

# Dundalk Area Truck Impact Study

Final Project Report

November 2006

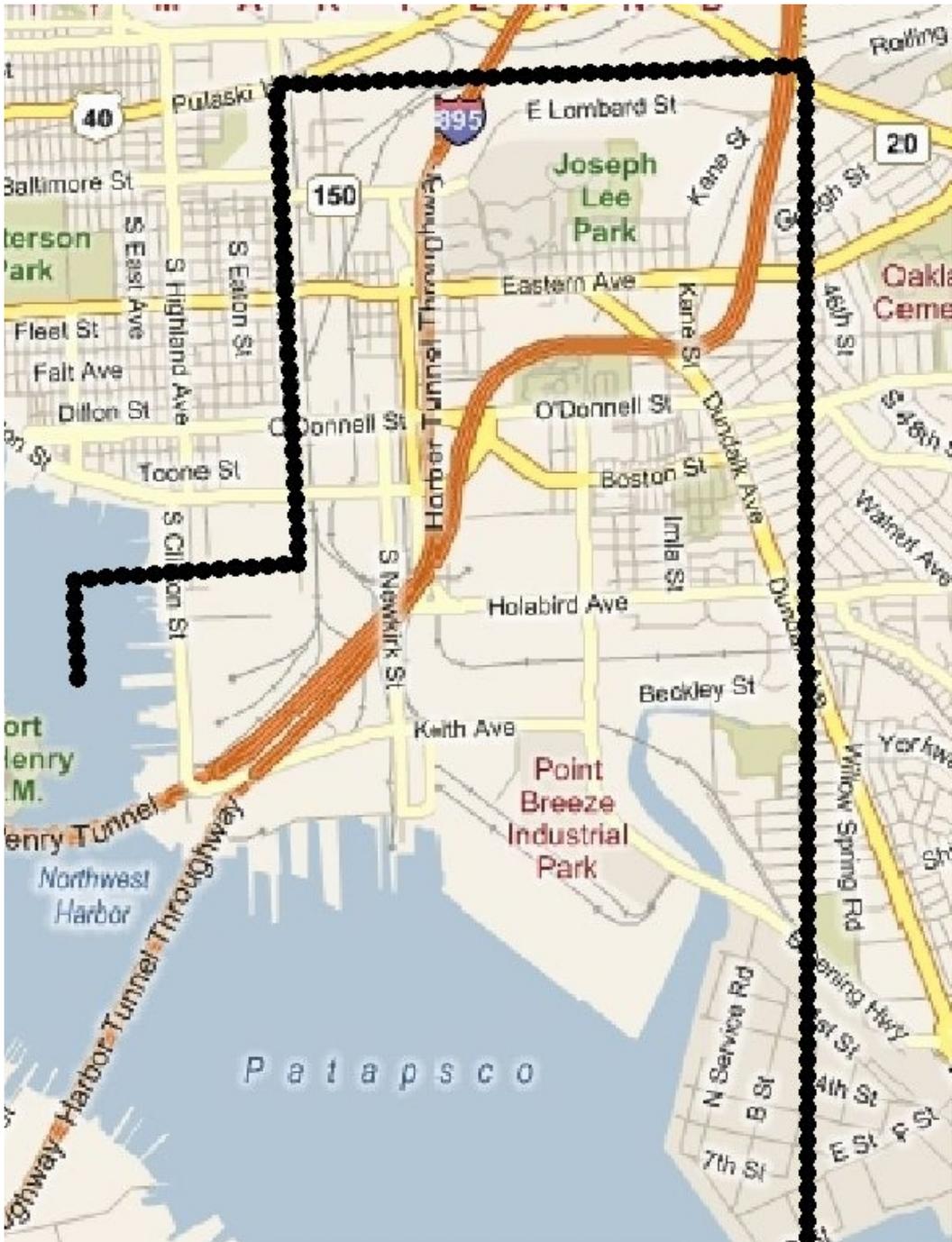
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# Baltimore City Dundalk Area Truck Impact Study Area Boundaries



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## Executive Summary

The Baltimore City DOT requested the U.S. DOT's John A. Volpe National Transportation Systems Center (Volpe Center) to assist the City in improving residents' quality of life and the ease of businesses in moving freight in and through the far southeast of Baltimore City. This historically industrial area, often referred to as Dundalk, has seen an increase in freight movement over time as the volume of the area's port operations has increased and more truck traffic is required to move goods locally, regionally and nationally. At the same time, area residents have grown increasingly concerned about the impacts of local truck traffic on their quality of life. Given the needs of both businesses and residents, Volpe designed the Dundalk Area Truck Impact Study to identify primary truck-related issues among these groups and other interested parties, and to craft solutions that address their interests while being feasible for the City to pursue.

After initial fact-finding and analysis, the Volpe team designed, conducted, and documented two working group sessions with active participation by leaders of key stakeholder groups (e.g., BCDOT, Mayor's Office of Neighborhoods, Baltimore Development Corporation, Baltimore Industrial Group, Maryland Motor Truck Association, Port of Baltimore, and the Southeast Neighborhood Development Group). Participants in the working groups agreed on three main problem areas to address together, including: (1) noise, vibration and safety; (2) trucks in the wrong place/at the wrong time (enforcement); and (3) truck access for businesses. The Volpe Center then worked with participants to identify solutions, determine roles and responsibilities for implementation, and agree to immediate activities to build momentum for completing the work. This report describes the recommended solutions and outlines specific tasks, associated resource needs, and lead parties responsible for moving the effort forward. Recommendations for each of the three problem areas include:

- a) **Noise, Vibration, and Safety:** Quieter Brakes, Quieter Pavement, Fewer Trucks, and Speeding and Safety Analysis
- b) **Trucks in the Wrong Place/at the Wrong Time:** Better Enforcement, Publicize Restrictions and Preferred Routes, Better Information and Education, Define and Communicate Specific Truck Restriction Laws, and Use 311 to Identify Trends and Deploy Resources
- c) **Truck Access for Businesses:** Targeted Infrastructure Improvements and Improved Signage

Working group participants agreed that these recommendations are feasible, address the problems identified above in an equitable manner, and take into account best practices in other large city DOTs faced with similar interests and issues.

Successful implementation of these recommendations is not only conditional on the availability of resources, but is also dependent on the level of coordination and communication among, as well as continued leadership and commitment from organizations represented in the working groups. This document is a key reference in keeping the implementation details visible for stakeholders to improve conditions for residents and businesses alike.



## **I. Overview**

The Baltimore City DOT requested the U.S. DOT's John A. Volpe National Transportation Systems Center (Volpe Center) to assist the City in improving residents' quality of life and the ease of businesses in moving freight in and through the far southeast of Baltimore City. The Volpe Center designed the Study to identify primary truck-related issues among residents and businesses and to craft solutions that address both of their interests while being feasible for the City to pursue.

This section describes the Study's area, its objectives and approach, as well as the stakeholders with whom Volpe worked. The context for the study – that is, the current and likely future conditions in the area - is covered in detail in Section III. This is followed in Section IV by a thorough outline of the issues that stakeholders – neighborhood and business representatives – raised in the course of Volpe's fact finding. We have summarized relevant "best practices" of selected large cities in Section V, concluding in Section VI with a discussion of solutions that appear suited to fulfilling the Study's objectives.

### ***A. The Study Area***

The study area's boundaries are: on the west Haven Street and the Clinton Street Waterfront, on the north Lombard and Kane Streets, on the east the Baltimore County line, and on the south the industrial waterfront. The interests in this area are long-standing. Businesses look for the best road access, commonly defined as the shortest and lowest cost path for trucks to reach their destinations, for example, to or from the Port of Baltimore. Residents, however, find the sheer volume of trucks, and the associated noise and vibration from trucks moving through their neighborhoods, unacceptable and want as much truck traffic as possible moved off what they view as their streets.

### ***B. Objectives and Approach***

The Study's objectives were to:

- Clarify stakeholders' truck-related issues in and around the area's industrial portals;
- Understand truck movement and its associated impacts on and value to residents and businesses; and
- Identify feasible options that account for differing viewpoints on impact and value.

As a foundation for incorporating the viewpoints of residents and businesses into solutions, Volpe initially focused on fact-finding and information gathering, together with research into best practices in similar urban situations. Volpe drew on the wealth of knowledge among businesses, their associations, and neighborhood groups, as well as City, State, regional and local agencies active in freight movement in the area. In addition to assembling relevant data on truck movement in and near the area, Volpe had truck traffic counts collected in two locations on streets with recently imposed nighttime truck travel restrictions (Dundalk Avenue and Kane Street).

After analyzing the data, Volpe designed and convened working groups of stakeholders around the primary issues and emerging solutions. With facilitation by Volpe, the working groups identified three problem areas and made recommendations for addressing each area.

Volpe’s project phase schedule appears below:

<i>Fall 2005</i>	<b>Fact-finding:</b> <ul style="list-style-type: none"> <li>• Interview area stakeholders</li> <li>• Meet with city and state agencies</li> </ul>
<i>Winter 2006</i>	<b>Analysis:</b> <ul style="list-style-type: none"> <li>• Organize findings</li> <li>• Assemble and collect data</li> <li>• Determine commonalities, differences, gaps, key issues</li> <li>• Validate findings with City</li> </ul>
<i>Spring 2006</i>	<b>Solution-Building:</b> <ul style="list-style-type: none"> <li>• Validate findings with stakeholders in working groups</li> <li>• Agree on definition of issues and common interests</li> <li>• Identify workable solutions</li> </ul>
<i>Spring/Summer 2006</i>	<b>Implementation:</b> <ul style="list-style-type: none"> <li>• Agree to priority list of solutions with working groups</li> <li>• Define schedules, deliverables, and resources needed for full implementation of solutions</li> <li>• Spell out roles and responsibilities for implementation</li> </ul>

### ***C. Participants***

Volpe’s fact-finding showed a wide range of interests among residents and businesses in the study area. As a result, the study was designed to be inclusive (acknowledging various stakeholders’ interests), yet also comprehensive (keeping in mind the whole set of interests – the “public interest” – in the study area). Participants active in the Study included City agencies, manufacturing companies and associations, warehousing and distribution companies, trucking companies and associations, neighborhood groups, state agencies, and county agencies (*for a complete list of agencies and organizations see [Appendix A. List of Participants](#)*). Businesses share concerns such as access, cost-effective operations, and maintaining a competitive edge. Residents share concerns that address issues such as quality of life and safety.

## II. Context for the Study

The Port of Baltimore is increasingly viewed as an essential engine of economic growth in the City and the surrounding region. Along with most other major American cities, many manufacturing operations in Baltimore have closed, with jobs moving to lower cost locations, often offshore. Nonetheless, there has been an increased demand for port access in Baltimore, specifically in moving freight – typically large containers – between ships and warehouses/distribution centers in the study area as an important (and cost-savings) step to Mid-Atlantic and Middle Western locations. While this has created a positive impact on the state and local economy, it has also negatively affected communities close to the industrial center and port that have experienced increased truck traffic and concern for their quality of life.

With the mix of business activities in the study area shifting from manufacturing and toward warehousing, distribution, and logistics, the Port of Baltimore's success as an economic engine depends partly on having fast, low-cost access to and from the Port area. In this context, the Port has been a major source of economic activity as witnessed by the following:

- In 2004, almost \$31.2 billion dollars worth of waterborne commodities passed through the Port of Baltimore, an increase of \$5.2 billion dollars from 2003.
- In 2004, the Port was ranked 7th in the United States and 4th on the Atlantic coast in terms of value.<sup>1</sup>
- The Port relies on trucks and rail to transport these commodities locally, regionally, and nationwide. The Maryland Motor Truck Association estimates that the trucking industry carries approximately 75 to 90 percent of the freight tonnage moved in the state.<sup>2</sup>

The industrial base in southeast Baltimore has continued to prosper, bringing to it increased port activity and an increased demand for terminals outside of the marine area with competitive costs and good access to Interstate highways. This has led to an increased volume of trucks in and out of areas in which these off-marine terminal facilities are located. While the demand for freight movement has increased, the City, in response to local neighborhood residents' pressure, has increased truck restrictions, funneling "through" truck traffic onto fewer and fewer routes. "Local" as distinct from "through" trucks are authorized to use a restricted route, if they have business in the area surrounding the route. However, enforcing restrictions on specific routes presents special challenges. While trucks with local deliveries or pick-ups in the immediate area are authorized to travel on restricted routes, there is no quick visual way of determining if authorization is present.<sup>3</sup>

Details of the current and projected conditions, including Volpe's analysis of them, are described in the two sections below. Many related studies were also analyzed that have been sponsored by

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<sup>1</sup> Foreign Commerce Statistical Report -2004, Maryland Port Administration.

<sup>2</sup> Baltimore Metropolitan Council, Transportation 2030, Chapter 4, page 9; 90% estimate based on state data provided by MMTA.

<sup>3</sup> At this time, there is no clear enforcement measure other than checking each vehicle's manifest to identify whether a truck is authorized to be on a restricted route; this uncertainty leads to assumptions that may or may not be accurate.

a variety of public agencies in the region in recent years. (See [Appendix I. Related Studies](#)) These conditions are understood to be the “facts on the ground,” and serve as an important reference in interpreting the stakeholders’ issues outlined in Section IV that follows.

### **A. Current Conditions**

The description of the current conditions of the Study area is divided into five areas:

1. *Infrastructure,*
2. *Status of Maintenance or Reconstruction,*
3. *Regulations and Policies,*
4. *Traffic Counts, and*
5. *Reported Truck Movements.*

#### *1. Infrastructure*

The condition of the transportation infrastructure in the study area indicates the stress on the road system due in part to the volume of truck traffic. Many roads that serve as highly-used truck routes have large potholes, leading to increased noise and vibration in the immediate area and potential safety concerns for car and truck drivers who try to avoid potholes or have incurred damage to their vehicles when driving over or around them. Additionally, some roads are too narrow to handle the newer, larger-sized trucks, which can now legally be up to 80,000 pounds and have up to a 53-foot length trailer. “Oversized” vehicles – trucks that exceed these dimensions and can be used with special permits – are a growing segment of “larger trucks.” Turning radii in specific places cannot support these larger trucks, and this can result in general traffic congestion due to difficult and time-consuming truck maneuvering or even overturned trucks. Examples of where these problems occur include:

- Difficulty turning onto Broening Highway from both Ralls Avenue and Dundalk Avenue due to the geometry of the street in both of these areas (i.e., the narrow street requires a tight turn which is difficult for larger trucks);
- Overturned trucks on Poncabird due to speed; and
- At Conkling and O’Donnell, the northbound right turn is difficult at times.

Certain overpasses provide insufficient vertical clearance for large trucks, and force them to find alternate routes. For example, the outbound overpass from E. Monument and Haven Street has a lower clearance than the inbound side.

Additional locations noted in other studies (see citations below) that have infrastructure or operational concerns include:

- Boston Street, west of Ponca Street:
  - The narrow two-lane section impacts traffic operations since the short (assumed three-lane) eastbound approach cannot process vehicles efficiently.<sup>4</sup>
  - The two at-grade railroad crossings create traffic queues on both directions of Boston Street.<sup>5</sup>

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<sup>4</sup> Boston Street and Ponca Street: Freight-related Intersection Evaluation, STV/BMC, August 2005.

<sup>5</sup> Regional Landside Access Study for Maryland’s Port of Baltimore: A 20-Year Transportation Vision (Draft Final), page 67, Cambridge Systematics, June 2005.

- There are no pavement markings indicating the westbound lane drop at Boston and Ponca.<sup>4</sup>
- Truck signage for Interstates:
  - Guide signing to I-95 at Boston and Ponca is not present on all of the approaches.<sup>4</sup>
  - There are no signs directing motorists to I-895.<sup>4</sup>
- Signal-timing delays:
  - Keith Avenue and New Vail Street: Trucks traveling to and from the Seagirt and Dundalk Marine Terminals often experience signal-timing delays at this intersection (at the entrance to CSX Intermodal ICTF), even when there is no cross traffic.<sup>5</sup>
  - Broening Highway: Trucks queue at the entrance to the Point Breeze Business Center and at the entrance to the Seagirt Terminal when there is no cross traffic.<sup>5</sup>

## 2. *Status of Maintenance or Reconstruction*

Streets such as Boston, Newkirk and Ponca were all repaved or reconstructed in the 1990s, but many others have not been repaved or reconstructed since the 1970s and 1980s.<sup>6</sup> Broening Highway has poor pavement conditions, and was one of the areas most often cited as needing the City's attention in terminal operator interviews for the Regional Landside Access Study for Maryland's Port of Baltimore. Specifically, the southbound right lane between the Keith Avenue Interchange and the entrance to the Seagirt Terminal is very rough.<sup>7</sup> Broening Highway reconstruction, from Holabird to Boston Street, is currently under discussion for receiving funding through the City's Capital Improvement Program (CIP).<sup>8</sup>

## 3. *Regulations*

Truck restrictions on Baltimore City streets began in 1956 (see [Appendix B. Truck Restrictions Table](#)). In the Study area, Baltimore City instituted nighttime restrictions on Dundalk Avenue and Kane Street in January 2004 to respond to residents' concerns about the role of truck traffic in their quality of life. These restrictions prohibit trucks at night<sup>9</sup>, with the exception of local deliveries. At this time, there is no clear means to identify whether a truck is authorized to be on a restricted route other than checking each vehicle's manifest. Therefore, it is unclear whether the observed truck traffic on these two restricted routes during nighttime hours is the result of drivers' not adhering to the restrictions, or the presence of local, authorized trucks. To understand this problem better, Volpe analyzed available traffic data for the Study area and region as well as count data Volpe had taken over a 48-hour period on the two recently restricted streets, to get a reading on the extent that truck volume changes may be correlated with changes in the levels of general economic activity.

Data showed that since nighttime restrictions on Dundalk Avenue and Kane Street were adopted in 2004, truck traffic has generally risen in the region apparently due to increased demand and activity at the City's ports. Two months after the restrictions went into effect in 2004, truck traffic counts on the nighttime restricted sections of Kane Street and Dundalk

<sup>6</sup> See table in [Appendix E. Dundalk Area Arterials: Repaving and Reconstruction Schedule](#).

<sup>7</sup> [Regional Landside Access Study for Maryland's Port of Baltimore: A 20-Year Transportation Vision](#) (Draft Final), page 68, Cambridge Systematics, June 2005.

<sup>8</sup> See [Appendix F. SE Baltimore CIP: FY 2006-2011](#).

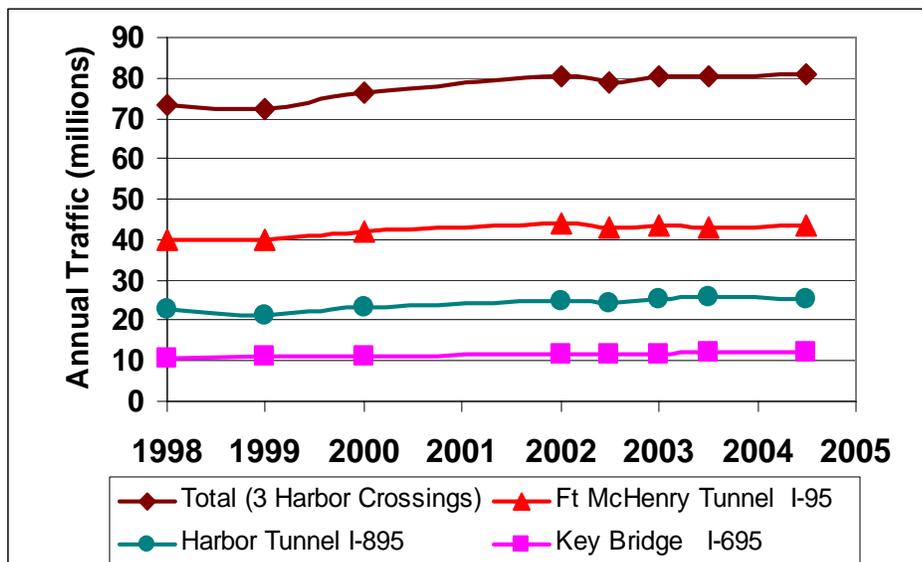
<sup>9</sup> Assumed at the time of the counts to be 6pm to 6am.

Avenue indicated a decrease in volume (compared to 2001), but counts in late 2005 indicated an increase (compared to early 2004). The proportion of nighttime truck traffic in those locations that is in violation of the restriction remains an open issue. The remainder of this section contains details behind the findings.

Numerous traffic counts, including classification counts,<sup>10</sup> have been collected in the area over the years. By analyzing these counts Volpe

- Assessed traffic growth on major highways in the region.
- Assessed changes in traffic on Dundalk Avenue and Kane Street (locations where multiple counts have been performed).
- Obtained a recent snapshot of truck traffic on a number of local streets.

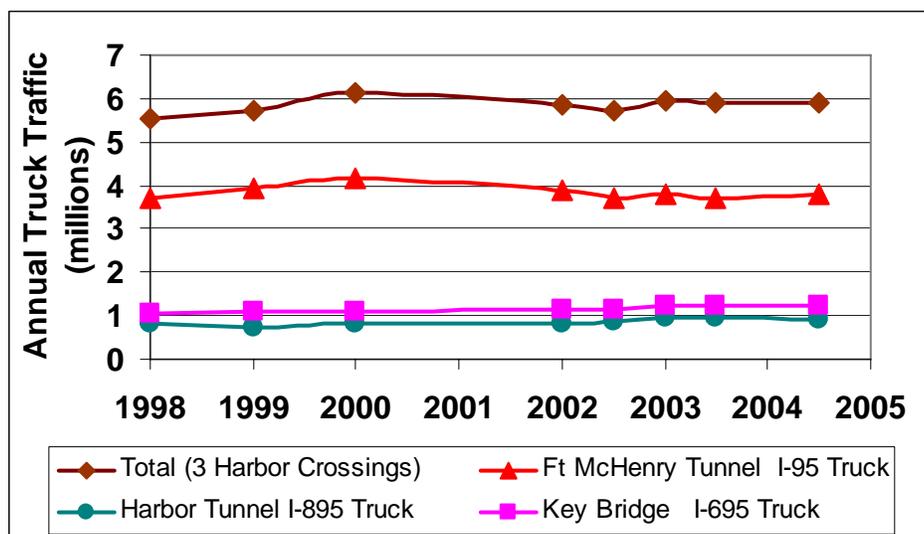
Figures 1 and 2<sup>11</sup> illustrate traffic trends between 1998 and 2005 on major toll facilities in the area. Data points are shown at the start of the relevant year. For example, the most recent point midway between 2004 and 2005 refers to the fiscal year that started in July 2004 and ended in June 2005. These figures show a 10.6% increase in overall traffic (cars and trucks), along with a 6.6% increase in truck traffic over the 6 1/2 year period, when all three harbor crossings (Key Bridge, Fort McHenry Tunnel, and Harbor Tunnel) are considered together. [[Appendix C. Traffic Counts](#) - contains details of the traffic counts presented in Figures 1-5.]



**Figure 1: Overall Traffic on Area Toll Facilities**

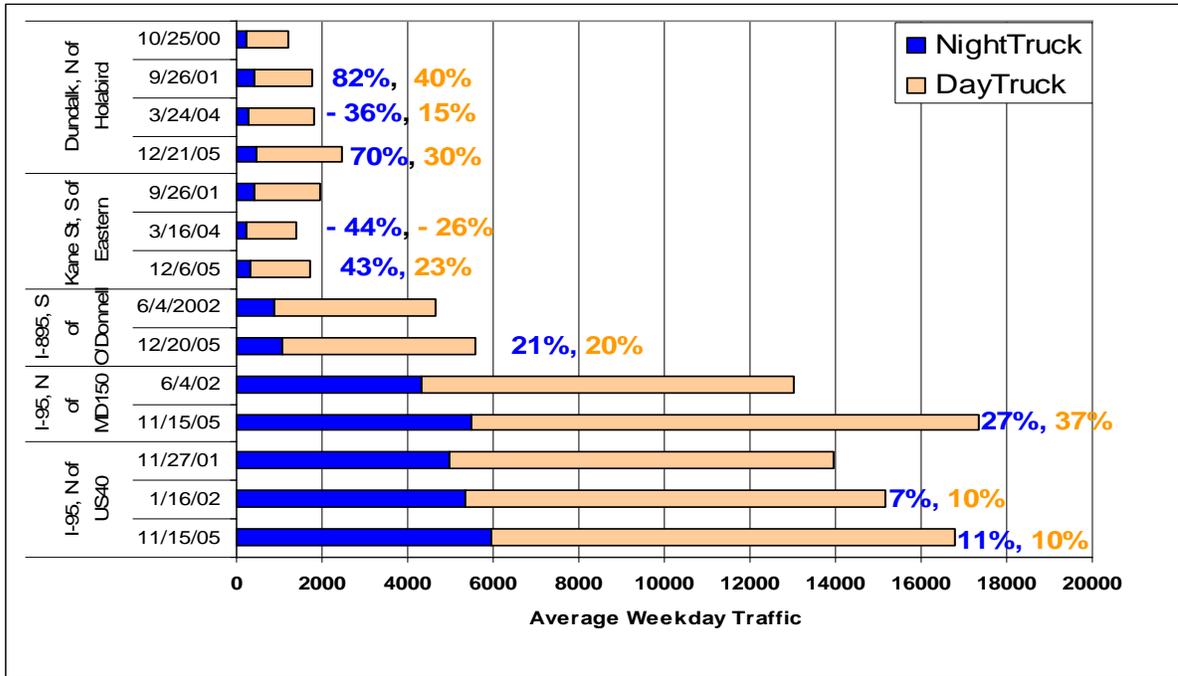
<sup>10</sup> A classification count distinguishes among vehicle types; for example, cars and trucks and among the various truck sizes.

<sup>11</sup> Data for both figures are from Transportation 2030: Shaping the Future of Transportation in the Baltimore Region, Chapter 4, Baltimore Metropolitan Council, <http://www.baltometro.org/T2030/T2030document.html>, 2001 Baltimore Regional Transportation Plan, accessed on 4/14/2006 at <http://www.baltometro.org/BRTP2001/Plan2001ChapVI.pdf>, and from the 2004 and 2005 Maryland Transportation Authority annual reports.

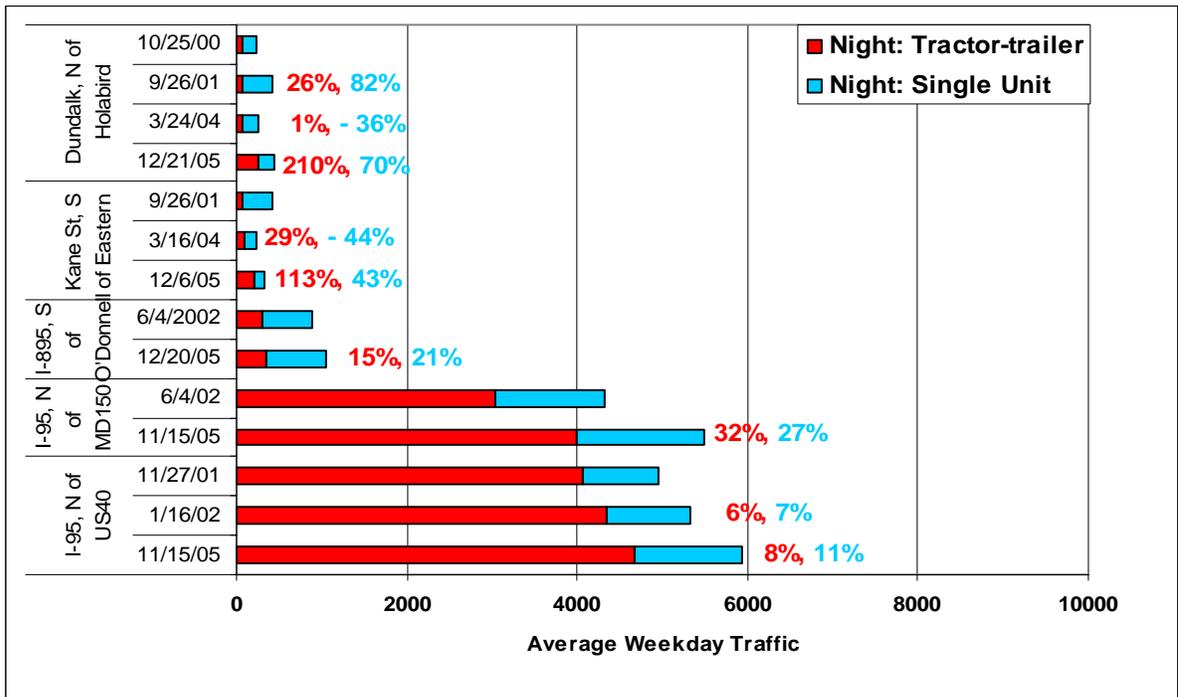


**Figure 2: Truck Traffic on Area Toll Facilities**

Figure 3 illustrates truck traffic counts at selected locations and points in time. “Night” is defined as 6PM to 6AM, and the numbers are based on two-day classification counts, starting on the dates indicated. These counts show a significant increase in truck traffic on Interstates 95 and 895, somewhat surprising given the small changes seen in Figure 2. With the implementation of the nighttime truck restriction in January 2004, nighttime truck traffic on Dundalk Avenue and Kane Street was lower in 2004 than in 2001, but rebounded in 2005. The numbers in Figure 3 are the percentage changes from the prior period in nighttime and daytime truck traffic, respectively. Figure 4 illustrates the breakdown of night truck traffic between tractor trailers (multiple units) and single unit trucks. The numbers in Figure 3 are the percentage changes from the prior period in multiple unit and signal unit trucks, respectively.



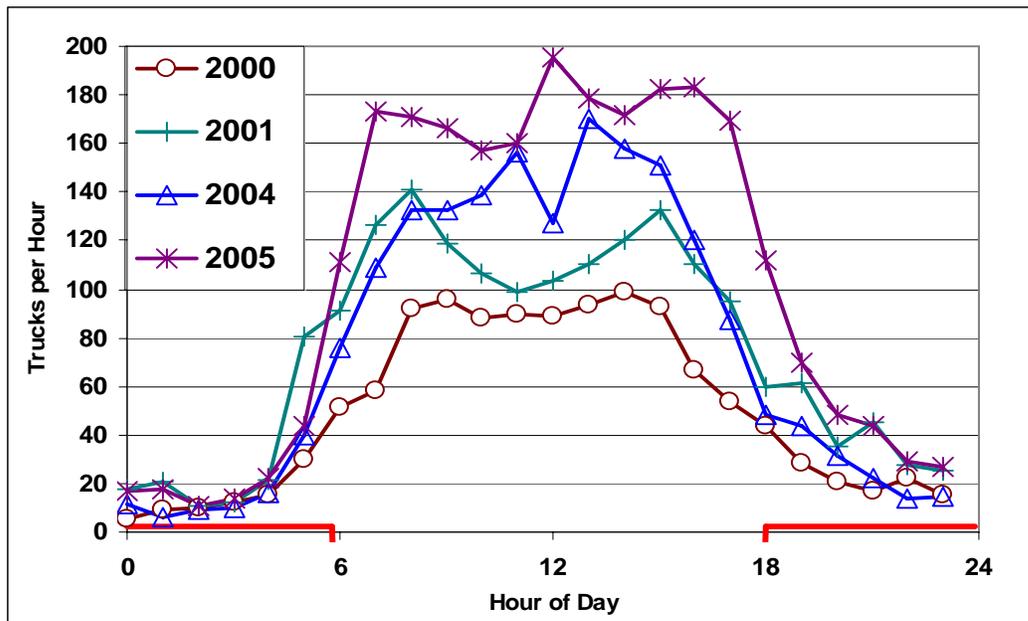
**Figure 3: Traffic Trends on Dundalk Avenue, Kane Street, I-95 and I-895**



**Figure 4: Night Truck Traffic: Tractor Trailer (multiple unit) versus Single Unit**

Figures 5 through 8 show the breakdown of overall truck traffic and multiple unit<sup>12</sup> (MU) truck traffic by hour on Dundalk Avenue and Kane Street. The red bars on the X axis between 0 (midnight) and 6 AM, and between 18 (6 PM) and 24 (midnight) indicate the period when the truck restriction is in place. Figures 5 and 6 show an increase in truck traffic during the evening restricted hours (6 PM to midnight) from 2000 to 2005. Figure 5 shows little change over time in hourly truck traffic during the morning restricted hours (midnight to 6 AM), while Figure 6 begins to have an increase in truck traffic between 4 AM and 6 AM.

Figures 6 and 8 show that evening (6 PM – midnight) multiple unit truck traffic was significantly higher in 2005 than in prior years. However, the morning restricted hours (midnight to 6 AM) showed little change over time in Figures 7 and 8.



**Figure 5: Hourly Truck Traffic: Dundalk Avenue North of Holabird**

<sup>12</sup> See Appendix D for illustrations of single unit and MU trucks.

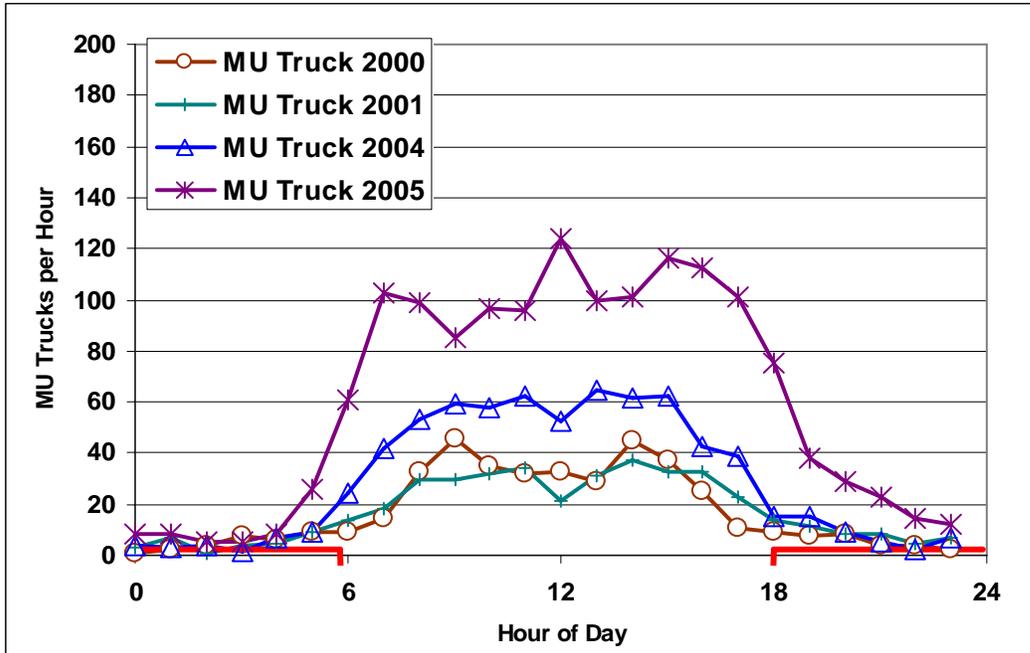


Figure 6: MU Truck Traffic: Dundalk Avenue North of Holabird

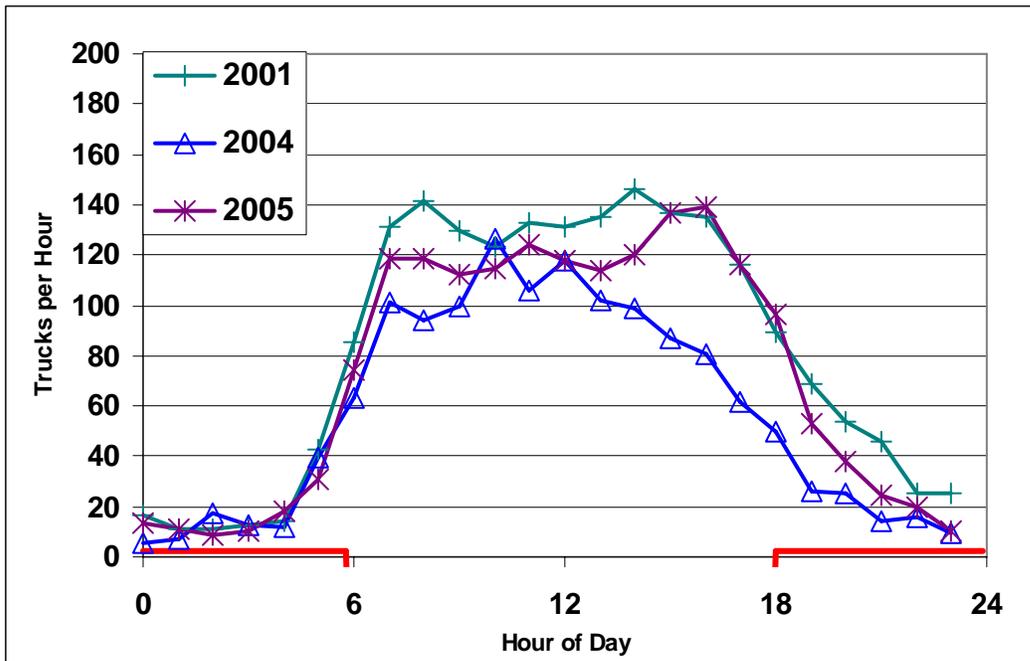
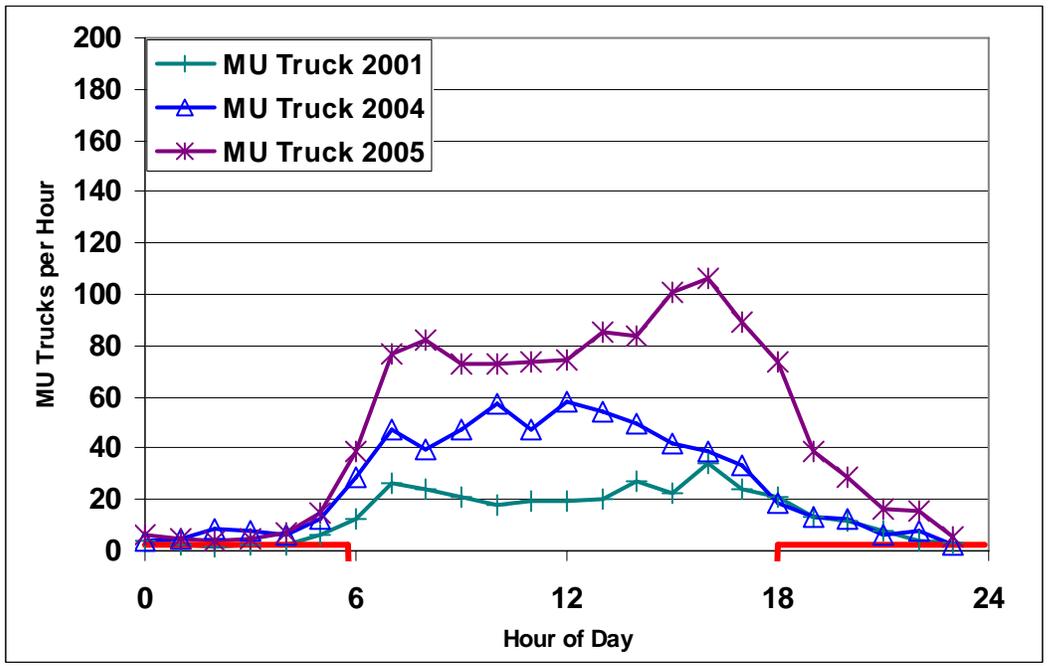
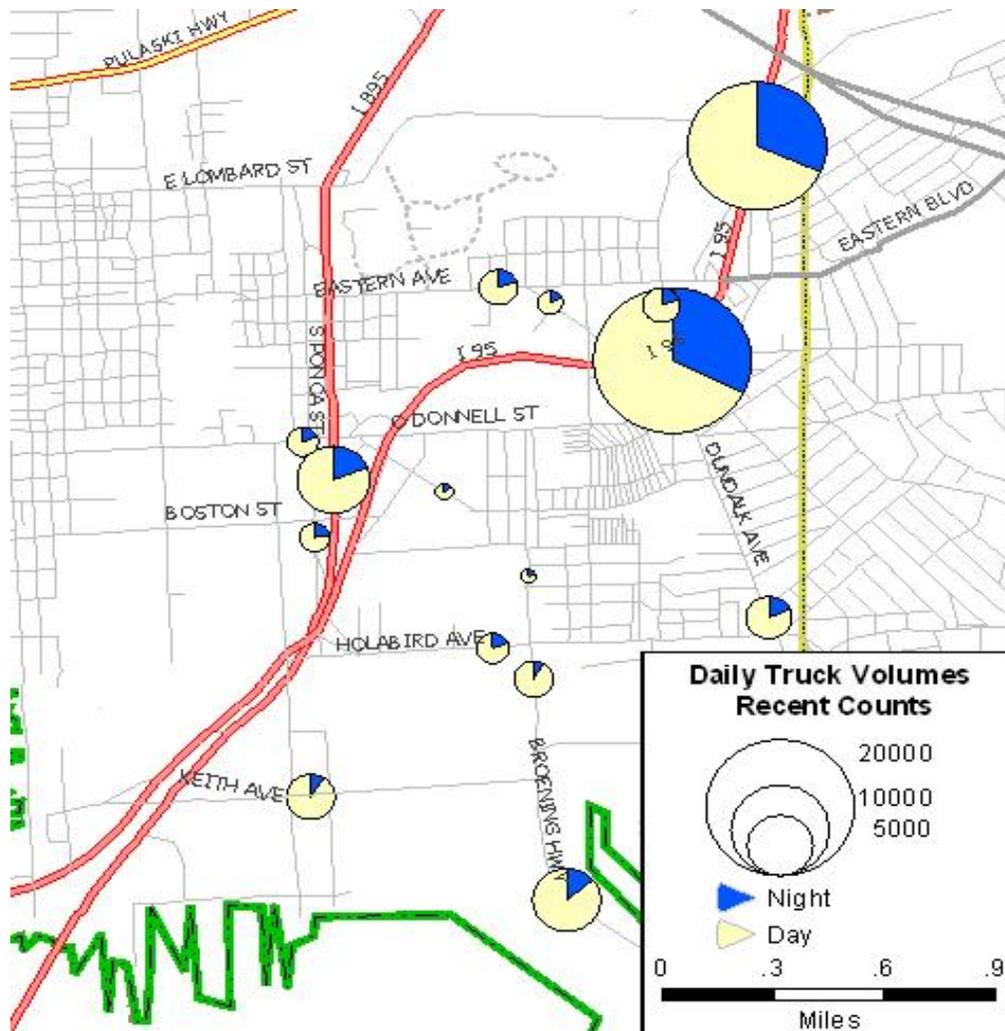


Figure 7: Hourly Truck Traffic: Kane Street South of Eastern



**Figure 8: MU Truck Traffic: Kane Street South of Eastern**

Figure 9 on the following page illustrates recent (2004-2005) truck traffic counts for selected streets in the Dundalk area. The areas (sizes) of the circles are proportional to overall truck volume, while the blue slices indicate nighttime volume.



**Figure 9: Recent Truck Traffic Counts**

To summarize, findings from the traffic counts include the following:

- The medium-term (6-year) trend has been of a modest increase in car and truck traffic on area toll facilities (Figures 1 and 2);
- Counts indicate a significant increase in truck traffic on both area freeways between 2002 and 2005 (Figure 3)
- During this same period, the counts of multiple-unit trucks (tractor trailers) increased significantly on Dundalk Avenue and Kane Street (Figures 6, 8 and Table 3, in [Appendix C](#));
- The ratio of nighttime truck traffic to overall truck traffic on Dundalk Avenue and Kane Street declined from 2001 to 2004, but rebounded in 2005. During this same period the

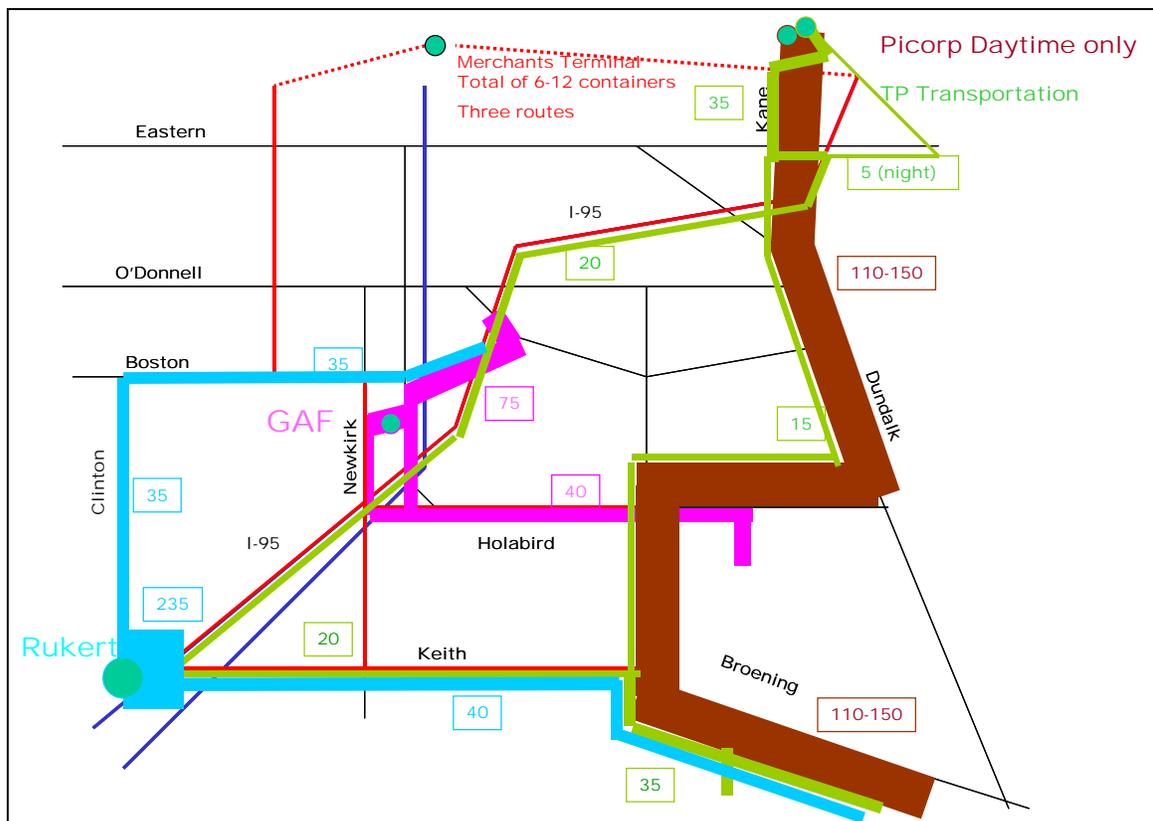
nighttime/overall truck ratio on I-95 and I-895 was much higher than it was on the local streets, and did not change significantly (Table 3, in [Appendix C](#));

- Nighttime truck traffic on Dundalk Avenue and Kane Street dropped significantly from 2001 to 2004, but increased again from 2004 to 2005 (Figure 3). The proportion of multiple unit trucks also increased (Figure 4).

Both Dundalk Avenue and Kane Street saw significant increases in multiple unit (MU) truck traffic between 2001 and 2005. In 2004, the increase was primarily in the daytime hours, suggesting that the newly implemented restrictions were having some effect on truck driver behavior. 2005 saw a further increase in MU truck traffic, occurring during both daytime and nighttime hours. This suggests a declining level of compliance with the nighttime restriction.

#### 4. Reported Truck Movements

Volpe requested specific origin-destination data from area businesses in order to understand routing choices and estimated truck volumes on these routes for specific enterprises. We received information from five area manufacturers and warehouse/distribution/logistics companies: Merchant’s Terminal, GAF, Picorp, TP Transportation, and Rukert. The data could serve in facilitating discussion among stakeholders about feasible alternative routing options that might contribute to lowering negative impacts in residential areas. Figure 10 shows the reported routings and estimated truck volumes for the five companies that conveyed their data.



**Figure 10: Reported Truck Routes/Volumes of Five Businesses**

## ***B. Projected Conditions***

In the immediate future, the City expects further expansion of port and truck operations. In January 2006, the Mediterranean Shipping Company announced its plans to increase business in the Port of Baltimore by 20 percent annually by diverting container shipments that had been going to Hampton Roads, Virginia and New York.<sup>13</sup> The purchase of the former GM site by Duke Realty Corporation is also expected ultimately to provide about 2.7 million square feet of new bulk warehouse space to serve port-related businesses along with 192,000 square feet of office space.<sup>14</sup> Together, these plans are expected to have a positive economic impact on the City, and the volume of truck traffic will most likely continue to grow over time. Since these plans will be implemented over a 5-7 year process, there is opportunity for discussing and directing the expected increase in truck traffic volume to routes with the fewest negative impacts on residential neighborhoods.

The significance of Baltimore's port activity will remain interdependent with the regional economy. The Federal Highway Administration (FHWA) forecasts that the Northeast region of the US will see an 80 percent increase in freight tonnage by the year 2020.<sup>15</sup> This projected increase, although shared over various modes of transportation, will depend on trucks to transport a large portion of the tonnage. As Baltimore continues to play a critical role in goods movement throughout the eastern United States, local businesses can be expected to require high quality access and better-maintained infrastructure to ensure their competitive positions.

The City is currently working on several initiatives that can be expected to improve conditions in the Study area for both residents and businesses.<sup>16</sup> Activities associated with local initiatives, with City and State plans and with City policy studies include:

- **City Initiatives:** Comprehensive Master Plan, Maritime Industrial Zoning Overlay District, and Baltimore City's Bicycle Master Plan
- **Neighborhood Improvements:** Eastern Avenue Streetscape, Dundalk Avenue Streetscape, and Partnership with Duke Realty
- **New Developments:** Bob's Transport converted to residential (Greektown), Partnership with Duke Realty, Canton Crossing Mixed Use Development, and Brewer's Hill Planned Unit Development

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<sup>13</sup> "Shipper boosts business at port," BaltimoreSun.com, January 6, 2006.

<sup>14</sup> Duke Property Traffic Impact Analysis.

<sup>15</sup> National Freight Movement Trends/Issues/Forecasts/Policy Implications, FHWA, Office of Freight Management and Operations, August 2001.

<sup>16</sup> For a fuller description of projected conditions associated with City initiatives, neighborhood improvements, and new developments, please see [Appendix D. Projected Conditions and Activities](#).

### III. Analysis of Stakeholder Issues

Volpe conducted discussions with residents, businesses, and City agencies that appeared to have a strong interest in the Study area. It became clear that the interests of businesses, residents, and the City are sometimes in conflict: businesses seek fast, low-cost access in/out of their sites, residents want quiet and safe streets, and the City works to create an efficient and safe street network, as well as viable policy and investment options that promote the public interest. Given the expected growth in the port and regional economy and resulting demand for freight movement to and from the ports, businesses fear that further restrictions will jeopardize their operations, restrict their access to the street system even more, and threaten their bottom lines. Residents, on the other hand, feel that the City has not given sufficient attention to truck drivers' violating route restrictions and speeding laws.

Volpe's analysis of the underlying issues is contained in this section, together with outcomes explicitly heard or strongly inferred from stakeholders. As a set, the outcomes form the beginnings of a "vision" for truck movement in southeast Baltimore – though hardly final, since some outcomes are in conflict. The issues in this section are the starting points when thinking about well-targeted, concrete actions to address the underlying concerns and implement whatever "vision" might emerge that interested parties could support.

Based on the Volpe's analysis of the information assembled from discussions with a cross-section of stakeholders from the business community, neighborhood groups and the City, five primary topics emerged:

- A) Business climate;
- B) Residential quality of life;
- C) Enforcement;
- D) Safety; and
- E) Road infrastructure and equipment.

The first two characterize the interests of the businesses and the residents respectively, as the players with a stake in resolving how the City manages truck movement in the study area. The third is of particular interest to residents, who see it as a significant factor in realizing the intent of the City's truck restriction regulations. The fourth and fifth items represent topics that cut across both businesses' and residents' interests. For each of the five topics, potential outcomes are included that have been inferred from or explicitly stated by stakeholders.

#### *A. Business Climate*

For the business community (that is, manufacturers and warehousing-distribution firms), having stable and clearly communicated government policies makes for successful longer-term planning and managing risks associated with decisions about locations of major capital investments. In the last 40 years the number of available routes between the waterfront and internal Baltimore locations has steadily decreased (see [Appendix B. Truck Restrictions Table](#)). Local businesses perceive any further restrictions – either location or time of day – as literally constraining their

operations and perceived accessibility, some to the extent of threatening the viability of their current locations.

Government policies such as fines for violations of route restrictions and tolls for using routes involving tunnels are also associated with the ease and cost of moving goods between the waterfront and internal Baltimore locations. Since the costs of these policies are not always borne directly (i.e., some logistics firms may pay these costs directly, whereas other local manufacturers may not pay the specific fine or toll but see it reflected in other costs), these policies were relatively less emphasized. Specific areas of concern include:

- a. *Dundalk Avenue and Kane Street*: these streets have been heavily relied upon as alternate routes when accidents, poor weather conditions, or congestion occur on the primary routes. Their being restricted at night can mean lengthy detours when they are unavailable as alternate routes.
- b. *Clinton Street*: Businesses in this area presume that the Canton Crossing development may impact their operations by introducing new restrictions or opening up Holabird Avenue, between Haven and Clinton, to cars. Clinton Street has been a primary route for several businesses in the area (e.g., Rukert, Merchant's Terminal, Den-El Transport). It provides direct access to the port and offshore storage locations. Clinton Street experiences high truck volumes from these businesses, and businesses predict that with additional residential development, the combination of high truck volumes and increased automobile traffic could potentially lead to dangerous conditions. At the same time, businesses fear that any action that restricts access to Clinton or feeder routes would negatively affect operations in the area.
- c. *Boston Street*: Restrictions on Boston Street, west of Clinton, have caused increased travel time for trucks by no longer providing direct access to I-83. Trucks must take I-695 around the City to deliver in and around I-83. With Clinton Street reopened now, through-trucks will also be restricted from Clinton to Conkling on Boston. This creates very limited access from the Clinton-Boston area.

Some business representatives also had concern about the City's zoning policy.<sup>17</sup> Specifically, they observed the growing tension between industrial users and residential/mixed use developers, particularly due to the absence of buffers between different types of uses. Currently, this concern centers on the Canton Crossing development and the conversion of Bob's Transport in Greentown to residential use. Some industrial land users speculate that without such buffers, residents will eventually demand (e.g., via lawsuits and political pressure) that impact generators associated with industrial uses – such as truck traffic – be eliminated through restrictions, further marginalizing their activities and jeopardizing their viability.

Businesses' perception of their relations with residents is mixed, since many leaders believe that they have already conceded enough by agreeing to nighttime truck restrictions on Dundalk Avenue and Kane Street. To the extent that businesses believe that residents there continue to agitate for a complete ban of truck traffic on these or other routes, the business climate is negatively affected. Truck movements of businesses in other parts of the study area are of only

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<sup>17</sup> Baltimore's new Comprehensive Master Plan, released to the public on May 15<sup>th</sup>, may alter businesses' concern about the City's zoning policy.

indirect concern, when their operations are not adjacent to residential neighborhoods and their freight moves via rail or via trucks that access the interstates without traversing those neighborhoods. Some among the business community have suggested proactive public outreach, particularly in light of the 300<sup>th</sup> anniversary of the Port of Baltimore, to disseminate information about the contribution of the Port and its associated businesses to Baltimore's economy.

**Desired Outcomes:**

- ❑ City of Baltimore commits to hold truck route restrictions in the study area to the current state (i.e., no additional restrictions);
- ❑ Planning Commission requires developers to include in sales agreements written acknowledgement that buyers of residential property adjacent to or near industrial properties are aware of noise (such as from trucks) coming from these properties;
- ❑ City revamps its zoning policies to require land buffers between industrial and residential uses; and
- ❑ Residents see the value of industrial activities (including truck movement) in SE Baltimore.

***B. Residential Quality of Life***

Residents have long associated truck traffic in and around their neighborhoods with their quality of life. The strength of this association varies widely from mild discomfort to seeing trucks as the root cause of most noise, foundation-damaging vibrations, and poor air quality. Some long-time residents associate trucks positively with jobs-giving employers, while others focus on unfavorable differences between their neighborhoods and more well off areas of Baltimore whose residents have been successful in getting trucks banned from their streets. Few acknowledge that trucks are a relatively small percentage of all traffic on their streets. In any case, many residents

- Experience vibrations and noise due to high truck traffic on streets in their neighborhoods, combined with poor road surface conditions; and
- Do not understand why oversized loads are being escorted through residential neighborhoods – particularly in the vicinity of Broening Highway.

Some residents feel that truck access should be restricted further in and rerouted away from their neighborhoods, giving evidence such as:

- a. Noise from trucks during all hours of the day and night in the 400 block of Kane Street;*
- b. Many potholes, leading to increased noise and vibration from trucks in the Dundalk Avenue, Kane Street and the Bayview area; and*
- c. Continued reports of cracked walls and ceilings in houses along Dundalk Avenue.*

Residents believe that a recent toll increase has contributed to more through trucks coming into their area hoping to avoid payment, and that fines, when given, are merely considered a “cost of doing business.”

### **Desired Outcomes:**

- ❑ Existing truck route restrictions are as effective as possible (that is, keep all illegal trucks out);
- ❑ The City considers the case for complete truck restrictions in residential portion of the study area as strong enough for full implementation;
- ❑ In situations where trucks must operate in residential areas, they do so with the least possible noise and vibration. Aspects of this may include
  - 1) A well-maintained road surface to reduce noise and vibration due to potholes,
  - 2) Restrictions on engine (Jake) braking; and
- ❑ All parties understand the reasons why oversized loads are being escorted through residential neighborhoods.

### ***C. Enforcement***

Many residents feel that a high level of illegal truck activity exists on streets in their neighborhoods. They also believe that police enforcement of regulations, either speeding or route restrictions, is infrequent and inconsistent. Residents cited a number of locations at which they perceived a need for greater enforcement. These include by location/violation/time:

- 1) Dundalk Avenue between 1000 and 1800 blocks/route/night
- 2) Kane Street, near Eastern/route/night
- 3) Holabird/parking/night
- 4) Broening Highway between Holabird and O'Donnell/route/time
- 5) St. Helena/trucks cutting through when leaving and entering Holabird Industrial Park/day and night

While southeast District Police are aware of residents' desire for greater enforcement of truck restrictions, they are often diverted to criminal cases elsewhere. In addition, based on their recent informal tracking, Police do not perceive the same incidence of violations as residents and therefore experience less urgency for applying their scarce staff resources regularly.

In many cases, significant information appears to be either missing or incorrect. This includes outdated truck route maps that drivers use and inconsistently understood definitions (such as what is "local") that define violators. At the same time, perceptions of the situation sometimes vary widely. Some residents see all trucks as potential violators, when the actual percentage appears to be small, at least as the Police report it. Others believe that all overweight loads are illegal, perhaps because they are not aware of the rules governing routing of overweight vehicles. Nonetheless, residents believe that truckers incur into the restricted areas, in part, because:

- Drivers who exit I-95 earlier than allowed are willing to risk tickets for violating restrictions to make an appointment and to save fuel; or
- Trucks use Kane Street as the shortest route to I-95 to save money.

Further exploration of these and other ideas could be the source of improved problem definitions and solutions, and a reduction in the number of violations.

**Desired Outcomes:**

- ❑ All relevant parties have the same, easy-to-understand information on truck routes and restrictions;
- ❑ The City allocates enough resources to Police so that they are able to provide consistent and regular enforcement of truck regulations;
- ❑ The State sets fines for violations of route restrictions above the level at which transport companies consider an acceptable “cost of doing business”; and
- ❑ The City and State of Maryland agree on the structure of tolls for tunnel use that together with fines for violations of route restrictions will support keeping trucks out of neighborhoods to the greatest extent.

***D. Safety***

A clear concern of both residents and businesses is the safety of the street network. Safety levels are dependent on a variety of factors. Speeding, aggressive driving, and aging street facilities can all contribute to unsafe conditions for cars, trucks, and pedestrians. In some cases, streets are too narrow for trucks to turn or maneuver safely, while at other times a street with high truck volumes may not be safe for smaller cars. Specific issues include:

- a. *Reopening of Clinton Street:* The reopening of Clinton Street allows cars to use Clinton as an alternative to Boston Street. Trucks from Rukert Terminals and the Port area travel on this street in high volumes. As cars and trucks share this road, they are both at risk for crashes. Rukert’s trucks need ample space to maneuver between facilities on either side of Clinton Street, and frequently need to cross the street. Cars may see Clinton as a shortcut to avoid Boston Street traffic and may be inclined to speed or pass trucks in the area.
- b. *Ponca Street:* At least five accidents were recorded on Ponca in 2005 due to speeding trucks overturning at Poncabird and Ponca Street. The high-speed traffic going north at the transition from Holabird to Ponca is extremely unsafe. Overturned trucks can close the road for several hours at a time and disrupt traffic. Speeding cars and trucks also make it difficult for the 170 GAF employees to cross Ponca from their parking area to the office building and plant. GAF has 30 trucks per day back into the plant on Ponca Street, which requires GAF employees to stop traffic. This sudden halt of traffic puts cars, trucks, and the GAF employees at a higher risk for accidents.
- c. *Newgate/Newkirk:* Trucks have difficulty when crossing Newkirk, while driving on Newgate. There is no light at this intersection and cars typically do not stop to let trucks cross Newkirk, or turn onto Newkirk. As a result, some truck drivers become aggressive, cut into traffic in order to continue their route, and put both cars and trucks at risk.

**Desired Outcomes:**

- ❑ City identifies and addresses specific safety issues; and
- ❑ Existing regulations are consistently well enforced.

***E. Road Infrastructure and Equipment***

Both residents and businesses observed that the condition and configuration of roads and associated equipment have implications for what is important to them. For businesses, the quality of roads affects the quality of trucks' physical access and therefore costs they incur. For residents, the condition and configuration of roads and associated equipment result in impacts they experience directly (e.g., levels of noise and vibration) and therefore affect their quality of life. For the City, addressing the impacts for businesses and residents requires a careful balancing of costs and benefits among competing capital investment options, including, but not limited to repaving or reconstructing road surfaces, installing or modifying traffic signals, changing road capacity (e.g., adding a lane through widening) and adding way-finding signs.

The most obvious concern here is the road surface since it affects everyone's driving experience because of the likelihood of damage to vehicles and goods, and the level of noise heard nearby. Potholes on highly traveled streets such as Dundalk and Kane (especially the 400 block), along with congestion in areas such as Boston Street near Haven, and on Ponca prompt both residential and business users to ask for roadway improvements. A business also cited Newkirk for concern.

Related to a road's surface is its capacity, since there are few opportunities to build or do more than increase throughput by improving traffic signals. The ability to maneuver the existing street geometry is especially challenging for larger trucks that have come into use in the last few years. This factor affects both the trucks' time to connect pick-up and drop-off locations as well as the safety of other roadway users, and appears specifically at:

- a. *Ponca Street*: Ponca Street experiences high traffic coupled with delays from 30 trucks per day backing into GAF. Access on the street for other vehicles is limited when trucks are backing in. It is also a safety concern when traffic is at a high-speed and needs to abruptly stop. When trucks overturn on Poncabird or Ponca, road closures can negatively affect access for trucks (and other vehicles) traveling north or south on Ponca.
- b. *Keith and Broening*: There is no interchange at Keith and Broening that allows trucks to travel northbound on Broening. Instead, trucks must make a U-turn, which can create delays to all traffic and safety concerns if a truck were to overturn.
- c. *Newkirk and Newgate*: Trucks have difficulty crossing Newkirk Street when on Newgate. Cars typically do not stop to enable trucks to cross, forcing truck drivers to cut out into traffic, or to go toward Boston Street instead of taking I-895.
- d. *Boston Street*: The railroad crossing on Boston Street can result in substantial delays causing trucks to seek alternative routes (e.g., through Greektown). For example, Merchant's Terminal has 3-6 trucks per day that often seek alternative routes as a result of delays at the railroad crossing on Boston Street.
- e. *Holabird Business Park*: Large tractor-trailers have difficulty turning into Holabird Business Park from Holabird. The turning radii are not adequate for these larger trucks, and can lead to overturned trucks or congestion.

Residents feel that the extent, size, location and degree of illumination of truck signs make a significant difference in drivers' route choices. They also feel that the current signs are not adequate to keep drivers away from restricted routes or at least make them aware of potential violations in the areas of Dundalk Avenue, Broening Highway, and Kane Street.

**Desired Outcomes:**

- ❑ City identifies and sets priorities for road infrastructure projects;
- ❑ City begins to address specific locations for high priority attention with respect to road infrastructure and equipment;
- ❑ The value of improved signage is clear to the City's policy- and decision-makers in terms of capital investment; and
- ❑ Everyone understands BCDOT's rationale for the components and schedule of truck-related investments.



## IV. Summary of Best Practices

Volpe interviewed specialists in several large city DOTs that are a part of the National Association of City Transportation Officials (NACTO, in which Baltimore City DOT is a member) to collect best practices related to balancing goods movement and residential needs and concerns. The following agencies participated in these interviews:

- A. New York City DOT
- B. Chicago DOT
- C. Seattle DOT
- D. Los Angeles DOT
- E. Phoenix DOT
- F. Philadelphia Department of Streets

Most of these agencies share similar characteristics found in the Baltimore study area – for example, having a port or regional economies shifting away from manufacturing. Below is an overview of how these agencies operate related to freight movement in or around residential areas. Lessons learned and/or helpful practices are described in [Appendix G. Best Practices of Large City DOTs](#) and may be transferable or adaptable to how Baltimore City officials approach challenges in the Study area.

In Appendix G., specific details are included on related activities designed by the New York City DOT in their comprehensive *Truck Route Management and Community Impact Reduction Study*. The activities described were shared during a presentation by the New York City DOT to the BCDOT and working groups in August 2006, and are of particular relevance to this Study; they should be considered as additional recommendations in implementing the working groups' recommendations.

### **A. New York City DOT**

New York City (NYC) DOT recently completed a three-year in-depth study of truck route management and community impact reduction. [See preliminary report at <http://www.nyc.gov/html/dot/pdf/truckstudy.pdf>] The study generated many insights and practical suggestions of potential value to Baltimore, particularly since the two cities have similar development dilemmas. Recommendations from the study fell into five categories: (1) Signage, (2) Enforcement, (3) Engineering and Routing, (4) Regulatory and Policy, and (5) Education and Outreach. With few opportunities for new or larger streets, they focus most attention on making the existing system work better. Explicit management of truck routes in that context is particularly critical, in view of expected growth in both truck traffic and people, especially those living on or near former industrial land. Also, access to the City's limited arterial roadway system puts an inordinate burden on local streets.

### **B. Chicago DOT**

A large part of Chicago is laid out as a grid, with disbursed industrial sites and many major arterials, most of which permit trucks and have few restrictions other than for oversized loads (for which exceptions can be granted). Chicago DOT has conducted a number of truck-related studies, but none focused on conflict between industrial and residential interests, or looking comprehensively at truck movement in the City. Truck-related conflicts that do exist between

industrial and residential users seem to occur in formerly industrial areas, recently converted to residential use (e.g., lofts) near to the Loop (Chicago's central business district).

As in Baltimore, Chicago's truck-related activities reflect the decline of manufacturing in the United States in the last thirty years. In particular, many manufacturing jobs have gone overseas and a large portion of the local economic activity that remains is warehousing and distribution. This is closely connected to the fact that Chicago has the country's largest proportion of intermodal trucks (that is, going to railroads or airports), whose cargo often needs to be taken to interim "terminals."

While trucks are allowed almost everywhere (except on "boulevards"), the City of Chicago does have an extensive set of designated industrial/commercial corridors (Planned Manufacturing Districts, or PMDs) anchored in its zoning ordinance, in order to channel truck movement. The PMDs are similar to Baltimore's "MIZOD" in their intention to protect historically industrial land from being converted to residential use, in addition to wanting to reduce the outflow of tax revenue and jobs from the City. The PMDs are generally located near interstate highways that do not frequently abut residential land. In addition, there is an "Industrial Street Program" within the City of Chicago's Capital Investment Program (CIP), "designed to promote the viability of industrial areas by improving roadway infrastructure and removing hazardous or substandard conditions that hinder the operation of industrial firms." (p. 111, 2005-2009 CIP)

### ***C. Seattle DOT***

Seattle relies heavily on its Interstates to support truck traffic to/from its Port, specifically Interstates 5 (between Canada and Mexico) and Interstate 90 (between Seattle and Boston). Trucks in Seattle stay on arterials because non-arterials are too narrow for trucks to use efficiently and safely as a cut-through. There are a small number of arterial roads that are residential and prohibited to trucks.

### ***D. Los Angeles DOT***

Truck flow in and around Los Angeles includes the Port of Long Beach, which is outside of the City's jurisdiction. Truck traffic from the Port goes to Los Angeles County, the city of Los Angeles, or to intermodal yards. There are four intermodal facilities in the area—one by the Port, and three downtown. Trucks can move freely in the city except on local (non-arterial) roads or where weight restrictions exist.

### ***E. Phoenix DOT***

In contrast to Baltimore, Phoenix's road network is essentially a grid without designated truck routes, other than to stay on arterials. Since truck trip generators are spread out widely in Phoenix, there are limited conflicts between trucks and residential neighborhoods as well as limited congestion due to trucks. There are no residential areas along the arterials, minimizing impact from trucks on neighborhoods. Nonetheless, Baltimore could benefit from a closer look at how Phoenix communicates its preferred truck routes to the public.

### ***F. Philadelphia DOS***

Philadelphia has problems similar to Baltimore, in that more and more people want to live near water, especially the Delaware River. The port area has also seen a similar evolution, from

largely bulk materials to predominantly containers, shipped increasingly by truck via a nearby interstate highway facility, through mixed commercial/residential areas. Since there are no dedicated truck routes, all vehicle types must share the road. The Department of Streets (DOS) responds to residents' requests for "no through truck signs" by conducting engineering studies that result in postings on a bare minimum number of streets. The DOS follows Penn DOT's regulations regarding the size and weight restrictions on specific routings, though they do not distinguish between heavy and light trucks. Route maps are not generally available or updated. The local Industrial Development Corporation has carved off some streets in South Philadelphia to be truck-friendly, because of the conflicts between a large food distribution center and four sports stadiums.



## V. Recommendations

Following its fact-finding and issues identification work, Volpe designed and facilitated a series of working sessions with stakeholder representatives to improve its understanding of the previously identified issues, as well as to develop feasible recommendations to address the issues. The three most important and urgent issues around which Volpe structured the working sessions fell into three categories:

1. *Noise, Vibration, and Safety*
2. *Trucks in the Wrong Place/at the Wrong Time*
3. *Truck Access for Businesses*

Participants in the working sessions included subject matter experts and leaders from organizations with primary interest in each of the three issues. This section provides a short description of the process used to determine the recommendations, followed by a summary of the recommendations and brief discussion of related implementation issues. Details of the content and process of the recommendations are in the appendices.

### A. Process

The Volpe team focused on identifying effective actions based on analyses of stakeholders' inputs and on research of best practices (as outlined in Sections IV and V of this report). Initially, the team collected data from stakeholders during separate meetings (with the Port of Baltimore, MdTA, SEND, MMTA, BIG, and BCDOT), analyzing the data to determine top priorities among all stakeholder interests. Additionally, the team contacted other large city DOTs affiliated with the National Association of City Transportation Officials (NACTO) to learn about their approaches to managing truck movement in terms of neighborhood and business concerns (see [Appendix G](#)). These two information sources created the foundation for identifying the most urgent and important issues to address.

Starting with the three issue areas that captured the broadest range of interests, Volpe coordinated with BCDOT to form a working group for each area, consisting of subject matter experts and leaders who could represent their peers' viewpoints. To members of each group, Volpe provided relevant background information and data, as well as straw definitions of the problem, successful outcomes and actions to consider. The three working groups met separately in May and June 2006 to:

- Agree on definitions of the problems;
- Create a shortlist of feasible solutions that address the problems;
- Identify barriers to successful implementation and how to address them; and
- Commit resources and assign responsibilities to get the best solutions fully implemented.

After the May meetings, members shared their working group's results with peers and brought feedback to the June meeting. With Volpe's facilitation, the working groups reached consensus on the definitions of problems and the solutions to address them best. Priority recommendations

from these Working Groups are described below and in further detail in [Appendix J. Action Plans](#) and [Appendix K. Immediate Action Items](#).

## **B. Actions**

Recommendations span a range of actions designed to improve truck-related conditions from the viewpoints of residents, businesses and truck drivers, and include communication/education tools, resource programming, and infrastructure improvements. These actions serve two purposes: (1) to influence truck drivers' behavior in ways that reduce negative impacts of local truck movement on residents; and (2) to improve street system conditions for trucks in ways that make Baltimore more attractive for businesses. The high-level description of recommendations in this section is complemented by detailed action plans in the appendix.

### *1. Action Area #1: Noise, Vibration, and Safety*

Three recommendations aim to reduce truck-related noise and vibration at sensitive locations, as well as to increase safety on streets for truck and car drivers and pedestrians:

***A1: Actively discourage the use of Jake brakes as a way of lowering noise levels when trucks slow down or stop in residential areas;***

***A2: Evaluate and select preferred options for new, quieter pavement materials for portions of roadway closest to residential areas. Establish and refer to list of noise sensitive locations in SE Baltimore area when programming re-paving and re-construction needs and schedule;***

***A3: Actively encourage alternate, lower impact routes for trucks generating the most noise; and***

***A4: Determine extent of speeding along Dundalk Avenue and its impact on safety, leading to proposals for appropriate countermeasures.***

Recommendations A1 and A3 focus on improvements in the residential areas of Dundalk Avenue and Kane Street, where the impacts of noise and vibration are most felt. Areas needing pavement improvements (A2) will be determined by the BCDOT in coordination with SEND and other stakeholders. A4 is targeted at Dundalk Avenue, but can also be applied to other areas.

### *2. Action Area #2: Trucks in the Wrong Place/at the Wrong Time*

Three recommendations aim to decrease the number of violators on truck-restricted streets:

***B1: Increase City resources for traffic enforcement in the Baltimore City Police's Southeast District.***

***B2: Outline and publicize viable route options.***

***B3: Install new or larger more readable truck restriction signs.***

***B4: (1) Define “local deliveries,” (2) Determine where enforcement is needed, and (3) Inform all relevant parties (e.g., police, drivers, businesses) of clarified requirements.***

***B5: Use regular dialogue with Police and 311 system managers to identify truck hot spots; create “truck enforcement” category in the 311 system.***

In light of the challenges associated with securing additional police resources for truck traffic enforcement, it is also essential to find other means to influence truck drivers’ route choices. A systematic information and education campaign, together with a well-conceived program for signs appear to offer substantial benefits. Results from steps taken in Action A3 (“encouraging alternate, lower impact routes”) can also be expected to reduce the volume of trucks in restricted locations and/or at restricted times. It would also be helpful to identify particular trucks and companies involved in violations (in restricted locations and/or at restricted times), since it has been difficult to distinguish legal from illegal trucks. Knowing who the violators are can help ensure that improved communication efforts reach them. Specific locations for improved signage and details of ways to communicate restrictions are described in the action plans for this area. (See [Appendix J](#)).

3. *Action Area #3: Truck Access for Businesses*

Two recommendations aim to improve truck access for businesses:

***C1: Set priorities among road infrastructure projects to address bottlenecks on Boston Street from Clinton to Interstate Avenue.***

***C2: Add signage to/from Interstate (95, 695, 895) highways and to/from the Port that shows preferred routing and positively affects drivers’ route choices.***

Appendix J contains detailed action plans for these recommendations, including specific locations in the Study Area that appear to need attention.

A summary of the expected timelines to implement each recommendation is shown below. Details of the timelines are included in Appendix J. These estimated timelines may change based on competing priorities for the City and available resources.

Recommendations (See Action Plan for details)	Implementation Year:	2006	2007	2008	
	Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	
	A1 Quieter Brakes	Draft and submit			
	A2 Quieter Pavement	Phase I and II			
	A3 Fewer Trucks	Research			
	A4 Speeding and Safety Analysis	Collect and evaluate data; target enforcement			
	B1 Better Enforcement	Research, Apply, Receive funds if awarded grant			
	B2 Publicize Restrictions & Preferred Routes	Update materials, coordinate change			
	B3 Better Information and Education	Review/improve signage			
	B4 Define Interpretation of Specific Laws	Finalize and Share Interpretation			
B5 Use 311 to Identify Trends	Create category; Ongoing analysis and data-sharing				
C1 Targeted Infrastructure Improvements	Determine funding and schedule for improvements				
C2 Improved Signage	Research and improvements				

### C. Implementation Issues

As the City and its stakeholders in southeast Baltimore implement the above eleven recommendations, they also need to address a number of critical challenges. Some of these challenges could hinder implementation or even make some recommendations infeasible, particularly if they are not addressed early. These challenges include:

Challenges in Implementation	
<b>People</b>	<ul style="list-style-type: none"> <li>• Many participants not used to working outside historical positions on issues</li> <li>• Wide variation in stakeholders' awareness of governing rules and regulations</li> <li>• Single-location focus of some residents, instead of considering the whole area</li> </ul>
<b>Resources</b>	<ul style="list-style-type: none"> <li>• Severe limits on funding and staff, especially for enforcement</li> <li>• Difficulty of incorporating noise criteria into investment process</li> </ul>
<b>Politics</b>	<ul style="list-style-type: none"> <li>• Working across jurisdictions is complicated and difficult</li> <li>• Diffused leadership and accountability complicate maintaining momentum on individual actions and overall effort</li> </ul>

With these challenges also come opportunities to improve stakeholder relationships and communication in the future. Opportunities include:

Opportunities from Implementation
<ul style="list-style-type: none"> <li>• Building stakeholder relationships that could generate mutual benefit on a range of issues beyond truck movement</li> <li>• Encouraging a cooperative approach, partnering in implementing recommendations</li> <li>• Reaching beyond usual organizational boundaries to get the job done</li> <li>• Making greater use of regional organizations such as Baltimore Metropolitan Council (BMC)</li> <li>• Working to ensure consistent information to all parties</li> <li>• Looking to create system-wide issues and solutions</li> </ul>

In order for these opportunities to evolve into long-term benefits beyond issues of truck movement in SE Baltimore, the challenges first need to be met. Based on the cooperative and constructive approach that working group members took in this study, there is substantial potential for this to happen.



## Appendices

- [A. List of Participants](#)
- [B. Truck Restrictions Table](#)
- [C. Traffic Counts](#)
- [D. Projected Conditions and Activities](#)
- [E. Dundalk Area Arterials: Repaving and Reconstruction Schedule](#)
- [F. Southeast Baltimore Capital Improvement Projects: Fiscal Year 2006 and Post FY 2006](#)
- [G. Best Practices of Large City DOTs](#)
- [H. Recommendations from Related Studies](#)
- [I. Related Information](#)

### A. List of Participants

Agency/Organization	
Maryland Motor Truck Association (MMTA)	
Baltimore Development Corporation (BDC)	
Mayor's Office of Neighborhoods (MON)	
Baltimore City Department of Transportation (BCDOT)	
Southeast Neighborhood Development Group (SEND)	
Baltimore Industrial Group (BIG)	
Baltimore City Police	
Freight Movement Task Force (FMTF)	
Maryland Port Administration (MPA)	
Maryland Transportation Administration (MdTA)	
Baltimore Metropolitan Commission (BMC)	
Baltimore County Planning Department	
Companies Contacted Directly	
Name	Type
Rukert Terminal	Warehousing & Distribution
The Belt's Corporation	Logistics
Picorp, Inc.	Warehousing & Distribution
TP Transportation LLC	Warehousing & Distribution
Norfolk Southern	Distribution
GAF	Manufacturing
H&S Bakery	Manufacturing
Merchants Terminal Corp.	Warehousing & Distribution
Unilever	Manufacturing

<b>Agency/Organization</b>	<b>Name</b>	<b>Position</b>	<b>Phone</b>	<b>Email</b>
Baltimore Development Corporation	Caroline Paff	Senior Economic Development Officer	410-779-3830	<a href="mailto:CPaff@baltimoredevelopment.com">CPaff@baltimoredevelopment.com</a>
Baltimore City Police	Lt. Anthony Brown	Southeast District	443-829-8190	<a href="mailto:anthonyt.brown@baltimorecity.gov">anthonyt.brown@baltimorecity.gov</a>
Baltimore City Police	Officer Kevin Reich	Southeast District		<a href="mailto:Kevin.reich@baltimorecity.gov">Kevin.reich@baltimorecity.gov</a>
Baltimore Metropolitan Council	Karin Foster	Transportation Planner	410-732-0500	<a href="mailto:kfoster@baltometro.org">kfoster@baltometro.org</a>
BCDOT	Bimal Devkota	Transportation Engineering and Construction Division	410-396-6950	<a href="mailto:Bimal.Devkota@baltimorecity.gov">Bimal.Devkota@baltimorecity.gov</a>
BCDOT	Ed Quick	Assistant Division Chief, Traffic Engineering Division	410-361-9286	<a href="mailto:Ed.Quick@baltimorecity.gov">Ed.Quick@baltimorecity.gov</a>
BCDOT	Frank Murphy	Deputy Division Chief, Traffic Engineering Division	410-396-6905	<a href="mailto:Frank.Murphy@baltimorecity.gov">Frank.Murphy@baltimorecity.gov</a>
BCDOT	Kevin Kelly	Legislative Liaison	410-396-6854	<a href="mailto:kevinp.kelly@baltimorecity.gov">kevinp.kelly@baltimorecity.gov</a>
BCDOT	Kevin Sullivan	City Planner II	443-984-1959	<a href="mailto:kevin.sullivan@baltimorecity.gov">kevin.sullivan@baltimorecity.gov</a>
BCDOT	Uttam Khadka	Engineer II, TEC Division	410-396-6951	<a href="mailto:uttam.khadka@baltimorecity.gov">uttam.khadka@baltimorecity.gov</a>
Councilman Kraft's Office	Jean Pula	Administrative Aide	410-396-4821	<a href="mailto:jpula@baltimorecitycouncil.com">jpula@baltimorecitycouncil.com</a>
Maryland Motor Truck Assoc.	Anne Ferro	President & CEO	410-644-4600	<a href="mailto:aferro@mmtanet.com">aferro@mmtanet.com</a>
Maryland Motor Truck Assoc.	Craig Tallbot	Vice President- Safety	410-644-4600	<a href="mailto:ctalbott@mmtanet.com">ctalbott@mmtanet.com</a>
Maryland Port Administration	Crystal Darcy	Intermodal Supervisor	410-633-1180	<a href="mailto:cdarcy@mdot.state.md.us">cdarcy@mdot.state.md.us</a>
Maryland Port Administration	Mary Jane Norris	Manager, Port Operations Services	410-633-1181	<a href="mailto:mjnorris@mdot.state.md.us">mjnorris@mdot.state.md.us</a>
Maryland Transportation Authority	Jeff Smith	Manager, Government and Community Relations	410-537-1032	<a href="mailto:jsmith5@mdta.state.md.us">jsmith5@mdta.state.md.us</a>
Maryland Transportation Authority	Roxane Mukai	Traffic Manager, Engineering Division	410-537-7848	<a href="mailto:rmukai@mdta.state.md.us">rmukai@mdta.state.md.us</a>
Maryland Transportation Authority Police	Lieutenant Russell Hines	Commander, Commercial Vehicle Safety Unit Metropolitan Area	410-537-1372	<a href="mailto:rhines@mdta.state.md.us">rhines@mdta.state.md.us</a>

<b>Agency/Organization</b>	<b>Name</b>	<b>Position</b>	<b>Phone</b>	<b>Email</b>
Mayor's Office of Neighborhoods	Emily Ellickson-Brown	Neighborhood Liaison, Southeast Baltimore	443-984-1083	<a href="mailto:emily.ellickson-brown@baltimorecity.gov">emily.ellickson-brown@baltimorecity.gov</a>
Southeast Neighborhood Development	Edie Shuman	Chair	410-241-3697	<a href="mailto:sammywhitetip@aol.com">sammywhitetip@aol.com</a>
Southeast Neighborhood Development	Elaine Welkie	Transportation Committee Chair	410-550-0289	<a href="mailto:ewelkie1@jhmi.edu">ewelkie1@jhmi.edu</a>
The Belt's Corporation	John Redding	Vice President & General Manager	410-342-1110	<a href="mailto:jredding@beltslogistics.com">jredding@beltslogistics.com</a>
Unilever	David Wells		410-631-8380	<a href="mailto:David.Wells@unilever.com">David.Wells@unilever.com</a>
Whitman, Requardt and Associates	Joe David	Traffic Engineer	410-235-3450	<a href="mailto:jdavid@wrallp.com">jdavid@wrallp.com</a>

## B. Truck Restrictions Table

Street Name	Location	Vehicle Regulation	Date Installed	Type of Restriction	Truck Route
Boston St.	Anglesea St. to Dundalk Ave.	No trucks over $\frac{3}{4}$ Ton Prohibition	1/16/86	Full Time	
Boston Ave.	Dundalk Ave. to City Line	$\frac{3}{4}$ Ton Prohibition	6/22/73	7 p.m. thru 7 a.m.	
Broening	O'Donnell to Boston St.	$\frac{3}{4}$ Ton Prohibition	9/04/59	Full Time	
Broening	Boston St. to Holabird Ave.	$\frac{3}{4}$ Ton Prohibition	6/16/77	Full Time	
Clinton	South of Boston St.	-	-	-	X
Dundalk	Kane St. to Holabird Ave.	Truck in excess of 5 tons.	1/16/04	6 p.m. thru 6 a.m.	
Haven	Lombard to Danville	-	-	-	X
Holabird	Newkirk to Dundalk	-	-	-	X
Keith	Clinton to Broening	-	-	-	X
Kane	Eastern to Lombard	$\frac{3}{4}$ Ton Prohibition	Unknown	7 p.m. thru 7 a.m.	
Kane	Holabird to Brown	$\frac{3}{4}$ Ton Prohibition	2/14/67	Full Time	
Newkirk	South of O'Donnell to Newgate	-	-	-	X
Newkirk	Foster St. to Eastern Ave.	$\frac{3}{4}$ Ton Prohibition	9/20/73	Full Time	
O'Donnell	East of Dundalk Ave. to Fait Ave.	$\frac{3}{4}$ Ton Prohibition	8/20/58	Full Time	
O'Donnell	Conkling to Interstate St.	-	-	-	X
O'Donnell	Interstate to Dundalk	$\frac{3}{4}$ Ton Prohibition	2/28/86	Full Time	
Oldham	Lombard St. to 100' South of Foster Ave.	Thru Truck Prohibited Over $\frac{3}{4}$ Ton	10/14/83	7 p.m. thru 7 a.m.	

### C. Traffic Counts

Table 1 presents the toll facility traffic counts that were shown in Figures 1 and 2 in Section III.

**Table 1: Traffic Trends on Toll Facilities<sup>18</sup>**

Facility	Year	Annual Traffic (millions)		Annual % growth from prior year	
		Overall Traffic	Truck	Overall Traffic	Truck
Key Bridge I-695	1998	10.535	1.043		
	1999	11.009	1.079	4%	3%
	2000	10.936	1.105	-1%	2%
	2002	11.527	1.141	3%	2%
	FY2003 <sup>19</sup>	11.385	1.149		
	2003	11.709	1.229	2%	8%
	FY2004	12.017	1.257	6%	9%
	FY2005	11.971	1.213	0%	-4%
Ft McHenry Tunnel I-95	1998	40.069	3.686		
	1999	39.928	3.913	0%	6%
	2000	41.812	4.181	5%	7%
	2002	44.186	3.888	3%	-4%
	FY2003	43.224	3.705		
	2003	43.388	3.775	-2%	-3%
	FY2004	42.732	3.704	-1%	0%
	FY2005	43.475	3.803	2%	3%
JFK Memorial Hwy I-95	1998	27.593	3.670		
	1999	28.315	3.851	3%	5%
	2000	28.800	4.032	2%	5%
	2002	29.870	3.674	2%	-4%
	FY2003	29.068	3.572		
	2003	29.797	3.725	0%	1%
	FY2004	30.388	3.841	5%	8%
	FY2005	29.890	3.841	-2%	0%
Harbor Tunnel I-895	1998	22.552	0.812		
	1999	21.421	0.728	-5%	-10%
	2000	23.439	0.844	9%	16%
	2002	24.552	0.810	2%	-2%
	FY2003	24.465	0.848		
	2003	25.385	0.939	3%	16%
	FY2004	25.827	0.944	6%	11%
	FY2005	25.476	0.894	-1%	-5%

<sup>18</sup> Transportation 2030: Shaping the Future of Transportation in the Baltimore Region, Chapter 4, Baltimore Metropolitan Council, <http://www.baltometro.org/T2030/T2030document.html> and 2001 Baltimore Regional Transportation Plan, accessed on 4/14/2006 at <http://www.baltometro.org/BRTP2001/Plan2001ChapVI.pdf>. The recent Fiscal Year figures are from the Maryland Transportation Authority (MdTA) 2004 and 2005 Annual Reports. Truck traffic in the MdTA annual reports were assumed to include all 3+ axle vehicles plus a proportion of violations.

<sup>19</sup> Year ending June 30, 2003.

Table 2 illustrates changes in traffic between 2001/2002 and 2005 for expressways and selected local roads in the study area that were depicted earlier in Figure 3. The counts measure average weekday traffic and are divided by nighttime truck traffic (6 PM – 6 AM), total daily truck traffic (within a 24-hour period), and total traffic. The 2005 counts on Dundalk Avenue and Kane Street were performed for this study. Other counts are State Highway Administration classification counts.

**Table 2: Traffic Trends**

Location (Includes northbound and southbound traffic)	Date	Average Weekday Traffic			Percent Change from 2001 or 2002		
		Truck (6P-6A)	Truck Total	All Traffic	Truck (6P-6A)	Truck Total	All Traffic
Dundalk Ave-.10 Mi N of Holabird Ave	10/25/00	230	1199	23777			
	9/26/01	418	1772	24284			
	3/24/04	267	1825	25245	-36%	3%	4%
	12/21/05	455	2475	20000	9%	36%	-21%
Kane St-.10 Mi S of Md150 (Eastern Avenue)	9/26/01	417	1961	16873			
	3/16/04	235	1374	14821	-44%	-30%	-12%
	12/6/05	335	1740	13727	-20%	27%	-7%
I-95- 0.3 Mi N of US40	11/27/01 <sup>20</sup>	4,959	13,935	94,629			
	1/16/2002	5,328	15,613	97,368			
	11/15/05	5,933	16,796	101,297	11%	11%	4%
I-95- 0.4 Mi N of MD150	6/4/02	4,328	13,010	130,915			
	11/15/05	5,495	17,347	127,885	27%	33%	-2%
I-95- 0.3 Mi S of MD150 (Eastern Avenue)	6/4/02	3,717	12,534	123,950			
	12/13/05	6,998	21,696	124,388	88%	73%	0%
I-895- 0.2 Mi S of O'Donnell St	6/4/02	880	4,653	69,446			
	12/20/05	1,060	5,591	76,358	21%	20%	10%

Table 3 provides the breakdown by truck type. Multiple unit trucks include those in classifications 7 through 13, while “all trucks” includes classes 5 through 13.<sup>21</sup>

The large increase in truck traffic on I-95 0.3 miles south of MD150 (Eastern Avenue) is puzzling. Volpe brought this apparent discrepancy to the attention of the State Highway Administration (SHA). SHA then asked the consultant responsible for the count to review it, but could find no errors.<sup>22</sup> One could speculate that an impact of the truck restrictions on Dundalk Avenue would be to shift some traffic to this section of I-95, but the increase seems to be quite large. Accordingly, the count on I-95 south of Eastern Avenue was not used in Figure 3.

<sup>20</sup> 11/27/2001 was the Tuesday *after* Thanksgiving, and thus occurs during a non-holiday week.

<sup>21</sup> [http://www.marylandroads.com/shaservices/mapsbrochures/maps/oppe/trafficvolumemaps/Vehicle\\_Class.pdf](http://www.marylandroads.com/shaservices/mapsbrochures/maps/oppe/trafficvolumemaps/Vehicle_Class.pdf), accessed on May 22, 2006, provides a description of vehicle classes.

<sup>22</sup> E-mail from Karl Hess, State Highway Administration to Scott Smith (3/29/2006).

**Table 3: Truck Types**

Location (Includes northbound and southbound traffic)	Date	MU Trucks (tractor-trailers)			All Trucks			All Traffic
		6PM – 6AM	Total	% at night	6PM- 6AM	Total	% at night	
Dundalk Ave-.10 Mi N of Holabird Ave	10/25/00	64	413	15%	230	1199	19%	23777
	9/26/01	81	416	19%	418	1772	24%	24284
	3/24/04	82	702	12%	267	1825	15%	25245
	12/21/05	253	1447	17%	455	2475	18%	20000
Kane St-.10 Mi S of Md150 (Eastern Avenue)	9/26/01	80	348	23%	417	1961	21%	16873
	3/16/04	104	647	16%	235	1374	17%	14821
	12/6/05	220	1176	19%	335	1740	19%	13727
I-95- 0.3 Mi N of US40	11/27/01 <sup>23</sup>	4075	10522	39%	4959	13935	36%	94629
	1/16/2002	4335	10584	41%	5328	15613	34%	97368
	11/15/05	4673	11661	40%	5933	16796	35%	101297
I-95- 0.4 Mi N of MD150	6/4/02	3027	7972	38%	4328	13010	33%	130915
	11/15/05	3986	10783	37%	5495	17347	32%	127885
I-95- 0.3 Mi S of MD150 (Eastern Avenue)	6/4/02	2575	7901	33%	3717	12534	30%	123950
	12/13/05	5188	13827	38%	6998	21696	32%	124388
I-895- 0.2 Mi S of O'Donnell St	6/4/02	295	1304	23%	880	4653	19%	69446
	12/20/05	339	1377	25%	1060	5591	19%	76358

<sup>23</sup> 11/27/2001 was the Tuesday *after* Thanksgiving, and thus occurs during a non-holiday week.

Table 4 shows recent truck traffic counts for local streets and expressways in the study area that were depicted earlier in Figure 5.

**Table 4: Recent Truck Counts**

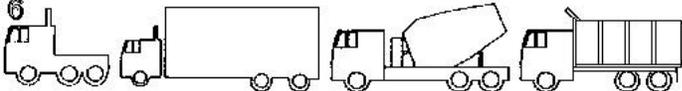
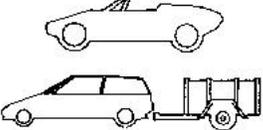
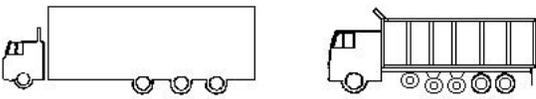
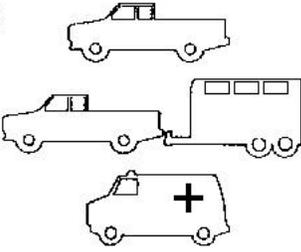
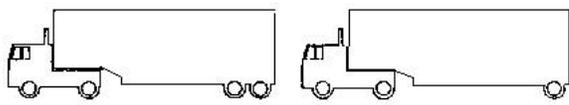
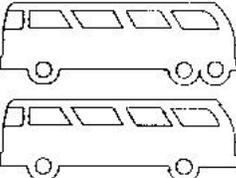
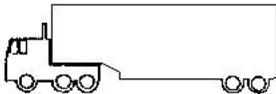
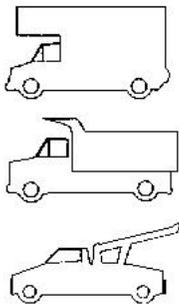
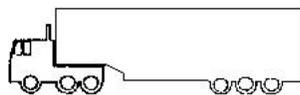
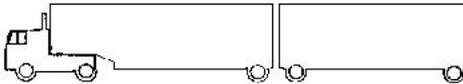
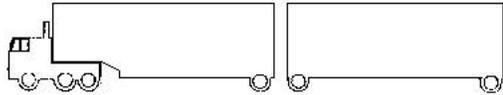
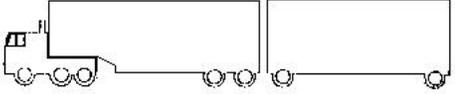
Location and counting station <sup>24</sup>	Weekday Truck Traffic			
	Date	6P-6A (Night)	Total	% Truck Traffic at Night
Broening Hwy - .05 Mile S of Boston St (X) (S2005240027)	6/1/05	70	355	20%
Broening Hwy - .10 Mile S of Holabird Ave (S2005240025)	5/24/05	154	1876	8%
Broening Hwy - .10 Mile S of Keith Ave (S2005240024)	5/24/05	688	4966	14%
Dundalk Ave -100Ft S of Eastern Ave (S2005240009)	4/20/05	146	870	17%
Dundalk Ave-.10 Mi N of Holabird Ave (N) (non-SHA)	12/21/05	455	2475	18%
Holabird Ave - .05 Mile W of Broening Hwy (S2005240031)	6/1/05	259	1361	19%
Kane St-.10 Mi S of Md150 (non-SHA)	12/6/05	335	1740	19%
Keith Ave - .20 Mile W of Broening Hwy (S2005240026)	5/24/05	249	2756	9%
Md150 (Eastern Ave)-.30 Mi W of Dundalk Ave (B240028)	3/30/04	353	1807	20%
O'Donnell St - .02 Mile W of Ponca St (T) (S2005240030)	6/7/05	234	1258	19%
O'Donnell St Cutoff - .10 Mi W of Anglesea St (T) (S2005240028)	5/24/05	77	473	16%
Ponca St - .10 Mile S of Boston St (T) (S2005240029)	6/1/05	276	1221	23%
I-895-0.2 Mi S of O'Donnell St (T) (BC050)	12/20/05	1060	5591	19%
I-95-0.3 Mi N of US40 (T) (B240072) (not shown in Figure 5)	11/15/05	5933	16796	35%
I-95-0.4 Mi N of MD150 (T) (B240125)	11/15/05	5495	17347	32%
I-95-0.3 Mi S of MD150 (T) (B240124)	12/13/05	6998	21696	32%

- (N) Nighttime restriction (6pm-6am)
- (X) Full-time restriction
- (T) Truck Route

<sup>24</sup> Counting stations are given for the data taken from the SHA web site (<http://www.sha.state.md.us/tmsreports/>) and can be found on the web site using the station code.

## D. Vehicle Classification Illustrations

Illustrations of vehicles, including single unit and multiple unit trucks, are below to better understand the restrictions on these vehicles.<sup>25</sup>

<p><b>1</b></p>  <p>MOTORCYCLES</p>	<p><b>6</b></p>  <p>THREE AXLE, SINGLE UNIT</p>
<p><b>2</b></p>  <p>PASSENGER CARS</p>	<p><b>7</b></p>  <p>FOUR OR MORE AXLE, SINGLE UNIT</p>
<p><b>3</b></p>  <p>FOUR TIRE, SINGLE UNIT</p>	<p><b>8</b></p>  <p>FOUR OR LESS AXLE, SINGLE TRAILER</p>
<p><b>4</b></p>  <p>BUSES</p>	<p><b>9</b></p>  <p>FIVE-AXLE, SINGLE TRAILER</p>
<p><b>5</b></p>  <p>TWO AXLE, SIX TIRE SINGLE UNIT</p>	<p><b>10</b></p>  <p>SIX OR MORE AXLE, SINGLE TRAILER</p>
	<p><b>11</b></p>  <p>FIVE OR LESS AXLE, MULTI-TRAILER</p>
<p><b>12</b></p>  <p>SIX AXLE, MULTI-TRAILER</p>	
	<p><b>13</b></p>  <p>SEVEN OR MORE AXLE, MULTI-TRAILER</p>

<sup>25</sup> Illustrations are from FHWA's Vehicle Classification Scheme F Report. Visit <http://www.fhwa.dot.gov/policy/ohpi/vehclass.htm> for more information.

## E. Projected Conditions and Activities

### 1. City Initiatives

- **Comprehensive Master Plan:** “Baltimore City’s Comprehensive Master Plan designed to guide the city’s capital policy and capital investment in numerous aspects of city life, including education, housing, transportation, recreation and job growth. Nine Community Hearings were held between February 21, 2006 and April 1, 2006 in order to engage the citizens of Baltimore in the planning of their City. The Final draft of the Comprehensive Master Plan was released to the public by the Department of Planning on May 15, 2006. Then Planning Commission held a public hearing on June 15, 2006 to adopt the Comprehensive Master Plan and refer it to the City Council to be adopted by ordinance.”<sup>26</sup>
- **Maritime Industrial Zoning Overlay District (MIZOD):** The Maritime Industrial Overlay District is designed to ensure the preservation of limited deep-water frontage of the Port of Baltimore for maritime use. The intent is to delineate an area where maritime shipping can be conducted without the intrusion of non-industrial uses and where investment in Maritime Infrastructure is encouraged. Through City Ordinance, the Maritime Industrial Zoning Overlay District became effective September 12, 2004, and will exist for ten years. During this 10-year period, “the Department of Planning and the Baltimore Development Corporation shall report annually to the City Council on the success of the Maritime Industrial Overlay District.”
- **Baltimore City’s Bicycle Master Plan<sup>27</sup>:** Because the bicycling community saw it a necessity to plan for the integration of bicycles into the fabric of Baltimore’s transportation network, the Bicycle Master Plan was initiated by the Mayor’s Bicycle Advisory Committee and Mayor Martin O’Malley to promote and facilitate bicycling as a safe, convenient and comfortable form of transportation and recreation in Baltimore. After two public meetings to gather input from existing bicyclists and interested citizens, one in January of 2005 and the other in January of 2006, a draft of the Bicycle Master Plan was released for stakeholder comment from January 2006 through February 2006. Subsequently, the Baltimore City Bicycle Master Plan was presented to the Planning Commission on May 4, 2006 for final adoption.

### 2. Neighborhood Improvements

- **Eastern Avenue Streetscape:** Eastern Avenue is the northern delineation of the Dundalk Area and is to be improved through rehabilitation and streetscaping from Lehigh St. on the West to the City/County line. Also, a portion of the east side of Kane street north of Eastern Avenue will be widened and included within the Eastern Avenue Streetscape to provide a twenty four hour parking lane for the residents on the west side of Kane Street. The work includes storm drain inlets, pavement markings, sidewalk, curb

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<sup>26</sup> <http://www.liveearnplaylearn.com/>.

<sup>27</sup> <http://www.baltimorecity.gov/government/planning/bikeplan.html>.

and gutter, brick pavers, conduit, signing, signals, lighting, and landscaping. This project is to be advertised for bid in fall of 2006.

- **Dundalk Avenue Streetscape:** The Dundalk Streetscape project was funded for design in 2006 as part of the BCDOT's Capital Improvement Program. The Dundalk Streetscape will be mostly resurfacing, with some reconstruction of sidewalks as well as decorative paving. This project is to be advertised for bid in fall of 2008.
- **Partnership with Duke Realty:** The developer and the City will most likely do streetscaping along Broening Highway and Holabird, thus improving the street character of neighborhoods adjacent to this new development on the former General Motors property. The streetscaping will most likely consist of storm drain inlets, pavement markings, sidewalk, curb and gutter, brick pavers, conduit, signing, signals and lighting, and landscaping.

### 3. New Development

- **Bob's Transport converted to Residential (Greektown):** Greektown is a planned unit development (PUD) that will be located along the west side of Oldham Street, between O'Donnell Street and Foster Avenue in Baltimore City. The development is planned to consist of a maximum build-out of 656 condominiums units, 385 apartment units, 53 townhouse units and 130 stacked townhouse units.
- **Partnership with Duke Realty:** Duke Realty foresees a planned unit development that will be bounded by I-895, Broening Highway, Keith Avenue and Cardiff Avenue. The development is planned to consist of 192,000 square feet of office and 2,696,800 square feet of warehouse space.
- **Brewers Hill, Planned Unit Development:** Brewers Hill is a PUD that is bounded by Conkling, Dillon, Haven, and Boston Streets. Originally, the development was planned to consist of 335,000 square feet of office, 225,000 square feet of warehouse, 115,000 square feet of mini-storage, 21 residential units and 28,500 square feet of retail land use within eleven rehabilitated industrial buildings. Currently, the development is proposed to consist of 90,000 square feet of office, 8,000 square feet of warehouse, 600,000 square feet of retail, and 1,154 residential units.
- **Canton Crossing, Mixed Use Development:** Canton Crossing is a mixed use development located at the SE corner of Boston and Clinton Streets running east to Haven Street and south to Danville Street. It is approved for 1.5 million square feet of development, up to 500 residential units, and some retail.

## F. Dundalk Area Arterials: Repaving and Reconstruction Schedule

Street	Last repaving/ reconstruction (year)	Portion(s) of road repaved/reconstructed	Fiscal year(s) funding for next repaving/reconstruction	CIP #, special conditions, or limitations
Boston	1990s	Dundalk to Bethlehem	Not in CIP	None
Boston	1980s	Clinton to Ponca	Not in CIP	None
Boston	1990s	O'Donnell St. Cut Off to Broening	Not in CIP	None
Broening	1990s	Holabird to Boston St.	Not in CIP	None
Broening	1990s	Holabird to City/County Line	FY 2009, 2010	CIP # 527-301 Reconstruction of Broening Highway
Clinton	2000s	Within the 1800 Block of South Clinton	FY 2006	Clinton Bulkhead Reconstruction
Dundalk	1980s	Eastern to City Line	FY 2009, 2010	CIP # 508-453 Funded for Design from Eastern to City Line
Eastern	1990s	Lehigh to City Line	FY 2007	CIP # 514-596 Eastern Avenue Rehabilitation
Haven	1980s	Monument to Boston to Dead End	FY 2007	CIP # 527-116 Reconstruction of Haven from Monument to Boston
Holabird	1990s	Poncabird Pass to 5300 Holabird, (West of Broening)	Not in CIP	CIP Funding Under Discussion
Holabird	1980s	Dundalk to City Line	Not in CIP	None

<b>Street</b>	<b>Last repaving/ reconstruction (year)</b>	<b>Portion(s) of road repaved/reconstructed</b>	<b>Fiscal year(s) funding for next repaving/reconstruction</b>	<b>CIP #, special conditions, or limitations</b>
Kane	1980s	Dundalk to Eastern	Not in CIP	None
Kane	1980s	Eastern to Pratt	FY 2007	CIP # 514-596 Eastern Avenue Rehabilitation
Kane	1980s	Pratt to Northpoint	Not in CIP	None
Keith	Constructed in 1980s	Clinton to Broening	Not in CIP	CIP Funding Under Discussion: Duke Realty and Baltimore City
Newgate	No Record	New Vail to dead end at Consolidated Coal Sales	FY 2010, 2011	CIP # 527-109 Canton Industrial Area: Rehabilitation of Newgate Ave from New Vail St. to dead end.
Newkirk	1990s	O'Donnell to Newgate	FY 2009	CIP # 527-106 Canton Industrial Area: Rehabilitation of Newkirk St. from Keith Ave. to Boston St.
Ponca	1990s	Poncabird to Boston	Not in CIP	None
Ralls	1980s	Broening to Riverview	Not in CIP	Baltimore County's "Heritage Trail Project" is supposed to cross the city and improve the Ralls Corridor.

## G. SE Baltimore Capital Improvement Projects: Fiscal Years 2007-2012

CIP Number Sequence	Implementing Authority	Fiscal Year(s) Funding	Project Description Special conditions or limitations
514-216	Transportation (Street Resurfacing)	2006 -2011	Resurfacing Highways Southeast – Sector 4 in Various Locations.
527-301	Transportation Development Agencies	2009-2010	Complete reconstruction of Broening Highway from Holabird Ave. to City/County Line
527-304	Transportation Development Agencies	2006	Conkling Street – Infrastructure/Utility (Boston to Toone)
527-315	Transportation Development Agencies	2007-2011	Industrial Areas Resurfacing (Job Order Contracts) –Infrastructure (City-wide)
527-603	Transportation Development Agencies	2006	SNAP Local Street Resurfacing—Southeast Neighborhood Development in Various Locations

## H. Best Practices of Large City DOTs

### New York City DOT

#### **NYCDOT Study Related Activities/Recommendations:**

- 1) Collect data to determine truck hot spots
- 2) Design a web portal for freight movement information
- 3) Distribute new city truck maps at toll crossings
- 4) Evaluate traffic rules to see what is enforceable
- 5) Create tiered monetary truck fines and increase CDL fine to two points
- 6) Work closely with Police Commissioner to increase coordination
- 7) Have continual dialogue with agencies and community

#### **Lessons Learned:**

- 1) Cooperating closely with other government agencies is crucial to success
  - a. *City Planning* re: anticipating areas in which conflicts between residents and truck routes most likely – especially where boundaries blurring between residential and industrial/office zones.
  - b. *NYPD* re: ways to make enforcement more effective with limited resources
  - c. *State DOT* re: structure of fines for route violations
  - d. *Transit/Commuter Rail* re: tolled tunnels and bridges
- 2) Police officers’ knowledge of and access to information about truck-related rules and regulations directly affects the quality of their enforcement.
- 3) Tracking of truck-related enforcement actions at the precinct level increases accountability and helps define problems better.
- 4) Fines for violation of truck restrictions must go beyond the “cost of doing business” to influence actual behaviors.

- 5) Having many different types of truck trip generators and routes spread around the City somewhat reduces the likelihood that any one area will get a disproportional share of conflicts between truck-related commerce and residents. Nonetheless, areas with high truck trip generators are disproportionately in lower income neighborhoods, and the impacts from these trucks are generally more prevalent there.
- 6) Effective signs need to be designed and placed systematically to support desired route decisions – with emphasis on positive way-finding versus prohibitions. This insight will guide changes to the current 25-year-old system.
- 7) Weight and size rules that are confusing and not well known to drivers are also hard to enforce. (The City and State have different regulations, with NYC DOT’s being more restrictive.)
- 8) Illegal truck incursions are not only negative for residents, but also for the road infrastructure itself (e.g., smashed curbs) that the City needs to rebuild or for parked cars.
- 9) Capturing data on City-internal truck movements is exceptionally difficult. This is because:
  - a. The large number of ways trucks can enter and leave the City;
  - b. Some vehicles never leave a borough or just make local deliveries; and
  - c. It’s very hard to distinguish between inter and intra-city trips.

**Helpful Practices:**

- 1) Use regular dialogues with police as well as 311 logs as important resources in identifying truck-related hotspots.
- 2) Create and disseminate easily understood and accessed information related to truck movement (e.g., a user-friendly map of routes and restrictions).
- 3) Develop and use principles for creating and deploying signs, for example:
  - a. Focus on the positive – where trucks should travel
  - b. Expect drivers to know routes
  - c. Use consistent design standards
  - d. Place signs at critical decision points for drivers to improve way-finding
- 4) Establish and expand intersection management techniques to ease truck movement and to address geometric operational issues at specific locations.
- 5) Review and update regulations and policies periodically to improve the quality and ease of truck movement.
- 6) Educate police officers at the precinct level
  - a. Provide same route maps to all
  - b. Design and deliver training on how the system works and how to do enforcement effectively
  - c. Convey differences between state and local regulations
  - d. Develop and distribute a “quick summary” of the rules and regulations

**Seattle DOT**

**Helpful Practices:**

- 1) Use annual paving program to determine paving needs.
  - a. Take into account truck volume on roads and current conditions
  - b. Prioritize the needs identified in the program

- 2) Use commercial vehicle enforcement to restrict trucks from business areas (in Downtown) unless authorized
- 3) Issue fines to trucks in unauthorized areas and report results to traffic management group

## **Los Angeles DOT**

### **Lessons Learned:**

- 1) The penalty for trucks that violate weight restrictions was too low to impact driver behavior. Trucks were still driving through residential areas that had weight restrictions. In November 2005 a City Council ordinance approved an increase in fines to:
  - a. For first time offenders, the maximum fine shall be increased from \$50 to \$250;
  - b. The second offense to be increased from \$100 to a \$250 fine; and
  - c. Third and subsequent offenses will be increased to a maximum \$1,000 fine.
- 2) Due to limited Police resources to do adequate enforcement of truck regulations, the Port Police have dedicated six officers to enforce truck restrictions during specific hours. This initiative just began and is part of a collaborative agreement, recognizing that much of the truck traffic stems from the Port area. Port Police involvement also helps to reframe the problem of limited police resources and to determine other useful solutions.

### **Helpful Practices:**

- 1) Maintain interagency coordination and decision-making on goods movement through a technical advisory committee that includes County, Port, LA DOT, and others.
- 2) Determine capital expenditures by corridors that need safety improvements and reconstruction.
- 3) Fifty percent of signalized intersections have cameras.
- 4) Install truck restriction signs at every intersection leading into a residential area; mark every local route

## **Phoenix DOT**

### **Helpful Practices:**

- 1) Communicate truck route information and map via website <ftp://phoenix.gov/pub/payf/truckmap.pdf> to inform truckers, businesses, and residents.
- 2) Coordinate oversized loads with police by having permits available to police electronically for escort and enforcement purposes. Spread out routes to minimize impact.
- 3) Address residents' complaints of non-compliant truck traffic by observing truck traffic patterns.
  - a. Share results of observed patterns
  - b. Post more signs reminding trucks of law
- 4) Spread out the truck traffic in order to minimize depletion of roads or other direct impacts. Roads are designed to support a particular vehicle capacity (including trucks), but can rapidly deteriorate if more trucks are on it than planned.

## **Philadelphia DOS**

### **Lessons Learned:**

- 1) Because truck generators are scattered, there are few conflicts with residents.
- 2) Residential developers want streets that trucks can't use (e.g., because they are too narrow), as a way of attracting potential buyers.
- 3) Variable message signs have been well used to provide route information around specific events that might congest highways and streets (e.g., when large ships are arriving, or major sports activity).
- 4) Working with the state DOT (PennDOT) to get signage to significant truck attractions/generators (PennDOT handles the Interstate signing and the Philadelphia DOS follows up once the routes are on surface streets) does two things – (1) directs trucks to/from the venues and keeps them on arterial/truck-friendly streets, and (2) reassures residents that trucks are following 'recommended' routes and therefore staying off local streets.
- 5) The size of truck signs does not appear to affect degree of compliance with regulations.
- 6) Police do not appear to be vigorously enforcing truck regulations, due to a variety of factors (e.g., limited place to pull over trucks, competition with other enforcement actions).

## I. Recommendations from Related Studies

### **For GM Site**<sup>28</sup> (*Recommendation made prior to Duke Realty agreement*)

- New Connector Road running parallel to Broening Highway to provide a more direct connection between the GM Plant site and the interstate, particularly for truckers because heavy trucks are restricted on Broening Highway north of Holabird Avenue. Without the New Connector Road, truck traffic accessing the GM Plant site must use Ponca Street, which is less convenient and requires the use of the Boston Street/Ponca Street intersection, an intersection projected to operate at a failing level of service in the year 2025.

### **For Boston and Ponca Street Intersection**<sup>29</sup>

- Upgrade westbound lane drop pavement markings;
- Consider exclusive-permissive left-turn traffic signal phasing in the northbound direction;
- Re-mark STOP lines for all approaches, crosswalks and all lane lines;
- Upgrade STOP line pavement markings A) in their current location or B) set them back to improve truck turning movements;
- Install pedestrian signal heads to support the existing crossing on the north leg;
- Consider installation of crosswalk markings and pedestrian signal heads to cross the east leg (there are existing handicap ramps);
- Consider re-marking the southbound approach to include a left-turn lane and a shared through/right-turn lane;
- Consider re-marking the southbound approach to include a left-turn lane, through lane and shared through/right-turn lane to offset the left-turn lanes to improve visibility (this would require removal of one northbound departure lane);
- Construct sidewalk in the vicinity of GAF in the southwest corner of the intersection;
- Install speed limit signs near the intersection;
- Install guide signs directing motorists to I-95 along southbound Ponca Street and eastbound Boston Street;
- Consider installing guide signs to direct motorists to I-895;
- Install supplemental warning signs on existing train warning flashing signal
- Install active warning signs that inform motorists of trains at the five-track crossing. The signs should be installed at strategic points to provide motorists ample warning of trains so that they can divert to other routes.

### **Baltimore Industrial Group Position Paper** (*of 21 October 2005*)

- Preserve and protect present industrial land
- Consider replacing lost industrial land by re-zoning current unused or derelict residential land adjacent to the Port that meets industry's needs and desires
- Establish and record a network of truck routes. This will give City planners the opportunity to anticipate longer-term investment to maintain these routes for the demands heavy trucks will make on infrastructure. Additionally, it will serve to alert the

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<sup>28</sup> Draft Technical Memorandum, GM Plant Study- Traffic Forecasts and Analyses, RK&K.

<sup>29</sup> Boston Street and Ponca Street: Freight-related Intersection Evaluation, STV/BMC, August 2005.

residential developers that should the have plans to gentrify the neighborhoods alongside these routes, they will be responsible for alerting potential buyers of the traffic issues, and, more to the point, be responsible for installing (at their expense) any buffers that the City planners deem appropriate.

## **J. Related Studies**

- Boston Street and Clinton Street: Intersection Study, STV/BMC, July 26, 2002
- Boston Street and Ponca Street: Freight-related Intersection Evaluation, STV/BMC, August 2005
- Bridge No. BC 4202: Broening Highway over Colgate Creek, 2003 Bridge Inspection
- Draft Technical Memorandum, GM Plant Study- Traffic Forecasts and Analyses, RK&K/SHA, July 25, 2005
- Position Paper of the Baltimore Industrial Group Regarding the Continued Conversion of Existing Industrially Zoned Land and the Need to Retain Existing Transportation Routes in and around the City of Baltimore, October 17, 2005

## **K. Action Plans**

The following action plans include brief descriptions for each of eight recommendations and expected outcomes along with:

- List of Responsible Organizations
- Steps for Implementation
- Open Issues
- Timeline
- Resources Needed

Recommendations are divided into three areas and include the following actions:

- A. Noise, Vibration, and Safety
  1. Quieter Brakes
  2. Quieter Pavement
  3. Fewer Trucks
  4. Speeding and Safety Analysis
- B. Trucks in the Wrong Place/at the Wrong Time
  1. Better Enforcement
  2. Dissemination of Restrictions and Preferred Routes
  3. Better Information and Education
  4. Definition and Communication of Specific Truck Restriction Laws
  5. Use of 311 to Identify Trends and Deploy Resources
- C. Truck Access for Businesses
  1. Targeted Infrastructure Improvements
  2. Improved Signage

1. (A) Noise, Vibration, and Safety

**A1. Quieter Brakes**

**Recommendation/Outcome:** Actively discourage the use of Jake brakes as a way of lowering noise levels when trucks slow down or stop in residential areas.

**Responsible Parties:**

BCDOT Lead: Traffic (Frank Murphy), Policy (Kevin Kelly)

Stakeholder Lead: MMTA and SEND jointly

Stakeholder Support: Councilman Kraft’s Office

**Steps for implementation:**

1. MMTA discusses the idea of Jake brake restrictions with the Intermodal Council to gain support for an ordinance.
2. If support exists, SEND and MMTA draft the ordinance to include language about signs being placed “as needed” or upon request. MMTA will submit the draft to BCDOT and will follow-up with BCDOT accordingly.
3. The BCDOT reviews the draft ordinance and works with Councilman Kraft to draft effective legislation governing Jake brakes.
4. The BCDOT consults all appropriate stakeholders to review and revise the draft as needed in order to enact legislation.
5. If Baltimore City Council enacts the law, BCDOT works with the MMTA and SEND and other interested parties to determine the best signage and associated placement (e.g., on Kane and Dundalk)
6. MMTA and BCDOT/PIO promote and disseminate this information.
7. Six months after implementation, SEND gives status report to MMTA and BCDOT.

**Open Issues:**

- What is the exact process to create an ordinance or law?
- What is the timetable once BCDOT submits the proposal?
- Who needs to champion the proposal once it is submitted?
- How would a law be enforced?

**Timeline:**

It should take approximately three months for MMTA and SEND to draft the proposal and three months for BCDOT and its partners to review and finalize the proposal.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
A1 Quieter Brakes	Draft and submit		

### **Resources:**

Staff Time:

- Coordinate with partners
- Develop the proper language
- Communicate with the Baltimore City Council

## **A2. Quieter Pavement**

**Recommendation/Outcome:** (Phase I) Evaluate and select preferred options for new, quieter pavement materials for portions of roadway closest to residential areas. (Phase II) Establish and refer to list of noise sensitive locations in southeast Baltimore area when programming repaving and reconstruction needs and schedule in order to improve conditions in areas that have the largest noise and vibration impacts from trucks.

### **Responsible Parties:**

BCDOT Lead: Transportation Engineering and Construction (TEC) (Bimal Devkota)

Stakeholder Lead: MMTA

Stakeholder Support: SEND

### **Steps for implementation:**

Phase I

1. MMTA contacts the Maryland Asphalt Association for data on pavement options' noise levels and shares with TEC and Traffic Divisions in BCDOT.
2. BCDOT looks at FHWA research on pavement noise levels.
3. BCDOT contacts its consultant to do a before/after noise study, beginning in the design phase for Dundalk Streetscape project.
  - a. BCDOT analyzes data to begin addressing programming process
4. BCDOT assembles and summarizes the latest information on the pros and cons of "quiet pavement" materials and methods, including results of before/after study.

Phase II

1. BCDOT evaluates the materials and methods that are cost-effective in an urban setting.
2. BCDOT identifies where to apply materials and what materials to use in southeast Baltimore based on the location's needs.
  - a. SEND provides feedback on Dundalk area location needs as appropriate

### **Open Issues:**

- What is the process for setting aside funding for pavement projects?
- Does this need to be in the CIP?

**Timeline:** The research and analysis in Phase I will require approximately one month, while the “before” data collection for the Dundalk Streetscape may take one week. Phase II may take approximately two to four months to determine which areas are best to apply the new pavement to.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
A2 Quieter Pavement	Phase I and II		

**Resources:**

- Staff—research and analysis
- Funding—materials and construction

**A3. Fewer Trucks**

**Recommendation/Outcome:** Actively encourage truck drivers to use lower impact routes in order to reduce truck-related noises.

**Responsible Parties:**

BCDOT Lead: Traffic (Frank Murphy)

Stakeholder Lead: MMTA and BDC

Stakeholder Support: SEND

**Steps for implementation:**

1. In order to find out whose trucks are on Dundalk and Kane between 6pm and 6am:
  - a. MMTA and SEND conduct observations
  - b. BCDOT coordinates with BDC to ask Belt’s, PiCorp, and Owens-Illinois to do observations.
2. MMTA and/or BDC identify Baltimore businesses served by trucks using noise sensitive routes
  - a. MMTA, BDC, and BCDOT list and evaluate available routing options for these businesses and will share with SEND.
3. All of the above report their observations to BCDOT.
4. SEND works with BCDOT to identify signage improvements, to include instructions on restrictions and preferred routes, and better and more visible sign placement.
5. BCDOT determines if current restrictions need revision to better reflect acceptable business access (e.g., Belt’s) and abide by state law.
  - a. BCDOT works with MdTA on language

- 6. MMTA and BCDOT share any changes (to signage, routing, restrictions, etc.) with dispatchers and Port/SHA to update map.

**Open Issues:**

- How many observations will be conducted? Over what time period?
- To whom do observations get submitted?
- What is the approval process to have signage changes or improvements?

**Timeline:** This recommendation requires research and coordination to determine (1) whose routing behaviors need to be changed, and (2) how to change it and what the new routes are.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
A3 Fewer Trucks	Research		

**Resources:**

- Staff for research and outreach materials—creative design and materials for brochures, web, etc.,

**A4. Speeding and Safety Analysis**

**Recommendation/Outcome:** Determine extent of speeding along Dundalk Avenue and its impact on safety, leading to proposals for appropriate countermeasures.

**Responsible Parties:**

BCDOT Lead: Traffic (Frank Murphy)

Stakeholder Lead: SEND and Mayor’s Office of Neighborhoods (MON)

Stakeholder Support: Police

**Steps for implementation:**

1. BCDOT deploys speed display signs on Dundalk Avenue (between Holabird and Boston) and evaluates initial data
2. BCDOT validates data through manual data collection using radar gun
3. BCDOT determines if/where speeding problem exists and if/where safety of pedestrians, bicyclists, and drivers is compromised
4. BCDOT shares data, analysis, and proposed countermeasures with Police
5. Police target enforcement-related countermeasures in highest risk areas

**Open Issues:**

- Validating speed display data may be difficult. Police note that a radar gun is not the best equipment to track speeds; should use laser gun instead.
- How can Police target enforcement with limited resources?

**Timeline:** This recommendation requires initial data collection and ongoing enforcement.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
A4 Speeding and Safety Analysis	Collect and evaluate data; target enforcement		

**Resources:**

- Equipment and staff to collect data for analysis properly
- Staff- to analyze data and determine areas for targeted enforcement

2. (B) Trucks in the Wrong Place/ at the Wrong Time

**B1. Better Enforcement**

**Recommendation/Outcome:** Increase City resources for traffic enforcement in Southeast District in order to penalize violators and ultimately decrease violations.

**Responsible Parties:**

BCDOT Lead: Traffic (Ed Quick)

Stakeholder Lead: Mayor’s Office of Neighborhoods

Stakeholder Support: Baltimore City Police Department and City Council

**Steps for implementation:**

1. The Mayor’s Office of Neighborhoods researches Federal grant opportunities through the Police Grant Office, with the goal of receiving funds to increase Police force in the southeast section of Baltimore.
  - a. Possible grant categories include: enforcement, security, safety, Maritime Administration to preserve port activity with residential opportunities, and SAFETEA-LU funding for commercial vehicles.
2. In the short term, the Police continue random enforcement when available and report results with the Mayor’s Office of Neighborhoods
  - a. The Mayor’s Office of Neighborhoods will then share report results with BCDOT and SEND.
3. The Mayor’s Office of Neighborhoods and the BCDOT address their long-term needs for additional Police staff and determine how to achieve this.

**Open Issues:**

- What can be done if grant opportunities are not available?
- How to bring the recommendation of added enforcement forward to the City Council?

**Timeline:** If grant opportunities were to become available, the resources may be in place to train additional Police or reallocate existing resources in the next one to two years. If funding is not available, the BCDOT and Mayor’s Office of Neighborhoods will need to determine, with Councilman Kraft’s help, other ways to increase Police support.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
B1 Better Enforcement	Research, Apply, Receive funds if awarded grant		

**Resources:**

- Costs will depend on grant requirements for matching, or incorporating additional resources.

**B2. Dissemination of Restrictions and Preferred Routes**

**Recommendation/Outcome:** Outline and publicize preferred/required routes to increase truck drivers’ awareness of “least impact” options.

**Responsible Parties:**

BCDOT Lead: Traffic (Frank Murphy)

Stakeholder Lead: MMTA

Stakeholder Support: State Highway Administration (SHA), Maryland Transportation Authority (MdTA) and the Maryland Port Administration (Port)

**Steps for implementation:**

1. BCDOT contacts Greg Cooley at the State Highway Administration to discuss revisions to their Port of Baltimore map to include Dundalk area restrictions.
  - a. BCDOT learns of timeframe to submit revisions before next map printing (see SHA for timeframe).
2. Agencies collaborate to create a map of route options to submit to SHA
  - a. BCDOT works with the Port and SHA to revise in time for the next printing,
3. Agencies collaborate to create brochure of routing options
  - a. BCDOT will coordinate with MMTA, Port, and SHA to see that the revised information is printed and posted on the appropriate websites.
4. MMTA and Port share updated information with dispatchers.
5. MdTA considers utilizing I-95 HAR to communicate Dundalk Avenue nighttime restrictions to truckers.

**Open Issues:**

- When will current materials be updated?
- What is the process to submit suggested revisions?
- How will stakeholder share information with dispatchers or distribute brochures?

**Timeline:** A champion will be needed to implement this recommendation and organize the coordination needed among the agencies.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
E2 Publicize Restrictions & Preferred Routes	Update materials, coordinate change		

**Resources:**

- Staff—review and revise materials to include routing options
- Funding—material development, printing, and web coding

**B3. Better Information and Education**

**Recommendation/Outcome:** Install new or larger truck restriction signs that are more likely to influence drivers’ route choices.

**Responsible Parties:**

BCDOT Lead: Traffic (Ed Quick)

Stakeholder Lead: SEND and MMTA jointly

Stakeholder Support: Police, MdTA

**Steps for implementation:**

1. BCDOT evaluates Police data sent to Ed Quick to determine who has been ticketed and what their origin/destination was to determine signage needs.
2. BCDOT works with SEND to consider city locations needing better signage (e.g., near the truck plaza)
3. BCDOT and MdTA determines if the current restriction meets state law, and if so, if MdTA can post signage on Interstate.
  - a. Suggested location: Place sign on I-95 before Exit 59 southbound and Exit 56 northbound that reads something like: *Trucks Restricted 6pm-6am at Exit 58. Trucks use Exit 57*
  - b. If current restriction does not comply with state law, BCDOT revises accordingly.
4. BCDOT establishes criteria for signage sufficiency, determines needs based on criteria, and implements changes accordingly.

**Open Issues:**

- Is police data sufficiently accurate, complete, and current?

**Timeline:** BCDOT should be able to easily determine if the current restriction meets state law. If it does, it can work with MdTA to place signs on the Interstate. This should take one to two months. It may take BCDOT two to four months to determine other locations with insufficient signage, and one to two months to place new signage in those areas.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
E3 Better Information and Education	Review/improve signage		

**Resources:**

- Funding and materials—to conduct study and provide new signs

**B4. Definition and Communication of Specific Truck Restriction Laws**

**Recommendation/Outcome:** (1) define “local deliveries,” (2) determine where enforcement is needed, and (3) inform all relevant parties (e.g., police, drivers, businesses) of clarified requirements.

**Responsible Parties:**

BCDOT Lead: Legislative (Kevin Kelly) and Traffic (Frank Murphy)

Stakeholder Lead: Police, MMTA

Stakeholder Support: MdTA, MPA, and BDC

**Steps for implementation:**

1. BCDOT analyzes current law and agrees on interpretation.
2. BCDOT formally shares interpretation with Police, MMTA, BDC, MdTA, and MPA.
3. Police use interpretation for enforcement purposes. MMTA, BDC, MdTA, and MPA share interpretation with businesses, drivers, and dispatchers

**Open Issues:**

- Does the law need to be amended to better communicate the interpretation?
- What is the process to amend it?

**Timeline:** BCDOT should be able to decide on the correct interpretation by mid-November. Once the interpretation is final, disseminate message by the end of CY2006.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
B4 Define Interpretation of Specific Laws	Finalize and Share Interpretation		

**Resources:**

- Staff- agreement by leadership on interpretation

**B5. Use of 311 to Identify Trends and Deploy Resources**

**Recommendation/Outcome:** Use regular dialogue with Police and 311 system managers to identify truck hot spots; create “truck enforcement” category in the 311 system;

**Responsible Parties:**

BCDOT Lead: Legislative (Kevin Kelly) and Traffic (Frank Murphy)

Stakeholder Lead: Police, Mayor’s Office of Neighborhoods (MON)

Stakeholder Support: MMTA, BDC

**Steps for implementation:**

1. BCDOT requests that a new 311 category be added: Truck Issues
2. BCDOT provides the necessary instructions explaining what issues this category will address
3. On a quarterly or semi-annual basis, BCDOT analyzes truck data and shares with Police (for targeted enforcement) and MON (to verify as needed)
4. BCDOT will also share data with MMTA and BDC
5. BCDOT and Police deploy resources in line with identified hot spots

**Open Issues:**

- Who needs to approve the addition of a 311 category?

**Timeline:** After the new category is added to the system and proper background information

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
B5 Use 311 to Identify Trends	Create category; Ongoing analysis and data-sharing		

is provided, analysis of the data should be ongoing.

**Resources:**

- Staff- coordination to create new category; data analysis and communication of results

3. (C) *Truck Access for Businesses*

## C1. Targeted Infrastructure Improvements

**Recommendation/Outcome:** Set and implement priorities among road infrastructure projects to address bottlenecks on Boston Street locations from Clinton to Interstate Avenue.

**Responsible Parties:**

**BCDOT Lead:** Traffic (Frank Murphy)

**Stakeholder Lead:** BDC, Baltimore Industrial Group

**Stakeholder Support:** MMTA

**Steps for implementation:**

1. BCDOT proposes improvements for the following problem areas:
  - a. Bottleneck from Clinton to Interstate Avenue on Boston Street.
  - b. Inadequate turning radius on northwest corner of Holabird and Dundalk. Curb is deteriorated. Traffic going east on Holabird has to literally back up at the light to let trucks turn from Dundalk. This creates safety issues for cars, trucks, and pedestrians.
  - c. Unsafe intersection at Kane and Dundalk. Restrict parking on Hudson at Kane and Hudson at Dundalk and make larger turning areas.
2. BCDOT shares improvement schedules with SEND, MMTA, BDC and other interested stakeholders.
3. BCDOT inventories and characterizes bottlenecks.
  - a. BCDOT lists and evaluates specific construction or traffic flow improvement options for each bottleneck.
  - b. BCDOT ranks improvement options for each bottleneck and prioritizes the order of each bottleneck improvement
4. BCDOT implements improvements based on priority list.

**Open Issues:**

- How soon could these improvements be in the CIP and when could work start?
- How will funding be determined?

**Timeline:** These improvements will require infrastructure changes or construction and may take time to be placed on the CIP list or have funding allocated to each improvement.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
C1 Targeted Infrastructure Improvements	Determine funding and schedule for improvements		

**Resources:**

- Funding—for planning, materials, and construction

## C2. Improved Signage

**Recommendation/Outcome:** Add signage to/from Interstate highways and to/from the Port that show the preferred routing and positively affects drivers’ route choices

**Responsible Parties:**

BCDOT Lead: Traffic (Frank Murphy)

Stakeholder Lead: SEND

Stakeholder Support: Port, and MdTA

**Steps for implementation:**

1. BCDOT determines adequacy of signage:
  - a. Leaving Port to direct trucks to Keith Avenue
  - b. On Broening that says “take Keith Avenue to I-95 N/S”
2. BCDOT contacts Port regarding way-finding signage in study area.
  - a. BCDOT and Port work together to determine necessary improvements
3. BCDOT assesses perceived gaps in signage on nearby Interstate facilities.
4. BCDOT designs and places more visible and consistent signs that:
  - a. Define industrial areas
  - b. Show directions to Port, and
  - c. Inform of restricted areas early enough to influence choice of exit.

**Open Issues:**

- Does the Port have any constraints that would impact signage improvement implementation?

**Timeline:** These improvements will require materials and decision-making.

Implementation Year:	2006	2007	2008
Implementation Month:	S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
C2 Improved Signage	Research and improvements		

**Resources:**

- Funding – for study and sign installation

**L. Immediate Action Items (August 22, 2006)**

**Status Report  
S.E. BALTIMORE TRUCK IMPACT STUDY  
Working Groups**

**Immediate Action Items [as of 22 August 2006]**

*Below is a status description for each of the 14 "immediate action items" agreed upon at the three June Working Group meetings by participating stakeholders (updates from the August Volpe wrap-up meeting are italicized)*

Who	Immediate Action	Current Status			Open Issues, Comments
		Still To Be Started	Now In Progress	Complete (Expected Date)	
<b>WORKING GROUP #1: Noise, Vibration, and Safety</b>					
SEND	Conduct observations to find out whose trucks are on Dundalk Avenue and Kane Street, between 6pm - 6am (coordinate with MMTA about common process to use)		X	?	Informal observations are being conducted between 6pm-6am along Dundalk Ave. One local trucking company was spotted along Dundalk Ave. during the overnight hours, and upon investigation, we discovered that this company had the permission of the BC Police to use Dundalk Ave. due to the road construction along 95. Recently a FedEx truck was observed and other tractors hauling containers. Due to the light traffic in the overnight hours, speeding is a common occurrence. Difficult to identify the offender, as they quickly drive by in the dark.
BCDOT	Look at FHWA research on pavement noise levels and contact a BCDOT consultant to do before/after noise study, beginning in the design phase for Dundalk Streetscape project. See if consultant can measure noise levels.		X	?	The Dundalk Streetscape project is still in the initial design phase and BCDOT (TEC) has talked to the consultant about TEC's interest in incorporating a before and after noise study into the project.

Who	Immediate Action	Current Status			Open Issues, Comments
		Still To Be Started	Now In Progress	Complete (Expected Date)	
BCDOT	Conduct observations to find out whose trucks are on Dundalk Avenue, between 6pm - 6am (coordinate with MMTA if assistance is needed). Teach staff what to track. Observe on both Wednesday and Saturday to track weekend differences.	X		?	<p><i>New approach (agreed upon in August meeting) needs BCDOT to lead the conduct of observations.</i></p> <p><i>Consider use of red-light cameras for observations (BDC paid \$50K for cameras in Berera neighborhood.)</i></p>
BCDOT	Determine if current restriction needs revisions to better reflect acceptable business access (e.g., Belt's) and abide with state law	X		?	BCDOT Traffic Engineering and Construction (TEC) Division realizes the need for discussion with BDC and Port-related businesses to evaluate the current weight restriction and geographical limits of restrictions in order to determine if weight and limits should be changed, but has not initiated any dialogue just yet.
BCDOT	Deploy and evaluate initial data from speed display signs on Dundalk Avenue (between Holabird and Boston, in the middle of the stretch) in July.		X	?	<p>Some data has been compiled, but is yet to be evaluated. A manual methodology of collecting data (<i>through radar gun</i>) will be used to compare against the automatic data collector, which may identify a need to modify the settings of the automatic data collector.</p> <p><i>Police recommend laser gun as more accurate than radar gun.</i></p>
MON	Send BCDOT/TEC (Bimal Devkota) streetscaping conceptual plan by Neighborhood Design Center.		X	?	To be completed before August 22nd meeting
MMTA	Discuss Jake brake restriction with Intermodal Council to see if there is support for ordinance	X		?	
MMTA	Contact Maryland Asphalt Association for data on pavement options' noise levels; pass on information to BCDOT/TEC and Traffic (Bimal Devkota and Frank Murphy)	X		?	<i>Has learned that Phoenix, AZ is a leader in using paving technology.</i>

Who	Immediate Action	Current Status			Open Issues, Comments
		Still To Be Started	Now In Progress	Complete (Expected Date)	
MMTA	Conduct observations to find out whose trucks are on Dundalk Avenue, between 6pm - 6am (coordinate with SEND about common process to use)	X		?	<i>BCDOT will lead effort and will contact MMTA if assistance is needed.</i>
<b>WORKING GROUP #2: Trucks in the Wrong Place/ at the Wrong Time</b>					
BCDOT	Discuss with Greg Cooley at SHA revisions to SHA Port of Baltimore map to include Dundalk area restrictions	X		?	
BCDOT	Determine from Police data sent to Ed Quick who has been ticketed and what their origin/destination is to determine signage needs. <i>Contact BMC (Karin Foster) to see what data they have available.</i>	X		?	
MON	Research Federal grant opportunities with Police Grant Office to increase Police force in SE (look at enforcement, security, safety, maritime administration to preserve port activity with residential opportunities, and SAFETEA-LU funding for commercial vehicles).		X	?	Began researching, will hopefully have a meeting with the police grant writer soon.
<b>WORKING GROUP #3: Truck Access for Businesses</b>					
BCDOT	Determine improvements for Boston Street bottleneck, Holabird and Dundalk truck turning radius + Kane and Dundalk turning/merging.		X	?	Capacity improvements have been implemented at Boston and Ponca. Improvements at Holabird-Dundalk and Kane-Dundalk are on BCDOT's Traffic Engineering and Construction Division's (TEC's) radar.

Who	Immediate Action	Current Status			Open Issues, Comments
		Still To Be Started	Now In Progress	Complete (Expected Date)	
BCDOT	Review adequacy of signage (1) leaving Port to direct trucks to Keith Ave. (2) on Broening that says "take Keith Ave. to I-95 N/S"	X		?	Action has yet to be taken for this item due to a BCDOT staff crunch.