Executive Summary

The New York City Motorcycle Safety Study is a comprehensive study which examines the state of motorcycle safety within the five boroughs. The New York City Department of Transportation ("DOT") carefully examined the available data to determine the who, when, where and how of motorcycle crashes in New York City. The report authors worked closely with partner agencies and DOT staff to craft a set of goals and recommendations aimed at increasing safety and reducing the number of serious injuries and fatalities resulting from motorcycle crashes.

In 2015, New York City recorded its fewest number of motorcyclist fatalities since 1998. However, DOT believes more can be done to understand the causes behind motorcycle deaths, and to increase safety for motorcyclists and other users on New York City Streets.

A review of motorcycle crash data in New York City, in addition to a review of literature and an examination of recent fatal motorcycle crashes reveals that:

Motorcyclists in New York City are at disproportionate risk of death

- Only 2 percent of registered vehicles in New York City are motorcycles, yet from 2010-14, motorcyclists accounted for 14 percent of traffic fatalities in New York City.
- New York City's fatal crash rate for motorcyclists is nearly twice rate for New York State motorcyclists.

Who

- 43 percent of fatality cases involved a motorcycle rider who was not properly licensed to operate the vehicle.
- 56 percent of motorcycle rider fatalities were under the age of 35.
- Nearly 100 percent of motorcycle fatalities are male riders.

When

- Motorcycle injury crashes are more likely to occur during afternoon or evening hours, and on weekends.
- The number of motorcycle injury crashes increases dramatically during summer months.
- Excessive alcohol use was less prevalent in motorcycle riders involved in fatal crashes than in most motor vehicle driver fatalities in New York City, or in national motorcycle rider fatalities.

Where

- Unlike pedestrian and motor vehicle KSI (Killed or Seriously Injured) crashes, motorcycle KSI crashes reveal few crash “hotspots.”
- The majority of motorcycle fatality crashes occur on city streets, rather than highways.

How

- Motorcycle injury crashes are likely to involve another vehicle, not only the motorcycle rider.
- The collision types most often cited in motorcycle injury crashes indicate that visibility is an issue for motorcyclists and motor vehicle drivers

Based on the findings of this study, DOT recommends a number of actions aimed at decreasing the number of motorcycle fatalities and serious injuries:

- Develop a motorcycle focused safety campaign which targets safety messages to motorcyclists and other motor vehicle riders
- Conduct motorcycle safety outreach to the motorcycling community
- Implement strategic communication plan in conjunction with New York City Police Department (NYPD) on motorcycle safety issues
- Work with the NYPD to devise and implement a tactical enforcement strategy to reduce motorcycle crashes
- Improve data collection and sharing techniques with the NYPD and other agencies
- Partner with lawmakers as well as Federal and State agencies to enact policies aimed at reducing fatalities and serious injuries resulting from motorcycle crashes.

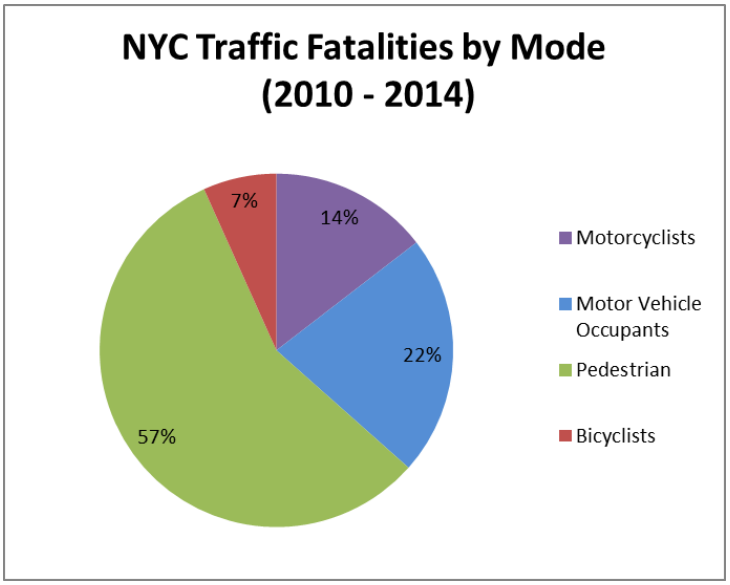
Introduction

Motorcycle riders in New York City face more risks than typical motorists. Motorcycles inherently provide less physical protection for riders, and are less stable and more difficult to operate than most four-wheeled vehicles. Motor vehicle drivers may also have trouble seeing motorcyclists and may not be prepared to encounter them on the roadway.[1] [2]

From 2010 to 2014, motorcyclists accounted for 14 percent of traffic fatalities in New York City, but represent two percent of registered motor vehicles. Also, motorcyclist fatalities have not decreased in New York City at the same rate as other modes. These numbers suggest that motorcyclists are at disproportionate risk of death or serious injury on New York City streets.

Motorcyclists face similar safety challenges across the U.S. In 2014, there were 4,586 motorcycle fatalities in the United States, accounting for 14 percent of all U.S. traffic fatalities.[3]

Based on the disproportionate risk motorcyclists face on New York City streets, and the general risks they face as a vulnerable road user, DOT set out to examine the who, where, when and how of motorcycle crashes, and to craft recommendations intended to reduce or eliminate motorcycle fatalities and serious injuries on New York City streets.



Methodology

Preliminary data analysis was conducted using the NYSDOT/NYSDMV Accident Database and the NYCDOT/NYPD Reconciled Fatality Database to identify overall trends in motorcycle safety. Unless otherwise noted, the New York City fatality (NYCDOT/NYPD) and injury crash data (NYSDOT) is from the 2010 to2014 time period. New York City Vehicle Registration Data (NYSDMV) is also 2010 to2014 data unless otherwise noted.

In addition to this analysis, DOT conducted field observations and reviewed Medical Examiner records and CIS fatality reports with the assistance of the New York City

Department of Health and Mental Hygiene and the New York City Police Department. This process, which allowed DOT to obtain data concerning Blood Alcohol Content (BAC) of motorcyclists involved in fatal collisions, included securing permission for the investigation, development of an electronic abstraction form, implementation of privacy/security measures, and data abstraction on site at the NYC Office of the Chief Medical Examiner.

The following definitions apply to terms used throughout this report: The motorcycle rider is the person operating the motorcycle; the passenger is a person seated on, but not operating, the motorcycle; the motorcyclist is a general term referring to either the rider or the passenger. This language is adopted directly from the NHTSA "Traffic Safety Facts" publication on Motorcycles.

Findings

1. Motorized Two-Wheelers in New York City

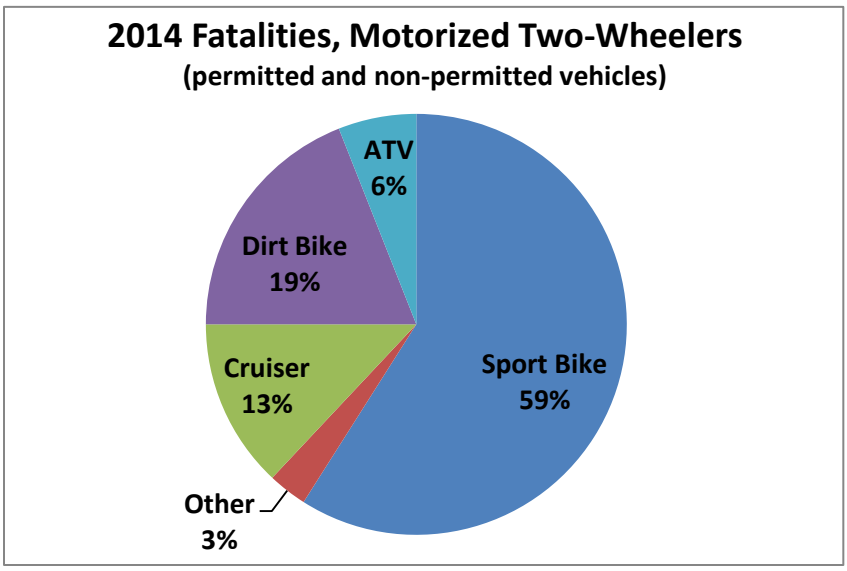
At the onset of the study, DOT investigated the different types of motorized two-wheelers present on New York City streets. This includes motorcycles, mopeds, and also non-permitted vehicles (which may have more than two wheels) such as electric bicycles and All-Terrain Vehicles (ATVs). DOT also examined statistics related to the motorcycle vehicle registrations in New York City, and compared them with the U.S.

For the purposes of this report, DOT has categorized "permitted" motorcycles into two categories; Cruisers and Sport Bikes. "Cruisers" are defined as vehicles which generally have the rider seated upright, with the feet forward and the hands up. "Sport Bikes" are defined as vehicles which are built for greater speed and acceleration, and where the rider is generally leaning forward and their feet are tucked behind them.

1.1 Types of Vehicles

Motorized two-wheelers account for a small percentage of registered vehicles in New York City, but have also increased in recent years. This growth rate is similar to what is occurring across the nation.

The New York State Department of Motor Vehicles (NYSDMV) reports that motorized two-wheeled vehicles (motorcycles and mopeds) account for only 2 percent of all New York City vehicle registrations. In comparison, according to the



Federal Highway Administration, motorcycles accounted for about 3 percent of all vehicles registrations in the United States. However, the number of registrations in New York City and the U.S. are on the rise. Motorcycle registrations in the United States have increased by 5 percent from 2010 to 2014. In the same period, motorcycle and moped registrations have increased by 9 percent in New York City.

It should be noted that a wide variety of motorized two-wheelers or small motorized vehicles are present on New York City streets. These vehicles, such as dirt bikes, electric bicycles and All-terrain vehicles (ATVs), are not legal to operate in the five boroughs of New York City. Nonetheless, these vehicles are present on our streets and often become entangled with data associated with motorcycle crashes. An examination of photos of motorized two-wheelers involved in fatality crashes in 2014 found that the majority of vehicles were "sport bikes", but over a quarter were vehicles which are illegal to operate on New York City streets.[4]

1.2 Commuting and Mode Share

Motorcycles account for a very small percentage of commuting trips in both New York City and the U.S. In 2014, New York City's motorcycle commute-to-work trips accounted for only 0.1 percent of daily commutes.[i] Fewer people use motorcycles to commute in New York City than the U.S. at large, where 0.2 percent of all daily commute to work trips occur by motorcycle.[5]

NYC Transportation Mode	Share of Commute-to-Work Trips
Public Transportation	56%
Car / Truck / Van	27%
Walking	10%
Bicycle	1%
Motorcycle	0.1%
Other	5.9%

2. Motorcycle Fatalities in New York

Though motorcycles account for a small percentage of overall vehicle registrations, and an even smaller number of commuting trips, they continue to be over-represented in fatality and serious injury numbers in New York City. From 2010 to 2014, there were

[i] This data does not account for motorcycle trips taken for recreational purposes

197 motorcyclists killed in crashes. Motorcyclists accounted for 14 percent of all traffic fatalities and 7 percent of serious injuries in New York City during this period.

New York City's fatal crash rate for motorcyclists (89 per 100,000 registered motorcycles) is nearly twice the fatal crash rate for New York State motorcyclists outside New York City (46 per 100,000 registered motorcyclists) and significantly higher than the national rate (56 out of every 100,000 registered motorcyclists).

Motorcycle crashes sometimes also result in a fatality for a passenger riding on the motorcycle. These instances, however, are fairly rare; only 10 motorcycle passengers were killed in crashes from 2010 to 2014, or about 5 percent of all motorcyclist fatalities during this period.

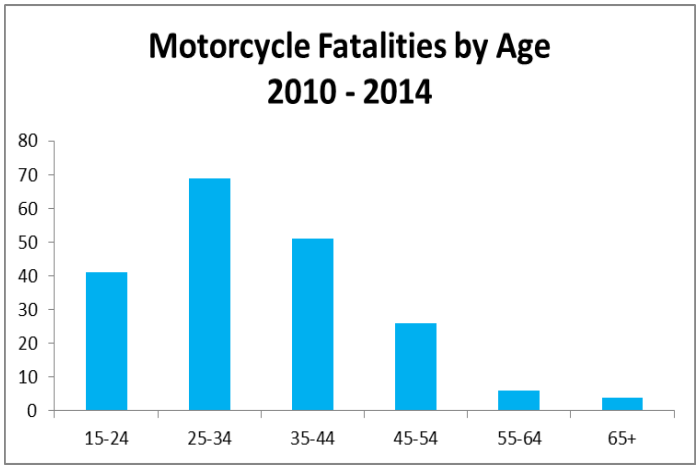
3. Motorcyclist Injury and Fatality Crash Characteristics

DOT examined motorcyclist injury crash and fatality records, from 2010 through 2014 to determine the demographics of this population.

3.1 Age & Gender

Based on DOT's analysis, motorcyclist fatalities are likely to be young adults. 56 percent of motorcyclist fatalities were under the age of 35.

This age concentration is distinct from the trends seen in the rest of the country. During the same period of analysis in the U.S., motorcyclist fatalities were more likely to be middle aged; only 36 percent of motorcyclist fatalities were under the age of 35, and 57 percent where between the ages of 35 to 64.[6]



Motorcycle rider fatalities in New York City are overwhelmingly male; 98 percent of motorcyclist rider fatalities during the period of analysis were male. This trend is similar, but more pronounced in motor vehicle fatalities, where 88 percent of driver (excluding motorcycle) fatalities were male.

Of the 10 motorcycle passengers who were killed from 2010-14, 8, or 80 percent, were female. This shows a sharper gender imbalance than in all motor vehicle passenger (excluding motorcycle) fatalities; where about 53 percent of fatalities were female.

Based on the analysis of these demographic measures, a picture of the typical motorcycle crash victim emerges as an individual more likely to be a young male. This raises the question of whether other factors, such as lack of training or experience, may be contributing to the high risk levels for this group.

3.3 Licensing and Registration

Based on a review of Collision Investigation Squad (CIS) reports from motorcycle fatality cases, DOT found that unlicensed motorcycle riders make up a large proportion of fatality cases. From 2010 to 2014, about 43 percent[ii] of motorcyclists killed in collisions were unlicensed or not properly licensed for their class of vehicle. [iii] Licensing for motorcyclists is a problem nationally as well—NHTSA reports that 28 percent of motorcyclist fatalities in 2014 were unlicensed. [7]

The number of unlicensed motorcyclists points to a number of possible issues. Motorcyclists who are unlicensed are most likely riding without the proper testing and training required under New York State Law. It is unclear whether or not unlicensed drivers are unaware of the requirements for operating a motorcycle, or are choosing not to obtain licenses.

3.4 Race & Ethnicity

Persons involved in fatal motorcycle crashes generally resemble the racial and ethnic composition of motor vehicle occupant fatalities in New York City.

For example, 37 percent of New York City residents are foreign born. According to a New York City Department of Health and Mental Hygiene ("NYC DOHMH") analysis 32 percent of motorcyclist rider fatalities were foreign born and 30 percent of motor vehicle occupants killed in crashes were foreign born during the same period of analysis.

Notably, Non-Hispanic Blacks accounted for the highest percentage of motorcycle rider fatalities in the NYC DOHMH analysis, at 37 percent, despite accounting for only 25 percent of the New York City population, and only 22 percent of Motor Vehicle fatalities.[8] [9]

[ii] Percent of cases where data was known

[iii] In New York State, Motorcyclists must have a class "M", "MJ" Motorcycle license or learners permit. See http://dmv.ny.gov/org/driver-license/nys-driver-license-classes for more information.

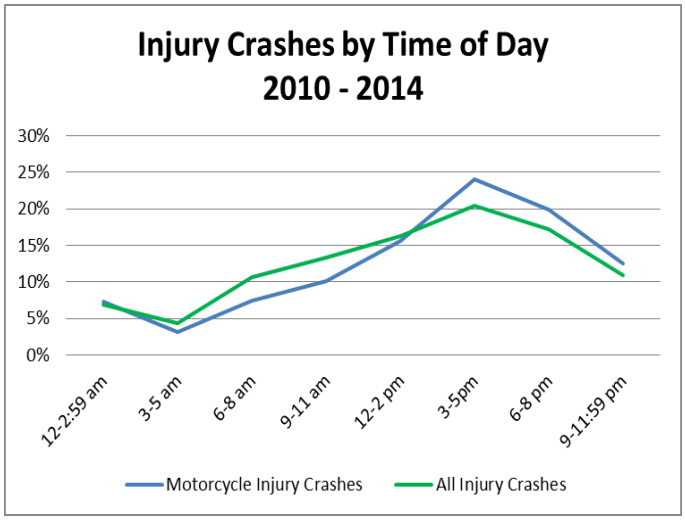
4. Motorcycle Crash Characteristics

4.1 When Crashes Occur

Motorcycle injury crashes were examined for time of day, day of week, and seasonality. Crashes were examined on their own and in comparison to injury crashes for all modes. A study of these variables revealed that motorcyclist crashes with injuries occur more commonly in the afternoon/evening, on weekends, and during warmer months. These findings indicate that these crashes are likely correlated with recreational, as opposed to commuting trips.

Time of Day

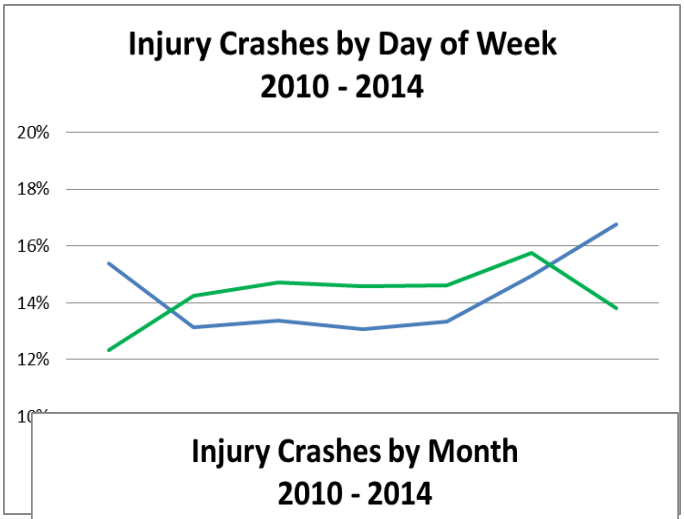
Motorcycle injury crashes are most likely to occur during afternoon and evening hours. 56 percent of these crashes occurred after 3pm. This distribution is similar, but more pronounced than the distribution for all injury crashes, 48 percent of which occurred after 3pm. Since travel in the afternoon and evening is more likely to be related to recreation, this may suggest a relationship to recreational trips and motorcycle crashes.



Day of Week

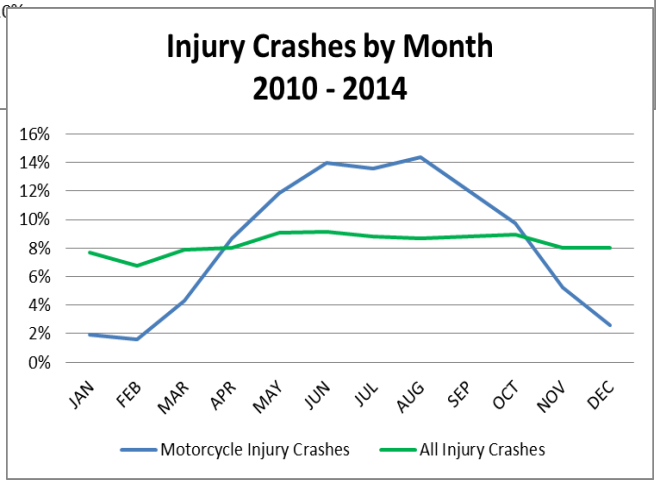
Motorcycle injury crashes are significantly more likely to occur on weekends. Friday, Saturday, and Sunday have the highest percentage of crashes, with 47 percent of the total.

This reflects an inverse pattern from the trend seen in injury crashes for all modes, where crashes are more likely to occur on weekdays.



Seasonality

NYCDOT/NYPD data also shows that motorcycle injury crashes are much more likely to occur during warmer months.



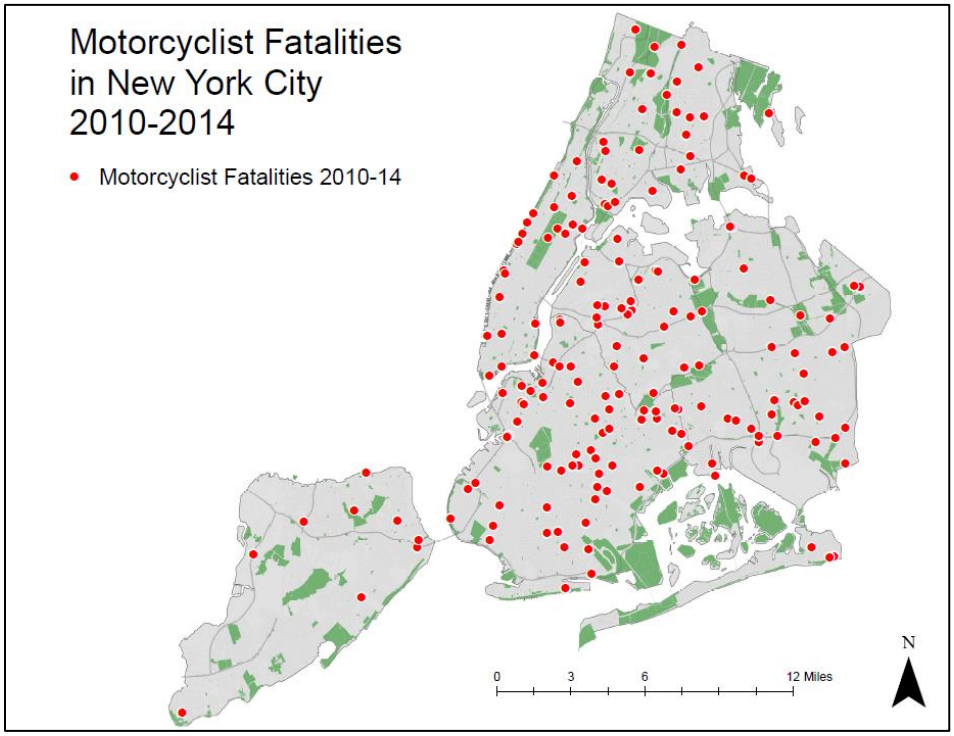
August has the highest number of motorcycle injury crashes, and 42 percent of all motorcycle injury crashes occur during June, July, and August.

This seasonal pattern is distinct from injury crashes for all modes, where the number of crashes is relatively evenly distributed from month to month.

Taken together, these three variables support a hypothesis that many riders involved in crashes are riding for recreational, rather than commuting purposes.

4.2 Location and Roadway Type

In order to determine if there was a geographic concentration of motorcycle crashes, NYCDOT mapped motorcycle fatalities using GIS software. This method has proven useful in determining crash prone intersections or corridors for other modes in New York City, especially for pedestrians. However, an analysis of motorcycle fatal and severe injury crash data revealed that these crashes tend to be fairly evenly distributed across the City. Unlike fatal and serious injury pedestrian crashes, a hotspot analysis does not provide much insight into how to increase safety for motorcyclists.



An analysis was also conducted of the number of motorcycle fatalities in each borough based on the total number of motorcycle registrations per borough. The Bronx and Brooklyn had the highest rate of motorcycle fatalities based on the number of registrations. Queens and Staten Island had the highest rate of fatalities by population.

Motorcycle Fatality Rate per registration

Borough	MO Fatalities	Population	Registrations	Rate*
Manhattan	23	1,618,398	8,758	2.6
Bronx	27	1,413,566	4,038	6.7

Brooklyn	62	2,570,801	10,338	6.0
Queens	66	2,280,602	13,237	5.0
Staten Island	9	471,522	5,623	1.6
NYC	**187**	**8,354,889**	**41,993**	**4.5**

*per 1,000 registrations

Most fatal motorcyclist crashes in New York City occur on local roads, and not highways.[iv] During the study period, 2010-2014, 77 percent of motorcyclist fatality crashes occurred on local roads, while 23 percent took place on highways. Similarly, 81 percent of all motorcycle fatalities nationally that occurred in in urban areas during the same period were on local roads.[10].

4.3 Collision Types

As part of the analysis, DOT examined NYPD injury crash reports where a motorcycle was involved for the recorded causes of the collisions. It should be noted that when multiple vehicles are involved, the data does not indicate which vehicle was making the movement in question. The following chart illustrates the most common vehicle movements in these injury crashes.

Commonly Cited Causes in Motorcycle Injury Crashes*

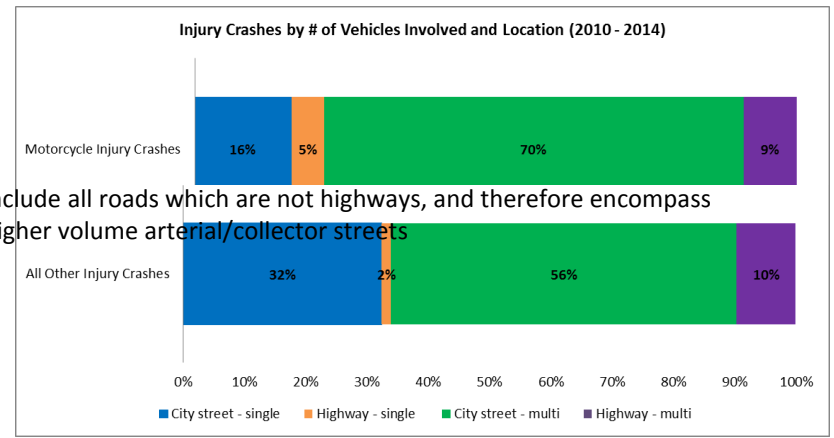
Vehicle movement	Vehicle Type Motorcycle injury crashes	 All other Motor Vehicle injury crashes
Overtaking	14%	6%
Rear End	12%	20%
Right Angle	11%	11%
Left Turns	10%	4%

NYSDOT 2010-14

*Injury crashes as a percent of known crashes

Overtaking, when a vehicle tries to pass another vehicle, was the cited cause in 14 percent injury crashes, but only 6 percent of all other motor vehicle injury crashes. Right angle and left turn movements also accounted for a significant percentage of motorcycle injury crashes. This data most likely indicates that visibility, the interaction of vehicles which are mismatched in size, and motor vehicle driver awareness of motorcycles are issues contributing to motorcycle injury crashes.

Another finding pointing to poor visibility as a contributing factor is that motorcyclists are more likely



[iv] For the purposes of this study, local roads include all roads which are not highways, and therefore encompass both low volume neighborhood streets and higher volume arterial/collector streets

than other vehicles to be involved in multi-vehicle (two or more vehicle) injury crashes. This indicates that rather than simply losing control of their bike, motorcycle injury crashes usually involve an interaction between one or more other vehicles.

5. Other Factors

The factors discussed below were also examined to complete the profile of motorcycle fatalities and serious injuries in New York. This data was not available in the standard NYPD crash data, and was obtained from the New York City Department of Health and Mental Hygiene.

5.1 Alcohol Use

Alcohol use is often highlighted as a major issue contributing to motorcycle fatalities nationwide. In 2014, 30 percent of all fatally injured motorcycle riders in the U.S. had Blood Alcohol Content (BAC) levers over the legal limit of .08.[11]

In New York City, only about 14 percent of motorcycle rider fatalities who were tested had a BAC over the legal limit of .08, and about 17 percent had a BAC greater than or equal to .05. Motor vehicle rider fatalities that were tested over the same period had a BAC over the legal limit in 39 percent of cases. [12] This data shows that, while alcohol consumption is a contributing factor for motorcycle rider fatalities, the problem appears to be a less prominent contributing factor than in other parts of the U.S., and less of a factor than in other fatality cases in New York City.

5.2 Helmet Use

NYCDOT also examined the presence of helmets in motorcycle fatality cases. According to NHTSA, helmets are estimated to be about 37 percent effective in preventing fatal injuries for motorcycle riders and 41 percent effective for motorcycle passengers.

Where data was known for New York City fatality cases, 93 percent of motorcycle rider fatalities were wearing a helmet. However, of these, 25 percent were not wearing a USDOT approved helmet or did not have the helmet properly fastened. In 29 percent of all cases, the data was “unknown” or not recorded.[13] The percent of motorcyclists involved in fatal crashes on a national level who were wearing helmets is considerably lower. According to NHTSA, only 62 percent of motorcycle riders in 2014 (where data was known) were wearing helmets at the time of a fatal collision.[14]

6. Field Observations

Along with the data analysis which contributed to this report, NYCDOT conducted a number of field surveys. These observations allowed for better understanding of how

motorcycles and other motorized two-wheelers are used on a daily basis on New York City streets.

Sample Counts were conducted at the following locations:

- Williamsburg Bridge, EB and WB approaches
- Brooklyn Bridge, EB and WB approaches
- 10th Avenue, Manhattan (between West 17th & West 18th St)

DOT observed a number of characteristics during these surveys. Helmet use was very high, with 99 percent of motorcyclists observed wearing helmets. However, it is unknown what percentage of these helmets were USDOT approved helmet models. Additionally, 94 percent of motorcyclists observed had daytime running lights and 83 percent were using protective eyewear.

NYCDOT also observed a diverse mix of motorized two wheelers in use. The most commonly observed vehicle type was the "cruiser" style motorcycle.

Vehicle Type	Percentage
Scooter	28%
Cruiser	44%
Sport	27%
Other	1%

Recommendations

Based on the data collection, analysis, and outreach conducted as part of this study; NYCDOT developed a set of recommendations aimed at addressing motorcycle safety in New York City. These recommendations are intended to work towards reducing the number of motorcycle fatalities and severe injuries, and to educate the motorcycling community and general public in New York City about methods of reducing the risk of motorcycle travel.

In keeping with NYCDOT's "Vision Zero" policy, these recommendations use a multi-pronged approach to road safety, covering Education, Enforcement, and Policy. Engineering recommendations were examined but ultimately not included in this report because of the difficultly of targeting improvements for vehicles which represent a small overall mode share. However, as part of the ongoing Vision Zero initiative, NYCDOT will continue to pursue engineering projects which improve safety for all modes.

These recommendations were developed in partnership with multiple agencies, including the NYPD and NYC DOHMH. DOT plans to continue to partner with these agencies in order to ensure the future safety of all road users.

Education & Marketing

Develop Motorcycle Focused Safety Marketing Campaign

NYCDOT will seek to develop a targeted, motorcycle focused safety marketing campaign. The campaign would use media tools such as radio, print advertisements and materials, and social media. The motorcycle campaign could be done in conjunction with NYCDOT's efforts surrounding the Vision Zero initiative, which is already focused on reducing the number of traffic fatalities and serious injuries on New York City streets.

To ensure the effectiveness of a motorcycle focused campaign and distinguish it from other NYCDOT campaigns, the marketing plan should be developed in such a way that addresses the main issues which contribute to motorcycle fatalities and serious injuries. Based on the findings of this report, driver age and inexperience are common factors contributing to motorcyclist fatalities. Additionally, since many motorcycle injury crashes involve multiple vehicles, general driver awareness of motorcycles must be targeted as well. Therefore, the marketing campaign should deliver messages targeted at these populations.

The motorcycle safety outreach campaign would follow the model of past NYCDOT campaigns which have successfully raised awareness about other issues, such as the danger of high vehicle speeds. When possible, the campaign would also spread awareness about Vision Zero, New York City's initiative to eliminate traffic deaths.

Deliver Targeted Safety Messages to Motorcycle and Vehicle Drivers

In conjunction with the proposed marketing campaign, NYCDOT should find other ways to deliver targeted safety messages to motorcyclists and other road users. Tools such as Variable Message (VMS) boards placed at strategic locations have been deployed successfully in the past for other safety campaigns, and could be used in this case to remind motorcyclists and motorists alike to take the proper precautions. Though motorcycle crash "hotspots" and motorcycle commuting routes are more difficult to identify than those for other modes, such as cyclists, the boards could be placed on the most highly used vehicle routes, such as bridge entrances and major arterial streets. Distribution of informational materials to other civic, religious and education institutions has also proved a successful method, and could be applied here.

Similarly, these tools should be deployed in ways designed to reach the populations found to be at risk. Due to the seasonal and recreation nature of motorcycle use, efforts should be concentrated just prior to and during summer months. Distribution of education materials and other information should be focused on groups who serve young people; particularly young males.

Case Study: The DOT LOOK safety campaign

The "LOOK" safety campaign was launched by DOT in fall 2012, in partnership with the U.S. Department of Transportation. The campaign used a combination of innovative street markings, advertising and other materials to raise awareness of pedestrian and cyclist safety on New York City Streets. Print advertisements were used with messages urging pedestrians and cyclists to be aware of their surroundings. Additionally, distinctive markings were developed to be placed in the crosswalks in the pedestrian's line of sight. The print advertisements and markings were jointly deployed across the five boroughs at targeted locations.

The campaign also focused on raising awareness of cyclist "dooring" crashes, where a cyclist is hit by a vehicle door being opened. The campaign was developed in partnership with the Taxi and Limousine Commission (TLC), and developed "LOOK for Cyclist" decals to be placed on the city's Taxi Fleet.

An advertisement placed in bus shelters as part of the DOT "LOOK" safety campaign

Conduct Outreach

Based on the findings of this report DOT will seek to conduct targeted outreach at the motorcycling community and general public. This outreach could take place at public events, focusing on those which occur during the summer months and attract the demographic groups most likely to be involved in serious motorcycling crashes. These events could include festivals, block parties, major sporting events, and parades.

Additional outreach could be conducted with clubs or organizations whose specific mission is to serve the motorcycling community, or who are identified as having a large number of members who could benefit from exposure to safety education information.

DOT would coordinate outreach efforts internally, as well as with the NYPD and other city agencies.

Case Study-Texas Motorcycle Safety Campaign

Though few cities have the resources to mount targeted motorcycle safety campaigns, several states in the U.S. have been on the forefront of this effort, using media and other tools to promote motorcycle safety awareness.

"Look Learn Live" is a motorcycle safety awareness campaign developed by a partnership between the, the Texas Department of Transportation (TxDOT), Texas Department of Public Health (TxDPS), and the Texas A&M Transportation Institute (TTI). The project works to develop and distribute education materials and marketing messages aimed at both drivers and motorcyclists to improve safety and reduce the number of crashes and injuries. The campaign maintains a website with information and also utilizes social media outlets such as Facebook and Twitter to distribute safety tips, publicize events, and share other information.

The program is notable in that it focuses strongly on motor vehicle driver awareness, rather than motorcyclist's behavior alone. The "Look Learn Live" title is intended to represent multiple issue areas, with "Look" representing driver awareness, "Learn" representing motorcycle operator education, and "Live" focusing on discouraging riding while impaired by alcohol or other substances.

Enforcement

Though a better informed public is an important step towards increasing motorcycle safety, some segment of the population will continue to disobey traffic laws. Therefore, a strong program of deterrence is necessary to enforce traffic laws and ensure that unlicensed motorists are not operating on New York City streets. The NYPD, in furtherance of Vision Zero, has already begun to implement a successful enforcement strategy focusing on dangerous driving by some motorcyclists. As part of the ongoing collaboration between the NYPD and DOT the NYPD will consider the findings of this report when updating its current strategies and developing new tactical approaches for motorcycle enforcement.

Develop enforcement strategies and direct enforcement to address unregistered vehicles and unlicensed drivers

An essential component of motorcycle safety is targeted enforcement for motorcyclists who engage in risky behavior such as speeding, riding with elevated BAC, and riding with an invalid license or registration.

Based on findings of this report and preliminary discussion with the NYPD, unlicensed and unregistered drivers have been identified as high risk. A recent NHTSA study found that, nationally, 28 percent of motorcycle riders involved in fatal crashes were not

properly licensed.[15] In New York City, 38 percent of motorcyclists involved in fatal crashes were either unlicensed or not properly licensed for the class of vehicle.

The NYPD should continue enforcement of licensing and registration laws, including a focus on ticketing, towing and confiscation of two-wheelers which are not authorized to be driven on New York City streets. These include motorcycles not displaying proper registration information, but also prohibited vehicles such as all-terrain vehicles (ATVs).

In 2015, the NYPD began applying this strategy on a comprehensive basis by increasing their towing of parked vehicles which did not display proper registration, or had other violations. The NYPD towed 29 percent more of such vehicles in 2015 than in the previous year.[16]

The NYPD also increased summonses for motorcycle violations in 2015, issuing, 36 percent more summonses in 2015 than the previous year. These summonses were issued for violations such as; hidden license plates, parking on the sidewalk, improper display of plates, equipment violations, and lack of registration sticker. While about 75 percent of motorcycle tows in 2015 occurred in Manhattan, the NYPD plans to expand their strategy to other boroughs on the coming year. [17]

Since the examination of motorcycles involved in fatal crashes by DOT showed that over a quarter of the vehicles were not legal to operate on New York City streets (dirt bikes, ATVs, electric bikes), and cannot be licensed, this type of enforcement may be particularly helpful at preventing fatalities. Ticketing and towing parked vehicles is also a useful approach because it allows enforcement without risking escalation of an incident into a pursuit which may endanger the officer, the public and the rider.

NYPD should continue to address moving violations by issuing summonses and towing illegal vehicles.

Improve Data Sharing and Quality

DOT receives its crash data from crash reports provided by the NYPD. However, some problems exist in the data which can sometimes make it difficult to determine to categorize other data, such as licensing, for purposes of tracking traffic safety in New York City. This data is used by DOT to target responses intended to reduce the number of serious injuries and fatalities in all modes. Therefore, improvement in this data is vital to New York City's ability to achieve its Vision Zero goals.

The NYPD is in the process of updating the technologies involved in how it captures and distributes data. The new system will move to electronic data reporting for all crash reports. This will allow data to be transmitted more easily between agencies and will ensure that more complete information is recorded for each case. For motorcycles,

electronic data reporting will allow for more detailed recording of whether or not the motorcycle rider is licensed, and whether that license allows them to operate a motorcycle. [v] It would also allow for more specific data on the types of vehicles involved in collisions, and how many those vehicles are non-legal two wheelers or other vehicles such as ATVs. [18]

DOT and NYPD will also discuss further measures which can be taken to improve data quality, such as the sharing of photos of crash sites or the improvement of crash narratives, used to determine the primary cause or contributing factors of crashes.

Policy

In order to fully address the safety of motorcyclists on the streets of New York City, DOT must also work in partnership with local, State and Federal agencies and lawmakers to enact policies furthering the goals of safe streets. This is particularly important when addressing driver education and licensing, since the State oversees regulation. Likewise, regulatory issues related to vehicle safety components are under Federal jurisdiction.

DOT would like to address the following areas of policy, in partnership with other agencies and lawmakers, in order to increase safety for motorcyclist on New York City Streets:

Requirements for Obtaining a Motorcycle License

- Require completion of an approved motorcycle education course in order to obtain a motorcycle license. Currently, in New York State, motorcycle skills and safety education is encouraged but not required to obtain a license. Under current rules riders who complete an approved course and meet other requirements can waive the road test. [vi] In the U.S., five states (Connecticut, Florida, Maine, Oregon, and Texas) require rider education in order to obtain a license.[19]
- Include a “safe urban driving” element to all approved motorcycle education courses, to ensure riders are prepared to handle the unique challenges of riding in New York City and other urban environments.
- Incorporate the DMV road test into the motorcycle training course. This preserves the convenience factor and incentivizes for riders to become licensed, while ensuring that all riders who pass the course meet DMV standards.

[v] In New York State, motorcycle operators are required to have a Class ’M’ license or, in limited cases (mopeds), a Class D license

[vi] To waive the road test, riders must also be over 16, have another type of valid NYS license, and have a valid class M or class MJ learners permit

- Ensure that all New York City drivers receive adequate training on how to avoid collisions with motorcycles and other vulnerable road users.

Encouraging Riders to Become Properly Licensed

New York City should educate the public on the requirements for operating a motorcycle legally. Many riders who are killed or seriously injured in New York City are not licensed to operate a motorcycle. This means they are less likely to have received any training or to have had the supervision of a more experienced rider during the period they would have had a motorcycle learner's permit.

Case Study- Maryland Licensing Campaign

The state of Maryland recognized they had a problem with unlicensed motorcycle drivers, and employed an interesting yet simple strategy to improve these numbers. The state successfully increased the number of licensed motorcyclists by comparing their DMV records of motorcycle registrations and licenses. The state sent a letter to every owner of a registered motorcycle owner who did not have matching record of being licensed. This strategy reportedly resulted in 1,700 owners becoming newly licensed within four months. New York City, with help from NYSDMV, could employ a similar strategy to encourage riders to become licensed and to inform riders of the laws and requirements for operation a motorcycle.

Increase Penalties for Operating without a License or Registration

DOT supports increasing penalties for operating a motorcycle without a proper license or registration. In 2013, 30 percent of motorcyclists involved in fatal crashes were not properly licensed to drive the vehicle, meaning they likely did not receive the proper training. Further discouraging this behavior through increased penalties and enforcement will help prevent serious and fatal collisions.

Make Quality Motorcycle Training Easier to Obtain

DOT supports actions that would make it easier for responsible riders to obtain the proper training to operate a motorcycle. New York State offers approved courses through the New York State Motorcycle Safety Program (NYSFP). However, there are currently only four locations in New York which offer the courses, all in outer boroughs. From June 2014-May 2015, these four locations trained over 4,500 students, 28 percent of those trained in New York State.[20] Increasing the availability of these courses will help encourage more riders to become licensed and properly trained.

Advocate for Antilock Brakes (ABS)

DOT supports actions to ensure that motorcyclists riding on our streets have the proper safety equipment needed to avoid fatal crashes or serious injury. According to the Insurance Institute for Highway Safety (IIHS), the rate of fatal crashes is 31 percent lower for motorcycles equipped with ABS.[21] This technology is widely available but, unlike other vehicles, ABS are not currently required in new motorcycle models.

Protective Clothing

DOT supports new policies requiring motorcyclists to wear protective, visibility enhancing clothing. Wearing protective clothing such as jackets, pants, gloves and boots can help prevent serious injuries such as body abrasions in the event of a crash. Additionally, wearing bright or reflective clothing increases the visibility of motorcycle riders to other motorists. Currently, New York State requires that motorcyclist wear approved helmets and eye protection, but does not have any requirements concerning protective clothing.[22] Though most states in the U.S. require helmet use (either universally or for riders over a certain age), no state currently requires protective clothing. Puerto Rico passed a law in 2007 that requires protective clothing.[23]

New Motorcycle Purchases

In order to further discourage unlicensed riding, DOT supports a rule which requires proof of motorcycle learner's permit or registration at time of purchase. Possession of at least a learner's permit demonstrates that the rider is more likely to go through the proper channels to be properly licensed. Motorcycle sellers could also be asked to distribute information about training courses and safety at time of purchase.

Safety around Construction Sites

A common concern among motorcyclists and cyclists is the quality of metal construction plates used to cover street openings at active work sites. The surface of the metal plates, if improperly treated, can cause skidding which is particularly dangerous for motorized two-wheelers.

The majority of work requiring street opening permits in New York City is done by utility companies. Current DOT regulations stipulate that "all plating and decking shall have a skid resistant surface equal to or greater than the adjacent existing street or roadway surface."[24] DOT conducts regular inspections of active construction sites and issues summonses of $1000 for 'Failure to Use Skid Resistant Plate' (241 summonses issued in FY 2015) and $1200 for 'Failure to Pin and Ramp Plate' (862 summonses issued in FY 2015).

In order to increase compliance with existing regulations, a number of strategies could be employed. DOT could increase the resources devoted to inspections, so more inspections can be completed, or raise fines for inadequate skid resistance or ramping. DOT also supports the offering of incentives for utility companies and contractors to purchase metal plates which are already equipped with skid resistance, and do not need to be treated with skid resistant materials.

Adopt Motorcycle Awareness Month

The National Highway Traffic Safety Administration (NHTSA) has designated the month of May "Motorcycle Awareness Month." Many states and local jurisdictions have followed suit, including the State of New York and counties in the New York City metro area. DOT supports the idea of New York City creating its own Motorcycle Awareness Month, which would likely be in May to interface with other national and state campaigns. This would help organize and promote education and enforcement efforts at the beginning of the summer riding season.

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ENDNOTES

[1] National Highway Traffic Safety Administration, Overview of Motorcycle Crash Issues. 2006; http://www.nhtsa.gov/people/injury/pedbimot/motorcycle/NAMS2006/pages/Overview.html

[2] Insurance Institute for Highway Safety, Motorcycles. http://www.iihs.org/iihs/topics/t/motorcycles/topicoverview. Accessed 9/7/2016.

[3] National Highway Traffic Safety Administration, Traffic Safety Facts, Motorcycles 2014 Data. June 2016.

[4] New York Police Department, 2014
[5] U.S. Census Bureau; American Community Survey, 2014 American Community Survey 5-year estimates, 2014; using American FactFinder <http://factfinder2.census.gov>,(1 September 2016)
[6] National Highway Traffic Safety Administration. Fatality Analysis Reporting System. 2010-2014 Data, (1 September 2016)
[7] Traffic Safety Facts, 2012 Data. Motorcycles. June 2014. NHTSA
[8] New York City Department of Health and Mental Hygiene. 2009-2011 Data
[9] S. Census Bureau; American Community Survey, 2014 American Community Survey 5-year estimates, 2014; using American FactFinder <http://factfinder2.census.gov>,(1 September 2016)
[10] National Highway Traffic Safety Administration. Fatality Analysis Reporting System. 2010-2014 Data, (1 September 2016)
[11] National Highway Traffic Safety Administration, Traffic Safety Facts, Motorcycles 2014 Data. June 2016.
[12] New York City Department of Health and Mental Hygiene. 2009-2011 Data
[13] New York City Department of Health and Mental Hygiene. 2009-2011 Data
[14] National Highway Traffic Safety Administration, Traffic Safety Facts, Motorcycles 2014 Data. June 2016.
[15] National Highway Traffic Safety Administration, Traffic Safety Facts, Motorcycles 2014 Data. June 2016.
[16] New York Police Department, 2015
[17] New York Police Department, 2015
[18] New York State Department of Motor Vehicles; http://dmv.ny.gov/driver-license/nys-driver-license-classes
[19] Cycle Safety Information. Motorcycle Safety Foundation. http://www.msf-usa.org/downloads/State-Motorcycle-Operator-Licensing-CSI-2014.pdf
[20] New York State Department of Motor Vehicles, 2015
[21]Insurance Institute for Highway Safety. http://www.iihs.org/iihs/brochures/motorcycle-abs-why-you-want-to-ride-with-it
[22] New York Vehicle and Traffic Law § 381
[23] Teigen, Anne. Transportation Review: Motorcycle Safety. National Conference of State Legislatures. December 2007. http://www.ncsl.org/print/transportation/motorcycletranrev07.pdf
[24] Rules of City of New York. § Section 2-11: Street Openings and Excavations.