Final Report
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District of Columbia Motor Carrier Management and Threat Assessment Study

d.
DISTRICT DEPARTMENT OF TRANSPORTATION

U.S. Department of Transportation
Research and Special Projects Administration
Volpe National Transportation Systems Center

EXECUTIVE SUMMARY

ES.1 BACKGROUND

The District of Columbia Motor Carrier Management and Threat Assessment Study provides a detailed analysis of current motor carrier activity in the District of Columbia (the District), an outline of the truck traffic concerns of stakeholder groups, and a framework for the creation of a comprehensive motor carrier management program. The District Department of Transportation (DDOT) has commissioned the U.S. Department of Transportation's (DOT) Volpe National Transportation Systems Center (Volpe) in Cambridge, Massachusetts, to conduct the study.

Through the implementation of recommendations from this study, DDOT hopes to:

- Reduce truck traffic on residential streets
- Reduce congestion due to truck traffic and truck loading/unloading activities
- Provide better information and services to truck operators
- Address truck-related security concerns

This study does not address individual location-specific problems. Rather, it takes a larger view of truck issues and recommends an overall truck management program that can be used to address specific complaints and problem locations.

ES.2 METHODOLOGY AND ORGANIZATION

Volpe conducted extensive research on motor carrier operations in the District. For truck counts, this study uses the best available existing data. Research included gathering and analyzing existing data on truck traffic in the District, collecting and analyzing new data for a pilot truck parking study, collecting qualitative data through visual inspections of key locations and neighborhoods, and interviewing relevant stakeholders representing businesses, residents, government agencies, public safety and security agencies, and truck owners and operators. In addition, Volpe studied successful truck management and security practices in other cities in the United States, Canada, and Europe.

The results of this research are presented in this study, divided into sections as follows:

- An analysis of existing trucking conditions in the District, including traffic volumes, crash data, truck restrictions, and important de facto truck routes.
- Research on successful strategies for motor carrier management, based on the experiences of other cities in the United States, Canada, and Europe.
- A review of the needs and concerns of businesses and truck owners and operators.
- A review of community concerns including an anecdotal overview of neighborhood-level truck issues.
- A review of the concerns of government agencies at various levels, including administrations within DDOT, other District government agencies, and Federal Government agencies.
- An analysis of security issues relating to truck traffic, focusing on potential threats posed by large trucks and on counter-terrorism strategies.

- A pilot truck parking study intended to better understand the nature and extent of truck parking problems.
- Recommendations for the creation of a truck management program for the District. The two most significant recommendations are the creation of a Motor Carrier Office within DDOT that will serve as a one-stop-shop for all truck-related issues, and the implementation of new traffic regulations designed to:
  - keep the largest trucks on main arterials,
  - keep all trucks off residential streets unless necessary to reach the truck's destination, and
  - keep unauthorized trucks out of highly congested and high risk security areas.

ES.3 EXISTING CONDITIONS

Traffic Conditions

Trucks constitute about 5 percent of total vehicle traffic in the District. This is small compared to the 10-15 percent of traffic represented by trucks in most major cities in the United States. Truck traffic bound for the District originates primarily in Maryland east of the District. Many trucks enter the District via Georgia and New York Avenues, where the majority of industrial activity and goods warehousing is concentrated. These two streets carry high volumes of truck traffic. Trucks constitute approximately 15 percent of traffic on Georgia Avenue and about 12 percent of traffic on New York Avenue.

Small trucks such as courier vans and pickup trucks dominate truck traffic in the District. Almost 90 percent of the truck traffic in the downtown area consists of these smaller trucks. The most significant problem with these smaller vehicles is the lack of parking spaces for loading and unloading. Large tractor-trailers constitute approximately 10 percent of truck traffic on the corridors with significant truck traffic. They constitute only about 5 percent of truck traffic in the downtown area.

With its current development boom, construction-related truck traffic has become an increasing concern for city residents. Construction-related vehicles frequently have to travel through residential neighborhoods to get to and from construction sites, creating air and noise pollution and vibrations on these streets, disturbing their residents.

Much of the truck traffic operating within the boundaries of the District comes in from Maryland and Virginia, destined for transfer points in the city. Many of these goods are ultimately delivered to businesses in the downtown area. While there are no officially designated truck routes in the city, there are many de facto truck routes that drivers prefer because of roadway geometry, traffic conditions, and location relative to trip origins and destinations. Passenger vehicles are also heavy users of the de facto truck routes, leading to congestion for both passenger vehicles and trucks.

DDOT has enacted truck restrictions in the District based primarily on complaints from residents about too much truck traffic on their streets. These restrictions alleviate problems in specific locations. However, they have also created a patchwork of restrictions around which trucks must maneuver. Furthermore, there is a set of roadways that cross the borders with Maryland and Virginia for which differing truck restrictions

exist on either side. These "border mismatches" feed in to the already unsystematic set of truck restrictions.

Parking Conditions

The lack of parking spaces for truck loading and unloading is a consistent theme throughout this study. To better understand this problem, Volpe conducted a pilot parking study in the downtown area. Volpe observed truck parking behavior and recorded such things as the total number of truck parking violations, time spent loading or unloading trucks, time of day of truck arrival, and existing parking regulations in the area.

One of the primary findings of this pilot study was that the times of day that parking spaces are reserved for loading zones only—usually during the peak periods—does not coincide with the highest demand for loading and unloading spaces. The information from this pilot study can be used to create improved parking policy in the pilot study area and in other parts of the city.

ES.4 SUCCESSFUL PRACTICES

Volpe staff researched truck management practices from other cities to inform truck management recommendations for the District. While no single location offers an example of a holistic truck management program, each location has developed strengths in particular areas such as congestion alleviation, curbside management, and truck routing. An analysis of the 11 case studies generated the following themes as important to proper truck management:

- Education and outreach
- Enforcement
- Innovation and technology
- Interagency coordination
- Investments in infrastructure
- Public-private partnerships
- Regional cooperation
- Regulations and incentives

ES.5 INDUSTRY STAKEHOLDER ANALYSIS

To understand the needs of District truck operators and their customers, Volpe interviewed representatives from 20 truck-related businesses and organizations, including truck operators, recipients of truck deliveries, and industry interest group representatives. Interviewees were promised anonymity in exchange for candid responses. Following is a list of the types of industry organizations that participated in this study:

- Business Improvement Districts
- Chamber of Commerce
- Conference facilities
- Construction companies
- Department stores

- Food and liquor distributors
- Grocery stores
- Linen services
- Parcel and overnight delivery services
- Restaurants
- Trade groups
- Utility companies

These interviews focused on the truck-related problems that businesses and truck operators encounter in the District. Interviewees cited the following concerns:

- Lack of loading zones and parking spaces
- Truck restrictions that affect travel routes
- Traffic congestion in the District and in the surrounding metropolitan area
- Safety of drivers, vehicles, and freight from petty crime
- Security-related closures and restrictions around the U.S. Capitol and White House
- Poor roadway conditions and signage on District roads, particularly New York Avenue and Interstate 295
- Confusion over rules and restrictions

ES.6 COMMUNITY AND INSTITUTIONAL STAKEHOLDER ANALYSIS

To understand the issues and concerns of residents and organizations acting on their behalf, Volpe staff interviewed employees of local, regional, and Federal Government agencies dealing with transportation, planning, land use, economic development, and public safety. They also conducted meetings with the chairpersons of Advisory Neighborhood Commissions (ANCs).and provided them with a questionnaire about truck-related issues in their area. Additionally, a DDOT planner from each of the District's eight wards accompanied Volpe on a ward "drive-through" to highlight major truck issues and locations of concern to residents. These tours were anecdotal, and were not intended to be exhaustive of all neighborhoods nor of all residents. Nonetheless, they helped identify major truck issues in residential neighborhoods and their effects on residents.

The major concerns of residents and the government organizations that represent them are:

- Double-parking/loading zone problems
- Insufficient enforcement of truck regulations
- Border restriction mismatches
- High truck traffic volumes
- Speeding
- Construction-related noise and vibration
- Noise from garbage trucks, especially during early morning hours
- Problem intersections
- Truck traffic in residential neighborhoods

- Administrative complexity of truck-related matters
- Inadequate infrastructure maintenance
- Lack of regional coordination

ES.7 SECURITY

The number of agencies involved in truck security in the District is large and diffuse. The Federal Government alone has 32 law enforcement agencies in the District. There is an advantage to having a variety of different security systems because if one system is compromised, it does not jeopardize the security in every other area. However, the tradeoff is that truck operators wanting access to sensitive areas may need to go through a variety of security procedures imposed by agencies such as the U.S. Capitol Police and the Secret Service.

Volpe sought input from a variety of these agencies to assess current truck-related security procedures and regulations, and to gain insight into policy changes that would improve security in the District without unduly affecting businesses, truck operators, employees, or residents of the affected areas.

The following security-related themes emerged from interviews with these and other stakeholders:

- Additional training is needed so that motor carrier safety enforcement personnel can better recognize security threats.
- Additional resources are needed to implement security measures.
- Agencies should investigate the use of technologies such as automatic vehicle locators and load scanners.
- Security-related closures add time and expense to deliveries.
- There is inadequate outreach to truck operators about security restrictions and, in particular, evacuation routes.
- The Federal Government and the District government—especially DDOT and the Metropolitan Police Department (MPD)—need to better coordinate security procedures related to truck traffic.

Some measures that can be explored to improve truck-related security are:

- Restricting trucks from especially sensitive areas except with special permission.
- Educating truck operators and the general public to recognize suspicious truck activity.
- Enacting "trusted driver" programs that allow only prescreened drivers in sensitive areas.
- Various Intelligent Transportation Systems/Commercial Vehicle Operations (ITS/CVO) technologies such as those proposed in DDOT's draft *ITS/CVO Business Plan*.
- Demonstration projects testing new technologies for identifying and screening commercial vehicles.
- Creating zones with different security measures depending on the attractiveness of targets to terrorists and vulnerabilities within the zone.

ES.8 RECOMMENDATIONS

This study makes two major recommendations:

- Create a single, exclusive office in DDOT to:
  - coordinate all motor carrier transactions within the District,
  - be the single point of contact for stakeholders—residents, businesses, truck operators, and others—with transactions or concerns related to motor carriers, and
  - provide expertise to other government agencies regarding trucking in the city.
- Develop a set of truck routes to:
  - keep unnecessary truck traffic off residential streets,
  - ensure that trucks use only roadways with adequate geometry and pavement condition to accommodate large and heavy vehicles, and
  - improve security by barring large trucks from sensitive areas of the city, especially around the National Mall.

The proposed truck route system would have three categories of roadways:

- *Preferred truck routes* are major arterials with high truck traffic, near major truck destinations such as transfer centers, and that provide adequate geometry to accommodate trucks. Trucks up to 80,000 pounds would be allowed on these roadways at all times of the day, with the possibility of issuing special permits for overweight or oversize vehicles.
- *Restricted roadways* are located in the area surrounding the U.S. Capitol and the White House. In addition to being an area with unique security concerns, this area also has severe traffic congestion and high pedestrian volumes. The restricted zone would allow trucks with 2 axles and 6 tires and smaller at all hours. Vehicles with more than 2 axles or 6 tires would be prohibited from operating in this area during the business day (7 AM to 6 PM Monday through Friday).
- *Prohibited roadways* are all other streets within the District—streets not designated as a preferred truck route and not located within the restricted zone. Trucks would be banned from these streets unless use of the roadway is necessary for the truck to reach its destination.

DDOT will have a streamlined permitting process that will allow trucks to operate on restricted or prohibited roads when necessary. Permits may be issued on a long-term basis for carriers or vehicles that consistently need to operate outside the new regulations. They may also be issued for short term use, as in the case of construction vehicles, or for one-time trips.

Other recommendations include:

- Facilitate institutional transparency, coordination, and leadership
  - Form a multi-stakeholder committee to address motor carrier issues in the District.
  - Investigate becoming part of the International Fuel Tax Agreement, which would provide revenue to the District based on the number of truck-miles traveled within the city.

    - Provide education and outreach to stakeholders so that they know truck-related traffic and parking rules, and so that they know whom to contact for transactions or concerns regarding trucks.
    - Unite parking policy and enforcement under the same administrative unit within DDOT.
- Define and rationalize routes, restriction, and enforcement
    - Work with MPD and Federal Motor Carrier Safety Administration (FMCSA), District of Columbia Division to increase truck safety and weight inspections.
    - Increase fines for traffic, safety, weight, and size violations.
    - Post signs indicating truck routes and truck restrictions.
    - Create a permitting process for trucks to use otherwise restricted roadways when necessary.
    - Work with authorities in Maryland and Virginia to resolve border mismatches in truck restrictions.
- Strengthen congestion management and coordination
    - Improve communication with truck operators to inform them of traffic incidents and lane closures.
    - Require a plan for managing truck traffic related to construction, including coordination among different construction projects.
    - Coordinate with neighboring jurisdictions and with the Metropolitan Washington Council of Governments (MWCOG) to develop regional solutions to truck-related congestion problems.
- Improve curbside management
    - Improve parking enforcement.
    - Increase fines for parking violations.
    - Extend loading zone hours past the morning peak period.
    - Improve signing for parking regulations.
    - Install parking meters in loading zones to encourage turnover.
    - Encourage nighttime deliveries in non-residential areas.
    - Require all new construction to have adequate facilities for off-street truck loading and unloading.
    - Discourage the loss of alleyways.
- Improve security measures
    - Implement a series of security zones centered on the National Mall area. The tightest security would be enacted around the White House and Capitol Building. Restrictions in this "red zone" might go as far as banning trucks entirely unless the vehicle has special permission to enter. Beyond the National Mall, truck-related security measures would be changed in accordance with the number of high-value targets in the area, and to allow reasonable access to streets and facilities located in each security zone.
    - Improve the District government's oversight of hazardous materials transport in the city.
    - Consult with Federal officials on further restrictions of vehicles carrying hazardous materials in the District if they do not have a destination in the city.
    - Explore the use of technology to address truck-related security issues.

- Appoint an official within DDOT to be in charge of truck-related security issues.

Prior to implementing these and other recommendations, DDOT should consider conducting cost-benefit analyses to determine which recommendations will yield the best results for the least cost. Further, each recommendation must be studied to determine whether it can be implemented by District regulation, or through the law-making process.

1. INTRODUCTION

Trucks compose about 5 percent of traffic in Washington, DC. They carry goods to retailers, restaurants, and office buildings; they supply industry and construction facilities with the necessary raw materials; and they haul away unwanted materials. They play an important role to the activities of the city. However, they also pose important traffic management, roadway condition, and security challenges. Because of their size and weight, trucks are disproportionate in their affect on traffic and in their wear and tear on roadways. They are often unwelcome in residential areas because of nuisances like noise, exhaust and vibrations, as well as safety issues associated with speeding and other traffic violations. They also require loading and unloading facilities, which are scarce in a densely populated city like Washington, DC. Further, because of their storage capacity, they can easily stow large amounts of dangerous materials, which, because of accidents or maleficence, have the potential to compromise public safety. The combination of traffic congestion, resident complaints, the need to provide better information and services to truck operators, and security concerns has prompted the District Department of Transportation (DDOT) to commission this study for the development of a comprehensive strategy for managing truck traffic and deliveries.

DDOT asked the Volpe National Transportation Systems Center (Volpe) to conduct an analysis of existing truck traffic conditions in the District, successful truck management practices from other areas, stakeholder interests and opinions, and security concerns. Using this background information, Volpe has developed a set of recommendations for improved truck management in the District, including creating officially-designated truck routes, adding a Motor Carrier Office (MCO) within DDOT that would coordinate all motor carrier management issues, and provide better on- and off-street loading/unloading facilities through a combination of parking rule changes, parking enforcement, and zoning rules regarding off-street loading docks.

Section 2 of this report presents an analysis of existing truck traffic conditions. Section 3 provides information about successful truck management practices from 11 regions in the United States, Canada, and the United Kingdom. Following this, Sections 4 and 5 provide summaries and analyses of the concerns and opinions of stakeholders including businesses, truck operators, government agencies, and community groups. Section 6 presents background, successful practices, and recommendations regarding truck-related security issues. Section 7 presents recommendations for a system of officially designated truck routes. Section 8 provides information and recommendations from a pilot parking study of a stretch of K Street. Section 9 proposes the creation of the Motor Carrier Management Office within DDOT that would coordinate truck-related functions within the District government and serve as a one-stop-shop for addressing the truck-related concerns of businesses, truck operators, and residents. Finally, the recommendations are compiled and presented in more detail in Section 10.

2. EXISTING CONDITIONS

2.1 ANALYSIS OF EXISTING CONDITIONS

This section describes the data on existing conditions for truck travel in the District of Columbia (the District) that Volpe gathered. Because time and financial resources did not allow for traffic counts, Volpe relied exclusively on data previously collected or compiled by DDOT and other organizations. To gather existing data, Volpe contacted local and regional agencies, including the DDOT Traffic Services Administration (TSA), the Metropolitan Washington Council of Governments (MWCOG), the District of Columbia Office of Planning, the District of Columbia Department of Public Works (DPW), the Metropolitan Police Department (MPD), and the Virginia and Maryland Departments of Transportation (VDOT and MDOT). Volpe collected additional anecdotal information, such as the most important truck routes in the city, through interviews with various stakeholders including business organizations, delivery companies, and Advisory Neighborhood Commissions (ANCs).

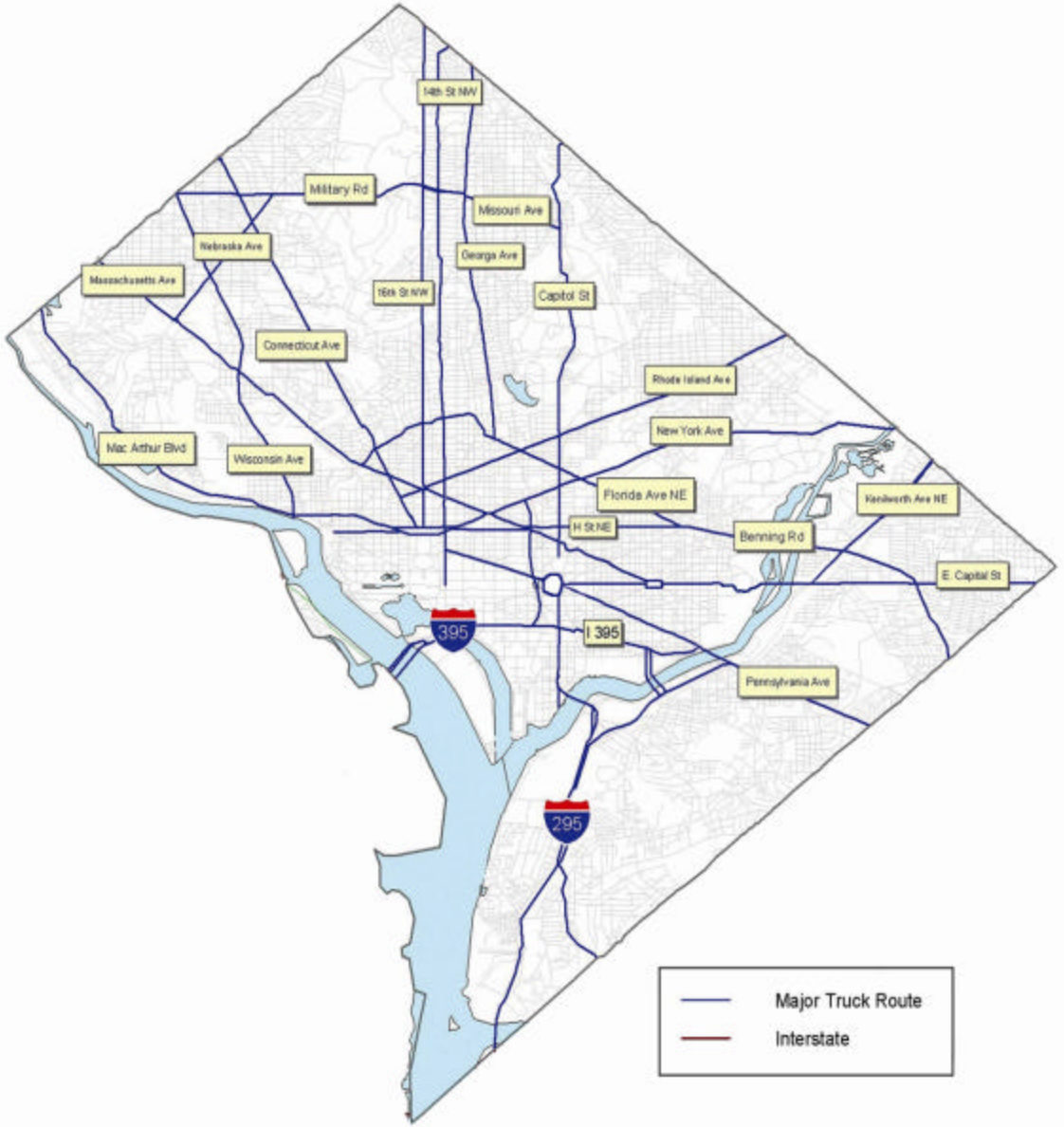
2.2 TRAFFIC CHARACTERISTICS

2.2.1 Truck Travel Patterns

While the District does not currently have designated truck routes, there are streets that have become de facto truck routes, as shown in Figure 1. The following list, based on information obtained from interviews with various stakeholders and on-site inspections, contains the major travel routes for trucks:

- 14th Street NW
- 16th Street NW
- Benning Road SE-NE—H Street NE-NW
- Connecticut Avenue NW
- Florida Avenue NW
- Georgia Avenue NW
- Interstate 295
- Interstate 395
- Kenilworth Avenue NE
- Massachusetts Avenue NW
- Military Road NW
- Missouri Avenue NW
- New York Avenue NW
- North Capitol Street NE-NW
- Pennsylvania Avenue SE-NW
- Rhode Island Avenue NE-NW
- South Capitol Street SE
- Key Bridge
- Whitehurst Freeway
- Macarthur Boulevard
- Wisconsin Avenue NW

Figure 1. Main Truck Routes



Figures 2 and 3 show a sampling of the major truck trip generators in the region and in the District. While the facilities shown are a subset of all the facilities, the map gives an idea of the areas of concentration of major facilities. Most industrial centers, food and other distribution facilities, trash transfer stations, and other major truck-trip-generating facilities are located outside the District along major highways. Within the District, facilities such as shopping malls, universities, warehouses, and major Federal facilities are concentrated near downtown and in the eastern and western parts of the District, with few facilities in the largely residential areas in the northern and southern part of the District.

Major truck operators interviewed for this study agreed that there is almost no truck traffic in the District that does not have its origin or destination within the District; that is, there is almost no truck through-traffic. The major points of origin for truck traffic are warehouses located in Maryland and Virginia. Much of the large-truck traffic entering the District is destined for transfer points located along the New York Avenue corridor. Many of these goods are loaded into smaller trucks and delivered to businesses in the downtown area.

2.2.2 Traffic Count Data

DDOT regularly collects Highway Performance Monitoring System (HPMS) traffic count data as required by the Federal Highway Administration (FHWA). These data consist of yearly average annual weekday traffic counts at selected locations. Figure 4 shows the trend in traffic volume in the District aggregated by year between 1995 and 2000. Not surprisingly, the figure shows that traffic in the District is increasing.

Figure 4. Traffic Trends in the District, 1995-2000

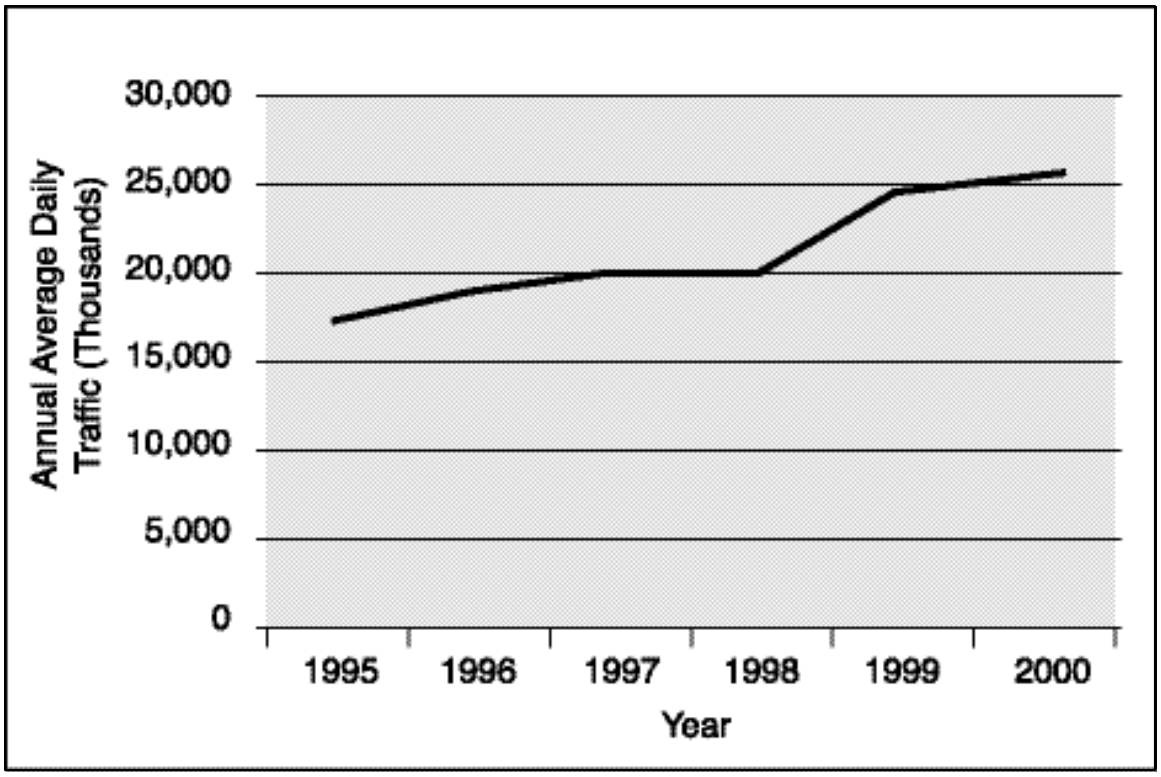


Figure 2. Major Truck Trip Generators in the Greater Washington DC Region

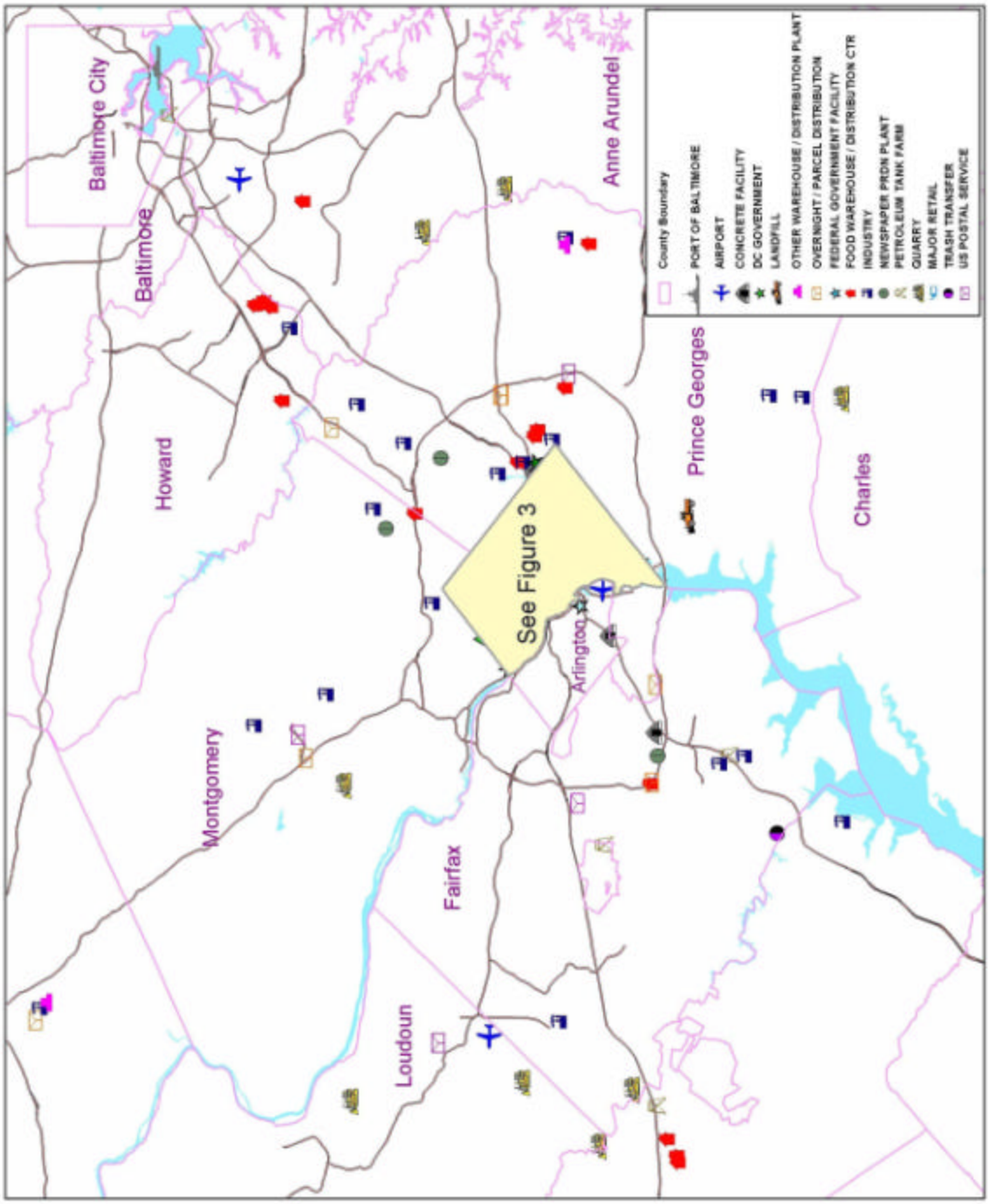
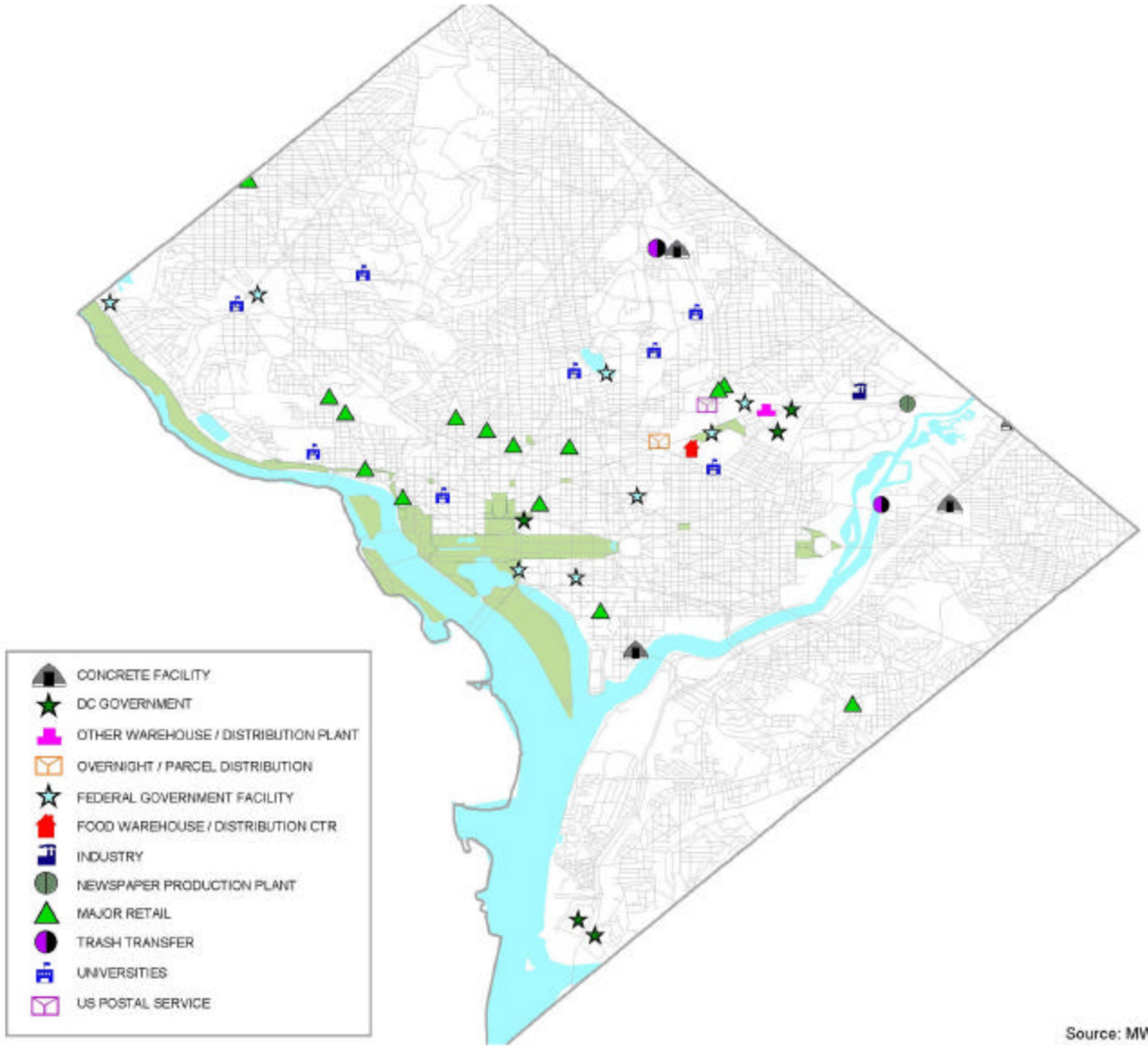


Figure 3. Major Truck Trip Generators in the District



Source: MWCOG

While these data show the general trend of traffic in the District, this study required more detailed traffic data to generate traffic forecasts. Of about 1800 traffic counts available from DDOT (including counts from permanent counters, portable machine counters, manual counts, upgraded counts, and estimates), only about 600 locations had volumes recorded for all years between 1995 and 1999. Analysis of these data showed a decrease in traffic volume during the late 1990s. Since a decrease in traffic volume is counter to expectations and not consistent with the HPMS data above, Volpe, in consultation with DDOT, decided that the available data were not reliable and comprehensive enough to use for forecasts of truck volumes.[1] However, a limited number of manual counts from DDOT and cordon line truck counts from the Metropolitan Washington Council of Governments (MWCOG) and VDOT were available and usable for other, less comprehensive analyses presented at various points throughout this report. DDOT is currently working with a consultant to re-engineer its traffic monitoring system and improve the quality of data collection and reporting.

Volpe obtained information about vehicle characteristics and traffic composition from DDOT manual traffic counts and counts available from the VDOT website for border locations. These counts categorize vehicles into 13 classes, shown in Table 1. Note that classes 11, 12, and 13 trucks (double-trailer vehicles) are not legal in the District without a special permit.

2.3 TRUCK TRAFFIC IN THE DISTRICT OF COLUMBIA

Truck traffic in the District is analyzed in two parts: (1) the regional context, to understand the origins and destinations of truck traffic, and (2) the traffic conditions within the District itself. These two contexts are discussed in the following sections.

2.3.1 Inbound and Outbound Truck Traffic

Two sources of data were used to assess the number of inbound and outbound trucks in the District: MWCOG's 2003 DC City Line Cordon Count, which counted inbound and outbound vehicles at various locations along the District boundary. and DDOT TSA's manual counts.

The MWCOG data in Figure 5 show truck volumes at various locations inbound between 5 AM and 10 AM and outbound between 3 PM and 8 PM. Note that these counts are not comprehensive. They do not include midday or nighttime counts; nor do they include data for the non-peak direction. Therefore, inbound and outbound trips are not equal. These data take into account trucks with 2 axles, 4 tires and larger.

Figure 5 shows that the majority of trucks entering the District are smaller vehicles traveling inbound from 5 AM to 10 AM. The highest volumes are found on New York Avenue, Kenilworth Avenue, and Interstate 395. Roads with the highest percentage of large trucks include Pennsylvania Avenue, the Anacostia Freeway, and Interstate 395.

[1] This meta-analysis may have yielded suspect results because of faulty counting equipment or because of methodological differences among the various types of traffic counts agglomerated in the analysis.

Table 1. FHWA Vehicle Classification Scheme

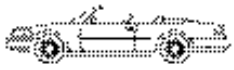
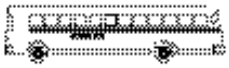
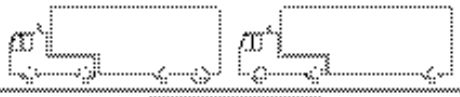
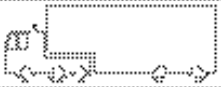
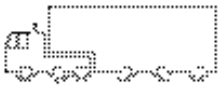
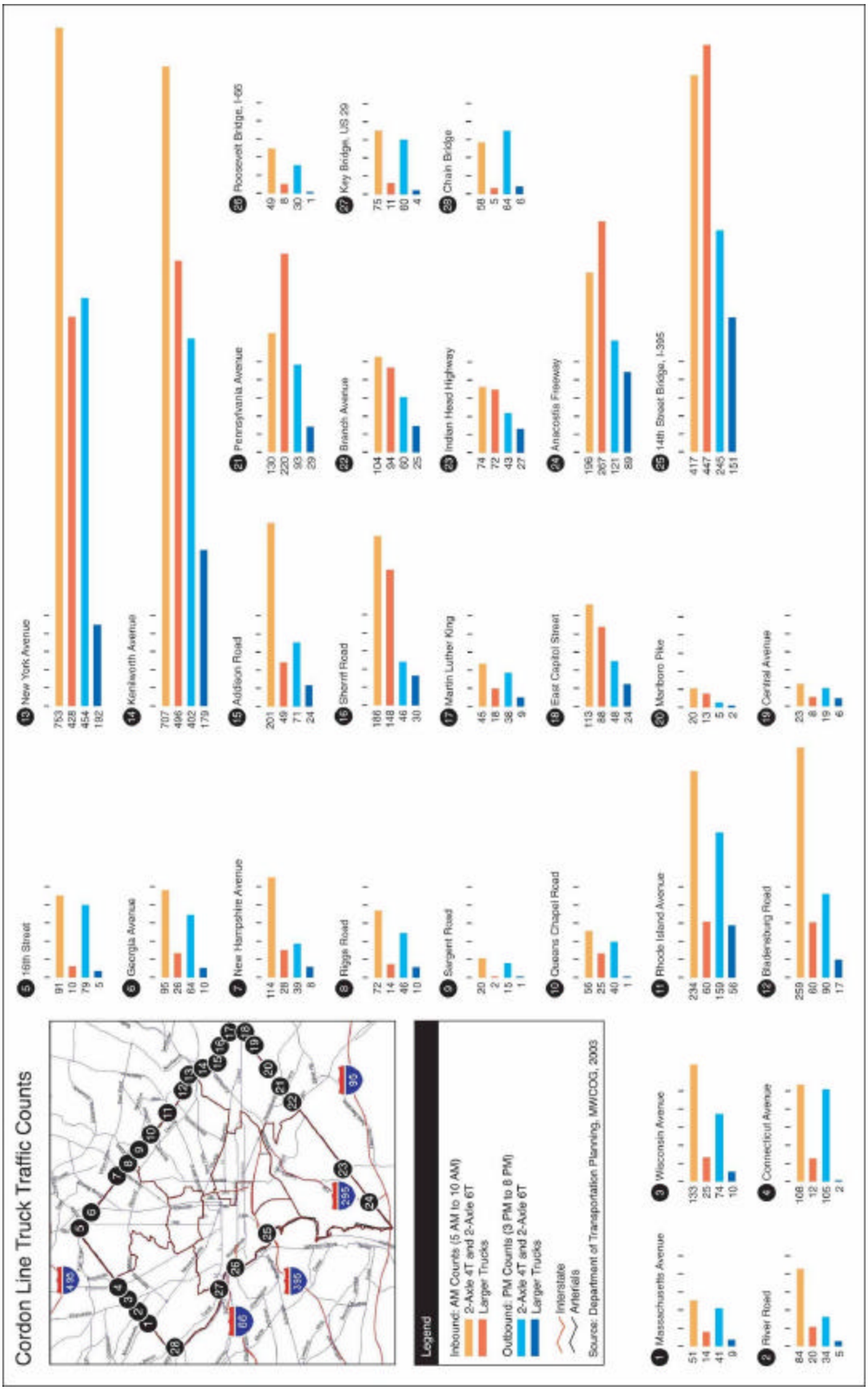
Class No.	Vehicle Description	Picture
1	Motorcycle	
2	Passenger Cars	
3	Other two-axle, four-tire, single-unit vehicles	
4	Buses	
5	Two-axle, six-tire, single-unit trucks	
6	Three-axle, single-unit trucks	
7	Four-or-more-axle, single-unit trucks	
8	Four-or-less-axle, single-trailer trucks	
9	Five-axle, single-trailer trucks	
10	Six-or-more-axle, single-trailer trucks	
11	Five-or-fewer-axle, multi-trailer trucks	
12	Six-axle, multi-trailer trucks	
13	Seven-or-more-axle, multi-trailer trucks	

Figure 5. MWCOG's 2003 District of Columbia City Line Cordon Count



DDOT provided manual counts for several locations in the District. For this study, Volpe picked count locations close to the District border in order to analyze inbound and outbound truck trips. Consultant DMJM Harris performed the manual counts for 8, 10, or 12 hours and then extrapolated 24-hour estimates from these counts. Table 2 shows the traffic composition in selected locations near the District borders based on these data. New York Avenue, Georgia Avenue, Kenilworth Avenue, and Suitland Parkway show the highest absolute volumes of truck traffic. Georgia Avenue and Piney Branch Road[2] have the greatest percentages of truck traffic among all the locations for which data are available: about 19 percent and 12 percent inbound and 15 percent and 12 percent outbound, respectively.

Table 2. Traffic Composition in Washington, DC: Inbound and Outbound

Location	Inbound			Outbound		
	Total Vehicles	Trucks	Percentage Trucks	Total Vehicles	Trucks	Percentage Trucks
16th St & Kalmia Rd NW	15,827	309	1.95%	14,602	396	2.71%
New York Ave & Bladensburg Rd NE	45,538	3,567	7.83%	45,007	3,485	7.74%
Georgia Ave NW (between Dahlia & Butternut St. NW)	12,060	2,235	18.53%	14,008	2,097	14.97%
Piney Brach Rd NW (between Blair Rd & Cedar St NW)	6,437	802	12.45%	6,800	801	11.78%
Connecticut & Nebraska Ave NW	18,863	859	4.55%	16,745	709	4.23%
Military & Glover Rd NW	15,877	518	3.26%	17,945	627	3.49%
Nebraska Ave & Albemarle St NW	12,715	182	1.43%	2,997	49	1.64%
Canal & Reservoir Rd NW	3,995	25	0.63%	4,798	55	1.15%
Canal Rd & Arizona Ave NW	24,647	778	3.16%	12,442	248	1.99%
Key Bridge & M St NW	23,700	482	2.03%	NA	NA	NA
Interstate 66	53,000	530	1.00%	47,000	470	1.00%
Interstate 395	107,000	270	0.25%	102,000	2,480	2.43%
Route 29 - Lee Highway	25,000	250	1.00%	NA	NA	NA
Pennsylvania & Branch Ave SE	18,748	1,072	5.72%	28,815	2,411	8.37%
Suitland Parkway & Stanton Rd SE	25,408	1,026	4.04%	26,600	1,419	5.33%

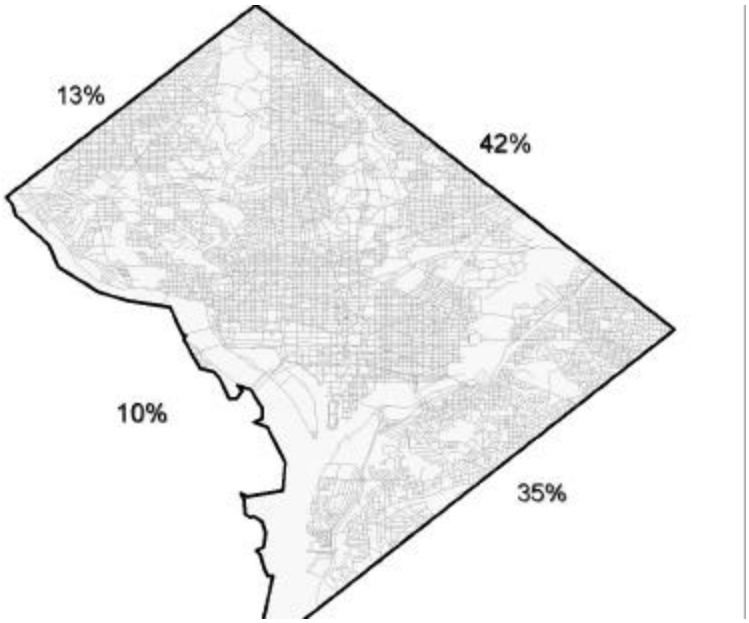
Figure 6 shows how inbound truck traffic is spread along the District border based on the percentage of total truck traffic entering the District from each of its four "sides."[3] More

[2] The high truck volumes on Piney Branch Road are probably a result of street reconstruction in the area and not a reflection of chronic high truck traffic on this roadway.

[3] In the absence of 24-hour counts on every major truck route (including Kenilworth and Rhode Island Avenues for which only AM and PM peak counts are available from MWCOG), the total number of trucks entering the District during any given period cannot be calculated. The data for Figures 6 and 7 were adjusted to account for incomplete cordon line counts. However, this introduces additional opportunity for error. The values in the figures should be taken as estimates of general trends rather than as exact percentages.

than 40 percent of trucks entering the District come in via the northeastern border with Maryland. This is expected since the Maryland suburbs to the east of the District and the eastern part of the District are home to many warehouses and transfer points, particularly along New York Avenue and in the Landover and Lanham, Maryland, areas. Additionally, truck traffic from Baltimore, New York City, and other locations on the Eastern Shore enters the District from the east. There is also substantial truck traffic from Maryland into southeast Washington.

Figure 6. Entrance Points for Inbound Truck Traffic



For outbound traffic, over 75 percent of trucks leaving the District between 3 PM and 8 PM leave via the District's eastern and southern borders with Maryland, as shown in Figure 7.

In summary, the data show that more trucks enter the District from Maryland than from Virginia. Also, inbound and outbound truck traffic is heavily concentrated to the east and south of the District.

2.3.2 Truck Traffic Composition by Size

Figures 8 and 9 show the distribution of trucks by size at the locations shown in Table 2. To simplify the analysis, FHWA classes 5-13 have been collapsed into five categories as shown in Table 3.

Figure 7. Exit Points for Outbound Truck Traffic

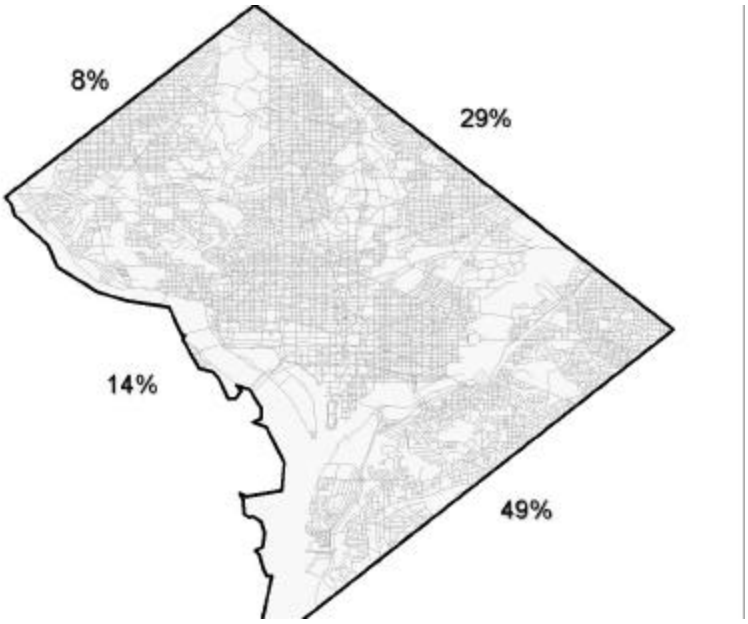


Table 3. Truck Classifications

Classification	Single/Multiple Unit	FHWA Class[4]
Light truck (2 axles, 4 tires)	Single	3
Heavy truck (2 axles, 6 tires)	Single	5
3-axle	Single	6
4-axle	Single	7
Combination tractor-trailer trucks	Multiple	8-13

Figures 8 and 9 show that the majority of trucks entering the District are light (4-tired) and heavy (6-tired) 2-axle vehicles. However, New York, Pennsylvania, and Georgia Avenues show a relatively high percentage of large trucks (3- or 4-axle single-unit vehicles, or combination vehicles) inbound. In addition to these locations, Military and Piney Branch Roads have high percentages of large trucks outbound. Georgia Avenue has the highest percentage of combination trucks, where they account for almost 40 percent of the inbound and 35 percent of the outbound truck traffic. While their overall volumes might be small, large trucks impact traffic disproportionately because of their large size and difficulty maneuvering tight curves and intersections with acute angles.

[4] Classes 1, 2, and 5 represent motorcycles, passenger cars, and buses, which were not included in this analysis.

Figure 8. Average Daily Truck Traffic Composition: Inbound

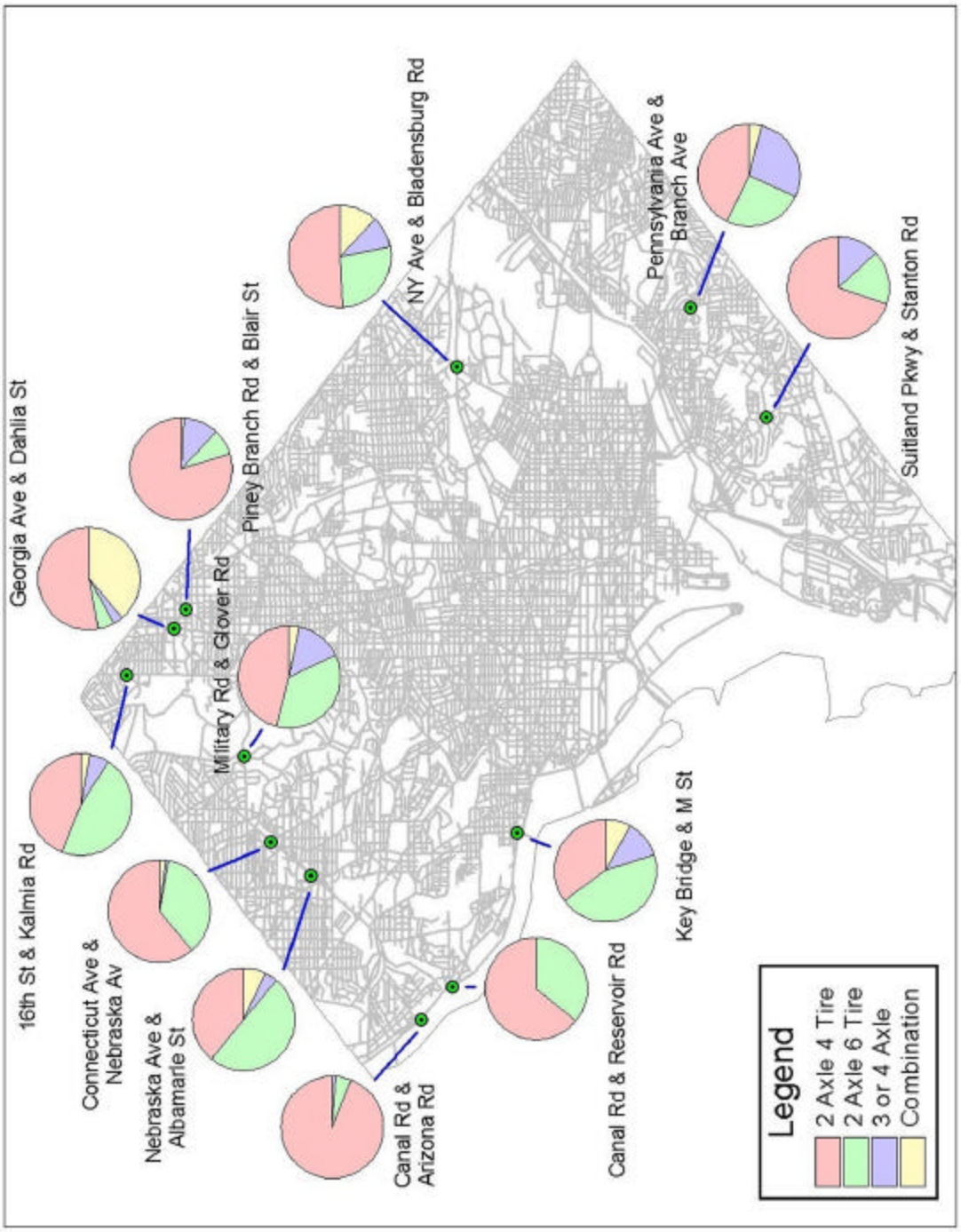
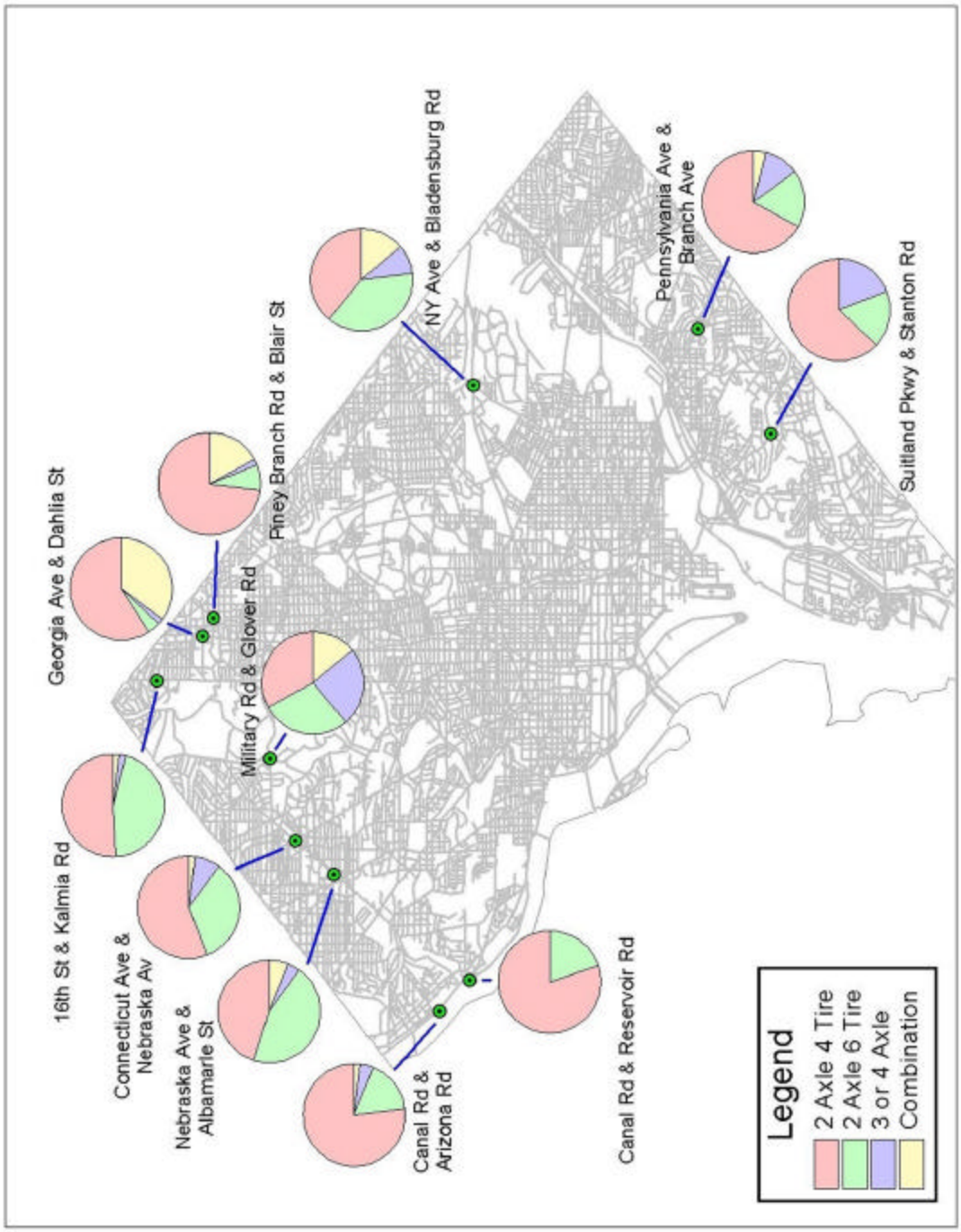


Figure 9. Average Daily Truck Traffic Composition: Outbound



Parts of the District experience heavy construction-related truck traffic, depending on the location of major construction sites at any given time. Because of the location of gravel quarries and concrete facilities, many construction-related trucks enter the District from Maryland to the east and from Virginia to the west carrying materials to construction sites.

2.3.3 Truck Traffic Composition by Weight

Automated weigh in motion (WIM) sensors at three locations in the District continuously collect truck weight data. Table 4 shows a typical count for the WIM station on New York Avenue eastbound near the Maryland border. The 2-axle, 6-tire trucks have the lowest percentage of overweight vehicles. The 4-axle, single-unit trucks—large box trucks and dump trucks—have the highest overweight percentage. While the data do not indicate the purpose of the truck trips, many of these overweight trucks are dump trucks and may be hauling materials to and from construction sites.

Table 4. WIM Data for New York Avenue Eastbound

FHWA Class	Description	Total Vehicles Counted	Average GVW	Number of Overweight Vehicles	Percentage of Overweight Vehicles
5	2-axle, 6-tire, single-unit trucks	115,960	12,402	3,563	3.3
6	3-axle, single-unit trucks	32,624	45,238	11,985	40.8
7	4-axle, single-unit trucks	4,379	71,494	3,623	92.6
8	4-axle, single-trailer trucks	4,661	32,415	507	12.1
9	5-axle, single-trailer trucks	20,466	48,301	2,626	14.5
10	6-axle, single-trailer trucks	408	66,076	134	38.7
11	5-axle multi-trailer trucks	284	39,907	12	4.6
12	6-axle, multi-trailer trucks	125	60,808	4	3.7
13	7-axle, multi-trailer trucks or larger	5	105,792	4	80

Note: GVW = Gross Vehicle Weight
Source: DDOT

2.4 TRUCK TRAFFIC IN DOWNTOWN LOCATIONS

DMJM Harris supplied truck traffic volumes for 20 downtown locations. Table 5 shows morning and afternoon peak period traffic counts at these locations, as well as the number and percentage of trucks. The counts are the sum of travel in both directions.

Table 5. Truck Traffic in Downtown Locations

Intersection	Morning Peak			Afternoon Peak		
	Vehicles	Trucks	% Trucks	Vehicles	Trucks	% Trucks
1st Street & Louisiana Avenue NW	1,438	56	3.89	1,563	60	3.84
11th & K St NW	1,716	231	13.46	2,089	74	3.54
12th Street & Pennsylvania Ave NW	2,349	119	5.07	2,403	93	3.87
14th & K St NW	2,946	270	9.16	3,502	161	4.60
16th & K St NW	4,008	132	3.29	3,580	145	4.05
17th & E St NW	2,597	121	4.66	2,653	30	1.13
18th & K St NW	2,957	237	8.01	3,319	255	7.68
20th & E St NW	4,179	102	2.44	3,994	134	3.36
24th Street & Pennsylvania Ave NW	2,116	71	3.36	1,792	22	1.23
2nd St & Constitution Ave NW	2,955	118	3.99	2,510	101	4.02
3rd St & Pennsylvania Ave NW	2,024	83	4.10	1,956	88	4.50
6th St & New York Ave NW	3,292	267	8.11	3,348	193	5.76
7th St & Pennsylvania Ave NW	2,922	398	13.62	3,565	438	12.29
7th & Q St NW	1,102	58	5.26	1,200	29	2.42
9th St & Constitution Ave NW	3,423	87	2.54	3,307	181	5.47
Connecticut Ave & L St NW	3,330	125	3.75	2,813	115	4.09
Pennsylvania & Constitution Ave NW	4,161	164	3.94	4,133	68	1.65

On average, trucks compose about 5.5 percent of traffic during the AM peak and about 4.5 percent of traffic during the PM peak. The main commercial streets, such as K Street and Pennsylvania Avenue, show higher percentages of truck traffic in the peak periods, ranging from 8 to 13 percent. Generally, the percentage of truck traffic in the downtown area is higher in the morning because mail and parcel delivery companies make deliveries to coincide with the beginning of the business day, and because perishable goods are delivered to restaurants each morning.

The truck type distributions for these downtown locations are shown in Figures 10 and 11. Not surprisingly, light 4-tire, 2-axle and heavy 6-tire, 2-axle trucks make up almost 90 percent of truck traffic during the AM and the PM peaks. These are the smaller trucks typically used by parcel delivery services and the U.S. Postal Services (USPS) in the District. Many of the larger 3- and 4-axle trucks are used for beverage deliveries.

Figure 10. Truck Traffic Composition in the District: AM Peak

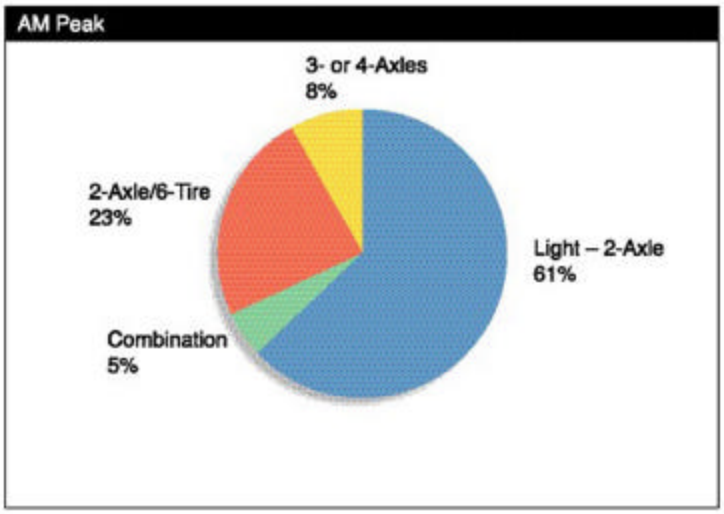
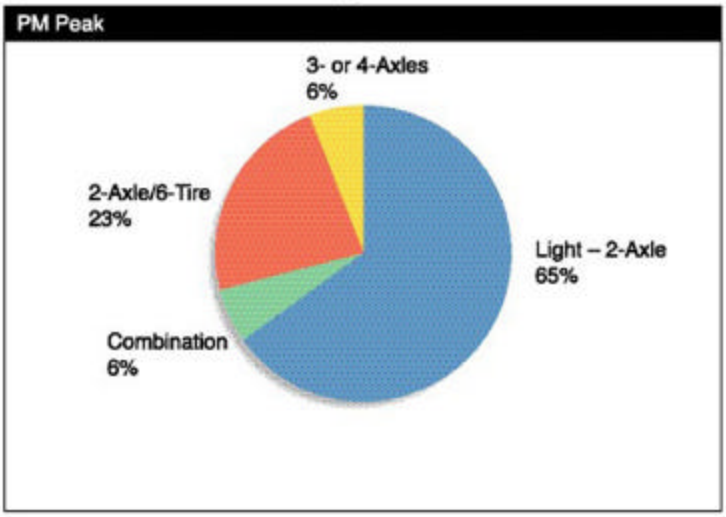


Figure 11. Truck Traffic Composition in the District: PM Peak



Figures 12 and 13 show AM and PM peak period truck type compositions for each downtown location analyzed. Locations on the outskirts of the downtown tend to have higher volumes of combination type trucks, while the central locations have mostly 2-axle

light and heavy trucks. Also, intersections that include one of the major de facto truck routes mentioned earlier tend to have higher volumes of larger trucks than non-arterial downtown streets.

2.5 TRUCK TRAFFIC FORECASTS

In the absence of comprehensive truck travel counts over a period of time to assess trends and forecast future truck traffic in the District, employment and land use data were used to model future truck trips in the District. Volpe followed the *FHWA Quick Response Freight Manual* (1996) guidelines to model truck trips in the District for a horizon year of 2015.

Table 6 shows truck trip generation rates obtained from the quick response freight manual. The values in the table represent the number of truck trips generated per day per employee or household, depending on land use. These values were applied to employment data supplied by MWCOG for each traffic analysis zone (TAZ) in the Washington, DC area for the years 2000-2015. Figures 14 and 15 show the estimated truck trips by TAZ for the years 2005 and 2015. They show that the major new truck trip generation areas will be south of the Beltway and north of the District. Along with the predicted land use changes, there will be construction-related truck traffic for new developments.

Table 6. Truck Trip Generation Rates for Commercial Vehicles

Generator	Commercial Vehicle Trip Destinations[5] per Unit per Day			
	4-Tire Vehicles	Single-Unit Trucks (6+ Tires)	Combinations	TOTAL
Employment:				
Agriculture, Mining, and Construction	1.110	0.289	0.174	1.573
Manufacturing, Transportation, Communications, Utilities, and Wholesale Trade	0.938	0.242	0.104	1.284
Retail Trade	0.888	0.253	0.065	1.206
Office and Services	0.437	0.068	0.009	0.514
Households	0.251	0.099	0.038	0.388

Source: *FHWA Quick Response Freight Manual*, 1996

[5] Consistent with the *FHWA Quick Response Freight Manual*, all trips are assumed to be round trips to and from each TAZ. This means that the number of truck trips originating in the TAZ is equal to the number of truck trips destined for the TAZ.

Figure 12. Truck Traffic Composition in Downtown Locations: AM Peak

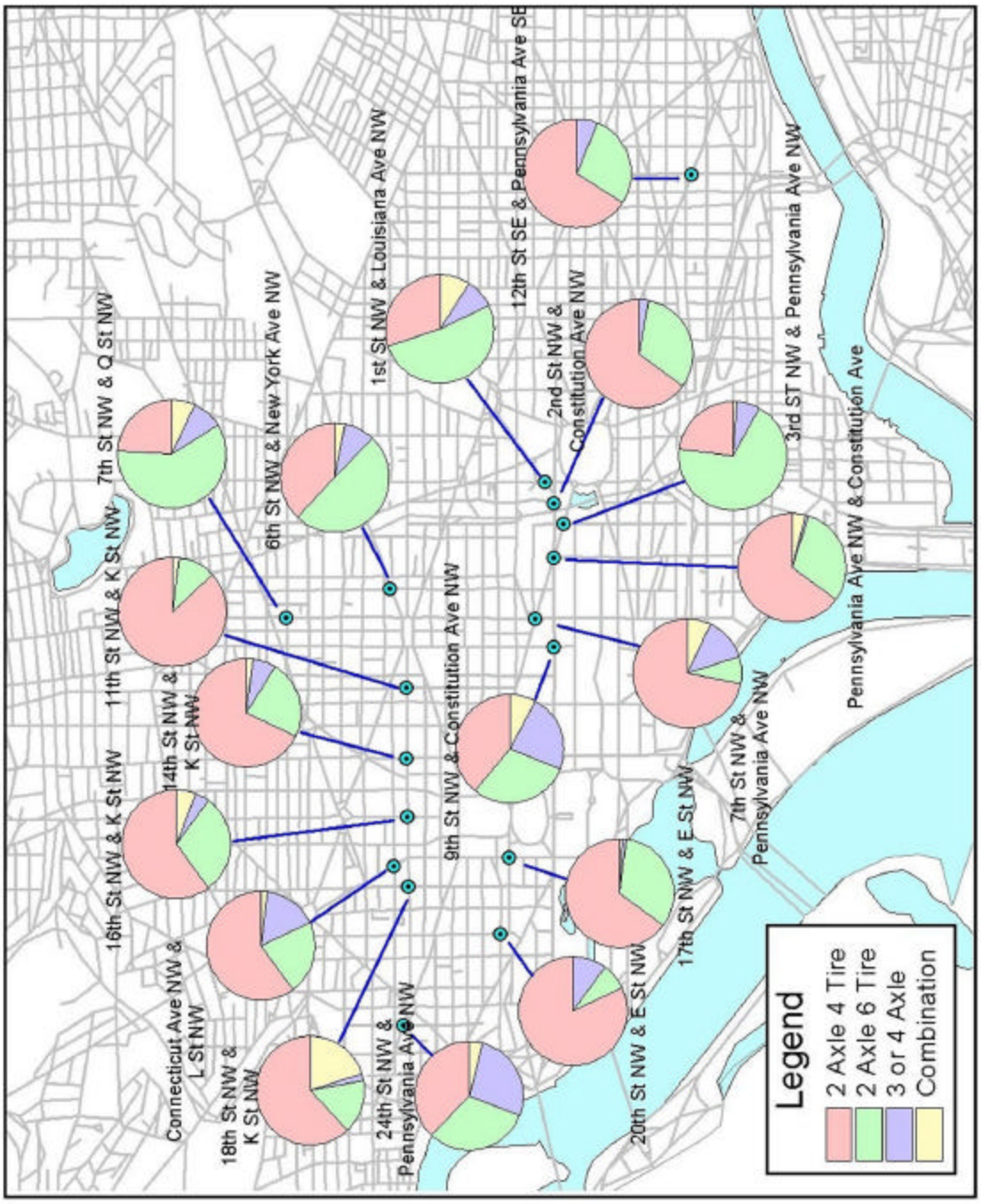


Figure 13. Truck Traffic Composition in Downtown Locations: PM Peak

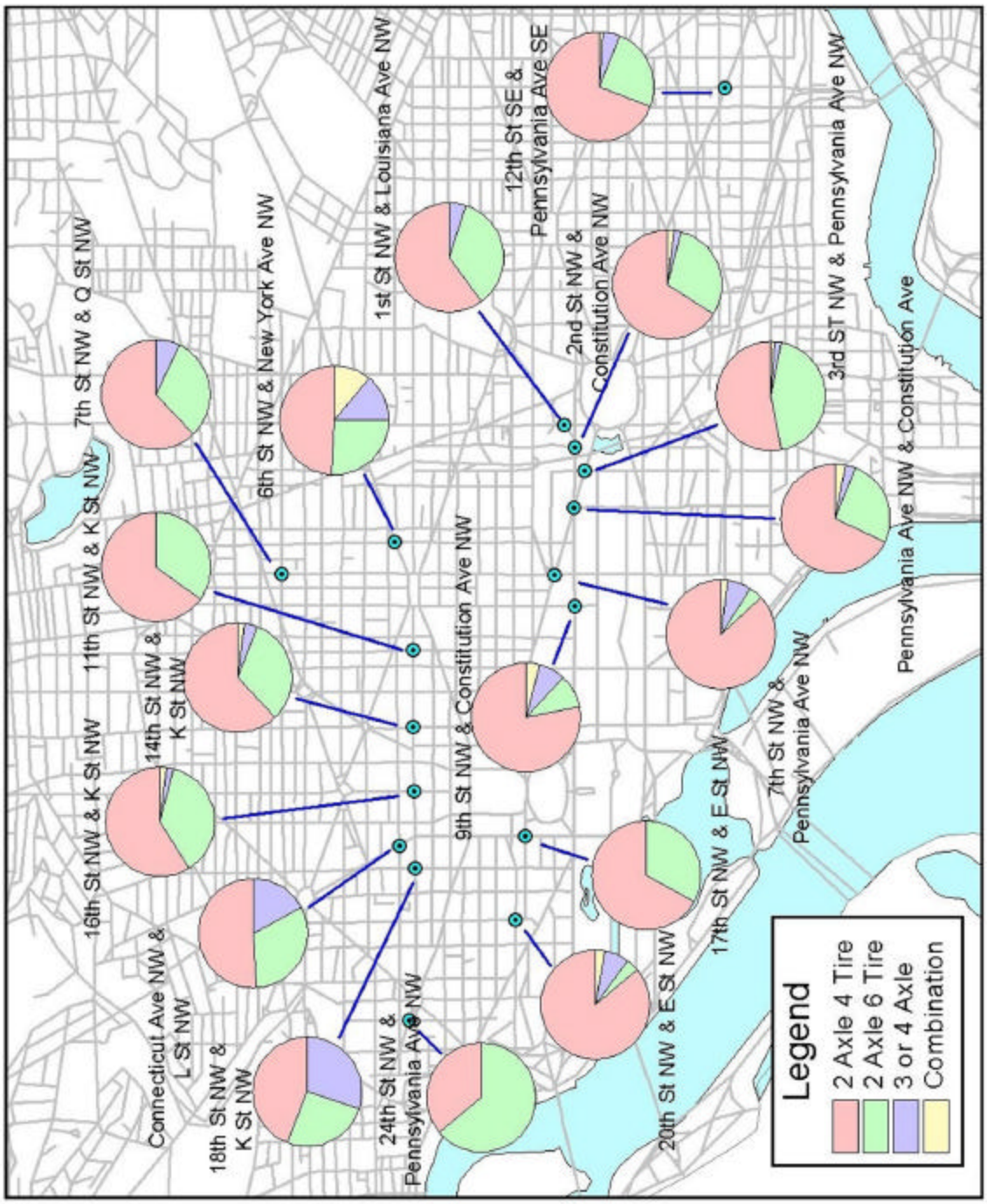


Figure 14. Estimated Truck Trip Generation by Traffic Analysis Zone, 2005

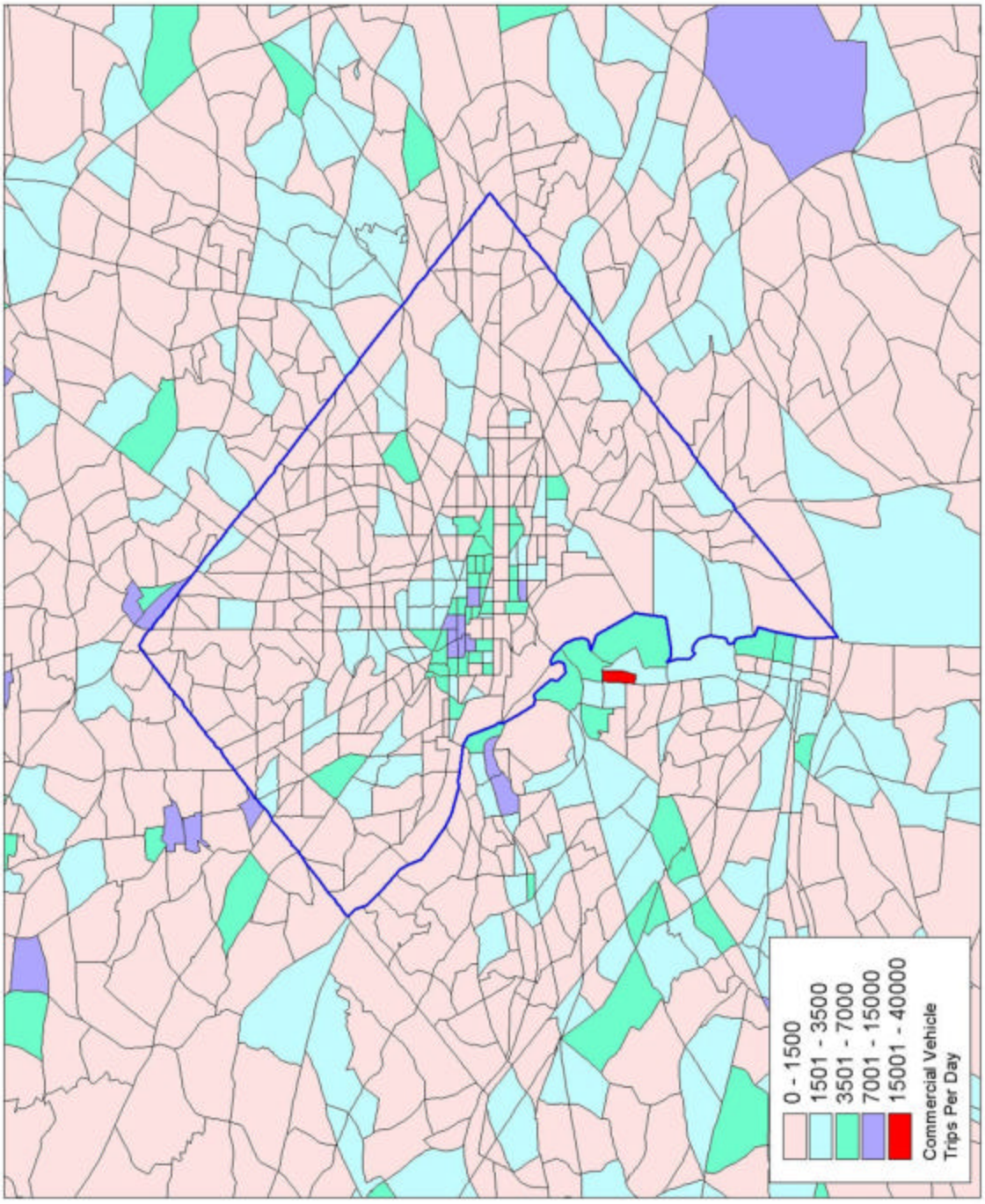
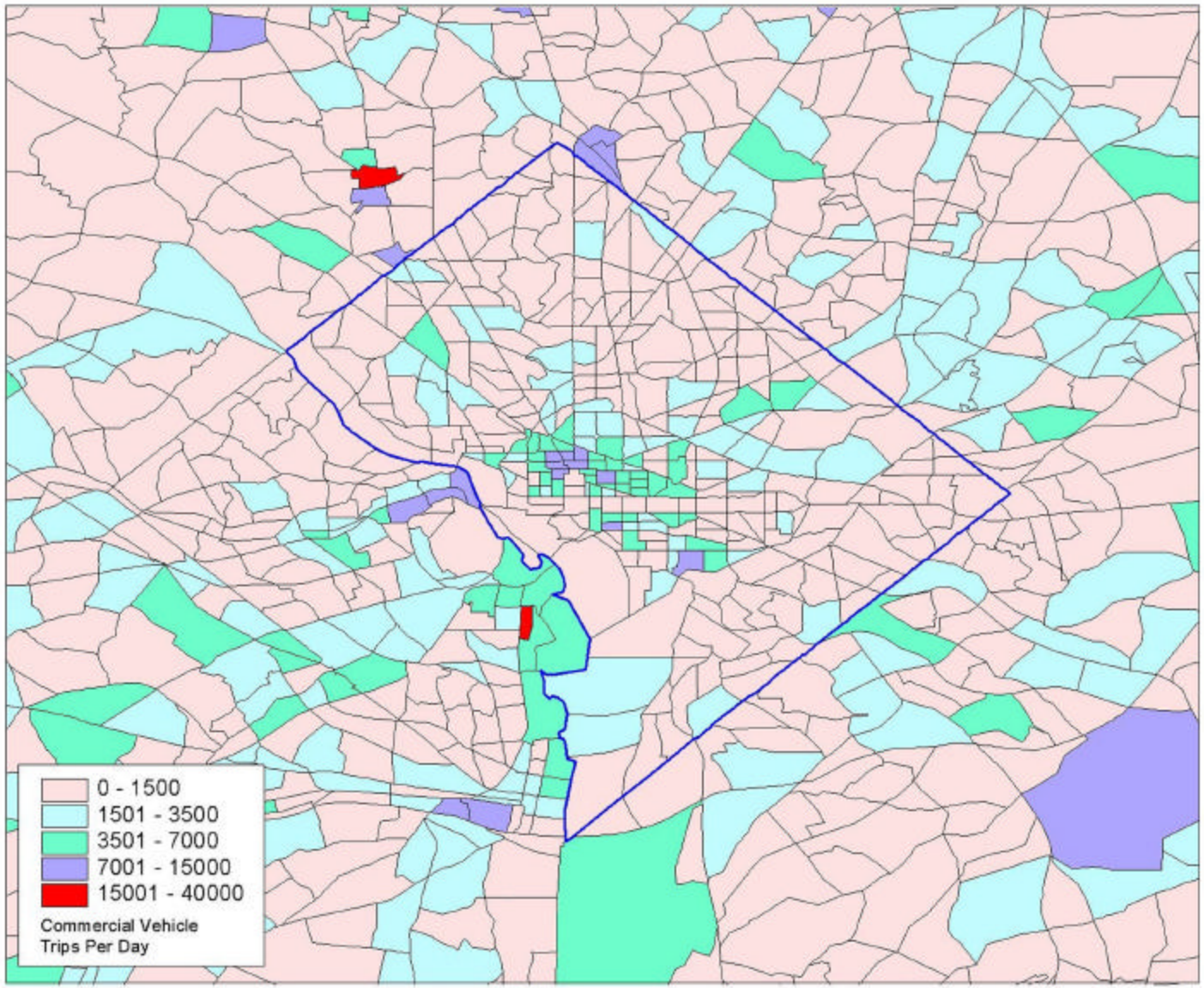


Figure 15. Estimated Truck Trip Generation by Traffic Analysis Zone, 2015



2.6 EXISTING TRUCK RESTRICTIONS

DDOT has restricted truck access on many streets in the city. Most of the restrictions are on residential streets and were enacted as a result of complaints from residents. Current truck restrictions fall into five categories:

- No through trucks
- No through trucks over 1¼ tons
- No through trucks with more than 2 axles
- No trucks or buses
- No trucks over 1¼ tons and no buses

Figure 16 shows the existing truck restrictions in the District, as reported by DDOT TSA. It also includes roads owned by the National Park Service (NPS), most of which prohibit trucks. Many restrictions are in the high-truck-traffic areas in the eastern part of the District, and largely residential areas in the northern part of the District.

There are several "restriction mismatches" between the District and the neighboring states of Maryland and Virginia—locations where truck restrictions on one side of the District border are not consistent with restrictions on the other side of the border. According to MWCOG staff, the most important mismatches are listed below:

- Washington Boulevard (VA 27) in Arlington, Virginia permits trucks as far as the off-ramp to the north side of the Pentagon (just prior to the Boundary Channel Bridge, which is the District border with Virginia). However, when it crosses into the District on Columbia Island, it is a parkway under the jurisdiction of the NPS, where trucks are prohibited.
- US 50 (Constitution Avenue NW in the District) permits trucks east of about Virginia Avenue NW. To the west of Virginia Avenue, it is under the jurisdiction of the NPS and trucks are prohibited. Trucks may not use Constitution Avenue, NW between Virginia Avenue and the Theodore Roosevelt Bridge, nor may they use the bridge itself.
- US 50 (Arlington Boulevard) in Virginia, where trucks weighing more than 8 tons are prohibited between Rosslyn (Fort Myer Drive) in Arlington County and Lee Highway (US 29) at Fairfax Circle in Fairfax County. Note that this is a mismatch only for trucks that may legally operate on US 50 in Virginia (those with a gross weight less than or equal to 8 tons).
- Connecticut Avenue NW in the District, on which trucks are restricted on the Maryland side of the Maryland-Washington border between Chevy Chase Circle and MD 410, the East-West Highway. This causes many trucks to divert to Military Road when entering and exiting the District from the northwest. Some truck traffic also goes on Western Avenue NW from Chevy Chase Circle to reach Wisconsin Avenue (MD 355) or River Road (MD 190), both of which are free of truck restrictions in Maryland.

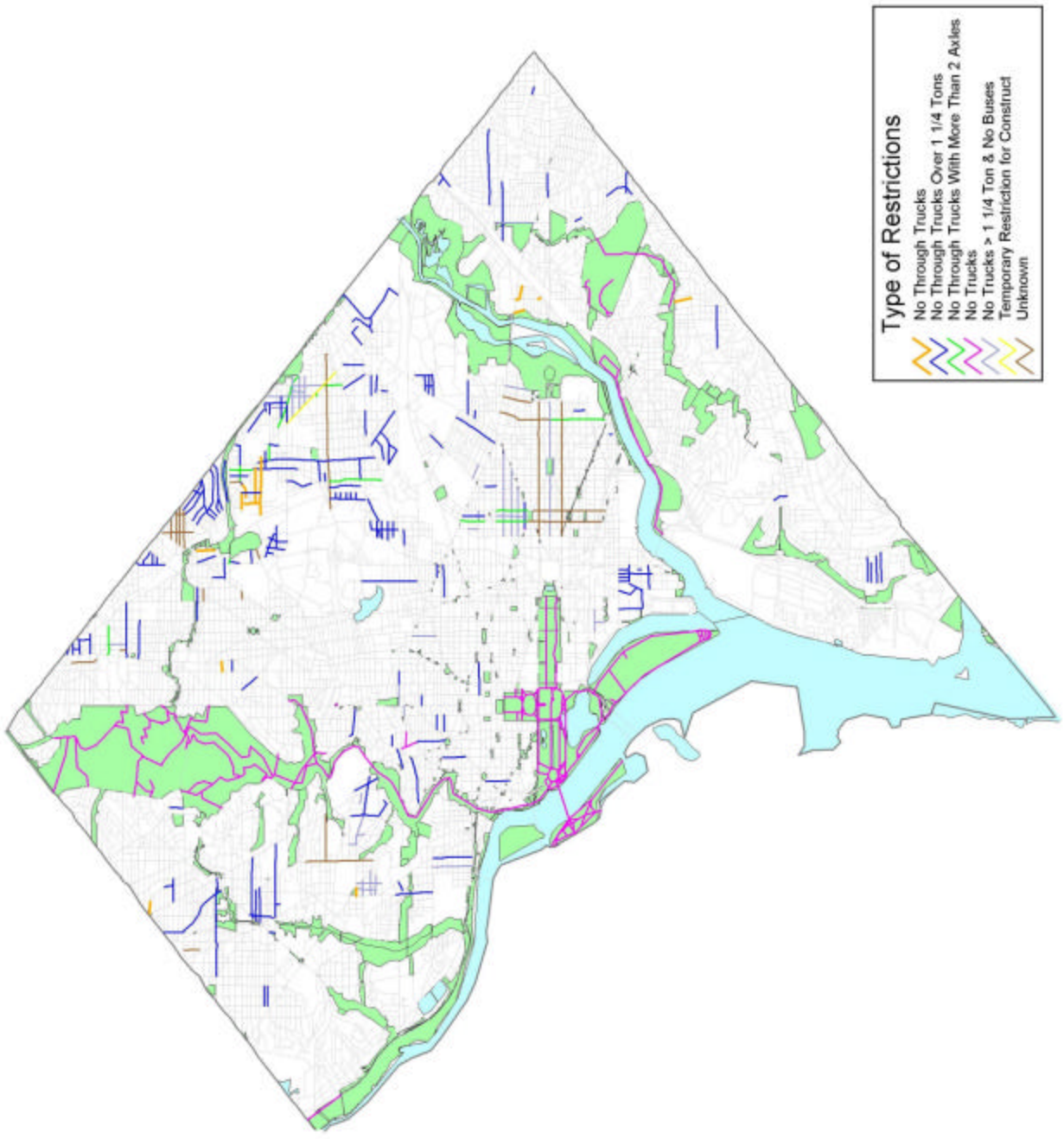


Figure 16. Existing Truck Restrictions

- Suitland Parkway, on which the NPS bans trucks on the Maryland side of the border with the District. Inside the District, trucks are permitted to use Suitland Parkway. However, trucks may not use the Parkway from the Alabama Avenue SE exit to the Maryland border because this is the last exit before NPS jurisdiction begins.
- Macarthur Boulevard NW in the District, on which signs in the District encourage truck use. However, on the Maryland side of the border, trucks and buses with more than four wheels are banned. This ban is necessary because the roadway on the Maryland side of the border was constructed over the Washington Aqueduct, a masonry conduit constructed in the 19th century that carries drinking water into the District. This old aqueduct does not have the structural strength to support heavy vehicles.
- Interstate 66 between Rosslyn and Interstate 495 in Virginia prohibits trucks. Although trucks are generally not prohibited from interstates, this truck prohibition was included as a compromise that allowed construction of this controversial project in the late 1970s. Trucks are not permitted to use the Theodore Roosevelt Bridge, which carries Interstate 66 and US 50 across the Potomac River. Because most trucks may not use US 50 and Interstate 66 between the Monumental Core and Georgetown areas of the District and Virginia, they generally use US 29 (K Street NW, the Whitehurst Freeway NW and the Key Bridge NW in the District; the Lee Highway and a short portion of Old Dominion Drive in Arlington County; Washington Street in the City of Falls Church; and again Lee Highway between Falls Church and Fairfax Circle in Fairfax County).

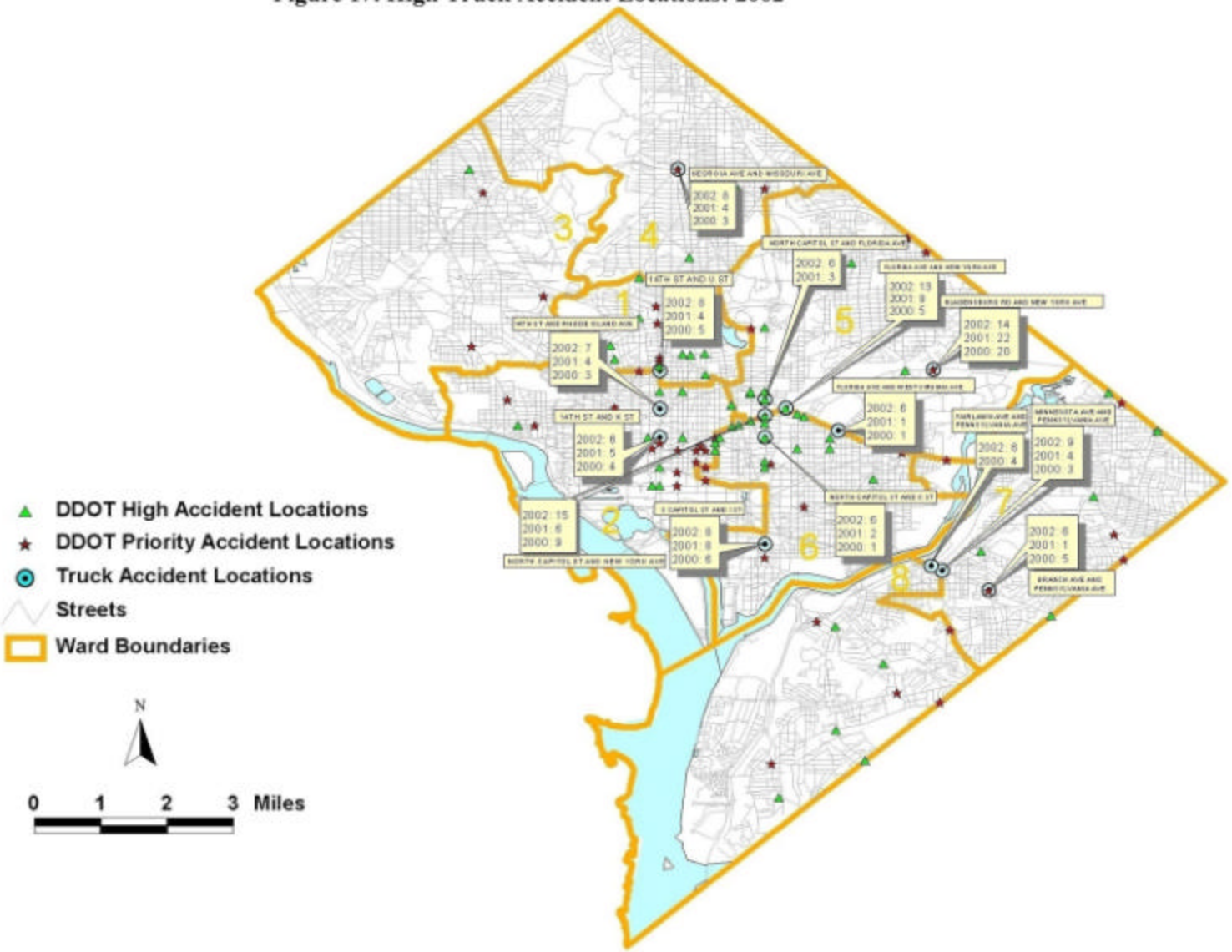
2.7 CRASHES

The MPD regularly collects crash data, which DDOT TSA staff analyze. Table 7 shows the number of crashes by different vehicle types from 2000 to 2002. About 10 percent of all crashes involve trucks. However, trucks constitute only about 5 percent of traffic. Trucks, then, are over-represented in crash rates relative to their percentage of total traffic.

As expected, truck crashes are concentrated on the streets with the heaviest truck traffic—New York Avenue, North and South Capitol Streets, 14th Street, and Pennsylvania Avenue. The intersections with the most crashes involving trucks are shown in Figure 17 and are listed below:

- Bladensburg Road and New York Avenue NE
- North Capitol Street and New York Avenue
- Florida and New York Avenues NE
- South Capitol and I Streets
- 14th and U Streets NW
- Minnesota and Pennsylvania Avenues SE
- 14th and K Streets NW
- Georgia and Missouri Avenues NW
- 14th Street and Rhode Island Avenue

Figure 17. High Truck Accident Locations: 2002



- Branch and Pennsylvania Avenues SE
- Fairlawn and Pennsylvania Avenues SE
- North Capitol Street and Florida Avenue
- North Capitol and K Streets
- Florida and West Virginia Avenues NE

Table 7. Crashes by Type of Vehicle[6]

	2000		2001		2002	
	Total Crashes	% of Total Crashes	Total Crashes	% of Total Crashes	Total Crashes	% of Total Crashes
Passenger Auto	17,299	72	16,970	73	16,516	73
Trucks	2,471	10	2,275	10	2,269	10
Buses	999	4	972	4	974	4
Motor-cycle	211	1	196	1	156	1
Bicycle	314	1	297	1	234	1
Taxi Cabs	1,582	7	1,488	6	1,562	6
Unknown	1,239	5	1,035	5	1,055	5

Source: DDOT

2.8 INSPECTION AND WEIGH SITES

The MPD and DDOT work together to conduct periodic inspections of trucks. The most common locations for temporary inspection sites are New York Avenue near the Maryland border (both directions) and the Wilson Bridge, the 13th Street Bridge, K Street in downtown, and West Virginia Avenue NE.

In addition, DDOT has three locations for weigh in motion stations (data from which has been discussed in Section 2.3.3). These are located on New York Avenue near the border with Maryland (both directions), Interstate 295, and the Sousa Bridge. DDOT expects to install a fourth station on Interstate 295 near the District border in the near future.

[6] The information presented in the table is limited to accidents in which more than $2,000 worth of damage was done to the vehicles or in which someone was injured.

2.9 CONCLUSIONS

Truck traffic bound for the District enters the city primarily from Maryland on the eastern and southern borders of the District, where the majority of industrial activity is concentrated. This is also the main location in which combination type tractor-trailers are found in large numbers. In other parts of the city, and especially downtown, most of the truck traffic is light, 2-axle vehicles.

Truck crashes are common at some intersections with high truck traffic volume like New York Avenue and Bladensburg Road. DDOT has already identified most of these intersections and considers them important locations for safety improvements. Any infrastructure improvements at these locations must include consideration of the truck traffic operating in these areas.

The District has no defined truck routes; however, a de facto truck route system has developed over time. This system exists in conjunction with a patchwork of ad hoc truck restrictions. Truck traffic in the District would benefit from rationalization of routes and restrictions. Also, the restriction mismatches discussed in this section should be addressed through regional cooperation between the District and adjoining states.

3. SUCCESSFUL PRACTICES

3.1 INTRODUCTION

To establish a context for the creation of a truck management program in the District, Volpe analyzed other cities and states for innovative or successful truck management policies and practices. As part of this effort, Volpe researched the following areas:

- Baltimore, Maryland
- Cambridge, Massachusetts
- Chicago, Illinois
- London, England
- Los Angeles, California
- New York City, New York
- Portland, Oregon
- San Francisco, California
- Seattle, Washington
- State of Maryland
- Vancouver, British Columbia

The cities and states researched form a varied group, demonstrating geographic, demographic, and economic diversity, as well as a diversity of approach to the management of freight operations. To conduct this research, Volpe interviewed representatives of municipal governments, state government, and regional planning agencies to capture different perspectives and to present a full picture of the myriad roles government can play in the planning and management of freight movement. Several of the cities were selected for their established reputations as innovative leaders in the field—these cities were confronted with major truck activities, often from a neighboring port or other major industrial facility—and others, including the State of Maryland, for their geographic proximity to Washington, DC. The lessons gleaned from this research are not specific to the environments from which they come; therefore, generalizations can be made and applied to the needs of the District.

Of the case studies included here, no single place offers an example of the best truck management program. Instead, each region has developed strengths in particular areas—congestion alleviation, curbside management, truck routing—and it is those strengths that are described in detail. The studies provide examples of the successful management of individual aspects of freight operations, and can be knit together to form a comprehensive plan. In addition to the 11 case studies, this report provides an analysis of the dominant themes that emerged from the research.

3.2 THEMES

Education and outreach have been key to the success of truck management policies in several of the cities analyzed for this study. As new regulations are adopted, or new truck routes implemented, cities have worked to involve the trucking industry, local businesses, and elected leaders in the decision-making process, thereby lending the final decisions important credibility and acceptance. Once new policies are developed, education becomes

a crucial component of ensuring compliance. The owners and operators of trucks need to be fully informed of any new rules governing truck operations, and cities have worked to provide information through printed brochures, websites, and telephone hotlines, all the while offering members of the trucking industry mechanisms for commenting upon new policies and routes.

For all of the cities researched, **enforcement** is a crucial element of any truck management program, and often one of the most challenging. Regulations regarding the activities of trucks, particularly those that involve unusual or innovative policies, require careful enforcement by local law enforcement officials to ensure a reasonable level of compliance. In some cases, effective enforcement can be achieved simply through a comprehensive effort to educate freight companies and drivers on the existing policies and regulations pertaining to freight operations. A failure to fully enforce truck management policies, however, can undermine their effectiveness and lead to additional problems with truck operations. The need for effective enforcement applies to all aspects of truck operations, from parking to loading to the use of designated routes and appropriate permits, and cities must plan for and fund an appropriate level of law enforcement to monitor compliance.

Some of the most far-reaching truck management policies involve **innovation**, both in policies and procedures, and the use of new **technologies**. Innovative policies and procedures are ones that look beyond the standard mechanisms for managing truck traffic—including traditional freight-only planning, piecemeal road closures and weight restrictions—to advanced methods for increasing the capacity of the transportation system while decreasing the impact of truck traffic on residential neighborhoods. Innovative policies observed during this study including the variable use of parking areas, in which individual spots can serve as both loading zones and metered spaces at different times of the day; the development of complex networks of designated truck routes; and the creation of multi-stakeholder planning processes for intermodal freight management. New technologies are also playing an increasing role in truck management, most dramatically in the case of the London Congestion Charging program, in which all vehicles entering the central core of commercial London are monitored and regulated through a system of closed-circuit cameras and fees.

As the movement of freight is a regional issue, with importance for multiple jurisdictions, many cities included in this study are working in cooperation with other levels of government on the issues of truck management. **Interagency coordination** can involve the sharing of information and effort between municipal, county, and state government offices, as well as cooperative work with regional planning agencies. This sort of coordination, when successful, allows traditional administrative and geographic barriers to be overcome and permits long-range, regional planning for the movement of goods. It also allows municipal governments to benefit from the expertise of state and regional agencies, including expertise in Geographic Information Systems (GIS) and advanced traffic modeling.

Several cities researched for this study have found that making **investments in infrastructure**, particularly proactive investments, used by trucks is an important way to

encourage the use of designated truck routes and to keep trucks away from other, less desirable roadways. Building and retrofitting particular routes to specifications that are well suited for truck use can help to promote the safe and efficient operation of trucks. Furthermore, the improvement and regular maintenance of truck infrastructure—including roads, bridges, weigh stations, and truck pull-offs—indicates a level of cooperation and support for trucking operations that can build credibility and cooperation between municipalities and the trucking industry.

Public-private partnerships are a key ingredient in managing and promoting better truck operations. Most of the cities studied have found ways to reach out to and include representatives of the private sector, including representatives of the trucking industry and of local and regional business interests, in their decision-making processes for truck management. Cooperative planning with the private sector provides many advantages, including assistance with identifying truck routes that will be embraced by the trucking industry, with prioritizing truck-related improvement projects, and with implementing truck management policies. Additionally, cooperation and outreach with the private sector help to increase the chances that any new policy will be embraced and complied with.

As with interagency coordination, **regional cooperation** is a necessary component of planning for and managing freight operations that are, by their nature, regional. Several of the cities studied have found ways to work cooperatively with their neighboring communities in order to manage the flow of freight traffic through and across multiple jurisdictions. In particular, many cities seem to work through the regional planning agencies—particularly Metropolitan Planning Organizations (MPOs)—of which they are a part, to plan for the routing, enforcement, and infrastructure improvements that are necessary for effective freight management.

Most of the cities studied use a combination of **regulations and incentives** to promote their truck management policies, with some leaning toward regulation and others toward incentives. The regulation-oriented municipalities develop multi-faceted management programs, of which education and comprehensive enforcement are major components. The incentive-oriented municipalities prefer to work in voluntary cooperation with trucking companies and local businesses to encourage compliance with desired truck management policies, allowing them to avoid explicit regulations. Most cities develop truck management policies that combine both regulatory and incentive-based tools.

3.3 CASE STUDIES

Baltimore, Maryland

Relevant Public Agencies:

Baltimore Development Corporation
Baltimore Metropolitan Council
Baltimore City Planning Department
Baltimore City Office of Transportation
Maryland Port Administration

Themes: Regional cooperation, public-private partnerships, education and outreach, interagency coordination

Located 44 miles northeast of the District, Baltimore is home to close to 700,000 residents and hosts a significant seaport in the southeast quadrant of the city. The operations of the Port of Baltimore, combined with the activities of the local commercial and retail sectors, generate truck traffic on the streets of Baltimore and its surrounding region. In particular, the local roads leading from the Port of Baltimore to the Interstate 95 corridor, which connects Baltimore with the Washington, DC, area, frequently experience heavy truck traffic.

In an effort to limit the amount of through-truck traffic using local roads, Baltimore city has created a network of designated truck routes to separate local truck traffic from regional truck traffic. In certain neighborhoods, Baltimore has created local truck zones to protect the roads from unnecessary use by through trucks. These zones restrict through-trucks (i.e., trucks without local destinations) from a designated area of multiple parallel streets. Both variable message signs and permanent signs alert drivers to the restricted areas and provide alternate route information for those trucks without deliveries in the zone. The alternate routes offered include a ring road around the city, two tunnels running under the Inner Harbor, and a bridge, all of which allow trucks to bypass the center of the city. Baltimore has had mixed success in enforcing the use of its alternate truck routes.

The Baltimore Development Corporation, a local economic development organization, has worked to increase the industrial infrastructure of the southeastern section of the city and to increase truck accessibility to the facilities there. The Baltimore City Planning Department also works with developers to ensure that all new construction in the city has adequate off-road truck facilities—for the efficient loading and unloading of goods outside of the flow of traffic—to meet present and future needs.

Outside of the boundaries of the city of Baltimore, the Baltimore Metropolitan Council—the MPO for the Baltimore area—has established the Freight Movement Task Force. The members of this task force represent both the public and private sectors—the MDOT, the Maryland State Police, members of the trucking industry, and academic researchers all serve on the task force—and work to develop implementable strategies to improve freight movement in the Baltimore area.

Recently, the task force has focused on the need for truck parking facilities/spaces. This review led to: (1) identifying truck stops and rest areas; (2) improving truck-oriented signage; and (3) better education and enforcement. The task force recently hosted a design charrette in which different stakeholders were invited to map out problem areas for trucks and to consider possible solutions together. Among other education initiatives, the task force has worked with MDOT to update a free map of truck routes, which can be ordered online.

Cambridge, Massachusetts

Relevant Public Agencies:

Cambridge Licensing Department
Cambridge Police Department
Cambridge Traffic, Parking and Transportation Department
Massachusetts Highway Department

Themes: Regional cooperation, public-private partnerships, education and outreach, innovation and technology, regulation and incentives

The city of Cambridge, a densely knit community of 100,000 residents, has long had problems with truck-generated noise and vibration. Located immediately northwest of downtown Boston, Cambridge offers several convenient routes for truck drivers looking to travel from the Massachusetts Turnpike to coastal industrial facilities, particularly petroleum facilities, located northeast of Cambridge. Cut-through truck traffic, which accounts for approximately 16 percent of all truck traffic on Cambridge roads, joins the significant number of trucks serving local businesses and residents, producing a public impression of heavy truck traffic in a predominantly residential city. To address this impression, Cambridge has adopted a patchwork of truck bans over the past few decades and requires that most new commercial development include off-street loading/unloading facilities for trucks.

In 1999, citizen activism on the issue of truck traffic spurred the Cambridge City Council to approve a zoning ordinance to ban all nighttime through truck traffic from city streets. In the face of severe opposition from representatives of the trucking industry, neighboring communities, and the Massachusetts Highway Department, Cambridge agreed not to enforce the ordinance in exchange for participation in a regional study of freight movement. The Massachusetts Highway Department paid for the ensuing study, which involved multiple stakeholders from both the public and private sectors. The two-year study included the collection and analysis of in-depth traffic data and a series of public meetings.

A revised ordinance, approved by the Cambridge City Council in January

Why Do Trucks Cause Noise and Vibration? What Can be Done to Alleviate Them?

The noise and vibration generated by trucks, particularly large trucks, typically has one of three origins: (1) contact between tires and pavement; (2) the engine and exhaust systems; and (3) ground-borne tremors caused by the weight of the truck.

Researchers and traffic engineers are experimenting with innovative pavement materials designed to dampen the whining noise caused by the sound of tire meeting road. As trucks in urban environments rarely travel at speeds high enough to cause this noise, other efforts are underway to control truck-generated noise on city streets. These include the stricter enforcement of noise ordinances—the use of a "noise-cam" to track offending vehicles offers promise—and the installation of noise-dampening window insulation in neighborhoods with significant truck activity.

2003, restricted cut-through truck traffic traveling between the hours of 11 PM and 6 AM to designated streets. To develop the approved nighttime routes, Cambridge city staff worked closely with the trucking industry and with neighboring communities to create a series of designated routes that would be acceptable to all. Cambridge coupled the development of the nighttime routes with an extensive education campaign, in which information was provided to truck drivers and trucking companies through pamphlets, websites, and telephone hotlines. Overseen by the Cambridge Parking and Transportation Department and enforced by the Cambridge Police Department, the ordinance was well received by the trucking industry and compliance was excellent. However, the Massachusetts Highway Department has recently required the city of Cambridge to suspend the ordinance, leaving the issue unresolved.

Cambridge has also worked with regional public agency stakeholders to encourage the prioritization of roadway improvement funding for those roadways designated for use as truck routes. Cambridge has found that acceptance of designated routes by truck drivers and trucking companies depends, in part, upon the condition of the roadways used for the approved routes. Drivers are much more likely to use roads that are in good condition.

To facilitate the loading and unloading of goods in some of the retail districts of the city, Cambridge has implemented a program of targeted loading zones. Targeted zones are ones which serve as loading zones during certain hours of the day—generally during the morning—in order to meet the needs of local retailers and restaurants. Targeted loading zones are generally used as metered public parking during the rest of the day. Cambridge has found targeted loading zones to be an effective way to increase the capacity of the roadway network for freight operations, without compromising the needs of other users or require the construction of additional infrastructure.

Chicago, Illinois

Relevant Public Agencies:
Chicago Area Transportation Study (CATS)
Chicago Police Department
Chicago Department of Planning & Development
Chicago DOT

Themes: Regional cooperation, public-private partnerships, investment in infrastructure, enforcement

A city of 2.9 million residents, Chicago is a vital national nexus for multimodal freight operations. Home to multiple intersecting rail and truck routes, as well as an important port, Chicago has been a key industrial and transportation center for the past century. However, the Chicago DOT currently has no holistic plan for managing truck traffic through the city; rather, it relies upon the program for permitting overweight trucks—issued by the Chicago DOT and enforced by the Chicago Police Department—as its primary mechanism for tracking truck movement through the city. Because of the heavily industrial nature of Chicago, many trucks use the network of arterial streets as their primary routes through the

city, thereby insulating residential neighborhoods from truck-generated noise and vibration. The arterial network is frequently congested, however, and large trucks are prohibited from some routes due to low-hanging bridges.

The Chicago DOT and Chicago Department of Planning & Development work together to manage a program for the identification and improvement of significant industrial corridors within the city, including the improvement of truck access to and along the corridors. Working with representatives of the trucking industry and other important industries, the DOT pinpoints and invests in needed truck-oriented improvements both within the corridors and along the arterials, providing expressway connections, then works to encourage the use of the improved routes by trucking companies. Each designated corridor has an appointed council, made up of representatives of the public and private sectors, and council meetings are held on a regular basis to plan improvements for each corridor.

The Chicago DOT staff work cooperatively with the owners and operators of industrial facilities in the city—warehouses, factories, and other facilities—to develop programs for loading and unloading that minimize truck idling and double-parking. Members of the city staff help facility operators to identify the optimum times to receive shipments to increase the efficiency and speed of each delivery. Compliance with the developed plans is done purely voluntarily—there are no existing regulations to enforce it.

Chicago also works to enforce parking regulations, especially in the downtown area, to discourage double-parking and the misuse of loading zones. In particular, Chicago has mandated that double-parking be considered a moving violation, rather than simply a parking violation, thereby increasing the penalty and making it possible to tow a vehicle for double-parking. Chicago also works to ensure that trucks operating in the downtown area have sufficient loading/unloading space, by requiring that one off-street parking bay be constructed for every 100,000 square feet of commercial space.

Outside of the boundaries of the city of Chicago, the CATS—the MPO for the Chicago region—manages the Intermodal Advisory Task Force. Established in 1994, the task force, made up of freight operators (both trucking and railroad), civic organizations, and public officials, works to raise public awareness of the importance of intermodal freight movement to the economic health of Chicago and to plan for improved freight facilities in the area. The Task Force encourages cooperative participation by both the public and private sectors and provides a forum for discussion of the long-term freight needs of the area, with an emphasis on intermodal coordination. The task force assists in prioritizing freight-oriented infrastructure projects and has worked with the staff of CATS to develop an inventory of major intermodal facilities and projects in the region. The Task Force also explores opportunities for the creative financing of freight projects, and has hosted public workshops on the future of freight operations in the Chicago region.

London, England

Relevant Public Agencies: Transport for London
The Office of the Mayor of London

Themes: Innovation and technology, regulation and incentives, investment in infrastructure

In February 2003, Transport for London—the DOT for the city of London—introduced the Central London Congestion Charge, an effort to reduce traffic congestion in the central district of London. Bounded by the inner ring road that surrounds central London, the congestion charge zone covers most of the commercial and retail heart of the city. All vehicles entering into the congestion charge zone between the hours of 7 AM and 6:30pm, excluding weekends, are required to pay £5 (approximately $8) to drive or park within the zone. Motorists can pay the charge through a variety of means, including at certain retail outlets and gas stations, by telephone, through self-service machines, and by mail. Residents within the congestion charge zone and certain others, including the owners of alternative fuel vehicles, are exempt from all or a portion of the charge. The Central London Congestion Charge program is estimated to have reduced congestion in central London by 25 to 30 percent.

Vehicles are tracked within the zone by a network of video cameras. The cameras capture an image of the license plate of every vehicle entering the zone, which is then compared against a database of all vehicles known to have paid the £5 fee. The image of those license plates known to have paid is immediately discarded; the image of those plates registered as unpaid is re-checked manually and then submitted for a fine. The fine increases as it remains unpaid, to a maximum of £120 (approximately $200) and the impounding of the vehicle. The revenue raised from fines is used for the improvement of the transportation infrastructure of London. The use of personal information captured through the video cameras is governed by the Transport for London privacy policy, which is posted on the Transport for London website.

Trucks are required to pay the congestion charge in the same manner as private automobiles, but with an additional £10 charge for administrative costs. Trucking companies are permitted to register all of their vehicles at once with Transport for London (a minimum of 25 vehicles must be registered to qualify as a commercial fleet). Commercial trucks are permitted to pay the congestion charge monthly, rather than daily, with funds drawn directly from a "fleet account" established by each trucking company. Trucking companies can manage their accounts through a secure website.

The Central London Congestion Charge program was established following a 6-month public outreach effort. With the program now operational, Transport for London makes extensive information available to the public, including to trucking companies, through the Internet.

In addition to the congestion charge, London also maintains the London Lorry Ban to restrict the movement of trucks on residential roads on nights and weekends. The Lorry Ban provides a network of designated streets that trucks must use during the restricted period;

these streets are available to trucks at all times, but required during nights and weekends. A permit is required to travel anywhere but on the designated streets, and compliance is enforced by police officers on the streets and through a network of closed-circuit television cameras.

Los Angeles, California

Relevant Public Agencies:

California DOT
Community Redevelopment Agency
Goods Movement Advisory Committee
Los Angeles Department of City Planning
Los Angeles DOT (LADOT)
Southern California Association of Governments (SCAG)

Themes: Interagency coordination, investment in infrastructure, regional cooperation, innovation and technology

Composing a portion of the greater Los Angeles metropolitan area, the city of Los Angeles has a population of 3.7 million people and extensive truck operations on the local and regional roads that run through the city. Truck activities in Los Angeles include trucks serving the Port of Los Angeles, a major gateway for much of the West Coast. The city of Los Angeles works with the Port of Los Angeles to improve traffic operations in and around the port, and is currently considering allowing the port to operate 24 hours per day. This would allow trucks to service the port at all times, thereby eliminating truck idling during the hours the port is closed.

The SCAG, which includes all of Southern California except San Diego County, and its GMAC have long been the promoters of projects such as the Alameda Consolidated Transportation Corridor and various gateway and truck lanes studies. SCAG staff and GMAC have been instrumental in coordinating not only with the California Trucking Association, but also with major parcel carriers such as UPS and FedEx, as well with both the Class I railroads in the region. SCAG was the first to take leadership in trying to develop a regional truck model.

The LADOT has implemented a series of truck initiatives aimed at facilitating truck movement and reducing truck-generated congestion, but no comprehensive truck management program has been developed. In general, Los Angeles has avoided designating truck routes—although there are certain streets within the city that serve as de facto truck routes—in favor of other, less regulatory strategies: roadway improvements, signalization, and striping solutions designed to improve truck movement and safety. LADOT has also created a Traffic Action Team to respond to traffic emergencies and other special circumstances, including circumstances involving trucks. LADOT is also responsible for building a local GIS transportation database and for pursuing grant funds to support capital improvements for industrial areas in downtown Los Angeles, Hollywood, and Van Nuys.

The Mayor of Los Angeles recently created the Transportation Task Force, which includes a sub-committee dedicated to freight movement in the Los Angeles area. The sub-committee is made up of representatives of the trucking industry, as well as representatives of public transit and other modal organizations. The sub-committee mainly handles issues of off-street loading and efficient delivery and has generated a list of proposed solutions to common problems. These solutions include lengthening loading zones to accommodate large trucks, improving enforcement of loading-zone use, and developing a pre-paid system for the use of loading zones.

The Community Redevelopment Agency of Los Angeles, an economic development organization dedicated particularly to the reuse of former industrial areas within Los Angeles, works on trucking issues as they relate to easing congestion and improving the flow of goods through the city. The Community Redevelopment Agency has recently prepared a major report on the efficiency of truck movement in the urban industrial areas of Los Angeles, and has requested funding for the implementation of truck management solutions. The Redevelopment Agency is also working to develop more efficient mechanisms for the loading and unloading of goods, including the possibility of a central facility.

State of Maryland

Relevant Public Agencies: MDOT - Freight Policy Office
Maryland State Police
Maryland Transportation Authority Police

Themes: Public-private partnerships, innovation and technology, investment in infrastructure

As is typical of most states, MDOT is responsible for overseeing height and weight restrictions for trucks and compliance with safety regulations on state-managed roads and bridges. The Maryland State Police and the Maryland Transportation Authority Police carry out the responsibilities of the state through roving crews used to perform roadside inspections on trucks. MDOT staff members also conduct on-site visits at trucking companies to inspect for preventative truck maintenance and other maintenance related issues.

Maryland has had trouble maintaining effective weigh station facilities, particularly in the urbanized Prince George's County. Many of the existing weigh stations are inadequate to meet contemporary needs, with many too small to handle the demands of large trucks. MDOT is currently planning for a new weigh station.

MDOT has implemented the use of transponders to facilitate truck operations on its roads. In particular, the transponder technology currently used by Maryland allows for electronic toll collection and automatic vehicle identification. Maryland is exploring other uses for new technologies, and is currently partnering with Johns Hopkins University to expand the use of transponders and other screening devices.

New York City, New York

Relevant Public Agencies: New York Metropolitan Transportation Council (NYMTC)
New York City DOT
New York State DOT

Themes: Public-private partnership, education and outreach, interagency coordination, regional cooperation, technology and innovation

With its unique security concerns, New York City has a particular interest in ensuring that trucks move in an orderly fashion through the city and that their operations are restricted to certain designated areas. New York City works closely with the freight advisory group of the NYMTC, the MPO for the New York City region. NYMTC has been particularly proactive with regard to freight movement in the region with the institution of a Freight Transportation Working Group (FTWG) and the development of a Regional Freight Plan. The region is currently attempting to make a significant mode shift for the movement of freight from trucks to rail for security, environmental and congestion reasons. The FTWG meets bi-monthly and the meetings are open to the public.

With regard to security, there has been interest in integrating security plans currently created in isolation by the various agencies that operate the transit, highway, and bridges of the city. In the months following the events of September 11th, New York City closed many of its major gateways to trucks—including the Holland Tunnel—but has recently reopened several of them.

New York City is in the process of conducting its first comprehensive update to the truck route management system that was established in 1981. This study looks to incorporate the needs and opinions of the trucking industry, city businesses, and local communities into the operations of the truck route system. While the city has an existing system of truck routes, the study seeks to address route management, signage, enforcement, policy, and curbside management concerns.

The interests and needs of the trucking industry have become an increasingly important part of freight planning in the New York City region, as the public sector has worked to provide adequate facilities for truck drivers and trucking companies. In an example of this type of cooperation, New York State DOT recently used Federal transportation funding to install plug-in power sources for the hundreds of trucks that gather to load and unload at the Hunt's Point Cooperative Market. These power sources provide heat and light to the drivers and have dramatically reduced the number of trucks idling for power, thereby reducing the amount of exhaust in the area.

Any overweight or oversized truck hoping to operate within the boundaries of New York City is required to obtain a permit, which adds an additional layer of oversight. New York City is also considering implementing a web-based mapping tool to allow truck drivers to plan out an optimal route based on their weight and destination.

New York City has developed several innovative programs for managing its commercial parking. The drivers of trucks and other commercial vehicles are required to pay a charge to use commercial parking spaces during the hours of 7 AM and 6 PM - $2 for one hour, $5 for two hours, and $9 for three hours - which are clearly marked as limited to no more than three hours per vehicle. Businesses are able to purchase debit cards with memory chips for use by their drivers, who are thereby not required to carry cash for use in the meters. The New York City Police Department has found enforcement to be much easier with this system than with a traditional system of meterless loading zones, and the average time spent in a commercial spot has dropped from an average of 5 hours to approximately 90 minutes. In addition to this, there has been significant revenue generation. Initially, approximately $300,000 was invested in research, development, and purchasing; the revenue projection for 2005 is $10 million.

The Port Authority of New York & New Jersey, which is responsible for several bridges in the city, is also in the process of experimenting with congestion pricing on the George Washington Tunnel for all vehicles including trucks. This seems to have led to a shift in travel patterns. The Port Authority's Freight Information Real-Time System for Transport will provide cargo and equipment information in real-time on the Internet. The website will integrate available information on ship, railroad or plane arrivals, provide up-to-date cargo status, and real-time road conditions, and provide real-time video, which monitors congestion at seaport entry gates or airport access points. A pilot project is being developed for the Southern Corridor in New Jersey.

Portland, Oregon

Relevant Public Agencies: Metro (MPO for Portland)
Port of Portland
Portland Office of Transportation

Themes: Interagency coordination, public-private partnerships, education and outreach, enforcement, investment in infrastructure

A city of 550,000 residents, Portland has developed an extensive program of freight management strategies. Within the city limits, different streets have been designated for use as regional, major, and minor freight routes, with an accompanying map available on the Internet. The routes are delineated by mode, and the map is updated every five years. The intention of this system is to keep trucks off residential roads as much as possible and to provide incentives to the trucking industry to use the designated routes. The Portland Office of Transportation works with individual neighborhoods, through community outreach efforts, on truck management issues.

The context for freight planning in the city of Portland was, in part, established by organizations with involvement in regional planning, including Metro and the Port of Portland. In recent years, Metro has designated key freight corridors—both arterials and collector streets—for access to industrial areas and important intermodal facilities. Metro has also designated industrial infrastructure for future investment and upgrade. The Port of

Portland has played a significant role in advocating for the needs of freight in the area and has urged comprehensive planning for freight facilities.

The city of Portland is currently at work on a master plan for freight management, which will create holistic policies regarding freight movement and the upgrading of freight-oriented infrastructure. The plan will also endeavor to coordinate the needs of freight with the needs of pedestrians, cyclists, and other modes using the city streets. Portland has also worked to develop land use designations that will support its desired freight management plans. Designated freight districts are areas in which freight movement is encouraged and infrastructure is development to facilitate truck operations.

Portland is considering innovative ways to fund freight-oriented projects, including the use of weight and miles fees (implemented by the State of Oregon, with income shared with the city of Portland), truck registration fees, and a fee based on assumptions about the traffic generated by a particular business. In general, Portland has worked closely with the trucking industry on the development freight management policies. From February to June 2003, Portland city staff held committee meetings, with extensive input from business and industry, to help to develop new solutions for freight management and freight infrastructure. These meetings had high-profile support from elected leaders in Portland, contributing to their ultimate success.

Portland also runs the Angled Parking Permit program, which attempts to alleviate street blockage caused by loading/unloading trucks by providing operators with strategies to encourage better traffic flow. Permits are granted to allow an individual truck to park at a particular site. The program suggests various parking strategies to drivers, including anything from setting up cones to utilizing a flagger. The Office of Transportation administers the program.

Portland is very strict about truck activity around construction sites. Every major construction project requires a truck management plan, which must include information about the staging and idling of trucks.

The city of Portland coordinates with the State of Oregon to distribute permits for over-dimension—weight and size—trucks. This harmonization of city- and state-level permitting reduces the burden on trucking companies and therefore encourages cooperation between industry and government. In a further example of cooperation, Portland issues permits to trucks to allow on-street loading and unloading in particular circumstances. This encourages trucking companies to coordinate with the Portland Office of Transportation for their unloading needs and allows the city to keep track of trucking activity.

The Oregon Freight Advisory Committee (OFAC), a statewide freight committee, was constituted in 2000 to focus on the freight needs of the state highway system. OFAC also deals with issues within Portland as appropriate. A regional freight committee also exists, and consists of members from county/city agencies; this committee focuses primarily on data collection. Furthermore, a committee was recently designated at the city level to

develop guidelines for freight movement in the city, and includes members of the business community as well as members from the county/city agencies.

San Francisco, California

Relevant Public Agencies: San Francisco Department of Parking & Traffic
San Francisco DPW

Themes: Public-private partnerships, enforcement, regulation and incentives

The city of San Francisco, with a population of close to 776,000, experiences truck traffic from local commercial and retail operations. Truck traffic is managed in several different ways in the city of San Francisco. For loads such as delivery trucks (including semi-trailers), there is a network of truck restrictions and designated truck routes to assist with the flow of truck traffic. The designated routes have evolved over time, primarily through citizen and neighborhood activism.

In addition, San Francisco has an Oversize Vehicle Permit program. An oversize vehicle is specifically defined in the California Vehicle Code. Any vehicle or load that meets the definition of an oversize vehicle is required to obtain a permit from the Department of Parking & Traffic. There are several types of permits issued, including an annual permit and a single trip permit. The city works closely with the State of California, permitting agencies, trucking companies, and the traffic division of the San Francisco Police Department to ensure the safe passage of oversize vehicles throughout San Francisco.

In 2001, the city of San Francisco proposed to ban all trucks of greater than 25 feet in length from traveling in a portion of the downtown area between the hours of 7 AM and 7 PM on weekdays. The ban was never implemented, due to protests from a wide variety of downtown business, trucking firms, and labor unions, but it initiated a discussion between the city and the business community about downtown parking and trucking issues. Truck parking in downtown San Francisco is a particularly thorny issue, as most loading and unloading is done directly from the street, rather than from an off-street loading zone. Many of the on-street loading zones are frequently occupied by non-commercial vehicles or by vehicles with commercial license plates that are not making deliveries. These vehicles include vans, pick-up trucks, station wagons, and sport utility vehicles. San Francisco has a long-standing policy to discourage the provision of off-street parking in downtown buildings. While this policy has been successful in increasing the percentage of downtown workers who commute by public transit, it increases the competition for use of on-street spaces.

The San Francisco Department of Parking & Traffic has worked to prevent abuse of designated loading zones—San Francisco maintains separate loading zones for general commercial use and for trucks. In an effort to prevent non-delivery vehicles from using truck zones, San Francisco has recently created a third category of loading zones that can be used only by trucks with six or more wheels. All loading zones have a 30-minute time limit. The curbs are painted yellow and signs are posted at each space informing parkers of the

time limit and the days and times of the restriction. In an effort to gain compliance with the 30-minute time limit, the Department has also installed parking meters in some loading zones—costing 75 cents for 30 minutes—to encourage turnover, but has found that compliance is weak.

In California, trucks are allowed to double-park for loading and unloading if there is space available at the curb and they are actively loading or unloading goods. The fact that this type of double-parking is legal is not widely known, however, leading to public complaint about the practice.

Construction projects are required to receive a series of permits from the San Francisco DPW, which allow construction-related trucks to park in front of a building or construction site. The requests for such permits are evaluated on a case-by-case basis, the details of the permit can be rigorous, and compliance with the parameters of the permit is strictly enforced. For new construction, San Francisco strives to require the inclusion of sufficient off-street loading areas.

Seattle, Washington

Relevant Public Agencies: Puget Sound Regional Council
Seattle DOT
Washington DOT (WSDOT)

Themes: Public-private partnerships, education and outreach, regional cooperation

As an important port city, Seattle is at the center of significant regional intermodal freight activity. The Puget Sound Regional Council, the MPO for the 6,000 square-mile Seattle-Tacoma area, focuses on regional freight movement of all types. The Regional Council has established the Freight Roundtable, which includes representatives of Federal, state, and local government, of the three deepwater ports of the region, and of the private sector, including all of the freight modes that operate in the region (marine, rail, truck, and air cargo). The Roundtable, co-sponsored with private interests through the Economic Development Council of Seattle & King County, provides a forum for the discussion of freight issues and the prioritization of freight projects. During the period from 1996 to 2003, the Roundtable has emphasized port access and railroad-related projects.

Together with the WSDOT, the Regional Council co-sponsors an interagency group of local governments, which individually sponsor the shared package of freight investments titled the FAST Corridor (Freight Action Strategy Corridor). Phase I (1997-2003) consisted of 15 projects valued at $500 million, half of which are now complete. Contributions were made by all levels of government, and by the two affected Class I railroads in the region.

The Regional Council is not directly involved with local-level freight planning. Seattle is a member of the FAST Corridor agency staff team. A truck restriction is currently in place in downtown Seattle, requiring large trucks to travel through downtown only at off-peak hours. The Port of Seattle (which is independent of the city of Seattle) makes a map of truck

routes and truck restrictions available to all drivers traveling to and from the port, and the city of Seattle maintains an outreach program—to publicize traffic regulation information—for local companies that receive and generate shipments by truck. Information about traffic congestion and construction activity is made available online to truck drivers.

The city of Seattle has established two bodies to assist in the management of truck issues: the Office of Freight Facilitator and the Freight Mobility Advisory Committee (FMAC). The Office of Freight Facilitator is responsible for developing a freight management plan for Seattle, for identifying high-priority projects, for communicating with the public on freight issues, and for championing the needs of freight movement. This office also participates in the design and review of projects that may impact freight movement in Seattle. The office also interacts with other public agencies to champion the interests of freight movement.

The FMAC, which includes public and private interests, meets monthly to discuss freight-oriented projects underway by the Seattle DOT. The FMAC has, for instance, initiated a program—funded with both private and public monies—to alleviate congestion at identified choke-points near the Port of Seattle.

The municipal government maintains a distribution list of freight companies that operate in the industrial areas of Seattle to update them on traffic policies and projects that impact freight movement.

Vancouver, British Columbia

Relevant Public Agencies:

TransLink - Greater Vancouver Transportation Authority
City of Vancouver
Vancouver Police Department
City of Vancouver Port Corporation
Vancouver Port Corporation

Themes: Public-private partnerships, regional cooperation, enforcement, regulation and incentives, investment in infrastructure

The efficient movement of freight is treated as priority by the city of Vancouver, which includes comprehensive regulations on freight movement in its municipal bylaws. The bylaws refer specifically to truck dimension, load, number of axles, weight, vertical clearances, and type of vehicles and tires. Restrictions on the parking of trucks and trailers, securing of loads and use of engine brakes within city limits are also outlined by the bylaws.

Vancouver maintains a network of truck routes, which trucks of 3 or more axles and weight of 5,500 kilograms or more are required to use. The Vancouver Police Department enforces this requirement. Vancouver works to maintain the integrity of its truck routes, including them in regional transportation plans, working to target transportation investment to roads used by trucks, and attempting to avoid any road closures that would compromise the

overall network. Truck routes are a regional priority and are regulated by a regional transportation body, TransLink.

Commercial vehicles are permitted to use all municipal parking meters for free until 10 AM, and many commercial areas of the city include lanes dedicated to use by trucks and other freight vehicles. No vehicle is allowed to park for more than three consecutive hours on municipal streets—in both commercial and non-commercial areas—a regulation that is enforced in response to particular complaints. Double-parking is prohibited and is aggressively enforced by bylaw staff. Permits are available to allow for the extended use of a traffic lane, such as during construction.

Vancouver currently bans the idling of passenger buses for more than three minutes, and is looking to extend that regulation to cover all vehicles, particularly diesel-burning trucks. The city also has a comprehensive Motor Vehicle Noise Abatement bylaw, which bans the use of "engine brakes" or "jake brakes," which are particularly noisy, at any time except during emergencies.

In addition to its role of planning the truck route system, TransLink has authority to regulate trucks carrying hazardous materials. Vancouver used to prohibit gasoline trucks over a certain size from entering the dense residential and downtown areas, but this regulation was revoked because it conflicted with provincial law. However, there is now a movement to re-implement this legislation due to, among other things, safety concerns.

The management of overweight trucks is the most significant freight-oriented concern in Vancouver, and the municipal government is working collaboratively with the trucking industry and with law enforcement to find solutions to the problem. To ensure higher compliance with the Motor Vehicle/Commercial Transport Regulations and the municipal bylaws, city officials have focused on freight-oriented companies (both trucking companies and the companies hiring trucking companies), as vehicle operators are sometimes pressured to disobey bylaws and other regulations. Vancouver is also developing a system by which new construction permits, contracts, and agreements require all trucks to adhere to local regulations and bylaws. The trucking industry has also been closely involved with the development of the freight-oriented portions of the regional transportation plan prepared by TransLink.

3.4 SUCCESSFUL PRACTICES IN TRUCK MANAGEMENT

Table 8. Successful Practices in Truck Management, by Area

City/State	Concept	Successful Practice
Baltimore	Designated routes	Separates local truck traffic from through truck traffic with a series of truck designations and local truck zones.
Baltimore	Infrastructure planning	Works with developers to ensure that all new buildings in the city have adequate off-road truck facilities to meet future needs.
Cambridge	Regional planning	Participated in a regional study of freight movement in eastern Massachusetts and used the data produced by the study to develop a local truck management plan.
Cambridge	Communication	Provides extensive information to the trucking industry on local truck routes, including brochures, maps, and online information.
Cambridge	Parking management	Facilitates the efficient use of on-street parking through the conversion of loading zones to public parking spaces during the afternoon and evening hours.
Cambridge	Infrastructure improvements	Works with the Massachusetts Highway Department to encourage the prioritization of improvements to roadways designated for use by trucks.
Chicago	Freight-oriented industrial council	Targets freight-oriented investment through the creation of designated industrial corridors, each overseen by a public-private advisory group empowered to make recommendations for truck-oriented infrastructure.
Chicago	Collaboration	Works cooperatively with the owners and operators of industrial facilities to develop schedules for loading and unloading that minimize truck idling and double-parking.
Chicago	Regional planning	Participates in an MPO-run freight task force to plan for the long-term freight needs of the area, with emphasis on intermodal coordination.

City/State	Concept	Successful Practice
London	Pricing strategies	Permits trucking companies to register all vehicles at once. Also permits trucks to pay central London congestion charge monthly rather than daily with funds drawn directly from a "fleet account" established by each trucking company.
Los Angeles	Prioritization of freight	Created a Traffic Action Team to respond to traffic emergencies and other special circumstances, including circumstances involving trucks.
Maryland	Technology	Exploring new uses for transponders and other screening devices in partnership with Johns Hopkins University
New York City	Pricing strategies	Requires commercial vehicle drivers to pay a charge to use commercial parking spaces. Sells debit cards with memory chips for use by drivers
Portland	Designated routes	Designated different streets for use as regional, major, and minor freight routes, with an accompanying map available on the Internet.
Portland	Planning	Working on a master plan for freight management to create holistic policies regarding freight movement, freight-oriented land use, bicycle and pedestrian interactions with trucks, and upgrading of freight-oriented infrastructure.
Portland	Coordination	Coordinates with the State of Oregon to distribute permits for overweight trucks, reducing the burden on trucking companies and encouraging cooperation between industry and government.
San Francisco	Parking management	Installed parking meters in some loading zones—costing 75 cents for 30 minutes—in order to encourage turnover of spaces.
San Francisco	Parking management	Maintains separate loading zones for general commercial use and for trucks with six or more wheels.
Seattle	Institutional capacity building	Created office for developing a freight management plan, identifying high-priority projects, communicating with the public on freight issues, and championing the needs of freight movement. Office also participates in the design and review of projects that may impact freight movement in Seattle.

City/State	Concept	Successful Practice
Vancouver	Parking management	Permits commercial vehicles to use all municipal parking meters for free until 10 AM. Created dedicated commercial vehicle lanes in many commercial areas of the city.
Vancouver	Designated routes	Works to maintain the integrity of its truck routes by including them in regional transportation plans, working to target transportation investment to roads used by trucks, and attempting to avoid any road closures that would compromise the overall network.
Vancouver	Noise control	Enacted municipal bylaw that bans the use of "jake brakes."

4. INDUSTRY STAKEHOLDER ANALYSIS

4.1 INTRODUCTION

To be successful, any changes in trucking-related regulations and policies will need to take into account the needs of those directly affected. Naturally, this includes the companies that conduct trucking operations and the firms that rely on their deliveries. To gain a better understanding of the needs of truck operators and their customers in the District, Volpe interviewed representatives from approximately 25 truck-related businesses and organizations.

Organizations participating in interviews included truck operators, recipients of truck deliveries, and industry interest groups. Interviewees were promised anonymity in exchange for candid responses, so this report does not include the names of the people interviewed or the businesses or organizations they represent. However, the following list identifies the categories of truck-related organizations that participated in this study:

- Food, beverage, and linen delivery companies
- Parcel and letter delivery services
- Department stores and supermarkets
- Conference facilities
- Apartment and office buildings, restaurants
- Utility and construction companies
- Trade groups and Business Improvement Districts (BIDs)

The interviews focused on the traffic-related problems that these businesses and organizations encounter in providing or receiving services in the District. While the interviews varied slightly depending on the type of organization being interviewed—such as truck operators, delivery recipients, and industry organizations—all interviews dealt with the following subject areas:

- Information about the interviewee's current and future truck-related operations
- Communication and logistics technologies employed
- Problems with truck travel in the Washington area
- Effect of these problems on truck-related operations
- Effect of existing truck restrictions on truck-related operations
- Safety and security issues

The interviewees represent a broad range of truck operators and their customers. However, no attempt was made to generate a randomized or fully representative sample of trucking firms.[7] These findings should thus be interpreted as illustrative of the range of issues faced by typical truck operators and customers in the District, rather than definitive or exhaustive. This qualitative information is, nonetheless, valuable for the light it shines on industry problems and priorities and their implications for motor carrier management strategies.

[7] In part, this is because Federal motor carrier data are organized by state of legal domicile rather than place of usual operation, making it difficult to generate an appropriate sampling frame.

4.2 INTERVIEW SUMMARIES BY INDUSTRY

While each of the stakeholder organizations interviewed presented its own unique set of trucking-related concerns, companies within similar industry groups tended to have similar patterns of daily trucking operations and sets of priorities and concerns. The following section presents brief summaries of the interview findings from each industry group. Again, company names and other identifying information have been removed to preserve the anonymity of the interviewees.

Food, beverage, and linen

Companies in these lines of business are generally based at central distribution facilities in the New York Avenue corridor or suburban Maryland. From these facilities, they make numerous trips each day to their customers, who are located throughout the city, particularly in the main commercial corridors where restaurants, bars, and hotels are located. Due to their need to navigate the urban core, these firms primarily use step vans and box trucks rather than long trailers. The main concerns of these companies are related to access to loading areas; they often receive parking tickets or find that access to an off-street loading area is blocked. Traffic congestion is also a concern, particularly because their delivery times are dictated by customer requirements and thus cannot be changed easily. In the same vein, they have concerns about any efforts to restrict delivery times. Opinions were mixed about ideas such as instituting meter fees in loading zones.

Parcel and letter delivery

These firms also operate from central sorting facilities, again located either in the New York Avenue corridor or in suburban Maryland. They make hundreds of stops each day covering all parts of the District, mostly with small trucks and step vans. Since on-time delivery is a key aspect of their business, they are particularly affected by traffic congestion and difficult access to loading zones, and have little leeway to change their hours of operation. Truck restrictions also force changes in routing, which adds to the cost of performing each day's deliveries.

Department stores and supermarkets

These companies make deliveries from a central distribution facility to their retail outlets in the District. They operate a range of vehicles, using their smallest trailers (around 34 feet) for deliveries to inner parts of the District, and larger trailers for suburban and long-distance deliveries. All of their stores have usable off-street loading areas, so their main concern is ensuring that access to these areas remains unimpeded by illegal parking. They also mentioned an interest in seeing roadway improvements along key corridors, to improve pavement conditions and traffic flow.

Conference facilities

These facilities have extensive off-street loading areas (and, where necessary, off-site marshalling yards) to accommodate the hundreds of tractor-trailers that are associated with a major convention. Incoming trucks generally bring convention-related supplies, furniture, decorations, and product samples, often originating in Maryland's Route 50 corridor or the Alexandria, Virginia area. The top problems cited were inadequate signage leading into the

downtown area and the general level of traffic congestion in the Washington region, which makes managing the flow of arriving trucks less reliable and more difficult to manage.

Managers of apartment, office buildings, hotels, and restaurants

Managers of these buildings and businesses are principally concerned with preserving their ability to have reliable delivery of office supplies, building materials, perishable goods, mail and packages, and other shipments. Deliveries of home heating oil are also very important in the winter, and raise potential security concerns. Another set of concerns relates to the security of office buildings. Many office buildings lease space to tenants that might be considered targets for terrorism—U.S. government agencies, major non-governmental and international organizations, and foreign legations—and there is a need to strike a careful balance between truck access and security.

Another concern for managers of buildings with residences or hotel rooms is trash collection. Residents and hotel guests complain of trash collection trucks disturbing their sleep during the early morning and late night hours. They would like to see trash collection done during the daytime or early evening.

Utilities and construction

Utilities and construction companies operate throughout the District with a wide variety of service and repair vehicles. These trucks are based at each company's vehicle maintenance facility and tend to make many short, local trips within the city.

The chief complaint of managers in these industries is that they are bound—unfairly, in their view—by truck restrictions and no-parking rules even when they are performing essential maintenance or works at a site. Utility companies in particular argued that they need to have round-the-clock access to any street in the District where they have a subscriber or facility, and that public-service regulations require them to respond to service outages promptly.

Trash haulers

A primary concern for trash haulers is the time of day they are allowed to be on the streets. District regulations mandate that trash haulers cannot begin working until after 7 AM because of the noise generated by the vehicles. Trash haulers then have to battle congested streets during the AM peak, and even add to congestion with their frequent stops. In addition, trash haulers want to ensure that they continue to have easy access to the Fort Totten trash transfer facility.

Trade groups and Business Improvement Districts

These organizations reinforced the issues and concerns raised by stakeholder firms, stressing the importance of freight movement to the regional economy and the costs imposed by traffic congestion and other delays. They also offered numerous suggestions for citywide and local initiatives to accommodate truck movements more efficiently while also preserving neighborhood quality of life. Several of these suggestions have been incorporated into the Recommendations section of this report.

4.3 OVERALL THEMES

Looking across industries, it is clear that the top problem areas for industry stakeholders include difficulties with loading zones and parking spaces, truck restrictions, and traffic congestion. This section presents and discusses these main themes as well as several others that emerged during the course of the interviews.

First, however, it is worth mentioning a few areas where the interviews indicated that there are relatively few problems. Almost all of the industry stakeholders agreed that truck travel within the District is generally **not inhibited by physical restrictions** such as low overpasses, steep hills, or insufficient turning radii. The stakeholders also agreed that given the time and expense associated with operating in the District, there is **very little truck through-traffic** within the city. In other words, almost all trucks operating in the District have either an origin or a destination within the city. In addition, the relative lack of heavy industry in Washington's economy (see Table 9) means that there is relatively little generation of hazardous materials.

Table 9. Percentage of Total Employment by Selected Industries for the District and the United States, 2001[8]

North American Industry Classification System (NAICS) Sector	District	United States
Goods producing—private	2.36%	19.18%
Goods producing—Federal	0.82%	0.04%
Wholesale trade—private	0.69%	4.42%
Retail trade—private	2.70%	11.71%
Transportation and Warehousing - private	No data	3.19%
Transportation and Warehousing - Federal	1.07%	0.69%
Transportation and Warehousing - local/state	0.74%	0.23%
Total employment	635,734	129,635,800

For many truck operators and delivery recipients, the most important issue is the **lack of loading zones and parking spaces**, especially in the downtown, Dupont Circle, and Georgetown areas. This problem has several different aspects. First, on-street space for parking and loading zones is scarce, and illegally parked cars, tour buses, or street vendors

[8] State and County Employment and Wages from Covered Employment and Wages, 2001 (NAICS) http://www.bls.gov/cew/.

often take up the space that does exist. Second, there is a lack of off-street loading areas, and again, illegally parked cars often take up these areas. Moreover, many of the off-street areas are difficult to access and tend to be insufficiently sized, especially at large complexes where a small area needs to be shared with other trucks serving the buildings at the same time. Third, utility companies and other firms that make service calls at residences find it difficult to park legally for extended periods in areas covered by residential permit parking.

All of these problems contribute to an environment in which truck drivers making frequent stops feel that they have no choice but to park illegally. For many of the stakeholder firms, frequent fines are their top complaint about operating in the District. Representatives from these firms generally agreed that while parking problems and fines are accepted as a cost of doing business in the District, they affect the company's ability to provide acceptable service to their customers and to keep costs in check.

Another theme that came up in many interviews was **truck restrictions**. A number of interviewees felt that the District's truck restrictions make it difficult to serve their customers. For example, utility companies mentioned that to avoid violating truck restrictions, they sometimes have to park several blocks away and carry tools and other equipment over to the work site. At the same time, most interviewees, particularly those that drive primarily on arterials, reported that they are not overly affected by the existing set of truck restrictions. However, they did not want to see any additional restrictions put in place, and they wanted to ensure that major truck routes, especially New York Avenue, would remain open to truck traffic. They also felt that acceptable alternate routes should be provided whenever truck restrictions are put in place. A number of interviewees also mentioned that there are mismatches in restrictions between the District and Maryland and Virginia, requiring them to change their travel routes within the city, costing them time and money.

The general level of **traffic congestion** in the District and in the surrounding metropolitan area was identified as a fairly serious issue by most firms, and indeed some companies listed it as the most problematic issue they face. It was also a common theme of trade groups and BIDs. While traffic problems are an almost inevitable aspect of urban living, the Washington area has the fourth-worst traffic congestion problem in the nation.[9] Congestion affects all road users, but it affects trucks in particular because of their hourly operating costs and tight timetables for deliveries. It is especially problematic for time-sensitive products, such as perishable goods and mail. In these industries, rescheduling deliveries to less congested times is not always possible because of customer requirements; for example, most restaurants insist on receiving their perishable food in the morning so that they can serve fresh food to their lunchtime customers. Outside of these industries, truck-related businesses generally report that they have "learned to live with" congestion to one degree or another. However, most find that it adds to their operational costs and reduces their ability to provide reliable delivery windows to customers.

In terms of the **safety of the drivers, vehicles, and freight**, truck operators and delivery recipients felt that petty crime is the most important issue, and most of their measures—

[9] Based on the Travel Time Index in the *2003 Urban Mobility Study*, Texas Transportation Institute.

such as not accepting cash payments—are designed to ensure the safety of the driver. For particularly valuable cargoes, such as liquor, they may also take extra measures such as using numbered seals or requiring a two-person team. Utility companies also reported that they sometimes send two-person crews to work in particularly dangerous neighborhoods.

Some interviewees reported problems with **security-related closures and restrictions** around the U.S. Capitol and White House. Restrictions on Capitol Hill, in particular, have resulted in more traffic on area residential streets as trucks need to find a new route to get past the Capitol Building. Also, each Federal agency has its own rules about which vehicles can enter their property for deliveries and their own set of inspection procedures and requirements. Interviewees felt that Federal security procedures should be standardized across agencies to make it easier for companies to accommodate them.

A number of firms expressed concern about **poor roadway conditions** and paving problems along District roads, particularly New York Avenue and Interstate 295. Truck operators also complained about **missing, inadequate, and confusing signage** in the District. They noted that truck restrictions are not always conspicuously posted and that the signage of major U.S.-numbered routes is not always complete or accurate. At the curbside, there can often be a confusing jumble of signs regulating parking and loading, to the point where it becomes difficult to determine when and under what circumstances parking is legal.

More generally, truck operators felt that there is **confusion over rules and restrictions** and that it is difficult to **interact with the city government** on trucking issues. Interviewees said that there is no single place they can go for information about trucking in the District. They often do not know whom to call to obtain a special permit, such as to close a traffic lane for utility repairs, or when and if such a permit is needed. During large events and demonstrations, they have had to rely on information from the news media because they did not receive any information on road closures or detours from the city government.

Some firms also mentioned that they did not have a clear sense of when they were entitled to exemptions from the usual traffic rules. They expressed frustration at being ticketed for illegal parking when they are actively working at a repair site—or even doing repaving work under contract with the District government. Additional interviews with city agencies confirmed that there is confusion on some of these topics—e.g. double-parking rules—even within the District government itself. A number of firms also mentioned that they would like to interact more quickly and efficiently with city departments.

5. COMMUNITY AND INSTITUTIONAL STAKEHOLDER ANALYSIS

5.1 INTRODUCTION

Community and institutional stakeholders' perspectives are vital to creating a successful truck management program for the District. The goal of the stakeholder interviews was to identify interests or concerns that should be considered in the design of motor carrier management initiatives.

A detailed catalogue of every truck issue and problematic location within the District is beyond the scope of this study. Nevertheless, the assessment of the impacts of truck issues and potential policy solutions on stakeholders is crucial to understanding the truck issues confronting the District, and to the development of a feasible truck management plan that addresses the needs of businesses and residents alike. Towards that end, interviews were conducted with members of the following organizations:

Neighborhood Groups:

- ANC members representing Wards 1-8

Government Agencies (Local, Regional, and Federal):

- Office of the Deputy Mayor for Economic Development
- Office of the Deputy Mayor for Public Safety and Justice
- City Council of the District of Columbia
- District of Columbia Metropolitan Police Department
- District of Columbia Office of Planning
- District of Columbia Department of Public Works
- District Department of Transportation
- District of Columbia Department of Motor Vehicles
- District of Columbia Department of Health
- District of Columbia Emergency Management Administration
- District of Columbia Office of Consumer and Regulatory Affairs
- Metropolitan Washington Council of Governments
- Maryland Department of Transportation
- Maryland State Police
- Virginia State Police
- The National Park Service and U.S. Park Police
- Federal Motor Carrier Safety Administration
- Federal Highway Administration Division Office
- National Capital Planning Commission
- Office of Hazardous Material Safety, Research and Special Projects Administration, US DOT

5.2 STAKEHOLDER FEEDBACK

5.2.1 Neighborhoods

Community stakeholder perspectives were compiled from feedback provided by ANC Chairpersons who either attended their respective Ward Transportation Policy Committee meetings or responded to a DDOT Motor Carrier Management and Threat Assessment ANC Questionnaire. In addition, a DDOT planner from each of the eight wards accompanied Volpe on a "ward drive-through" to highlight major truck issues and locations of concern for their respective wards. The intent was to identify the relevant truck issues and their impacts on the community, particularly neighborhood residents. The specific details of problematic corridors or intersections are listed in Appendix A. The compiled questionnaire responses are listed in Appendix B.

Based upon feedback received from the Ward Transportation Policy Committee meetings, questionnaire responses, and the ward drive-throughs, the following recurring themes were identified:

- Double-parking/loading zone problems
- Insufficient truck restriction enforcement
- Border restriction mismatches
- Truck traffic volumes and speeding
- Construction-related noise and vibration
- Cut-through traffic
- Garbage trucks
- Problem intersections
- Truck traffic in residential neighborhoods

Maps of each of the eight wards are coded with the above issues for those locations identified by the ANC representatives and ward planners (see Appendix C). Generally, the themes represent the overarching truck-related issues the District's neighborhoods face. The following sections complement the maps in Appendix C with a brief narrative overview of the issues identified in each ward.

Ward 1

Due north of downtown Washington, Ward 1 is a mixed urban and residential area with relatively few industrial facilities and no highway access. Small in land mass but densely populated, Ward 1 experiences some of the heaviest truck traffic within the commercial/retail corridor of U Street, between 10th and 14th Streets, and along 14th Street itself. **Loading**, **unloading, and double-parking** were identified as the major issues confronting this ward, especially a lack of appropriate loading zones along streets including Calvert Street, Mount Pleasant Street, 18th Street, Columbia Road, and Florida Avenue. **Pedestrian safety hazards and noise disturbances** on streets like Georgia Avenue and Irving Street were also identified as concerns.

Ward 2

Directly south of Ward 1, the Ward 2 boundaries cover the central hub of the District's corporate and government activities, as well as part of the U.S. Capitol grounds. Consequently, much of the truck traffic entering this portion of the District is there to deliver supplies or parcels to office buildings, businesses, and restaurants. **Heavy traffic congestion** on I, K, L, and M Streets, as well as Connecticut Avenue, is the prominent concern for commuters and business people alike. While the congestion is not exclusively due to trucks, the **double-parking and loading/unloading** of truck deliveries along those corridors exacerbate already congested traffic conditions. The four-lane roadways plus the service lanes moving in both directions can often be reduced to one lane due to the trucks lining both curbsides of the service lane medians. M Street in Georgetown was cited as having a particular problem with trucks double-parking while making deliveries to local businesses.

Residents also identified **un-enforced truck restrictions** as particularly problematic, such as along Q Street within the Georgetown neighborhood in the northwestern corner of Ward 2. Many felt that improvements in **signage and enforcement of existing restrictions** would make a marked difference in addressing their truck-related concerns. Aside from the Georgetown area, the need to better enforce the designated truck routes for trucks bound for the Convention Center was also repeatedly pointed out.

Ward 3

Located to the northwest of Wards 1 and 2 and bordering Maryland, Ward 3 is a patchwork of established residential neighborhoods situated between busy retail and commercial corridors. The dominant truck issue raised by Ward 3 residents was the amount and extent of **truck cut-throughs** and the resultant **noise**, **vibration**, **pollution, and safety hazards** associated with high truck activity on residential streets. The neighborhoods particularly affected are located between major commercial thoroughfares, such as the parallel arterials of Wisconsin and Connecticut Avenues. Dotted with as many stores as there are types of products and services sold, these major corridors carry the bulk of truck traffic within the ward. **Inadequate loading zone space and management** along the arterials exacerbates severe traffic congestion, which induces trucks to spill over onto neighboring streets and alleyways.

Likewise, residents felt that trucks cut through residential streets to avoid **poorly designed or heavily congested intersections**. For instance, the left-turn restriction from Military Road onto Western Avenue causes trucks to cut down Jenifer Street, which is a narrow residential street that is also classified as a collector road. Ward 3 residents identified noise pollution and vibration caused by **construction vehicles** headed to new developments, or by **early morning/late night deliveries** to restaurants as other truck issues of concern.

Ward 4

Ward 4 lies at the northernmost section of the District, sharing the majority of its northwestern and northeastern borders with the State of Maryland, and its southwestern border with Ward 3. The area is primarily residential, with increasing commercial activity and traffic towards the southern portion of the ward. Military Road, which turns into

Missouri Avenue, is one of the District's primary east-west routes, and runs through the heart of the ward as well as through Rock Creek Park. Ward 4 residents identified **heavy truck traffic**, **speeding**, **and problematic intersections** along Military Road/Missouri Avenue as their foremost concern. Unlike the more commercial and industrial land uses of the wards to the south, Ward 4 has its major thoroughfares like Military Road/Missouri Avenue, Colorado Avenue, and Riggs Road pass through traditionally residential neighborhoods. Residents are concerned about the **pollution and safety hazards** caused by such heavy truck traffic through their neighborhoods. While these trucks do not necessarily have commercial destinations within Ward 4, these routes are essential for truck deliveries to other destinations within the District.

Ward 5

With one of the largest land areas of all the District's wards, Ward 5 houses the most **industrial activity** within the District. The industrial facilities there range from major food and beer distributors to garbage transfer stations to a major parcel delivery distribution center. Many of the area's streets are major delivery routes that experience **heavy truck traffic**. The Florida Avenue Wholesale Market at 4th Street NE is one such major hub of truck traffic. The area surrounding the Market is interspersed with residential neighborhoods that experience trucks **cutting through** from one major truck route to the next. **Speeding** along corridors like Eastern Avenue and South Dakota Avenue was also identified as truck problems for the ward.

Ward 6

Buffering the industrial activities of Ward 5 and the corporate activities of Ward 2, Ward 6 consists of both residential and commercial uses, in addition to housing Union Station and part of the U.S. Capitol complex. Within the ward, many of the retail and restaurant destinations for truck deliveries are located on H Street, which residents identified as a major area of **double parking and loading zone** concerns. Additionally, residents voiced concern over **truck noise** due to the rumble of tires over potholes or due to airbrakes, **truck vibration** which causes some masonry to crack, **pollution**, **speeding**, **and safety hazards** along collector streets running through residential neighborhoods such as C Street and Constitution Avenue NE. **Heavy truck congestion** exists along east-west corridors like C Street and Constitution Avenue NE and north-south corridors like 8th, 11th, and 14th Streets. Eighth Street, in particular, poses a potential safety problem because of the many oil tankers that use the street to reach gas stations in the area. If truck traffic through residential areas is unavoidable, residents' preferred alternative would be to establish truck routes on streets with larger building setbacks such as on East Capitol Street or Massachusetts Avenue.

Ward 7

Ward 7 is situated in the eastern-most section of the District, and is primarily a residential area with some pockets of industrial and commercial activity on streets such as Minnesota Avenue and East Capitol Street. Residents pointed out that truck **double parking** and **loading/unloading** issues are a major contributor to the **heavy congestion** they experience within their ward. The contribution of trucks to generally congested conditions are at the forefront of the issues residents face within the ward, along with the concern of truck **cut-**

throughs. Trucks are consistently cutting through neighborhoods between principal arterials, such as East Capitol Street and Eastern Avenue, and between Eastern Avenue and Minnesota Avenue.

Ward 8

Covering the southernmost end of the District, Ward 8 consists primarily of residences with a few institutional and commercial areas. Due to its location near the Maryland line and Interstate 295, and due to the relative lack of commercial activity within the ward itself, most of the truck traffic in Ward 8 is **through-traffic**. Residents also noted that truck traffic passes through Ward 8 because of the effects of other truck restrictions, such as those on Suitland Parkway. Residential streets are often in **poor condition**, exacerbating the **vibration** and **noise** issues.

5.2.2 Governmental Organizations

The opinions of government agency stakeholders were gathered via personal interviews with representatives of each of the organizations and offices listed above. These stakeholders drew attention to specific issues and difficulties related to governing the flow of motor carrier traffic. Volpe compiled these issues and identified a number of common themes, summarized in the sections below.

Balancing Policy Priorities

Most cities face a tradeoff in preserving reliable truck access while respecting neighborhood concerns about traffic and noise. In the District, however, this dilemma is particularly acute because of the administration's well-publicized goal of promoting the District's ongoing economic revitalization and preserving a favorable investment climate. City planners are working to attract commercial tenants and new housing units to booming areas of the city, such as the area around 14th and U Streets NW. All of this implies potential growth in the volume of truck traffic, particularly (over the near term) in construction-related traffic. Since the city government also remains committed to maintaining residents' quality of life and to addressing neighborhood concerns, motor carrier management strategies will need to be carefully designed to strike a balance between these competing interests.

Administrative Complexity

According to the stakeholders, the District handles trucks in a way that is both administratively complex and somewhat different from the approach of most states. While coordination with Federal agencies such as FHWA and FMCSA is reported to work fairly well, local coordination tends to be more problematic. Truck-related issues fall under a wide spectrum of agencies ranging from the Department of Motor Vehicles (DMV) for licensing, to the Fire Department for hazardous cargo issues, to the Department of Consumer and Regulatory Affairs (DCRA) for weight-based registration plates and tandem trailer permits.

A few government stakeholders identified the need to consolidate more trucking-related functions within one agency for the sake of governmental efficiency. For example, it would make sense to regroup the policy and enforcement sides of parking regulation into the same office. It is also hoped that increased governmental coordination would help trucking

companies operate safely and legally, by cutting down on complexity and reducing the number of agencies with which they have to conduct business.

Inspection and Enforcement Issues

The MPD is responsible for the enforcement of weight and speed regulations. Despite the best efforts of the MPD's Motor Carrier Unit, truck violations tend to be a low priority for a police department that faces high levels of violent crime. It is also difficult to attract and retain officers for the Motor Carrier unit, in part because of the amount of training involved and the tedious work of checking log books. As a result, trucking firms perceive the District as more lax than neighboring Maryland and Virginia when it comes to enforcing weight and other restrictions. Many firms calculate that paying any fines is more cost-effective than meeting size and weight standards. Firms who are involved in illegal dumping are more likely to perpetrate their crimes within the District.

Furthermore, dense land use in the District makes it difficult for inspectors and MPD officers to stop trucks for inspections or violations. There simply is a dearth of easily accessible off-road locations that law enforcement officer can use to safely pull trucks over.

Part of the difficulty in boosting enforcement is that, for reasons relating to occupational safety, the police must rely on DPW laborers to move their portable truck scales. This is an inefficient arrangement, both because it reduces the ability of the police to move quickly and because the DPW crews are not authorized to write tickets. The police would also like to be able to employ civilians who would be empowered to write tickets for motor carrier violations.

Excess Weight and Infrastructure Maintenance

Excess weight is a major contributor to roadway damage. Since most dump truck operators are paid by the ton, they have an incentive to under-report their weight and to haul as heavy a load as the truck can bear. One of the stakeholders made the case that weight-related fines need to be raised significantly to change the widespread impression among haulers that it is ultimately cheaper to accept tickets from overweight operations than to operate legally. As a practical matter, it should be noted that the District currently does not have a facility for a truck to off-load items, even if is overweight.

Garbage Trucks

Garbage trucks cause noise and vibration and often operate at otherwise quiet hours. According to city regulation, trash haulers are generally not permitted to operate earlier than 7 AM. Since the city does not provide collection for residences with more than three housing units, 25-30 private trash trucks are traversing the same streets on any given morning.

Loading Zones and Alleys

Stakeholders expressed a need for better loading zone designations to provide improved short-term parking for passenger cars in the central business district, as well as to meet the loading and unloading needs of delivery trucks. Some stakeholders expressed concern over the loss of alleyways and parking spaces. Current city law allows property owners to

petition for the removal of an alley if they own the property on both sides. At present, the city is losing about one alley per month, decreasing the number of off-street loading areas.

Education and Outreach

Stakeholders found that there are opportunities to improve public information and awareness on truck-related issues. To give one example, many companies are unaware that in addition to a commercial driver license (CDL), drivers need to hold a valid medical certificate to operate any commercial vehicle over 10,000 pounds.

Regional Coordination

A number of stakeholders mentioned the increasingly regional nature of commerce and transportation issues. As such, improving motor carrier management is important not only for the District itself, but also for the broader metropolitan area and Maryland and Virginia. Improved coordination would be one step; stakeholders mentioned that Maryland, Virginia, and the District have different sets of weight limits and truck restrictions.

6. SECURITY

6.1 INTRODUCTION

This section is intended to raise awareness of the potential truck-related security concerns facing the District, and to present successful security practices from American and European cities. The section concludes with a series of recommendations to District officials for actions to raise the level of security against truck-borne threats.

In contrast to an individual facility, an entire urbanized area cannot be 100 percent secured against the threat of a vehicle-borne improvised explosive device (VBIED). Governments must always balance enhancing security with enabling the free flow of goods vital to the local and national economies. In its post-September 11th report, *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*, the National Academy of Sciences cites five characteristics of transportation systems that factor into any effort to increase transport security:

- Openness and accessibility
- Extent and ubiquity
- Emphasis on efficiency and competitiveness
- Diversity of owners operators, users, and overseers
- Entwinement in society and the global economy

Constraints on a comprehensive truck security strategy in the District include the following:

- Truck transport is vital to the economy of the District, even though its economy is much less dependent on the movement of goods than other major metropolitan areas.
- Truck security in urban areas is generally oriented toward the protection of individual structures or campuses by the implementation of standoff zones and access control procedures. A comprehensive policy would identify an outer perimeter surrounding sensitive facilities within which special truck control measures are implemented routinely or during times of heightened threat.
- Truck security requires coordination among agencies concerned with highways and roads, public safety, and emergency management in the District and its two neighboring states. Within the District, the Federal Government fields 32 distinct law enforcement agencies.
- Security stakeholder organizations experience tension between sharing security information with, and withholding it from security partners. This is especially true for the many Federal agencies having security responsibilities within the District.
- Security technology and physical barriers notwithstanding, security is only as effective as the people and procedures surrounding the technology and enforcing the barriers. Training, simulations, and continual testing are expensive and necessary.

Countermeasures against terrorist acts do not only include defending against an attack in progress, but also forestalling an attack before it begins and mitigating terrorism's tragic and costly effects afterwards. Table 10 indicates the complete range of countermeasures needed to protect sensitive facilities and urban infrastructure against truck-borne threats. In

the table the countermeasures are arrayed against the timeline of events before, during, and after a terrorist attack.

This study gives the outlines of a truck security policy focused on large trucks (weighing over 10,000 pounds) and buses. The measures discussed in this section will emphasize deterrence and detection with some attention to prevention and defense. There are two key issues that overarch the discussion in the balance of this chapter concerning the implementation of a systematic solution to truck-borne threats focused on large trucks in the District:

- The District government, in general, and DDOT, in particular, controls only a part of the system. The Federal Government exerts enormous power and, depending on the agency, may or may not consult with the District regarding truck security.
- Clearly, the threat from VBIEDs is not confined to, or even projected to principally arise from, the large trucks and buses that are the subject of this study. However, these vehicles—especially hazardous materials tankers—are not only highly visible to the public, but offer the opportunity to leverage safety, credentialing, and operational technology being installed in large trucks for multiple purposes, including security.

Table 10. Security Countermeasures and Their Relevance to DDOT

Timing	Countermeasure Category	Description	DDOT Truck Security Relevance
Pre-attack	Preparedness (Design)	Measures such as personnel training, creation of policies and procedures, design of streetscapes, truck routes, truck inspection stations	Interact with other city, regional, and Federal agencies
	Prevention (Intelligence, Surveillance, and Interdiction)	Activities to prevent the launching of a terrorist attack	Use oversight of motor vehicle traffic to uncover pre-attack terrorist planning activities
	Deterrence	Countermeasures which are visible to potential attackers and which deter an attack by raising the risk of apprehension or lowering the probability of success	Use oversight of commercial motor vehicle traffic to help deter potential attackers

Timing	Countermeasure Category	Description	DDOT Truck Security Relevance
During attack	Detection	Activities to detect an attack that is underway	Use oversight of commercial motor vehicle traffic to help detect attackers; use special purpose equipment to detect explosives and weapons of mass destruction (WMD)
	Defense (Protection)	Activities to delay or prevent an attack in progress, and to protect and harden facilities against attack	Interact with agencies protecting facilities-at-risk, agencies planning for hardened streetscape features, and law enforcement agencies having truck-interdiction capability; direct truck traffic flow away from facilities-at-risk
	Mitigation	Activities to reduce the deleterious effects of an actuated attack	N/A
Post-attack	Response	All actions by authorities in response to a terrorist act	Invoke existing emergency management plans
	Recovery	All activities needed to return the affected area to normal after an event; may also include activities for investigation and attribution	Invoke existing recovery plans

6.2 THE TRUCK-BORNE THREAT IN THE DISTRICT

6.2.1 Characterization of the Threat

The extent of the terrorist threat to the District is obvious. The threat is clearly not confined to trucks, but security experts regard trucks as a highly likely means of delivering destruction in an attack. Potential targets could include:

- Federal agencies
- Federal monuments and landmarks
- Embassies
- Military facilities
- District critical infrastructure
- Financial, religious, cultural, and patriotic icons
- Venues of gathered crowds

Terrorist scenarios involving large trucks and buses may involve a vehicle operated by either a trusted driver (where the terrorist device has been surreptitiously loaded onto or attached to the vehicle) or by a terrorist (where the vehicle has been obtained through legitimate or illegitimate means). The vehicle itself, such as a hazardous materials tanker, may be the means of destruction, or a VBIED may be present. In addition, the VBIED could be a means of dispersing chemical, radiological, or biological agents.

In one sense, the threat from large trucks in the District may be more manageable than in other large metropolitan areas. Because of its role as the nation's Capital, the District has proportionately fewer workers involved in industries related to the movement of goods than the United States as a whole. In addition, there are a reported 19 routes suitable for large trucks to enter or leave the city. Rock Creek, and the Potomac and Anacostia Rivers, surround the core area of the city on three sides. The fourth side, however, is connected by numerous streets to towns in Maryland. The overall threat from terrorism in the District is large and the probability of attackers' using large trucks cannot be discounted.

6.2.2 Hazardous Materials Trucking

One source of public concern is hazardous materials transportation. Because of the risk hazardous materials transport presents, Volpe queried District agencies that monitor or otherwise oversee this traffic or its shippers. Under Federal hazardous materials transportation law,[10] hazardous materials transport in the United States is governed by regulations that define the requirements for:

- hazardous materials carrier registration[11]
- placards and packaging[12]
- restrictions on unnecessary transport through tunnels, over bridges, or through heavily populated areas[13]
- restrictions on the transport of highly dangerous materials, such as explosives and fissionable nuclear materials[14]
- detailed and stringent limits on the ability of state and local governments to restrict hazardous materials transport routing without Federal preemption[15]

In the aftermath of September 11th, the U.S. DOT promulgated new and proposed regulations to increase the control and oversight of hazardous materials shipments. These measures include:

- security plans to be written by hazardous materials carriers (new)[16]
- background checks required for a CDL hazardous materials endorsement (new)[17]
- hazardous materials carrier safety permit to be issued by the FMCSA (proposed)[18]

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[10] 49 USC §§ 5101-5127
[11] 49 CFR Parts 171-180
[12] ibid.
[13] 49 CFR Part 397.67
[14] 10 CFR Part 71.5; 49 CFR Part 173
[15] 49 CFR Part 397
[16] 49 CFR Part 172 Subpart I
[17] 49 CFR Parts 383 and 384

- hazardous materials on-the-road telephone check-in by drivers to be required (proposed)[19]
- hazardous materials carrier technology demonstrations funded to track and protect shipments (ongoing)

Beyond participating in Federally funded programs to perform safety and hazardous materials inspections and in accordance with Federal regulations, Washington, DC area state and local government agencies do not monitor or regulate most hazardous materials transport trips. Therefore, it is difficult to quantify the volume of total hazardous materials traffic in the District.

Potential sources of threat in the District include terminal locations for hazardous materials. The most prevalent destinations for hazardous cargo in the District are gas stations. The Department of Health (DOH) Underground Storage Tank Division maintains up-to-date records on the location of underground tanks storing petroleum products used for energy production (except for residential storage of small quantities of home heating oil). The relative sparseness of gas stations within the core of the District suggests that fuel deliveries to those stations might be restricted and monitored.

Although there are no major hazardous materials shippers in the District, the District is the principal place of business for 52 hazardous materials motor carriers registered as such with the U.S. DOT Research and Special Programs Administration (RSPA) and reported in FMCSA data. Companies having hazardous materials storage or transshipment sites tend to be in the fuel oil industry.

Figure 18 indicates the current designated hazardous cargo routes in the District. These routes include Interstate 395 (excluding the 3rd Street tunnel), Interstate 295, the Southeast Freeway, and DC-295 (the Anacostia Freeway and Kenilworth Avenue).

The DOH notes that there are no true transporters of hazardous waste in the District. Officials downplayed the volume of the materials they regulate and questioned whether a legitimate shipment diverted for terrorist purposes would be of sufficient size to cause mass casualties. Hazardous materials shipped within the District are often lead-tinged hazardous waste being disposed of by a major utility company, or radioactive materials used in medical procedures.

Hospitals are also the source and destination of radiological materials. The DOH has determined that the quantities and types of radioactive materials involved are not likely to pose a major public health threat. Facilities shipping and storing fissionable materials must register with the U.S. Nuclear Regulatory Commission. All shipments of radioactive materials are closely regulated and monitored. More dangerous fissionable materials are not usually shipped by truck.

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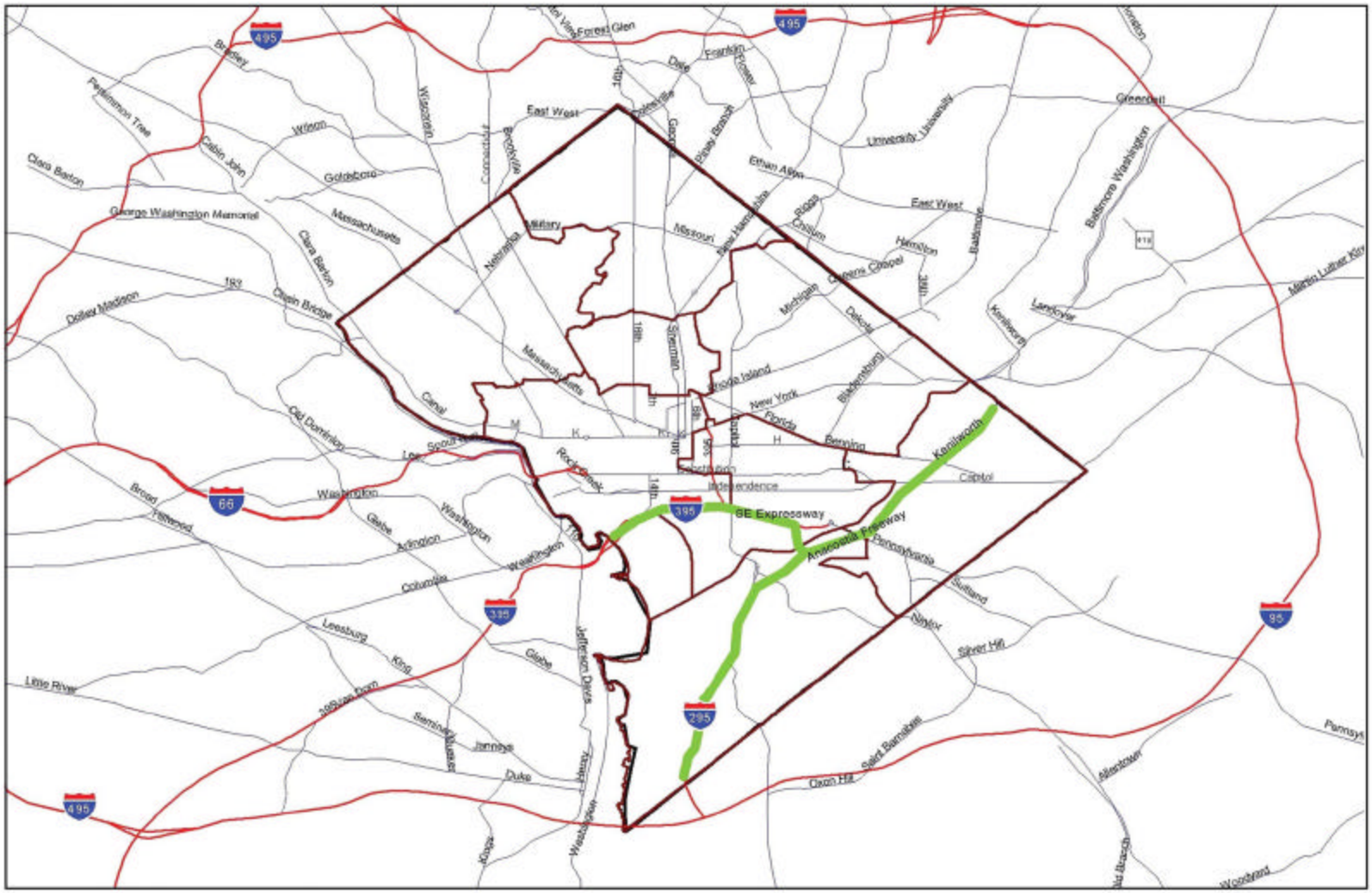
[18] FR Doc. 03-49737

[19] 67 FR 46622; 68 FR 13250

Figure 18. Hazardous Cargo Routes in Washington, DC



The District's DCRA and the Fire and Emergency Medical Services (FEMS) Department issue permits for shipments of explosives and for their detonation. The MPD escorts high-risk explosives shipments. The overwhelming majority of these shipments are related to construction activity, fireworks displays, and movie productions. The number of explosives shipments (and detonations) is low and tends to be correlated with construction activity. However, the MPD expressed concern about the not-so-rare incidence of unplacarded trucks carrying hazardous materials in the District.

Continuing analysis of the geo-locational relationships of sensitive facilities and the likely routes of truck-borne threats, including the location of terminals for hazardous materials, will be necessary to reconcile truck security countermeasures with the changing cityscape. The ability of the analysis (and the countermeasures) to accommodate change rapidly is advisable even in an urban area that is as institutionally stable as the District.

6.3 TRUCK SECURITY STAKEHOLDERS IN THE CAPITAL REGION

Creating a series of policies, countermeasures, and responses oriented toward increased security against truck-borne threats requires the participation and leadership of agencies concerned with:

- truck traffic management and truck safety
- hazardous materials storage and transport monitoring
- security and law enforcement.

Multiple District agencies having responsibility for multiple policy areas must be brought together to address truck security, policies, and countermeasures. At the same time, responses need to bridge jurisdictional boundaries across the Washington, DC metropolitan area as well. The elements for a terrorist attack will be assembled from resources imported into the District. If these elements can be interdicted before entering the District, the chances of preventing an attack will be increased.

The number of stakeholders involved in truck security is large and diffuse ranging from Federal security agencies to relatively small units of the DOH. In addition, the impact of any policies implemented will fall on the private sector. Therefore, Volpe has sought input from private sector organizations, District agencies outside of DDOT, neighboring state agencies, the Federal agency concerned with truck and bus safety, and Federal law enforcement and security agencies. Many of these agencies were contacted as part of the larger comprehensive truck management agenda, but security concerns were discussed in many of the "best practices" interviews.

The overall picture that emerges is one of divided responsibilities, even among Federal agencies. The tasks before all of these agencies are large and their resources are limited. With the creation of the DHS, the organizational home of key Federal security agencies has changed. Because of the security concerns, many agencies were not willing to divulge the details of their strategies; however, the general outlines of their concerns will be summarized while maintaining anonymity.

6.3.1 District Agencies

There are a number of District agencies that have incidental or tangential concerns with truck security. These agencies collect data that can be used in planning countermeasures and responses to truck-borne terrorist attacks. In addition, these agencies implement procedures that may be integrated with security-related measures that DDOT might consider. Aside from DDOT, the most salient District agencies for truck security are the MPD, the Emergency Management Agency, and the set of agencies (discussed above) that monitor hazardous materials.

The MPD is the agency that "owns" the District government's security concerns with its Domestic Security Office as the focal point. In addition, the Department's Special Services Unit Motor Carrier Unit is responsible for motor carrier safety and works with the District of Columbia Division of the FMCSA to perform safety inspections on commercial vehicles. The Department is the only District government agency outside of DDOT that receives U.S. DOT funds. As previously described, the Department also monitors and escorts dangerous cargoes. The MPD already encompasses both trucking regulation and security in its organization.

During the period of heightened alert following September 11, the Department increased the volume of its random stops of commercial vehicles. To be able to use the information on trucking patterns accumulated from these stops, the MPD created a motor carrier database for the information collected in these stops. The database contains over 27,000 records and has been shared with neighboring jurisdictions to determine if there have been any patterns of suspicious activities. Additional resources for the Motor Carrier Unit would enhance the ability of the District to notice anomalous truck operations that might indicate terrorist activity.

The MPD has built a Joint Operations Command Center, which is used during emergencies to coordinate and exchange information between the MPD and agents of the FBI and the U.S. Secret Service. Video images from MPD cameras, as well as DDOT traffic cameras are displayed in the command center.

The EMA is the lead agency for coordinating the District's response to all types of emergencies. In addition, the agency has the mandate to reduce the hazards, including terrorist threats, which the District faces. Although the agency has focused on creating emergency response plans defining the activities and responsibilities of District government departments during an emergency, as a key agency that performs liaison duties with the DHS, the EMA must be included in the planning for deterrence and prevention, as well as for response.

The agencies within the District that have some responsibility for monitoring hazardous materials provide a resource for locating the source and destination of hazardous materials from their records. These locations can be mapped to analyze possible threats and vulnerabilities. As noted earlier, the agencies with oversight for various aspects of hazardous materials are:

- DCRA
- DOH Environmental Health Administration, Bureau of Hazardous Materials and Toxic Substances
    - Underground Storage Tank Division
    - Hazardous Waste Division
- DOH Environmental Health Administration, Bureau of Food, Drug and Radiation Protection, Radiation Protection Division
- FEMS
- MPD

6.3.2 Federal Law Enforcement Agencies

The Federal Government is the major player on security issues in the District, with some agencies having wide authority to affect policy decisions normally reserved to local authorities, such as street closures around sensitive facilities. A major characteristic of Federal security-related policies within the District is that there is not just one agency with responsibilities for protecting Federal facilities in Washington, DC. The District must forge coordinating security policies with 32 independent Federal law enforcement agencies. Among the most significant are:

- U.S. Capitol Police
- DHS
    - Federal Protective Service
    - Office of National Capitol Region Coordination
    - Transportation Security Administration
    - U.S. Secret Service
- U.S. Department of the Interior, NPS, and NPS Police
- U.S. Department of State, Bureau of Diplomatic Security, Domestic Facilities Protection

Each of these agencies formulates security policies for the facilities it protects. The key to facility protection is the standoff zone within which only inspected, trusted vehicles are allowed. For the highest profile locations, state-of-the-art technology and techniques, such as the Itemizer™ detector for trace explosives, and stout physical barriers (some retractable) are used to establish a perimeter, demarcate a standoff zone, check trucks and cargo, and verify the identity of drivers.

At the same time, the architectural design of many sensitive Federal office buildings in the District does not permit separation of these facilities from the streetscape. Security officials at one facility recognized that closing off all streets surrounding the facility was infeasible given the needs of District traffic circulation, although from a facility protection standpoint such a shutdown is desirable. Even without street closure, parking adjacent to sensitive facilities is likely to be banned. Federal officials cited official coordination and working relationships with the MPD, DPW, and DDOT.

The U.S. Capitol Police has instituted among the most far-reaching policies for truck security. These include a no-truck security zone around the Capitol, a program to pre-

qualify drivers and carriers allowed to be screened for entry into the security zone, and an off-site screening facility where cargo is off-loaded, inspected, reloaded, and tagged. The screened trucks are given a time window within which the delivery must be completed.

Under a priority voiced by the Chief of the MPD, the District Council has passed a resolution allowing the MPD to enter into cooperative agreements with Federal law enforcement agencies. These agreements allow Federal law enforcement personnel to enforce District law on District streets and sidewalks surrounding Federal buildings and land. Each agreement is tailored to the needs of the signatory agencies. These agreements have the potential of forming the basis of more coordinated policies between the District and the Federal Government for the purposes of security against truck-borne threats.

6.3.3 Federal Transportation Safety Agencies

The agencies within the U.S. Department of Transportation that are charged with improving the safety of commercial vehicle operations in the U.S. include the:

- Federal Motor Carrier Safety Administration (FMCSA)
- Research and Special Programs Administration (RSPA), Office of Hazardous Materials Safety (OHMS)

The FMCSA operates the Motor Carrier Safety Assistance Program (MCSAP), which provides funds to the states for driver/vehicle roadside inspections, traffic enforcement, compliance reviews, public education and awareness, and data collection. The inspections and reviews identify unsafe motor carrier operations and are governed by the Federal Motor Carrier Safety Regulations (FMCSRs). Under MCSAP the FMCSA provides funds to the District for the MPD's Motor Carrier Unit.

The FMCSA has also underwritten a multi-agency effort led by DDOT to explore the application of Intelligent Transportation Systems (ITS) technology to trucking safety and operations in the District. The portion of ITS concerned with trucks is named Commercial Vehicle Operations (CVO). Under this initiative the Science Applications International Corporation (SAIC) is preparing the *District of Columbia ITS/CVO Business Plan* (currently in draft), subtitled "Using Technology to Maximize Highway Safety and Improve Government and Industry Productivity."

ITS refers to the application of digital and telecommunications technology to highways and vehicles so that real-time information delivered by the system helps improve traffic conditions, congestion, safety, and driver comfort. Increasingly common applications are dynamic message signs and electronic toll collection. CVO focuses on technologies such as electronic credentials, and the tracking of commercial vehicles with global positioning systems (GPS). FMCSA recognizes the potential for ITS/CVO to serve security purposes concomitantly with its primary safety mission.

OHMS issues the Hazardous Materials Regulations (HMRs) as well as procedural and registration regulations concerning hazardous materials. Many of the regulations concerning hazardous materials have been outlined earlier in this section in the discussion on hazardous materials trucking in the District. The FMCSA has the responsibility for enforcing the

HMRs in addition to the FMCSRs. The FMCSA also regulates the highway routing of hazardous materials.

6.3.4 Regional Agencies

Regional planning agencies are at the forefront of preparing analyses and are beginning to implement policies to improve the security posture of the Capital region. Relevant agencies include:

- NCPC
- MWCOG
- Capital Wireless Integrated Network (CapWIN)

The NCPC has prepared a plan that outlines the elements of security-aware streetscape design that does not detract from the esthetic essentials of Washington's institutional and monumental character.[20] The Commission has established design guidelines and principles to ensure a uniform approach to physical security features that might be proposed by the Federal Government.[21] Examples of these features might include the placement of security barriers, such as hardened lampposts, benches, and tree enclosures to form barriers between facilities-at-risk and vehicle threats. The plan delineates design zones that have been reproduced in Figure 19. While the NCPC zones were designated based on design characteristics within the zone rather than explicit security or congestion considerations, the set of zones defined by the NCPC is roughly equivalent to the "restricted zone" discussed in Section 7 of this report since the zones encompass the most congested area of the city and its most attractive terrorists targets.

The MWCOG Truck Safety Task Force published a truck safety technology analysis in October 2003. The report recommends the installation of several technologies, some of which are directly relevant to security concerns. These technologies will be discussed later in this section.

Led by the State of Maryland, the CapWIN project provides integrated wireless communications links among public safety agency personnel responding to emergencies. CapWIN integrates data and messaging systems among multistate, inter-jurisdictional transportation and public safety agencies. CapWIN, "provides a 'communication bridge' allowing mobile access to multiple criminal justice, transportation, and hazardous material data sources."[22]

6.3.5 Neighboring State Agencies

The neighboring states of Maryland and Virginia were contacted to determine their initiatives with respect to truck security, any regional coordination activities in which they

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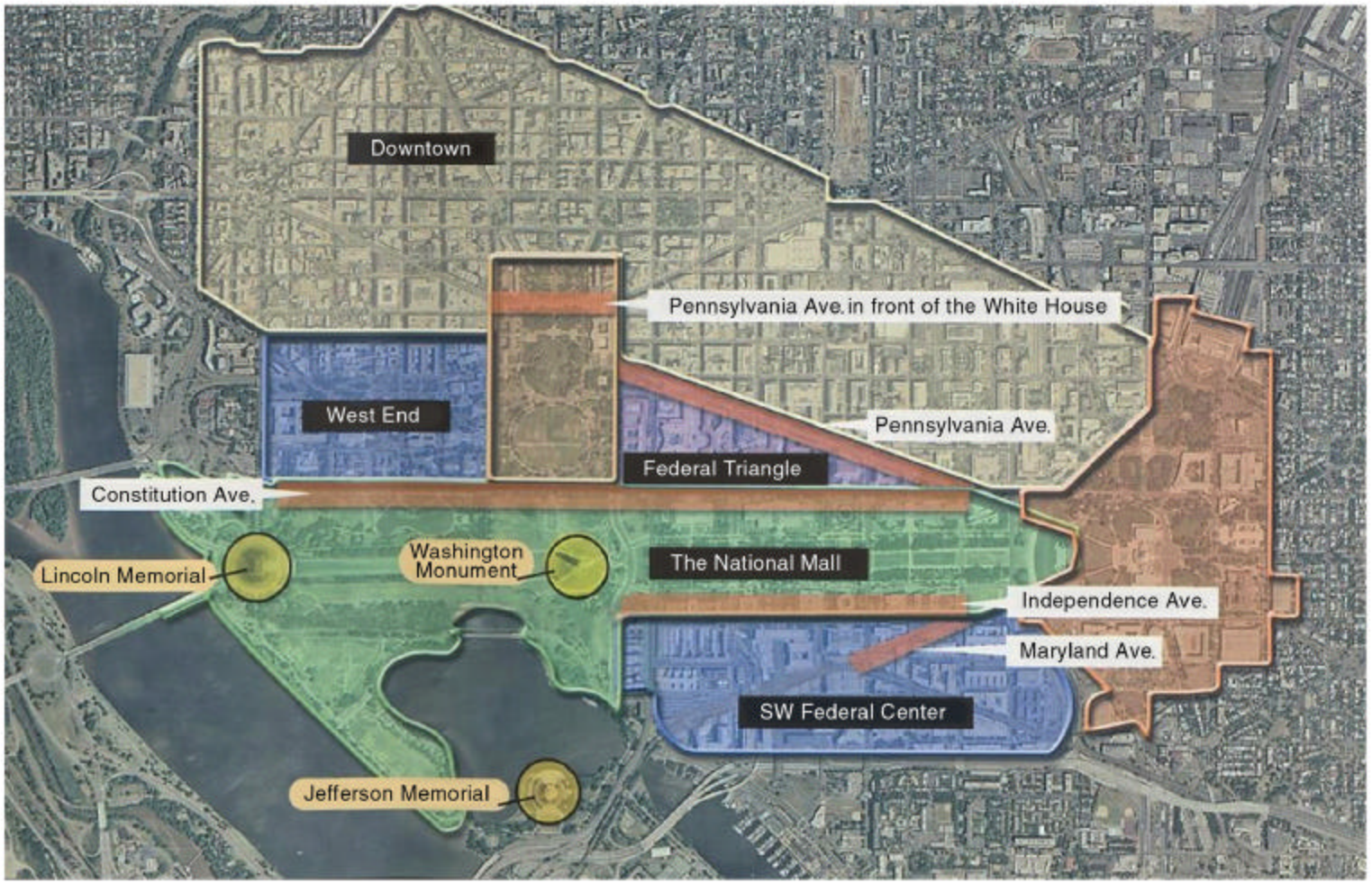
[20] National Capital Planning Commission. *The National Capital Urban Design and Security Plan*. October 2002

[21] NCPC, ibid

[22] See www.capwin.org

Figure 19. NCPC Contextual Zones



Source: *The National Capital Urban Design and Security Plan*, NCPC, October 2002

participated, and their policies regarding hazardous materials transport. Volpe interviewed state police and environmental agencies from each state.

The Maryland State Police reported that they instituted special measures for trucking enforcement in the period immediately following September 11th. Personnel were diverted to the Washington and Baltimore areas. In the metropolitan areas, weigh stations were opened 24 hours a day and roadside inspections were staggered, so that truckers would not be able to discern a time pattern for enforcement. Additionally, the Maryland State Police changed the proportions of the types of inspections. By reducing the number of Level 1 inspections, which require an inspector to go under the truck, the Maryland State Police were able to increase the number of trucks scrutinized. These measures will be implemented at any time the threat level is raised to orange.

The Virginia State Police also posted extra patrols in their critical metropolitan areas: Washington, DC, and Hampton Roads. Their units were particularly attentive to hazardous materials shipments. When asked about coordinating efforts, aside from the Washington, DC, regional activities reported above, the Virginia respondent mentioned a multistate committee of motor vehicle enforcement and DMVs including Maryland, Virginia, North Carolina, and West Virginia. The District does not participate in this committee.

The Maryland Department of the Environment and the Virginia Department of Environmental Quality were asked about their stance on hazardous materials transport. Both states, as required by law, implement Federal regulations with respect to hazardous materials transport. Virginia has no state-specific regulation. Maryland restricts hazardous materials traffic in the state and thus requires some additional monitoring beyond that required by the Federal Government.

6.3.6 Private Sector Companies

Trucking, bus, and package delivery companies and their respective trade organizations are aware of the potential for terrorist misuse of their vehicles. This is especially true for hazardous materials carriers. Motor carrier trade organizations and trade journals are disseminating voluntary policies that industry managers may follow to reduce the likelihood of an incident, and indeed, reduce the incidence of everyday criminal activity such as hijackings.

Hazardous materials carriers are cooperating with the FMCSA in a series of demonstrations of technological applications that enhance the safety and security of these sensitive shipments. Another public/private initiative is Operation Respond, which provides emergency responders with real-time motor carrier shipment data in the event of incidents involving hazardous materials through the Operation Respond Emergency Information System.

Package delivery companies are affected by the heightened awareness of security by their customers and they are, of course, concerned with safeguarding their drivers. While their delivery trucks are usually smaller than the large trucks under consideration in this document, their omnipresence and access to all parts of the city mean that policies

concerning these operations should be not be ignored. There is a significant threat posed by the potential for the timely delivery of coordinated shipments of improvised explosive devices. In addition, the cargo that the delivery trucks carry is delivered to staging facilities with heavy trucks. These companies have implemented national package screening programs and have cooperated with customers who request that drivers serving highly secure facilities undergo Federal Bureau of Investigation (FBI) background checks. All delivery trucks are subject to the search and inspection procedures required by secure facilities, such as the White House or the Department of State, with the time for the inspection added to the guaranteed delivery time.

In summary, stakeholder concerns include the following:

- District Government
  - Determining the priority of technology-based truck security given limited resources.
  - Developing practical prevention and preparedness policies for the DHS levels of threat when there are only two threat levels that the DHS has used short of an actual attack in progress.
- Motor Carrier Enforcement
  - Additional training in the interaction between motor carrier safety enforcement and security concerns.
  - Additional motor carrier enforcement resources are needed to implement security measures.
  - Difficulty in recruiting and retaining police with expertise in motor carrier issues.
- Private Industry
  - Added time and expense for deliveries due to security-related closures.
  - Security plans seemingly devised without input from local business community.
  - Desire of industry to understand how they would be notified of evacuation routes in the case of a major attack or other disaster, so that they can inform their drivers.
- Federal Government
  - Coordination and cooperation with the District concerning street closures around Federal facilities.
  - Adherence to the FMCSRs and HMRs regarding state and local restrictions on and monitoring of truck traffic

6.4 COMMERCIAL VEHICLE SECURITY PRACTICES OUTSIDE OF THE DISTRICT

Many valuable lessons can be learned in the area of truck security by the procedures the DHS uses at U.S. land border ports of entry. The Bureau of Customs and Border Protection (BCBP) uses various methods to try to ensure that dangerous conveyances are not allowed to enter the United States. The BCBP combines intelligence to try to target high-risk vehicles as well as random checks to ensure that low-risk categories of vehicles remain low risk. They also use technologies such as Vehicle and Cargo Inspection System (VACIS™) x-ray equipment and dogs to try to detect contraband. Figure 20 is an illustration of a mobile implementation of this technology.

Figure 20. Mobile VACIS™ Deployment at the U.S. Border

For decades, the U.S. Customs Service was tasked with ensuring that illegal contraband was not permitted to enter the United States. Their approach to this problem was simple: Limit the number of entry points into the United States, then target the highest risk vehicles for inspection. This approach was acceptable for narcotics and other illegal substances, where it was sufficient that a certain percentage was interdicted. However, when the WMD threat emerged, it was no longer acceptable that any of these weapons pass through without detection. Additional technologies have been employed to help with this effort, and more resources have been applied toward improving the intelligence that will lead to suspect shipments. Now that the Customs Service has moved to the DHS, interdicting WMD is this agency's primary focus.

Of course, the land borders of the United States are very different environments from major metropolitan areas such as Washington, DC. For instance, land borders have a limited number of well-identified entry points. Vehicles wishing to enter the United States must cross the border at one of these points and then be inspected by a DHS officer. However, there are many different roads leading into the District. To establish an effective perimeter around part or the entire city, it would be necessary to prohibit commercial vehicles from using most secondary roads and then apply the resources necessary to enforce these restrictions. While there is technology that can support such an effort, it would probably be necessary to close some roads to all traffic in order to make this scenario viable. The U.S. Capitol Police's efforts to limit vehicular traffic on Capitol Hill to only authorized and inspected vehicles illustrates the difficulty in implementing a secure perimeter. Should other areas of the District be identified as high risk for a truck bomb attack, similar procedures would need to be put in place to secure them as well.

Assuming a secure perimeter can be established around parts or the entire District, techniques used by BCBP could then be applied. Commercial vehicles would need to be screened at selected entry points and a process for inspection would be established. Depending on the level of threat, a certain percentage of vehicle inspections would be conducted at a particular degree of thoroughness. Factors such as weight, motor carrier, and manifest anomalies would be considered in targeting which vehicles would be inspected.

BCBP uses other techniques to ensure that the screening process is effective. Periodically, they will perform what is known as a "block blitz," which involves performing a thorough inspection of all vehicles in the queue at a random point in time. This provides protection against smugglers who, while monitoring the inspection process, may have identified an inspector who is not being as thorough as the others. Smugglers often target certain inspectors when they feel they have the best chance of evading detection and will purposely wait in this line. For this reason, inspectors are often rotated to different locations throughout the day.

At the land border, there is a constant need to balance security with throughput. The only way the area inside the perimeter could be 100 percent secure would be to prohibit all traffic from entering. Since this is not possible in large areas, a certain degree of risk will need to be accepted. Efforts to lower this risk through more thorough and complete inspections will result in more delays for those in transit.

The BCBP has used other techniques to make the inspection process more efficient. For example, a program of trusted carriers could be established, whereby trucking companies take it upon themselves to ensure the security of their cargo, bypassing the perimeter inspection process in most cases. The Customs Service launched a pilot program as part of the North American Free Trade Agreement that tried the trusted carrier model, and the Customs-Trade Partnership Against Terrorism uses a similar model for cargo container shipments. Since the carriers have a vested interest in being able to pass through inspection quickly and to have their facilities and vehicles secured, they are usually willing to adhere to a series of security requirements that are ultimately aimed at ensuring the safe transportation of freight from end to end.

6.4.1 Security Practices in Other Cities

All major cities face terrorist threats. The 1995 bombing in Oklahoma City shows that attacks are not limited to large cities. Examples of truck security measures in U.S. and foreign cities illustrate the extent to which security concerns are weighed in conjunction with traffic management issues. The overall truck management "best practices" interviews produced some information on truck security strategies.

London, England

The premier example is the central core of London, England. After a series of Irish Republican Army terrorist attacks in 1992 and 1993, the city of London installed a security cordon consisting of surveillance cameras and heightened police patrols. This cordon came to be known as the Ring of Steel, where the license plates of all vehicles entering the ring were vetted against a watch list of plates related to known or suspected terrorists. In 2003,

London instituted a congestion pricing strategy where all cars within the central core are charged a fee. Compliance with the charges is enforced by cameras similar to those used in airports or ports, which interface with software that automatically identifies and records the license plates of all vehicles in the core with a 90 percent rate of accuracy. Even with the wide acceptance by the public of the use of surveillance cameras in Great Britain for crime prevention, a controversy has arisen over the use of the congestion pricing cameras for general anti-crime, anti-terrorist surveillance purposes.

Baltimore, Maryland

The Port of Baltimore sponsors an interagency task force, which has created security measures. When the city is on the highest level of security alert, the State of Maryland requires truck inspections at the major southwest gateway into the city along Interstate 95. At such times, truck traffic is not allowed to leave the highway to enter the city after inspection.

New York, New York

In the immediate aftermath of September 11, all traffic into lower Manhattan was restricted. Once these restrictions were loosened, truck traffic was subject to inspection before entering Manhattan. The MPO noted that each transportation and law enforcement agency in the tri-state area had its own plans and policies for security. The MPO, in a post-September-11th safety and security report, determined that the major vulnerabilities involved the region's bridges and tunnels. The individual jurisdictions are sensitive to having the MPO take a lead role in coordinating security strategies in the region.

San Francisco, California

The DHS identified the Golden Gate Bridge as one of America's most vulnerable landmarks. It also serves as a critical element of transportation infrastructure for the Bay Area, connecting San Francisco with Marin County. Despite the fact that the bridge is considered to be a potential target for terrorism, no formal process of inspecting or screening cars or trucks has been instituted. Additional police officers have been hired to provide a show of force, and the Coast Guard monitors vessel activity beneath it, but it is acknowledged that the costs and traffic impacts associated with attempting to prevent a truck-borne weapon from being driven onto the bridge are simply too great.

6.5 TRUCK MANAGEMENT TECHNOLOGY AND SECURITY

The many technologies available to increase trucking safety, increase trucking operational efficiency, enhance highway traffic operations, and increase highway safety are being tested, deployed, and improved constantly. With increases in processing speed and decreases in the cost of data storage, technological functionality (e.g., cell phone Internet capabilities) that was not possible five years ago is now nearly universally available. Devices that may be used to increase security against truck-borne threats are now under development, and will be available within a relatively short time frame. The events of September 11 accelerated efforts to leverage these technologies for improved security of the transportation infrastructure and against vehicle-borne threats.

The broad classes of technology that are applicable to truck management and security include:

- Sensors, such as explosives detection
- Wireless communications
- Video surveillance and imaging
- Data mining and advanced data processing
- GIS and geo-locational analysis
- GPS
- Electronic driver, vehicle, and cargo identification

The FMCSA is conducting a Hazardous Materials Safety and Security Field Operational Test to measure the effectiveness of ITS safety and security technologies for safeguarding hazardous materials being transported by trucks. The test will include 100 trucks equipped with a variety of existing technologies. The technologies will be packaged in several different cost tiers, and will be tested across four different transportation scenarios. The project will test the capabilities of technologies such as:

- Driver verification using password logins, fingerprint biometrics, and smart cards
- Vehicle and load tracking using satellites and other wireless systems
- Off-route and stolen vehicle alerts using geo-fencing
- Cargo tampering alerts using electronic seals
- Driver distress alerts using driver panic buttons
- Remote vehicle-disabling in instances of known terrorist attacks

As Federal agencies institute demonstration programs among motor carriers and jurisdictions, the District should consider participating in these programs as a way to receive additional funds to test the application of advanced technologies. For example, the District could work with RSPA, FMCSA, and DHS to investigate whether options exist for applying some of the technologies listed above to hazardous materials carriers operating in the District. In addition, the District should monitor these demonstration projects and provide input into any resulting Federal regulations on the types of technologies that should be required when hazardous materials motor carriers operate in areas like the District.

The following MWCOG Truck Safety Task Force District technology recommendations have a direct application to security:

- Geo-fencing
- Panic and/or vehicle disabling systems
- Virtual weigh stations
- Infrared cameras
- X-Ray devices
- Commercial vehicle radiological systems
- Transportation worker identification cards (biometric identification)

An integrated technological strategy for truck security is based on wireless communications technologies and digital data processing. When implementing these systems, intense attention must be paid to issues of cyber security, lest digital or communications tampering

A Sample of Applicable Technologies

- *Automated Vehicle Location (AVL) and Geo-Fencing*
  Geo-fencing refers to the use of AVL technology based on GPS. Signals reporting the location of the vehicle are received at a base operations center. The center has software that compares the location of the vehicle against demarcated areas. If the vehicle crosses into a prohibited area, an alarm may be generated at the base or another location. The efficacy of GPS can be reduced if line-of-sight communications cannot be maintained with three of the satellites that determine location. However, GPS can be combined with cellular or other wireless technology to provide geo-locational information in urban canyons or other problematic locations. Geo-fencing technology is useful for identifying trusted vehicles and tracking sensitive cargoes; however, the technology is likely to be absent from or disabled on a vehicle seeking to evade controls.
- *Mobile and Relocatable Systems for Cargo Imaging or Explosives Detection*
  Several manufacturers use diverse technologies to detect the presence of contraband in truck trailers and other vehicles by creating images of the vehicle's contents. These technologies no longer need to be installed in fixed locations, but can be installed in a vehicle that can operate from changing locations or while in motion. One such system is Mobile VACIS™, which uses gamma rays to examine vehicle content. The system does not require the use of specialized protective enclosures and can scan a moving vehicle in 10 seconds. Another system is the Mobile Vehicle Explosive Detection System, which can automatically detect explosives in stopped vehicles. In the urban environment, such equipment represents a relatively unobtrusive means of detecting threats. The MPD and Federal law enforcement agencies in the District are seeking to acquire or have acquired such equipment for operational tests.
- *Video Surveillance, including infrared detection*
  Video surveillance, including infrared detection and imaging, is a means of identifying and tracking vehicles. No additional equipment needs to be installed on-board the vehicle. Video surveillance is no longer dependent on humans to monitor video images for anomalous or suspicious activity, but is increasingly linked to software that provides automated intelligence to monitor the images. The simplest applications are widely deployed license plate readers that can automatically check registration numbers against a watch list. Other systems include facial recognition, motion detection, and detection of more complex anomalous events. Not all of these products are ready for mass deployment in an urban area, but many systems are available for testing and demonstration purposes. Automated software video monitoring would provide the ability to track vehicles that are attempting to evade official countermeasures on marked truck and hazardous cargo routes.
- *ITS-CVO Automatic Vehicle Identification (AVI)*
  AVI, combined with a wireless communications mechanism like dedicated short-range communications, can also be used to track and identify trusted vehicles in an urban area. As larger numbers of trucking companies equip their trucks with this technology for interacting with the FMCSA, District officials would be able to identify most large trucks crossing the District line using the major truck routes.

render the system ineffective. The following text box provides descriptions of a sample of applicable technologies.

6.6 CHALLENGES TO IMPLEMENTING A TRUCK SECURITY STRATEGY

The policies, countermeasures, and responses needed to address truck-borne threats touch upon the responsibilities of multiple agencies in multiple jurisdictions. The effectiveness of these measures will have a direct bearing on the safety of the District's residents and labor force, including the highest officials of the nation. There are several challenges to implementing a comprehensive truck security strategy that addresses the entirety of the District's urban space.

- *Who is in charge of implementing a truck security strategy for the District?*
  More specifically, is DDOT the appropriate agency? Security is a function of police agencies. However, with respect to transportation, public safety officials, including the police, focus on the resources that are required for emergency preparedness and response—evacuation routes, maintenance of infrastructure functionality in case of widespread power failure, and deployment of resources in the event of an attack. The MPD is underfunded for their present responsibilities, even without asking the department for increased attention to truck-based terrorism. Given that the MPD has other priorities, DDOT can provide the leadership in bringing the relevant agencies together to forge a truck security strategy that is integrated with overall truck monitoring and controls. However, as the programs are developed, the MPD will be the lead agency for implementing these efforts and for working with Federal law enforcement agencies.

- *What is the relationship of Federal law enforcement agencies to the District with respect to a truck security strategy?*
  Federal law enforcement agencies, most notably the U.S. Secret Service, have the authority to close streets and restrict traffic (and have exercised it) without prior consultation with the District government. Overarching security concerns will necessarily limit the extent that the Federal agencies communicate their plans for the most serious emergencies. However, from the standpoint of planning for preparedness, prevention, deterrence and detection during what has come to be the "normal" state of alert, these agencies can coordinate with the District government to ensure that commerce within the District remains viable and to enable District government resources to be a first line of defense outside of the core area containing key Federal facilities. Different Federal law enforcement agencies have practiced varying levels of coordination with the District concerning the effects of their security policies on traffic.

  The MPD Joint Operations Command Center is a model for cooperation between Federal and District law enforcement agencies. Implementation of a comprehensive truck security strategy will require a similar level of coordination.

- *What is the role of technology in truck security and do its benefits justify the resources necessary for implementation, operation, and maintenance?*

The continued incorporation and increasing ubiquity of what is broadly called technology in all areas of economic activity is an expected feature of modern life. Competitive pressures, cheaper devices, and Federal regulatory incentives are leading trucking companies to increasingly install technology to improve their operational efficiency in serving their customers and in interacting with government agencies. Some of these technologies can be leveraged to serve the purposes of truck security, especially as they become more widespread.

6.7 THE AVAILABLE RANGE OF STRATEGIES

The strategies available to DDOT fall in the following general areas:

- Integrate truck security measures with truck tracking and control mechanisms for other purposes, especially ITS/CVO.
- Aggressively pursue all opportunities to coordinate security measures with other District, Federal, regional, and neighboring state agencies.
- Become the lead agency for demonstrations and tests of advanced technology related to truck security in the District.
- Institute truck screening and inspection, especially for hazardous materials shipments.
- Implement a systemic, layered series of countermeasures.

6.7.1 Integrate Security with ITS/CVO and Crime Prevention

Many security measures can be integrated with other ITS/CVO and crime prevention measures. Any new projects or implementation enhancements in these areas should be evaluated against security requirements. A small increment of resources may enable the ITS or crime prevention installation to serve the needs of security.

The use of ITS is rapidly spreading. While the experience of the British shows that the redirection of ITS resources for security purposes is likely to be controversial, ITS planners are rapidly increasing the capabilities of ITS installations to be useful for security purposes.

A draft *ITS/CVO Business Plan* has been produced by SAIC and is being reviewed by the sponsoring agencies. The plan recognizes that CVO and security are complementary. It proposes several projects that are directly relevant to security concerns. Although later versions of this document may present a different set of specific projects, proposals in the current draft include a hazardous material vehicle monitoring system and an electronic fencing project.

With respect to anti-crime measures, the District has already installed closed-circuit televisions for the prevention of criminal and terrorist acts. Extensions of this system may be useful in identifying commercial motor vehicles, particularly those that are being operated in a suspicious way. Research is continuing in linking video surveillance with facial recognition software, but recent tests have been unsuccessful.

6.7.2 Coordinate with Intra- and Extra-Jurisdictional Agencies

District officials noted that an effective response to issues of truck-borne threats would need to start at the Capital Beltway in Maryland and Virginia. This will necessitate coordination with law enforcement and transportation agencies in the affected areas of these states.

6.7.3 Lead Technology Demonstrations

As the Nation's capital, the District is in a unique position to be on the cutting edge of using technology and stringent truck control policies to implement a security strategy. In addition to the FMCSA program, the DHS is beginning to implement port security demonstrations. Although not a port, the District might seek to design a demonstration project that shows how similar technologies can be used in the urban setting. The District can work with Federal agencies to become a test bed for policy and technological applications for security.

6.7.4 Screen Trucks, Especially Hazardous Materials Haulers

If a decision were made to restrict commercial vehicle traffic from an area of Washington, DC, a "trusted carrier" concept could be established for those wishing to provide transportation inside a secure perimeter. Carriers would need to screen their own cargo and maintain a secure storage/transfer facility outside the perimeter.

There are two ways to implement a secure perimeter. One is similar to the method the U.S. Capitol Police employs and involves establishing a pre-screening area for all non-trusted commercial vehicles and monitoring them as they move from the screening facility to the perimeter. The other method involves allowing only trusted or government-owned vehicles inside the perimeter, and off-loading all deliverable material from other carriers at an external transfer facility. Obviously, both of these alternatives have significant negative impacts in terms of cost and on the economic vitality of the businesses inside the secure perimeter. Just-in-time delivery of production materials, perishable goods, and general inventory has become a requirement for businesses wishing to remain on a level playing field in a competitive environment. The likelihood of a terrorist attack using a truck-borne weapon would have to be extremely high to warrant establishing a large secure perimeter.

In the current threat environment, it is more practical to consider smaller, more manageable perimeters such as those established around the White House and U.S. Capitol. Locations that also rank high on the list of potential terrorist targets might need to be similarly isolated, especially if the threat level were to increase. Precisely how these perimeters should be set up and operated needs to be outlined in a security plan that considers the areas of responsibility for the Federal and District governments, various safety and law enforcement officials, and employees of the businesses and agencies inside the perimeter.

DDOT should develop a truck security plan that describes actions that are to be taken during periods of high terrorist threat. This plan should identify key areas that need to be protected, and the actions needed to establish a secure perimeter. The DHS can provide a prioritized list of facilities and structures as guidance, but in general, these would be places that are icons of the Federal Government, key pieces of transportation infrastructure, and locations where large numbers of civilians may be located. The security plan should focus on ways to

make these areas more difficult to attack, and concepts for efficiently maintaining this security posture long term, should a high threat of terrorism become more protracted.

Routes approved for the conveyance of hazardous materials should be reconsidered given their potential for use as terrorist weapons. These routes should ensure safe standoff distance from areas that are high on the prioritized list of critical assets, and signs should be erected so that the routes are clearly marked.

As discussed in Section, Federal regulations place strict requirements on state and local governments with respect to restrictions on interstate truck traffic. Any screening of hazardous materials haulers could only be implemented with the agreement of the U.S. DOT.

6.7.5 Define Truck Security Zones

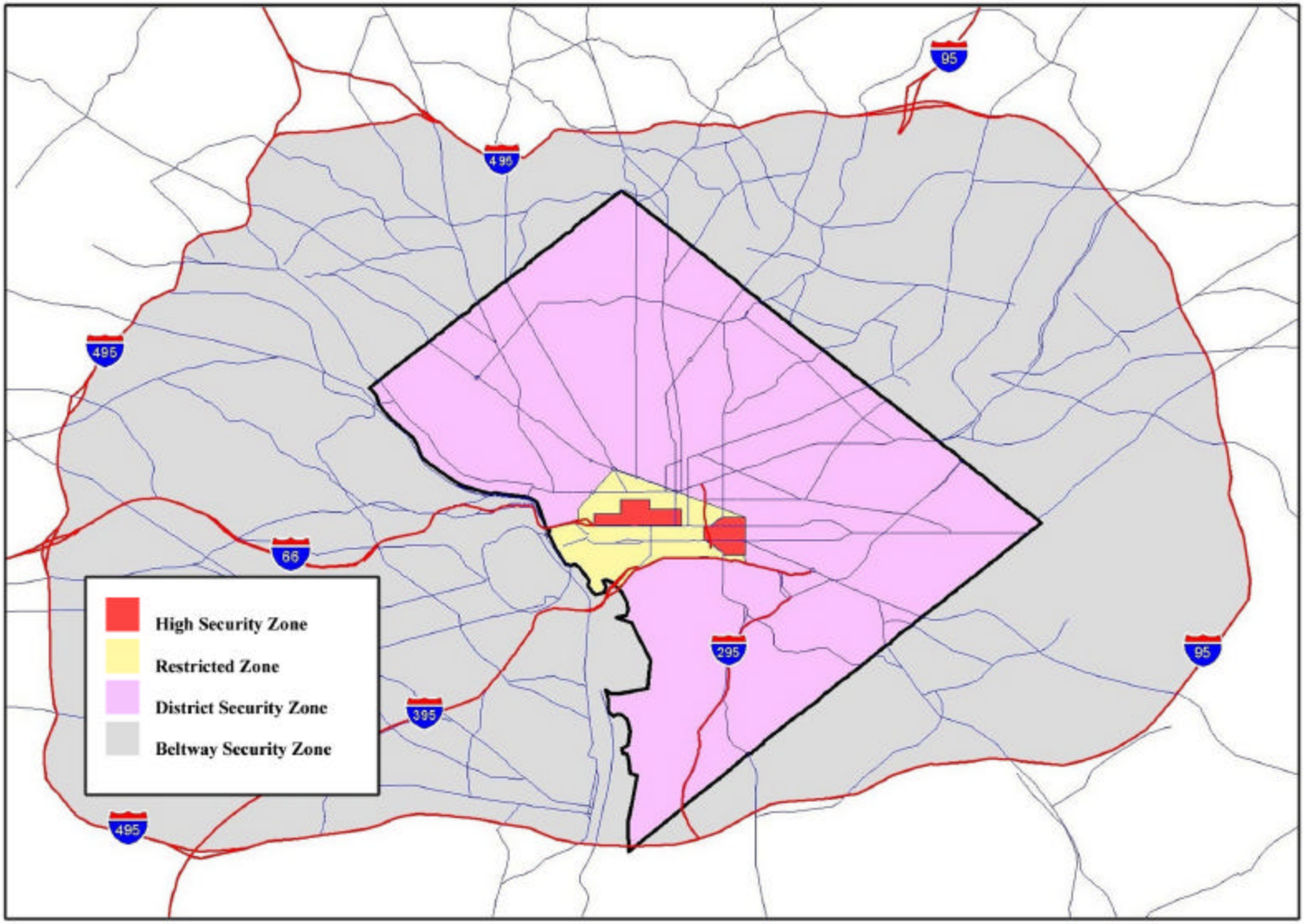
The kinds of measures suggested above, including creating a perimeter and instituting screening procedures, require the delineation of areas in the Washington, DC, region where a range of such measures can be applied. The zones, when first designated, can be used as a framework around which specific plans for truck security are drawn.

In coordination with Federal authorities and neighboring states, the District government can create a series of roughly concentric security zones surrounding the National Mall, the White House, and the Capitol Building. Over time, layered countermeasures and responses can be structured, with restrictions and other countermeasures based on the vulnerability and importance of potential targets within the zone. Zones closer to the National Mall area would have the strictest security measures and would require the closest coordination with Federal security agencies, while those farther out could have progressively more lenient measures in times of lesser threat, but at the same time would be the location of a series of detection (and possible interdiction) capabilities that could intercept a threat before it reached the inner zones.

Figure 21 shows the proposed zones, centered on the most secure red zone (actually two noncontiguous areas—one centered on the White House and the other on the U.S. Capitol), and continuing outward with the yellow, purple, and gray zones. The zones could be used to design a gradient of security measures as a truck moved from the Beltway toward the core of the District.

Starting from the Capital Beltway, the gray zone extends to the District line and is, of course, under the jurisdictions of Maryland and Virginia. Effective coordination, including policies of information sharing, and complementary procedures during periods of especially heightened threat are needed, as well as additional resources devoted to increased routine monitoring of truck traffic within the Beltway. The purple zone is bounded by the District line and the truck restriction zone defined in this study. District authorities can implement automated monitoring and geo-fencing measures close to the District line along the principal truck routes defined in this study. The yellow zone is equivalent to the restricted truck zone defined earlier in this document. Truck traffic would be permitted in this zone during daytime hours only under permit. The red zone comprises two areas: one includes

Figure 21. Proposed Washington, DC Regional Truck Security Zones



the White House, and key agencies such as the FBI and the State Department; the other roughly coincides with the U.S. Capitol no-truck zone.

Table 11 outlines the characteristics of the truck security zones. The attributes described are meant to be suggestive of the kinds of countermeasures to be instituted in each zone given the security threat level and the degree to which Federal, Maryland, Virginia, and District officials have control, particularly during times of heightened threat. Technology is a key to the countermeasures in all but the gray zone. The idea of technology portals in the purple zone is briefly described below. Even in the gray zone, technology is likely to be important, but the deployment of resources will be prioritized by the Maryland and Virginia state governments. The ERP refers to the emergency response plan that would be activated in the case of attack**.**

Table 11. Draft Characteristics of District Truck Security Zones

	Law Enforcement Agencies	District Technology Applicable?	Fuel Deliveries to Gas Stations	Threat Level		
				Yellow	Orange	Red
Red Zone	Federal, MPD	Yes	Prohibition considered	Screening; Detection; Identification	Screening; Detection; Identification	Traffic ban ERP
Yellow Zone	Federal, MPD	Yes	Restricted delivery	Truck restrictions	Truck restrictions; Detection Identification	Traffic ban ERP
Purple Zone	MPD	Yes	No restrictions	Focused inspections; Technology portals	Focused inspections; Technology portals	Screening ERP
Gray Zone	MD, VA police	No	No restrictions	Normal inspections	Focused inspections	ERP

6.7.6 Evaluate and Implement Countermeasures by Attack Phase

Broadly speaking, if all countermeasures were implemented, trusted trucks and buses operated by trusted drivers carrying verified cargo would be (1) continuously inspected for surreptitious improvised explosive devices, and (2) only travel at times and along routes known to the authorities. Alternate routes would be equipped with surveillance cameras to monitor the streets for unauthorized trucks and buses. In addition, all such vehicles would be equipped with foolproof remote engine kill switches with other means available to law enforcement agencies available to stop a suspicious vehicle.

Short of a war on U.S. shores, no municipality—not even Washington, DC—is likely to implement the full range of countermeasures for all trucks and buses. However, it is necessary to evaluate the efficacy of implementing subsets of these measures depending on

the type of commercial vehicle and the level of threat declared by the DHS. A comprehensive DDOT truck security plan will consider countermeasures applicable to all pre-attack phases attack timeline.

Preparedness.
To improve preparedness, agencies can use geospatial data to determine and refine truck security policy by analyzing existing truck routes, existing truck volume (by size and type of truck), hazardous materials terminals, facilities-at-risk, and facility standoff zones. This analysis will aid in defining the truck security measures to be taken in each security zone.

Prevention.
To prevent terrorist activities, commercial vehicle drivers and the public should be educated to recognize suspicious activity. One example of such a program is the American Trucking Associations' (ATA) Highway Watch program, which is a state-by-state effort where truck drivers report incidents of all types to a single-purpose telephone line. Drivers are trained to recognize the kinds of suspicious activity that might indicate a security threat. Additionally, the ATA runs the Trucking Information and Analysis Center to be an interface with the Federal Government, principally the DHS National Infrastructure Protection Center.

Further, hazardous materials and other commercial motor vehicle drivers should be trained to inspect vehicles for explosive devices. The ATA and bus trade groups have instituted voluntary programs to raise driver awareness of the need to thoroughly inspect their vehicles and safeguard their loads. Although beyond the scope of an urban area with a lower level of goods production and movement than most urban areas, technologies exist to assist the driver in safeguarding his or her load. This countermeasure is related to the FMCSA demonstration program. Once the technology is shown to be feasible and cost-effective, the District should consider entering into a demonstration where all trucks bearing hazardous materials would be required to have some of the technologies being tested. The District could also consider requiring tour bus and long distance bus operators in the District to adhere to a minimal set of standards for training drivers and implementing anti-terrorism policies, such as bag matching for intercity trips.

Deterrence and detection.
For deterrence and detection, perimeter(s) within which truck traffic is restricted and/or monitored can be established. This countermeasure is included here as part of systematic range of options that are available to the District. New York City, London, and the closing of Pennsylvania Avenue provide examples of the implementation of perimeters. Questions still remain on to how to best integrate the measures installed as part of the perimeter and how to apply the principles of facilities protection to the establishment of a perimeter around the core area of a city.

Within the perimeter, a range of strategies is available to define its characteristics, including:

- Conduct security-aware truck safety inspections
- Restrict truck access by route, permitted times, size of vehicle
- Identify vehicle, driver, contents

- Screen truck, driver, contents
- Detect explosive, nuclear, chemical, biological materials
- Detect unauthorized intruder vehicles
- Intercept and penalize unauthorized intruder vehicles

Again, technology exists to implement these countermeasures. Last year an unnamed European anti-terrorism police agency purchased a high-tech mobile vehicle explosive detection system, where vehicles equipped with detectors can unobtrusively scan suspicious vehicles for the presence of explosives inside another vehicle. California's DOT implemented a $20 million wireless surveillance system to transmit data from seven bridges and three tunnels in the San Francisco Bay area to a command center in Oakland. These examples suggest that truck security applications could consist of the following elements:

- Use of smart cameras to detect trucks in locations where they should be absent
- Use of mobile explosive detection equipment to scan trucks
- Use of wireless technology

Defense.

Any security area must be able to defend itself against unauthorized intruder vehicles that continue operating despite restrictions or orders to stop. Defense countermeasures are likely to be in the province of law enforcement; however, communications between transportation agencies are critical to mitigate any casualties or damages as a result of the incident.

6.8 Recommendations

1. ***Appoint a lead official within DDOT to coordinate the District's integration of large truck security with the District's truck management initiative, in general, and its ITS/CVO program, in particular***. The lead may be within the proposed Motor Carrier Office. This official will work closely with the MPD (and other agencies) to implement a series of layered countermeasures. The Security Officer should have sufficient seniority to interact and influence senior officials throughout the District government and within Federal agencies.

2. ***Create a technology portal demonstration, similar to the port and borders demonstrations, using resources from FMCSA, ITS Joint Program Office, and Transportation Security Administration***. An initial focus can be to create a virtual technology portal where trucks entering the District on the Georgia Avenue NW, Pennsylvania Avenue SE, New York Avenue NE corridors could be screened for proper credentials and for explosives or radioactive materials. The kinds of technologies included could be those being proposed in the District's *ITS/CVO Business Plan.* Figure 23 shows the approximate location of the technology portals. Some scanning for radioactive materials occurs at present; however, this effort would be analogous to the kinds of scanning currently being implemented at U.S. ports. Technology offers the opportunity to scan traffic without necessarily stopping it. This would only be a first step in creating a comprehensive strategy, as methods would need to be put in place to identify and intercept evaders.

3. ***Establish truck security zones to aid planning and to define the layers of countermeasures and responses to be deployed.*** As discussed above, the establishment of truck security zones will be an aid to defining the roles of the many security stakeholders, the policies to be implemented given distance from the District core and the threat level, and the kinds of technologies that are appropriate for deployment (or testing) depending on location within the District. The measures instituted for the truck security zones (especially the red and yellow zones) may include security inspection sites, increased random security inspections, and trusted driver/carrier programs. Any such efforts would need to fall within the requirements of Federal requirements for interstate trucking.

4. ***Explore restricting the transport of gasoline tankers into the yellow and red zones.*** There are a small number of gas stations located within the core security area of the yellow zone. Because of the sensitive nature of the targets in this area, the District should consider prohibiting gas tankers from entering the area. Alternatively, a strictly enforced policy of nighttime-only deliveries can be instituted. Federal hazardous materials regulations strictly define the process state and local governments must follow to place any limits on hazardous materials trucking. Any restriction of gasoline tankers by the District would require agreement by the Federal Government, which has ruled against such restrictions in the past.[23]

5. ***Consider countermeasures, such as a unified truck inspection facility or a "trusted" carrier program, as part of a comprehensive truck security strategy within the red or yellow zones.*** Trucking, package delivery, construction and service delivery firms face a patchwork of security requirements depending on the customer being served. While it will not likely be possible for DDOT, Federal security agencies, and private property managers to institute blanket truck security procedures for an extensive portion of the red and yellow zones, DDOT should begin to explore with its Federal and private security partners the feasibility of unifying and sharing countermeasures for some subset of facilities within these zones.

6. ***Consult with Federal hazardous materials transport regulators on the feasibility of further restricting through-truck-traffic carrying hazardous materials within the District***. As in Recommendation 4, any local restrictions on hazardous materials movement are governed by Federal regulations.[24] The volume of hazardous materials through-truck traffic in the District is small by most observations, an argument that can be used both for and against pursuing a total restriction. The singular nature of the District as the Nation's Capital is an argument for consultation with Federal officials on feasible actions for further restricting hazardous materials transport in the District.

7. ***Enhance District regulations regarding the transport of hazardous materials.*** At present, only a few specific types of hazardous materials require permits to be transported within the city. Further, the procedures that carriers must undergo to obtain the permits are not well publicized. The District government should implement a

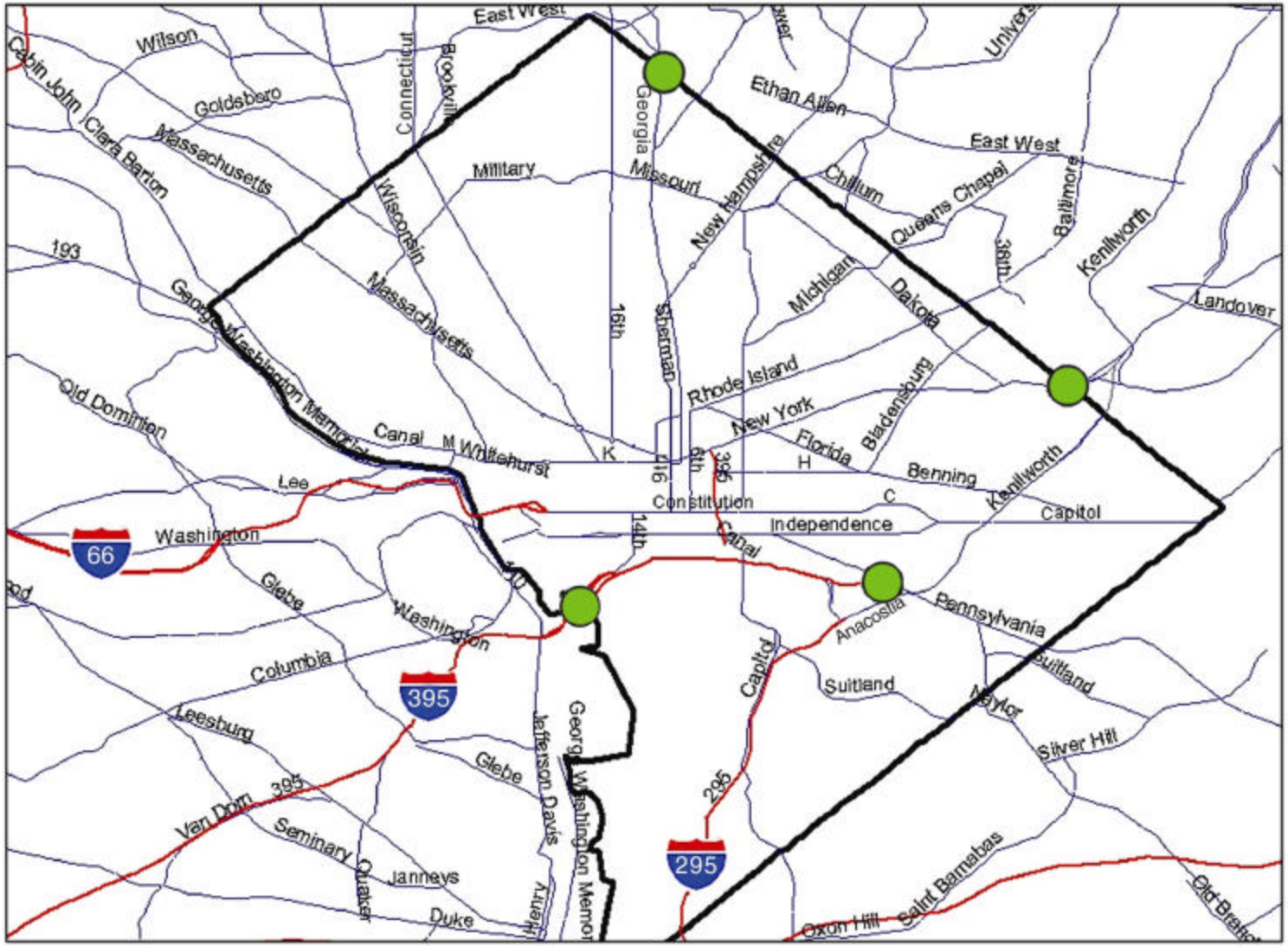
[23] 49 CFR Part 397 Subpart C
[24] ibid.

program for more closely permitting and monitoring hazardous material transport. Again, any such programs must follow Federal hazardous materials regulations governing state and local action in this area, in particular, any permitting and fee program must be "fair and used for a purpose related to transporting hazardous material, including enforcement and planning, developing and maintaining a capability for emergency response."[25]

8. ***Prepare a comprehensive truck security plan.*** DDOT will assemble data, deliberate with Federal agencies, coordinate its efforts with other District and neighboring state agencies in order to determine the feasibility of and execute the recommendations above. The results of these deliberations should be compiled into a comprehensive truck security plan that integrates individual projects into a whole. The plan should evolve over time as specific projects, such as the technology portals, are implemented and evaluated.

[25] 49 CFR 107.202

Figure 22. Technology Portals



7. TRUCK ROUTE RECOMMENDATIONS

Consider some of the most important concerns about truck traffic in the District: noise and vibration complaints from residents; security concerns around high-risk facilities; congestion; and the need for better information and services for truck operators and their customers. The creation of designated truck routes in the District can address these concerns simultaneously, albeit to varying degrees. This section makes recommendations about how to design a truck route network. A summary of the important traffic issues is presented below, followed by recommendations for a designated truck route system for the District.

7.1 SUMMARY OF EXISTING TRUCK TRAFFIC CONDITIONS

Trucks constitute approximately 5 percent of the traffic in the District; however, truck traffic is not distributed uniformly throughout. For example, on Georgia Avenue about 14 percent of traffic is trucks. Most truck traffic is destined for locations within the District (rather than passing through the District) and consists primarily of 2-axle, 4- and 6-tire vehicles, with a small percentage of larger and combination-type trucks on the major truck corridors.

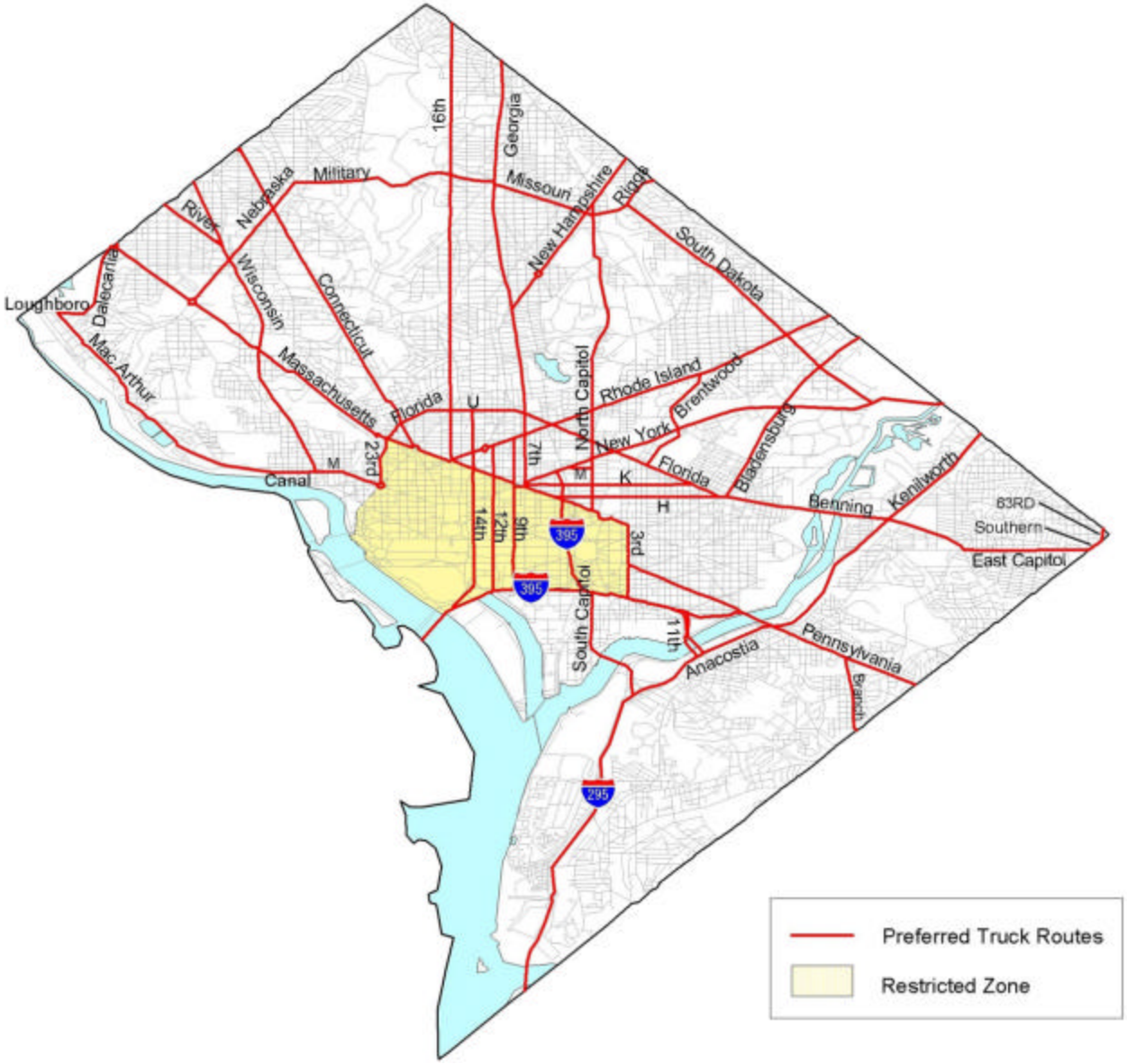
Based on an analysis of data related to truck traffic and restrictions in the District and on interviews with various stakeholders, several important issues arise:

- The District does not have designated or recommended truck routes.
- There are several roads that have restrictions on one side of the District border with Maryland or Virginia that are not consistent with truck restrictions on the other side of the border.
- Neighborhood residents object to truck traffic cutting through residential streets.
- Double-parked vehicles cause traffic tie-ups on many arterials, especially in Georgetown, Downtown, and the Golden Triangle.
- Trucks pose potential security risks because of their ability to carry large amounts of hazardous materials, both as a necessary part of conducting business in such facilities as the U.S. Mint, and by terrorists.

To better manage truck travel, improve mobility, and enhance the level of safety and security, the District government can implement a series of preferred truck routes; a zone in the heavily congested and security-sensitive downtown area, from which large trucks would be prohibited during the business day; and truck prohibitions on all other roads unless travel on the street is necessary for the truck to reach its destination. There would be a streamlined permitting process through which truck operators could receive permission to travel on otherwise restricted or prohibited roadways. Figure 23 shows the recommended preferred truck routes and restricted zone.

The preferred, restricted, and prohibited routes presented here would encourage trucks to use major arterials for traversing the District, thereby largely eliminating them from side streets and other roadways with inadequate geometry or pavement quality for large trucks. This would be beneficial to both truckers and residents. Truck operators would get reliable

Figure 23. Preferred Truck Routes and Restricted Zone



truck routes with roadway geometry and pavement condition adequate to accommodate large trucks. The ease in maneuverability on these larger roads could result in fewer trucks crashes. At the same time, residential neighborhoods would be isolated from large truck traffic. The creation of the restricted zone would permit smoother traffic movement in the major business district by eliminated large trucks from this area during the business day, thus alleviating congestion.

7.2 PREFERRED TRUCK ROUTES

The preferred truck routes are the corridors essential to freight movement in the District and currently carry the bulk of truck traffic. Furthermore, they have design characteristics that make them conducive to the movement of large trucks, thus encouraging trucks to use them and avoiding cut-throughs on residential streets.

The following is a list of preferred truck routes, which are mapped in Figure 23.

- Anacostia Freeway (US 295, all)
- Benning Road from East Capitol Street to Florida Avenue
- Bladensburg Road (all)
- Branch Avenue SE from the District border to Pennsylvania Avenue SE
- Brentwood Road (all)
- Canal Road NW from Macarthur Boulevard to M Street NW
- Connecticut Avenue from District border to Massachusetts Avenue
- Dalecarlia Parkway from Loughboro Road to Massachusetts Avenue NW
- East Capitol Street from Benning Road to the District border
- Florida Avenue from Bladensburg Road to U Street
- Florida Avenue NW from Massachusetts Avenue NW to Vernon Street NW
- Georgia Avenue (all)
- H Street NW/NE from Massachusetts Avenue to Benning Road
- Interstate 395 (all)
- Interstate 295 (all)
- K Street NW/NE from Mount Vernon Place to Florida Avenue NE
- Kenilworth Avenue NE (all)
- Loughboro Road from Macarthur Boulevard to Dalecarlia Parkway
- M Street NW from US 29 (Francis Scott Key Bridge) to Pennsylvania Avenue NW
- M Street NW from North Capitol Street east to New York Avenue NW
- Macarthur Boulevard from Loughboro Road to Canal Road NW
- Massachusetts Avenue from District border to 3rd Street NE
- Military Road from Nebraska Avenue NW to Missouri Avenue NW
- Missouri Avenue NW from Military Road to Riggs Road NE
- Nebraska Avenue NW from Massachusetts Avenue to Military Road
- New Hampshire Avenue NE/NW from District border to Georgia Avenue
- New York Avenue NE/NW from District border to Massachusetts Avenue NW
- North Capitol Street from New Hampshire Avenue to Massachusetts Avenue
- Pennsylvania Ave SE from District border to 3rd Street SE

- Rhode Island Avenue (all)
- Riggs Road NE from Missouri Avenue to District border
- River Road NW from District border to Wisconsin Avenue NW
- South Capitol Street from the Southeast Freeway to Interstate 295
- South Dakota Avenue NE from Riggs Road to Bladensburg Road
- Southern Avenue SE from East Capitol Street to 63rd Street NE
- U Street NW from 9th Street NW to 18th St NW
- Wisconsin Avenue NW from District border to M Street NW
- 3rd Street NE/SE from the Southeast Freeway to Massachusetts Avenue
- 7th Street from Massachusetts Avenue NW to Rhode Island Avenue NW
- 9th Street NW from I-395 to Rhode Island Avenue NW
- 12th Street NW from Independence Avenue SW to Massachusetts Avenue NW
- 14th Street NW from Maine Avenue SW to U Street NW
- 16th Street NW from Massachusetts Avenue to District border
- 23rd Street NW from M Street NW to Massachusetts Avenue NW
- 63rd Street NE from Southern Avenue to District border

The above roadways offer linkages to the Beltway and provide for good connectivity throughout the District. Further, they constitute a major part of the de facto truck routes used by truck drivers. The recommendation of Military Road as a preferred truck route is sure to be controversial since it is a residential street. Residents voiced concerns about safety (due in large part to trucks exceeding the speed limit), noise, vibrations, and air pollution on this road. However, it is the only east-west arterial in the northern part of the District and is therefore important for truck movement in the city. Some of the residents' concerns can be ameliorated by better enforcement of traffic laws, especially speeding and weight restrictions.

7.3 RESTRICTED ZONE

To address concerns about congestion and security, this report recommends the implementation of a restricted zone in the downtown area. This zone, which is shaded in yellow in Figure 23, would have the following regulations:

- It is bounded by:
  - 23rd Street NE/NW from Ohio Drive SW to Massachusetts Avenue NW
  - Massachusetts Avenue NW from 23rd Street NW to 3rd Street NE
  - 3rd Street NE/SE from Massachusetts Avenue NW to the Southeast Freeway
  - The Southeast Freeway from 3rd Street SE to Interstate 395
  - Interstate 395 from the Southeast Freeway to the Potomac River
- Trucks with 2 axles, 6 tires and smaller would be permitted at all times on the preferred truck routes located within the zone (9th, 12th, and 14th Streets).
- Trucks with more than 2 axles or 6 tires would be prohibited from the zone from 7 AM to 6 PM Monday through Friday.
- Trucks with more than 2 axles and 6 tires would be permitted from 6 PM to 7 AM Monday through Friday and 6 PM Friday to 7 AM Monday.

- All trucks would be required to use the preferred truck routes unless deviation from the routes is necessary to reach the vehicle's final destination.
- Interstate 395 would be exempt from the above restrictions, permitting all trucks at all times (except those otherwise restricted by the height and hazardous cargo restrictions for the 3rd Street Tunnel).
- There would be a streamlined permitting process that would allow large trucks to travel within the restricted zone outside of the above rules.
- Existing Federal restrictions around the Capitol would remain in place.

At present most large trucks operating in this area during the daytime hours are food and beverage deliveries, trash haulers, construction trucks, office movers, and gasoline trucks. As part of the implementation of these recommendations, DDOT will have to work with truck operators and their customers to find a solution that is suitable for all stakeholders. It might be possible to shift some of these trips to nighttime hours. Alternatively, it may be possible for operators to make the same deliveries with smaller vehicles, which are allowed in the restricted zone during the workday. If necessary, operators can receive short-term or long-term permits to operate large trucks within the restricted zone during the workday.

7.4 OTHER ROADWAYS

Trucks of all sizes would be prohibited from using streets that are not designated preferred truck routes unless travel on the street is necessary for the vehicle to reach its final destination. Emergency vehicles would, of course, be exempt from truck route restrictions. Construction vehicles, which may have to travel off the preferred truck routes over an extended period of time, would be issued a permit exempting them from the truck route regulations and allowing them to travel to and from the construction site using routes approved during the permitting process. Other vehicles and operators may require similar special exemptions, such as trash trucks using the Fort Totten transfer station. These situations will be handled on a case-by-case basis. Trucks owned or operated by the District government will be required to comply with all truck route regulations, and will be able to obtain permits for exemptions when necessary.

7.5 OTHER CONSIDERATIONS

Enforcement

The implementation of truck routes will decrease truck-related problems only if truck operators obey the routes and restrictions. Clear, consistent signing of truck routes and restrictions is one way to encourage trucks to stay on designated routes. However, DDOT must also work closely with the MPD to enforce the new restrictions. Over time, DDOT and MPD must continue to coordinate enforcement activities on streets that are known to have a large number of truck restriction violations.

Truck Restrictions by Size Rather than Weight

While truck restrictions are usually mandated based on vehicle weight, this truck route scheme restricts based on vehicle size. This is because:

- Restrictions based on vehicle size (which is easily observed) are easier to enforce than restrictions based on vehicle weight, which must be measured.

- Currently, there is not enough weight information available on trucks traveling within the District to make informed choices about how to restrict truck traffic based on vehicle weight.
- The truck-related problems in the District are generally not a function of truck weight. Rather, they are about truck *movement*: where trucks travel and where they stop for loading/unloading.

As more information on weights of trucks operating in the District becomes available and as weigh-in-motion facilities are constructed for the District, a weight restriction may be considered for the truck routes.

Induced Small Truck Travel

With trucks larger than 2-axle, 6-tire vehicles prohibited from the restricted zone during the business day, truck operators might substitute several trips with smaller vehicles for a single trip now made with a larger vehicle. This could result in an increase in the total number of truck trips within the restricted zone. In the absence of more comprehensive traffic and vehicle classification counts, there is no appropriate way to predict the number of new small-truck-trips that would be generated by the restrictions. This issue may have to be addressed in the future when better data is available.

8. PILOT PARKING STUDY

There are a myriad of truck parking problems in the District's central business areas: insufficient loading zone space on- and off-street; loading spaces that are too small for large trucks to use; inconsistent enforcement of parking regulations, especially double-parking; low turnover of metered passenger-vehicle spaces; and time-of-day loading zone designations that do not coincide with heavy courier and truck deliveries. While it is outside the scope of this study to address specific problem spots, to gain a better understanding of parking and loading issues, Volpe did a careful analysis of truck parking conditions on K Street between 16th and 21st Streets NW.

This area was chosen because of its importance as one of the main commercial and office districts of the city. The Golden Triangle area south of Dupont Circle has over 8,000 businesses, more than 600 national and international company headquarters, and more than 800 retail establishments. With the information from the study of this area, Volpe was able to learn important characteristics of truck parking in one of Washington's busiest commercial areas, and to come up with a list of recommendations for a parking plan for the area, and perhaps for other parts of the city as well.

8.1 STUDY AREA CHARACTERISTICS

K Street between 16th and 21st Streets NW (hereafter referred to as the study area) is located directly northwest of the White House. It contains a FedEx World Service Center, several prominent banks, and many restaurants. Transit access is available from the Farrugut North Metro Station on the corner of K Street and Connecticut Avenue. Parking garages are available throughout the area and many blocks have alleyways for off-street loading and unloading.

Most of the blocks in the study area have a mix of office and retail businesses, with the retail on the first floor and offices above. Figure 24 shows the street configuration, parking regulations, and commercial properties on K Street between Connecticut Avenue and 18th Street, a typical block in the study area.

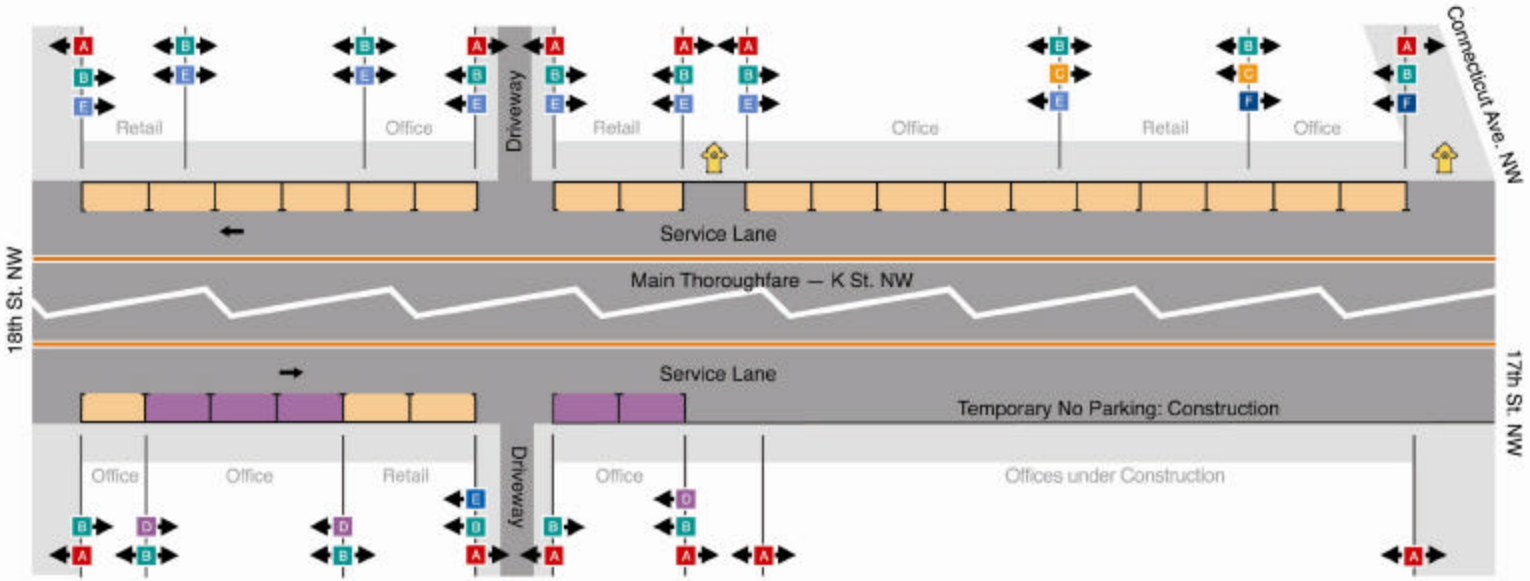
8.2 EXISTING PARKING INFRASTRUCTURE

The signs on the curbsides provide two types of on-street spaces available for loading and unloading in the commercial area:

Type 1. *No standing except commercial vehicles from 7:00 to 9:30 AM and 4:30 to 6 PM.*

Type 2. In addition to above, *No parking except loading and unloading 9:30 AM to 4:30 PM.* The combination of these two restrictions results in parking spaces reserved exclusively for commercial vehicles between 7 AM and 6 PM.

Figure 24. On-street Configuration — K Street NW Between Connecticut Avenue NW and 18th Sreet NW



Type 1: Reserved for commercial vehicles 7:00 AM–9:30 AM

Type 2: Reserved for commercial vehicles 7:00 AM–6:00 PM

Sidewalk

DETAIL: PARKING RESTRICTIONS & SIGNAGE

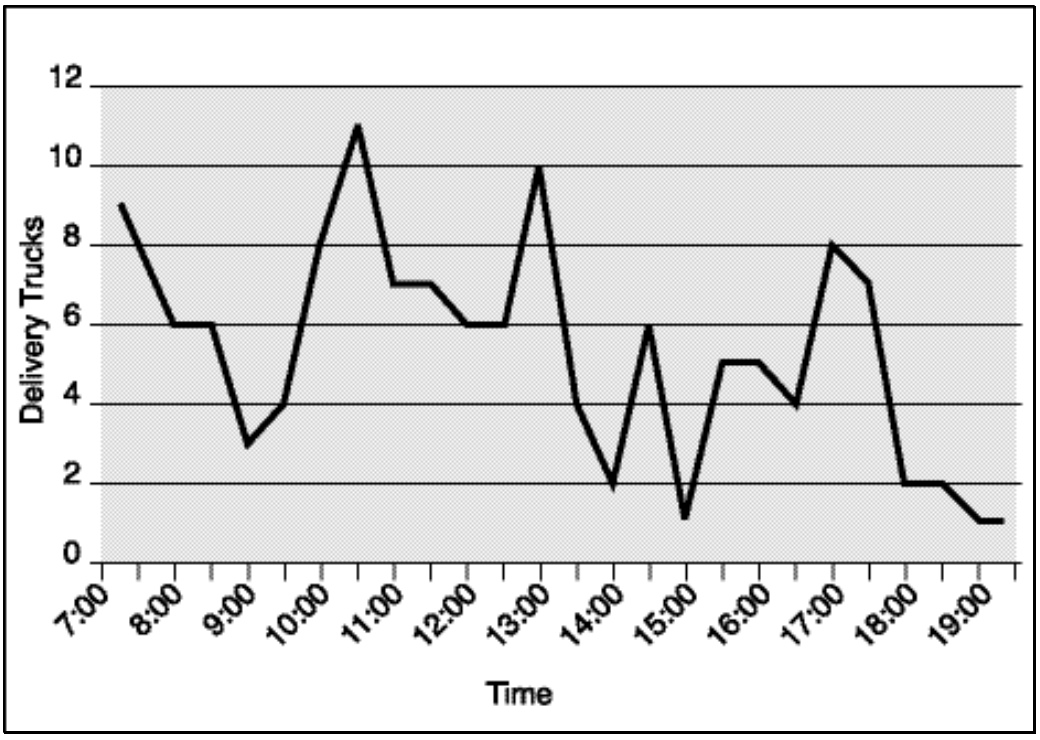
- A No Parking or Standing Anytime
- B No Standing 7:00–9:30 AM or 4–6:30 PM, Mon.–Fri., Except Commercial Vehicles
- C No Parking Entrance 9:30 AM–4:30 PM, Mon.–Fri.
- D No Parking Loading Zone 9:30 AM–4:00 PM. Mon.–Fri.
- E 2-Hour Parking 9:30 AM–4:00 PM, Mon.–Fri.
- F 30-Minute Parking 9:30 AM–4:00 PM, Mon.–Fri.

Type 1 spaces become metered parking spaces for passenger vehicles in off-peak hours. Each block has 15-20 passenger-car-sized metered spaces, resulting in about 150 Type I spaces in the study area. Type 2 spaces are governed by two different signs that prohibit parking by passenger vehicles during the peak periods (one sign) and in between the peak periods (another sign), resulting in an exclusive loading zone from 7 AM to 6 PM. There is approximately one Type 2 space per block and eight for the entire study area.

8.3 TRUCK BEHAVIOR OBSERVATIONS

The parking and loading/unloading behavior of trucks was observed during a 12-hour period between 7 AM and 7 PM on a weekday. A total of 144 trucks entered and exited the study area during the observation period, for an average of about 12 trucks per hour. Figure 25 shows the number of trucks entering the study period for each 30-minute interval during the observation time.

Figure 25. Trucks per 30 Minutes
K Street between Connecticut Avenue and 18th Street NW



The 12-hour observation period shows three distinct peaks:

- Morning peak around 10 AM
- Noontime peak around 12:30 PM
- Afternoon peak around 5 PM

Three kinds of truck trips were made to the study area: food and beverage deliveries, mail and courier service deliveries, and other services such as elevator repair vehicles. Table 12

contains the details of the truck trips: the number of trucks in each trip category, the average parked time for each truck, and the range of parking times observed.

Table 12. Delivery Statistics for the Study Area

Type of Trip	Number of Trucks	Average Parked Time (minutes)	Range (minutes)
Food and beverage	22	12	2-74
Courier (USPS, FedEx, UPS)	42	20	1-105
Other	80	31	1-360
Overall	**144**	**28**	**1-360**

Courier vehicles and trucks delivering food and beverages were primarily 2-axle, 4- and 6-tire vehicles, with a few larger 3-axle trucks. The "other" category had a significant number of commercial and service vans.

Approximately 14 instances of parking violations were observed during the 12-hour observation period. These included parking on the main thoroughfare of K Street rather than on the service street, parking on the median between the main thoroughfare and the service street, and double-parking such that traffic flow was severely affected.

More trucks entered the study period during the hour just after the morning peak period loading zone restrictions expired and during the lunch hour between noon and 1 PM than during any other hours of the day. Loading spaces were generally available for trucks during the morning peak because most metered spaces are reserved for loading zones during this time. However, after the morning peak period, significant congestion resulted from trucks that lacked parking spaces. There is a mismatch between the hours that trucks need parking spaces and existing parking restrictions.

Note that the commercial vehicle designation on the curbside signs allows spaces reserved for loading zones to be occupied by all vehicles with commercial license plates, regardless of whether they are loading and unloading goods. On-site observations revealed that many vans with commercial license plates blocked loading areas all day long. While this is technically legal, these vehicles did not contain goods that needed to be loaded or unloaded, thus reducing the number of spaces available for delivery vehicles. There is little turnover of these loading spaces for courier and other trucks needing spaces for short periods of time.

While each block in the study area had at least one Type 2 space, this seemed to be insufficient for the requirements of the area. Additionally, there appeared to be inadequate turnover of these spaces, with commercial vehicles occupying them for long periods of time without actively loading or unloading goods.

Observations revealed that larger trucks (single unit, 3- or 4-axle trucks) were unable (or found it too difficult) to park in side lanes and alleyways, thus forcing them to block a traffic lane to make deliveries. This was one of the main problems during the afternoon off-peak hours.

8.4 STAKEHOLDER PERSPECTIVES

To ensure that the needs of businesses and freight operators are not adversely affected by the recommendations resulting from this pilot parking study, major stakeholders were interviewed. With assistance from the Golden Triangle BID, Volpe invited property managers, retail shop owners, and representatives from courier services to participate in this study by providing their perspective on truck traffic in the study area.

Each of the groups said that the lack of adequate parking enforcement was one of the main problems in the office district. Too often, they find spaces reserved for loading and unloading occupied by passenger vehicles. Property managers further noted that most deliveries to their buildings take place in the alleyways. While the alleyways with an outlet are convenient for this purpose, other alleyways are extremely inconvenient because they require trucks to back out of the alleyway. Property managers mentioned plans for consolidated loading/unloading centers for each office block to alleviate truck parking problem and address security issues. Representatives from courier companies expressed a willingness to meet with building managers about this issue.

Additionally, property managers noted that District regulations generally prohibit trash haulers from picking up trash before 7 AM. This causes large trash trucks to come in during the peak hour to clear garbage in the morning. This results in increased congestion during morning peak hours.

The stakeholders noted that there is very little short-term parking in the study area largely because employees who work in the area occupy the spaces all day, feeding the meter every two hours. Interviewees felt that this defeated the purpose of the meter, which is intended to create short-term parking for shoppers and visitors.

Courier services mentioned that the morning peak was extremely important to them as most deliveries are made during this time period. While they felt that their quick delivery stops resulted in high turnover of parking spaces, they also felt that there simply are not enough parking spaces available to them, forcing drivers to park illegally. In some cases, drivers who want to park legally are forced to park up to two blocks away from their delivery destination. Representatives from courier companies said that they would be willing to pay a premium to ensure that short-term parking spaces were available for their vehicles.

Retail stakeholders were concerned primarily with parking enforcement to ensure turnover in parking spaces so that their customers can find a convenient spot. They also noted that the morning peak was an important delivery time for them because most deliveries are made before noon. The retail representatives said that the delivery schedule was largely in the hands of the truck operators and felt they had little say in the matter. They also expressed concern that trucks sometimes tie up an alleyway for hours while making deliveries,

waiting, or parking. This loading and unloading space is then not available for other deliveries.

8.5 RECOMMENDATIONS

The following are recommendations for a parking plan based on conditions in the study area:

Short-term:

- Increase the number of dedicated loading/unloading spaces per block, both on- and off-street. One idea is to follow Chicago's lead in requiring that one loading space be provided for every 100,000 square feet of commercial space.
- Expand morning parking restrictions to 11 AM to accommodate couriers and deliveries of perishable goods.
- Modify curbside signs so that loading zones are reserved for vehicles that are actively loading or unloading goods. This will increase turnover of parking spaces.
- Implement a maximum time that vehicles can occupy loading zones. The allowed time can be based on the average time needed for the various kinds of loading and unloading activities.
- Encourage building owners to reserve off-street parking spaces for commercial vehicles that are expected to be parked for several hours, such as vans used by companies doing repairs in the building.
- Step up enforcement of parking regulations, especially those that apply to vehicles that are blocking a traffic lane or that are illegally parked in a commercial vehicle zone.
- Eliminate multiple and confusing signs to clarify parking regulations.
- Publicize the DPW tow-away hotline, which accepts complaints about illegally parked vehicles and may tow them away.

Long-term:

- Consider restricting parking of trucks larger than 2-axle, 6-tire vehicles to off-peak.
- Install parking meters for commercial vehicles in restricted spaces to encourage turnover.
- Increase fines for parking offenses.
- Consider the implementation of a fee system whereby couriers pay a premium to have parking spaces reserved solely for their vehicles during their peak delivery times.
- Implement a permit system for commercial vehicles that occasionally need space all day for doing maintenance and other work in area buildings. These vehicles would be allowed to occupy on-street loading/unloading spaces with the permit even if they are not actively loading or unloading goods. Building owners would be allowed a limited number of permits for such vehicles.

8.7 ENFORCEMENT

Enforcement of parking regulations is an important component of any strategy to ameliorate on-street parking problems. DDOT should work with the DPW—which is currently responsible for parking enforcement—to ensure that parking regulations are regularly enforced. This is particularly important in areas where double-parking is a pervasive problem. Parking officials should concentrate enforcement activities on passenger vehicles that are illegally parked in loading zones and on any vehicles—commercial or private—that are double-parked and blocking travel lanes.

To better coordinate parking policy, enforcement, and traffic operations, parking enforcement responsibilities should be housed in the same agency as traffic operations and parking policy. Further, the District government may want to consider increasing parking fines to increase their deterrent effect.

9. MOTOR CARRIER OFFICE

One of the key recommendations of this study is the creation of a single office within DDOT to coordinate all motor carrier-related issues (trucks and motor coaches). At present, regulation and enforcement of motor carrier activities is handled by several different agencies within the Federal and District governments. While this allows each agency to apply its own specialized expertise, it also creates a confusing and disjointed regulatory environment. Representatives from trucking firms and District government agencies who were interviewed for this study all stated that they had at best an incomplete knowledge of who does what with respect to motor carrier operations. District agencies must better coordinate, cooperate, and communicate among themselves to improve the regulatory structure of motor carrier management.

For a more complete understanding of the overall regulatory picture, Figures 26-32 show flow charts mapping the current processes for the following activities:

- Commercial driver licensing
- Commercial vehicle licensing
- Washington, DC lawmaking
- Traffic and parking regulation and enforcement
- Size, weight and safety enforcement
- Review of loading zones in development plans
- Review of construction truck traffic control plans

While these diagrams simplify some processes to highlight the important steps, a glance at them shows how complicated some of these processes are. During interviews conducted for this study, many commercial vehicle operators expressed frustration that they did not know how to navigate the maze of regulations and offices to, for example, get permission to temporarily close a lane of traffic to work on overhead utilities. In some processes, there seem to be extraneous steps, such as the DCRA issuing permits for oversize and overweight vehicles. Expertise on roadway geometry and condition rests in DDOT; it seems that permitting oversize and overweight vehicles should be its responsibility. Other processes are spread across different agencies, making coordination difficult. For example, parking policy is created in DDOT while parking enforcement is done by DPW. Careful coordination between policy and enforcement is important to get good policies and effective enforcement.

Some degree of complexity is inevitable and is not necessarily undesirable, since it allows each of the agencies to apply its specialized resources to specific motor carrier issues. Nonetheless, improvements could be made. There are opportunities for streamlining administration without sacrificing expertise. Moreover, the diagrams show that the several different motor carrier processes operate in isolation from one another. There is no single office or agency with a comprehensive understanding of all motor carrier issues; further, there is no single agency or office to help the freight industry navigate the administrative labyrinth to comply with all of the relevant regulations. The following recommendations are designed to address these issues.

9.1 RECOMMENDATIONS FOR A MOTOR CARRIER OFFICE

DDOT should establish a Motor Carrier Office (the exact name to be determined later, but abbreviated MCO here) with the following of responsibilities:

- ***Serve as the single point of contact for motor carrier-related inquiries.***
  The MCO would promote motor carrier safety and regulatory compliance by serving as a "one-stop shop" for freight and bus industry inquiries. This would include questions about driver licensure, vehicle registration, routes and restrictions, size and weight limits, noise restrictions, and hazardous materials transport. The MCO would provide information and outreach materials through a combination of walk-in office hours, telephone lines, and a website portal. In most cases, the MCO would provide inquirers with an overview of the relevant regulatory process and refer them to the appropriate agency. The MCO would also receive complaints and suggestions from residents and the business community on issues such as noise, parking, and routing. These would either be referred to the relevant agency or acted on directly, as appropriate.

- ***Staff the proposed multi-stakeholder Motor Carrier Committee.***
  The Motor Carrier Committee would bring representatives from the public and private sector s and residents together to discuss issues related to motor carriers and develop mutually beneficial solutions. The MCO is the logical choice to be the city's principal staff-level representative to this committee.

- ***Act as the lead office in designating preferred motor carrier routes and motor carrier restrictions.***
  This function would be transferred from DDOT TSA and the Infrastructure Project Management Administration (IPMA), and would include the formulation of restrictions related to routing, weight, time of day, and other factors. As part of this role, the MCO would also be responsible for commissioning and overseeing the engineering studies, stakeholder consultation, and other research necessary to develop and implement these policies.

- ***Issue special permits.***
  Currently, overweight and oversize vehicle permitting is done by the DDOT Public Space Management Administration (PSMA) and the DCRA. The implementation of the recommendations of this study would require and additional permitting process for waivers from truck restrictions. The MCO would be charged with developing, in consultation with appropriate agencies, appropriate criteria for evaluating applications and issuing permits. This function might also entail coordination with the DMV, so that vehicle registration information could be reviewed at the time of permit processing.

- ***Work with the DDOT Chief Information Officer on motor carrier technologies.***
  The MCO would oversee the research and development efforts on ITS/CVO and other technologies related to truck and bus traffic.

- ***Work with DDOT TSA, IPMA, and other DDOT administrations on various issues relating to motor carrier traffic, including construction trucks.***

This would include curbside management policies, parking enforcement, review of roadway construction plans, and other traffic management issues as appropriate. As part of this duty, the MCO would coordinate with other agencies to develop a plan to monitor and mitigate the effects of construction-related vehicles, given that construction traffic is inherently short-term and that construction vehicles do not establish regular, long-term travel patterns. Also, the MCO would review construction-related traffic control plans, issue any necessary permits for truck routing, and coordinate construction-vehicle routing among the different construction projects ongoing at any given time.

- ***Coordinate with, and provide input to other government agencies on motor carrier-related issues.***
  Specifically, the MCO could:
    - Work closely with the MPD on noise regulations and particularly on size, weight, and safety enforcement. For example, the MCO could provide suggestions to the MPD on priority enforcement locations.
    - Work with planning and zoning authorities to review development plans and ensure that proposed developments include adequate off-street loading areas.
    - Coordinate with the DMV on commercial driver licensing, vehicle registration, oversize vehicles, annual safety and emissions testing, and the adjudication of parking tickets. The DMV would retain responsibility for these functions.
    - Coordinate with the Emergency Management Administration, FEMS, the DOH, the MPD, and Federal authorities such as the FBI, the Secret Service and the Capitol Police on issues relating to the transport of hazardous waste and materials, explosives, radioactive materials, and on emergency management and evacuation procedures.

- ***Coordinate with other local, regional, and Federal public-sector bodies as appropriate.***
  This could include assisting the Capitol Police, DHS, and other agencies on security matters. Regional coordination on motor carrier issues could also be established with the MWCOG, and with representatives from Maryland, Virginia, and nearby cities and counties. The MCO would also work with agencies of the U.S. DOT, including the FMCSA and the Research and Special Programs Administration Office of Hazardous Materials Safety.

- ***Identify and manage motor carrier-related funding sources.***
  This would include establishing fees for motor carrier licensing, registration, and permits, as well as penalties and fines for motor carrier program violations. Funds generated by the MCO could be retained to pay the cost of implementing and enforcing the program.

Most District agencies would retain their current motor carrier functions. Specifically, the DMV would continue to handle operator licensing, vehicle registration, annual safety and

emissions inspections, and the adjudication of parking tickets, including the fleet program that allows owners of commercial vehicle fleets to pay their parking tickets once a month. Planning and zoning authorities would continue to operate as before, except for their new coordination with the MCO on off-street loading areas. The MPD would retain all of its enforcement powers but would also coordinate with the MCO on motor carrier enforcement and on noise complaints related to motor carrier operations. Likewise, the Department of Emergency Management and other public safety agencies would retain all of their responsibilities, although, again, the MCO would assist them as appropriate.

One recommended change to the status quo is the transfer of responsibility for the enforcement of parking regulations from the DPW to DDOT TSA. Placing policy and enforcement within the same agency would simplify administration, allow parking policy to be adjusted more nimbly in response to observed changes on the streets, and reduce errors caused by miscommunication between agencies.

Figure 26. Commercial Driver Licensing Process

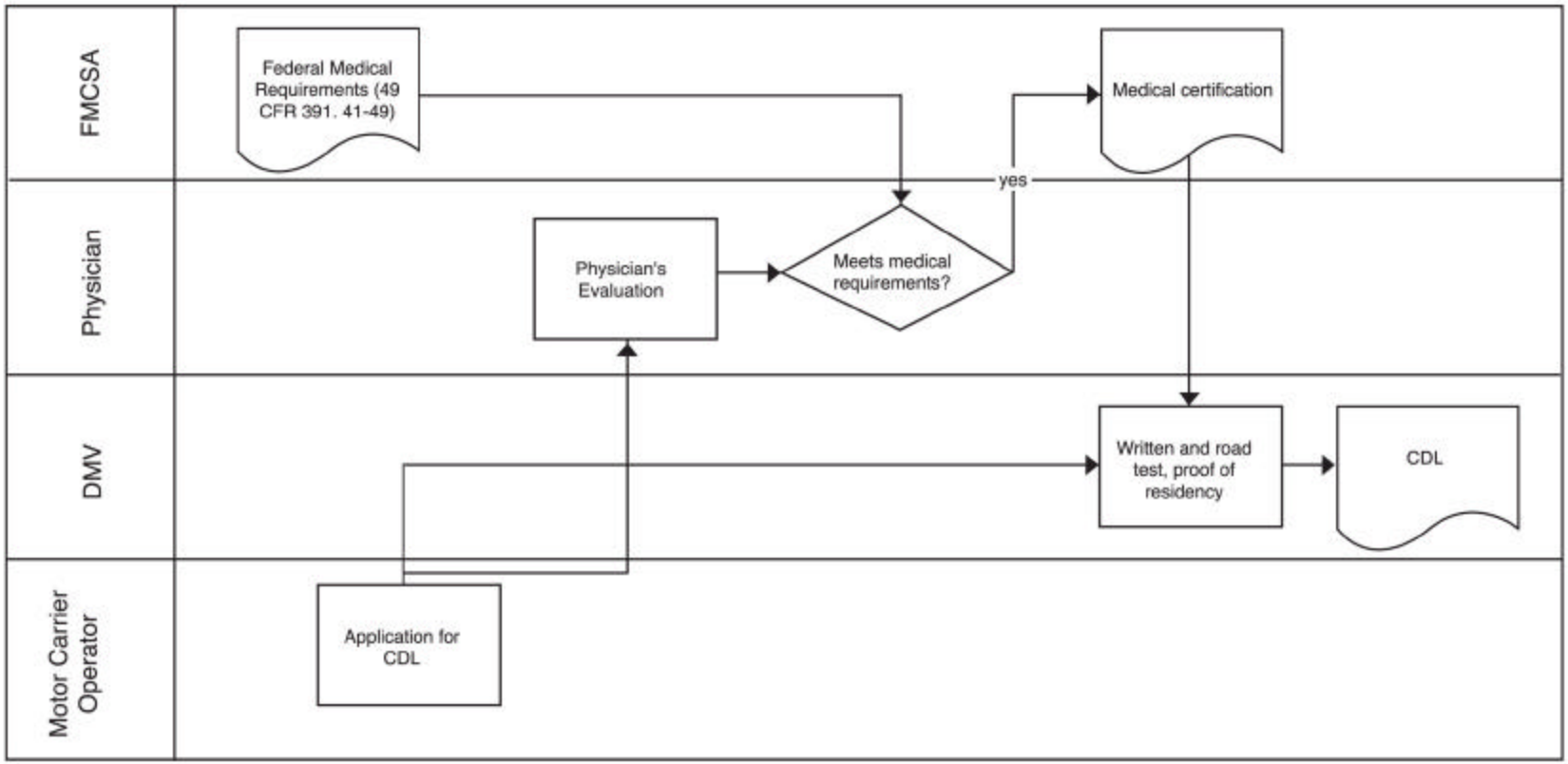
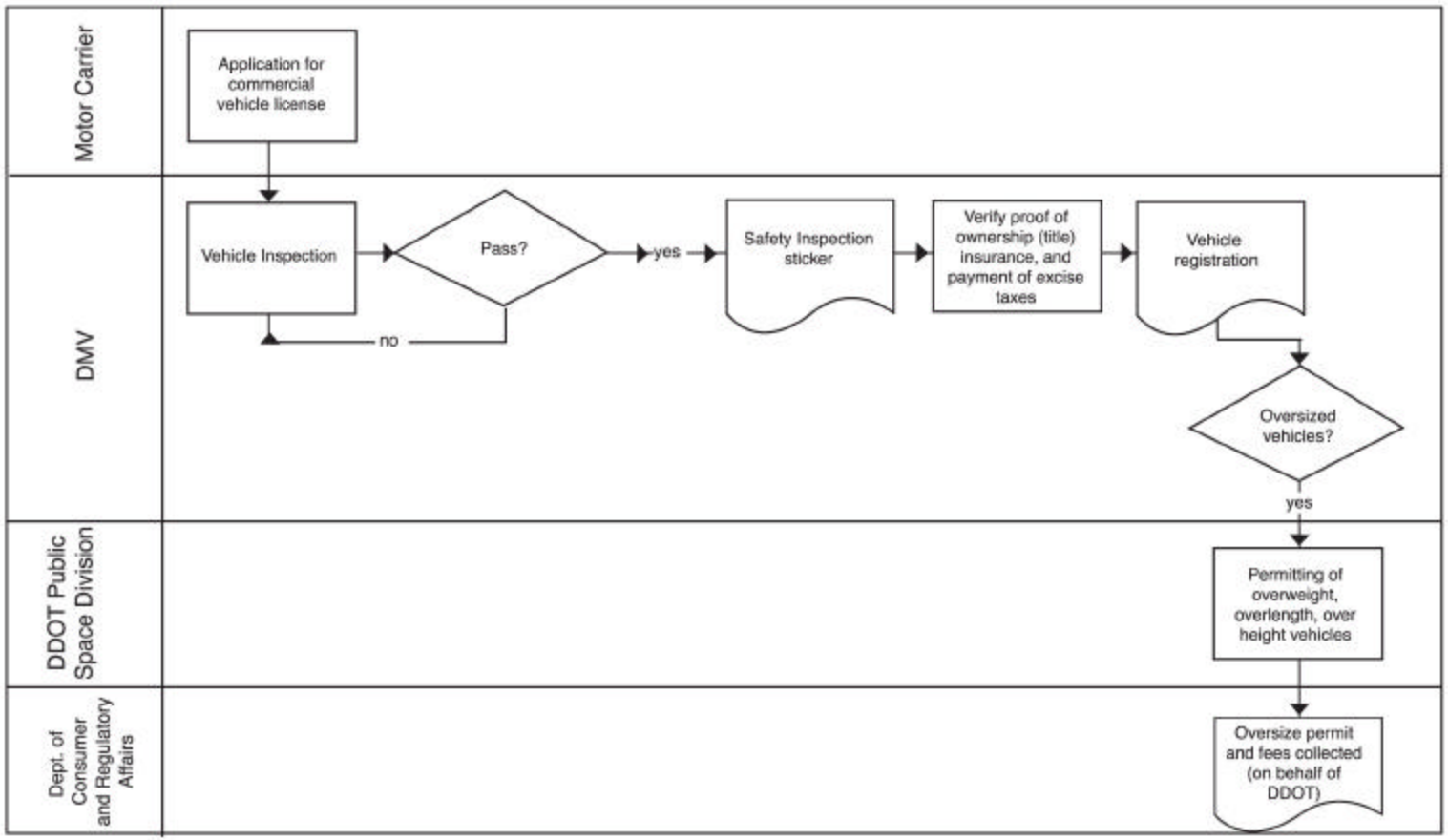


Figure 27. Commercial Vehicle Licensing Process



use

Figure 28. Washington, DC Law-Making Process

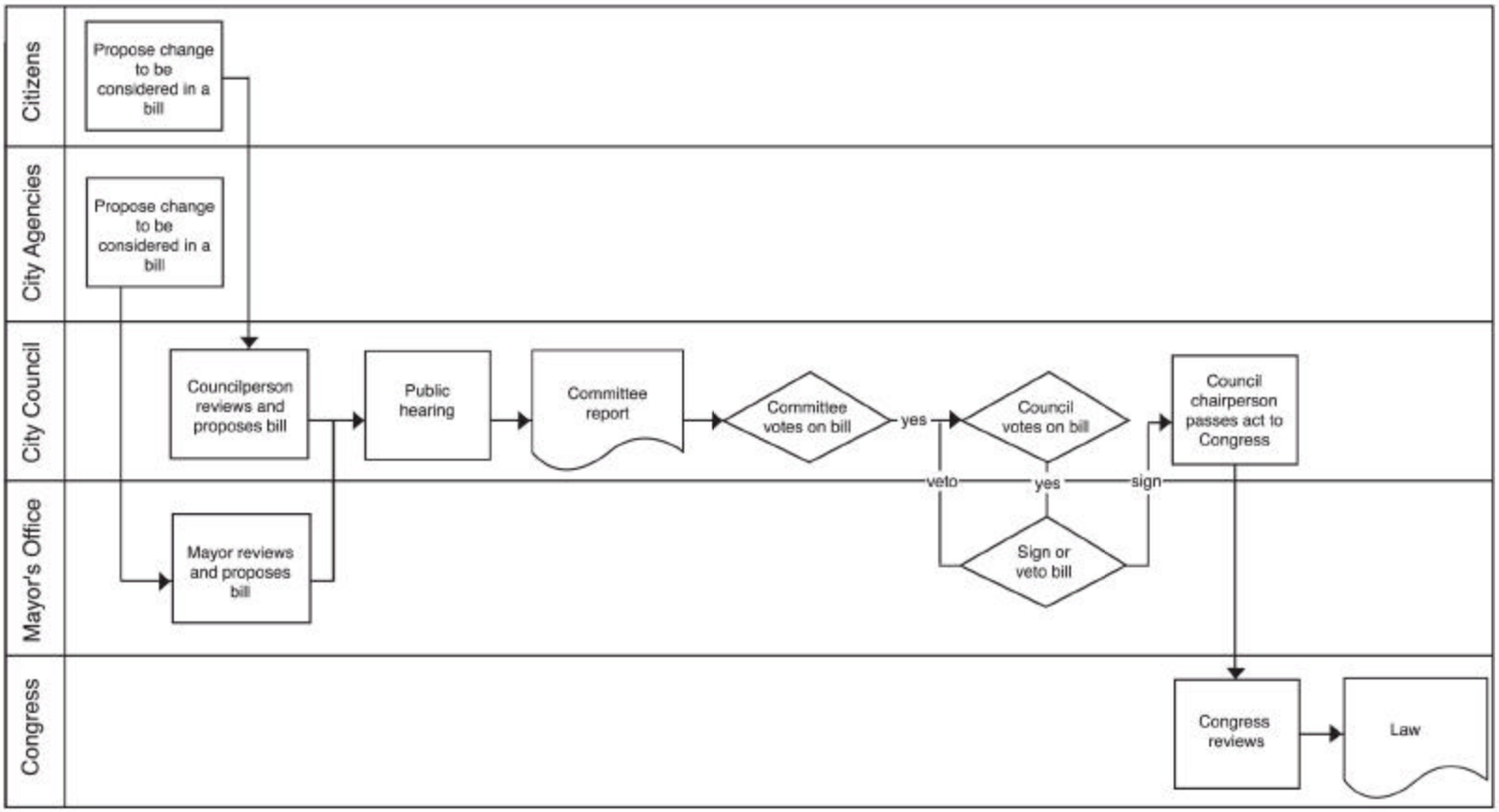


Figure 29. Traffic and Parking Regulation and Enforcement Process

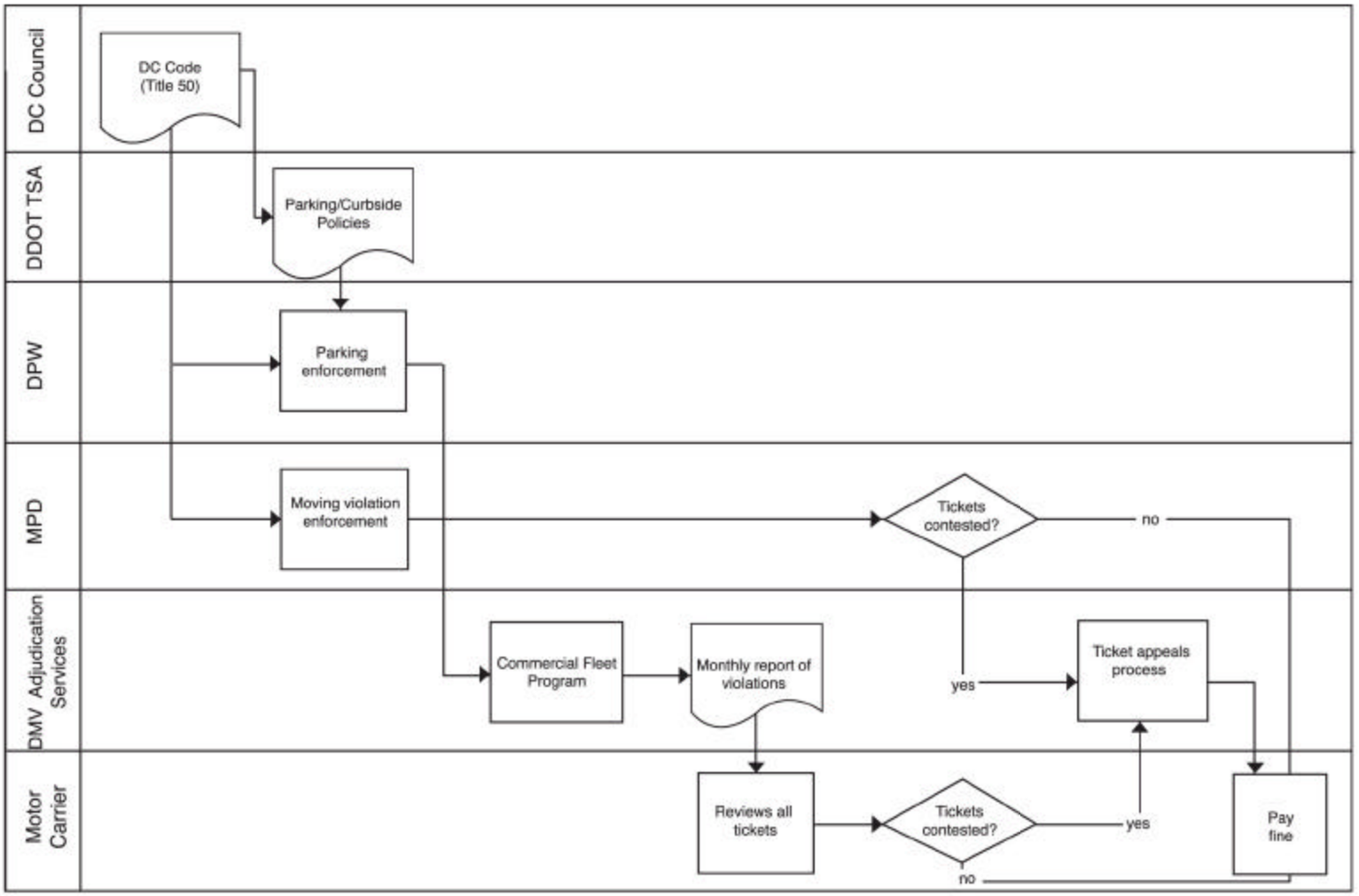


Figure 30. Size, Weight, and Safety Enforcement Process

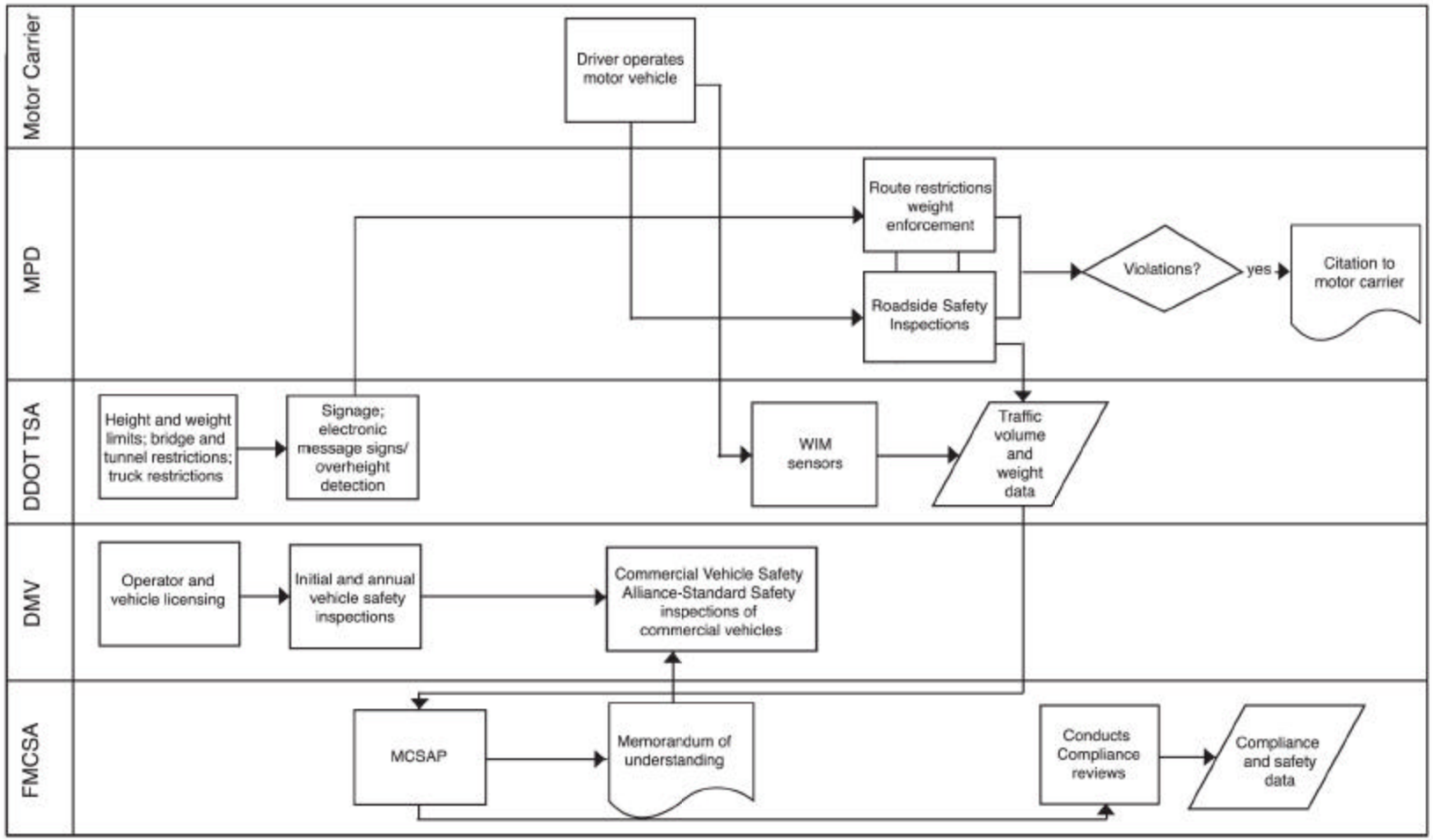


Figure 31. Review Process for Loading Areas in New Developments

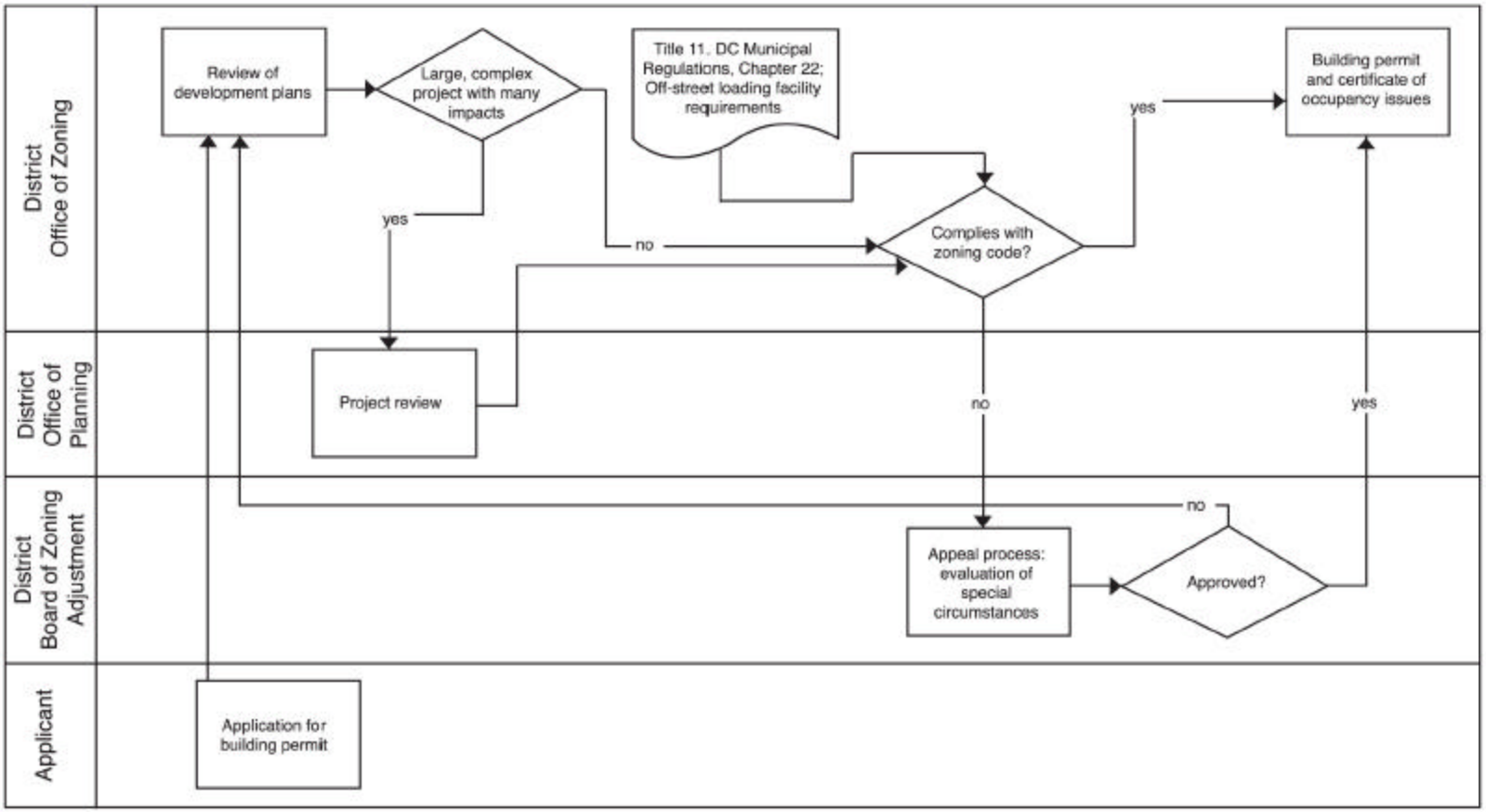
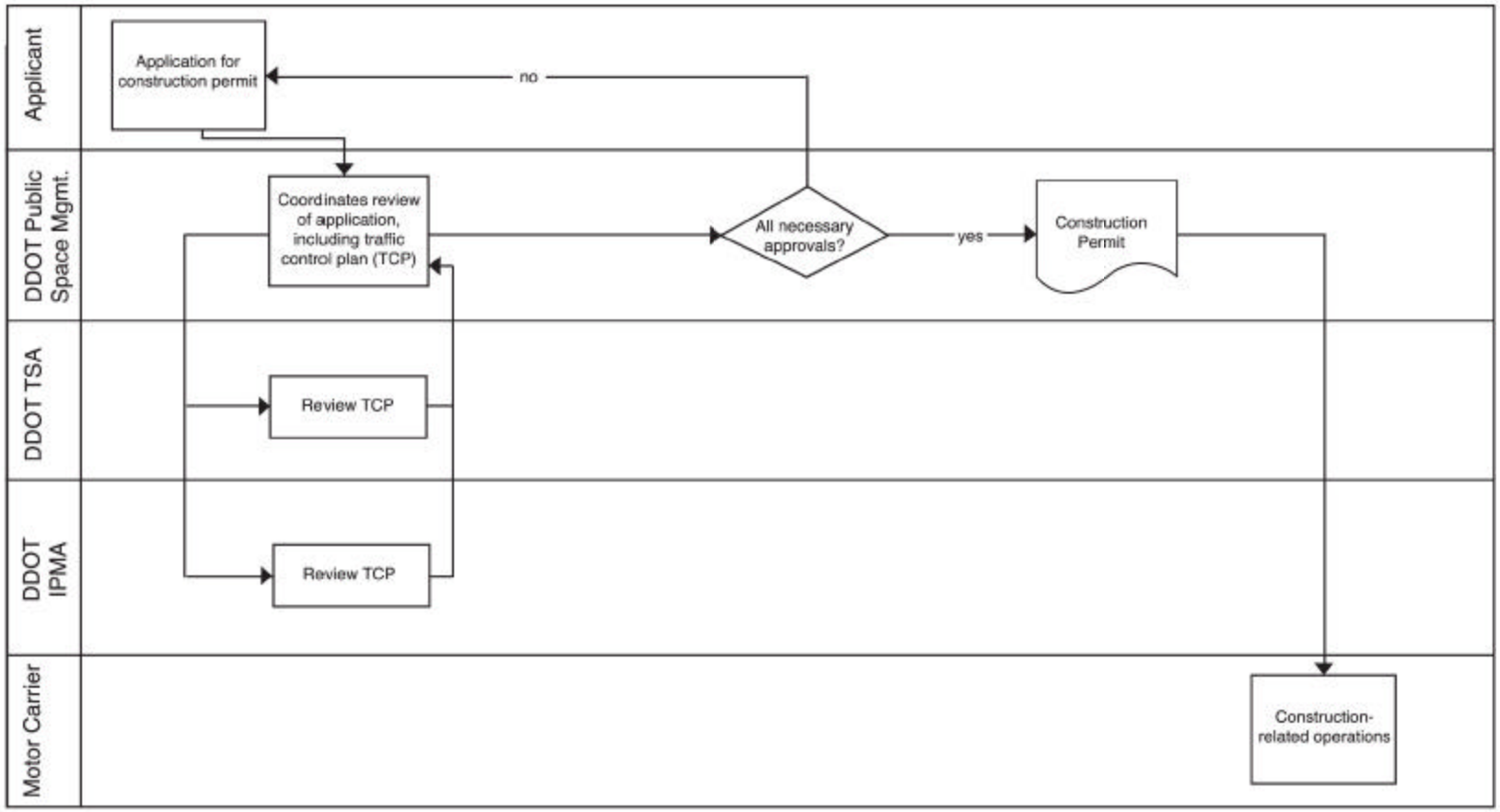


Figure 32. Review of Truck Traffic Control Plans in Construction Projects



10. RECOMMENDATIONS MATRICES

This recommendations matrices (Tables 13-16) presents a concise summary of major options for the creation of a truck management program. The matrices are designed to aid planning and policy-making by identifying the truck-management strategies that are applicable in the short, medium, and long terms. Each recommendation is also rated on its likely impact on District residents and businesses, the freight industry, the environment, and safety and security. This evaluation is subjective, and many of the recommendations have the potential for a range of both positive and negative effects. Prior to implementing the recommendations listed in the accompanying matrices, DDOT should conduct cost-benefit studies to determine which recommendations will result in the highest overall net benefits to residents, truck operators, businesses, and other stakeholders.

Several of the recommendations, such as building a tour bus layover facility or formulating an aggressive region-wide strategy to fight traffic congestion, would require significant additional study and public consultation before implementation. Furthermore, the District government will have to determine which of the recommendations can be implemented as regulations, and which must go through the City Council law-making process. As DDOT moves into the implementation phase of truck management efforts, it will continue to consult with residents, truck operators, businesses, and other government agencies to develop the best possible policies for all involved.

The following recommendation matrices evaluate each recommendation for its impact on the following:

Residents

- Reduction in the presence of trucks on residential streets, including a reduction in the air and noise pollution and vibration caused by some types of trucks.
- Reduction in truck-generated congestion on residential streets, including illegal parking by trucks.
- Improvement in compliance with new and existing regulations.
- Enhanced safety by decreasing speeding, red light running, and other traffic violations.

Businesses

- Improvement in loading and unloading facilities available for trucks serving local businesses.
- Improvement of truck-oriented roadways, including designated truck routes.
- Rationalization of the regulatory structure within which businesses must operate in order to receive or use trucking services.
- Reduction in congestion, including inappropriate and illegal parking by trucks.
- Encouragement of economic development through improvement of the business climate.
- Improvement in compliance with new and existing regulations.

Freight Industry

- Improvement in the loading and unloading facilities available for trucks.
- Creation or improvement of truck-oriented facilities, including distribution facilities and truck stops.
- Improvement of truck-oriented roadways, including designated truck routes.
- Rationalization of the regulatory structure within which trucking companies operate.
- Reduction in congestion, including inappropriate and illegal parking by trucks.
- Improvement in compliance with new and existing regulations.

Environment

- Reduction in truck-generated impacts on the human and natural environments, including congestion, idling, and inappropriate or illegal parking, noise, and vibration.
- Improvement in compliance with new and existing regulations.

Safety and Security

- Reduction in the potential for trucks or truck-borne weapons to cause damage or injury.
- Improvement in compliance with new and existing regulations.

The categories used in the matrix are as follows:

Impact

- \+ positive
- \- negative
- ± ambiguous
- N neutral

Timing

- Short-term 1-6 months
- Medium-term 6-18 months
- Long-term 18-36 months

Table 13. Institutional Transparency, Coordination, and Leadership Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
Institutional Transparency, Coordination, and Leadership	1. Establish a single office within DDOT to be the point of contact for motor carrier issues. Make a handbook of motor carrier management policies available to the public and to truck and bus operators.	+	++	++	++	+	Short-term
	2. Create a web site containing information on motor-carrier operations in the District, including a map of designated truck routes, instructions for obtaining licenses and permits, and a form for stakeholders to express truck-related concerns.	+	+	+	N	+	Medium-term
	3. Form a multi-stakeholder advisory committee dedicated to freight issues.	+	++	++	++	+	Short-term
	4. Create an ongoing program of data collection to document trucking activities in the District, including vehicle types and classifications, routes, hours, and patterns of operations.	+	+	±	±	++	Medium-term
	5. Investigate the costs and benefits of joining the International Fuel Tax Agreement.[26]	N	N	+	+	N	Medium-term
	6. Conduct a comprehensive campaign of education and outreach including updated and new truck rules and regulations.	+	++	++	++	+	Medium-term

[26] The District already has statutory authority join IFTA. See DC ST (2001 Edition) §47-2302, §47-2351, and §47-2352

Table 13. Institutional Transparency, Coordination, and Leadership Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
	7. Develop a master plan for the long-term, regional needs of freight movement.	+	++	++	++	+	Long-term
	8. Transfer parking enforcement responsibility from DPW to DDOT to unite enforcement and policy.	+	+	+	+	N	Medium-term

Table 14. Routes, Restriction, and Enforcement Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
Routes, Restriction, and Enforcement	1. Increase enforcement of overweight trucks.	+	±	±	+	+	Short-term
	2. Ensure that signing of routes and restrictions is clear.	+	±	+	N	+	Short-term
	3. Work with Maryland and Virginia on cross-border mismatches.	+	+	+	+	+	Medium-term
	4. Increase fines for overweight trucks and parking violations.	N	N	±	+	+	Medium-term
	5. Identify and implement preferred routes, prohibited routes, and restricted zone for truck traffic.	±	+	+	±	+	Medium-term
	6. Improve roadways designated as truck routes if necessary.	N	+	++	+	+	Long-term
	7. Perform additional research in residential neighborhoods and downtown locations with identified truck problems.	+	±	±	+	+	Long-term
	8. Create a permitting process to allow exceptions to truck route designations and restrictions as needed.	±	+	++	N	-	Long-term
	9. Create incentives for truck operators to increase compliance with restrictions and prohibition, e.g., free technology, tax credits	+	N	++	N	+	Medium-term
	10. Perform cost-benefit analyses of recommendations	N	+	++	N	N	Medium-term

Table 14. Routes, Restriction, and Enforcement Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
	11. Conduct outreach and education to truck operators to be sure they are aware of preferred truck routes and restrictions.	+	N	+	N	+	Short-term
	12. Develop a system through which the MPD and DDOT can be more proactive about alerting truck operators to major traffic disruptions such as demonstrations and construction-related road closures.	+	+	+	+	+	Medium-term
	13. Require the development and enforcement of a truck management plan for all major construction sites	++	+	±	+	+	Medium-term

Table 15. Curbside Management Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
Curbside Management	1. Improve enforcement of "no stopping" and "no parking" regulations, especially in areas reserved for loading zones and in alleyways.	++	++	++	++	+	Short-term
	2. Increase fines for parking violations.	±	+	±	+	N	Medium-term
	3. Pilot an extension of peak period no-parking restrictions to 11 AM in some areas and assess impact.	±	±	++	N	N	Medium-term
	4. Improve signing of curbside restrictions.	+	N	+	N	N	Medium-term
	5. Install meters in loading zones to encourage expeditious use and to allow for peak-period pricing.	N	+	±	+	N	Medium-term
	6. Facilitate the parking of vehicles from utility companies on residential streets when servicing residences or equipment located on that street.	±	+	+	N	±	Medium-term

Table 15. Curbside Management Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
	7. Relocate loading zones to the corners so that trucks do not have to parallel park.[27]	N	+	++	N	+	Long-term
	8. Promote nighttime deliveries in non-residential areas	N	±	±	+	±	Long-term
	9. Work with the owners and operators of facilities that generate significant truck traffic—warehouses, factories, distribution centers, and major retailers—to develop plans for improving the efficiency of their individual truck activities. Encourage the coordination of delivery times at large complexes, and ensure that big events have a truck management plan.	+	±	+	++	+	Long-term

[27] Already underway in Georgetown as part of the M Street NW Streetscape project.

Table 15. Curbside Management Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
	10. Review curbside restrictions block-by-block and ensure that there is at least one usable loading zone per block in the downtown and Dupont Circle areas and the commercial section of Georgetown.	N	++	++	+	+	Medium-term
	11. Require that all new commercial construction include sufficient off-street loading areas to accommodate present and future truck traffic.	++	++	++	++	+	Long-term
	12. Re-examine the city's solid waste collection policy with an eye toward reducing the number of garbage trucks on the streets each day, especially during the morning peak period. Also review policies allowing garbage trucks in alleyways during peak periods.	±	+	±	+	+	Long-term

Table 15. Curbside Management Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
	13. Re-examine the city policy on alleyways, with the goal of stemming the losses of off-street loading spaces.	N	±	++	+	+	Long-term
	14. Encourage building owners to provide off-street parking spaces for vehicles associated with building services.	+	±	++	+	N	Medium-term
	15. Develop financial incentives to encourage truck operators and businesses to voluntarily comply with recommendations.						
	16. Consider creating a program for courier services to purchase exclusive rights to certain parking spots during their peak demand hours.	N	+	+	N	N	Long-term

Table 16. Security Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
Security	1. Educate truck and bus drivers and the public to recognize suspicious activity.	+	+	+	N	++	Short-term
	2. Continuously update identification of all assets within the city that need protection from truck-borne threats.	+	+	N	N	++	Medium-term
	3. Improve and publicize procedures for permitting the transport of hazardous materials.	+	±	±	++	++	Medium-term
	4. Consult with Federal officials on further restriction of vehicles carrying hazardous materials in the District if they do not have a destination in the city.	+	+	-	+	++	Medium-term

Table 16. Security Recommendations Matrix

Recommended Action	Likely Impact on					Timeframe
	Residents	Businesses	Freight Industry	Environment	Safety and Security	
5. Create an on-going program of security-oriented data collection to document trucking activities in the District, including vehicle routes, hours, and patterns of operations, hazardous materials terminals, and facilities-at-risk.	N	N	±	N	++	Medium-term
6. Investigate participation in demonstration projects and tests of advanced technology related to truck security.	N	+	+	N	++	Medium-term
7. Establish policies for coordination with Federal and neighboring state law enforcement and transportation agencies to address truck-borne threats.	+	+	+	N	++	Medium-term
8. Integrate truck security measures with truck control strategies for other purposes.	+	+	+	N	++	Long-term

Table 16. Security Recommendations Matrix

Recommended Action	Likely Impact on					Timeframe
	Residents	Businesses	Freight Industry	Environment	Safety and Security	
9. Consider establishing zones with security precautions commensurate with the level of security required within the zone.	±	-	-	±	++	Medium-term
10. Prohibit gasoline tankers from entering sensitive areas, especially around important government or symbolic sites after following Federal regulations for local action and seeking and obtaining Federal Government agreement.	N	-	-	+	++	Long-term
11. Cooperate with Federal agencies and other institutions to standardize and coordinate their security procedures.	N	N	+	+	±	Long-term
12. Explore with its Federal and private sector partners the feasibility of a unified "trusted driver" program	N	N	+	N	+	Medium-term

Table 16. Security Recommendations Matrix

	Recommended Action	Likely Impact on					Timeframe
		Residents	Businesses	Freight Industry	Environment	Safety and Security	
	13. Explore with Federal partners the creation of a centralized truck inspection facility for trucks entering high-security areas such as the grounds of the Capitol or the White House.	N	N	±	N	+	Long-term
	14. Increase the number of safety inspections, and train officers to look for evidence of VBIED	+	+	+	N	++	Medium-term

A. WARD-LEVEL ISSUES

This information was developed during several days of observational studies conducted in each of the eight wards of the District of Columbia during the month of August 2003. The DDOT planners responsible for transportation issues in each ward supported Volpe in this ward-level effort. The study team also received input from citizen representatives of the ANCs. As the methodology used here is based on the observations and perceptions of individuals, the inventory of information provided is not comprehensive. Rather, it is intended to be illustrative of macro-level issues.

These notes are meant to be used in conjunction with the annotated ward-level maps included in Appendix C of this report.

WARD 1

- The truck problems in Ward 1 are primarily limited to loading, unloading, and double-parking problems. Ward 1 has no industrial facilities and no highway access.
- Georgia Avenue experiences high volumes of truck traffic but little congestion—the road works well as a corridor for trucks.
- Mount Pleasant Street experiences high volumes of truck traffic, particularly with on-street loading and unloading.
- 18th Street is a major commercial corridor that experiences high volumes of truck traffic, particularly with on-street loading and unloading.
- Some trucks use 11th Street—a residential street that runs parallel to Georgia Avenue—as a shortcut.
- Significant commercial/retail development is currently underway on 14th Street and the neighbors are concerned about the truck traffic that will be generated by the new stores and offices. In particular, a new development at 14th Street and Irving Street will include a Target and a supermarket, which may generate significant truck traffic on the residential roads in the immediate neighborhood.
- Truck deliveries to the hotels in Ward 1 generate significant traffic.

WARD 2

- Constitution Avenue experiences heavy truck traffic in the early morning hours.
- 31st, 33rd, and 34th Streets NW in Georgetown, require increased enforcement of existing truck restrictions.
- The Foggy Bottom area has shuttle bus traffic.
- 11th Street NW experiences problems with double-parked trucks.
- H, I, K, L and M Streets NW all experience problems with double-parked trucks and loading zone abuse.
- The area between Pennsylvania and New York Avenues NW has problems with speeding trucks.
- Connecticut Avenue experiences problems with double-parked trucks and loading zone abuse.
- Speeding on 8th Street.

- The area around Church, P, and Q Streets NW lack loading zones and have resultant problems with double-parking.
- There is much construction in Ward 2, generating construction-related traffic.

WARD 3

- There are size and weight restrictions currently posted for Reno Road, but not all trucks obey them.
- Connecticut Avenue experiences high numbers of landscaping trucks, going to and from jobs on commercial and residential properties in the area.
- Trucks serving both the residential and commercial buildings in the immediate area heavily use the network of alleys off Connecticut Avenue at Van Ness Street. Some of the alleys include official loading zones, but there are problems with trucks blocking the alleys and generating noise.
- Some of the stores and restaurants along Connecticut Avenue do not have off-street loading zones, so trucks double-park on Connecticut Avenue in order to load and unload.
- Some loading zones in Ward 3 are too small to accommodate contemporary trucks.
- Yuma Street is used as a route for trucks to travel between Connecticut and Wisconsin Avenues.
- The University of the District of Columbia (at Connecticut Avenue and Van Ness) is a generator of truck traffic.
- Some trucks travel on 36th Street, a residential street.
- River Road experiences high volumes of truck traffic.
- Military Road experiences high volumes of truck and ambulance traffic.
- Western Avenue experiences high volumes of truck traffic.
- Cleveland Avenue experiences high volumes of truck traffic.
- The intersection of Military Road, Western Avenue, and Wisconsin Avenue—a commercial area—has high truck volumes and problems with insufficient loading zones.
- There is extensive new construction throughout Ward 3, generating construction-related truck traffic and concerns about future truck activity at the sites of the new development.
- The Wisconsin Avenue shopping area at Chevy Chase Circle has problems with the loading and unloading of large trucks on the street.
- Supermarkets are a source of significant truck traffic throughout Ward 3.
- Nebraska Avenue offers a logical truck route through Ward 3.
- Have previously tried to work with DC government on these issues through Military Road summits and Ward 3 Mayoral Traffic Summits.

WARD 4

- Military Road, which experiences high volumes of truck and ambulance traffic, is the most appropriate route for east-west trucks in Ward 4.
- Fatality involving truck crash at Military Road and Nevada Avenue

- Sheridan Street—a residential street—is currently being made into a one-way street, to shift truck traffic from Sheridan Street to Kansas Avenue.
- The Ward 4 neighborhood of Lamond Riggs is both a commercial and a residential neighborhood, and the residents are concerned about truck traffic on their streets. A postal facility in the neighborhood generates significant truck traffic, and DDOT has worked with the USPS to improve the timing of deliveries.
- The intersection of Missouri Avenue and Military Road experiences high volumes of truck traffic.
- The intersection of 14th Street and Military Road experiences high volumes of truck traffic.
- For security reasons, the National Capital Planning Commission has developed an agreement for trucking activity at Walter Reed Medical Center. Trucks bound for Walter Reed are no longer allowed to access the Medical Center through Georgia Avenue; instead, they use Alaska Avenue to access a separate entrance from 16th Street.
- "Accident Waiting to Happen"—report written by ANCs from Wards 3 and 4, outlines major truck-related nuisance and safety problems in the area.

WARD 5

- Ward 5 has significant industrial facilities, which generate truck traffic. These facilities include a major beer distributor (at Queen's Chapel Terrace) and a garbage transfer facility (at John McCormack Road).
- Rhode Island Avenue experiences high volumes of truck traffic but little congestion—the road works well as a corridor for trucks.
- North Capitol Street experiences high volumes of truck traffic.
- Florida Avenue experiences high volumes of truck traffic.
- Bladensburg Road experiences high volumes of truck traffic coming and going from the Beltway.
- The intersection of Bladensburg Road and New York Avenue experiences high volumes of truck traffic.
- Eastern Avenue and Randolph Street—at the border between the District and Maryland—is supposed to be restricted to trucks, but some trucks still use it.
- The Florida Avenue Wholesale Market at 4th Street, NE is a major hub for truck traffic, with residential neighborhoods all around it.
- Trucks are encouraged to use Taylor Street, but local residents are unhappy about it.
- 1st Street NE offers a logical truck route through Ward 5.
- Mount Olivet Road, offers a logical truck route through Ward 5, particularly as there is a postal facility nearby.

WARD 6

- There is significant construction-related truck traffic around Union Station.
- There is significant construction-related truck traffic around the U.S. Capitol campus.

- For security reasons, truck restrictions have been introduced in the area of the U.S. Capitol.
- There is significant truck traffic coming off the Frederick Douglass Memorial Bridge onto South Capitol Street and into the dense residential neighborhoods around C Street SW and SE.
- C Street is the most truck-impacted street in Ward 6.
- 8th Street SE experiences high volumes of truck traffic.
- 14th Street SW experiences high volumes of truck traffic.
- 11th Street SE experiences high volumes of truck traffic.
- H Street NE—a commercial corridor, scheduled for revitalization - has loading/unloading problems.
- The intersection of Florida Avenue and New York Avenue is always congested with trucks and other vehicles.
- Florida Avenue between 4th Street and 6th Street NE is an industrial area, with commensurate truck activity.
- RFK Stadium is located in Ward 6, but there are dedicated access roads for trucks heading to and from the stadium.
- The Southeast/Southwest Freeway (Interstate 395) offers a logical truck route through Ward 6.
- East Capitol Street offers a logical truck route through Ward 6.
- Maryland Avenue offers a logical truck route through Ward 6.

WARD 7

- Ward 7 is primarily residential, with some pockets of industrial and commercial activity.
- PEPCO (electricity provider) has a major facility in Ward 7, at which it stores a fleet of small utility trucks. There is also a garbage transfer facility in Ward 7.
- East Capitol Street experiences high volumes of truck traffic but little congestion—the road works well as a corridor for trucks.
- Sheriff Road experiences high volumes of truck traffic, although portions of it may be signed to prohibit trucks from traveling through.
- Minnesota Avenue experiences high volumes of truck traffic.
- Minnesota Avenue between Benning Road and East Capitol Street is a retail area. Most of the deliveries to stores in the area are done through loading zones in the back of the stores; double-parking is not a major problem.
- The 2900 block of Minnesota Avenue is a retail area, and most unloading is done from the street.
- Pennsylvania Avenue through Ward 7 is a major route into downtown Washington. Trucks use it to travel to and from Maryland.
- The intersection of Pennsylvania Avenue and Branch Avenue experiences high volumes of truck traffic.

WARD 8

- Poor road conditions in Ward 8 lead to problems with truck vibration.

- There is significant truck traffic coming from Interstate 295 to Martin Luther King, Jr. Avenue to avoid the truck restriction on the Suitland Parkway.
- Good Hope Road is a major commercial corridor in Ward 8 and trucks use a series of residential roads to get to it, including Porter Street, Pomeroy Street, Hunter Street, Erie Street, Morris Street, and 16th Street.
- Truck traffic originating at the Beltway uses South Capitol Street to connect to the Frederick Douglass Memorial Bridge and on into downtown Washington.
- Minnesota Avenue offers a logical truck route through Ward 8.
- Alabama Avenue offers a logical truck route through Ward 8.

B. ADVISORY NEIGHBORHOOD COMMISSIONS QUESTIONNAIRE RESPONSES[24]

Questionnaire Questions:

1. In your neighborhood, what major establishments (e.g., grocery stores, post offices) depend on having reliable access for trucks? Where are they located?
2. What are the issues of concern to your neighborhood regarding motor carrier operations (i.e., traffic congestion, noise pollution, air pollution, road vibration, safety concerns, security concerns, other)? Please describe.
3. What suggestions or alternatives would you propose to address the issue(s) identified in question #2 above? Please describe.
4. What specific streets or properties in your neighborhood are problematic in relation to motor carrier operations? Please describe.
5. What alternative truck routes and/or truck restrictions do you propose to address the specific streets identified as problematic in question #4 above? Please describe.
6. What motor carrier-related issues or locations do you anticipate to be problematic in the future (e.g., due to new development, etc.)? Please describe the issue(s) and location(s).
7. Do you have any other questions, concerns or suggestions related to motor carrier operations for your neighborhood specifically, or Washington, DC, as a whole? Please describe.

WARD 1

Question 1

Numerous markets, restaurants, and retail stores, all located along Mount Pleasant Street.

Question 2

Primary concerns are traffic congestion caused by double-parked trucks, and loss of curbside parking to loading zones. A secondary concern is truck noise, especially along Irving Street.

Question 3

Limit delivery hours so that the problem is limited to a few specific periods of the day. Concerning truck noise, limit truck use of Irving Street to certain hours, presumably corresponding to the allowed delivery times.

Question 4

Mount Pleasant Street, from Irving Street on the south to Park Road on the north, is plagued with congestion due to trucks making deliveries. Irving Street also has a minor congestion problem, due to trucks parked on Irving for delivery to a restaurant at the corner of Irving Street and Mount Pleasant Street.

[24] No responses were received for Wards 5 and 8.

Irving Street, from the Kenyon Street intersection to Mount Pleasant Street, is troubled by truck noise, exacerbated by the grade. Park Road, Klingie Road, Walbridge Place, and Adams Mill Road also have truck noise problems, but not as severe as Irving Street.

Question 5
East-west routes through this part of the District are scarce, so there are few rerouting alternatives to Irving Street.

Question 6
Imminent development in Columbia Heights (mainly 14th Street, Irving Street to Park Road) is likely to lead to substantially increased truck traffic on Irving Street.

Question 7
Parking and delivery rules need to be enforced, and there needs to be better signage.

There is a single market in the residential area north of Mount Pleasant Street, namely the Brown Street market at the corner of Brown (of course) and Newton Streets. On all sides this is surrounded by residences, and the residential streets leading to this small market are especially cramped, even for our very compact neighborhood.

Trucks making deliveries to Mount Pleasant Street first go to the markets on Mount Pleasant Street, then proceed north on 17th Street (Mount Pleasant Street becomes 17th Street at Park Road), and turn right on Newton Street to reach the market. The larger trucks simply cannot make the turns, and cause significant damage to sidewalks, catch basin covers, sidewalk furniture, and residential walls and fences.

The solution to the problem is to prohibit larger trucks (anything with more than two axles) from entering the 17th Street extension of Mount Pleasant Street. There is a preferred route: the market can be accessed via Newton Street from 16th Street, without encountering sharp turns. Truck exit can be via a continuation along Newton Street, either turning left on 18th Street, space permitting, or taking a right onto Ingleside Terrace, which loops around and becomes 19th Street, leading to Park Road and exit from Mount Pleasant Street. The truck drivers are, so far, unwilling to consider this alternative.

WARD 2
Question 1
Fourteenth and P Streets form the commercial district of my neighborhood. There are many small businesses along Fourteenth Street, including restaurants, furniture and home accessory stores, convenience stores, and other retail, as well as two post offices that depend on reliable access for trucks. Fourteenth Street also provides a direct route to the downtown area. P Street includes some larger businesses, such as Whole Foods Market, CVS, and Duron (soon to be relocating) that also depend on truck deliveries. Connecticut Avenue, Massachusetts Avenue, 22nd & 23rd Streets, and P Street NW are major business/transportation arteries with multiple needs for delivery access, both on the

thoroughfares and adjacent alley systems. Florida Avenue is also a major traffic artery with delivery needs for nearby museums and institutions.

Several restaurants and bars on 17th Street between S and Q Streets NW (Food Bar, Dupont Italian Kitchen, Annie's, Chaos, etc.).

Post office (1000 block of 14th Street), CVS (1100 block of 14th St. near Thomas Circle), Firehouse (1018 13th Street NW).

My single member district is composed chiefly of residential housing, with a few minor exceptions.

The Giant at 9th and O. And, of course, the Convention Center.

Most notably, there are some restaurants and various shops (such as cleaners) in this area.

Question 2

Q Street has had a truck traffic ban for several years. The combination of limited signage and sporadic enforcement has made this ban somewhat ineffective. Trucks ignore the signs with impunity and bang down this purely residential street, literally shaking the foundations of the homes. Just last month, I witnessed a large truck make an illegal right turn from 15th Street onto Q Street. It couldn't fit and actually pushed up against and damaged the traffic light, which remains bent today. R Street residents have sought a similar ban on truck traffic for years to no avail; the District Department of Transportation has been unresponsive to ANC 2F requests for such a ban. Like Q Street, R Street is also purely residential. Both Q and R are one-way streets with parking on both sides for the many residents of those blocks. They were not meant as transportation arteries. With the new Washington Convention Center opening on our eastern boundary (9th Street), residents are anxious as to the increased (legal and illegal) truck traffic on these residential blocks. Steps must be taken to ensure that trucks use major commercial routes, not residential streets.

MAINTAINING THE BAN ON NON-LOCAL TRUCKS AND BUSES ON Q STREET, O STREET, AND 21ST STREET! These local streets are almost entirely residential. The ANC and neighbors have fought long and hard to ban truck on these streets. It's a "third rail" issue for the neighborhood. In other areas, truck deliveries after 7 AM in the morning is a complaint often cited by residents. On P Street, trucks may park for extended periods of time when it's obvious deliveries are not being made. The P Street Bridge reconstruction has complicated traffic patterns.

Illegal trucks on Q Street. These trucks serve a variety of businesses throughout the District, not just in my neighborhood.

Thomas House 1330 Massachusetts Ave NW across from Thomas Circle Underpass has trucks and buses passing all day. Thomas House needs free access to our facility (a nursing home, a residence for the elderly, and an assorted living facility). We have our

own 2 buses delivering patients and residents in wheelchairs on an average of twice weekly. Trucks are (UNREADABLE) handle medical emergencies.

Should motor carriers be permitted to use smaller streets, i.e., M and N Streets, etc., it would be of great concern to the residents of 2F05. When there are parked cars on either side of these streets, and there is also two-way traffic, there is no room for a motor carrier to safely make the passage when there are oncoming cars with which they must share the road. I have seen this happen, and when it does, someone has to back out. Other concerns are the hazards of the large turning radius required by such vehicles, particularly when turning onto smaller streets. There are concerns about damage to parked cars resulting from falling debris and potential side scrapes. Pedestrian safety issues: When motor carriers back up, the driver is blind to what is behind the vehicle. Motor carrier traffic in neighborhoods where there are children at play could be a constant source of anxiety for residents who are parents, as well as restrictive, if not dangerous, to the children themselves. There are also noise and vibration concerns for residents. While in traffic, motor carriers pose visibility problems, hence safety issues.

It's all Convention Center, all the time. The arrival of a great number of trucks in a very limited amount of time and the effect that will have on a relatively quiet neighborhood. Also, the enforcement of the prohibition of trucks from certain streets, the enforcement of mandatory truck routes and the monitoring of the flow of trucks via the proposed marshalling area.

Noise and traffic congestion (especially along 18th Street) are significant concerns of some residents.

Question 3

Truck traffic should be directed to major commercial streets, such as Massachusetts Avenue, Fourteenth Street, and Florida Avenue.

Enforcement is key to addressing these concerns.

Heavy fines for repeat offenders. Consideration of other, alternative penalties. Re-route Convention Center traffic (traffic and tour buses) to L Street or underpass (now closed for repair).

Confine motor carrier movement to large commercial corridors, and make the routes as linear as possible to minimize turns and pedestrian safety hazards. Encourage rail use by merchants and provide monetary incentives for such. Avoid areas with high pedestrian traffic. Avoid rush hour.

These issues have been studied in excruciating detail by dozens of experts continuously over a period of years.

Traffic flow patterns for large trucks should direct as much traffic as possible through commercial areas and away from residential areas.

Question 4
See response to question 2.

Please refer to number #2 for issues related to the non-local truck ban.

Q Street and R Street. Trucks already are illegal on Q Street.

Massachusetts Ave NW near Thomas Circle.

All, with the possible exception of Massachusetts Avenue— reasons outlined in answer number 2.

When you take the motor carrier issues and overlay the closely associated parking problems, the short answer is: All of the streets will be impacted. The major ones, of course, will be those in closest proximity.

Noteworthy: Heavy traffic from North 18th Street, which is a very busy area, crosses through a confusing intersection at Florida Avenue, 18th and U Streets and flows into a residential area (cars and trucks).

Question 5
See response to question 3.

Enforcement will go far to address our concerns.

Consider extending truck ban to R Street. Enhanced enforcement of Q Street truck ban is critical.

L Street NW is a possible alternate to Massachusetts Avenue NW at Thomas Circle.

Ninth Street, and to a lesser extent 11th Street. Massachusetts Ave is certainly a wide enough avenue. Restricting the hours when trucks can move about to between the hours of 1-5 AM might also alleviate some of the traffic burden.

Same.

Unless a truck's destination is in the immediate area, perhaps direct it to use major thoroughfares north of U Street and Florida Avenue in this area in order to avoid the local residential areas when possible. Is there "mass transit" for business deliveries?

Question 6
As discussed in my response to question 2, the opening of the new Washington Convention Center is expected to exacerbate existing problems with truck traffic on Q and R Streets.

The Dupont Circle area is almost fully developed. However, as development continues to the east and north of Dupont, the thoroughfares that connect to Rock Creek Parkway and the major thoroughfares will continue to become more congested.

Increasing truck use due to Convention Center.

The following are presumably under construction and are sure to increase congestion and need for parking: 1224 Massachusetts Avenue NW, 1221 M Street Claridge House, 1225 13th Street NW, 14th and N St NW– Condo

East-west streets going under the Convention Center (namely L and M Streets), and Massachusetts Avenue and N Streets, as potential trucking lanes for the center's motor carrier vehicles.

A new and very real set of issues will present themselves with the development of 7th and 9th Streets and the numbers of additional trucks that development will bring. With the Convention Center and the associated development in its infancy and more a work in progress than a situation to be monitored, I expect there to be major problems and issues before us for many years to come.

Continued development may lead to more traffic in my area.

Question 7

Truck traffic from the new Washington Convention Center needs to be controlled and routed appropriately. No-truck-bans need better enforcement. The DDOT needs to respond to ANC inquiries and requests in a prompt manner and give their recommendations the "great weight" they must be accorded by law.

I see gridlock. I wonder if people will view this area as a good place to live.

When is M Street going to be open again between 7th and 9th Streets? I was told it would be reopened last April.

WARD 3

Question 1

All major establishments are on commercial routes that are major arteries: Connecticut Avenue and Wisconsin Avenue. They are not on residential streets such as Macomb or Porter Streets. Please note the distinction of residential versus commercial (and industrial and institutional) that is based on zoning of most of the property along the street. That differs from functional classifications that seem to be based on traffic volume instead of road structure and property use. Functional classifications of roads may be useful in other contexts, but when talking about use of roads and safety, the use of classification is much better. In my Cleveland/Woodley Park neighborhood only Connecticut Avenue and Wisconsin Avenue are commercial. Parts of Van Ness Street (near the University of the District of Columbia, parts of Garfield Street (near the Cathedral), and parts of Calvert Street (near the hotels) are institutional.

American University—Tenley Campus Yuma Street NW

Safeway—Ellicott St NW/42nd Street NW at junction with Wisconsin Avenue.

I am the President of the Homeowners Association of the Courts of Chevy Chase, a 29-unit townhome development on the 5300 Block of 43rd Street NW (between Military Road and Jenifer Street). We are located on the same block with the Chevy Chase Pavilion Shopping Center, the Friendship Center (where there is Maggiano's, Border's Books, etc.), and the Embassy Suites Hotel. 43rd St connects south to Jenifer Street and then intersects with Wisconsin Avenue. All of these businesses have access for trucks through an alley specifically created for that purpose, which is situated between the aforementioned buildings and our townhome development. The alley is one-way, beginning on Military Road (right next to the Embassy Suites Hotel) and exiting on Jenifer Street.

However, many of the trucks instead drive through our residential street and then enter the alley from the exit from Jenifer Street, or when they leave the exit turn left into our residential street. This is a major nuisance and problem.

In addition, since our street is parallel to Wisconsin Avenue, it is a favorite cut-through for trucks that wish to avoid the intersection of Wisconsin Avenue and Military Road, because one cannot turn left there. Thus, they take 43rd Street to Jenifer Street to Wisconsin Avenue. What's more, cars and trucks go through our street at very high speeds.

I believe that a lot of trucks are making deliveries to American University's Tenley Campus on 42nd Street. They are supposed to enter from Tenley Circle at Yuma Street, but the street there is so torn up from the heavy use that they are using 42nd Street.

Primarily road vibration (severe) and noise (at times startling).

Safeway, CVS, Post Office, restaurants, other commercial establishments—all located on MacArthur Boulevard.

UDC, 4200 Connecticut Avenue NW

Giant Foods, 4303 Connecticut Avenue NW

US Post Office, 4005 Wisconsin Avenue NW

CVS Drugstore, 4309 Connecticut Avenue NW

Calvert-Woodley Liquors, 4339 Connecticut Avenue NW

Intelsat, 3400 International Drive

Office Building and businesses between 4201 Connecticut Avenue and 4225 Connecticut Avenue (Passport Restaurant, Spicy Noodle, Bombay Café, KFC/Taco Bell, Van Ness Auto Care)

Rodman's Drug Store—corner of Wisconsin Avenue NW and Garrison Street NW

Safeway—Ellicot St., just west of Wisconsin Avenue NW.

We have experienced increased motor carrier traffic on River Rd both entering and exiting Tenleytown via River Road and Brandywine Street respectively. And the trucks appear to be getting bigger, heavier, louder, dirtier (air pollution) and faster. There is also increased traffic on 42nd Street. This has long been a problem for residents. Now we are especially concerned about the DC Office of Planning's vision to develop as much of the Tenleytown area as possible. This will certainly translate into more truck traffic on River Road, Brandywine Street, 42nd Street and other streets as well. We do not believe this conforms to the DC Comprehensive Plan that attempts to protect Ward 3's low-density environment. We are indeed concerned about traffic congestion, noise pollution, air pollution, road vibration, safety, and security. With the current traffic study occurring on Military Road, we are afraid the District will re-route traffic so that it makes River Road more attractive to ingress and egress into the District. This would not be solving the problem, just shifting it to another part of town.

Noise and traffic safety. Noise with delivery trucks, mostly to Maggianos! Traffic safety with any delivery trucks on 43rd Street, Military Street, Jenifer Street.

Question 2

Heavy trucks making deliveries or collecting garbage from American University's Tenley Campus and possibly trucks going to Safeway or River Road cut through 42nd St between Van Ness Street and Albermarle Street creating road vibration, noise pollution, air pollution, and safety concerns. Forty-second Street has become a racetrack! This morning at 6 AM I found a truck doing a 360^{o} turn outside my house at 4205 Warren Street (see map). It belonged to "Cloverland, Green Spring Milk." I did not have time to note the license plate unfortunately.

Delivery hours and truck parking for the noise. NO trucks on 43rd Street. Enforced.

Why can't Wisconsin and Connecticut Avenues be the major thoroughfares for truck traffic? They are both big enough to accommodate this traffic and with the exception of some apartments and condos, there is an adequate buffer zone between the avenues and residential areas. Another recommendation would be to restrict the size of certain trucks to the major avenues. In other words, let smaller trucks use River and Military Roads and the larger ones use Wisconsin and Connecticut Avenues. But this may ultimately prove to be ineffective since the District has a lackluster record in enforcing its own regulations.

Road vibrations, irregular surfacing, traffic congestion during day, excessive speeding (especially at night, but whenever traffic is relatively light), and noise (especially unnecessary use of horns).

Weight limits and restrictions on times that trucks can travel along roads with residential houses.

Macarthur Boulevard Runs between Maryland and the District and is easily accessible from Virginia, hence a good route for all trucks, be they commercial, delivery, or dump trucks hauling dirt. As a result, the roadway needs constant attention. MacArthur Boulevard is also a residential corridor.

Limit truck access on secondary streets.

5100 block and 5200 block of Nebraska Avenue NW: Cars and trucks speed on a routine basis; incredible amount of noise from trucks going uphill towards Connecticut Avenue; houses along this block have considerable problems with vibration from trucks.

In alley between Van Ness Street and Veazey Terrace, behind 4201 Connecticut Avenue, delivery, refrigeration trucks, and trash trucks come between 2 AM and 6 AM waking residents of Van Ness Street South and large delivery trucks cause vibration to buildings.

Trucks, buses, and cars drive twice the speed limit night and day and drivers crossing 37th Street going east on Van Ness Street speed up to warp speed to catch the green light on the corner of Van Ness Street and Reno Road, causing safety hazards for residents and pedestrians.

Delivery trucks using residential streets before 7 AM and in the middle of the night, waking residents.

Delivery trucks for Giant, Calvert-Woodley, and CVS double-park on Connecticut Avenue because they cannot get into Windom Place NW, blocking Connecticut Avenue traffic and causing traffic jams.

Trucks that deliver merchandise along Connecticut Avenue during the day block one lane, sometimes two.

Ever since part of Nebraska Avenue was redone (from Connecticut Avenue to Fessendon, trucks make more noise than ever. The transition is not smooth and when trucks hit that point, a loud “bang” is heard which is especially disturbing at night and it happens at least once every two hours and wakes up residents.

Since Friendship Heights is one of the areas heavily affected by Maryland commuter traffic, we have ongoing serious problems with cars and trucks. In our case, 43rd Street between Military Road and Jenifer Street, the main problem is that large trucks and

autobuses use it as a cut-through in both directions (to avoid the aforementioned intersection at Wisconsin Avenue/Military Road).

The worst problem with trucks in my neighborhood is the truck traffic going to and from Rodman's Drug Store. These trucks frequently travel along Garrison Street NW, between 44th Street and Wisconsin Avenue NW. They are noisy. They cause cracks in the plaster in the homes along Garrison Street. They destroy tree limbs. The break up the pavement, and they spew out air pollution. Despite numerous complaints to Rodman's these trucks continue unabated. Also, these trucks violate posted signs warning them not to travel along Garrison Street, but to travel only between Wisconsin Avenue and the Rodman's loading dock area. These signs are ignored.

My issues of concern are:
1) Traffic congestion—42nd Street was not made to bear all of the traffic that it does. It is fairly narrow, especially when there are parked cars on either side. With the proposed addition of another American University Tenley Campus dorm and the development of the Marten's Volvo and VW sites, the street will be unsafe.
2) Noise pollution and road vibration—when the trucks speed on 42nd Street, the noise can be deafening and the weight and vibration can damage the street surface.
3) Safety concerns—this is the most troubling…42nd Street consists mostly of families with children and pets, and the question isn't *if* there will be a horrible accident with a child, but rather *when*. The neighborhood children who attend the Janney School put themselves at risk every day by walking on 42nd Street.

Major concerns involve safety. No matter what national standards may say, the lanes on residential streets in older cities like Washington are not wide enough to safely accommodate trucks. Most of the east-west streets have two lanes of traffic with one or two lanes of parking. Parking presents special problems for trucks that cannot leave a safety margin for opening of car doors due to the narrow lanes. Most of these streets are on hills and have curves. During the last year we have had several accidents where trucks have destroyed trees when they ran off the road and onto the sidewalks on streets with only one lane of parking. Commercial truck drivers are on strict time schedules and tend to speed on residential streets. The turning circle of trucks is worse than cars and they block traffic when turning off residential streets and onto the wider commercial streets.

We also have a continuing problem with buses circulating around the National Cathedral or double (or triple) parking in front. They have about 700,000 visitors a year. The Cathedral has taken steps to address this problem but we do not know if these steps have worked or if things seem better because of the general slowdown in tourism.

<u>Question 3</u>
All trucks should use Wisconsin Avenue not 42nd Street NW. American University's Tenley campus should be approached from Tenley Circle. Safeway should be approached from River Road of Ellicott Street NW.

All property near Maggiano's.

Some neighbors have been having problems with truck traffic making deliveries in alleyways that are near residences. For example, the alley between Brandywine Street and Chesapeake Street is particularly problematic. The deliveries occur as early as 4 AM and are loud, disruptive, and sometimes damage private residences.

Upgrade Canal Road to permit heavier trucks. Change permitting process for trucks to use Maryland and Virginia roads.

Clear consistent policy accompanied by clear consistent signage.

Enforce speed limit of 25 MPH. The District Government could make a lot of money on this street. Speed control devices; add stop sign and pedestrian crosswalk at Nebraska Avenue at alley in 5200 block. Restrict trucks in the city—size and weight.

Place stop signs halfway down block between Nevada and Connecticut Avenues. Have police with speed guns.

Put in place hours for delivery in residential neighborhoods bordering commercial areas and enforce restrictions.

Narrow Van Ness Street west of Connecticut Avenue, forcing drivers to voluntarily slow down.

Make Van Ness Street, west of Reno Road, a one-way street, or Van Ness Street could return to its original configuration as a non-through street by building a dead-end at Reno Road and Van Ness Street, or have Van Ness Street one-way going east between Connecticut Avenue and Reno Road, then west only from Reno Road to Massachusetts Avenue.

Limit deliveries to after 9 AM on weekdays. Prohibit deliveries on weekends.

Prohibit trucks with more than 6 tires in residential neighborhoods.

More enforcement of speed and weight limits.

Smaller delivery trucks should be used. Not interstate types.

Smooth and level the transition on Nebraska Avenue at Fessenden Street.

I live on Nebraska Avenue near Connecticut Avenue. The vibrations are at times unbearable—particularly at 4-6 AM when there is no other traffic to slow down big cement mixers and other vehicles. This is despite living in a newly built section.

Resurface the intersection of Nebraska Avenue and Fessenden Street (again). The most recent patching of the "joint" of the repaving job, near the intersection just made the

problem worse. Get competent professional help to identify the exact problems and specify their correction. Position a knowledgeable observer at night to see where in the intersection truck traffic makes the horrendous noise as traffic zooms by.

Do not exacerbate the problem by re-routing truck traffic from Military Road, or other east-west roads in our area.

Install cameras tripped by speeding in the Reno Road to Connecticut Avenue stretch of Nebraska Avenue. We saw this as a very effective tool in Brussels where we lived 25 years ago. This could be a pilot installation to be replicated elsewhere in the District, perhaps on a randomly relocated basis.

Post signs prohibiting unnecessary use of horns. Have police issue tickets from time to time.

I would recommend enforcing the speed limit on 42nd Street and making 42nd Street one-way during rush hour to discourage people from using it as a cut-through.

43rd Street is a residential street with many children and a day-care center. The trucks are a serious threat for the safety of our children. Thus, the intersection at Wisconsin Avenue and Military Road should permit a left turn for vehicles coming east from Military Road to permit them to turn left only at Wisconsin Avenue. In addition, 43rd Street should have traffic calming measures, such as:

speed humps/bumps to reduce the speed;
prohibit left turn from Military Road (east) into 43rd Street;
elevated pedestrian crossings;
possibly making it one-way

The signs need to be posted more visibly and there has to be an enforcement mechanism put into place. At present, there is absolutely no enforcement and it is unclear that the posted signs have any legal consequences.

Trucks should be kept off residential streets unless they are making deliveries on those streets. This is a particular problem in my neighborhood since there is a paucity of adequate east-west roads. There is no road able to safely carry trucks between Connecticut and Wisconsin Avenues from Calvert/Garfield Streets north to Western Avenue. My understanding is that through-trucks are not permitted to use any of the streets between Calvert Street and Western Avenue, but there are no signs posted. Such signage would definitely help.

The long-term solution to Cathedral bus parking is for the institution to build a parking garage for the buses to make room for them on the extensive grounds.

Question 4

42nd St NW and Yuma St NW—both of which border American University's Tenley campus.

No left turn from commercial alley behind Maggiano's. All truck traffic through commercial alley south from Military Road, left only to Wisconsin Avenue.

43rd Street made one way north toward Military Road.

No trucks entering Jenifer Street going east from Wisconsin Avenue.

I think that 42nd Street is the most problematic—as mentioned above, it was not made to carry all of the traffic that it does. People use is as a cut-through from Wisconsin Avenue, Nebraska Avenue, and River Road and call it the "42nd Street Raceway". I am concerned for the safety of the residents on 42nd Street and the children who walk to and from the Janney School and risk getting hurt every day.

Tilden, Upton, Veazey, Warren, Windom, Yuma, Albemarle, and Brandywine Streets between Reno Road and Wisconsin Avenue should restrict the passage of through trucks. Existing policy signage is not consistent**.**

Veazey Terrace NW east of Connecticut Avenue is a no-parking, no-standing street but the signs are not enforced.

Letter from the DC Fire Marshall states that double-parked trucks and moving vans on Van Ness Street east of Connecticut Avenue prevent fire trucks and other emergency vehicles from gaining access to this dead-end street with other 3000 residents.

Van Ness Street has become an unpoliced speedway for cars, trucks, and buses with no police traffic control.

Alton Place, between Reno Road and 36th Street.

The stretch of Nebraska Avenue from Reno Road to Connecticut Avenue.

As stated previously, the biggest problem in terms of direct residential impact is with trucks using Garrison Street between 44th Street and Wisconsin Avenue NW. In addition, general truck traffic along Wisconsin Avenue, while necessary, causes pollution and severely degrades the streets.

43rd Street NW between Military Road and Jenifer Street.

MacArthur Boulevard, Fachall Road (narrow, two-lane road with no shoulder and large homes). Also, save educational institutions.

I don't want to transfer my problems to other people's roads, and I hope you even consider routing more traffic onto Nebraska Avenue.

Trucks tend to use Porter Street that is concrete surfaced and looks wide, but is entirely residential, is not wide at all, and has a dangerous curve on a steep hill. Last year we lost two large trees on Porter Street from trucks losing control and running into them. Fortunately, no children or other pedestrians were hurt. Trucks also use Van Ness Street that is wide near the University but the trucks suddenly find themselves cutting through a very residential area with stop signs at every corner.

Tour buses tend to circle the National Cathedral because there is no bus parking.

Question 5

All vehicular traffic using the Tenley Campus should approach and depart via Tenley Circle and not enter the residential neighborhood.

I think a "No Truck" rule on 42nd Street should be strictly enforced, unless they are making residential deliveries.

Canal Road.

More and more of the same.

The intersection of Wisconsin Avenue and River Road is VERY DANGEROUS since many cars and trucks do not stop before entering Wisconsin Avenue. The intersection of Brandywine Street and River Road is another problem area. Even though there is a stop sign here, few cars or trucks honor it. And, although reported to the DC police and ANC3F nothing has been done to correct the problem. And neighbors on River Road are unable to get out of their driveways safely. Perhaps a camera/ticketing device could help these problem locations. It's a miracle that someone has not been hurt or killed at these two locations. Must we wait for someone to be hurt or killed before the District decides to do something?

Trucks should use arterials for purposes of traveling to and from destinations. Use of secondary streets by trucks should be restricted to deliveries and service calls.

Capitol Beltway and Connecticut Avenue—restrict trucks from using residential streets such as Nebraska Avenue and Military Road.

Where residential or commercial buildings have loading zones or off-street areas for deliveries, trucks double-parking on streets or parking in no-parking areas during rush hours should be ticketed.

Limit all commercial to 36th Street and prohibit commercial traffic before 9 AM.

Trucks over a certain weight may not use Nebraska Avenue.

I'm not knowledgeable about alternate routes that should be considered, but changes elsewhere (e.g., Military Road), should not be allowed to divert east-west traffic to Nebraska Avenue.

As mentioned above, change the Wisconsin Avenue/Military Road intersection so that vehicles coming from the east can turn left (south) onto Wisconsin Avenue, or have a sign for a truck route continuing east beyond Wisconsin Avenue.

With respect to trucks making deliveries to Rodman's Drugstore, the solution is simple. Trucks must be banned from traveling along Garrison Street between 44th Street and Wisconsin Avenue, except as necessary to make residential deliveries to those houses on that street (like moving companies). Trucks making deliveries to Rodman's should be permitted to travel on Garrison Street ONLY between Wisconsin Avenue and Rodman's loading dock area about 50 feet off Wisconsin Avenue NW.

The truck route of Calvert Street/Cleveland Avenue/Garfield Street should be promoted. This corridor has wide lanes and good visibility. For some inexplicable reason, the very wide Garfield Street section was recently posted with no truck signs. The problem with this route is that the Cleveland Avenue section is residential and prone to speeding. Perhaps a fixed speed camera on the downhill side would reduce the speed toward the legal limit.

If through trucks are currently permitted to use either Porter or Van Ness Streets, that should be changed and they should be prohibited.

Question 6

The DC Government (zoning commission), against strong advice from the ANC3E Commissioners and neighbors approved project M on the Tenley campus in American University's 200-2010 Campus Plan. Project M entails a 75,000 square foot building housing an additional 200 students (bringing the student population at Tenley to 700) and additional parking for 225 cars.

Overnight truck parking (with engines running) in commercial alley at Maggiano's.

With increased development, use of secondary streets by trucks becomes a greater problem.

New "Sunrise" development at Connecticut and Nebraska Avenues; additional delivery trucks to our streets.

Van Ness Street. New embassies have been built, and are being built, bringing more traffic.

The welcome redevelopment of the old Sears/Hechinger building at Wisconsin Avenue and Albemarle Street will aggravate Nebraska Avenue traffic, truck and auto.

I think that the proposed new dorm at American University's Tenley Campus and the proposed development of the Marten's Volvo and VW sites will make a bad situation much worse.

The problem in our area will increase with the re-development of the Site of the "Washington Clinic" on Western Avenue (5400 block), as well as the development by the Chevy Chase Land Company at the site of the commercial strip nearby (Friendship Heights Metro Entrance). Furthermore, large-scale re-development is planned for the site of Hecht's on Wisconsin Avenue at the Friendship Heights Metro.

With many proposed new apartment or condominium developments under consideration in our area, the motor vehicle and truck traffic will only get worse. Upper Wisconsin Avenue between Tenley Circle and Western Avenue is already gridlocked during morning and evening rush hours and on weekend afternoons. With additional proposed developments (both residential and retail), I do not see how the motor vehicle traffic that will accompany such development will be accommodated.

Trucks from Friendship Heights being diverted to Macarthur Boulevard.

Construction of the Mayor's Residence on Fachall Road.

You can't imagine how much time I've invested in trying to get the Department of Transportation to fix this problem. It's ridiculous.

Motor carriers have presented problems during the construction of commercial/residential properties in our area. For example, large trucks now queue up at 4 AM to make deliveries/pickups at the ongoing development at the old Hechingers building on Wisconsin Avenue. While waiting to make these deliveries or pickups, they often leave their engines running. This is a noise and pollution problem for the neighbors. Although talking with the developer can result in a resolution of the problem, this very often is only temporary. This type of problem also occurs with deliveries to existing commercial establishments in the area, i.e. early morning deliveries, idling engines, noise, pollution, etc. We will eventually be another Bethesda where private residences are vacated and eventually zoned commercial or sold to developers for large commercial/residential developments. Many of us also believe that Wisconsin Avenue has already reached critical mass with traffic congestion. How much more will it and the residents be able to withstand?

Question 7

I have been unable to find the location of truck routes on the DC web site to see which streets allow through trucks and which do not. Is this information available?

We have almost never seen motor carriers/trucks stopped for traffic violations (e.g., speeding, illegal lane use). Traffic laws and regulations should be enforced uniformly.

Need more motor carrier inspections around construction sites. This was very effective during initial phase of construction of Georgetown University's southwest quadrant off of Canal Road. Many infractions were cited.

Considerable vibration problems in residences on the 5100 block of Nebraska Avenue. Speeding issues heading towards Military Road from Connecticut Avenue along 5100 block of Nebraska Avenue. Needed: Left turn signal from Connecticut Avenue (heading south) onto Nebraska Avenue—Impossible to legally make this turn.

All new buildings, commercial or residential, should be required to be built with off-street loading and unloading areas, and developers should not be allowed to get a special exception or variance from the Board of Zoning Adjustment not to provide facilities.

Parking a police car on Van Ness Street near Reno Road, or traffic cameras which is a less desirable solution.

A traffic survey similar to the survey being done for Friendship Heights is urgently required for Tenleytown, which is closer to DC than Friendship Heights but carries all the same through traffic from Maryland and all the through traffic from Virginia that enters Tenleytown from River Road, mainly along 42nd Street NW. The problems of 42nd Street were highlighted at the Ward 3 Traffic Summit on Monday 14, 2001, which was attended by Mayor Williams. See Attached Copy (No. 7 on Page 4).

WARD 4

Question 1

Stores in the Jamel Shopping Center (e.g., Morris Miller Liquors, Granger Hardware, etc.) depend on having reliable access for trucks. However, they have a parking lot in the rear of the shopping center. They are located on the 7800 block of Georgia Avenue.

Bordering 4 A 06:

Rite Aid on Georgia Avenue
Piney Branch Post Office
Safeway on Georgia Avenue
Carolina Furniture

In 4 A 06:

Missouri Avenue Market on the corner of Missouri and Georgia Avenues
CVS on Georgia Avenue

Question 2

Motor carriage operation on Upper 16th Street NW. causes traffic congestion, safety concerns (especially for students crossing 16th Street to attend school), noise and air pollution, and street vibrations, which result in cracking in some of the older houses.

All of the above, in particular:

Colorado Avenue is used as a speedway from Georgia Avenue to 16th Street—too many seniors and children walking in the area.

Air pollution and safety concerns by the Brightwood Elementary School.
Traffic Congestion at Missouri and Georgia Avenues.

Question 3
Slow the traffic down coming through Colorado Avenue around Longfellow and Madison Streets.

Make the 1300 Block of Nicholson Street a one-way street.

Insist trucks use side streets.

Question 4
Georgia Avenue

Question 5
No clue.

Question 6
Construction on Brightwood Elementary for next two years.

Construction on Military Road School.

Question 7
No

WARD 6
Question 1
In ANC 6A, most of the establishments that require truck access are on H Street NE, although there is a small commercial area with convenience stores just off of Maryland Avenue NE at 8th Street NE.

Question 2
The complaints I hear most often relate to 1) the noise of the trucks (in particular, the rumble and rattle over potholes, and the airbrakes), 2) the vibration caused by the truck which damages plaster and causes other cracks in homes, 3) the health related concerns associated with diesel exhaust (particularly from poorly maintained tour buses and delivery trucks), and 4) speed/safety concerns associated with trucks traveling on residential streets that serve as de facto feeders (like C Street and Constitution Avenue NE).

Question 3
Trucks and tour buses should be preferentially routed through neighborhoods on the widest streets with the largest setbacks between street and houses—for example, H Street NE, Maryland Avenue NE, East Capitol Street NE, Massachusetts Avenue NE, and 8th Street NE. They should be discouraged from using streets that don't meet these criteria—like C Street NE and Constitution Avenue NE.

There needs to be a better emissions inspection and enforcement regime for tour buses and trucks. Parking enforcement and police should be empowered to issue tickets for visible smoking.

Encourage tour buses to park in the stadium lots, with smaller shuttle service or Metro access into the city.

Question 4
As described above, C Street and Constitution Avenue NE because they serve as feeders despite being narrow with very little setback between street and houses. Other problem areas are 14th and 15th Streets NE, which serve as north/south corridors for trucks despite being ill-situated to heavier traffic.

Question 5
Make trucks use the wider streets, even if it makes for a slightly longer route.

Question 6
Construction on Brightwood Elementary for next two years.

Construction on Military Road School.

Construction traffic at Gallaudet University, the Lovejoy Lofts (13th and D Streets NE), MedLINK (7th and C Streets NE).

Question 7
No

WARD 7
Question 1
Safeway at (UNREADABLE)

Deli's on Georgia Avenue and (UNREADABLE)

Minnesota Avenue stores located at the 2900 block of Nelson Place SE. O'Connor Liquors, 6 & 6, and possibly the fish market/carryout Todd's Catering between Nelson Place SE and M Street SE.

Question 2
Parking in residential areas.

Trucks sometimes have been seen unloading their products while parked on the sidewalk at O'Connor Liquors. O'Connor Liquors has told the delivery people not to do this. It's mostly right of way issues—parking on the sidewalk and in the crosswalk.

Question 3

Increased enforcement.

Send a letter to the businesses in this corridor to cease and desist any vehicles from unloading products in the right of way and from blocking ingress and egress from the curbside where wheelchair ramps are apparent. No parking in crosswalks.

Question 4
Georgia Avenue

Minnesota Avenue at 2900 block of Nelson Place to 2900 block of M Street SE

Question 5
Restrict all motor carriers of food or beverage products to early daytime hours and to not block the right of way or curbside in an intersection with wheelchair ramps apparent.

Question 6
Georgia and New Hampshire Avenues

We currently experience what was described in #5 and #2. However, I'd like to make Nelson Place an eastbound street only—prohibiting vehicles from entering Nelson Place from Minnesota Avenue. That way motor carriers can be closer to the store with driver's side door facing to the curb.

Question 7
Increased parking enforcement of commercial vehicles in residential areas.

I would like DCDOT to remind our merchants and businesses not to block right of way or at the curbside where a wheelchair ramp in an intersection is apparent. Parking on a sidewalk and in intersections is prohibited. Signs, clearly stating a fine, need to be put in place. I would like a letter emailed to me that was sent out to merchants.

C. WARD MAPS

Figure C-1. Ward 1

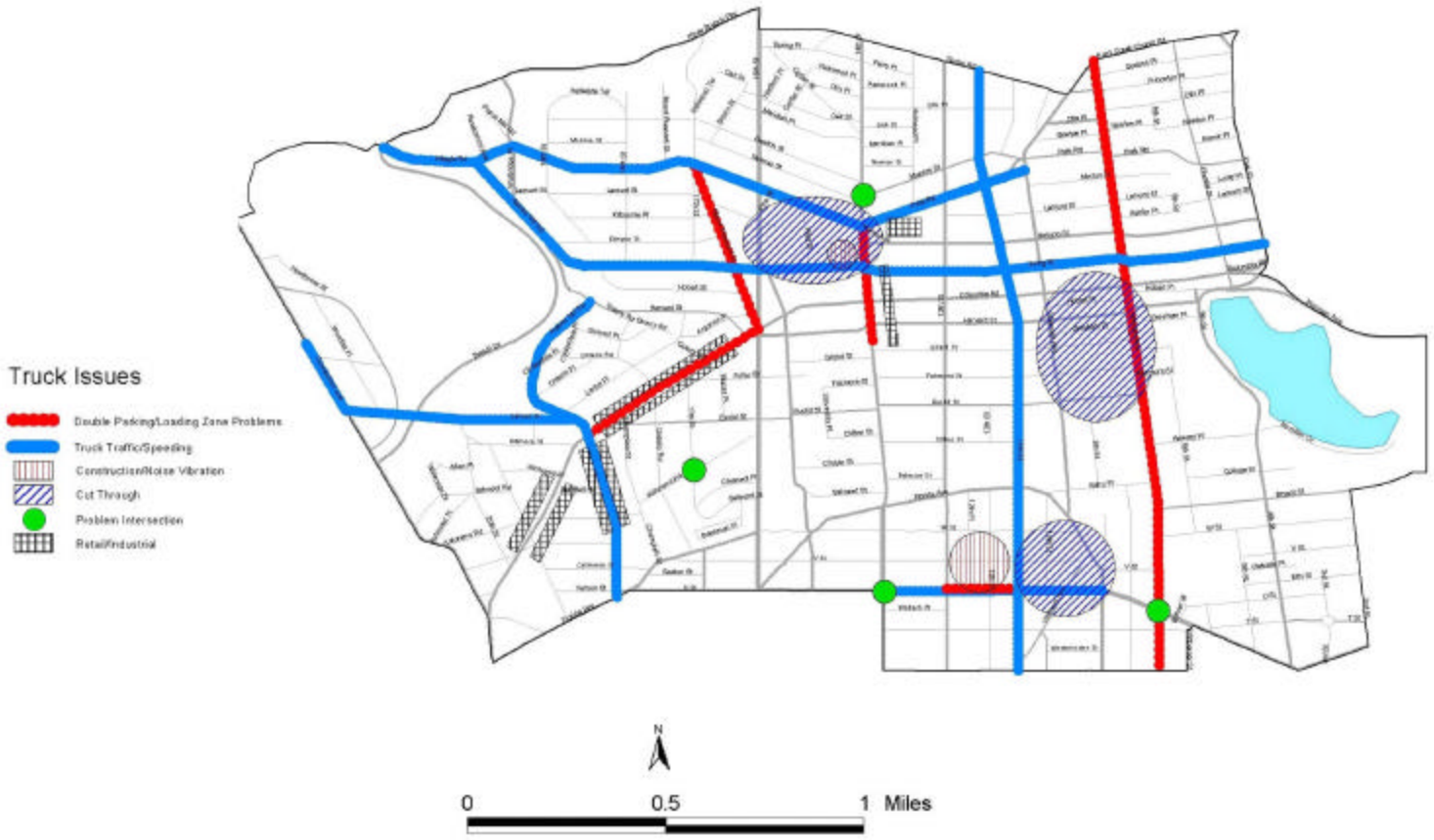


Figure C-2. Ward 2

Figure C-3. Ward 3

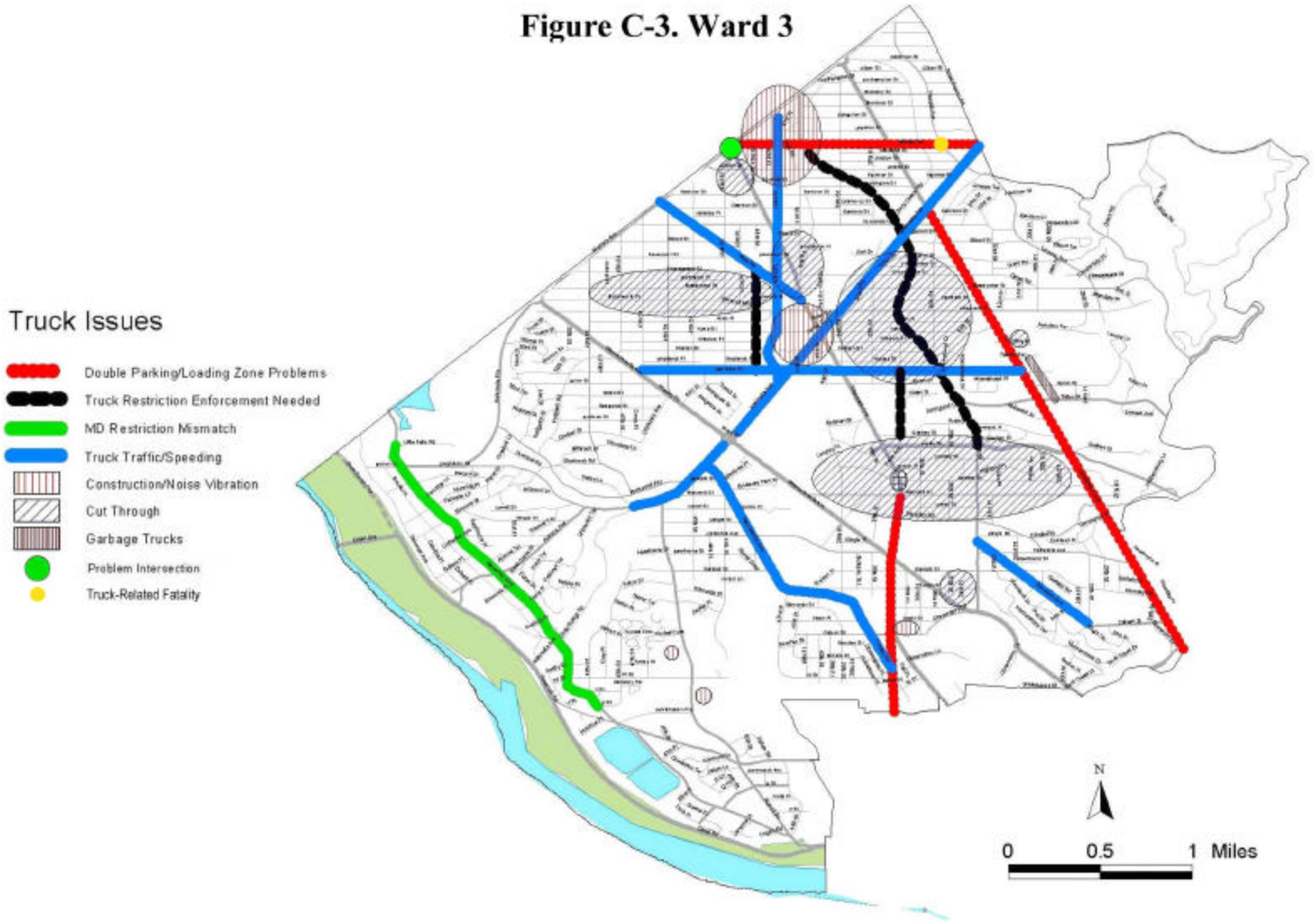


Figure C-4. Ward 4

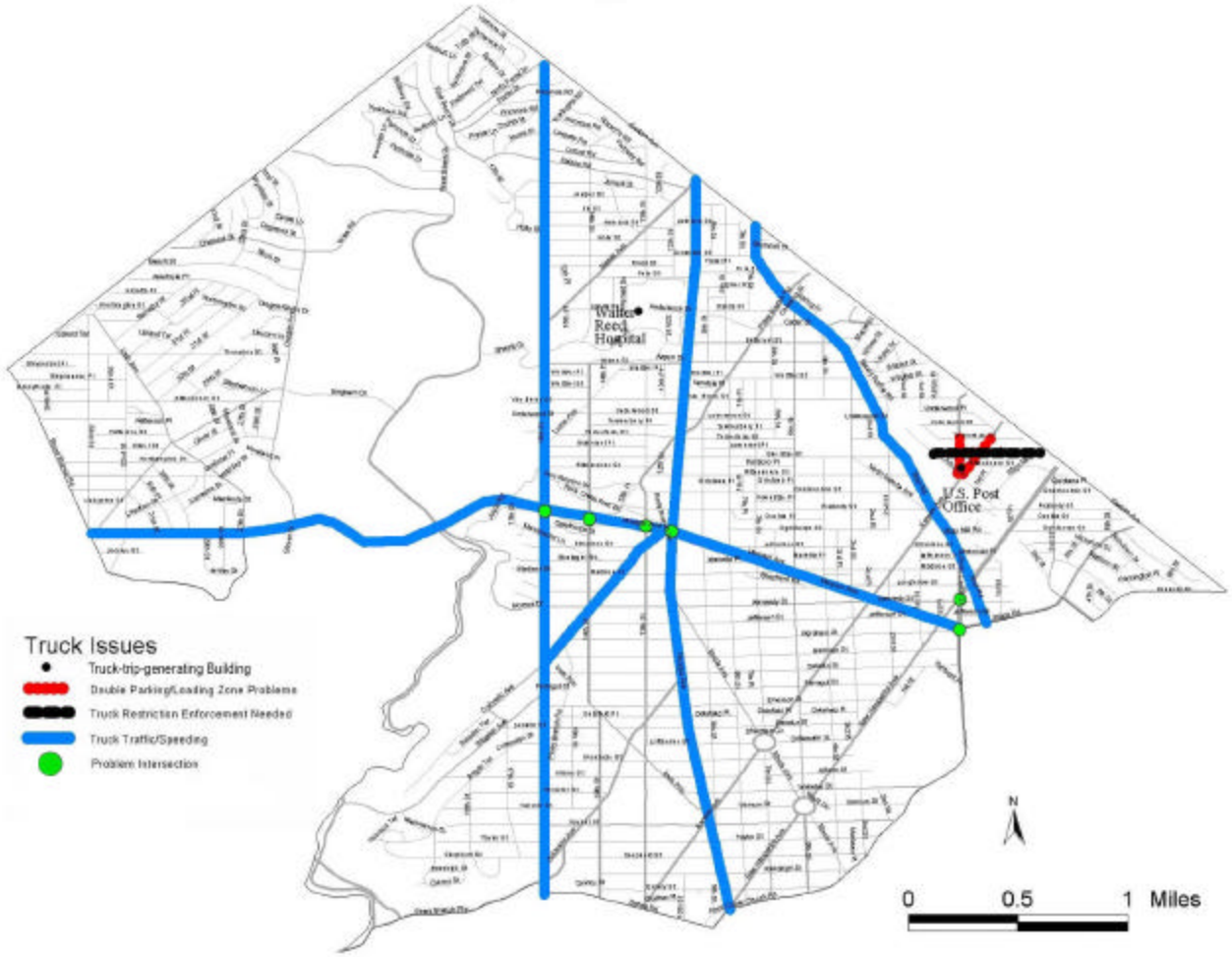


Figure C-5. Ward 5

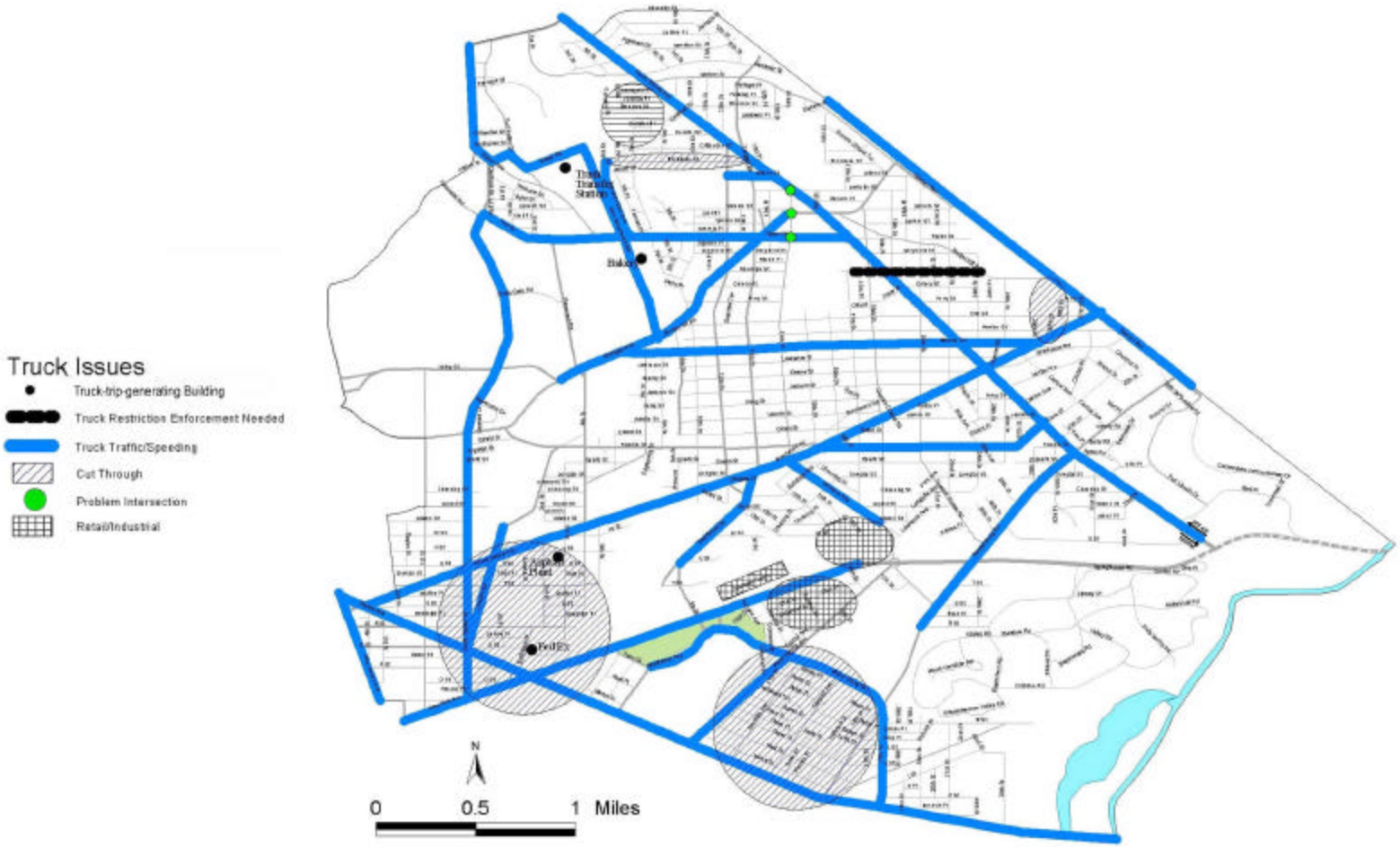


Figure C-6. Ward 6

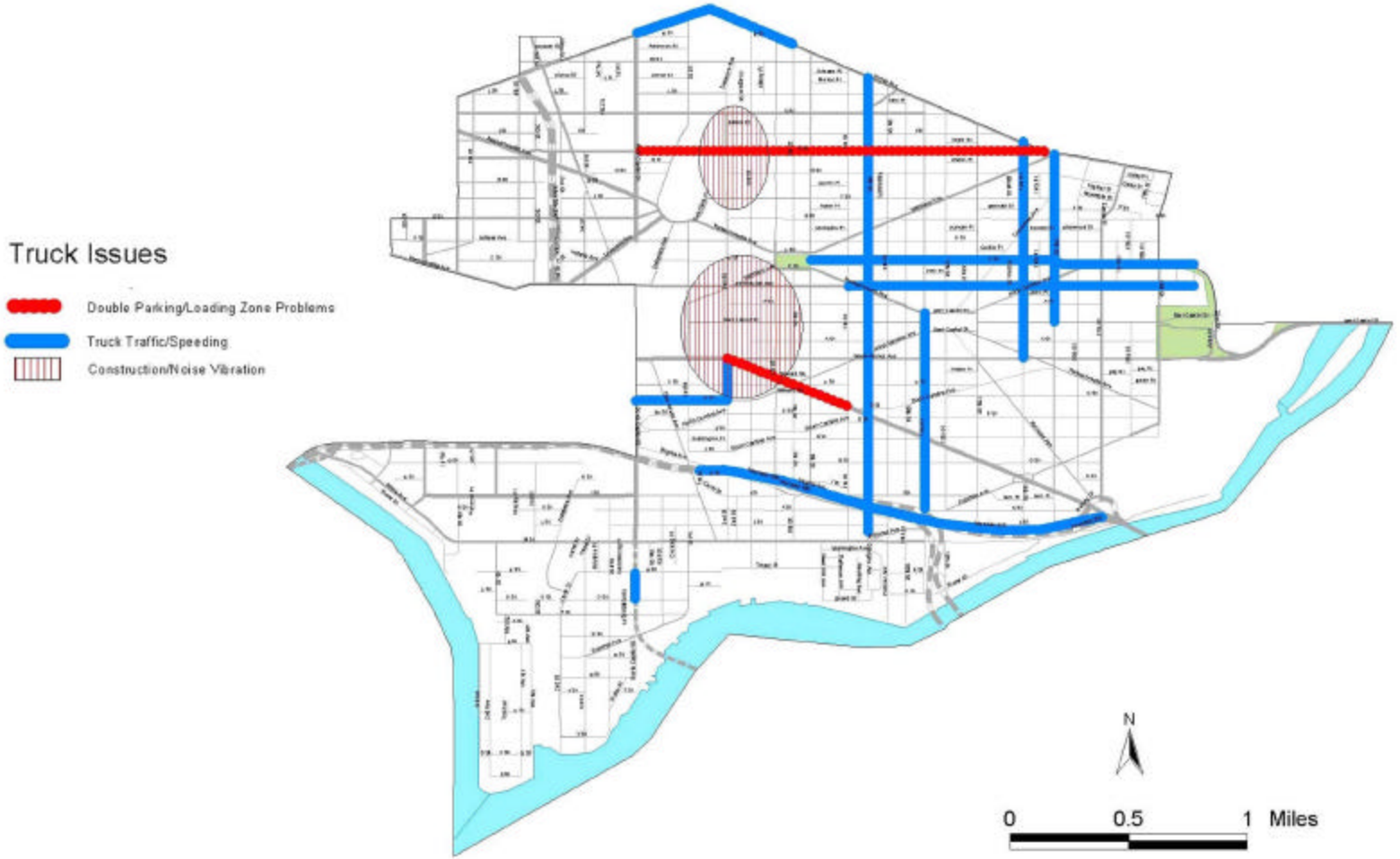


Figure C-7. Ward 7

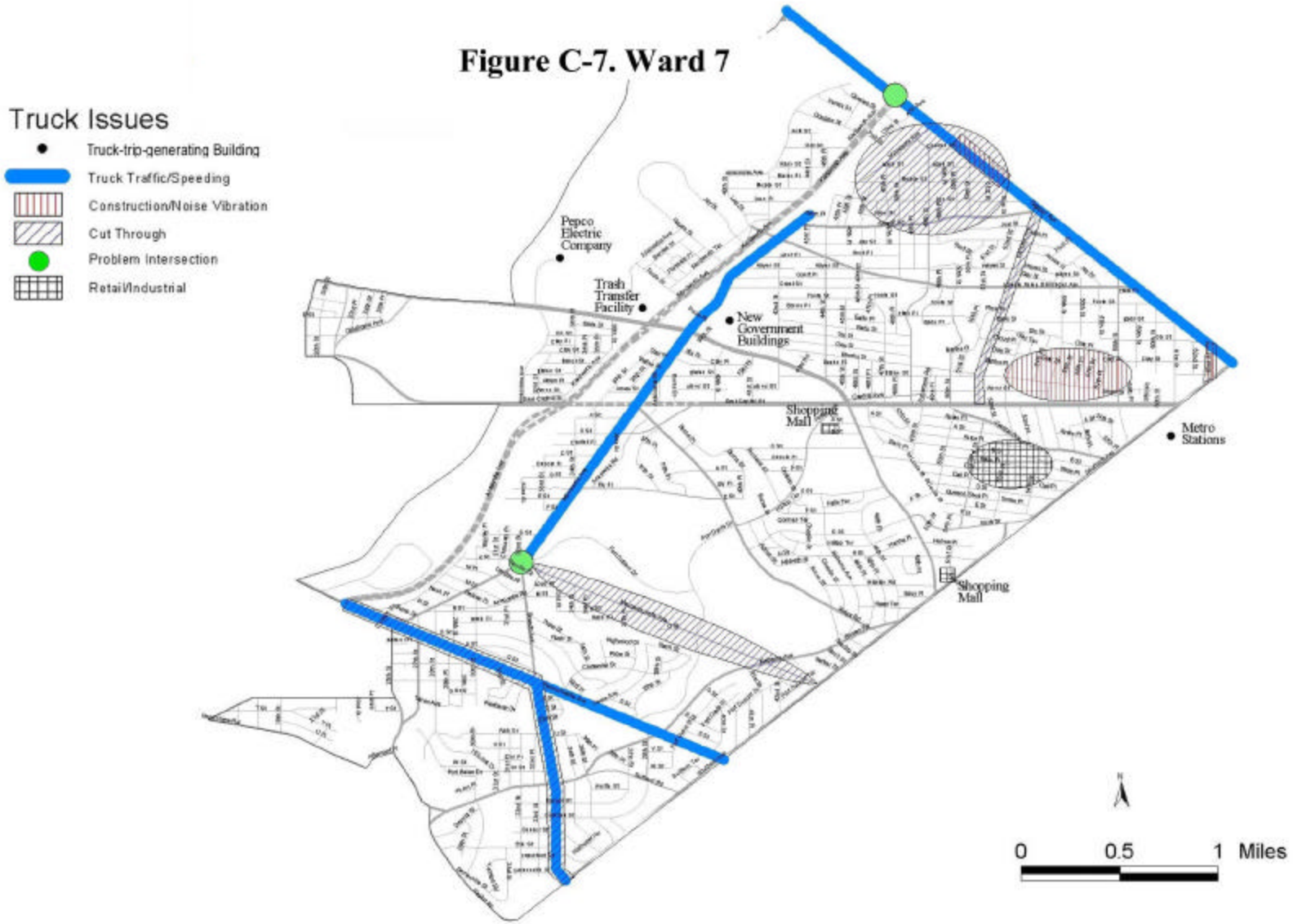
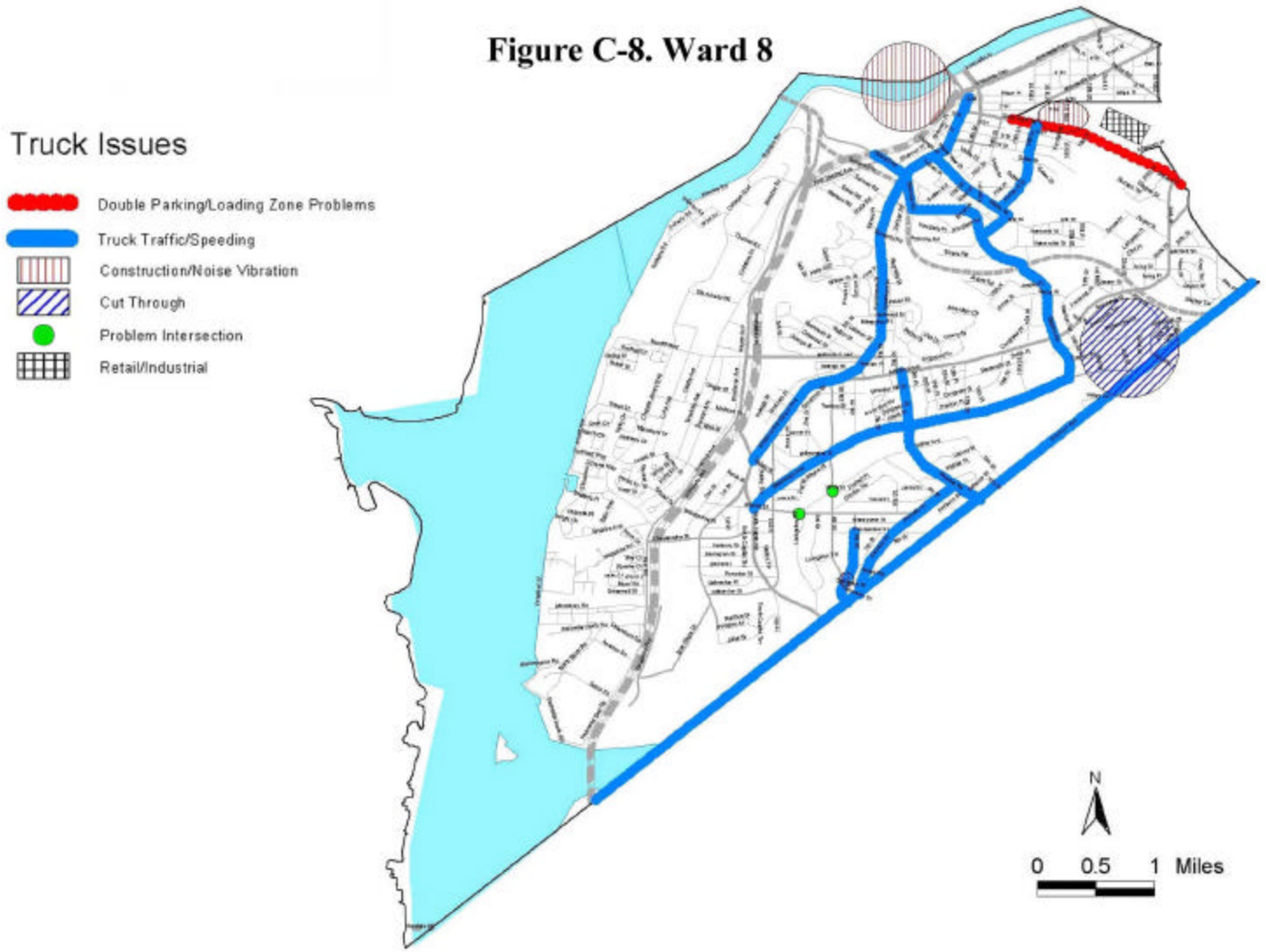


Figure C-8. Ward 8



D. INTERVIEWEES[25]

Terri Adams
Parking Enforcement
DC Department of Public Works

Yusef Aden
Traffic Safety
DDOT

Joe Alonzo
Department of Transportation
City of Chicago

Ron Barowski
Freight Facilitator's Office
City of Seattle

Stephen Beachy
Wilbur Smith Associates

Peter D. Beaulieu
Freight Coordinator
Puget Sound Regional Council

Mark Berndt
Senior Freight Systems Planner
Wilbur Smith Associates

Don Blake
US State Department

Susan Bok
Department of Transportation
City of Los Angeles

Richard Bradley
Executive Director
Downtown Business Improvement District

Ron Branch
Washington Convention Center Authority

Cynthia Brock-Smith
VP of External Affairs
DC Chamber of Commerce

Heather Brophy
Ward 2 Planner
DDOT

Patty Brosmer
District Executive Director
Capitol Hill Business Improvement

R. Bryant
Metropolitan Police Department

Lt. Pat Burke
Traffic Safety Coordinator
Metropolitan Police Department

Jeff Carpenter
Community Redevelopment Agency
City of Los Angeles

Allison L. C. de Cerreño, Ph.D.
Co-Director, Rudin Center for Transportation Policy & Management
Wagner Graduate School of Public Service, NYU

Barbara Childs-Pair
Deputy Head
DC Emergency Management Agency

Joyce Clark
Maryland Department of the Environment

Ted Dahlburg
Delaware Valley Regional Planning Commission

[25] Some interviewees—primarily truck operators—requested or were offered anonymity and are not included in this list.

Joseph David
Baltimore Department of Transportation

Peggy Drake
Planner
Baltimore Planning Department

R. Ennis
Metropolitan Police Department

George Escobar
Latino Economic Development Corporation

Lars Etzkorn
Public Space Maintenance
DDOT

Anne Ferro
Maryland Motor Truck Association
President

Tom Folks
Department of Parking & Traffic
City of San Francisco

Kevin Forrester
Baltimore Police Intelligence Section

Joe Foster
Office of Freight Movement
Maryland DOT

Steve Gaffigan
Synchronized Operations Command Center
Metropolitan Police Department

Patricia Gallagher
Executive Director
National Capital Planning Commission

Steve Gerber
Office of Transportation
City of Portland

Andrew Gimberline
Utah Department of Transportation

Ken W. Gray, Jr.
District Executive Director
Georgetown Business Improvement

Bob Greeley
Physical Security
U.S. Capitol Police

Bob Grow
President/Transportation Issues
Metropolitan Washington Board of Trade

Sharon Hamilton
Underground Tank Storage Management Division
Environmental Health Administration
DC Department of Health

Tim Harpst
Department of Transportation
City of Salt Lake City

Damon Harvey
Ward 4 Planner
DDOT

Gary Henderson
DC Division Administrator
FHWA

Susan Hinton
Regional Transportation Liaison
National Capital Region
National Park Service

Roger Hoopengardner
SAIC

Mark Hughes
Senior Environmental Specialist
Bureau of Hazardous Materials and Toxic Substances
Environmental Health Administration
DC Department of Public Health

Jocelyn Jones
Baltimore Metropolitan Council

Natalie Jones
DC Emergency Preparedness

Margaret Kellems
Deputy Mayor for Public Safety
Washington, DC

Taft Kelly
FMCSA
DC Division Administrator

Cynthia Kurtz
City of Pasadena

Janice Lahsene
Transportation Planning Manager
Port of Portland

Barbara Lang
President
DC Chamber of Commerce

Rachel MacCleery
Ward 6 Planner
DDOT

Adam Maier
Staff, Committee on Public Works and Environment
Office of DC City Councilwoman Carol Schwartz

Howard J. Mann
Associate Transportation Analyst
New York Metropolitan Transportation Council

Elchino Martin
Chief of Staff
DC Office of Deputy Mayor for Planning and Economic Development

William McGuirk
Chief of Traffic Services
Administration, DDOT

Elizabeth Miller
National Capital Planning Commission

Ronald Mitchell
Ward 7 Planner
DDOT

Harold Monroe
Bureau of Food, Drugs, and Radiation
DC Department of Health

Peter Moreland
Traffic Service Administration
DDOT

Frank Murphy
Baltimore Department of Transportation

Callistus Nwadike
Ward 1 Planner
DDOT

John Parsons
Associate Director of Lands, Resources, and Planning
National Park Service

W. Shaun Pharr
Vice President of Government Affairs
Apartment and Office Building Association of Metropolitan Washington

Charles Ramsey
Chief of Police
Metropolitan Police Department

Sharlene Reed
Ward 5 Planner
DDOT

Douglas Reeves
Office of Hazardous Material Safety
Research and Special Projects
Administration
US DOT

Jerry Robbins
Department of Parking & Traffic
City of San Francisco

David Robertson
Interim Director
Metropolitan Washington Council of
Governments

Marcia Rosenthall
Executive Director
Golden Triangle Business Improvement
District

Patrick Ryan
City of Vancouver, British Columbia

Sergeant Jim Schaefer
Motor Carrier Enforcement Division
Metropolitan Police Department

Jason Schrieber
Department of Traffic & Parking
City of Cambridge

Carol Schwartz
Councilwoman
Council of the District of Columbia

Chris Shaheen
Ward 2 Neighborhood Planning
Coordinator
DC Office of Planning

Cindy Shamban
Department of Parking & Traffic
City of San Francisco

Donald Shanis
Deputy Director, Transportation
Planning Division
Delaware Valley Regional Planning
Commission

Abdul Rashid Sleemi
Traffic Safety Engineer
DDOT

Chip Smith
Maryland State Policy

Colleen Smith
Ward 3 Planner
DDOT

David Stein
Department of Transportation
City of New York

Gregory Talley
Environmental Health Administration
Bureau of Food, Drug, and Radiation
Protection
DC Department of Health

Dan Tangherlini
Director
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