

# CHAPTER 3

## BICYCLE AND PEDESTRIAN SAFETY

Safety is an important topic with respect to bicycling and walking. Many nationwide surveys have shown, for example, that fear of injury is a significant deterrent to bicycling and walking for many people. Statistics have shown that many Americans are injured or killed annually while riding bicycles and walking along our roadways. This need is recognized by ConnDOT in its Mission Statement which reads in part: "to provide a safe, effective and cost effective transportation system that meets the mobility needs of its users". The better we understand the particulars of those unfortunate incidents, the better we will be able to design countermeasures to improve bicycling and pedestrian safety.

Each year in the United States, 65,000 people are hospitalized with head injuries alone from bicycle crashes resulting from motor vehicles and objects. Of this amount, 6,500 pedestrians and 850 bicyclists are killed. According to the Brain Injury Association of Connecticut, head injury rates are highest among cyclists between the ages of 5 and 15 and helmets could reduce the risk of head injuries by 85 percent and brain injuries by 88 percent. In Connecticut for 1995 and 1996, in crashes with motor vehicles where helmet usage was known, over 80 percent of cyclists involved were **not** wearing helmets. No helmet statistics prior to 1995 are available.

Table 3-1 lists by town, bicycle and pedestrian crashes involving motor vehicles from 1994 to 1996. The statistics shown in the table are reported crashes with motor vehicles only and are the latest data available to ConnDOT. It is estimated that these totals represent only about 75 percent of all bicycle and pedestrian crashes, with another 25 percent being unreported or resulting from falls. In the 10-year period between 1987 and 1996, nearly 9500 bicyclists and over 14000 pedestrians were injured, with 68 bicyclists and 569 pedestrians killed. In 1996, 965 bicycle and 1399 pedestrian crashes involving motor vehicles were reported, with 4 bicyclists and 51 pedestrians being killed. It should be noted that more than half of all the bicycle and pedestrians crashes occur in the seven most populated towns; Bridgeport, Hartford, New Haven, Stamford, Waterbury, Norwalk and New Britain.

**Table 3-1****BICYCLE AND PEDESTRIAN INVOLVED CRASHES**

<b>Town</b>	<b>BICYCLE CRASHES</b>			<b>PEDESTRIAN CRASHES</b>		
	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
Andover	0	0	0	0	0	0
Ansonia	2	4	4	2	3	1
Ashford	0	1	0	0	1	0
Avon	1	0	1	1	1	1
Barkhamsted	0	0	0	1	0	0
Beacon Falls	0	1	0	0	0	0
Berlin	2	3	5	7	1	3
Bethany	1	0	0	0	0	0
Bethel	2	1	1	6	2	2
Bethlehem	5	0	0	0	0	0
Bloomfield	5	4	2	7	4	6
Bolton	1	1	0	1	0	0
Bozrah	2	0	1	0	0	0
Branford	7	10	8	6	5	8
Bridgeport	84	99	90	134	174	150
Bridgewater	1	0	0	0	0	0
Bristol	14	20	22	16	20	16
Brookfield	1	1	2	3	1	1
Brooklyn	3	0	1	1	1	0
Burlington	1	0	0	1	0	1
Canaan	0	1	0	0	1	1
Canterbury	2	0	1	0	0	0
Canton	3	3	4	1	0	3
Chaplin	0	0	1	0	0	1
Cheshire	10	3	4	3	4	5
Chester	1	0	0	0	1	0
Clinton	5	5	4	0	0	3
Colchester	1	0	1	3	2	1
Colebrook	0	0	0	0	0	0
Columbia	0	0	0	0	2	1

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<b>Town</b>	<b>BICYCLE CRASHES</b>			<b>PEDESTRIAN CRASHES</b>		
	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
Cornwall	0	0	0	0	0	0
Coventry	0	2	1	2	1	2
Cromwell	2	3	1	4	1	0
Danbury	6	5	12	14	15	7
Darien	1	6	3	3	6	7
Derby	3	2	3	1	6	4
Durham	2	1	1	0	0	1
Eastford	0	0	0	0	0	0
East Granby	1	2	0	0	1	0
East Haddam	0	0	2	0	0	1
East Hampton	1	2	1	1	1	1
East Hartford	31	8	16	28	24	25
East Haven	6	10	5	9	10	9
East Lyme	1	1	3	5	2	4
Easton	1	2	0	0	1	0
East Windsor	0	2	2	2	2	1
Ellington	3	0	2	0	0	1
Enfield	16	19	18	6	14	10
Essex	0	1	1	1	0	0
Fairfield	14	8	14	16	23	21
Farmington	4	2	4	3	4	5
Franklin	0	0	0	0	0	0
Glastonbury	1	6	2	6	2	3
Goshen	0	1	0	2	0	0
Granby	0	1	0	0	0	2
Greenwich	17	11	9	18	22	17
Griswold	0	3	3	1	6	2
Groton	10	12	16	15	9	5
Guilford	5	7	6	1	1	3
Haddam	0	2	0	0	0	1

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<b>Town</b>	<b>BICYCLE CRASHES</b>			<b>PEDESTRIAN CRASHES</b>		
	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
Hamden	22	19	25	19	27	17
Hampton	0	0	0	0	0	0
Hartford	79	85	91	200	211	189
Hartland	0	0	0	0	0	0
Harwinton	0	0	0	2	0	0
Hebron	2	1	1	0	1	1
Kent	0	0	1	1	1	1
Killingly	6	5	5	9	5	6
Killingworth	0	0	0	0	0	0
Lebanon	0	0	1	0	0	0
Ledyard	0	3	0	2	1	3
Lisbon	0	1	1	0	0	0
Litchfield	1	3	1	4	2	0
Lyme	0	0	0	0	0	0
Madison	3	2	1	0	1	4
Manchester	23	21	22	21	16	19
Mansfield	0	7	2	9	4	6
Marlborough	0	0	0	1	0	0
Meriden	13	32	24	19	25	22
Middlebury	0	0	2	1	0	0
Middlefield	0	0	1	0	1	1
Middletown	7	10	8	15	14	14
Milford	20	15	18	18	23	11
Monroe	3	1	4	1	1	4
Montville	1	2	3	6	7	4
Morris	0	0	0	0	1	0
Naugatuck	2	4	6	6	9	8
New Britain	24	21	24	49	41	28
New Canaan	4	6	2	5	2	7
New Fairfield	4	1	0	2	2	1

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<b>Town</b>	<b>BICYCLE CRASHES</b>			<b>PEDESTRIAN CRASHES</b>		
	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
New Hartford	1	2	0	0	1	0
New Haven	75	125	101	146	150	159
Newington	9	3	8	7	4	5
New London	7	12	12	30	22	22
New Milford	6	2	5	3	3	6
Newtown	2	1	1	5	1	1
Norfolk	0	0	0	1	0	2
North Branford	2	2	0	1	0	3
North Canaan	1	0	0	0	0	0
North Haven	7	6	9	2	5	8
North Stonington	1	2	1	1	0	0
Norwalk	36	40	29	42	52	58
Norwich	19	12	7	25	24	32
Old Lyme	1	0	2	0	1	2
Old Saybrook	3	7	2	5	3	2
Orange	5	5	4	2	2	5
Oxford	1	0	2	1	0	2
Plainfield	1	4	6	4	3	4
Plainville	2	5	5	3	5	5
Plymouth	0	4	1	1	1	2
Pomfret	0	1	0	0	0	0
Portland	0	1	1	1	3	1
Preston	0	0	2	2	1	1
Prospect	1	0	1	0	0	0
Putnam	0	2	0	1	1	3
Redding	0	0	0	1	1	2
Ridgefield	6	4	5	5	3	1
Rocky Hill	1	1	2	8	4	8
Roxbury	0	0	0	1	0	0
Salem	0	1	0	0	0	0

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<b>Town</b>	<b>BICYCLE CRASHES</b>			<b>PEDESTRIAN CRASHES</b>		
	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
Salisbury	1	2	0	0	0	3
Deep River	0	1	1	2	1	1
Scotland	0	0	0	0	0	0
Seymour	2	4	0	1	5	7
Sharon	1	0	1	1	0	0
Shelton	5	10	5	6	7	6
Sherman	5	0	0	0	0	0
Simsbury	1	6	2	2	4	0
Somers	0	0	0	0	0	0
Southbury	0	2	4	2	0	1
Southington	11	18	14	7	8	8
South Windsor	3	2	0	3	2	2
Sprague	0	1	1	1	1	0
Stafford	1	2	2	3	3	4
Stamford	75	52	35	97	99	76
Sterling	0	2	0	0	0	0
Stonington	6	5	8	3	6	4
Stratford	20	21	19	19	19	20
Suffield	1	2	3	1	0	1
Thomaston	0	3	0	4	2	1
Thompson	0	0	0	1	0	0
Tolland	4	1	0	1	1	0
Torrington	7	6	15	14	18	12
Trumbull	1	0	1	14	1	2
Union	0	0	0	0	0	0
Vernon	8	9	10	7	10	7
Voluntown	0	2	1	0	0	0
Wallingford	12	9	5	8	11	13
Warren	0	0	0	0	0	0
Washington	0	0	4	1	1	0

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	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
Waterbury	33	43	29	110	101	104
Waterford	4	7	8	3	2	6
Watertown	4	5	3	3	4	4
Westbrook	3	3	0	3	0	3
West Hartford	19	15	13	20	18	15
West Haven	25	24	20	33	20	29
Weston	0	1	1	1	0	0
Westport	10	12	8	10	6	10
Wethersfield	1	2	3	8	9	6
Willington	0	1	1	0	0	0
Wilton	2	2	2	2	0	2
Winchester	3	4	3	5	3	4
Windham	13	11	9	9	6	13
Windsor	8	12	5	5	13	9
Windsor Locks	3	2	0	3	1	3
Wolcott	1	4	1	1	2	2
Woodbridge	0	3	1	1	2	3
Woodbury	1	0	0	0	1	1
Woodstock	0	0	1	0	0	1
<b>TOTALS</b>	<b>974</b>	<b>1068</b>	<b>965</b>	<b>1434</b>	<b>1446</b>	<b>1399</b>

Figure 1 shows the distribution of bicycle and pedestrian crashes involving motor vehicles by age for 1995 and 1996. As noted in other studies, the greatest percentage of crashes involved children aged 5-19 with more than 50 percent of bicycle crashes and 30 percent of pedestrian crashes. This also reflects that the principle individual mode of transportation for this age group is by bicycle or walking

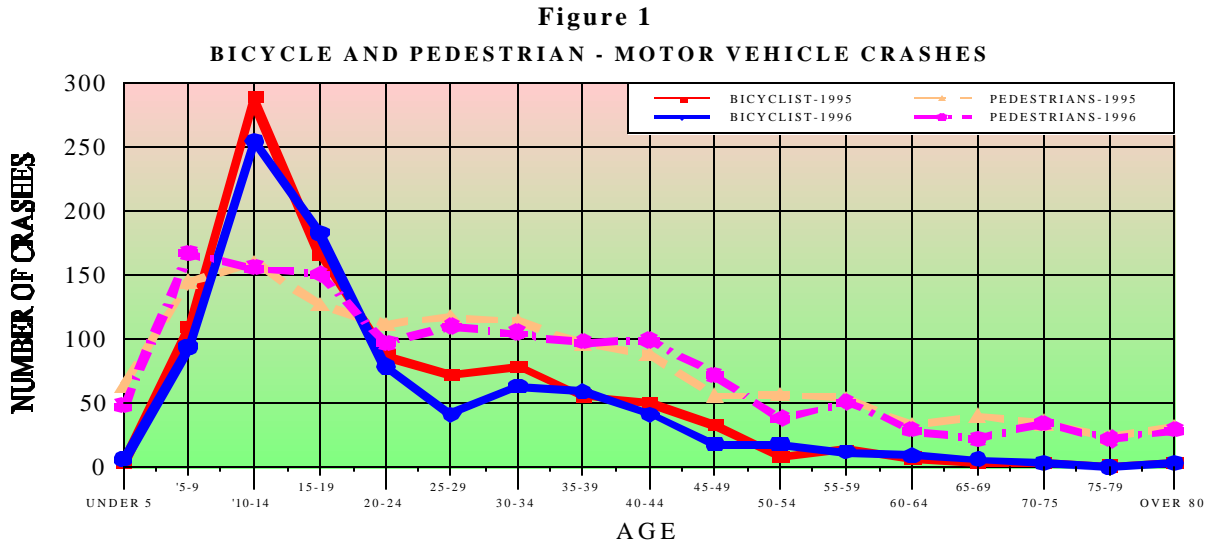
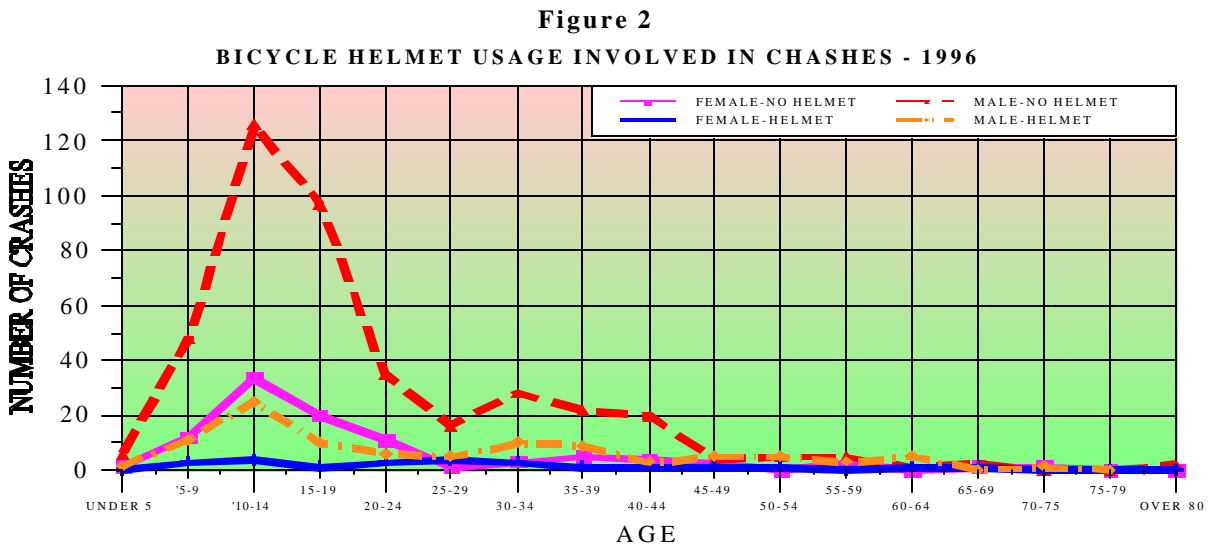


Figure 2 shows the distribution of bicycle crashes involving motor vehicles by sex, age and helmet usage (when noted) for 1996. Of added interest is the fact that males account for over 80 percent of bicycle crashes and are least likely to wear a helmet. While more detailed analysis and data collection remains, it is apparent that in order to reduce bicycle and pedestrian crashes, significant efforts involving education and construction of facilities should be made. The data presented supports the need to provide increased bicycle and pedestrian safety education to our youth, especially boys.



Bicycle riding has become a popular mode of transportation as well as an excellent tool for fitness



and recreation in Connecticut. A serious problem, however, for the cyclist is that the average driver of a motor vehicle does not recognize the cyclist as a legitimate user of the highway. ConnDOT, in cooperation with the Department of Motor Vehicles, Department of Health, State Traffic Commission and town governments are trying to alleviate the conflicts and provide a mutual understanding between the cyclist and the motorist.

For safe riding, it is necessary that the bicycle rider as well as the motor vehicle operator recognize and obey the existing laws governing and controlling the use of bicycles on Connecticut's public roads. The cyclist, like the motor vehicle driver may be penalized for violations of the rules of the road.

The bicycle, by law, is considered a vehicle, and as such, the operator of such vehicle, shall be granted all of the rights and shall be subject to all of the duties applicable to motor vehicles.

The cyclist shall ride single file on the right side of the road riding in as straight a line as possible. The cyclist shall stop at intersections and stop signs and obey traffic lights as if they were driving a car. The cyclist shall also observe all traffic regulations, use hand signals when appropriate, and keep the bicycle under control at all times.

Similarly, there are State Statutes governing the use of roads and sidewalks by pedestrians. One such law requires that no pedestrian shall walk along and upon a roadway where a sidewalk adjacent to such roadway is provided and the use thereof is practicable. Where a sidewalk is not provided adjacent to a roadway, each pedestrian walking along and upon such roadway shall walk only on the shoulder thereof and as far as practicable from the edge of such roadway.

Violations, which contribute mostly toward crash involvement between bicyclist/pedestrian and motorist, are:

1. *Biking / walking on the wrong side of the road.*
2. *Failure to stop completely at a stop sign.*
3. *Failure to yield to a motorist.*
4. *Weaving with a bicycle indiscriminately.*
5. *Violating crossing rules at intersections.*

For the cyclist's safety and protection and good riding, he or she must adhere at all times to the following ABC rules **ALWAYS BICYCLE CAREFULLY!**

1. *Ride as far to the right side of the road as possible at all times.*
2. *Stop at all stop signs.*
3. *Observe all traffic regulations.*
4. *Slow down at unsigned intersections.*
5. *Ride in a straight line.*
6. *Use hand signals when turning.*
7. *Ride with bicycle under control at all times.*
8. *Ride single file.*
9. *Watch for sudden door openings of parked vehicles.*
10. *Yield to the motorists and stay alive.*

The following is a summary of the state statutes that govern safety with respect to bicycle and pedestrian activities within Connecticut.

**Section 14 - 286. Use of bicycles and bicycles with helper motors. Regulations concerning bicycles on bridges. Use of high-mileage vehicles.**

A bicyclist shall yield the right-of-way to any pedestrian and shall give an audible signal before passing a pedestrian or another bicycle operator. No person shall operate a bicycle upon a sidewalk if such operation is prohibited by any ordinance of any town or by any regulation of the state traffic commission. No person shall ride a bicycle with a helper motor unless that person holds a valid license. No person shall operate a bicycle with a helper motor at a rate of speed exceeding thirty miles per hour; nor operate it on any sidewalk, limited access highway or turnpike. The state traffic commission shall adopt regulations under which bicycle traffic may be permitted on those bridges in the state on limited access highways, which it designates to be safe for bicycle traffic.

No person may operate a high-mileage vehicle on any sidewalk, limited access highway or turnpike.

**Section 14 - 286a. Rights, duties and regulation of cyclists.**

Every person riding a bicycle upon the traveled portion of a highway shall be granted all of the rights and shall be subject to all of the duties applicable to motor vehicles. No parent of any child shall knowingly permit any such child or ward to violate any provision of the general statutes relating to bicycles.

Every person riding a bicycle along any sidewalk or across any roadway shall be granted all of the rights applicable to pedestrians walking in such areas.

**Section 14 - 286 b. Operation of bicycles; attaching to moving vehicle prohibited; carrying of passengers, packages, bundles and other articles restricted; at least one hand to be kept on handlebars. Operators of roller skates, sleds, skateboards, coasters and toy vehicles prohibited from attaching to moving vehicle. penalties.**

Every person operating a bicycle upon a roadway shall ride as near to the right side of the roadway as practicable, exercising due care when passing a standing vehicle or one proceeding in the same direction] except when making a left turn, overtaking and passing another vehicle going in the same direction, pedestrians, parked vehicles animals or obstructions on the right side of the highway and when the right side of the highway is closed to traffic for construction or repair.

The commissioner shall, whenever possible, encourage the inclusion of areas for bicycles and pedestrians when creating the layout of a state highway or relocating a state highway.

Persons riding bicycles upon a roadway shall not ride more than two abreast. Persons riding two abreast shall not impede the movement of traffic, and, on a laned roadway, shall ride within a single lane.

No person riding upon any bicycle, roller skates, sled, skateboard, coaster or toy vehicle shall attach the same to any vehicle moving on a public roadway nor shall the operator of such vehicle knowingly permit it.

No person operating a bicycle shall carry a passenger, unless if age eighteen years, may carry any child provided such child is securely attached to his person by means of a backpack, sling or similar device.

No person operating a bicycle shall carry any package which prevents such person from using both hands in the operation of such bicycle. Each person operating such bicycle shall keep at least one hand on the handlebars.

**Section 14 - 286c. Left and right turns.**

A bicyclist intending to make a left turn may approach as close as practicable to the right-hand curb or edge of the highway, proceed across the intersecting roadway and make such turn as close as practicable to the curb or edge of the highway on the far side of the intersection.

A bicyclist intending to make a right turn may, before turning, extend his right hand and arm horizontally with forefinger extended.

A bicyclist operating a bicycle intending to make a right or left turn shall be required to make such signal continuously.

**Section 14 - 286d. Bicycle helmets. Children. Renting bicycles. Public awareness campaign.**

No child under sixteen years of age shall operate a bicycle on the traveled portion of any highway unless such child is wearing protective headgear.

A law enforcement officer may issue a verbal warning to the parent of such child.

A person engaged in the business of renting bicycles shall provide a bicycle helmet to any person under sixteen years of age who will operate the bicycle if such person does not have a helmet in his possession. A fee may be charged for the helmet rental.

The Commissioner of Consumer Protection may establish, within available appropriations, a public awareness campaign to educate the public concerning the dangers of riding bicycles without helmets and to promote the use of safety helmets while riding bicycles.

**Section 14 - 288. Lights, reflectors and brakes on bicycles. Whistle emitting devices prohibited.**

Each bicycle operated after dusk shall display a lighted lamp upon the forward part of such bicycle. Each bicycle shall also be equipped with a reflector attached to the rear of such bicycle. Such bicycle shall also be equipped with a braking device sufficient to enable the operator to stop within twenty-five feet on dry, level and clean pavement when moving at a speed of ten miles per hour. No person shall equip a bicycle with a device, which emits a whistle while operating a bicycle.

**Section 14 - 298. State Traffic Commission.**

The State Traffic Commission shall adopt regulations, in cooperation and agreement with local traffic authorities, governing the use of state highways, and the operation of vehicles including but not limited to motor vehicles and bicycles.

**Section 14 - 300. Crosswalks. Pedestrian - controlled signals. Regulation of pedestrians and motor vehicles at crosswalks.**

The traffic authority shall have power to designate such crosswalks and intersections as, in its opinion, constitute a special danger to pedestrians crossing the highway including specially marked crosswalks in the vicinity of schools, which crosswalks shall have distinctive markings and may maintain suitable signs located at intervals along highways, particularly where there are no sidewalks, directing pedestrians to walk facing vehicular traffic.

At any intersection where special pedestrian-control signals bearing the words "Walk" or "Don't Walk" are placed, pedestrians may cross the highway only as indicated by the signal. At any intersection, where traffic is controlled by other traffic control signals, pedestrians shall not cross the highway against a red or "stop" signal and shall not cross at any place not marked or unmarked crosswalk. A pedestrian started or starting across the highway on a "Walk" signal or on any such crosswalk on a green or "Go" signal shall have the right of way over all vehicles, including those making turns, until such pedestrian has reached the opposite curb or safety zone.

At any marked crosswalk, each operator of a vehicle shall yield the right of way to any pedestrian crossing the roadway within such crosswalk. No operator of a vehicle approaching from the rear shall overtake and pass any vehicle the operator of which has stopped at any crosswalk to permit a pedestrian to cross the roadway. The operator of any vehicle crossing a sidewalk shall yield the right of way to each pedestrian and all other traffic upon such sidewalk.

**Section 14 - 300a. Pedestrian street markings near housing projects for elderly persons**

The traffic authority shall provide special pedestrian street or sidewalk markings at intersections and streets in proximity to projects designated for containing a high proportion of elderly persons.

**Section 14 - 300b. Pedestrian use of crosswalks and roadways.**

Each pedestrian crossing a roadway at any point other than within a crosswalk shall yield the right of way to each vehicle upon such roadway.

No pedestrian shall cross a roadway intersection diagonally. No pedestrian shall cross a roadway between adjacent intersections at which traffic or pedestrian control are in operation except within a marked crosswalk.

Each pedestrian crossing a roadway within a crosswalk shall travel upon the right half of such crosswalk.

**Section 14 - 300c. Pedestrian use of roads and sidewalks. Required to yield to emergency vehicle.**

No pedestrian shall walk along and upon a roadway where a sidewalk adjacent to such roadway is provided. Where a sidewalk is not provided each pedestrian walking along such roadway shall walk only on the shoulder or as near as practicable to an outside edge of such roadway and shall walk only upon the left side of such roadway.

No pedestrian shall suddenly leave a curb, sidewalk, crosswalk or any other place of safety adjacent to or upon a roadway and walk or run into the path of a vehicle which is so close to such pedestrian as to constitute an immediate hazard to such pedestrian. No pedestrian who is under the influence of alcohol or any drug shall walk or stand upon any part of a roadway.

Each pedestrian shall yield the right of way to any authorized emergency vehicle.

Except at marked intersections, each pedestrian upon a roadway shall yield the right of way to each vehicle upon such roadway.

**Section 14 - 300d. Operator of a vehicle required to exercise due care to avoid pedestrian.**

Each operator of a vehicle shall exercise due care to avoid colliding with any pedestrian or person

propelling a human powered vehicle and shall give a reasonable warning by sounding a horn to avoid a collision.

**Section 14 - 300e. Application of pedestrian rights to solicitation of rides in a motor vehicle and walking on limited access highways.**

Nothing contained in sections 14 - 299, 14 - 300 or 14 - 300b to 14 - 300d, inclusive, shall be construed to limit the provisions of section 53 - 181 or to permit any pedestrian to walk upon or along any highway where pedestrians are prohibited by any provision of the general statutes.

**Section (NEW 1998) Public Act 98-165. An act concerning the rights and duties of bicyclists.**

A surcharge of 100% of the fine imposed when the driver of a vehicle fails to grant or yield the right-of-way to a person riding a bicycle and shall be credited to the special transportation fund.

In summary, laws governing and controlling the operation of a bicycle on the public highways and sidewalks are clearly defined in the Connecticut State Statutes. With the increase of bicycle traffic, it is mandatory that the State, city, and town officials alert cyclists of their responsibilities and duties while riding on public thoroughfares.

Enforcement of the laws and regulations will be necessary to promote safe riding and safe driving for both the cyclist and the driver of the motor vehicle. The two modes of transportation can be compatible if properly directed and controlled.