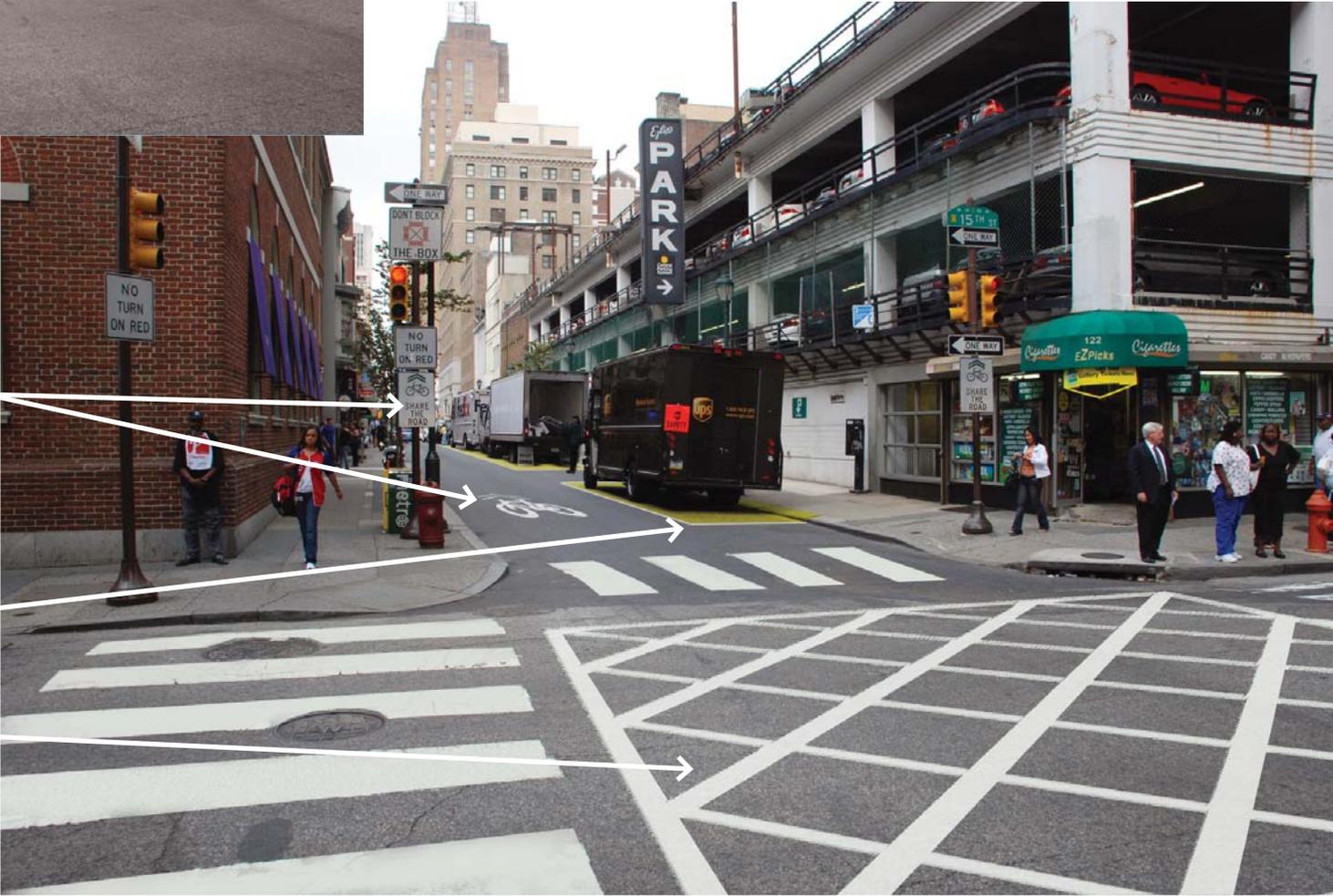
BEFORE

AFTER

Sharrows in travel lane with signage

Time-limited, dedicated loading zones for delivery trucks only

Paint the box

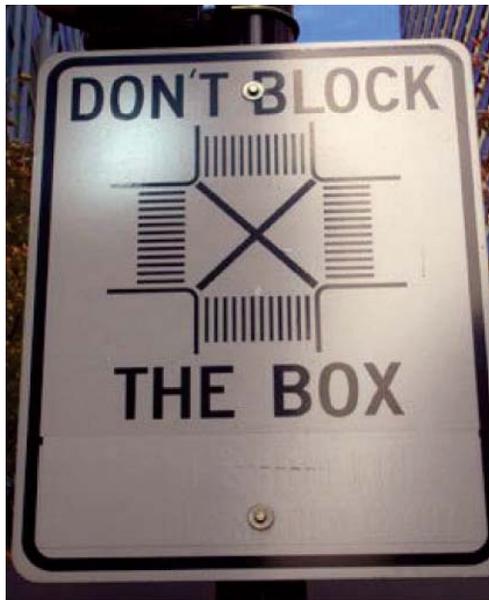


Don't Block the Box

Blocking the box is one of the leading causes of traffic congestion in Center City. A “Don't Block the Box” ordinance is provided in the Philadelphia Code (§12-407). Specific intersections located in Center City are designated as “Don't Block the Box” intersections and vehicles are prohibited from entering these intersections or crosswalks if doing so will obstruct passage of vehicular traffic or pedestrians. The police in the Traffic Division have the option of writing a ticket under §12-407 or §3710 of the Pennsylvania Motor Vehicle Code titled Obstruction of an Intersection. The city's code is more restrictive and police tend to write under this section as long as the intersection is signed as a “Don't Block the Box” intersection. If a violation occurs at an intersection not signed for blocking the box, then the police will write it under §3710 which covers all intersections. The fine for violating §12-407 is \$25 plus courts costs (approximately \$100 total) while the fine for violating §3710 is \$117.50. But in the absence of dedicated traffic police anywhere in Center City other than South Street, there is no systematic enforcement and therefore compliance is poor.

Within the study area, the Streets Department has installed “Don't Block the Box” signs on Walnut Street between 16th and 18th streets, though no special markings have been installed on the pavement to delineate “the box.” The most problematic blocked intersections in Center City are Broad and Chestnut streets, Broad and Walnut streets, and Chestnut and Walnut streets, 15th through 18th streets. These intersections should immediately be striped as shown below.

Center City: Existing sign and proposed painted box.



Uniformed Officials at Intersections

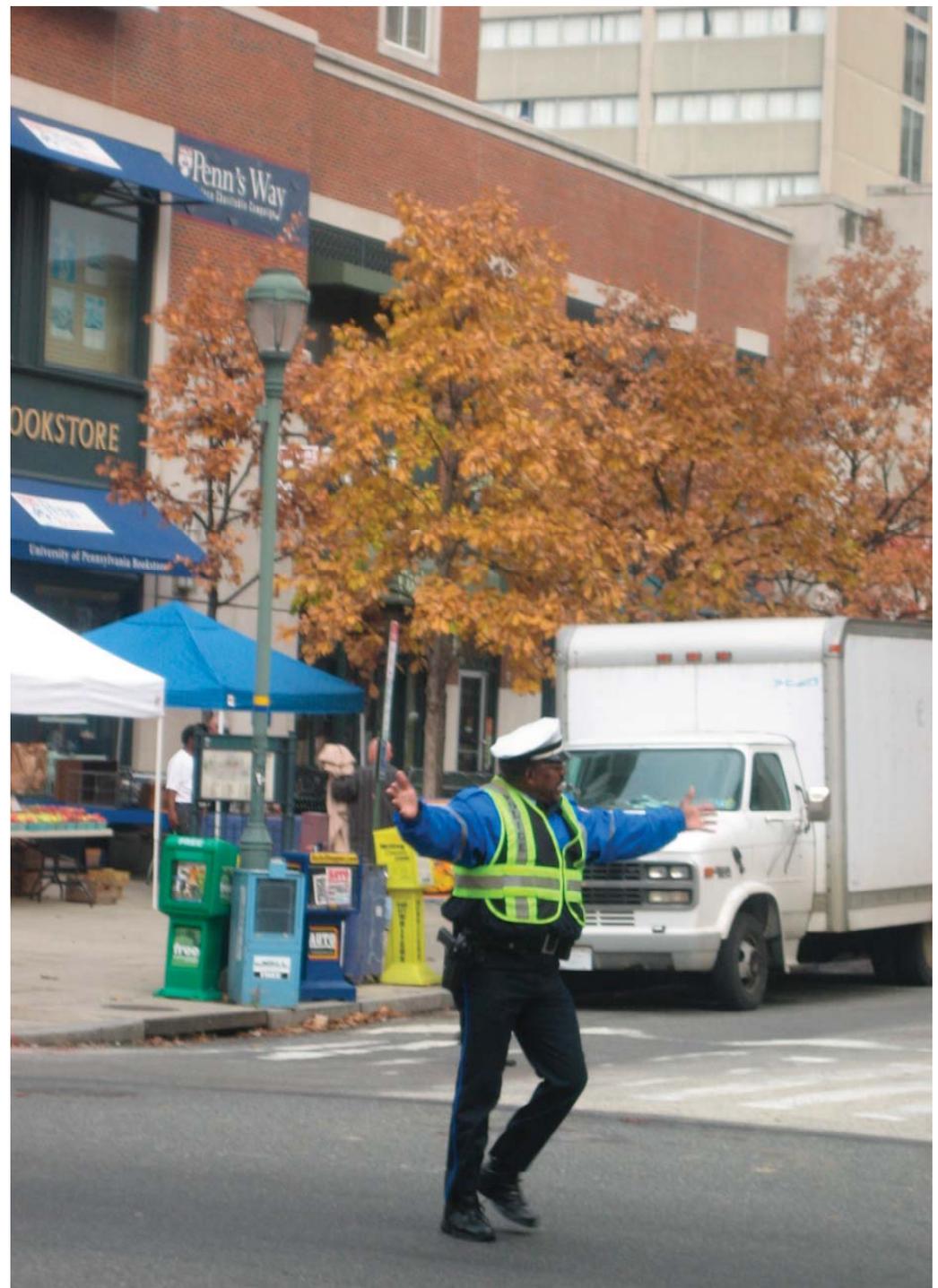
Traffic control in many U.S. downtowns is routinely staffed by either uniformed police or civilian personnel who stand in intersections and direct traffic. Peer cities such as Baltimore, New York City and Washington, D.C. routinely utilize uniformed personnel to direct rush hour traffic.

The University of Pennsylvania's Division of Public Safety currently deploys Penn police officers to direct pedestrian and vehicular movement at both 34th and 36th and Walnut streets. An officer is stationed on weekdays at each intersection during the AM (8-9) and PM (5-6) rush hours as well as during lunchtime (noon-1) when the corridor has a high volume of pedestrians. Officers stand in the middle of the intersection as a visual cue for traffic especially for right turns on red lights. Officers use only hand signals and a whistle and have no access to the traffic signal box.

Traffic police should be restored to Center City posts at key intersections during morning and evening rush hours and at lunchtime. In between, they can be rotated to different problematic intersections to enforce compliance with existing traffic regulations and to end the "anything goes" attitude that reigns in Center City today. Ideally, the City of Philadelphia should appropriate sufficient funds to cover the cost of more traffic police or seek state authorization for civilian enforcement. If neither option proves practical, then consideration should be given to the dedication of revenues from annual fees proposed to be charged to delivery companies for loading zone parking, from revenues from moving violations issued at downtown intersections and from blocking-the-box violations.

Giving More Priority to Bicycles

Bicycle traffic has increased significantly over the past decade. The bridges over the Schuylkill River provide easy and direct access between Center City and University City; North Broad Street is a primary connection to Temple University. With 30,000 college students in Center City and 60,000 adjacent to the downtown and with one-third of Center City's population between the ages of 25 and 34, Philadelphia has a strong constituency for bicycling. This is a demographic group that employers and economic developers eagerly seek to retain. Residents and workers of all ages also have a strong interest in using bicycles as a means of travel and recreational activity in a downtown whose topography is easy to navigate on two wheels.



Bike Lane Enhancement

The Philadelphia Streets Department has added bike lanes on perimeter and gateway streets to the downtown. Yet most of Center City's streets are too narrow to safely accommodate cars, buses, trucks and a generous dedicated bike lane. But in the absence of such lanes, bicyclists routinely dart dangerously among cars on busy streets or choose to escape peril by riding illegally on sidewalks, endangering pedestrians. Several east/west and north/south streets within the central business district could be designated streets in which bicycles are given greater priority and the space devoted to other modes of transportation is curtailed.

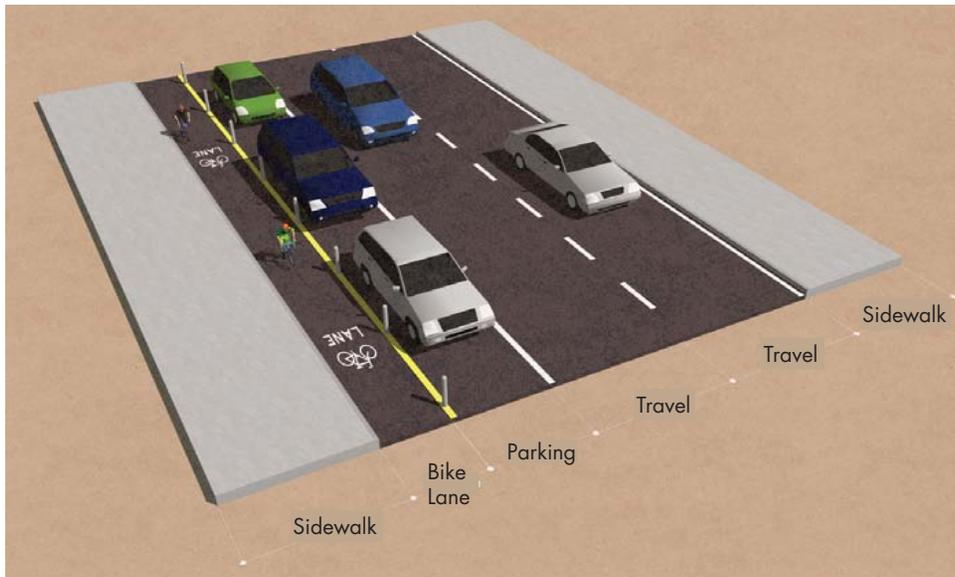
Currently the Philadelphia City Planning Commission is developing a plan for such priority streets. One option to be considered is changing the layout of the street, as many European cities currently do and as New York City (Ninth Avenue Bike Lane) is currently implementing. Instead of the sequence from the curb being *parked car, bike lane, moving traffic*, a dedicated bike lane could be created adjacent to the curb and separated from the car parking lane with flexible bollards or plastic cones so the sequence becomes *dedicated bike lane, flexible bollards, parking lane, travel lane* (See diagram below).

This approach could be implemented now on a wide street like 22nd Street and, if Sansom Street were not to be used for dedicated loading as suggested earlier, then it might provide a dedicated westbound bike lane. The creation of dedicated bike lanes along the curb can be greatly facilitated by the use of newer multi-space meters that are currently being tested by the Parking Authority (see page 30). On the other hand, there are a number of significant safety issues raised by shifting the location of traffic and parking lanes, so ultimately the city must make a number of difficult decisions about priorities in determining how much space is provided on Center City streets for cars, parking, bicyclists and pedestrians.



Diagram of dedicated bike lane.

Ninth Avenue bike lane, New York City.



Bike Boxes

At intersections where a right turn is possible from Chestnut Street (at 15th, 17th, 19th and 21st streets) and Walnut Street (at 16th, 18th, 20th and 22nd streets), the stop bar for vehicles could be set back several feet from the crosswalk to create a “bike box.” This box allows cyclists to safely switch lanes in front of stopped traffic to protect turning movements and can improve both bicycle and pedestrian safety at intersections with minimal impact on road capacity.

Bike box in Victoria, BC makes cyclists more visible to drivers, enables bikers to turn more easily onto adjacent streets, and makes a highly visible policy statement about the priority given to cycling.



Dedicated Bicycle Parking Spaces

There are insufficient bicycle parking opportunities in Center City and sidewalks are often too narrow to accommodate large racks. As a consequence, bikes are routinely chained to trees and trash cans. One way Philadelphia could send a highly visible message about its commitment to bicycling, while maintaining safe, unobstructed walkways, is to remove one car-parking space on alternate blocks and to create a bike-parking zone in the cartway, where eight bikes could fit in a parking space that previously accommodated only one car, so long as adequate safety provisions are made to protect bikes from moving and parking cars.

Specifically, bike racks and/or smaller U racks are currently needed on the 1600 block of Chestnut Street near the Art Institute of Philadelphia, the 1600 block of Walnut Street, the 1800 block of Walnut Street near Barnes & Noble, Walnut and Sansom streets west of 20th Street. Given the significant number of bicycles on South Broad Street, adjacent to University of the Arts buildings, and the limited space on sidewalks, a specific plan needs to be developed for these blocks with consideration given to off-street alternatives as well.

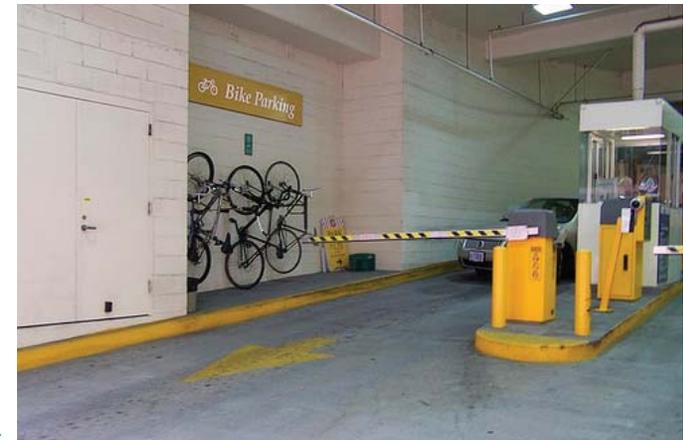
Bike parking in Portland, OR.



Bike Parking in Private Garages

The city, the CCD and the Philadelphia Parking Association could develop a plan in which private parking garage operators create indoor bicycle parking spaces in privately owned parking garages and lots and implement a communications plan aimed at downtown office workers. The Philadelphia Parking Authority could participate in this initiative in its three, downtown off-street garages. These could be purely market transactions in which bicyclists pay a fee equal to one-eighth the cost of monthly parking for a car (eight bikes filling the space previously filled by car) for dedicated, secure monthly parking. Using federal transportation enhancement funds, the CCD and the city could also partially subsidize such a program and related communications campaign. However, there are liability issues that would need to be addressed regarding potential damage or theft of bikes.

The non-profit PhillyCarShare and for-profit ZipCar, have been able to work out relationships with private parking operators and the Philadelphia Parking Authority in which dedicated spaces are created in surface parking lots. Should a PhillyBikeShare program be formed, a similar arrangement could be structured in which the cost of paying parking operators for these spaces could be built into the rental fee for bikes.



Bike parking in parking garages in Portland, OR.



Longer Term, More Costly Solutions

Bulbout Removal

When Chestnut Street was reconstructed in the late 1990s and reopened to cars, widened sidewalk bulbouts were left at all intersections to shorten the distance for pedestrian crossings. While this approach is useful on wide streets, like JFK Boulevard, it is unnecessary given the narrow width of Chestnut Street. Walnut Street, which is almost the same width as Chestnut Street, building line to building line, is our most successful pedestrian and shopping street and it thrives without bulbouts and the negative impact they have on traffic flow.

Chestnut Street bulbouts make it impossible to eliminate the last two or three parking spaces before a corner and create a dedicated turning lane, allowing cars to shift out of a moving lane and thus facilitate traffic flow.

Bulbouts also allow cars to routinely try to squeeze into the residual space at the beginning of each block so that their tails stick out into the street and partially obstruct an entire moving lane.



One measure of the impact of bulbouts can be seen in the three-minute time differential it takes buses to cover the same distance on Chestnut and Walnut streets. While Chestnut Street does tend to have more delivery truck parking that also contributes to the problem, it is clear that the frequent loss of an entire lane at either end of Chestnut Street blocks exacerbates the situation.

The bulbouts at the following locations should be removed to facilitate left turns:

- Northwest corner of Broad and Chestnut streets
- Northeast corner of 15th and Chestnut streets (to accommodate the left-turning 38 bus)
- Northwest corner of 16th and Chestnut streets
- Northeast corner of 17th and Chestnut streets (to accommodate left turns from southbound 17th street)
- Northwest corners of 18th and 20th streets at Chestnut Street

Chestnut Street is currently striped as two 10-foot travel lanes and an 8-foot parking lane. Creating an 8-foot turning bay would technically be substandard, but the same condition exists on Walnut Street where the south curb lane is 8 feet and used as a travel/turning lane—the other two lanes are 9 feet. Since Chestnut Street overall is slightly wider than Walnut, when the turning bays are created, the street could be restriped to take a foot from the center travel lane. This would give Chestnut Street a 10-foot bus lane, a 9-foot center travel lane, and 9-foot turning bays at certain intersections.

Broad and Chestnut: before and after removal of bulbout. To facilitate this, the bus stop on just the 1400 block of Chestnut Street could be moved back to mid-block.



Better Branding and Marketing of Buses and Subways

SEPTA has committed to a program of enhanced marketing and customer service across its entire system. In Center City, there should be two core objectives: encouraging more commutes into the downtown by public transit and encouraging more discretionary and impulse use of transit for movement within Center City.

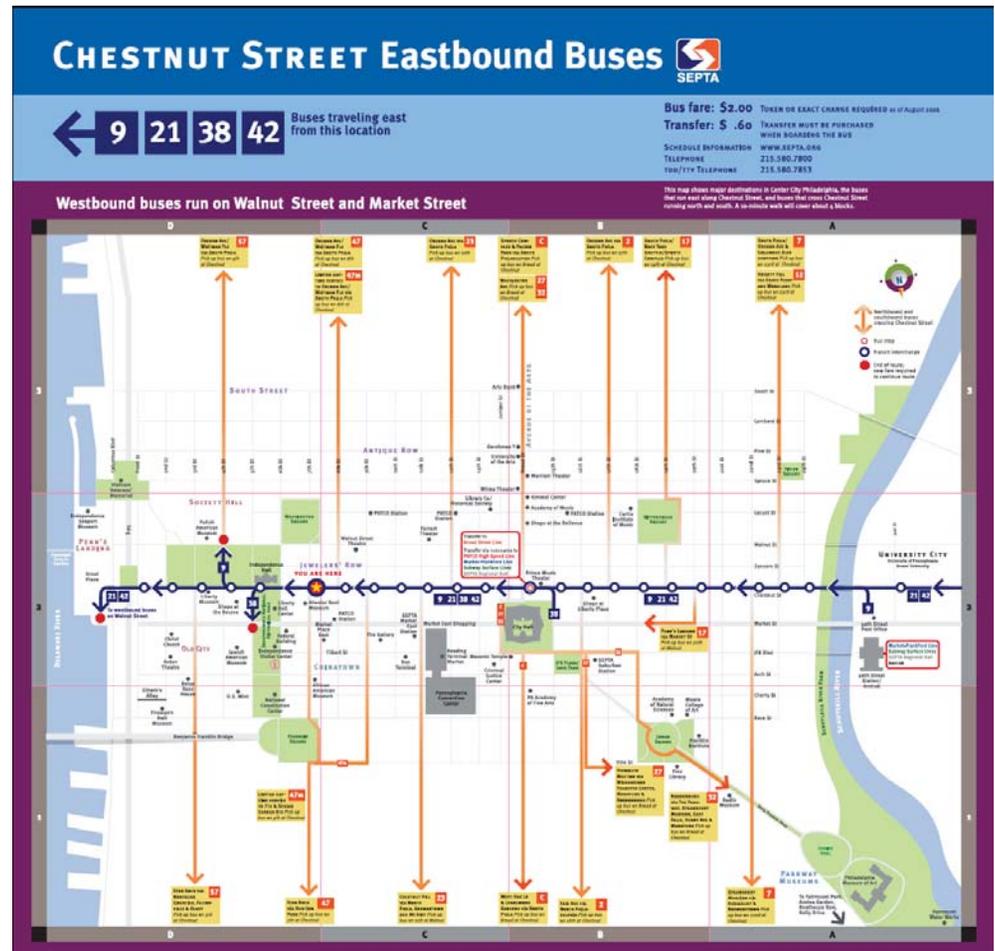
The Center City District has recently installed new maps on all east-west and Broad Street transit shelters to provide riders with information about downtown bus routes and destinations. SEPTA, PATCO and the CCD are working on a totally new graphic system for the 123 Center City entrances to the underground system. Since SEPTA has announced new increased frequencies on the Market-Frankford line, the potential for using this service for trips within Center City can significantly increase.

With support from PennDOT and the Delaware Valley Regional Planning Commission, the CCD already markets transit use to downtown employers through events in the lobbies of downtown office buildings, summertime concerts and through its Web site and business retention meetings.

SEPTA is currently working on a plan to sell tokens and passes at newsstands. But the city, SEPTA and the CCD could cooperate on a plan to create multiple, highly visible locations, like convenience and drug stores, at which tokens and day-passes are sold to attract more discretionary and impulse riders – downtown office workers who may drive to work, Center City residents who walk to work, as well as college students and tourists who do not have cars. As SEPTA develops new payment technologies, multiple means of sales and distribution should be part of the plan.

Transit information signs will soon be installed at all 123 entrances to the underground in Center City (below).

Transit shelter maps installed by the CCD (right).



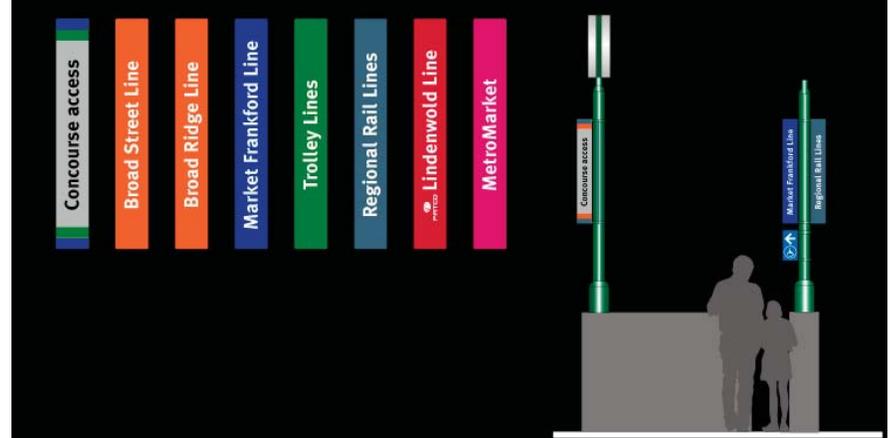
The direction you are facing is at the top of the map, and Chestnut Street buses will be moving from your right to your left.

DESTINATIONS BY TRANSIT	CULTURAL ATTRACTIONS	HISTORIC SITES	PARKS AND OPEN SPACES
RETAIL Cj Shopping Area Ck Chinatown Cx The Gallery Ca Jewelers Row Cb Market East Shopping Cd Market Place East Dd Old City Ce Reading Terminal Market Bx Shops at Liberty Place Bc Shops at the Ballroom Dc Shops at the Bourse G-03 South Street PUBLIC BUILDINGS AND OTHER Aa South Street Post Office Bc City Hall Ca Colonial Justice Center Dc Federal Building Bb Independence Visitor Center C-04 Pennsylvania Convention Center	Bx Academy of Natural Sciences B-09 Avenue of the Arts Dc African American Museum Bg Arts Bank Dc Artisan East Museum Dc Curtis Institute of Music Aa Fairmount Water Works Dc Fireman's Hall Museum Bc Franklin Institute Dc Free Library of Philadelphia Bg Gershwin Y Dc Independence Seaport Museum Dc Jewish American Museum Dc Liberty Museum Cc Library Co/Historical Society Bc Moore College of Art Dc National Constitution Center Aa Philadelphia Museum of Art Bc PA Academy of Fine Arts Dc Polish American Museum Aa Radin Museum Bc University of the Arts Dc U.S. Mint	Aa Balconess Row Dc Betsy Ross House Dc Christ Church Dc Elfreth's Alley Dc Independence Hall Dc Liberty Bell Center Bc Masonic Temple D-06 Old City D-07 Society Hill D-08 Vietnam Veterans Memorial THEATERS Bc Academy of Music Dc Arden Theatre Cc Forrest Theater Bc Kimmel Center Bc Maritime Theater Dc Prince Music Theatre Bc Walnut Street Theatre Bc Wilson Theater	Aa Arden Garden Aa Fairmount Park A3 Fifer Square Dc Franklin Square D-05 Grand Plaza D-09 Independence National Historical Park Bc JFK Plaza/Love Park Aa Kelly Drive Bc Legion Square D-02 Penn's Landing Bc Rittenhouse Square A-03 Schuylkill River Park Bc Washington Square TRANSIT Aa 30th Street Station/Amtrak Cc Bus Terminal Dc Passenger Ferry to/Iron Carriage RI B-04 PATCO Station Bc SEPTA Suburban Station Cc SEPTA Market East Station

FINDING DESTINATIONS ON FOOT
Follow these signs and maps to find your way around Philadelphia on foot.

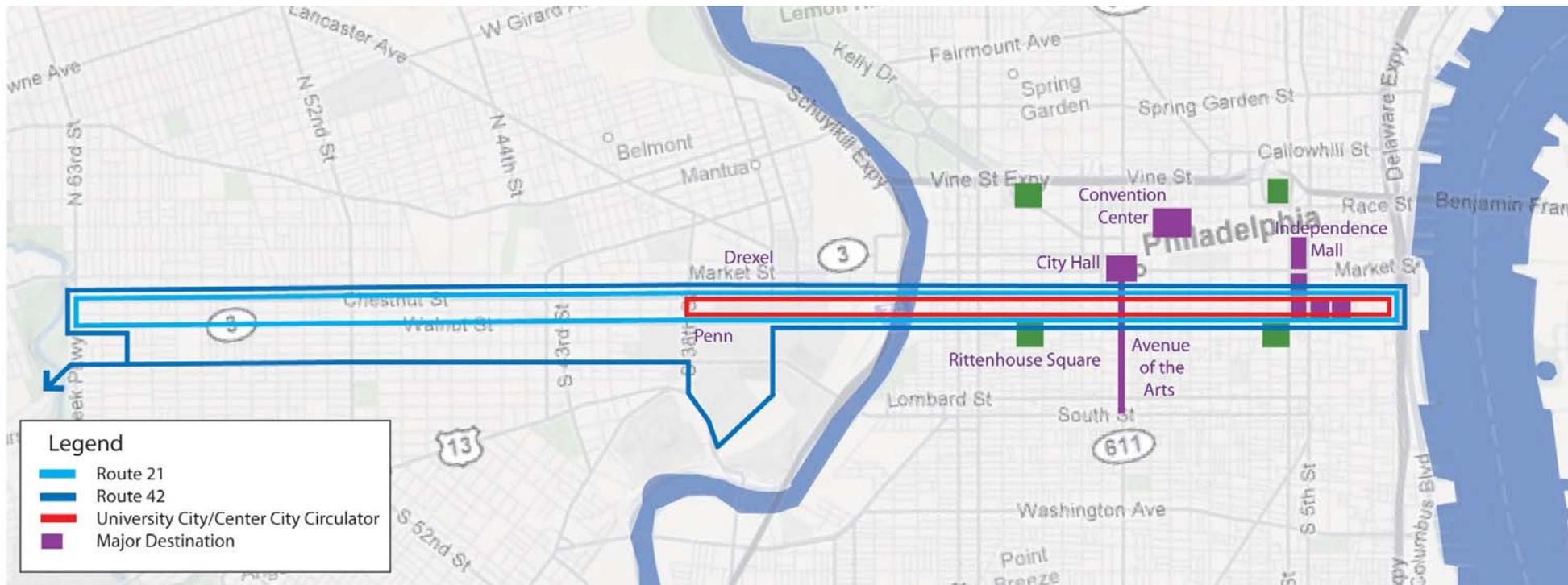
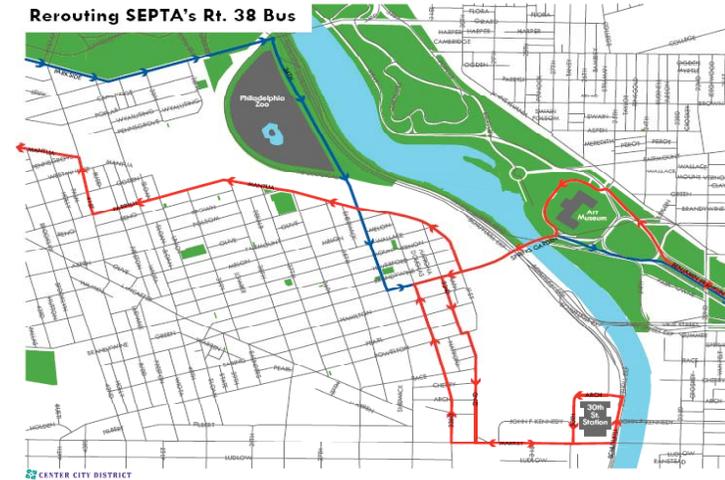
Disk maps are located in the middle of each block. Directional signs are located at corners.

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Ridel PHILADELPHIA



SEPTA could explore rebranding a share of its Route 21 and 42 buses, which run on Chestnut and Walnut streets, to better connect Center City business and visitor locations with University City. Commuter buses would continue to run to and from West Philadelphia. But during non-rush hour periods and on weekends, they could be augmented by smaller, high-frequency vehicles, similar to the LUCY buses currently operating in University City. These smaller buses, which can maneuver better on crowded streets, could be branded and wrapped with distinctive graphics. They could run with shorter headways on a shorter route between Penn's Landing and 38th Street, connecting many of Center City's shopping, dining and tourist destinations with the campuses of the University of Pennsylvania and Drexel University. These buses would accept normal SEPTA fare instruments, but by running at greater frequency, they could better serve downtown office workers seeking to traverse Center City for meetings and for quick lunchtime errands, at the same time as they serve tourists and university students.

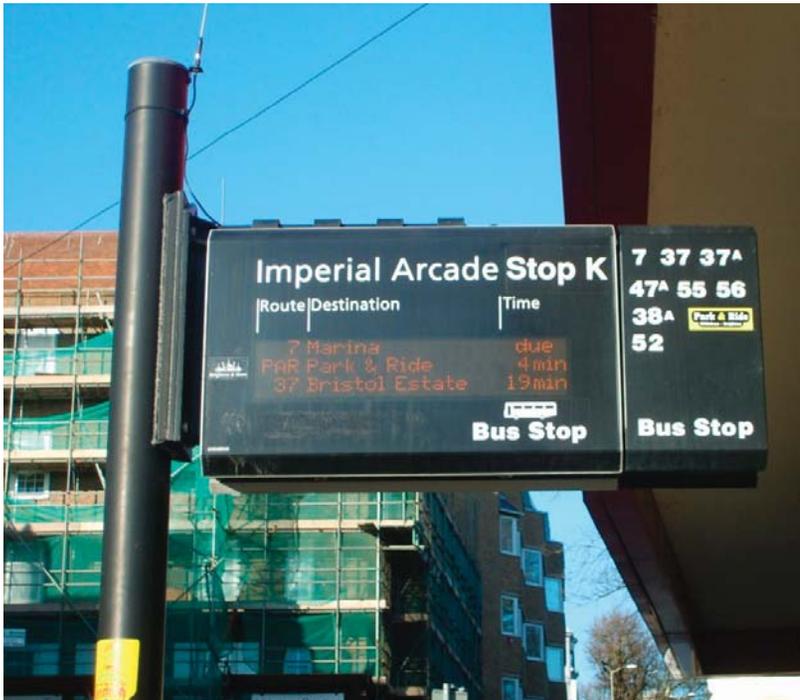
Downtown could be better connected to Benjamin Franklin Parkway attractions by making small roadway changes on the Spring Garden Street Bridge that would enable SEPTA's Route 38 bus to serve the Philadelphia Museum of Art and other Parkway institutions on both its in-bound and out-bound trips from Center City.



Real-Time Transit Information

The accurate communication of real time transit information can significantly enhance the appeal of the transit system by reducing uncertainty. Many cities have installed real time information at all bus and train stops; others have developed hand-held alternatives, or communicated transit information via cell phones, which reduces the high maintenance costs of some systems. Philadelphia should install real time information along several routes in Center City on a demonstration basis and pursue several on-line and hand-held options as well.

Real time bus stop information in Brighton, England (below) and Nuess, Germany (right).



Walnut Street
BEFORE

Bus Only Lanes

Currently Chestnut, Walnut and Market streets have delineated lanes as for buses only; but very few know this, no one is charged with communicating the policy, and no one enforces it. Like the “Don’t Block the Box” signs, they are routinely ignored. Many cities have created bus-only lanes and have marked them distinctively by making the entire lane surface red and then strictly enforcing the policy. The advantage of this approach is that it gives priority to transit, increasing the speed at which buses move across town, creating new incentives for the public to use transit. The disadvantage is that it reduces the space allocated to cars and trucks. Alternatively, the street surface could be re-striped to provide for a wider bus travel lane and narrower parking lane. The city and SEPTA should evaluate bus-only lanes, but only after all the other recommendations above are adopted and tested for a time. It is possible that this measure may not be necessary, if travel times increase significantly because of other improvements.



Walnut Street
AFTER



Multi-Space Meter Parking

Multi-space meter parking allows for the reduction of sidewalk clutter through the removal of parking meters for each individual space, the convenience of multiple payment options, enhanced security, more efficient collection and enforcement and reduced maintenance. Striping that typically delineated individual parking spaces is removed and the resulting on-street curb parking can accommodate 10-15% more vehicles, especially given the increasing number of smaller vehicles. The Parking Authority has installed these meters on a demonstration basis on 2nd Street between Lombard and South streets.

Drivers insert coins, bills or credit cards (PPA Smart Cards accepted by the end of the year) at the multi-space meter. Upon payment, drivers receive a receipt which must be placed on the vehicle's dashboard displaying how long the vehicle may be legally parked. The removal of individual parking meters however will reduce the number of places to lock bicycles, so new clustered bike racks should be added on those blocks with significant demand.

Multi-space meters also would allow the city to experiment with variable parking rates on some blocks, as exist in private parking garages – higher at periods of peak demand to facilitate turnover, lower at times of limited demand to convenience drivers. This could create more available on-street spaces when they are in greatest demand.



Multi-space parking sign and meter on 2nd street.

Advanced Parking Systems

A flexible and functional wayfinding system coupled with intelligent transportation systems for parking garages can alleviate the cruising and queuing that occur as drivers search for available parking downtown. Referred to as Advanced Parking Systems (APS), the system operates by obtaining current information about available parking spaces and presenting it to drivers through variable message signs installed on major streets.

Certain cities in Europe provide early parking information on available spaces via cell phone. APS can direct drivers in congested areas to the nearest parking garage with empty spaces and guide drivers inside of parking garages to empty spaces. As spaces fill up, the signs change and drivers are afforded the opportunity to change direction to find another parking garage with available spaces. Drivers are less likely to circle blocks looking for an available space since they are directed to garages with available space.

Center City's continuous street grid is ideally suited for such a parking wayfinding system. However, because the overwhelming number of off-street garages downtown are owned by multiple private operators there will be significant coordination and information-sharing challenges to be overcome.



Advanced parking system in San Jose, CA.

Four Way Pedestrian Crossing

Intersections at which all signals simultaneously turn red for vehicles can enable pedestrians to cross east-west/north-south and on the diagonal. This gives greater priority to pedestrians and can expedite pedestrian movement, particularly for those traveling on the diagonal. On the other hand, this will produce a longer traffic signal cycle and slow vehicular movement. Philadelphia could explore this approach on a demonstration basis. One intersection where this could be tested is at 15th and Market streets, expediting pedestrian movement from the southwest corner, where no crosswalk currently exists, directly to Dilworth Plaza and City Hall.

Bus Signal Priority

Buses and signals on Chestnut and Walnut streets could be equipped with signal priority equipment. In some cities, sensors on intersection signal heads extend the time for green signals and shorten red signals when a bus approaches. This minimizes delays for transit, creates more incentives to use transit and allows for less traffic stopping cycles. This system can also be used to allow emergency vehicles to preempt traffic signals. Given the expense of this approach, it should be considered only after other alternatives are tried.

Two-Way Traffic on West Market Street & JFK Boulevard

In its April 2007 report, *Planning for Growth*, the Center City District suggested making both West Market and JFK Boulevard two-way from 20th Street to City Hall. This could have several beneficial results: (1) it would improve access to the office district, while reducing traffic congestion and improving circulation on Market Street and JFK Boulevard; (2) it could take pressure off Walnut and Chestnut streets by providing additional cross-town routes for vehicles; (3) it could improve the appeal of these streets to retail trade; and (4) could allow more pedestrian crossing options at 15th and Market streets to Dilworth Plaza. However, a detailed traffic analysis of this proposal would need to be undertaken to insure that there are not adverse effects on adjacent blocks.



All-way pedestrian crossing: lights turn red in all directions for vehicles and allow pedestrians four-way and diagonal crossings.

Looking east on Market Street with two-way traffic.



Brown & Keener Bressi

Part Three:

A Philadelphia Department of Transportation

To implement any of the suggestions outlined above, Philadelphia needs to centralize the management of the diverse components of transportation and parking in Center City. Mayor Michael A. Nutter's commitment to re-establishing an Office of Transportation and putting an experienced professional in charge, as a deputy mayor, is an important first step.

The deputy mayor should coordinate the city's traffic and transportation policies and programs both within city government and externally with those of SEPTA, PATCO, PennDOT and other quasi-public agencies and coordinate all applications for federal and state funding for transportation. This deputy mayor should have staff and a budget to research and routinely analyze existing conditions and challenges. The deputy mayor should regularly convene a public-private transportation and parking oversight committee, an augmented version of what the Center City District has been convening for the last seven years through its TMA, to insure that the many private actors and businesses that rely upon and provide transportation and parking services are in continual communication and are working in partnership with the City.

Currently, responsibility for transportation management is fragmented among the Streets Department, the Police Department, the Parking Authority and SEPTA. Management responsibility for pedestrian issues is divided as well, with the Street Department, the Department of Licenses and Inspections and the Planning Commission all holding pieces of the puzzle.

An Office of Transportation existed in the Green, Goode and Rendell administrations and served as the focal point for all transportation policy in the city and as a liaison with state and federal agencies and funding sources. The purpose of the office was not to manage programs directly but to coordinate the city's transportation policies and programs with those of SEPTA, PATCO, PennDOT and other quasi public agencies.

The absence of such an office for the last eight years contributed to the growing traffic congestion problem that now threatens the vitality of Center City and caused Philadelphia to miss several federal transportation funding opportunities.

A City DOT

But cities like Baltimore, Boston, Chicago, New York City, Seattle and Washington, D.C. have gone further, formally creating departments of transportation (DOTs). These departments develop and implement transportation policy for all modes of travel. They ensure the safe and efficient movement of people and goods and coordination between various city departments. Typically, highways, streets, alleys, sidewalks, bridges, permits, inspections, bicycle lanes, medians, streetscapes, signage and gateways fall under the purview of city DOTs. Programs such as congestion

management, intersection control, traffic signalization, goods movement and parking management are handled by a DOT. Many of these organizations are staffed with transportation professionals and analysts who systematically survey all conditions that influence traffic flow and mobility. Several have developed sophisticated computer simulation models of traffic patterns that enable them to assess the impact of such factors as lane closings, moving of bus stops, changes in signal duration or the direction of streets, or the addition of a new parking garage. A City Charter change would be required in Philadelphia to create a formal department of transportation and it would require a change in state law to have civilians empowered to handle intersection control, as is done in cities like New York.

A Pedestrian Coordinator

The walkability of Center City is the primary characteristic that sets it apart from other downtowns. For the last 17 years, the CCD has focused on improving the cleanliness and safety of sidewalks and has installed over 2,100 pedestrian scale light fixtures, 1,200 maps and directional signs for pedestrians and transit users, planted 900 trees and managed newspaper boxes through the installation of 91 “corrals.”

But there are a series of management and regulatory issues affecting the pedestrian experience that go far beyond the authority of the CCD. Responsibility for these is divided among multiple agencies: Streets, Licenses and Inspections and the City Planning Commission. Because they compete with other priorities, pedestrian issues tend to receive lower priority in their departments. These issues include: monitoring the condition of pavements, which are the responsibility of adjacent owners; addressing the significant water ponding that occurs on many handicapped ramps; repainting crosswalks; placement of bicycle racks and transit shelters and licensing and monitoring newsstands, honor boxes, commercial trash dumpsters and sidewalk cafes. Many cities consolidate these functions under a pedestrian coordinator who works in their department of transportation.

A Bicycle Coordinator

Many other major cities have created the position of bicycle coordinator to insure that bikes are taken fully into account in transportation planning. A bicycle coordinator could immediately oversee the planning and placement of additional bicycle racks, negotiate with private parking operators, develop a communications campaign about bicycle rules and regulations and represent the bicyclist perspective in all policy and planning discussions about the allocation of scarce on-street space. Once these basic policy decisions are made, the bicycle coordinator could pursue federal, state and foundation funding sources and oversee implementation of any new bicycle routes and lanes within Center City.

The reopening of the Office of Transportation is an important first step in better coordinating all traffic, bicycle and pedestrian issues in Center City. But to insure long-term success, Philadelphia would be best served by looking at and learning from models of transportation management in other major cities.

APPENDIX A: Advisory Committee Members

The Center City District and Central Philadelphia Transportation Management Association (CPTMA) received the benefit of the involvement and perspectives of a diverse advisory committee. Seventeen different organizations, agencies and individuals provided comments on a draft report. Most of these comments were integrated into the final report. In some situations, where there were unresolved disagreements, the text presents the positives and negatives for those recommendations. The final report represents the opinions of the staff of Center City District and CPTMA and not necessarily those of all the individuals listed below. But we very much appreciate the time and assistance they provided.

Lt. Michael Anderson, Philadelphia Police Department
Capt. Dennis Cullen, Philadelphia Police Department
Charles Denny, Philadelphia Streets Department
John Derham, Cushman & Wakefield
Richard Dickson, Philadelphia Parking Authority
Kevin Donahue, Thomas Jefferson University
Alex Doty, Bicycle Coalition of Greater Philadelphia
Ben Ginsberg, Center City District
Nancy Goldenberg, Center City District
Ed Grose, Greater Philadelphia Hotel Association
William Hughes, Center City District
Mike Kates, Philadelphia Trolley Works
Rosalie Leonard, Council President Verna's Office
Paul Levy, Center City District
Eric Marzluf, Center City Proprietor's Association
John McGee, SEPTA
Zoe Neaderland, Delaware Valley Regional Planning Commission
Marita Osborn, BOMA
William Parshall, Temple University – Center City
Wanda Paul, Philadelphia Convention & Visitors Bureau
Karen Randal, Philadelphia Commerce Department
Insp. LB Rebstock, Philadelphia Police Department
Erika Rush, Urban Engineers
Debby Schaaf, Philadelphia City Planning Commission
Vivian Seltzer, Center City Residents Association
Joan Silverstein, Center City Proprietor's Association
Larry Steinberg, Michael Salove Company
Sarah Clark Stuart, Bicycle Coalition of Greater Philadelphia
Robert Zuritsky, Parkway Corporation





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