



Effective Pedestrian & Bicycle Safety Enforcement



October 20, 2011

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District Department of Transportation



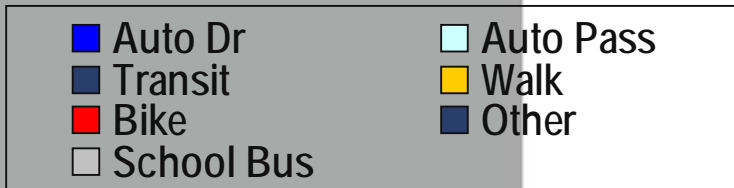
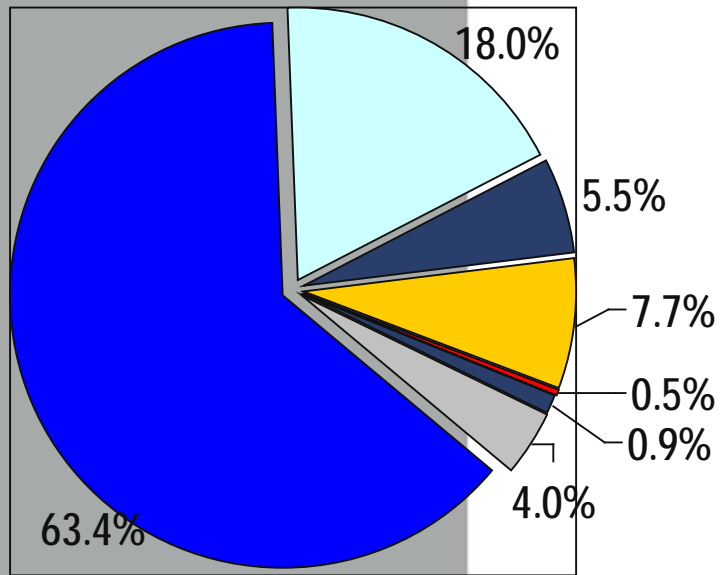
Increasingly multi-modal region



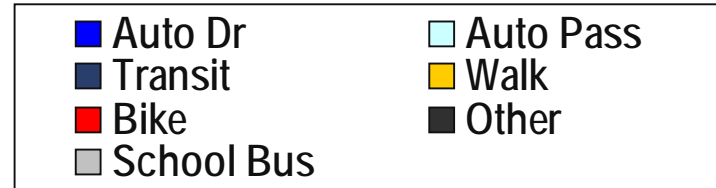
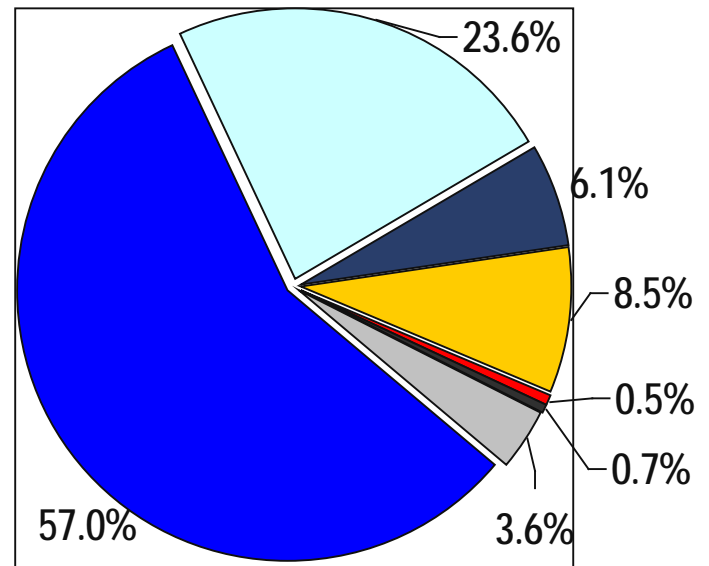


Change in Daily Trip Modal Shares (1994-2007/2008)

1994

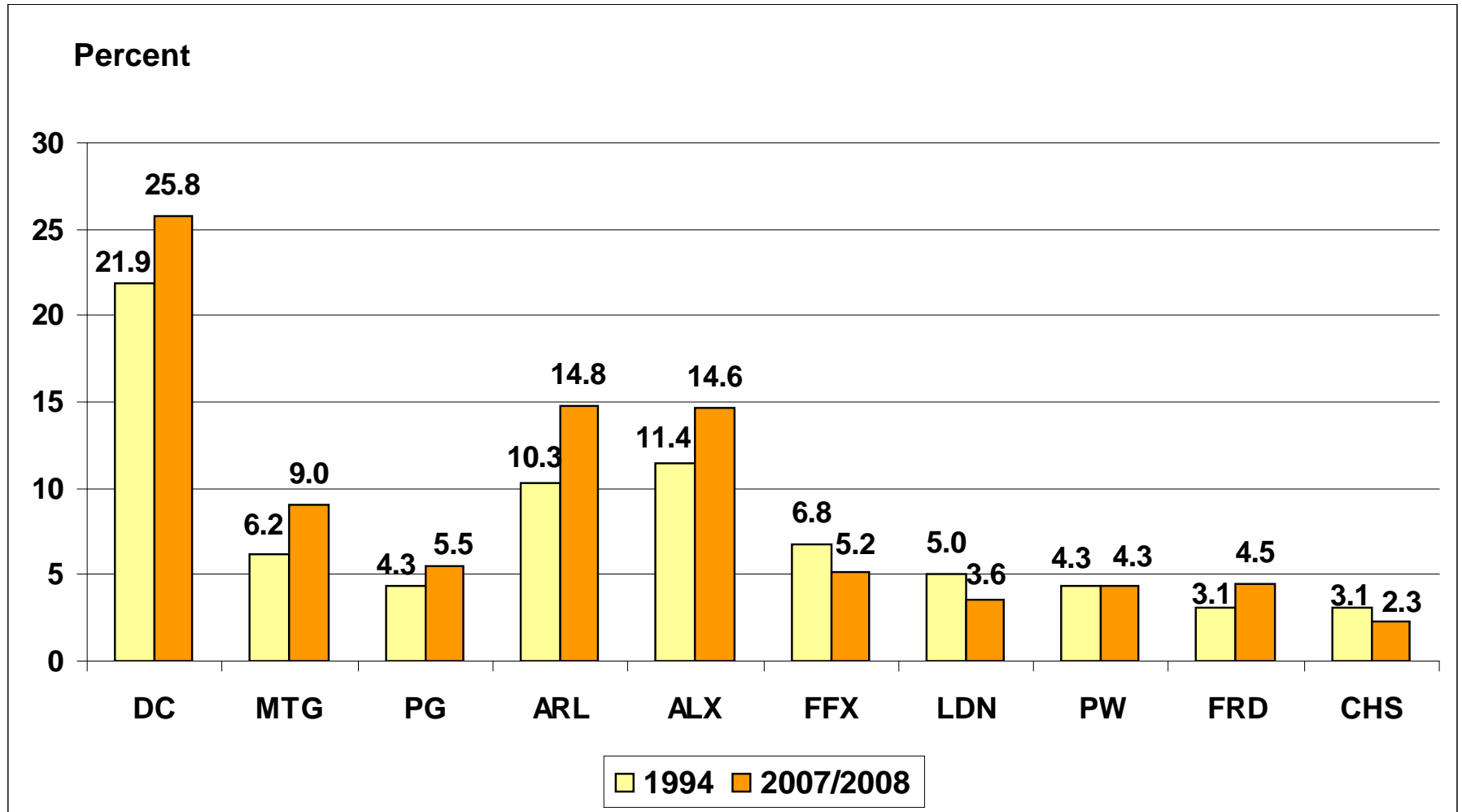


2007/2008



Source: 1994 and 2007/2008 TPB Household Travel Survey

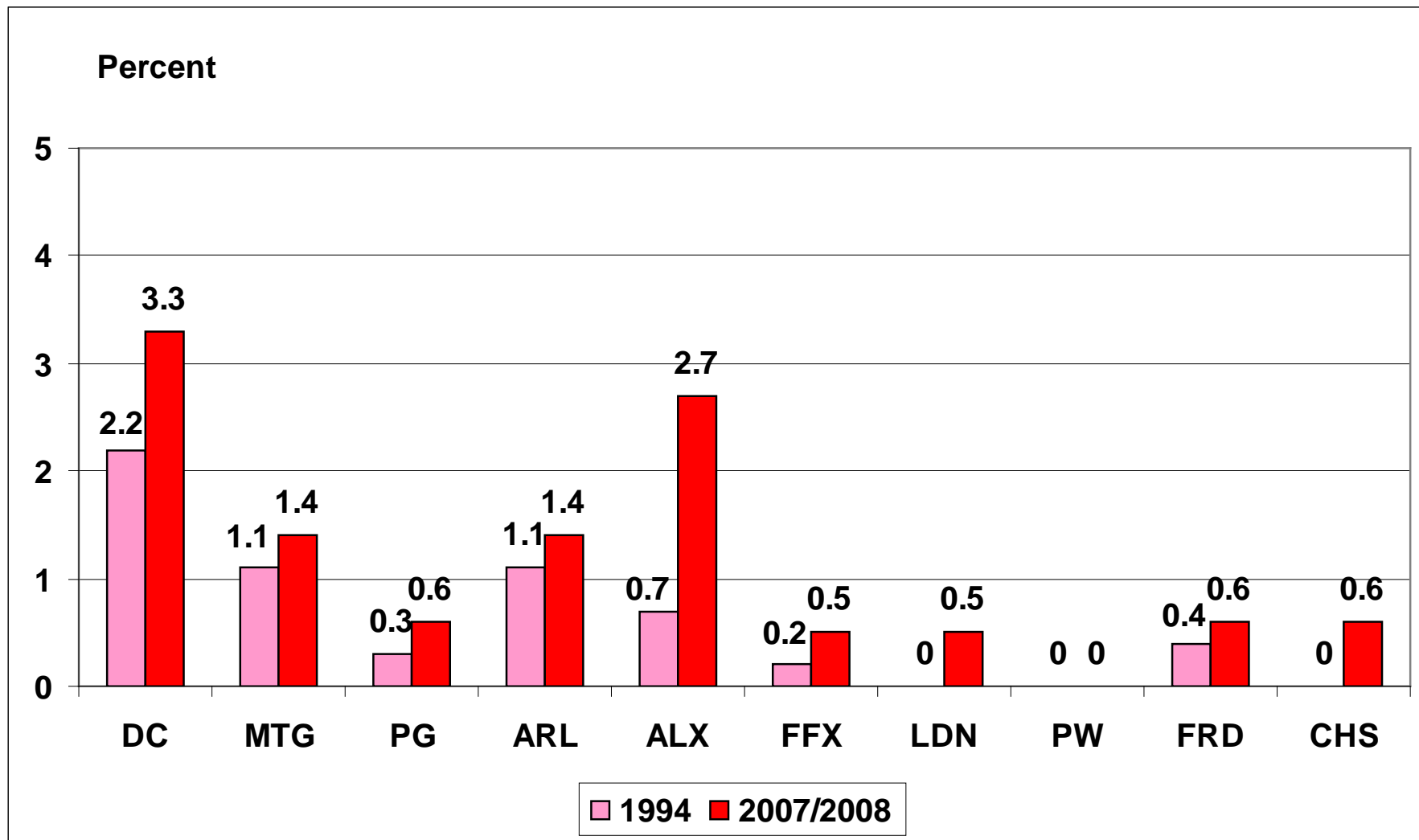
Daily Walk Trip Share by Jurisdiction (1994 – 2007/2008)



Source: 1994 and 2007/2008 TPB Household Travel Survey

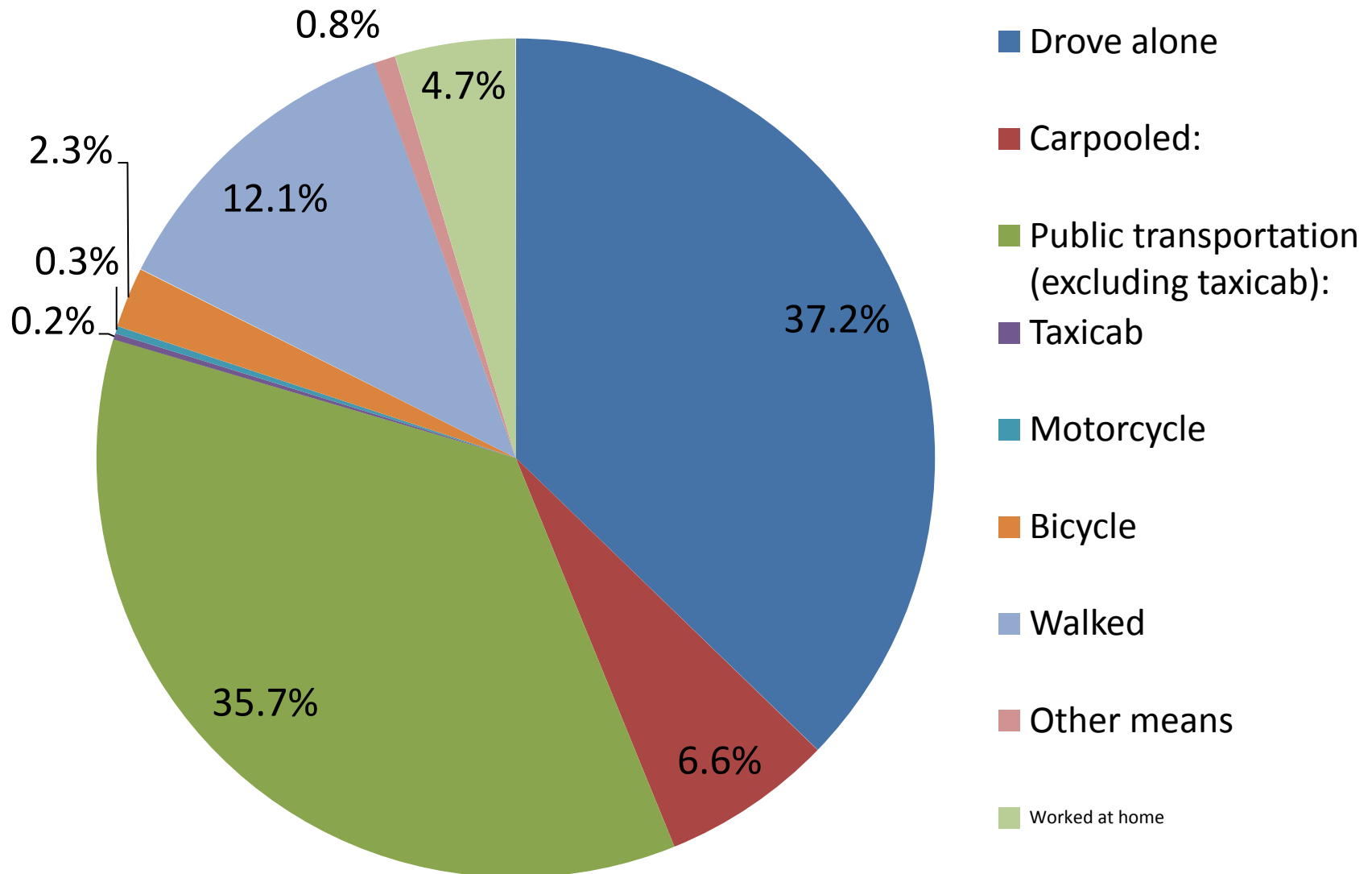


Bike Commuting Share by Jurisdiction (1994 – 2007/2008)



Source: 1994 and 2007/2008 TPB Household Travel Survey

How do DC residents get to work?



2008 American Community Survey

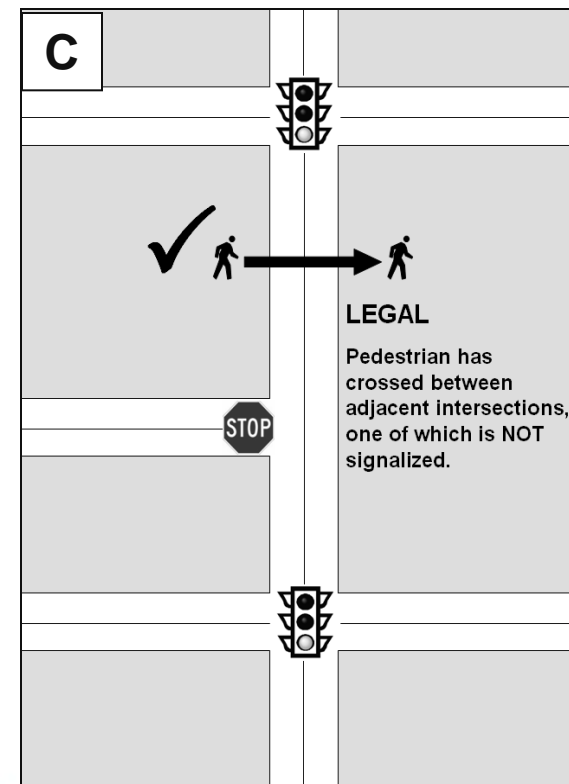
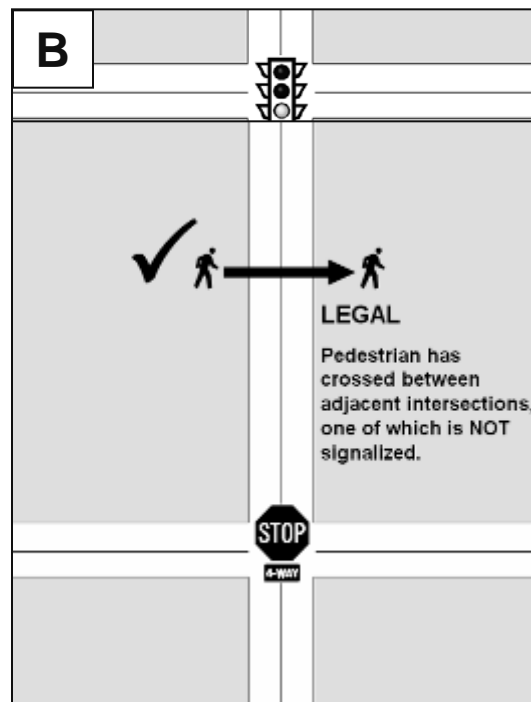
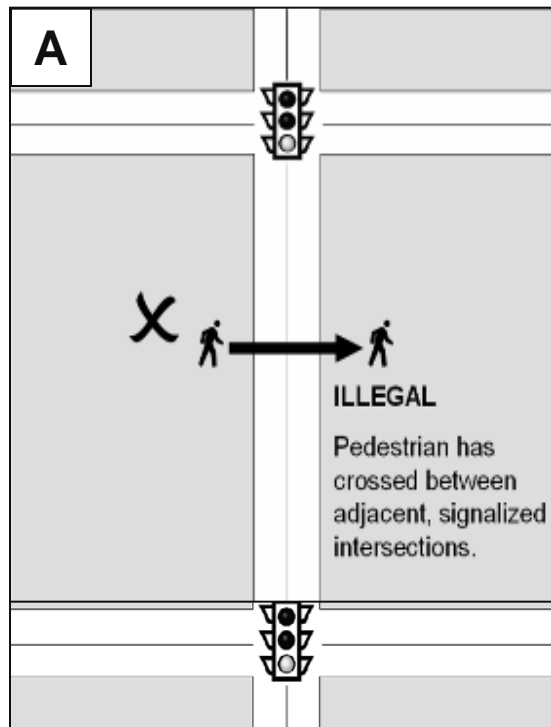


Effective
Enforcement
Strategies

d.



Mid-block Crossing Law for Pedestrians



- Is this distinction meaningful in practice?



Strategies for Effective Jaywalking Enforcement

- Focus primarily on people who walk into the path of a vehicle with the right of way.
- Look for jaywalkers who put themselves in a hazardous situation by interfering with a driver's right of way





Officer Discretion and Effective Jaywalking Enforcement



- **Beginning crossing on a flashing Don't Walk signal:**
 - As long as a person is out of the crosswalk when the opposing traffic gets a green signal, no action need be taken.



- **Crossing mid-block, from between parked cars, etc:**
 - As long as a crossing pedestrian yields to vehicles legally on the street, no action need be taken.

Officer Discretion and Effective Jaywalking Enforcement

- Crossing against a signal with no vehicles approaching:
 - In many cases this does not require action. A verbal warning may be sufficient. Can depend on the type of pedestrian.

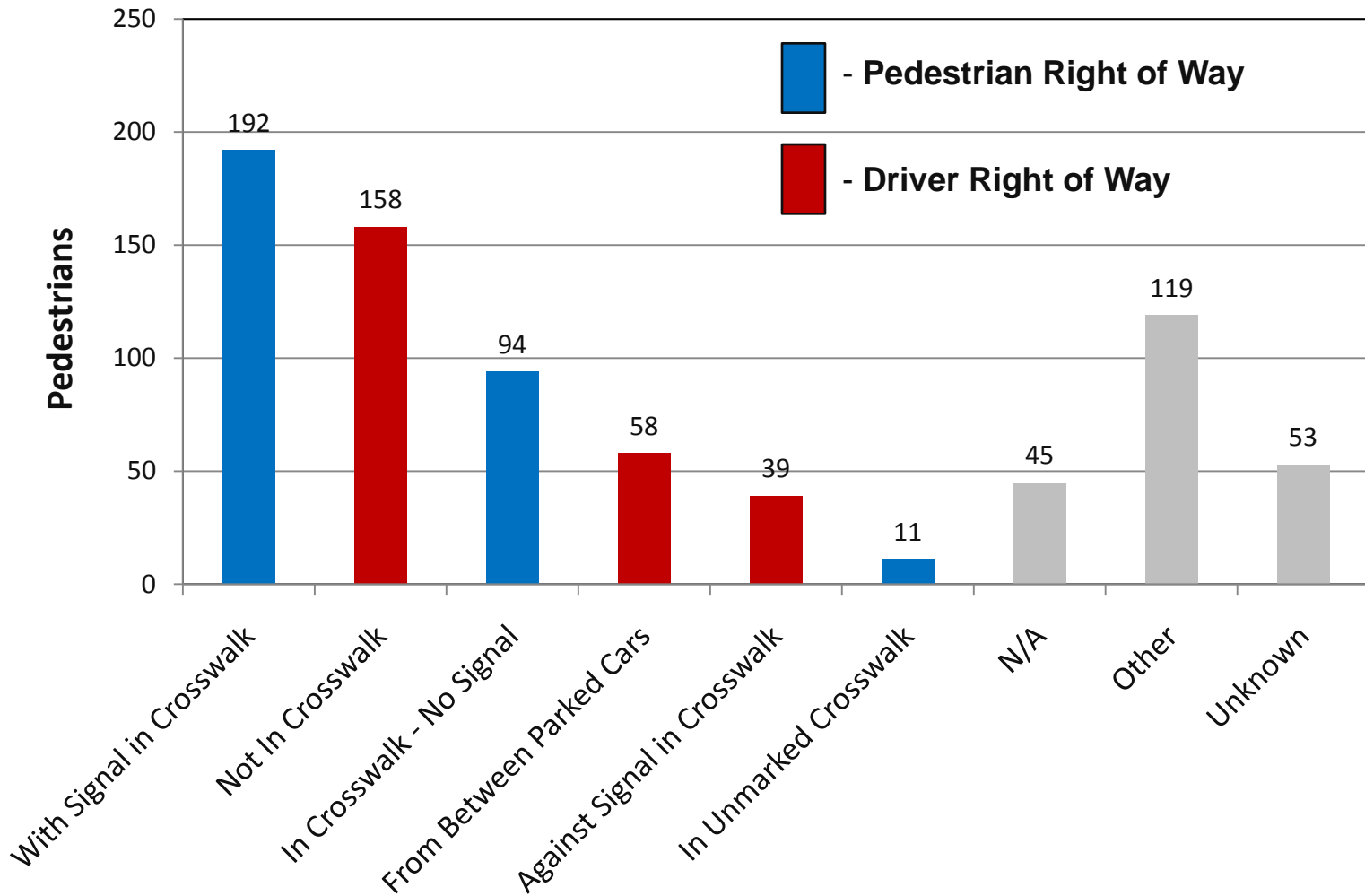


Pitfalls of Jaywalking Enforcement

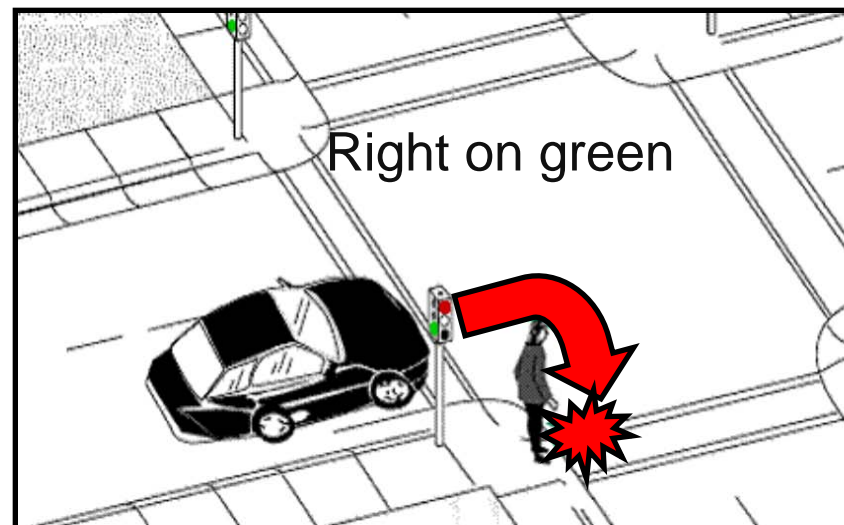
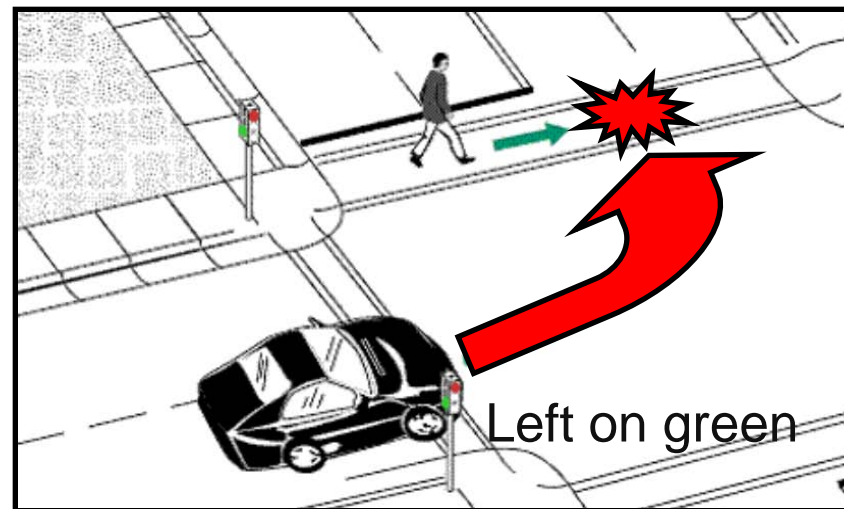


Pedestrian Crash Types

Pedestrian Action, 2010



Enforcement at Signalized Intersections





Enforcement at Signalized Intersections- Turn on Red without Stop



Enforcement at uncontrolled crosswalks

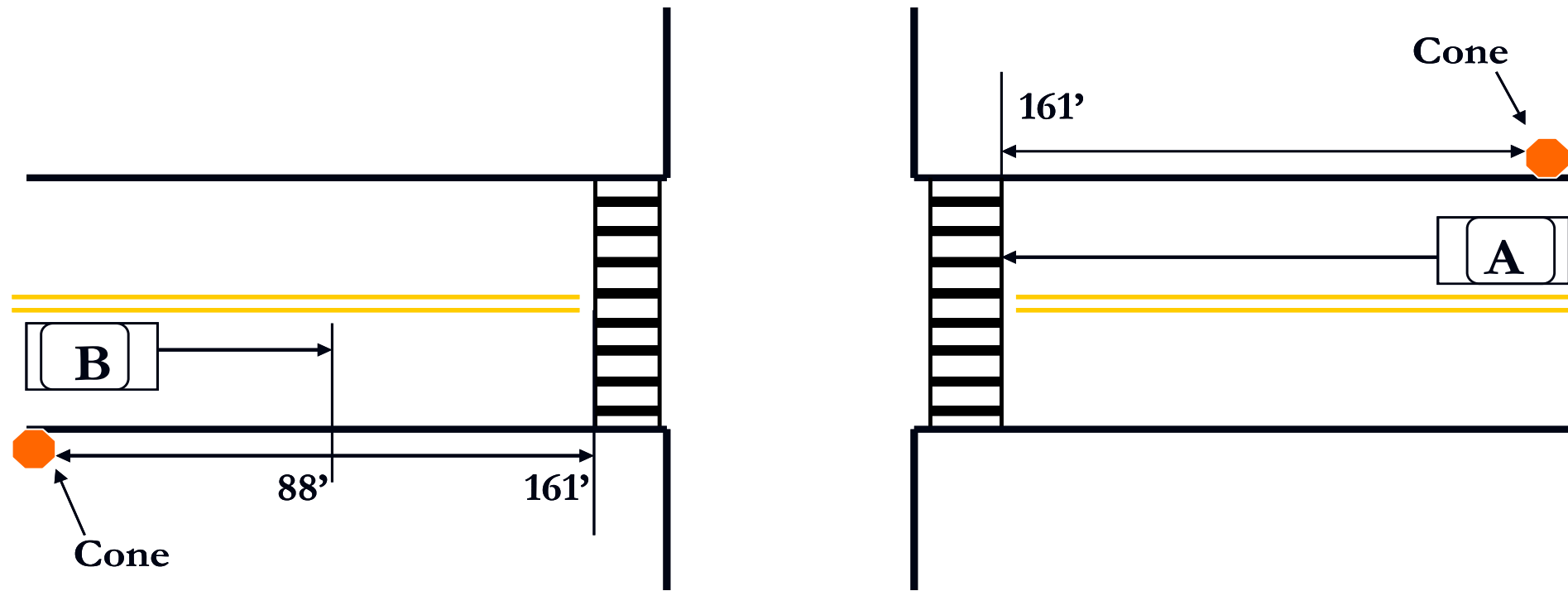


Conflict Zone

Locate officers downstream of crosswalk violations

Locate officers downstream of crosswalk violations

Setting up a Targeted Crosswalk Enforcement Operation (aka "Crosswalk Sting")



Location: Best locations are collector and minor arterial streets in mixed commercial/residential neighborhoods with posted speed limits of 25 mph and 2 or 4 lanes maximum.

Setting up a Targeted Crosswalk Enforcement Operation (aka “Crosswalk Sting”)



Enforcement at uncontrolled crosswalks

Pullover team located here



Crosswalk located here



Pedestrian Crash Types and Injury Severity

Pedestrian Action	Fatal	Disabling	Non Disabling	Complaint not Visible	Other	No Injury	N/A	Unknown	Summary
With Signal in Crosswalk	0	15	44	98	6	22	4	3	192
Not In Crosswalk	5	20	47	61	5	8	3	9	158
In Crosswalk - No Signal	0	15	34	29	1	12	3	0	94
From Between Parked Cars	1	7	22	16	3	6	0	3	58
Against Signal in Crosswalk	1	8	11	10	0	4	2	3	39
In Unmarked Crosswalk	0	3	4	2	0	1	0	1	11
N/A	1	2	4	12	1	18	7	0	45
Other	1	14	23	53	8	12	4	4	119
Unknown	5	4	15	20	3	3	1	2	53

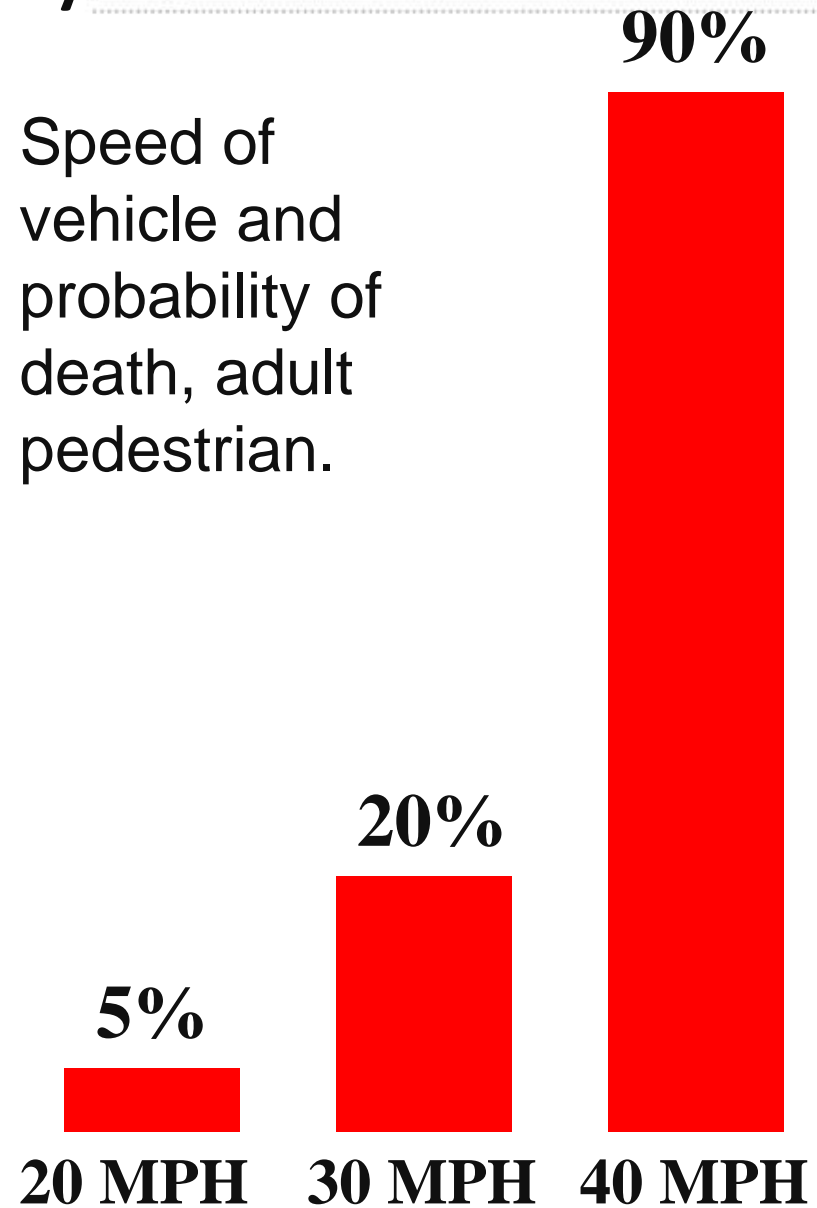
2010 Data



Speed Enforcement is Key!



Speed of vehicle and probability of death, adult pedestrian.



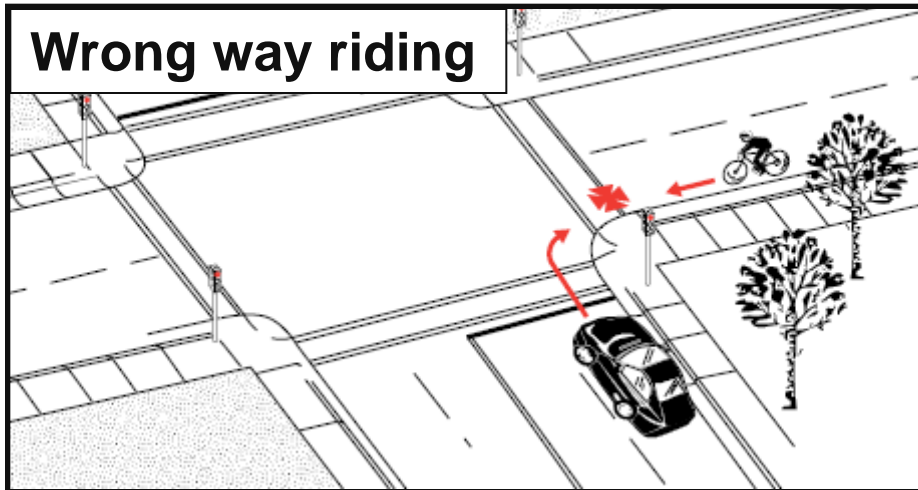
Speed Enforcement is Key!



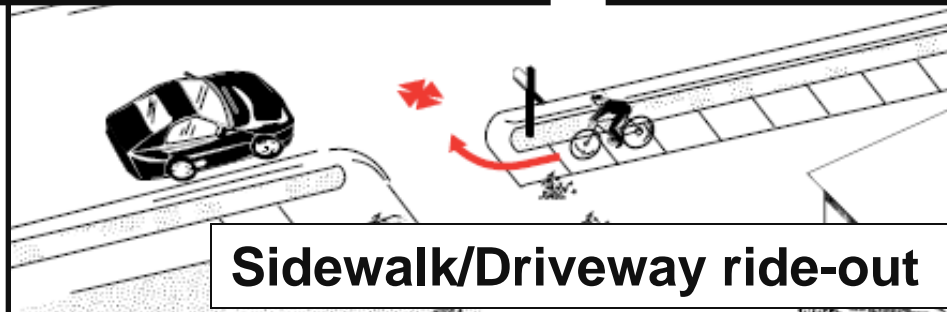
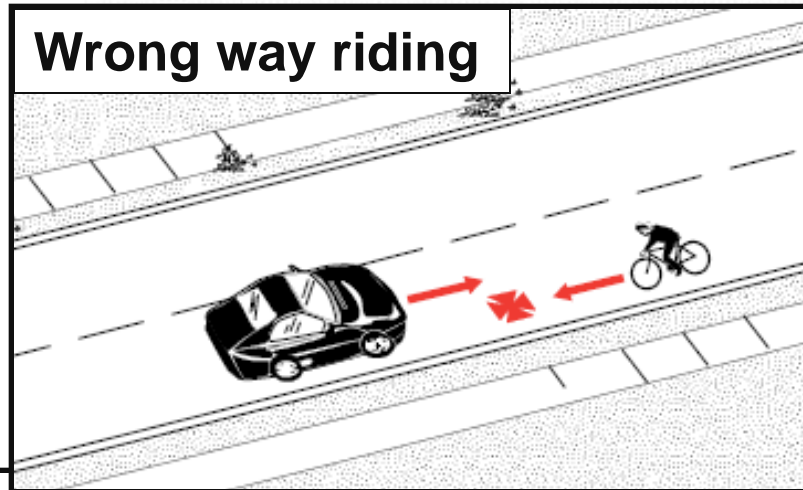
Based on a family saloon in normal driving conditions

Target Bicyclist Behaviors:

Wrong way riding

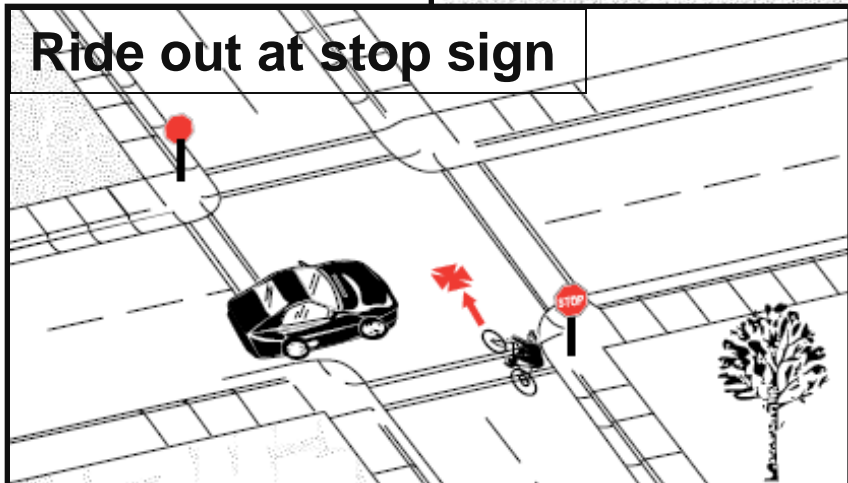


Wrong way riding

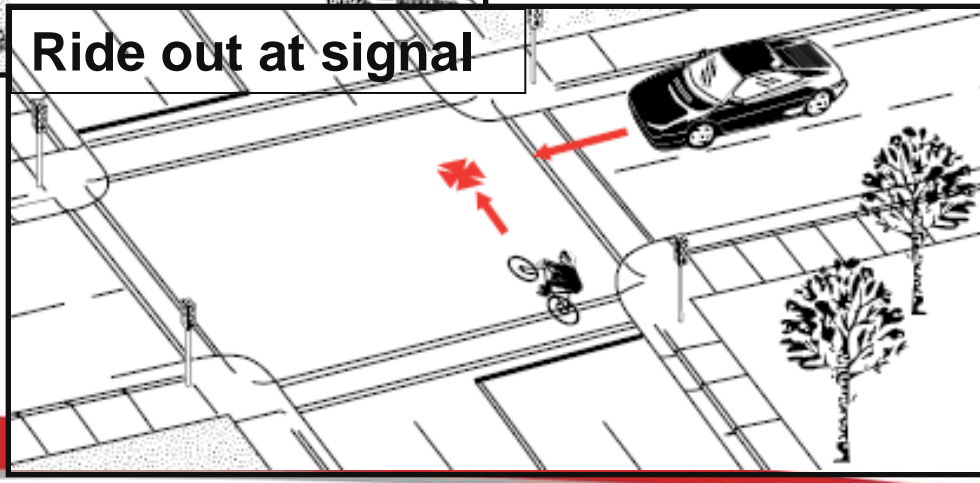


Sidewalk/Driveway ride-out

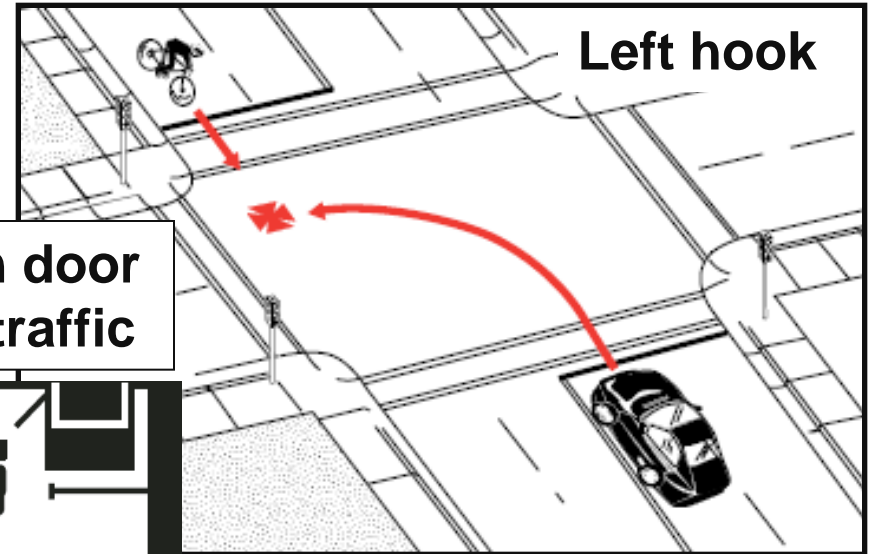
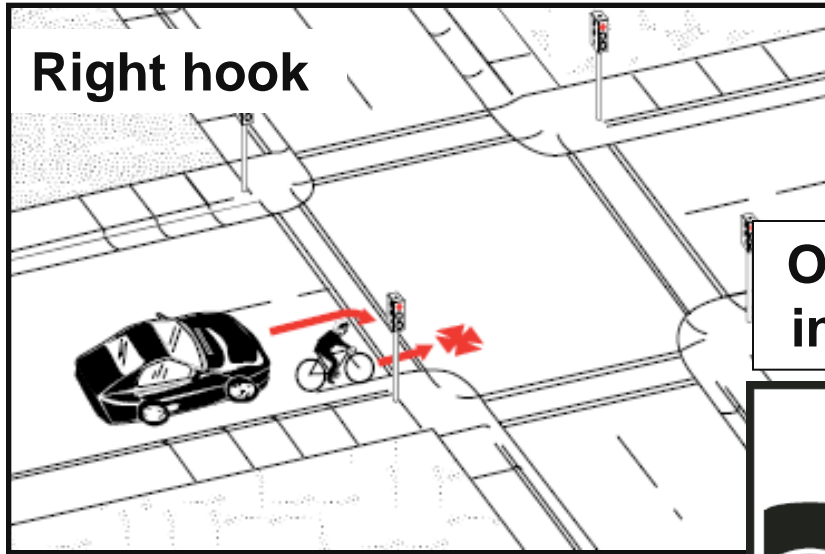
Ride out at stop sign



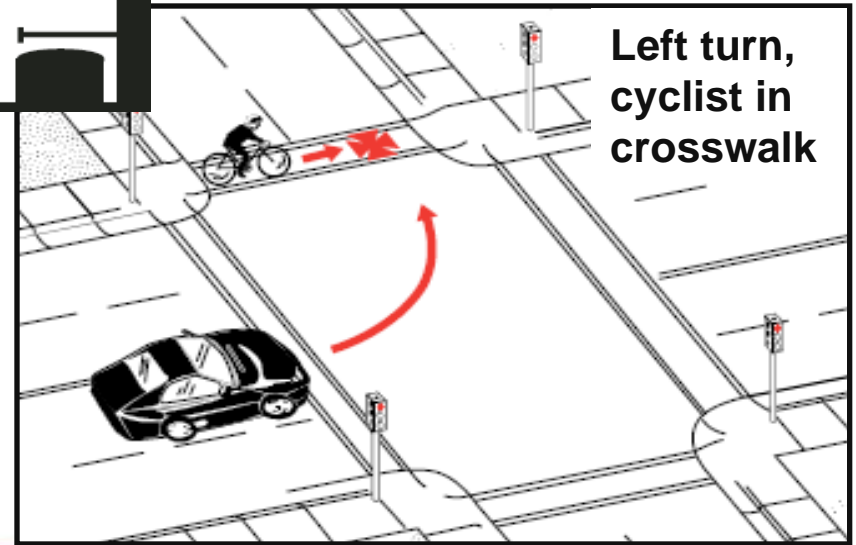
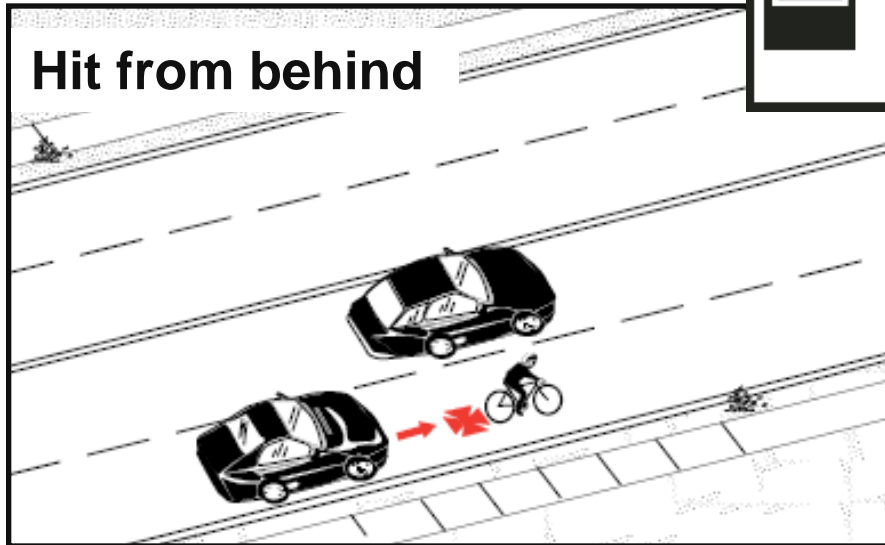
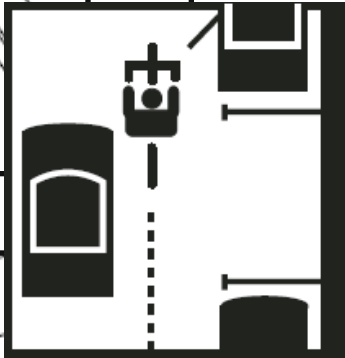
Ride out at signal



Target Motorist Behaviors:



**Open door
into traffic**





DDOT/MPD
Pedestrian-Bicycle
Safety Enforcement
Program



DDOT/MPD Pedestrian-Bicycle Program:

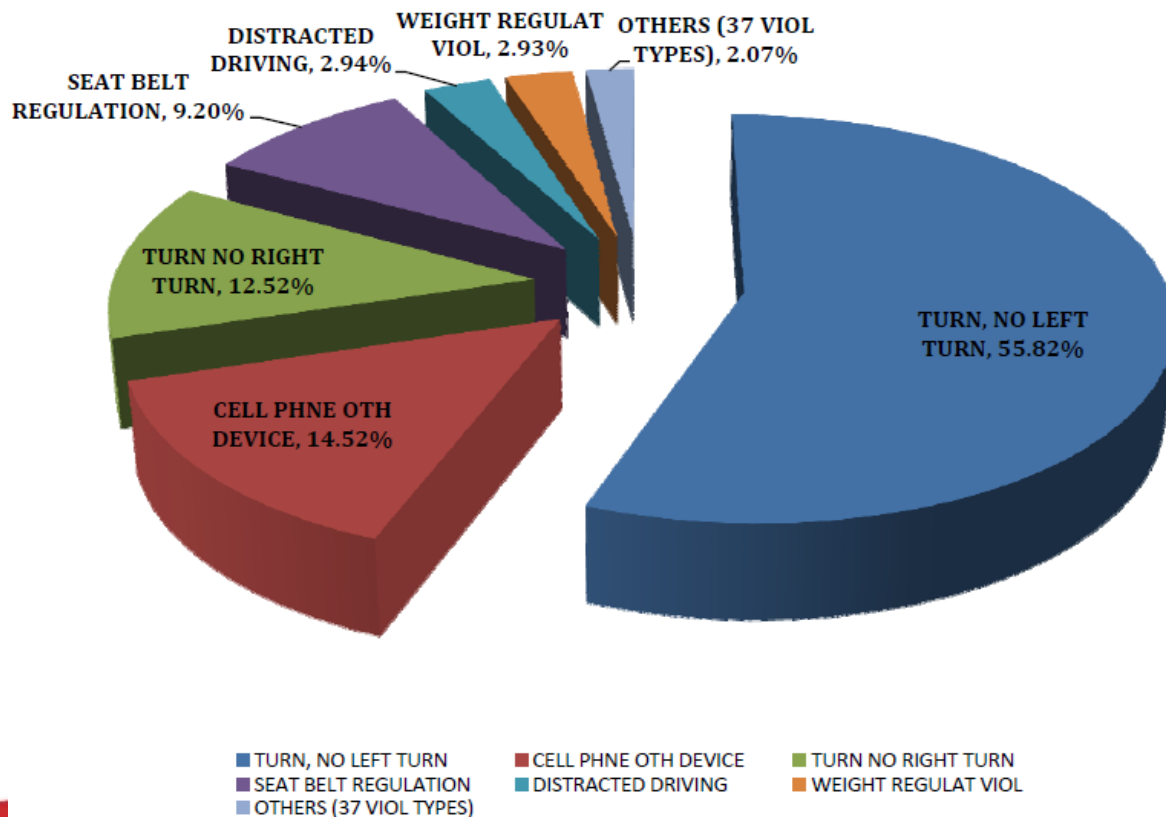
- Training Program: Over 600 MPD officers have received a half-day training on pedestrian and bicycle safety enforcement.
- Mandatory Pedestrian/Bicycle distance learning module went on-line in spring of 2011. All MPD officers must complete the course.
- DDOT overtime funds for traffic safety enforcement
- DDOT Traffic Control Officers
- Identification of high crash locations
- Educational Resources



DDOT Traffic Control Officers (TCOs)- DDOT “PD”

7,200 moving violations written in FY 2010

FY 2010 MOVING VIOLATION BREAKDOWN BY TYPE



TCOs on Bikes!

- DDOT TCOs have been trained on Ped/Bike enforcement
- MPD-led bike training ongoing
- On-bike enforcement activities beginning this fall



Enforcement Stats Example Summer, 2010

Metropolitan Police Department Washington DC 2010 Ped Enforcement



VIOLATIONS	# OF CHARGES
Distracted Driver (Cell phone)	225
Fail to Clear Intersection/Obstructing Crosswalk	33
Fail to Give Full Time/Attention Distracted Driver (all except cell phone)	10
Fail to Give Right of Way to Ped \$250.00	85
Failure to keep to the right (bike)	1
Fail to Yield Right of Way (auto/ bike)	30
Hazardous Driving (bike)	1
Opening Door to Traffic	
Parking Violations [Abreast, in crosswalk, too close to inters, bus zone, on sidewalk]	1
Passing red light (auto/bike)	31 (5 bikes included)
Riding on the sidewalk (bike)	
Right Turn on Red (auto)	5
Speeding (all)	28
Walking against the do not walk (ped)	169
Walking into the path of vehicle (ped)	151
Walking in street/sidewalk prov (ped)	
Seatbelt Violation	361
<i>ALL OTHER MOVING</i>	616
<i>ALL OTHER BIKE</i>	
<i>ALL OTHER PEDESTRIAN</i>	
Total Number of Violations	1,747
Total Number of Arrests	23

Educating Pedestrians & Drivers

- Street Smart educational handouts.

SAFETY TIPS

For Drivers, Pedestrians, and Bicyclists

FOR DRIVERS:



- STOP FOR PEDESTRIANS at crosswalks and be careful when passing stopped vehicles.



- SLOW DOWN and obey the posted speed limit.



- YIELD TO PEDESTRIANS & CYCLISTS when turning.



- LOOK before opening your door.



- ALLOW 3 FEET when passing bicyclists.

FOR PEDESTRIANS:



- CROSS THE STREET AT MARKED CROSSWALKS and intersections.



- BEFORE CROSSING, LOOK left, right, then left again.



- USE PEDESTRIAN PUSHBUTTONS.



- BEGIN CROSSING THE STREET ON "WALK" signal.



- STAY VISIBLE AFTER DARK and in bad weather.



- WATCH OUT FOR TRUCKS AND BUSES backing out of parking spaces and driveways.

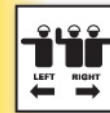
FOR BICYCLISTS:



- OBEY ALL REGULATORY SIGNS and traffic lights.



- NEVER RIDE AGAINST TRAFFIC. Ride with traffic to avoid potential accidents.



- USE HAND SIGNALS to tell motorists what you intend to do.



- RIDE IN A STRAIGHT LINE to the right of traffic and about a car door width away from parked cars.



- ALWAYS WEAR A HELMET. Helmets dramatically reduce the risk of head injury in a bicycle accident.



- USE LIGHTS AT NIGHT and when visibility is poor.

STREET
SMART
streetsmart.mwco.org

A public safety program of the District of Columbia, Maryland and Virginia

- Pedestrians and cyclists should watch for turning vehicles. Motorists must yield to cyclists and pedestrians when turning.

Enforcement Resources

- Crosswalk Law Card for Motorists

*** District of Columbia ***

Pedestrian Safety for Drivers

A. At crosswalks and intersections without traffic signals:

- The driver of a vehicle shall **STOP** and give right-of-way to pedestrians crossing the roadway within any marked crosswalk or unmarked crosswalk at an intersection.

DC Code §50-2201.28(a) (2008)

B. At intersections with signals:

- When proceeding on a circular green signal, drivers turning right or left shall **STOP** and give right-of-way to pedestrians lawfully within the crosswalk.

DC Code §50-2201.28(b) (2008)

PENALTY: \$250 & 3 points
IF COLLISION: \$500 & 6 points

C. Right Turn on Red After Stop:

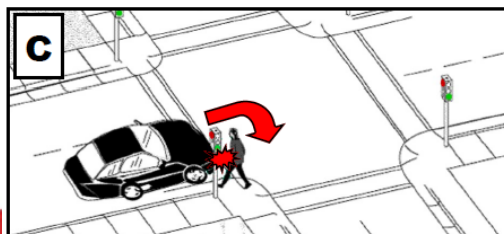
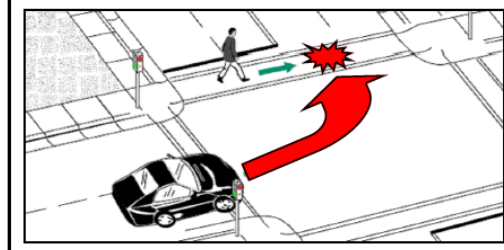
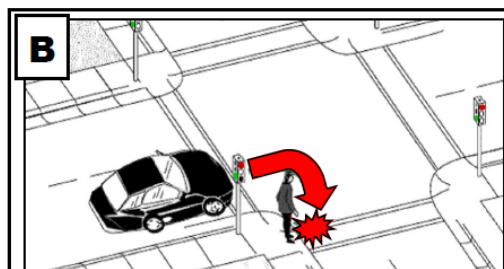
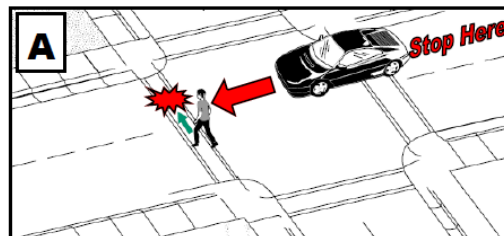
- A vehicle facing a steady red signal may cautiously enter the intersection to turn right after stopping. The vehicle shall yield right-of-way to pedestrians within an adjacent crosswalk and to other traffic lawfully using the intersection.

18 DCMR §2103.7(c) (1995)

PENALTY: \$50 and two points

*** District of Columbia ***

Pedestrian Safety for Drivers



District Department of Transportation

Metropolitan Police Department
www.mpdc.dc.gov
District of Columbia
Department of Transportation
Telephone: (202) 671-2730
www.ddot.dc.gov



DDOT Targeted
Enforcement-
Education
Behavior Safety



Howard University Transportation Research Center



Four high ped/vehicle intersections with DDOT CCTV available:



16th & Columbia Rd. NW



16th & Irving St. NW



16th & U St. NW

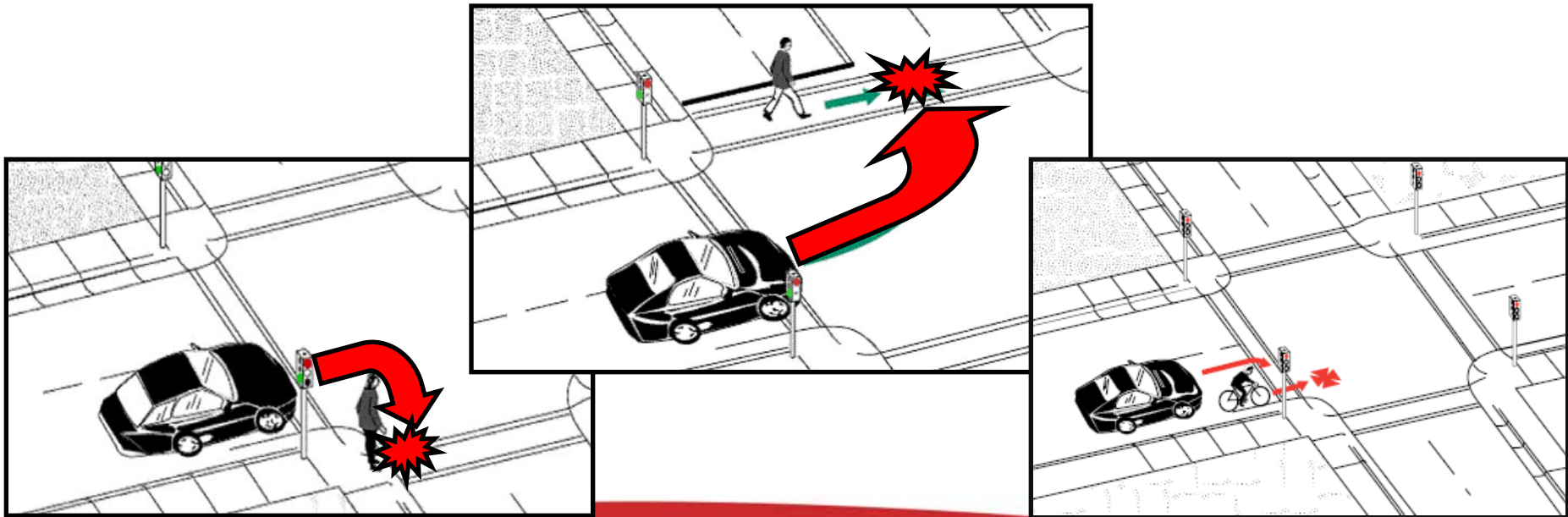


Georgia Ave. & New Hampshire Ave, NW

Pre-Post Surrogate Study

Variables:

1. Pedestrian-vehicle conflicts (turning vehicle/ped in crosswalk with signal)
2. Right-Turn on Red conflicts (ped in crosswalk with signal)
3. Pedestrian violations (crossing against the signal)
4. "Right Hook" - bicyclist-vehicle conflicts
5. Cyclist violations (wrong way riding, running red lights, etc.)
6. Red light running (drivers)



Targeted Education:

- Transit shelters at each location displayed Street Smart ads
- Metrobuses serving each location displayed Street Smart ads
- Mobile Billboard circulated through each location several times a day
- DDOT TCOs handed out Street Smart 3-fold brochures on one day at start of enforcement period.

A GIANT PEDESTRIAN SAFETY PROBLEM



Targeted Enforcement- (1 week):

MOVING VIOLATIONS SUMMARY	TOTAL
Distracted Driver Cell Phone or Distracted Driver	172
Failure to stop and give right of way to pedestrian in crosswalk	67
Fail to clear intersection (driver)	43
Crossing between adjacent signalized intersections	19
Hazardous Driving (bicyclist)	0
Passing red light vehicle	9
Riding on sidewalk in Central Business District	0
Overtaking vehicle stopped at crosswalk for pedestrian	5
Passing red light bicycles	2
Stopping, standing or parking vehicle in a bike lane	4
Walking against the don't walk signal	36
All other violations (moving, driver) specify on the rear of this activity sheet*	255
Total Violations:	612

Results- Georgia Ave. & New Hampshire Ave. NW:



Figure 13: Snapshot of Video Files at Georgia Ave. and New Hampshire Ave

Table 4: Results Summary– Georgia Avenue/ New Hampshire Avenue, NW

Surrogate Variables	Moving Violations		Sample Size	
	Before	After	Before	After
Pedestrian-Vehicle Conflicts	54	24	8114	8370
Right-Turn On Red Conflicts	121	54	8114	8370
Illegal Pedestrian Crossing	122	150	451	441
“Right Hook” - Cyclists-Vehicle Conflicts	0	0	8114	8370
Cyclists Violations	51	87	120	151
Red Light Running	8	8	8114	8370

Overall Results:

Proxy Variable	<u>Percentage Reduction</u> Range	<u>Percentage Increase</u> Range	<u>No. of Intersections with Statistically Significant Reduction</u>	<u>No. of Intersections with Statistically Significant Increase</u>
Pedestrian-vehicle conflicts (turning vehicles)	50% - 60%	15% - 18%	1. GA Ave & NH Ave 2. 16 th & Irving St.	0
Right-turn on Red	50% - 100%	None	1. GA Ave & NH Ave 2. 16 th & Irving St. 3. 16 th & Columbia	0
Illegal Crossings	19% - 23%	7% - 23%	0	0
“Right-Hook”: cyclist-vehicle conflict	None Observed	None Observed	-	-
Cyclists Violations	5% - 51%	43% - 62%	16 th and U St.	0
Red-light running violations	40% - 50%	40% - 50%	0	0

The Moral of the Study?

- The combination of visible and aggressive enforcement, coupled with educational messages, CAN modify behavior of road users.
- Indicates that the impact of Street Smart would be enhanced with more enforcement.





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Thank you !