


Automated Enforcement of Bus Lanes and Zones

Final Report

May 2019



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Research, Development & Technology Transfer Program

Automated Enforcement of Bus Lanes and Zones

Final Report



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Contents

1	Executive Summary	1
1.1	Governmental Authority for Automated Enforcement	1
1.2	Market Research for Automated Enforcement Technologies and Implementation	2
2	Governmental Authority for Automated Enforcement	2
2.1	Automated Enforcement of Traffic Laws in the District and Surrounding Jurisdictions.....	3
2.2	Bus Lanes and Bus Zones in the District.....	6
2.3	Model Legislation and Automated Enforcement Programs	9
3	Market Research for Automated Enforcement Technologies and Implementation	17
3.1	State of Practice	17
3.2	Recommended Enforcement System in the District.....	24
3.3	Post-Implementation Benefits	25
4	References	29
5	Appendices	35
5.1	APPENDIX A - DC MUNICIPAL REGULATIONS TITLE 18. VEHICLES AND TRAFFIC, CHAPTER 24. STOPPING, STANDING, PARKING, AND OTHER NON-MOVING VIOLATIONS.....	35
5.2	APPENDIX B - DC Municipal Code, Title 18. Vehicles and Traffic, Chapter 22. Moving Violations	37
5.3	APPENDIX C - Code of the District of Columbia, Title 50. Motor and Non-Motor Vehicles and Traffic., Chapter 22. Regulation of Traffic, Subchapter V. Automated Traffic Enforcement, Part A. General., § 50–2209.01. Authorized; violations as moving violations; evidence; definition.	38
5.4	APPENDIX D - Code of the District of Columbia, Title 50. Motor and Non-Motor Vehicles and Traffic., Chapter 23. Traffic Adjudication, Subchapter III. Parking, Standing, Stopping and Pedestrian Infractions, § 50–2303.02a. Automated parking enforcement system.....	39
5.5	APPENDIX E - Code of the District of Columbia § 5–201. United States watchmen to be known as United States Park Police; powers and duties.....	40
5.6	APPENDIX F - Metro Transit Police Department.....	41

5.7 APPENDIX G - California Laws - Vehicle Code, DIVISION 17. OFFENSES AND PROSECUTION, CHAPTER 1. OFFENSES, Article 3.5. Procedure on Video Imaging of Parking Violations Occurring in Transit only Lanes 43

5.8 APPENDIX H – San Francisco Transportation Code - Division I, Article 7: Violations..... 46

5.9 APPENDIX I - Article 24 – New York Vehicle and Traffic Law 49

5.10 APPENDIX J - The Bus Lanes Order 2018, Belfast City Center..... 54

5.11 APPENDIX K - Provisional Guidance on Bus Lane Enforcement outside of London..... 55

Figures

Figure 2. Sign indicating photo enforcement in Virginia	5
Figure 3. Sign indicating automated enforcement in a Maryland work zone	6
Figure 4. Sign indicating automated speed enforcement in a Maryland school zone	6
Figure 5. Marked bus lanes along Georgia Avenue NW	8
Figure 6. Example of Current Signage at Bus Zones in the District.....	9
Figure 7. San Francisco MUNI bus bypassing traffic in a transit only lane	10
Figure 8. A parking enforcement official reviews footage for a MUNI vehicle.....	11
Figure 9. TOLE bumper sticker on a MUNI vehicle	11
Figure 10. Bus lane in New York City	13
Figure 11. Bus lane signage in New York City	14
Figure 12. Bus lane signage in Belfast.....	15
Figure 13. Mounted cameras in Belfast	15
Figure 14. Bus lane camera car in Belfast	16
Figure 16. NYC stationary camera video footage	18
Figure 17. On-board cameras in MUNI buses in San Francisco	21
Figure 18. Stationary camera-based enforcement	24
Figure 20. 80th percentile running time in Sutter Street in 2009 and 2013.....	27

Tables

Table 1. Current bus lane and zone violation enforcement in the District	6
Table 2. Current bus lane/zone violation enforcement in San Francisco	11
Table 3. Current bus lane/zone violation enforcement in New York City	12
Table 5. New York enforcement operation	19
Table 6. Summary of enforcement strategies	23

1 Executive Summary

1.1 Governmental Authority for Automated Enforcement

Congestion in the District affects surface public transportation reliability and travel times. Transit only lanes in portions of the city have decreased travel time for bus riders. However, non-transit vehicles occupy transit only lanes and degrade their effectiveness. Implementing automated enforcement along transit only lanes gives authorities the ability to enforce travel restrictions for non-designated buses and other non-permitted vehicles. Additionally, non-transit vehicles often park or stop in transit only lanes and bus stop zones, which impedes safe and efficient access of riders boarding and alighting buses. Using automated enforcement would allow authorities to enforce parking restrictions better to keep transit only lanes and bus zones clear for buses.

Currently, the Metropolitan Police Department (MPD) and the Department of Public Works (DPW) are the District's two primary enforcement agencies. DPW enforces nonmoving (parking) violations and MPD enforces moving violations, including red light violations and speed enforcement. MPD works with several other law enforcement agencies, including the National Park Service Police and Capitol Police, to enforce laws in the District.

Current District regulations – in both the DC Code and DC Municipal Regulations – allow for automated enforcement of parking violations and violations of traffic laws. The District's Municipal Regulations outlines Moving Violations in Title 18 (Vehicles and Traffic), Chapter 22 (Moving Violations).¹ This chapter grants the District Department of Transportation (DDOT) authority to regulate and enforce unauthorized vehicles traveling in transit only lanes. The District can use automated enforcement along transit only lanes given current regulations, pending confirmation from the Office of General Counsel. The authority to enforce is derived from the District of Columbia's Municipal Regulations.

The District's Municipal Regulations outlines Parking Restrictions in Title 18 (Vehicles and Traffic), Chapter 24 (Stopping, Standing, and Other Non-Moving).² Since 2009, DPW has used automated enforcement to ticket parking violations. Street sweeping regulations through the "Street Sweeping Improvement Enforcement Amendment Act of 2008", amended the District of Columbia's Traffic Adjudication Act of 1978 and gave DPW the authority to enforce non-moving violations using automated enforcement.

¹ District of Columbia Municipal Regulations. 2017.

² District of Columbia Municipal Regulations. 2017.

Several cities have installed cameras on board transit vehicles or along transit corridors to assist in the enforcement of transit only lanes. Commonalities between these systems include:

- Automated infractions are adjudicated as non-moving violations
- Tickets are issued to the person who holds the vehicle registration
- Clear signage is present
- Many allow for review of footage by the vehicle owner

California and New York State offer a guide for applying automated enforcement systems, as presented in the appendices of this report.

1.2 Market Research for Automated Enforcement Technologies and Implementation

Dedicated transit only lanes improve the performance of transit service. However, without proper enforcement in place unauthorized vehicles compromise system-wide benefits. Automated enforcement systems improve the efficiency of transit only lanes.

Several cities use stationary cameras to enforce moving violations in transit only lanes, including New York City. On-board cameras are typically used to enforce standing or parking violations, as in San Francisco. Portable stationary cameras offer flexibility and work best when violations are inconsistent along the corridor or during a trial period. A combination of stationary and on-board cameras is recommended for use in the District.

Best practice research suggests automated enforcement systems provide more efficient and reliable transit service and improve safety along transit only lanes.

2 Governmental Authority for Automated Enforcement

The Washington, DC metropolitan area consistently ranks amongst the top ten most congested U.S. cities.³ This congestion impacts travel time for drivers and bus riders alike. Throughout most of the day, bus speeds average less than five mph through downtown DC.⁴ The District's existing transit only lanes on Georgia Avenue NW have led to travel time savings and improved overall transit reliability. However,

³ Megan Trimble, "The 10 Cities with the Worst Traffic Congestion," US News and World Report, Feb. 6, 2018, <https://www.usnews.com/news/national-news/articles/2018-02-06/these-10-cities-have-the-worst-traffic-congestion>

⁴ Stephanie Dock, Ryan Westrom, Kevin Lee, Burak Cesme, Meredyth Sanders, Alek Pochowski, David Miller, and Adam Recchia, District Mobility Project, (Washington DC: District Department of Transportation, 2017).

these transit only lanes are sometimes occupied by non-transit vehicles degrading their net benefits. Automated enforcement of these transit only lanes would allow authorities to enforce travel restrictions and keep designated lanes open to buses and other permitted vehicles.

Furthermore, buses across the District need clear, unimpeded access to service stops to ensure passenger safety and overall transit operations. Bus stops and the no parking/standing zones around them allow for buses to pull safely to the curb and provide access for all riders, including those with mobility impairments. If these bus zones are blocked, buses may not be able to fully pull to the curb, which potentially impacts the safety of passengers boarding and alighting and increases dwell time at the bus stop. Automated enforcement of bus zones would allow authorities to better enforce parking restrictions and keep bus zones clear for safe and efficient operation. Currently, the District uses automated enforcement for red light violations, speed enforcement, and parking. Using automated enforcement along transit only lanes will require additional technology and camera deployment.

This section will outline the following:

1. Current regulations related to traffic law enforcement;
2. Current regulations related to establishing transit only lanes in the District; and
3. Examples of model legislation from other localities.

2.1 Automated Enforcement of Traffic Laws in the District and Surrounding Jurisdictions

MPD works with several other law enforcement agencies to enforce moving violations in the District; DPW enforces non-moving violations. The following section outlines the relationship between these agencies and their use of automated enforcement. In the District, the Mayor’s Office enables enforcement and MPD and DPW execute enforcement.

2.1.1 Current DC Code and Regulations

The DC code defines automated traffic enforcement systems as “equipment that takes a film or digital camera-based photograph which is linked with a violation detection system that synchronizes the taking of a photograph with the occurrence of a traffic infraction.”⁵ The code specifies automated enforcement can be used to detect moving and non-moving violations. The automated system can also verify parking infractions.⁶ Similarly, parking violations detected through an automated enforcement are equivalent to violations detected through non-automated means.

⁵ Code of the District of Columbia § 50–2209.01. 2018.

⁶ Code of the District of Columbia § 50–2303.02a, 2018

Red light violations are detected through cameras mounted to traffic lights which take multiple pictures as the violating vehicle moves through the intersection. These moving violations carry a \$150 fine. MPD is required to publish a list of all camera enforcement sites throughout the District. MPD also moves a portable camera system around the District, including school areas and high-speed corridors, to detect speeding violations. Cameras are mounted on street sweepers to detect vehicles parked illegally during posted street sweeping times. DPW enforces these violations.

In contrast to tickets issued by an MPD officer, tickets resulting from automated enforcement rarely meet the standards to assess points for insurance purposes, since there is no way to prove who was driving the vehicle.

2.1.2 National Park Service

The roadways in the Washington, DC metropolitan area that are within National Park Service areas are under the jurisdiction of the United States Park Police. The Code of the District of Columbia gives the Park Police the same powers and duties as the Metropolitan Police within the District, as well as in surrounding counties in Virginia and Maryland, including the power to enforce traffic and parking laws through ticketing and automated enforcement.⁷

2.1.3 United States Capitol Police

Several roads in the vicinity of the United States Capitol are under the jurisdiction of the United States Capitol Police. The United States Capitol Police Board (CPB) recognizes continuity with local traffic regulations is desired to the greatest extent possible while still retaining exclusive control over the protection of the U.S. Capitol Buildings and Grounds. In 2015, CPB revised the Traffic and Motor Vehicle Regulations for the United States Capitol Grounds by updating existing provisions and providing for specific traffic regulations unique to Capitol Grounds. The new manual is in line with DC Regulations, including policies on automated enforcement.⁸

2.1.4 Metro Transit Police Department

The Washington Metropolitan Area Transit Authority (WMATA) compact provides information that details the reciprocation of Metro Transit Police with other police in the District. Metro Transit Police have some of the same authority as MPD, allowing them to take all necessary actions against transit violations.

⁷ Code of the District of Columbia § 50–2303.02a, 2018

⁸ Traffic Regulations for the US Capitol Grounds. (Washington DC: The Capitol Police Board, 2015.)

2.1.5 Commonwealth of Virginia

The Commonwealth of Virginia permits cities, towns, and counties to establish traffic signal enforcement programs including authorized traffic light signal violation monitoring systems with the following stipulations:⁹

- Signage must be present within 500 feet of automated photo monitoring sites
- Localities in Northern Virginia (Planning District 8) may install and operate traffic light signal photo-monitoring systems at no more than ten intersections, or at no more than one intersection for every 10,000 residents within each county, city, or town, whichever is greater.
- Planning District 8 includes:
 - Counties of: Arlington, Fairfax, Loudoun, Prince William
 - Cities of: Alexandria, Fairfax, Falls Church, Manassas, Manassas Park
 - Towns of: Dumfries, Herndon, Leesburg, Purcellville, Vienna



Figure 1. Sign indicating photo enforcement in Virginia

2.1.6 State of Maryland

Currently, the State of Maryland allows photo enforcement in designated school and work zones and along expressways and controlled access roadways with at least a 45-mph speed limit.¹⁰ Signage must be present and citations may only be issued to drivers exceeding 12 mph over the posted limit.¹¹ The Maryland State Highway Administration provides a guidebook for automated enforcement implementation in designated areas.¹²

⁹ Code of Virginia-§ 15.2-968.1. 2018.

¹⁰ Automated Enforcement, MDOT, last modified 2018, <http://roads.maryland.gov/index.aspx?pageid=780>

¹¹ Transportation Article § 21–810 of the Maryland Annotated Code. 2018.

¹² Guidelines for Automated Speed Enforcement in School Zones, Maryland State Highway Administration, 2011.

Figure 2. Sign indicating automated enforcement in a Maryland work zone



Figure 3. Sign indicating automated speed enforcement in a Maryland school zone



2.2 Bus Lanes and Bus Zones in the District

The following section outlines the District’s authority to use automated enforcement in transit only lanes and zones. The relevant statutes and ability to enforce are outlined in Table 1.

Table 1. Current bus lane and zone violation enforcement in the District

Type	Authority to Enforce (derived from DC Municipal Regulations)	Currently Authorized to Enforce with Technology	Fine
Parking (Unauthorized)	Title 18, Chapter 24.	Yes	\$200.00

Automated Enforcement of Bus Lanes and Zones

vehicle parked)	Section 2405.1(j)		
Parking (Bus Stand or Zone)	Title 18, Chapter 24. Section 2409.3	Yes	\$100.00
Parking (Bus Stand, stop or zone adjacent to rush or specific hour restriction)	Title 18, Chapter 24. Section 2000,4020	Yes	\$50.00
Parking (Bus Stop, within 20 feet of)	Title 18, Chapter 24. Section 2409.8	Yes	\$50.00
Parking (Disobeying official sign)	Title 18, Chapter 24. Section 2400.6	Yes	\$30.00
Traveling (Unauthorized vehicle driving in a Transit Only Lane)	Title 18, Chapter 22. Section 2217.5, 4006.1	Yes	\$200
Traveling (Failure to yield right-of-way to transit bus)	Title 18, Chapter 22. Section 2207.5	Yes	\$100.00

Current District regulations allow for automated enforcement and enforcement of parking and moving violations within transit lanes, pending confirmation from the Office of General Counsel. The authority to enforce is derived from the District of Columbia’s Municipal Regulations, specifically in Title 18 (Vehicles and Traffic), Chapter 22 (Moving Violations).¹³ This chapter grants the District Department of Transportation (DDOT) authority to regulate and enforce unauthorized vehicles traveling in transit only lanes.

The District’s law governing vehicles permitted in transit only lanes pertains to moving infractions only. Currently, all driving infractions observed by automated enforcement are adjudicated as non-moving violations; however, there is a provision in the code that revokes driving privileges in the District for unpaid violations.¹⁴ Therefore, it is recommended that citations issued by automated enforcement of transit only lanes be adjudicated as non-moving violations.

The District’s Municipal Regulations outlines Parking Restrictions in Title 18 (Vehicles and Traffic), Chapter 24 (Stopping, Standing, and Other Non-Moving).¹⁵ DDOT issues parking restrictions and MPD and DPW enforce them. Currently, the Director of DDOT has the authority to prohibit parking and/or standing at public transit bus stops, zones, and stands as well as determine the dimensions of these areas. To date, parking and standing within 80 feet of a bus stop sign is prohibited. However, vehicles may stop momentarily to load or unload a passenger so long as the driver remains with the vehicle and it does not interfere with the operation of a transit vehicle. There is no clear definition of “momentarily” in the code, but other sections insinuate if a passenger is actively loading or unloading, and the driver is

¹³ District of Columbia Municipal Regulations. 2017.

¹⁴ DC Code, DC Law 22-175 Traffic and Parking Ticket Penalty Amendment Act of 2018

¹⁵ District of Columbia Municipal Regulations. 2017.

with the vehicle than the driver is within the law. The current fine for stopping, standing, or parking in a bus lane or zone in the District is \$50.¹⁶

Since 2009, DPW has used automated enforcement to ticket parking violations. Street sweeping regulations through the “Street Sweeping Improvement Enforcement Amendment Act of 2008”, amended the District of Columbia’s Traffic Adjudication Act of 1978 and gave DPW the authority to enforce non-moving violations using automated enforcement.

Figure 4. Marked bus lanes along Georgia Avenue NW¹⁷



¹⁶ Ibid.

¹⁷ Dan Malouff, Georgia Avenue’s new red-surface bus lanes, Last modified 2016, <https://ggwash.org/view/42058/georgia-avenues-new-red-surface-bus-lanes>

Figure 5. Example of Current Signage at Bus Zones in the District¹⁸



2.3 Model Legislation and Automated Enforcement Programs

Several cities in the United States and abroad have installed enforcement cameras on board transit vehicles or along transit corridors. The following sections outline the main provisions of these programs.

2.3.1 San Francisco, CA

The California Vehicle Code authorizes the City and County of San Francisco to enforce parking violations in specified transit only traffic lanes through video imaging evidence. The code authorizes the installation of automated forward-facing parking control devices on city-owned public transit vehicles to document parking violations occurring in transit only lanes. The Transit Only Lane Enforcement (TOLE) program is part of a comprehensive initiative to improve the safety and reliability of the public transit system. The San Francisco Municipal Transportation Agency (SFMTA) has mounted cameras on the front of each bus to take pictures of any vehicle stopped in a transit only lane.

TOLE was introduced as a pilot program in 2008 and was expanded system-wide in February of 2013. By 2014 implementation was completed, and the fine was set at \$110 for parking in the transit only lanes to \$288 for stopping in a bus zone.¹⁹ By 2015, the program was made permanent.²⁰

¹⁸ Lizzie Stricklin. D.C. officials consider removing bus stop at 21st Street and Penn Ave. The GW Hatchet. Last modified 2017. <https://www.gwhatchet.com/2017/10/11/d-c-officials-consider-removing-bus-stop-at-21st-street-and-penn-ave/>

¹⁹ Ibid.

²⁰ Eyragon Eidam, Digital Communities, Retrieved from Camera-Monitored Traffic-Efficiency Pilot Will Go Permanent, Last modified 2015, <http://www.govtech.com/dc/articles/camera-monitored-traffic-efficiency-pilot-will-go-permanent.html>

To date, San Francisco has 26 miles of transit only lanes with another 22 miles planned over the next decade. In addition to automated enforcement, SFMTA has invested in transit signal priority and is painting the transit only lanes red to create a visual reminder for the motorist.

Figure 6. San Francisco MUNI bus bypassing traffic in a transit only lane²¹



Designated qualified City employees review the video images to determine whether parking violations have occurred and issue a parking violation notice to the registered owner within 15 days of the violation. Citations are issued to violations captured during operational transit only lane hours. Automated enforcement equipment is designed to only capture images of parking violations and not capture images of other drivers, vehicles, and pedestrians. Images are recorded with a date and time stamp. Only non-moving violations can be enforced.²² The original law included a provision for cars traveling in transit only lanes, but this was removed.

²¹ Muni Forward, Transit Only Lane Enforcement, Last modified 2015, https://www.sfmta.com/sites/default/files/projects/2015/TOLE%20one%20pager_v4.pdf

²² California Legislative Information, Retrieved June 2018, https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB1287

Figure 7. A parking enforcement official reviews footage for a MUNI vehicle²³



Figure 8. TOLE bumper sticker on a MUNI vehicle²⁴



Appendix G and H covers the pertinent sections of the California Vehicle Code and the San Francisco Transportation Code which regulates automated enforcement and transit only lane violations.

Table 2. Current bus lane/zone violation enforcement in San Francisco

Type	Authority to Enforce	Authority to Use Automated Enforcement	Technology to Enforce	Fine
Standing (Bus Zone)	San Francisco Transportation Code, Division 1, Article 7, Sec. 7.2.39	California Laws – Vehicle Code, Division 17, Chapter 1, Article 3.5, Section 40240a	California Laws – Vehicle Code, Division 17, Chapter 1, Article 3.5, Section 40240a	\$50
Standing (Bus Lane)				\$50
Stopping (Bus Lane)				\$50

²³ Aaron Bialick, All Muni Buses to Get Cameras for Transit Lane Enforcement by Spring 2014, Last modified 2013, <https://sf.streetsblog.org/2013/02/12/all-muni-buses-to-get-cameras-for-transit-lane-enforcement-by-spring-2014/>

²⁴ Muni Forward, 2015.

Parking (Bus Zone)				\$50
Parking (Bus Lane)				\$50
Traveling (Bus Lane)	San Francisco Transportation Code, Division 1, Article 7, Sec. 7.2.72	Not authorized	None	\$200

2.3.2 New York, New York

Article 24 of the New York Vehicle and Traffic Law authorizes the City of New York to use photo devices for enforcement on selected bus service lanes. The 2010 law authorizes the city to impose financial liability on the vehicle owner for failure to comply with bus lane restrictions. Currently, there are 104 miles of bus lanes in New York City operating from 7:00 am to 7:00 pm on weekdays. Beginning in 2010, New York City Department of Transportation (NYCDOT) and the Metropolitan Transportation Authority (MTA) were authorized to use automated enforcement on specifically named Select Bus Service corridors during specific days of the week and time of day.²⁵ In 2014, cameras captured 75% of bus lane violations.

On-bus cameras record parking and standing violations, while stationary cameras record driving violations.²⁶ NYC DOT and the MTA split enforcement authority. NYC DOT manages the stationary cameras and enforces moving violations while MTA is responsible for the equipment and infractions issued by on-bus cameras.

Table 3. Current bus lane/zone violation enforcement in New York City

Type	Authority to Enforce	Authority to Use Automated Enforcement	Technology to Enforce	Fine
Standing (Bus Zone)	Rules of the City of New York, Title 34, Chapter 4, Section 4-08(c)(3)	2017 New York Laws, VAT, Title 7, Article 24,1111-C	Stationary cameras mounted along transit only corridors	\$115
Standing (Bus Lane)	Rules of the City of New York, Title 34, Chapter 4, Section 4-08(f)(4)		Stationary cameras mounted along transit only corridors	\$115
Stopping (Bus Lane)	Rules of the City of New York, Title 34, Chapter 4, Section 4-08(f)(4)		Stationary cameras mounted along transit only corridors	\$115
Parking (Bus Zone)	Rules of the City of New York, Title 34, Chapter 4, Section 4-08(c)(3)		Stationary cameras mounted along transit only corridors	\$115
Parking (Bus Lane)	Rules of the City of New York, Title 34, Chapter 4, Section 4-08(f)(4)		Bus Mounted Cameras	\$115

²⁵ New York City Department of Transportation, *2012 Bus Lane Camera Enforcement Update Report*. 2012

²⁶ Office of the Mayor, *Bus Lane Rules*, Accessed June 2018, <http://www.nyc.gov/html/brt/html/about/bus-lanes.shtml>

Traveling (Bus Lane)	Rules of the City of New York, Title 34, Chapter 4, Section 4-12(m)		Stationary cameras mounted along transit only corridors	\$150 + 2 points
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Automated cameras take photographs of offending vehicles and license plates. The privacy of those captured through enforcement cameras such as drivers, passengers, pedestrians and cyclists is carefully maintained. This includes prohibiting the use and dissemination of the vehicles' license plate information and other identifying characteristics captured. Those receiving automated enforcement tickets can review the camera footage before paying the fine.²⁷ The section of the New York Vehicle and Traffic Code that pertains to automated enforcement in transit only lanes is in Appendix G.²⁸

Figure 9. Bus lane in New York City²⁹



²⁷ Ibid.

²⁸ New York Senate, 5608, Last modified 2015, <http://legislation.nysenate.gov/pdf/bills/2015/s5608>

²⁹ Ibid.

Figure 10. Bus lane signage in New York City³⁰



Posted signs and warnings were placed in new transit only lanes for 60-days prior to awarding fines for bus lane violations.

2.3.3 Belfast, Northern Ireland

Belfast's Move Transport Masterplan has designated over 50 km of bus lanes to create a more accessible city center. Due to limited police resources, Belfast began using stationary CCTV cameras to enforce transit only lanes. If the camera detects an unauthorized vehicle is driving in a bus lane, the camera will automatically record the vehicle for at least eight seconds. Belfast also uses a mobile CCTV to capture nonpermitted vehicles traveling in the transit only lane. NSL, an agency which operates the enforcement system for the Department of Infrastructure, reviews the video clips.³¹ Penalty charge notices are issued to the registered owner of the vehicles. The current Bus Lane Order is in Appendix J.

³⁰ Ibid.

³¹ Nidirect Government Services, Enforcement of bus lanes and bus-only streets, Retrieved June 2018, <https://www.nidirect.gov.uk/articles/enforcement-bus-lanes-and-bus-only-streets>

Figure 11. Bus lane signage in Belfast³²



Figure 12. Mounted cameras in Belfast³³



³² John Monaghan, Belfast bus lane fines total £920,000 over four months, The Irish News, Last modified 2016, <http://www.irishnews.com/news/2015/12/10/news/department-raises-over-900-000-from-bus-lane-fines-348999/>

³³ Ibid.

Figure 13. Bus lane camera car in Belfast³⁴



2.3.4 *Edinburgh and Glasgow, Scotland*

Starting in April 2012, both Edinburgh and Glasgow have utilized bus lane camera enforcement. The cameras use Automatic Number Plate Recognition (ANPR) technology to read the vehicle's plate number. If the registration does not match the approved vehicles, four to five seconds of camera recordings are reviewed by a human operator using documented policy guidelines. A charge notice is issued if the vehicle violated bus lane procedures.³⁵

Several weeks after the automated enforcement went into effect, the City of Edinburgh received backlash from motorists and the media, despite a rigorous public education campaign. The council commissioned a review of the policies regarding automated enforcement focusing on sudden lane changes, cyclist safety, and Charge Notices being issued with timestamps outside operational hours. Enforcement sites were temporarily decommissioned. After reviewing the system, signage was updated, and all but one camera location was recommissioned. The public needed time to adjust to the new regulations. Within seven weeks, the number of Charge Issues issued fell below 500 for each site.³⁶

2.3.5 *London, UK and areas outside of London*

The City of London has been using CCTV to enforce bus lane violations since 1999. In November 2005, municipalities outside of London were authorized to use automated enforcement in transit only lanes.

³⁴ Ibid.

³⁵ Des McKibbin, Enforcing Bus Lanes, Northern Ireland Assembly, 2014.

³⁶ Ibid.

The Department for Transport published guidance for how local municipalities outside of London can operate an effective and efficient bus lane enforcement program. The guidance specifies the measures municipalities must take to ensure privacy and public trust in the system.³⁷

Cameras regulate infractions, and a penalty is only payable if the council has a visual record of the infraction generated and recorded by an approved device. Charge Notices are sent to the offending vehicle's registered owner via mail who then has 28 days to pay the fine. The civil justice system enforces charge notices. However, the police retain their powers to enforce bus-lane infringements and take precedence over civil penalties.³⁸ Appendix K has more information.

2.3.6 Sydney, Australia

In Sydney, Australia, digital cameras placed every 100 meters along bus lanes enforce infractions. All vehicles may travel in the bus lane for a maximum of 100 meters to enter or leave a side street. If an unauthorized vehicle travels in a bus lane for longer than 100 meters, automated enforcement cameras record the vehicle's information. If both cameras detect the same unauthorized vehicle's plate number within an expected period, an infringement is generated. Each camera takes two photographs: one wide angle shot to put the situation into context and one shot of the vehicle's license plate.³⁹

3 Market Research for Automated Enforcement Technologies and Implementation

3.1 State of Practice

This section reviews the state of practice for bus lane automated enforcement in the United States and abroad. Following this review, proposed enforcement systems for the bus lane and bus zones are detailed.

³⁷ London Councils, A Code of Practice for Bus Lane Camera Enforcement Using Attended CCTV Equipment Approved English Local Authorities outside Lon, 2007.

³⁸ Mckibbon, Enforcing Civil Penalties.

³⁹ Government of New South Wales. Bus Lanes. Retrieved June 2018.
<http://www.rms.nsw.gov.au/roads/using-roads/buses/bus-lanes.html>

3.1.1 New York City

In 2008 NYC launched Select Bus Service (SBS) corridors within each of the city’s boroughs. In 2010 a camera-based enforcement system initiated by the City and Metropolitan Transportation Authority (MTA) was implemented. NYC’s traffic rules allow non-transit vehicles to use the SBS corridors under certain conditions.⁴⁰ These conditions include:

1. Legal right turn;
2. Access the curb (e.g. parking, expeditious pickup and drop-off in the bus lane); and
3. Pull over to avoid emergency vehicle.

Prior to issuing a citation over the illegal use of a transit only lane, recorded video footage must be reviewed by a qualified employee. For the purpose of camera-based enforcement, New York City employs two types of equipment: stationary and mobile equipment.⁴¹ Corridors with stationary equipment have two cameras mounted on top of each other beside the SBS corridor (**Error! Reference source not found.**).⁴² The purpose of stationary cameras is to enforce moving violations in the SBS corridor. In the case of mobile enforcement, two on-bus cameras are employed to enforce standing violations. In both stationary and mobile systems, one camera (low-resolution) records video footage of surrounding traffic to detect activities within SBS areas. The second camera (high-resolution) points to the rear side of the vehicle to detect the violating vehicle’s license plate. To identify standing violators, two buses need to observe the unauthorized vehicle before a citation can be issued. Under this provision, non-transit vehicles making a prompt pickup and drop-off will not be ticketed. Fines for a moving vehicle are about \$150 from an officer-issued citation and \$115 for a citation issued based upon camera footage. Table 5 summarizes NYC’s stationary and mobile enforcement systems.

Figure 14. NYC stationary camera video footage



⁴⁰ NYCT, “Bus Lane Camera Enforcement Update Report,” New York City Department of Transportation. 2012.

⁴¹ Eric Beaton, Joseph Barr, Joseph Chiaromonte, Theodore Orosz, Dominique Paukowits, and Aaron Sugiura, “Select Bus Service on M15 in New York City: Bus Rapid Transit Partnership,” Transportation Research Record: Journal of the Transportation Research Board, no. 2277, (2012).

⁴² Office of the Mayor, 2018.

Table 4. New York enforcement operation⁴³

Item	Description
Stationary Enforcement (Moving Violations)	
1 st Camera	Captures high-quality footage of the rear side of a vehicle to detect the vehicle’s license plate, but not the driver.
2 nd Camera	Captures a wider-angle footage of the surrounding area, recording activities within the bus lane, and activities on the street that might have led a vehicle to use the bus lane.
Location	20 locations along the First Avenue/Second Avenue SBS corridor, the 34th Street SBS corridor, and the Fordham Road SBS corridor.
Capital Cost	\$2,597,817
Operating Cost	\$860,747
Enforcement period	Weekdays between 7:00am and 7:00pm
Mobile Enforcement (Standing Violations)	
1 st camera	Observes the standing vehicle’s rear license plate as the bus passes the violator and uses GPS coordinates to tag the location. To issue a violation, two buses must detect the same violation at the same GPS location.
2 nd camera	Captures a wider-angle footage of the surrounding area, recording activities within the bus lane, and activities on the street in front of the bus.
Amount	Six buses, running on the First Avenue/Second Avenue SBS corridor
Cost	\$505,251.03 (does not include NYCT operating costs)
Enforcement period	Weekdays between 7:00am and 7:00pm

3.1.1.1 Revenue

From April 2011 to March 2012 73,160 citations were issued, of which 2% were found not guilty. During this period, the City collected more than \$7.5 million in revenue, roughly \$103 per citation issued.

3.1.1.2 Transit Service

The before and after study of the camera based enforcement program indicated a significant improvement in transit speed, ridership, and reliability (NYCT 2012). On average, in three of the selected routes (Bx12, M15, and M34/A), transit speed increased by 19.3%, and ridership and reliability (perceived by transit users) increased by 10.6% and 55.3%, respectively. The proposed camera-based enforcement system has contributed significantly to overall programmatic performance improvements for SBS.⁴⁴

⁴³ NYCT, 2012.

⁴⁴ Beaton, “Select Bus Service,” 2012.

3.1.2 San Francisco

Under TOLE, all Muni buses have on-board cameras to ticket unauthorized road users parked in the transit only lanes.⁴⁵⁴⁶ The City and County is authorized to ticket violators in transit only lanes through automated forward-facing on-board cameras. The existing law requires recorded videos be confidential, available only to public agencies, and be reviewed by qualified designated employees to verify infringements (Assembly Bill No. 1041, 2011). An example of reviewing video footage can be found in Roberts 2012b; Eugenia 2012.⁴⁷⁴⁸ Transit only lane violators are fined a minimum of \$110. Transit lane enforcement cameras cannot issue tickets for moving violations.

To date all Muni buses (approximately 819) are equipped with two on-board cameras (costing about \$800,000) (Jaffe 2012; Gordon 2012)⁴⁹⁵⁰. One camera faces street level to capture wide footage of the surrounding environment and the other is on the side of the bus facing towards the violators' vehicle to capture the license plate. Different from NYC on-bus cameras, the Muni automated on-board cameras capture video footage of all parked violators regardless of the amount of time they have spent in the bus-only lane. The rigorous enforcement of the parked violators has significantly increased transit performance in San Francisco resulting in a successful program. Parking violations along transit only lanes dropped significantly improving transit scheduling and passenger safety. The pilot program issued 1,311 citations in the first year, 2,102 in the second year, and 3,052 in the third year. In total, \$720,000 worth of citations were issued during the first three years of the pilot program.⁵¹ The base fine for police issued moving violations was \$60 and \$105 for parked violations. Overall transit only lane violations dropped by 47% during the pilot.

⁴⁵ Aaron Blalick, "All Muni Buses Now Have Transit Lane Enforcement Cameras – Streetsblog San Francisco," Last modified 2015, <https://sf.streetsblog.org/2015/03/24/all-muni-buses-now-have-transit-lane-enforcement-cameras/>.

⁴⁶ Eric Jaffe, "In San Francisco, Buses Become the Police – CityLab," 2012, <https://www.citylab.com/transportation/2012/02/san-francisco-buses-become-police/1251/>.

⁴⁷ Stanley Roberts, "How Did I Get This Ticket - People Behaving Badly – YouTube," Last modified 2012, https://www.youtube.com/watch?time_continue=12&v=u3S2MVQW_qs.

⁴⁸ Eugenia, "Muni Cameras Catch Reporter in Transit-Only Lane," Muni Diaries, Last modified 2012, <http://www.munidiaries.com/2012/04/16/muni-cameras-catch-reporter-in-transit-only-lane/>.

⁴⁹ Jaffe, "Busses Become the Police."

⁵⁰ Gordon, "Muni Wants More Cameras."

⁵¹ Ibid.

Figure 15. On-board cameras in MUNI buses in San Francisco⁵²⁵³



3.1.3 London and Other Cities in the United Kingdom

Before London initiated enforcement of their transit only lanes, around 16,000 vehicles occupied these lanes, causing heavy congestion, slow transit service, and low transit ridership. To overcome these challenges, London began rigorously enforcing transit only lane violators. London Metropolitan Area deployed on-board and stationary enforcement cameras to enforce transit only lane violations. By March 2000, 150 buses had on-board cameras and 30 stationary enforcement cameras were installed in London.⁵⁴ The automated enforcement system has been an effective strategy to improve transit system performance. On-board enforcement cameras are located on front of the bus to detect the violator's license plate (both moving and standing). Stationary enforcement cameras are installed above bus lanes, to detect violations during operating hours. The camera-based enforcement system occurs in several steps;⁵⁵ (1) through the Automatic Number Plate recognition (ANPR) technology, a likely violation event is identified, (2) the system records the data including video footage seconds before and after the violation event and prepares a location log created by Automatic Vehicle Location (AVL), (3) the

⁵² Stanley Roberts, "Transit Only Lane Enforcement - People Behaving Badly - YouTube" Last modified 2012, https://www.youtube.com/watch?feature=player_embedded&v=bw58QBJju6s##KRON.

⁵³ Stanley Roberts, "Geary's Red Transit Only Lane - People Behaving Badly - YouTube," Last modified 2014, <https://www.youtube.com/watch?v=xZmLgHb2r5Q>.

⁵⁴ Michael McCahill and Clive Norris, "CCTV in London," Report Deliverable of UrbanEye Project, 2002.

⁵⁵ Patrick Troy, "Traffic Enforcement in the Digital Age," Intelligent Transport, Last modified 2006, <https://www.intelligenttransport.com/transport-articles/1908/traffic-enforcement-in-the-digital-age/>.

encrypted data will be transmitted to the processing center, (4) the enforcement officer is provided with the data to decide whether a driver should be issued a citation. The program has accomplished:⁵⁶⁵⁷⁵⁸

- From 2004 to 2007, compliance with transit only lane regulations increased by 35%.
- From 2006 to 2007, the amount of transit only lane standing and moving violations decreased from 8.8 to 6.1 violations per hour.
- In 2005 84% of transit only lanes were actively enforced, compared to an enforcement rate of 96% by March 2007.
- Transit speed in bus lanes increased by 5% from 2004 to 2005 and by 2007, transit speeds in bus lanes were 12.6% faster than outside of the bus lanes. Faster service resulted in passenger time saving worth \$29 million (€25 million) per year.
- In 2007, 1,045 buses in London were equipped with the on-board enforcement cameras.

Apart from London, other regions in the United Kingdom (UK) also employ automatic camera enforcement.⁵⁹ These regions include Northern Ireland (Belfast), Wales, Scotland (Edinburgh and Glasgow), and England (Sheffield, Bristol, Liverpool, Manchester, and Nottingham). Within the first 13-weeks of Edinburgh's transit only lane automated enforcement program, unauthorized users decreased by 84%.⁶⁰ From April 2010 to May 2011, Sheffield, Bristol, Liverpool, Manchester, and Nottingham, issued 351,000 citations (0.4% of them were appealed) which generated a revenue of \$12.2-24.3 million (€10.5-21 million). Among the five English cities, Liverpool had the most transit only lane violators, which generated \$3.5 million (€3 million) in revenue. In Sheffield, revenue collection matched the enforcement system expenditure. Overall, automated camera enforcement initiatives in the UK represents an effective practice.

3.1.4 Other Countries

Aside from the United States and United Kingdom, other countries are also practicing camera-based enforcement to improve transit service performance operating in transit only lanes. Since 2008, Singapore buses operating within the transit only lanes have on-board cameras to detect moving and

⁵⁶ Ibid.

⁵⁷ "Effective Enforcement by Transport for London Keeps the Capital's Roads Moving," Transport for London, Last modified 2007. <https://tfl.gov.uk/info-for/media/press-releases/2007/september/effective-enforcement-by-transport-for-london-keeps-the-capitals-roads-moving>.

⁵⁸ "Annual Report and Statement of Accounts," Transport for London, 2008.

⁵⁹ McKibbin, *Enforcing Bus Lanes*, 2014.

⁶⁰ Ibid.

stationary violators.⁶¹⁶² As of 2015, almost 80% (4,000 buses) of the transit fleet was equipped with the on-board enforcement cameras. Transit only lanes are enforced Monday to Saturday between 7:30 am and 11:00 pm, whereas peak period only transit lanes are enforced on weekdays between 7:30 am and 9:30 am, and 5:00 pm and 8:00 pm. The camera-based enforcement policy was successful diverting unauthorized vehicles from occupying the bus lane. From 2008 to 2014 the number of violators decreased by almost 60%.⁶³

New South Wales, Australia, installed bus lane cameras adjacent to the bus lane to enforce moving and standing violators. The enforcement system is comprised of two cameras 100 meters apart. A citation will be issued once a violating vehicle’s license plate is detected by both cameras during the same time period.⁶⁴ In Sydney, bus lanes operate from 6:00am – 10:00 am, and from 3:00pm – 8:00 pm. Violators travelling within those periods will incur a \$311 citation and one demerit point.⁶⁵⁶⁶ A summary of the surveyed automated bus-lane enforcement strategies is presented in Table 6.

Table 5. Summary of enforcement strategies

Location	Enforcement Strategy		Penalty (US Dollars)
	On-board camera	Stationary camera	
New York	X	X	Officer issued citations are about \$150 and \$115 for a violation captured by a camera
San Francisco	X		Moving violations are \$60 and parked violations are \$105
London	X	X	\$185 (€160) with 50% reduction if paid within 14 days.
United Kingdom (not London)	X	X	\$70 (€60) with 50% reduction if paid within 14 days.

⁶¹ Carl, “Singapore Bus Lane Laws and Fines,” Motorist.Sg, Last modified 2016 <https://www.motorist.sg/article/6/singapore-bus-lane-laws-and-fines>.

⁶² Christopher Tan, “Onboard CCTV Cameras Help Keep Bus Lanes Clear,” The Straits Times, 2015, <https://www.straitstimes.com/singapore/transport/onboard-cctv-cameras-help-keep-bus-lanes-clear>.

⁶³ Ibid.

⁶⁴ NSW Government, “Camera Detected Penalty Notices,” New South Wales, Last modified 2017, <http://www.revenue.nsw.gov.au/fines/pn/factsheet/camera-detected>.

⁶⁵ NSW Government, “Bus Lanes,” New South Wales Government, Accessed June 18, 2018, <http://www.rms.nsw.gov.au/roads/using-roads/buses/bus-lanes.html>.

⁶⁶ Michael Dulaney, “Motorists Incorrectly Fined for Driving in Bus Lane over Sydney Harbour Bridge,” ABC News (Australian Broadcasting Corporation), Last modified 2017, <http://www.abc.net.au/news/2017-08-26/motorists-incorrectly-fined-driving-in-bus-lane-sydney-harbour/8844374>.

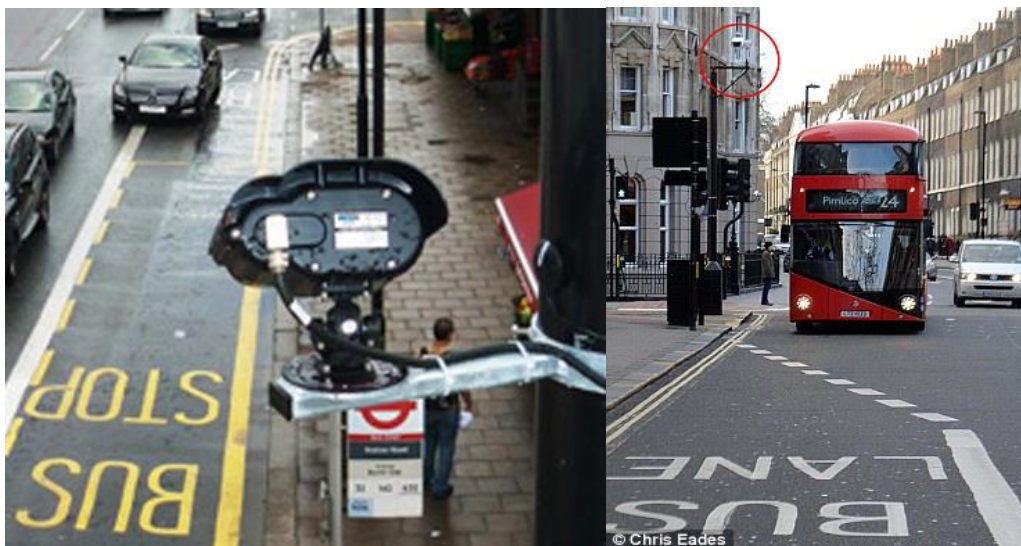
Singapore	X		\$130 for bus lane violations
Sydney		X	Up to \$240 fine in Sydney and 3 demerit points
Seoul	X	X	\$54 fine and 30 demerit points
Paris	X	X	\$160 fine

3.2 Recommended Enforcement System in the District

3.2.1 Stationary Cameras

Like London and New York City’s transit only enforcement plan, the District should employ automated stationary camera-based enforcement to decrease moving violations in transit only lanes. To this end, the District should install two high-speed, industrial pole-mounted cameras beside the bus lanes in two block intervals. Depending on site distance, camera spacing may be adjusted. One camera should be mounted to capture the moving, standing, or unauthorized parked vehicles’ license plates (high-resolution) while the other camera records video footage of the surrounding traffic (low-resolution). Capital costs for two stationary enforcement cameras and poles is about \$65,000. The cost to maintain and review the video footage (by a qualified employee) is about \$400 per system per week.⁶⁷

Figure 16. Stationary camera-based enforcement⁶⁸



⁶⁷ NYCDOT, “M60 Select Bus Service on 125th Street,” Community Board 9 Transportation Committee, Last modified 2015, <http://www.streetsblog.org/wpcontent/uploads/2015/01/2015-01-08-brt-125th-cb9.pdf>.

⁶⁸ Richard Marsden, “Spy Camera Fines Cost Drivers £135million: Huge Rise in Bus Lane and Box Junction Offences | Daily Mail Online,” Last modified 2014, <http://www.dailymail.co.uk/news/article-2532929/Spy-camera-fines-cost-drivers-135million-Huge-rise-bus-lane-box-junction-offences.html>.

3.2.2 On-Board and Mobile Stationary Cameras

A mobile camera-based system (both on board and mobile stationary cameras like the speed cameras deployed by MPD) should be used to enforce parking or standing violations in transit only lanes and bus stop zones. DDOT should consider working with WMATA to install two on-board cameras to detect unauthorized vehicles' license plates and surrounding traffic. Alternatively, DDOT could pilot the onboard cameras on DC's Circulator buses within the District to test the functionality of the system before further deployment on WMATA buses. DDOT should designate qualified employees to watch transit only lane violations captured by on-board cameras. To minimize the review process, DDOT could employ digital image processing and machine learning. Should violation incidents need further review, a technician can be assigned to review the video/image of the violation and review the automatically generated citation. According to the San Francisco TOLE pilot program, the installation cost for forward-facing cameras per bus is equal to \$9,500. In addition, system maintenance and violation verification— is roughly \$15 per week.^{69 70}

Stationary automated enforcement is difficult to achieve on DDOT's 2,000 plus bus zones. However, DDOT can begin automated enforcement by identifying areas severely impacted by delay, safety, and traffic. Mobile units can help increase compliance by introducing uncertainty as to where automated enforcement cameras are located. This has a greater impact on enforcement as drivers will be less likely to park or stand in a transit only zone if there is the chance of camera enforcement. Implementation of this program could mirror the District's speed camera program. One camera per zone would be necessary to properly record the violation. The cost benefit ratio and the revenue realized would be dependent on the placement and number of units deployed.

3.3 Post-Implementation Benefits

Upon implementation of the automated camera-based enforcement system in NYC, the speed of local buses significantly improved.⁷¹ Alongside other improvements, the automated enforcement system

⁶⁹ SFMTA, "SFMTA Transit-Only Lane Enforcement (TOLE) Pilot Program Evaluation," San Francisco Municipal Transportation Agency, 2011.

⁷⁰ "Bus Lane Enforcement Study"

⁷¹ Stephen Miller, "Next Stop for Bill to Expand Bus Lane Cameras: Andrew Cuomo's Desk – Streetsblog New York City," Streets Blog NYC, Last modified 2015, <https://nyc.streetsblog.org/2015/06/26/next-stop-for-bill-to-expand-bus-lane-cameras-andrew-cuomos-desk/>.

allowed the M60 SBS buses to travel 11-14% faster than before.⁷² ⁷³ The improvement is even higher at some segments of the route where the M60 buses are travelling up to 34% faster than before.⁷⁴

In San Francisco, the Automatic Passenger Counting (APC) based data is used to assess TOLE program end-to-end running time improvement.⁷⁵ The APC provides information on passenger counts, vehicle travel times, and locations. The analysis compared data collected between August and October 2009 to the same time four years later, where the eightieth percentile running times was used to measure service reliability. Importantly, running travel time improvements was due to a combination of factors including, automated enforcement, all-door boarding, and coloring the bus only lane red. Simultaneous to these transit improvements, the direct neighborhood experienced a significant increase in development which had an impact on running times. However, overall the automated enforcement system contributed to improved running travel times. In particular sections (in Sutter Street) assessing the 80th percentile travel time indicated up to 20% reduction. The automated enforcement system had a significant benefit during periods of heavier traffic and passenger loads. Figure 20 demonstrates a comparison of running travel time improvement between 2009 and 2013.

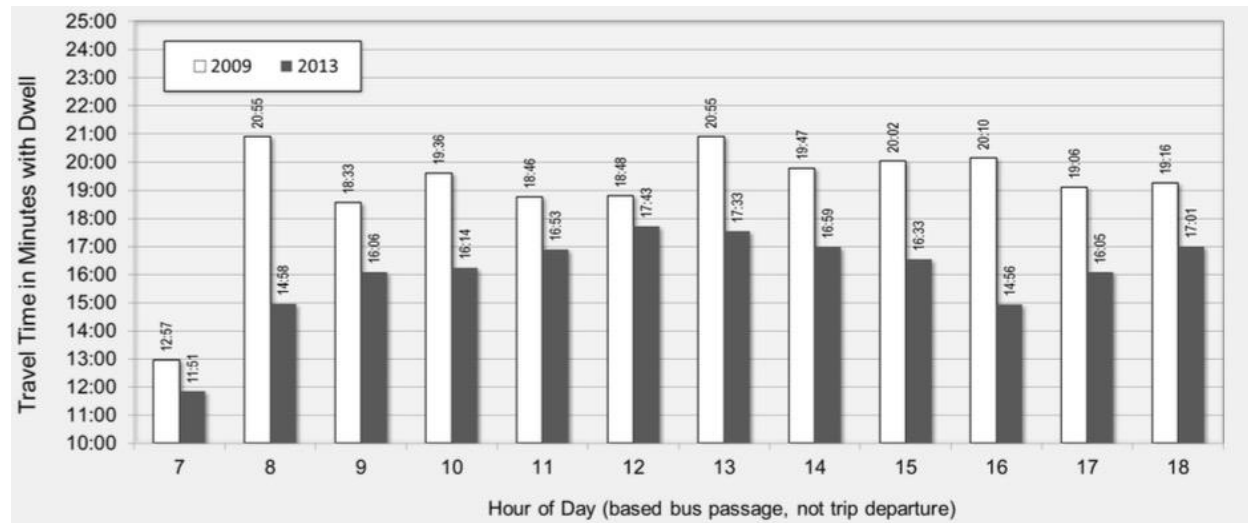
⁷² Stephen Miller, “Bus Lanes Worked Wonders on East 125th. Now What About the West Side? – Streetsblog New York City,” Streets Blog NYC, Last modified 2015, <https://nyc.streetsblog.org/2015/01/12/bus-lanes-boosted-buses-on-125th-street-but-what-about-west-harlem/>.

⁷³ NYCDOT, “M60 Select Bus Service.”

⁷⁴ Ibid.

⁷⁵ SFMTA, “SFMTA Transit Only Enforcement.”

Figure 17. 80th percentile running time in Sutter Street in 2009 and 2013⁷⁶



Automated enforcement systems benefit more than just running time improvements. The TOLE program was effective in changing drivers’ behavior, familiarizing them with the new transit improvements. The analysis indicates the number of repeat violators (i.e., high frequency violators with at least three citations for parking in bus lane) decreased by almost 50% between 2009 to 2011. Furthermore, public acceptance and compliance with the transit only lane regulations improve safety. SFMTA reported transit improvements drove safety improvements as well. Between 2013 and 2015, the total amount of police-reported and minor accidents in three transit only lane corridors decreased by 16%.⁷⁷ The safety implications impact transit service, pedestrians, cyclists, and encourage sustainable developments. If implemented effectively, an automated enforcement system could have the following improvements:

- Running travel time improvements
- Transit schedule adherence
- Increased revenue
- Safety implications (aligned with Vision Zero)
 - Buses will be less likely to change their lanes in order to avoid violators in the bus-only lanes;⁷⁸ (2) In cases where transit only lanes allow bicyclist to use the facility, the safety of those bicyclist will significantly improve due to the automated enforcement process;

⁷⁶ Ibid.

⁷⁷ SFMTA, “Red Transit Lanes Final Evaluation Report,” San Francisco Municipal Transportation Agency, 2017.

⁷⁸ Gordon, “Muni wants more cameras.”

(3) Video footage of the on-board and stationary cameras can provide insights on behaviors that lead to bus accidents.

- Video footage of the on-board cameras can be used for traffic studies to institute better policy implications and enhance transit performance in the District of Columbia.
- Decrease the cost by replacing a fraction of the labor-intensive enforcement team (i.e., enforcement officers, supervisors, and administrative staff) with an automated enforcement system.⁷⁹

⁷⁹ Benedict Moore-Bridger, "100 Jobs to Go as TfL Axes Red Route Patrol Contract," Evening Standard, Last modified 2008, <https://www.standard.co.uk/news/100-jobs-to-go-as-tfl-axes-red-route-patrol-contract-6839639.html>.

4 References

“Annual Report and Statement of Accounts.” Transport for London. 2008.

Agrawal, Asha Weinstein, Todd Goldman, and Nancy Hannaford. “Shared-Use Bus Priority Lanes on City Streets: Approaches to Access and Enforcement.” *Journal of Public Transportation* 16 no. 4 (2013): 2.

Assembly Bill No. 1041. “Ma. Vehicles: Delinquent Parking Violations: Video Imaging: Transit only Lanes.” The City and County of San Francisco. 2011.

Beaton, Eric, Joseph Barr, Joseph Chiaromonte, Theodore Orosz, Dominique Paukowits, and Aaron Sugiura. “Select Bus Service on M15 in New York City: Bus Rapid Transit Partnership.” *Transportation Research Record: Journal of the Transportation Research Board*, no. 2277 (2012).

Bialick, Aaron. “All Muni Buses Now Have Transit Lane Enforcement Cameras – Streetsblog San Francisco.” Last modified 2015. <https://sf.streetsblog.org/2015/03/24/all-muni-buses-now-have-transit-lane-enforcement-cameras/>.

Bialick, Aaron. All Muni Buses to Get Cameras for Transit Lane Enforcement by Spring 2014. Last modified 2013. <https://sf.streetsblog.org/2013/02/12/all-muni-buses-to-get-cameras-for-transit-lane-enforcement-by-spring-2014/>

“Bus Lane Enforcement Study.” National Capital Region Transportation Planning Board. 2017.

Carl. “Singapore Bus Lane Laws and Fines.” *Motorist.Sg*. Last modified 2016. <https://www.motorist.sg/article/6/singapore-bus-lane-laws-and-fines>.

Cesme, Burak, Selman Altun, Wendy Jia, Michael Eichler, Circe Torruellas, Srividya Santhanam, Zhuojin Wang, and Timothy Brulle. “Application of Bus-Only Lanes in Downtown Washington, DC: Concurrent Versus Contraflow Bus Lanes.” *Transportation Research Record: Journal of the Transportation Research Board*, no. 2539 (2016): 119–129.

California Legislative Information. Retrieved June 2018. https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB1287

CIVITAS. Bus Lane and Red Light Cameras. Last modified 2013. <http://civitas.eu/measure/bus-lane-and-red-light-cameras>

Code of the District of Columbia § 5–201. 2018.

Code of the District of Columbia § 50–2209.01. 2018.

Code of the District of Columbia § 50–2303.02a. 2018.

Code of Virginia-§ 15.2-968.1. 2018.

Danaher, Alan R. Bus and Rail Transit Preferential Treatments in Mixed Traffic. Transportation Research Board Vol. 83 (2010.)

DDOT. “H/I Streets Bus Improvements Technical Report.” District of Columbia Department of Transportation. 2013.

District of Columbia. Code of DC Municipal Regulations. 2018.

Dock, Stephanie, Ryan Westrom, Kevin Lee, Burak Cesme, Meredyth Sanders, Alek Pochowski, David Miller, and Adam Recchia. District Mobility Project. Washington DC: District Department of Transportation. 2017.

Dulaney, Michael. “Motorists Incorrectly Fined for Driving in Bus Lane over Sydney Harbour Bridge.” ABC News (Australian Broadcasting Corporation). Last modified 2017.
<http://www.abc.net.au/news/2017-08-26/motorists-incorrectly-fined-driving-in-bus-lane-sydney-harbour/8844374>.

“Effective Enforcement by Transport for London Keeps the Capital’s Roads Moving.” Transport for London. Last modified 2007. <https://tfl.gov.uk/info-for/media/press-releases/2007/september/effective-enforcement-by-transport-for-london-keeps-the-capitals-roads-moving>.

Eidam, Eyragon. Digital Communities. Retrieved from Camera-Monitored Traffic-Efficiency Pilot Will Go Permanent. Last modified 2015. <http://www.govtech.com/dc/articles/camera-monitored-traffic-efficiency-pilot-will-go-permanent.html>

Electronic Code of Federal Regulations Chapter 36, Part 1, Section 4. Retrieved June 2018
<https://www.ecfr.gov/cgi-bin/text-idx?SID=abacc728d39b8f878a92311519042897&mc=true&node=pt36.1.4&rgn=div5>

Eugenia. “Muni Cameras Catch Reporter in Transit only Lane.” Muni Diaries. Last modified 2012.
<http://www.munidiaries.com/2012/04/16/muni-cameras-catch-reporter-in-transit-only-lane/>.

Gavanas, Nikolaos, A. Tsakailidis, Aggelos Aggelakakis, and Magda Pitsiava-Latinopoulou. “Assessment of Bus Lane Violations in Relation to Road Infrastructure, Traffic and Land-Use Features: The Case of Thessaloniki, Greece.” European Transport 55 (2013): 1–20.

Gordon, Rachel. “Muni Wants More Cameras to Catch Cars in Bus Lanes - SFGate.” SF Gate. 2012.
<https://www.sfgate.com/bayarea/article/Muni-wants-more-cameras-to-catch-cars-in-bus-lanes-3225065.php#photo-2367656>.

- Government of New South Wales. Bus Lanes. Retrieved June 2018.
<http://www.rms.nsw.gov.au/roads/using-roads/buses/bus-lanes.html>
- Guidelines for Automated Speed Enforcement in School Zones. Maryland State Highway Administration. 2011.
- Jaffe, Eric. "In San Francisco, Buses Become the Police - CityLab." 2012.
<https://www.citylab.com/transportation/2012/02/san-francisco-buses-become-police/1251/>.
- Kittelson & Associates, Inc. "Transit Capacity and Quality of Service Manual." Transportation Research Board. 2013.
- Land Transport Authority. "LTA Extends Bus Lane Scheme to Improve Travel Experience for Bus Commuters." Singapore Government. Accessed June 18, 2018.
<https://www.lta.gov.sg/apps/news/page.aspx?c=2&id=1929>.
- London Councils. A Code of Practice for Bus Lane Camera Enforcement Using Attended CCTV Equipment Approved English Local Authorities outside Lon. 2007.
- Malouff, Dan. Georgia Avenue's new red-surface bus lanes. Last modified 2016.
<https://ggwash.org/view/42058/georgia-avenues-new-red-surface-bus-lanes>
- Marsden, Richard. "Spy Camera Fines Cost Drivers £135million: Huge Rise in Bus Lane and Box Junction Offences | Daily Mail Online." Last modified 2014.
<http://www.dailymail.co.uk/news/article-2532929/Spy-camera-fines-cost-drivers-135million-Huge-rise-bus-lane-box-junction-offences.html>.
- Mayor, David. "Bus Lanes Alone Aren't Enough to Give NYC Buses a Clear Path – Streetsblog New York City." Streets Blog NYC. Last modified 2017. <https://nyc.streetsblog.org/2017/01/19/bus-lanes-alone-arent-enough-to-give-nyc-buses-a-clear-path/>.
- McCahill, Michael, and Clive Norris. "CCTV in London." Report Deliverable of UrbanEye Project. 2002.
- McKibbin, Des. Enforcing Bus Lanes. Northern Ireland Assembly. 2014.
- MDOT, M. D. Automated Enforcement. Last modified 2018.
<http://roads.maryland.gov/index.aspx?pageid=780>
- Miller, Stephen. "Bus Lanes Worked Wonders on East 125th. Now What About the West Side? – Streetsblog New York City." Streets Blog NYC. Last modified 2015.
<https://nyc.streetsblog.org/2015/01/12/bus-lanes-boosted-buses-on-125th-street-but-what-about-west-harlem/>.

Miller, Stephen. "Next Stop for Bill to Expand Bus Lane Cameras: Andrew Cuomo's Desk – Streetsblog New York City." Streets Blog NYC. Last modified 2015. <https://nyc.streetsblog.org/2015/06/26/next-stop-for-bill-to-expand-bus-lane-cameras-andrew-cuomos-desk/>.

Monaghan, John. Belfast bus lane fines total £920,000 over four months. The Irish News. Last modified 2016. <http://www.irishnews.com/news/2015/12/10/news/departments-raises-over-900-000-from-bus-lane-fines-348999/>

Moore-Bridger, Benedict. "100 Jobs to Go as TfL Axes Red Route Patrol Contract | London Evening Standard." Evening Standard. Last modified 2008. <https://www.standard.co.uk/news/100-jobs-to-go-as-tfl-axes-red-route-patrol-contract-6839639.html>.

MPD. "Metropolitan Police Department." Last modified 2018. <https://joinmpd.dc.gov/>.

Muni Forward. Transit Only Lane Enforcement. Last modified 2015. https://www.sfmta.com/sites/default/files/projects/2015/TOLE%20one%20pager_v4.pdf

NACTO. Transit Street Design Guide, National Association of City Transportation. Island Press. 2016.

New York Senate. 5608. Last modified 2015. <http://legislation.nysenate.gov/pdf/bills/2015/s5608a>

Nidirect Government Services. Enforcement of bus lanes and bus-only streets. Retrieved June 2018. <https://www.nidirect.gov.uk/articles/enforcement-bus-lanes-and-bus-only-streets>

NSW Government. "Camera Detected Penalty Notices." New South Wales. Last modified 2017. <http://www.revenue.nsw.gov.au/fines/pn/factsheet/camera-detected>.

NSW Government. "Bus Lanes." New South Wales Government. Accessed June 18, 2018. <http://www.rms.nsw.gov.au/roads/using-roads/buses/bus-lanes.html>.

NYCDOT. "M60 Select Bus Service on 125th Street." Community Board 9 Transportation Committee. Last modified 2015. <http://www.streetsblog.org/wpcontent/uploads/2015/01/2015-01-08-brt-125th-cb9.pdf>.

NYCT. "Bus Lane Camera Enforcement Update Report." New York City Department of Transportation. 2012.

Office of the Mayor. Bus Lane Rules. Accessed June 2018. <http://www.nyc.gov/html/brt/html/about/bus-lanes.shtml>

- Republic of Estonia. Ministry of Foreign Affairs and Communications. Last modified 2015.
https://ec.europa.eu/transport/sites/transport/files/themes/its/road/action_plan/doc/2014_ee_its_report_2014_en.pdf
- Roberts, Stanley. “How Did I Get This Ticket - People Behaving Badly - YouTube.” Last modified 2012.
https://www.youtube.com/watch?time_continue=12&v=u3S2MVQW_qs.
- Roberts, Stanley. “Transit Only Lane Enforcement - People Behaving Badly - YouTube.” Last modified 2012. https://www.youtube.com/watch?feature=player_embedded&v=bw58QBJju6s##KRON.
- Roberts, Stanley. “Geary’s Red Transit Only Lane - People Behaving Badly - YouTube.” Last modified 2014. <https://www.youtube.com/watch?v=xZmLgHb2r5Q>.
- Safran, Jeremy, Eric Beaton, and Robert Thompson. “Factors Contributing to Bus Lane Obstruction and Usage in New York City: Does Design Matter?” *Transportation Research Record: Journal of the Transportation Research Board*, no. 2418 (2014): 58–65.
- San Francisco Municipal Transportation Agency. *Automated Speed Enforcement Implementation: Survey Findings and Lessons Learned from Around the Country*. 2015.
- SFMTA. “SFMTA Transit only Lane Enforcement (TOLE) Pilot Program Evaluation.” San Francisco Municipal Transportation Agency. 2011.
- SFMTA. “Red Transit Lanes Final Evaluation Report.” San Francisco Municipal Transportation Agency. 2017.
- Smith, Max. “WTOP | DC Considers Adding Bus Lane Cameras on Top of Speed, Red Light Photo Tickets.” Accessed June 11, 2018. <https://wtop.com/dc-transit/2018/04/dc-considers-adding-bus-lane-cameras-top-speed-red-light-photo-tickets/>.
- Stricklin, Lizzie. D.C. officials consider removing bus stop at 21st Street and Penn Ave. *The GW Hatchet*. Last modified 2017. <https://www.gwhatchet.com/2017/10/11/d-c-officials-consider-removing-bus-stop-at-21st-street-and-penn-ave/>
- Tan, Christopher. 2015. “Onboard CCTV Cameras Help Keep Bus Lanes Clear.” *The Straits Times*. 2015. <https://www.straitstimes.com/singapore/transport/onboard-cctv-cameras-help-keep-bus-lanes-clear>.
- Traffic Regulations for the US Capitol Grounds. Washington DC: The Capitol Police Board. 2015.
- “Traffic Technology Today.” Last modified 2016.
<http://www.trafficechnologytoday.com/news.php?NewsID=59883>.
- Transportation Article § 21–810 of the Maryland Annotated Code. 2018.

Trimble, Megan. The 10 Cities With the Worst Traffic Congestion. US News and World Report. Last modified Feb. 6, 2018 <https://www.usnews.com/news/national-news/articles/2018-02-06/these-10-cities-have-the-worst-traffic-congestion>

Troy, Patrick. "Traffic Enforcement in the Digital Age." Intelligent Transport. Last modified 2006. <https://www.intelligenttransport.com/transport-articles/1908/traffic-enforcement-in-the-digital-age/>.

USDOT. "Value of Travel Time Savings Revision 2." Departmental Guidance for Conducting Economic Evaluations. 2015.

"Vehicle and Traffic Law - VAT § 1111-C." New York Consolidated Laws. N.d.

Washington Metropolitan Area Transit Administration. WMATA Compact: Amended 2009. 2009.

"WMATA." Washington Metropolitan Area Transit Authority. Last modified 2017. <https://www.wmata.com/>.

5 Appendices

5.1 APPENDIX A - DC MUNICIPAL REGULATIONS TITLE 18. VEHICLES AND TRAFFIC, CHAPTER 24. STOPPING, STANDING, PARKING, AND OTHER NON-MOVING VIOLATIONS.

Section 18-2409. RESTRICTED USE OF VALET STAGING ZONES, TAXICAB STANDS, AND PUBLIC TRANSIT BUS STOPS, ZONES, AND STANDS

2409.1 The Director may:

- (a) Prohibit parking and/or standing at public transit bus stops, zones, and stands; taxicab stands; and valet staging zones;
- (b) Determine the dimensions of the area where parking and/or standing at such stops, zones, and stands will be prohibited; and
- (c) Erect signs designating the areas where such parking and/or standing are prohibited.

2409.2 At locations where a bus stop sign is posted by WMATA or DC Circulator, but signs restricting parking at the bus stop are not posted, there shall be no parking or standing by vehicles other than a bus within eighty feet (80 ft.) of the approach side of a bus stop sign; provided, that a vehicle may stop momentarily to pick up or discharge a passenger or passengers; provided further, that the loading or unloading of materials is prohibited.

2409.3 Except as provided in Subsection 2409.4, no person shall stand or park a vehicle in a valet staging zone unless authorized to do so; in a public transit bus stop, zone, or stand, other than a public transit bus authorized to use the bus stop, zone, or stand; or in a taxicab stand, other than a taxicab authorized to use the taxicab stand.

2409.4 A driver of a passenger vehicle may stand in an area described in § 2409.3 for the purpose of and while actually picking up or discharging passengers, as long as such standing does not interfere with any vehicle, public transit bus, or taxicab, about to enter or exit the stop, stand, or zone designated for the use of such vehicle.

2409.5 The driver of a vehicle stopping in a stand, stop, or zone designated for public transit buses, taxicabs, or valet staging in accordance with § 2409.4, shall at all times remain with his or her vehicle.

2409.6 The prohibition against parking or standing at stops, zones, and stands designated for public transit buses, taxicabs, or valet staging shall be effective at all times, unless a less restricted time period is designated by an official sign.

Authority

Sections 5(3)(D) (allocating and regulating on-street parking and curb regulations) and 6(c) (transferring to the Department the authority and function to make traffic rules and regulations previously delegated to the Department of Public Works under Section IV(A) of the Reorganization Plan No. 4 of 1983, the Department of Transportation under Section IV(G) of Reorganization Plan No. 2 of 1975, and the Director of Highways and Traffic under Commissioner Order No. 68-554) of the Department of Transportation Establishment Act of 2002, effective May 21, 2002 (D.C. Law 14-137; D.C. Official Code §§ 50-921.04(3)(D) and 50-921.05(c) (2014 Repl.)).

5.2 APPENDIX B - DC Municipal Code, Title 18. Vehicles and Traffic, Chapter 22. Moving Violations

Section 2217.5/6 CLOSED STREETS, LOCAL ACCESS STREETS, PLAY STREETS, BUS LANES, AND BUS RESTRICTED STREETS

- 2217.5 No vehicle shall travel on those portions of streets designated as bus lanes by pavement markings or signage, except:
- (a) transit buses, tour buses, charter buses, and school buses;
 - (b) taxicabs that are in active passenger service;
 - (c) bicycles except pedicabs;
 - (d) paratransit service vehicles;
 - (e) authorized emergency vehicles; or
 - (f) as provided in § 2217.6.
- 2217.6 A vehicle may enter a designated bus lane within forty feet (40 ft.) of an intersection or driveway, to engage in a turn at that intersection or driveway.

5.3 APPENDIX C - Code of the District of Columbia, Title 50. Motor and Non-Motor Vehicles and Traffic., Chapter 22. Regulation of Traffic, Subchapter V. Automated Traffic Enforcement, Part A. General., § 50–2209.01. Authorized; violations as moving violations; evidence; definition.

(a) The Mayor is authorized to use an automated traffic enforcement system to detect moving infractions. Violations detected by an automated traffic enforcement system shall constitute moving violations. Proof of an infraction may be evidenced by information obtained through the use of an automated traffic enforcement system. For the purposes of this subchapter, the term “automated traffic enforcement system” means equipment that takes a film or digital camera-based photograph which is linked with a violation detection system that synchronizes the taking of a photograph with the occurrence of a traffic infraction.

(b) Recorded images taken by an automated traffic enforcement system are prima facie evidence of an infraction and may be submitted without authentication.

(c) An individual’s driver’s license or privilege to operate a motor vehicle in the District shall not be suspended for a violation detected by an automated traffic enforcement system for failure to:

- (1) Timely answer a notice of infraction;
- (2) Appear, without good cause, at a scheduled hearing; or
- (3) Timely pay any civil fine or penalty.

5.4 APPENDIX D - Code of the District of Columbia, Title 50. Motor and Non-Motor Vehicles and Traffic., Chapter 23. Traffic Adjudication, Subchapter III. Parking, Standing, Stopping and Pedestrian Infractions, § 50–2303.02a. Automated parking enforcement system.

(a) For the purposes of this subchapter, the term “automated parking enforcement system” means equipment that takes a film or digital camera-based photograph which is linked with a violation detection system that synchronizes the taking of a photograph with the occurrence of a parking infraction. Recorded images taken by an automated parking enforcement system are prima facie evidence of an infraction and may be submitted without authentication.

(b) The Mayor is authorized to use an automated parking enforcement system to detect parking infractions. Violations detected by an automated parking enforcement system shall constitute parking violations. Proof of an infraction may be evidenced by information obtained through the use of an automated parking enforcement system.

(c) Notwithstanding other provisions of law or regulation, citations resulting from an automated parking enforcement system shall be limited to warning citations during the first 45 days that automated parking enforcement is used on any given street sweeper route. The automated parking enforcement system program shall not be implemented.

5.5 APPENDIX E - Code of the District of Columbia § 5–201. United States watchmen to be known as United States Park Police; powers and duties.

The watchmen provided by the United States government for service in any of the public squares and reservations in the District of Columbia shall, after August 5, 1882, be known as the “United States Park Police.” They shall have and perform the same powers and duties as the Metropolitan Police of the District.

5.5.1 Code of the District of Columbia §5–208. Environs of the District of Columbia defined.

For the purposes of §5-206 to §5-208, the environs of the District of Columbia are hereby defined as embracing Arlington, Fairfax, Loudoun, Prince William, and Stafford Counties and the City of Alexandria in Virginia, and Prince George’s, Charles, Anne Arundel, and Montgomery Counties in Maryland.

The following regulations apply to all persons within the boundaries of federally owned land and water administered by the National Parks Service including:

(4) Lands and waters in the environs of the District of Columbia, policed with the approval or concurrence of the head of the agency having jurisdiction or control over such reservations, pursuant to the provisions of the Act of March 17, 1948 (62 Stat. 81).

5.5.1.1 §4.2 State law applicable.

(a) Unless specifically addressed by regulations in this chapter, traffic and the use of vehicles within a park area are governed by State law. State law that is now or may later be in effect is adopted and made a part of the regulations in this part.

(b) Violating a provision of State law is prohibited.

5.5.1.2 §4.21 Speed limits.

(d) An authorized person may utilize radiomicrowaves or other electrical devices to determine the speed of a vehicle on a park road. Signs indicating that vehicle speed is determined by the use of radiomicrowaves or other electrical devices are not required.⁸⁰

⁸⁰ Electronic Code of Federal Regulations Chapter 36, Part 1, Section 4, Retrieved June 2018
<https://www.ecfr.gov/cgi-bin/textidx?SID=abacc728d39b8f878a92311519042897&mc=true&node=pt36.1.4&rgn=div5>

5.6 APPENDIX F - Metro Transit Police Department

The WMATA compact provides information that details the reciprocation of Metro Transit Police with other police in the District. Metro Transit Police have some of the same authority as the District's Police Department, allowing them to take all necessary actions against transit violations. The passages containing pertinent information are provided below:

“The Authority is authorized to establish and maintain a regular police force, to be known as the Metro Transit Police, to provide protection for its patrons, personnel, and transit facilities. The Metro Transit Police shall have the powers and duties and shall be subject to the limitations set forth in this section. It shall be composed of both uniformed and plainclothes personnel and shall be charged with the duty of enforcing the laws of the Signatories, and the laws, ordinances and regulations of the political subdivisions thereof in the Transit Zone, and the rules and regulations of the Authority. The jurisdiction of the Metro Transit Police shall be limited to all the transit facilities (including bus stops) owned, controlled or operated by the Authority, but this restriction shall not limit the power of the Metro Transit Police to make arrests in the Transit Zone for violations committed upon, to or against such transit facilities committed from within or outside such transit facilities, while in hot or close pursuit or to execute traffic citations and criminal process in accordance with subsection (c) below. The members of the Metro Transit Police shall have concurrent jurisdiction in the performance of their duties with the duly constituted law enforcement agencies of the Signatories and of the political subdivisions thereof in which any transit facility of the Authority is located or in which the Authority operates any transit service. Nothing contained in this section shall either relieve any Signatory or political subdivision or agency thereof from its duty to provide police, fire and other public safety service and protection, or limit, restrict or interfere with the jurisdiction of or the performance of duties by the existing police, fire and other public safety agencies. For purposes of this section, “bus stop” means that area within 150 feet of a metrobus bus stop sign, excluding the interior of any building not owned, controlled or operated by the Washington Metropolitan Area Transit Authority.

(b) A member of the Metro Transit Police shall have the same powers, including the power of arrest, and shall be subject to the same limitations, including regulatory limitations, in the performance of his duties as a member of the duly constituted police force of the political subdivision in which the Metro Transit Police member is engaged in the performance of his duties. A member of the Metro Transit Police is authorized to carry and use only such weapons, including handguns, as are issued by the Authority. A member of the Metro Transit Police is subject to such additional limitations in the use of weapons as are imposed on the duly constituted police force for the political subdivision in which he is engaged in the performance of his duties.

(c) Members of the Metro Transit Police shall have power to execute on the transit facilities owned, controlled or operated by the Authority any traffic citation or any criminal process issued by any court of any Signatory or of any political subdivision of a Signatory, for any felony, misdemeanor or other offense against the laws, ordinances, rules or regulations specified in subsection (a). However, with respect to offenses committed upon, to, or against the transit facilities owned, controlled or operated by the WMATA Compact 31 As amended through August 2009 Authority, the Metro Transit Police shall have power to execute criminal process within the Transit Zone.”⁸¹

⁸¹ Washington Metropolitan Area Transit Administration. WMATA Compact: Amended 2009. 2009.

5.7 APPENDIX G - California Laws - Vehicle Code, DIVISION 17. OFFENSES AND PROSECUTION, CHAPTER 1. OFFENSES, Article 3.5. Procedure on Video Imaging of Parking Violations Occurring in Transit only Lanes

40240. (a) The City and County of San Francisco may install automated forward facing parking control devices on city-owned public transit vehicles, as defined by Section 99211 of the Public Utilities Code, for the purpose of video imaging of parking violations occurring in transit only traffic lanes. Citations shall be issued only for violations captured during the posted hours of operation for a transit only traffic lane. The devices shall be angled and focused so as to capture video images of parking violations and not unnecessarily capture identifying images of other drivers, vehicles, and pedestrians. (13911)

(b) Prior to issuing notices of parking violations pursuant to subdivision (a) of Section 40241, the City and County of San Francisco shall commence a program to issue only warning notices for 30 days. The City and County of San Francisco shall also make a public announcement of the program at least 30 days prior to commencement of issuing notices of parking violations. (13912)

(c) A designated employee of the City and County of San Francisco, who is qualified by the city and county to issue parking citations, shall review video image recordings for the purpose of determining whether a parking violation occurred in a transit only traffic lane. A violation of a statute, regulation, or ordinance governing vehicle parking under this code, under a federal or state statute or regulation, or under an ordinance enacted by the City and County of San Francisco occurring in a transit only traffic lane observed by the designated employee in the recordings is subject to a civil penalty. (13913)

(d) The registered owner shall be permitted to review the video image evidence of the alleged violation during normal business hours at no cost. (13914)

(e) (1) Except as it may be included in court records described in Section 68152 of the Government Code, or as provided in paragraph (2), the video image evidence may be retained for up to six months from the date the information was first obtained, or 60 days after final disposition of the citation, whichever date is later, after which time the information shall be destroyed. (13915)

(2) Notwithstanding Section 26202.6 of the Government Code, video image evidence from forward facing automated enforcement devices that does not contain evidence of a parking violation occurring in a transit only traffic lane shall be destroyed within 15 days after the information was first obtained. (13916)

(f) Notwithstanding Section 6253 of the Government Code, or any other provision of law, the video image records are confidential. Public agencies shall use and allow access to these records only for the purposes authorized by this article. (13917)

(g) For purposes of this article, "local agency" means the City and County of San Francisco. (13918)

(h) For purposes of this article, "transit only traffic lane" means any of the designated transit only lanes that were designated on or before January 1, 2008, on Beach Street, Bush Street, Clay Street, First Street, Fourth Street, Fremont Street, Geary Boulevard, Jefferson Street, Jones Street, Mission Street, Market Street, O' Farrell Street, Post Street, Potrero Street, Sacramento Street, Sansome Street, Stockton Street, Sutter Street, and Third Street. (13919)

(i) Video images captured pursuant to this article shall not be transmitted wirelessly. (13920)

40241. (a) A designated employee of the local agency shall issue a notice of a parking violation to the registered owner of a vehicle within 15 calendar days of the date of the violation. The notice of violation shall set forth the violation of a statute, regulation, or ordinance governing vehicle parking under this code, under a federal or state statute or regulation, or under an ordinance enacted by the City and County of San Francisco occurring in a transit only traffic lane, a statement indicating that payment is required within 21 calendar days from the date of citation issuance, and the procedure for the registered owner, lessee, or rentee to deposit the parking penalty or contest the citation pursuant to Section 40215. The notice of a parking violation shall also set forth the date, time, and location of the violation, the vehicle license number, registration expiration date if visible, the color of the vehicle, and, if possible, the make of the vehicle. The notice of parking violation, or copy of the notice, shall be considered a record kept in the ordinary course of business of the City and County of San Francisco and shall be prima facie evidence of the facts contained in the notice. The City and County of San Francisco shall send information regarding the process for requesting review of the video image evidence along with the notice of parking violation. (13921)

(b) The notice of parking violation shall be served by depositing the notice in the United States mail to the registered owner's last known address listed with the Department of Motor Vehicles. Proof of mailing demonstrating that the notice of parking violation was mailed to that address shall be maintained by the local agency. If the registered owner, by appearance or by mail, makes payment to the processing agency or contests the violation within either 21 calendar days from the date of mailing of the citation, or 14 calendar days after the mailing of the notice of delinquent parking violation, the parking penalty shall consist solely of the amount of the original penalty. (13922)

(c) If, within 21 days after the notice of parking violation is issued, the local agency determines that, in the interest of justice, the notice of parking violation should be canceled, the local agency shall cancel the notice of parking violation pursuant to subdivision (a) of Section 40215. The reason for the cancellation shall be set forth in writing. (13923)

(d) Following an initial review by the local agency, and an administrative hearing, pursuant to Section 40215, a contestant may seek court review by filing an appeal pursuant to Section 40230. (13924)

(e) The City and County of San Francisco may contract with a private vendor for the processing of notices of parking violations and notices of delinquent violations. The City and County of San Francisco shall maintain overall control and supervision of the program. (13925)

40242. Notwithstanding Section 7550.5 of the Government Code, if the City and County of San Francisco implements a parking enforcement pilot program pursuant to this article, no later than March 1, 2011, the City and County of San Francisco shall provide to the transportation committees of the Legislature an evaluation of the pilot program's effectiveness. (13926)

40243. This article shall remain in effect only until January 1, 2012, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2012, deletes or extends that date. (13927)

5.8 APPENDIX H – San Francisco Transportation Code - Division I, Article 7: Violations

SEC. 7.2.39. PARKING WITHIN TRANSIT ONLY LANES

To Park any vehicle such that any portion of the vehicle is within a transit only lane designated in Section [601](#) of [Division II](#). (53(a))*

SEC. 7.2.72. DRIVING IN TRANSIT ONLY AREA.

To operate a vehicle or any portion of a vehicle within the area of any street designated in [Division II](#) as a transit only area, except that public transit vehicles and taxicabs, vehicles preparing to make a turn, and vehicles entering into or exiting from a stopped position at the curb may be driven within a transit only area. (31, 31.2)*

SEC. 601. DESIGNATED TRANSIT ONLY AREAS.

(a) The locations listed in this Section [601](#) are designated as Transit only Areas. Any vehicle operating within a Transit only Area during times that the Transit only Area is enforced is in violation of Transportation Code, [Division I](#), Section [7.2.72](#) (Driving in Transit only Area).

(1) **Cable Car Lanes on Powell Street Between California Street and Sutter Street.** Except as to cable cars, Municipal Railway vehicles, and authorized emergency vehicles, no vehicle may operate within, over, upon or across the cable car lanes, or make any left or U-turn on the exclusive cable car lanes on Powell Street between California and Sutter Streets except to pass a disabled vehicle.

(2) **Cable Car Lanes On California Street (Eastbound) Between Powell Street and Grant Avenue and (Westbound) Between Stockton and Powell Streets.** Except as to cable cars, Municipal Railway vehicles, and authorized emergency vehicles, no vehicle may operate within, over, upon, or across the cable car lanes, or make any left or U-turn on the exclusive cable car lanes on California Street, eastbound, between Powell Street and Grant Avenue and westbound between Stockton and Powell streets,¹ except to pass a disabled vehicle.

(3) **West Portal Avenue Between 15th Avenue and Sloat Boulevard.** Except as to streetcars and Municipal Railway vehicles, no vehicle may operate within Transit only Areas on West Portal Avenue between 15th Avenue and Sloat Boulevard.

(4) **Exclusive Commercial Vehicle/Transit Area on Sansome Street.** Except as to buses, taxis, authorized emergency vehicles, bicycles, and commercial vehicles, no vehicle may operate within the Transit only Area running southbound on Sansome Street between Washington Street and Bush Street between the hours of 7AM – 8PM seven days a week.

(5) **Exclusive Commercial Vehicle/Transit Area on Sansome Street.** Except as to buses, authorized emergency vehicles, and commercial vehicles, no vehicle may operate within the Transit only Area running southbound on Sansome Street between Broadway and Washington Street between the hours of 6AM – 8PM seven days a week.

(6) **Judah Street, from 9th Avenue to 20th Avenue.** Except as to streetcars and Municipal Railway vehicles, no vehicle may operate within Transit only Areas on Judah Street from 9th Avenue to 20th Avenue.

(7) **Van Ness Avenue, from Filbert Street to Market Street.** Except as to Municipal Railway and Golden Gate Transit vehicles and authorized emergency vehicles, no vehicle may operate within the Transit only Areas on Van Ness Avenue from Filbert Street to Market Street.

(8) **Van Ness Avenue, from Filbert Street to Lombard Street.** Except as to Municipal Railway and Golden Gate Transit vehicles and authorized emergency vehicles, no vehicle may operate within the Transit only Areas on Van Ness Avenue from Filbert Street to Lombard Street southbound.

(9) **Van Ness Avenue, from Chestnut Street to 150 Feet North of Bay Street.** Except as to Municipal Railway and Golden Gate Transit vehicles and authorized emergency vehicles, no vehicle may operate within the Transit only Areas on Van Ness Avenue from Chestnut Street to 150 feet north of Bay Street northbound.

(10) **Van Ness Avenue, from North Point Street to Chestnut Street.** Except as to Municipal Railway and Golden Gate Transit vehicles and authorized emergency vehicles, no vehicle may operate within the Transit only Areas on Van Ness Avenue from North Point Street to Chestnut Street southbound.

(11) **South Van Ness Avenue, from Market Street to Mission Street.** Except as to Municipal Railway and Golden Gate Transit vehicles and authorized emergency vehicles, no vehicle may operate within the Transit only Areas on South Van Ness Avenue from Market Street to Mission Street.

(12) **Pine Street, from Market Street to Montgomery Street.** Except as to buses, vehicles preparing to make a turn, vehicles entering into or exiting from a stopped position at the curb, and vehicles entering into or exiting from a driveway, and authorized emergency vehicles, no vehicle may operate within the Transit only Areas on Pine Street from Market Street to Montgomery Street westbound between the hours of 3PM – 7PM Monday to Friday.

(13) **Jefferson Street, from Powell Street to Taylor Street and Jefferson Street from Jones Street to a point 150 feet west of Taylor Street.** Except as to streetcars and Municipal Railway vehicles, vehicles preparing to make a turn, vehicles entering into or exiting from a stopped position at the curb, and vehicles entering into or exiting from a driveway, no vehicle may operate within the Transit only Areas on Jefferson Street from Powell Street to Taylor Street, and from Jones Street to a point 150 feet west of Taylor Street in the westbound direction.

(14) **Jones Street, from Jefferson Street to Beach Street.** Except as to streetcars and Municipal Railway vehicles, no vehicle may operate within the Transit only Areas on Jones Street from Jefferson Street to Beach Street in the southbound direction.

(15) **Beach Street, from Jones Street to Grant Avenue.** Except as to streetcars and Municipal Railway vehicles, vehicles preparing to make a turn, vehicles entering into or exiting from a stopped position at the curb, and vehicles entering into or exiting from a driveway, no vehicle may operate within the Transit only Areas on Beach Street from Jones Street to Grant Avenue in the eastbound direction.

(16) **Duboce Avenue, from Church Street to Fillmore Street.** Except as to streetcars and Municipal Railway vehicles and bicycles, no vehicle may operate within the Transit only Areas on Duboce Avenue from Church Street to Fillmore Street in both directions.

(17) **McAllister Street, from Hyde Street to Charles J Brenham Place.** Except as to buses, taxis, authorized emergency vehicles, bicycles, and commercial vehicles, no vehicle may operate within the Transit only Areas on McAllister Street from Hyde Street to Charles J Brenham Place in the eastbound direction.

(18) **Haight Street, from Buchanan Street to Market Street.** Except as to Municipal Railway vehicles, no vehicle may operate within the Transit only Areas on Haight Street from Buchanan Street to Market Street in the eastbound direction.

(19) **Phelan Loop, near the intersection of Phelan Avenue and Ocean Avenue.** Except as to Municipal Railway vehicles, no vehicle may operate within the Transit only Areas on Phelan Loop.

(20) **Lincoln Way, from 20th Avenue to 19th Avenue.** Except as to Municipal Railway vehicles, no vehicle may operate within the Transit only Areas on Lincoln Way from 20th Avenue to 19th Avenue in the eastbound direction.

(21) **Other Transit only Areas.** Except for buses, taxicabs, vehicles preparing to make a turn, vehicles entering into or exiting from a stopped position at the curb, and vehicles entering into or exiting from a driveway, no vehicle may operate in the following Transit only Areas during the times indicated:

5.9 APPENDIX I - Article 24 – New York Vehicle and Traffic Law

S 1111-c. Owner liability for failure of operator to comply with bus lane restrictions

(a) 1. Notwithstanding any other provision of law, the city of New York is hereby authorized and empowered to establish a bus rapid transit demonstration program imposing monetary liability on the owner of a vehicle for failure of an operator thereof to comply with bus lane restrictions in such city in accordance with the provisions of this section. The New York City department of transportation or applicable mass transit agency, for purposes of the implementation of such program, shall operate bus lane photo devices only within such bus rapid transit demonstration program and on select bus service lanes in such city. Such bus lane photo devices may be stationary or mobile and shall be activated at locations determined by such department of transportation and/or on buses selected by such department of transportation in consultation with the applicable mass transit agency.

2. Any image or images captured by bus lane photo devices shall be inadmissible in any disciplinary proceeding convened by the applicable mass transit agency or any subsidiary thereof and any proceeding initiated by the department involving licensure privileges of bus operators. Any mobile bus lane photo device mounted on a bus shall be directed outwardly from such bus to capture images of vehicles operated in violation of bus lane restrictions, and images produced by such device shall not be used for any other purpose in the absence of a court order requiring such images to be produced.

3. The city of New York shall adopt and enforce measures to protect the privacy of drivers, passengers, pedestrians and cyclists whose identity and identifying information may be captured by a bus lane photo device. Such measures shall include:

(i) utilization of necessary technologies to ensure, to the extent practicable, that images produced by such bus lane photo devices shall not include images that identify the driver, the passengers, or the contents of the vehicle, provided, however, that no notice of liability issued pursuant to this section shall be dismissed solely because an image allows for the identification of the driver, the passengers or other contents of a vehicle;

(ii) a prohibition on the use or dissemination of vehicles' license plate information and other information and images captured by bus lane photo devices except: (A) as required to establish liability under this section or collect payment of penalties; (B) as required by court order; or (C) as otherwise required by law;

(iii) the installation of signage at regular intervals within restricted bus lanes stating that bus lane photo devices are used to enforce restrictions on vehicular traffic in bus lanes; and

(iv) oversight procedures to ensure compliance with the aforementioned privacy protection measures.

4. Within the city of New York, such bus lane photo devices shall only be operated on designated bus lanes that are select bus service lanes within the bus rapid transit demonstration program and only during weekdays from 7:00 a.m. to 7:00 p.m.

(b) If the city of New York has established a bus rapid transit demonstration program pursuant to subdivision (a) of this section, the owner of a vehicle shall be liable for a penalty imposed pursuant to this section if such vehicle was used or operated with the permission of the owner, express or implied, in violation of any bus lane restriction that apply to routes within such demonstration program, and such violation is evidenced by information obtained from a bus lane photo device; provided however that no owner of a vehicle shall be liable for a penalty imposed pursuant to this section where the operator of such vehicle has been convicted of the underlying violation of any bus lane restrictions.

(c) For purposes of this section, the following terms shall have the following meanings:

1. "owner" shall have the meaning provided in article two-B of this chapter.

2. "bus lane photo device" shall mean a device that is capable of operating independently of an enforcement officer and produces one or more images of each vehicle at the time it is in violation of bus lane restrictions.

3. "bus lane restrictions" shall mean restrictions on the use of designated traffic lanes by vehicles other than buses imposed on routes within a bus rapid transit demonstration program by local law and signs erected by the department of transportation of a city that establishes such a demonstration program pursuant to this section.

4. "Bus Rapid Transit Phase I plan" shall mean the following five bus rapid transit routes as designated by the New York city department of transportation: Fordham Road, First/Second Avenue, Nostrand Avenue, Thirty-Fourth Street, Hylan Boulevard, and an undesignated route in the borough of Queens not to exceed ten miles. For purposes of the Fordham Road and First/Second Avenue routes, the authorization of this pilot program is limited to the designated bus lanes as mapped and posted on the official metropolitan transportation authority website as of June seventeenth, two thousand ten. Such designated bus lanes shall not be extended, shifted to another roadway or altered in any other way. Provided, however, that nothing shall prohibit the alteration or addition of any bus stops within such mapped routes.

5. "select bus service lane" shall mean a designated bus lane that includes upgraded signage, enhanced road markings, and minimum bus stop spacing, and may include off-board fare payment, traffic signal priority for buses, and any other enhancement that increases bus speed or reliability within the "Bus Rapid Transit Phase I" plan.

6. "bus rapid transit demonstration program" shall mean a pilot program that operates exclusively on select bus service lanes within the "Bus Rapid Transit Phase I" plan pursuant to this section. Provided, however, to utilize a bus lane photo device pursuant to this program, the roadway, except for the 34th

Street and Nostrand Avenue bus rapid transit routes, must have at least two lanes of traffic in the same direction in addition to the select bus service lane.

7. "designated bus lane" shall mean a lane dedicated for the exclusive use of buses with the exceptions allowed under 4-12(m) and 4-08(a)(3) of title 34 of the rules of the city of New York.

(d) A certificate, sworn to or affirmed by a technician employed by the city in which the charged violation occurred, or a facsimile thereof, based upon inspection of photographs, microphotographs, videotape or other recorded images produced by a bus lane photo device, shall be prima facie evidence of the facts contained therein. Any photographs, microphotographs, videotape or other recorded images evidencing such a violation shall be available for inspection in any proceeding to adjudicate the liability for such violation pursuant to this section.

(e) An owner liable for a violation of a bus lane restriction imposed on any route within a bus rapid transit demonstration program shall be liable for monetary penalties in accordance with a schedule of fines and penalties promulgated by the parking violations bureau of the city of New York; provided, however, that the monetary penalty for violating a bus lane restriction shall not exceed one hundred fifteen dollars; provided, further, that an owner shall be liable for an additional penalty not to exceed twenty-five dollars for each violation for the failure to respond to a notice of liability within the prescribed time period.

(f) An imposition of liability pursuant to this section shall not be deemed a conviction of an operator and shall not be made part of the operating record of the person upon whom such liability is imposed, nor shall it be used for insurance purposes in the provision of motor vehicle insurance coverage.

(g) 1. A notice of liability shall be sent by first class mail to each person alleged to be liable as an owner for a violation of a bus lane restriction. Personal delivery to the owner shall not be required. A manual or automatic record of mailing prepared in the ordinary course of business shall be prima facie evidence of the facts contained therein.

2. A notice of liability shall contain the name and address of the person alleged to be liable as an owner for a violation of a bus lane restriction, the registration number of the vehicle involved in such violation, the location where such violation took place including the street address or cross streets, one or more images identifying the violation, the date and time of such violation and the identification number of the bus lane photo device which recorded the violation or other document locator number.

3. The notice of liability shall contain information advising the person charged of the manner and the time in which he or she may contest the liability alleged in the notice. Such notice of liability shall also contain a warning to advise the persons charged that failure to contest in the manner and time provided shall be deemed an admission of liability and that a default judgment may be entered thereon.

4. The notice of liability shall be prepared and mailed by the agency or agencies designated by the city of New York, or any other entity authorized by such city to prepare and mail such notification of violation.

5. Adjudication of the liability imposed upon owners by this section shall be by the New York city parking violations bureau.

(h) If an owner of a vehicle receives a notice of liability pursuant to this section for any time period during which such vehicle was reported to the police department as having been stolen, it shall be a valid defense to an allegation of liability for a violation of a bus lane restriction that the vehicle had been reported to the police as stolen prior to the time the violation occurred and had not been recovered by such time. For purposes of asserting the defense provided by this subdivision it shall be sufficient that a certified copy of the police report on the stolen vehicle be sent by first class mail to the parking violations bureau of such city.

(i) 1. An owner who is a lessor of a vehicle to which a notice of liability was issued pursuant to subdivision (g) of this section shall not be liable for the violation of a bus lane restriction, provided that:

(i) prior to the violation, the lessor has filed with such parking violations bureau in accordance with the provisions of section two hundred thirty-nine of this chapter; and

(ii) within thirty-seven days after receiving notice from such bureau of the date and time of a liability, together with the other information contained in the original notice of liability, the lessor submits to such bureau the correct name and address of the lessee of the vehicle identified in the notice of liability at the time of such violation, together with such other additional information contained in the rental, lease or other contract document, as may be reasonably required by such bureau pursuant to regulations that may be promulgated for such purpose.

2. Failure to comply with subparagraph (ii) of paragraph one of this subdivision shall render the lessor liable for the penalty prescribed in this section.

3. Where the lessor complies with the provisions of paragraph one of this subdivision, the lessee of such vehicle on the date of such violation shall be deemed to be the owner of such vehicle for purposes of this section, shall be subject to liability for such violation pursuant to this section and shall be sent a notice of liability pursuant to subdivision (g) of this section.

(j) If the owner liable for a violation of a bus lane restriction was not the operator of the vehicle at the time of the violation, the owner may maintain an action for indemnification against the operator.

(k) Nothing in this section shall be construed to limit the liability of an operator of a vehicle for any violation of bus lane restrictions.

(l) If the city of New York adopts a bus rapid transit demonstration program pursuant to subdivision (a) of this section it shall submit a report on the results of the use of bus lane photo devices to the governor, the temporary president of the senate and the speaker of the assembly by April first, two thousand twelve and every two years thereafter. Such report shall include, but not be limited to:

1. a description of the locations and/or buses where bus lane photo devices were used;

2. the total number of violations recorded on a monthly and annual basis;
3. the total number of notices of liability issued;
4. the number of fines and total amount of fines paid after the first notice of liability;
5. the number of violations adjudicated and results of such adjudications including breakdowns of dispositions made;
6. the total amount of revenue realized by such city and any participating mass transit agency;
7. the quality of the adjudication process and its results;
8. the total number of cameras by type of camera;
9. the total cost to the city and the total cost to any participating mass transit agency; and
10. a detailed report on the bus speeds, reliability, and ridership before and after implementation of the bus rapid transit demonstration program for each bus route, including current statistics.

5.10 APPENDIX J - The Bus Lanes Order 2018, Belfast City Center

Prohibitions on traffic 3. Subject to Article 4 and save as provided in Article 5, a person shall not, during the hours between 7.00 a.m. to 7.00 p.m. on the days Monday to Saturday inclusive, except upon the direction or with the permission of a constable in uniform, cause or permit any vehicle other than a bus, cycle, motor cycle or permitted taxi to enter, proceed or wait in a bus lane. Restriction of waiting 4. A bus, cycle, motor cycle or permitted taxi may only wait in a bus lane to enable a person to board or alight from the vehicle and the period of waiting shall not exceed two minutes. Exceptions 5. The prohibitions in Article 3 shall not render it unlawful for any person to cause or permit any vehicle to enter, proceed or wait in a bus lane so far as such entry, proceeding or waiting is reasonably necessary for the avoidance of an accident or to enable the vehicle to be used— (a) in an emergency by a medical practitioner, or for police, military, fire and rescue or ambulance purposes; or (b) in the services of the Department in pursuance of its statutory powers or duties; or (c) by or on behalf of the Northern Ireland Transport Holding Company(d); or (d) for any of the following operations provided that they can be conveniently carried out only from the bus lane— (i) in an emergency in connection with the laying, erection, alteration or repair of any electronic communications apparatus as defined in Schedule 2 to the Telecommunications Act 1984(e); or (ii) by or on behalf of the holder of a licence granted under Article 10 of the Electricity (Northern Ireland) Order 1992(f) or a licence granted under Article 8 of the Gas (Northern Ireland) Order 1996(g) in an emergency in connection with the discharge of the holder’s functions within the bus lane or an area accessible only from the bus lane; or (iii) by or on behalf of a sewerage undertaker or a water undertaker in an emergency in connection with the discharge of that undertaker’s functions within the bus lane or an area accessible only from the bus lane; (iv) in the services of a district council in pursuance of its statutory powers or duties within the bus lane or an area accessible only from the bus lane between the hours of 10.00 a.m. and 2.00 p.m.; or (v) by or on behalf of a universal service provider, as defined in section 4(3) and (4) of the Postal Services Act 2000(a), for the purposes of the delivery of postal packets, as defined in section 125 of that Act, to or collection from premises adjacent to or accessible only from the bus lane between the hours of 10.00 a.m. and 2.00 p.m.; or (vi) in connection with building, repair or demolition work at premises adjacent to or accessible only from the bus lane between the hours of 10.00 a.m. and 2.00 p.m.; (e) for access to or from premises adjacent to or accessible only from the bus lane; or (f) for access to or from a lay-by adjacent to or accessible only from the bus lane; or (g) for the removal of any obstruction to traffic.

5.11 APPENDIX K - Provisional Guidance on Bus Lane Enforcement outside of London

<http://webarchive.nationalarchives.gov.uk/20111005163411/>

http://www.dft.gov.uk/pgr/regional/buses/gen/coll_provisionalguidanceonbuslan/isionalguidanceonbuslane3570.pdf