

APPENDIX 1

**LITERATURE REVIEW
and
BIBLIOGRAPHY**

LITERATURE REVIEW

It is important for plants to take advantage of research and implementation done in other communities, thereby learning from positive actions. This section reviews the available literature on (A) system development (engineering and safety), (B) maintenance, (C) intermodality, (D) education, encouragement, and enforcement, and (E) policy.

A. System Development (Engineering and Safety)

1. Engineering

There are many different levels of improvement for bicycles and pedestrians facilities. Similarly, there are many sources of technical information to assist municipalities in building these facilities. However, knowing what corridors to improve and how to improve them often complicate discussions of system development. An integrated approach is needed to maximize both utilization and safety (Goldsmith 1991).

How and where to improve roadways: There are several approaches to deciding how and where to improve roadways. Many transportation planners recommend that pedestrians and cyclists be accommodated on or along all roadways during transportation-related construction, reconstruction, or rehabilitation activities (Jones 1993, AASHTO 1991, McIlveen 1992, NYSDOT 1991, FHWA 1995). This reasoning behind this is twofold: (1) bicycles are vehicles under NYS Motor Vehicle Law and need to be accommodated as such, and (2) people on foot or bicycles often want to travel to the same destinations as people in cars.

Another approach is to choose and improve specific corridors for pedestrian and bicycle travel. This approach may be advantageous in that it may help prioritize and speed improvement of roads where high volumes of pedestrian or bicycle traffic are anticipated. A drawback to this is that the average pedestrian/cyclist will not travel far out of their way to travel in a designated pedestrian/bicycle corridor. Another is that motorists sometimes believe and insist that once established, pedestrians and cyclists can only travel within/on these corridors. In reality, cyclists are permitted on all roads except when prohibited on limited access highways.

The best approach integrates both of the latter. For example, municipalities or MPOs adopt policies of improving conditions for cyclists and pedestrians on all roadways. In addition, priority corridors and routes are designated. This allows for overall improvement of transportation corridors while frequently traveled or primary corridors are sometimes improved more rapidly.

Commonly used facilities: There are several commonly used facilities that are used to improve conditions for cyclists and pedestrians. For more detailed information on design and construction, refer to Section V, "System Design." These include the following:

- (1) Sidewalk - a separated, hard-surfaced paved path raised from the street by means of a curb or other barrier, designed primarily for pedestrian use;
- (2) multi-use bicycle/pedestrian path - corridors/trails that are physically separated from motor

vehicle traffic;

(3) bicycle lane - one-way corridors on streets separated from traffic by painted stripes and signs; and, (4) bike route - signed roadways shared by motor vehicles and bicycles. This includes wide curb lanes (travel lanes of 14' wide or greater) (Herman 1993, McIlveen 1992, AASHTO 1991, Herkimer-Oneida County 1994). Bicycle routes generally imply that roads are recommended for cyclists though routes can and do exist on roads where no specific changes have been made to accommodate bicyclists (FHWA 1995).

Pedestrian and cyclist facility preference: In terms of user preference, pedestrians desire sidewalks/paths that are well separated from traffic. Ideally, "All roadways should have some type of walking facility...and provide direct connections between residences and activity areas" (ITE 1994). Sidewalks also are the most important asset to pedestrians with disabilities and have the greatest overall impact on pedestrian safety. Compared to the costs of other transportation infrastructure and the costs related to bicycle and pedestrian accidents, sidewalks can be an inexpensive investment with a multitude of safety, accessibility, and local economic benefits (Ercolano 1995).

It is recommended that sidewalk design be based on land use, roadway function, and the density of housing units (ITE 1994). In other words, communities should anticipate areas that will generate significant pedestrian traffic and provide sidewalks. Likely generators include shopping plazas, city centers, schools, and urban and suburban residential areas. If provided in rural areas, sidewalks or other designated walking areas should be situated as far from traffic as possible (ITE 1994).

The issue is more complicated for cyclists. Of all cyclists, only 5% are considered advanced/very experienced bicyclists. This group, sometimes referred to as Class "A" riders are comfortable sharing most roads with motor vehicles, regardless of road or traffic conditions (FHWA 1992, *Bicycling Magazine* 1991). Further, they prefer direct and fast access to destinations on existing street networks with minimal disruptions. The remaining 95% can be divided into two sub-groups: (1) casual adult riders (Class "B"), and (2) children (Class "C"). Riders in groups B and C are less confident about their cycling abilities, prefer riding on residential streets or streets with low traffic volumes, and desire clearly separated bicycle facilities such as bike lanes or wide shoulders (FHWA 1992). Overall, most riders agree that a combination of wide pavement surfaces, low traffic volumes and speeds, and minimal roadway debris contribute to good riding. There is an ample selection of facility improvements to create a bicycle-friendly atmosphere in every community and for each type of cyclist (Rakoczy 1994).

Some bicycle and pedestrian planners place considerable importance on knowing whether cyclists ride for transportation or recreational purposes. They argue that utilitarian riders are more advanced and as noted above, require different facilities than casual riders who ride mainly for recreation. While the latter is true, it is worthy to stress again that regardless of the reasons for riding, all levels of cyclists can and will ride on roads. In fact, most cyclists ride for both reasons, although there is no national system to collect data on these trends (Rakoczy 1994).

2. Safety

New facilities must accommodate all pedestrians and cyclists without compromising safety (Rakoczy 1994). As more people choose to walk and cycle for transportation and recreational purposes, so may increase the rate of associated injuries and fatalities. Clearly, bicycling and walking are not

without risk. Interactions with motor vehicles and other non-motorized users introduces the potential for conflict. In fact, 28% of New York State's traffic fatalities each year involve pedestrians and cyclists, a number that is almost double the national average (CCE 1995). However, this number may not accurately reflect the average state accident rate; rather, it is inflated by the unusually high pedestrian accident rate in New York City. Any potential risk associated with increased ridership/walking cannot, however, be used as a rationale for not improving facilities. Riding without safe facilities and/or education poses risks in it of itself. Consider the following statistics:

Safety of pedestrian facilities: Regarding walkers, pedestrians in rural areas (without sidewalks) contribute only 2.7% of all pedestrian traffic, but contribute 24% of all reported pedestrian-motor vehicle collisions annually. In contrast, urban and suburban streets having sidewalks consistently reduce the frequency of injuries and death (ITE 1994).

Safety of bicycle facilities: Regarding cycling, safety varies depending on the types of bicycle facilities developed. For example, separated bicycle paths/trails are not recommended under most circumstance (AASHTO 1994, Wachtel and Lewiston 1994, FHWA 1995, Schubert 1994, Rakoczy 1994). Although preferred by many casual cyclists (groups B and C), paths often lead to more accidents (1.8% more) than occur when cyclists and motorists share roadways (Wachtel and Lewiston 1994). In fact, intersection accidents account for 74% of all bicycle-motor vehicle accidents (Wachtel and Lewiston 1994). Paths with many intersections confuse both cyclists and motorists regarding who has the right of way. Motorists often do not expect or notice cyclists approaching. Finally, separate paths often promote two-way bicycle traffic on them. When paths merge into a road with two-way traffic, one group of cyclists will inevitably be traveling in the wrong direction. Wrong way travel by cyclists is a major cause of bicycle-motor vehicle accidents (Schubert 1994, AASHTO 1991). Therefore, separated trails or paths are not suitable where there are frequent meetings with cross-traffic on driveways, streets, and major intersections (FHWA 1995).

Rail-trail conversions, however, are usually very safe because they stretch for long distances without many intersections (FHWA 1995). Because of their popularity, rail-trails may have other problems such as conflicts among their varied user groups, e.g., cyclists, roller-bladers, runners, hikers, children, and walkers. This can be combatted successfully through education and enforcement. It may be appropriate to provide a separate path for cyclists since cyclists can account for up to 80% of multi-use trail users (FHWA 1995).

In contrast, bicycle lanes are useful to all levels of cyclists since they reduce unpredictable side-to-side movements of both motorists and bicyclists (Kroll and Ramey 1977, McHenry 1985, AASHTO 1991). But like separated paths, bike lanes also can be a safety hazard at intersections. Here, cyclists and motorists may need to merge and/or cross paths in order to execute right and left turns. A combination of good design and education can effectively reduce this hazard (refer to the System Design section of this plan (p. 14) for recommended solutions). Another hazard of lanes is the accumulation of debris. Without adequate maintenance (sweeping) the safety benefits of bicycle lanes will quickly diminish.

In general, the construction of bicycle lanes markedly increase ridership without increasing accident rates. New bicycle lanes in Eugene, Oregon enjoyed heavy use while crashes declined from 4.5 to 3.9% in the first six months; in Corvallis, Oregon, new bike paths reduced crashes by over 50% in the first 12 months; and in Denmark, reports show that even a 2 foot wide lane reduces the risk by accidents of 70 to 80 percent (Laursen 1993).

Bicycle lanes, although similar, are to be distinguished from wide shoulders. Shoulders, generally found along rural roads, may not be specifically marked as a bicycle lane but can serve as such.

Shoulders are high quality and generally safe bicycle facilities. However, drivers must be educated so that shoulders are not used as an extra driving lane. The practice of driving on shoulders is extremely hazardous to cyclists and pedestrians but occurs along two-lane rural roads, especially when there are left-turning vehicles stopped in the travel lane.

Regarding bicycle routes, many states and/or municipalities including Dallas, Texas, the State of North Carolina, and Boulder, Colorado have established extensive bicycle route systems. Information is limited regarding the safety of these routes. Many roads may be signed when no physical improvements have been made. It is difficult to assess whether the presence of these signs, without infrastructure improvements, conveys a safety benefit. In an ideal situation, roads are carefully evaluated for road width, speed, volume, and type of traffic before being signed as a route (Rakoczy 1994, FHWA 1995, AASHTO 1991).

On rural roads, the NYSDOT recommends wide shoulders (4-6 feet) to accommodate bicycles. Shoulders provide substantial room for bicycle traffic. When there are financial constraints, the NYSDOT recommends that shoulders be provided on hills first, where the difference in speed between uphill bicycle traffic and motor vehicles will be most significant.

Designing the safest facilities: Whatever facility is chosen, it is recommended that available design guidelines be followed. Because standards are developed with safety as a primary concern, they offer the safest facilities available. In addition, installing standardized facilities may also afford extra liability protection to local governments (Jones 1993). Some commonly referenced manuals include:

(1) *A Policy on Geometric Design of Highways and Streets*, more commonly referred to as AASHTO standards, provides technical information about the design of pedestrian and bicycle facilities as well as roads and highways (AASHTO 1990);

(2) the *Manual on Uniform Traffic Control Devices* (MUTCD) provides technical information on signs and signals, some of which specifically target pedestrians and cyclists (MUTCD 1990);

(3) *New York State Department of Transportation's Roadway Design Treatments (Chapter 18)* provides bicycle facility standards that closely follow AASHTO and MUTCD (Jones 1993).

Choosing the right facilities: Choosing suitable facilities for any given road can be extremely difficult. Although transportation planners know that it is cost effective to develop a pedestrian/bicycle network on existing roads, planning standards for bicycle and pedestrian facilities are numerous and conflicting. However, researchers recently have developed new qualitative approaches to evaluating roads for cyclists and pedestrians (Sorton and Walsh 1994, Epperson 1993 & 1994, Landis 1994, Wilkinson et al 1992). There are limitations of many of these models. Many fail to recognize that different cyclists have different needs and abilities on the roads. Other models predict road suitability based on Average Annual Daily Traffic (AADT). This falls short since AADT alone does not reflect peak traffic flow volumes that occur when many cyclists travel. Other models are not yet supported by sufficient research or may be based solely on the opinion of a limited group of cyclists, engineers, and planners. Finally, many do not distinguish between urban and rural roads.

B. Maintenance

Maintenance is critical to preserving a community's investment in its bicycle and pedestrian facilities. AASHTO (1991) emphasizes the importance of maintenance specifically as it relates to sweeping of debris from all roads including shoulders, repainting pavement markings, replacing sewer grates, repairing potholes and sidewalks. Good maintenance on all roads is not only a low cost way of making a community's roads pedestrian and bicycle friendly, it is essential to the lasting success of all bicycle and pedestrian improvements.

Successful pedestrian and bicycle programs often establish a schedule of maintenance responsibilities prior to construction. Frequent inspection of sidewalks and roadways are necessary to ensure their good condition (AASHTO 1991). The level of maintenance for pedestrian and bicyclist facilities is generally more detailed and on a smaller scale than what is needed for motor vehicles. For example, a small pothole or drop-off in pavement, not hazardous to motor vehicles, may impede greatly the safety of pedestrians and cyclists. But because these problems may only be noticeable on foot or bicycle, pedestrians and cyclists are best able to report feedback concerning road problems to the responsible jurisdiction (FHWA 1992).

C. Intermodality

To make walking and biking convenient to many people, these modes need to be connected with public and mass transit facilities with sidewalks and other bicycle and pedestrian amenities. This is because transit users are pedestrians or cyclists at either end of their transit trip. Many countries in Europe accommodate pedestrians and cyclists on mass transit. Examples of important components of an intermodal program include:

- ◆ Pedestrian shelter located along all major transit routes. In Charlotte, North Carolina, shelters are located at all stops boarding over 50 passengers per day. Shelters can be financed in conjunction with revenues raised through advertising.
- ◆ The presence of safe bicycle storage at mass transit facilities (bus or train) greatly increases bicycle travel to these destinations. There is a direct relationship between the amount of safe bicycle storage space and the number of people who cycle to bus and train stations. Not surprisingly, cities with the most successful intermodal programs go to great lengths to offer bicycle storage facilities. Japan, which provides extensive and safe bicycle storage, has over half of its commuters traveling to train stations on bicycles.
- ◆ A network of interconnected pedestrian and bicycle paths along roadways, especially those that interconnect with transit, encourages intermodal travel.
- ◆ Good promotion is necessary for success. San Diego, California promotes its intermodal network through an informational phone line. Its intermodal network is one of the most successful in the country.
- ◆ Street environments need to be improved in terms of aesthetics and safety. Boulder, Colorado, rated one of the countries most walkable cities in the United States, has an extensive

pedestrian mall and 4 mile pedestrian trail running through the center of the City. Traffic calming techniques used along major bicycle, pedestrian, and transit routes also help make intermodal travel more enjoyable.

◆ Convenient bicycle storage on public transit is needed. Many cities have retrofitted buses and trains with bicycle racks. Successful programs can be found in Santa Clara, Los Angeles, and San Diego, California, Westchester, NY, and Seattle, Washington (FHWA 1992). Ithaca, New York will soon introduce bicycle racks on some of its buses. Several commuter railroads in major cities including Philadelphia (SEPTA railroad), New York (Long Island Railroad), and Baltimore (MARC trains) now allow bicycles on their commuter trains.

D. Education, Encouragement, and Enforcement

1. Education

Increasing the numbers of people who walk/cycle while simultaneously reducing accident rates will require an aggressive education program. Education of pedestrians, cyclists, and motorists is a critical component of safe roadsharing by non-motorized and motorized vehicles. Groups/issues needing particular attention during safety education include:

- ◆ Young children, boys in particular. (In New York State the largest group of bicyclists injured and killed consisted of 10 to 14 year old children. Boys contributed to almost 70% of pedestrian casualties).
- ◆ The elderly (Rakoczy 1994).
- ◆ Drug and alcohol awareness (drugs/alcohol are involved in almost one-half of pedestrian fatalities. This includes alcohol use by either the motorist or the pedestrian).
- ◆ Safe biking and walking techniques (a large majority of those killed in bike and pedestrian accidents were at fault)
- ◆ Safe roadsharing for motorists (Chaplin 1995).

Numerous resources are available to aid in safety education. These include the following:

- ◆ The Los Angeles Police Department has produced a video, *Be Safe on Your Bike*, that is used to educate elementary school children about bicycle traffic skills.
- ◆ *Bicycle Forum* produces a brochure for parents that highlights the truths and myths about safety for child pedestrians and cyclists.
- ◆ School-based programs such as "Basics of Bicycling" and "Traffic Ed" in the states of Florida and Montana have successfully educated many thousands of school-aged children.
- ◆ Public Service Announcements can be used to raise awareness and publicize special events and capture the attention of both adults and children.
- ◆ Special events such as walk/bike to work days, and bicycle rodeos are successfully sponsored by local law enforcement and pedestrian and bicycle advocacy organizations

(Rakoczy 1994). Special giveaways, financial incentives, and prizes encourage public participation. Many successful walking and cycling programs are incorporated into employee wellness initiatives at large employment centers. In San Francisco, adult cyclists gather once a month for a ride/rally downtown (Kay 1994).

◆ In New York State, the Governor's Traffic Safety Committee has developed bicycle education programs for children between the ages of five and fifteen years old. Administered by Cornell Cooperative Extension, the program provides a variety of written, and audio visual education aids (Rakoczy 1994).

2. Encouragement

What does it take to get more people to cycle and walk? According to results of a Rodale Press survey of cyclists who currently do not commute to work, 36% would bike to work if roads were improved for them, and if employers provided showers, lockers, and safe bike storage. That number increased to 40% if safe off-road paths were provided (Parkwood Research Associates 1995). A survey of pedestrians in Columbus, Ohio found that people's willingness to walk to a transit facility declines greatly when the destination is more than 2 blocks or a quarter of a mile away (Replogle and Parcels 1992). These clearly illustrate the need for comprehensive and connected facilities. To achieve this, planners suggest that one mile of bikeway be provided for every 8,000 people per square mile (average density development). This would allow most people to live within a half mile of the nearest segment (Jones 1993).

There is also evidence that the construction of off-road recreation facilities may ultimately increase the number of people who walk and cycle. For example, communities such as Seattle note that dramatic increases in walking and biking have been spurred by the construction of off-road facilities (FHWA 1995). In New York State, the Genesee Transportation Council also notes that recreational walkers and riders are most likely to also walk and cycle for transportation purposes. Therefore, it is important to encourage the development of recreational in addition to more utilitarian facilities. The most popular and successful routes/paths are generally those that incorporate practical transportation benefits with the aesthetic

Education efforts must stress that off-road paths are not the only places where people can walk and cycle. Regardless of existing off-road facilities, cyclists must be respected as another vehicle on the road (FHWA 1995). If right-of-way is available and used properly, separated bike paths may be used as a bicycle "highway" to provide quick travel between major destinations just as the interstate highway system is used by cars (AASHTO 1991).

However, facilities alone are not sufficient. Many people cite the dangers associated with sharing roadways with cars as a reason for not cycling more often. It is important to counter these fears with education. Oftentimes, peoples' perceptions of the road hazards are greater than the actual risk posed by them.

3. Enforcement

Many walking and bicycling accidents occur because people are either unaware of existing regulations or ignore them. Lack of enforcement may contribute to this problem. Enforcement

efforts do not have to be negative in tone, but can be combined with education programs and reward correct walking and cycling behavior. For example, the National Highway Traffic Safety Administration suggests giving pedestrians, cyclists, and motorists "positive citations" (coupons for local goods and services) when correct travel behavior is exhibited (Bowman 1993).

Another method is to have some officers actually patrol on bicycle. This method is not only high-visibility, but offers a positive example of correct pedestrian and cyclist behavior (Bowman 1993). The program's effectiveness can be multiplied by assigning officers to conduct occasional spot-checks in areas of significant cycling and walking such as schools, parks, universities, and downtown centers.

A more traditional way to enforce pedestrian and bicycle laws is to require police officers to issue citations to pedestrians, cyclists, and motorists who break pedestrian and bicycle-related laws. However, this may approach may not be well received by the public. Long term benefits may not be as noticeable.

Enforcement/education efforts aimed at young children are a good starting point for programs. Lessons taught early on often make long lasting impressions on children. However, adults need to be targeted as well. Kicking off an enforcement/education campaign with accident statistics can make a strong impression on the public at large (Bowman 1993).

Enforcement messages can be reinforced through public service announcements, and through the inclusion of more bicycle and pedestrian-related questions on drivers' licensing tests. And although police agencies should not have the primary responsibility for education programs, their involvement through enforcement is critical to overall success (Bowman 1993).

E. Policy

Many legislative initiatives (federal, state, and local) related to pedestrians and cyclists pertain to safety. The most common of these laws are those that require cyclists of varying ages to wear helmets. These include Maryland, Virginia, North Carolina, Ohio, California, Oregon, Pennsylvania, Tennessee, New Jersey, Georgia, Massachusetts, Connecticut, and New York. New York's law is one of several that also states that localities can promulgate regulations that exceed the statewide regulations in stringency. These regulations are a critical component of cyclist safety since the majority of deaths due to bicycle accidents are caused by head trauma (Rakoczy 1994).

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APPENDIX 2

GLOSSARY OF TERMS

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Metropolitan Planning Organization (MPO): Regional transportation planning organizations established by federal law for urban areas with more than 50,000 people.

Binghamton Metropolitan Transportation Study: The MPO for the Binghamton metropolitan region.

Broome County Environmental Management Council (EMC): Broome County's citizens advisory board to Broome County government on local environmental matters.

New York State Department of Transportation (NYSDOT): The New York State agency responsible for building and maintaining state roads. The BMTS region straddles two NYSDOT regions, Regions 6 and 9.

American Association of State Highway Transportation Officials (AASHTO): An organization of state departments of transportation which promulgates transportation design and operational policies.

Bicycle: A two or three wheeled vehicle ridden and propelled by a person or persons in combination with belts, chains or gears, and wheels (in tandem or tricycle) except devices intended for sole use on a sidewalk or by pre-teenage children (NYS Vehicle and Traffic Law).

Pedestrian: A person on foot or in a wheelchair (NYS Vehicle and Traffic Law).

Bicycle and Pedestrian Facilities: Infrastructure designed specifically to accommodate pedestrians and cyclists. Facilities can include sidewalks, parking, mapping, areas set aside specifically for pedestrian or bicycle use, and/or shared roadways not specifically designated for bicycle use.

Americans with Disabilities Act: 1990 federal legislation that resulted in significant improvements to make infrastructure accessible to all persons regardless of disability.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA): Legislation passed by the US Congress that authorizes all federal surface transportation funding programs for a six year period. Among many other factors, it required the consideration of bicycle and pedestrian needs, environmental concerns such as air quality and energy usage, and public participation in transportation planning.

Traffic Calming: A technique of making streets safer for pedestrians and cyclists by slowing the flow of traffic. Methods to accomplish traffic calming include building pedestrian islands, slowing traffic through speed limits, narrowing and curving streets, installation of stop signs, and the planting of trees.

Class I, II, III Bicycle Facility: The terms sometimes assigned to bicycle paths (Class I), bicycle lanes (Class II), and shared road facilities (Class III).

State Environmental Quality Review Act (SEQRA): The State Environmental Quality Review Act (6NYCRR Part 617) established a process that considers environmental factors early in the planning stages of actions that are directly undertaken, funded, or approved by local, state, or regional agencies (Jensen et al, 1992).

Transportation Improvement Plan (TIP): A five year schedule of federally aided highway, bridge, transit, and other improvements developed by MPOs for their regions.

Para-transit: Public transportation offered on a demand-responsive rather than fixed route-fixed schedule basis. Para-transit is typically oriented to special populations including elderly persons with disabilities, and rural residents.

APPENDIX 3

SECTIONS OF THE NEW YORK STATE VEHICLE AND TRAFFIC LAW PERTAINING TO PEDESTRIANS AND BICYCLES

Relevant sections of the NYS V&T Law

ARTICLE 26: RIGHT OF WAY

§1146 **Drivers to Exercise Due Care.** Notwithstanding the provisions of any other law to the contrary, every driver of a vehicle shall exercise due care to avoid colliding with any bicyclist [or] pedestrian...upon the roadway and shall give warning by sounding the horn when necessary.

ARTICLE 27: PEDESTRIANS' RIGHTS AND DUTIES

§1150 **Pedestrians subject to traffic regulation.** Pedestrians shall be subject to traffic control signals as provided in §1111 of this title, but at all other places pedestrians shall be accorded the privileges and shall be subject to the restrictions stated in this article.

§1151 **Pedestrians' right of way in crosswalks.** (a) When traffic control signals are not in place or not in operation the driver of a vehicle shall yield the right of way, slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway within a crosswalk when the pedestrian is upon the half of the roadway upon which the vehicle is traveling or when the pedestrian is approaching so closely from the opposite half of the roadway as to be in danger, except that any pedestrian crossing a roadway at a point where a pedestrian tunnel or overpass has been provided shall yield the right of way to all vehicles.

(b) No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close that it is impractical for the driver to yield.

(c) Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle.

§1151-a **Pedestrians' right of way on sidewalks.** The driver of a vehicle emerging from or entering an alleyway, building, private road, or driveway shall yield the right of way to any pedestrian approaching on any sidewalk.

§1152 **Crossing at other than crosswalks.** (a) Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right of way to all vehicles upon the roadway.

(c) No pedestrian shall cross a roadway intersection diagonally unless authorized by official traffic control devices; and, when authorized to cross diagonally, pedestrians shall cross only in accordance with the official traffic control devices pertaining to such movements.

§1156 **Pedestrians on roadways.** (a) Where sidewalks are provided and they may be used with safety it shall be unlawful to walk along and upon an adjacent roadway.

(b) Where sidewalks are not provided any pedestrian walking along and upon a highway shall when practicable walk only on the left side of the roadway or its shoulder facing traffic which may approach from the opposite direction. Upon the approach of any vehicle from the opposite direction, such pedestrian shall move as far to the left as is practicable.

ARTICLE 34: OPERATION OF BICYCLES AND PLAY VEHICLES

§1230 **Effect of regulations.** (a) The parent of any child and guardian of any ward shall not authorize or knowingly permit any such child or ward to violate any of the provisions of this article.

(b) These regulations applicable to bicycles shall apply whenever a bicycle is operated upon any highway, upon private roads open to public motor vehicle traffic and upon any path set aside for the exclusive use of bicycles.

§1231 Traffic laws apply to persons riding bicycles. Every person riding a bicycle upon a roadway shall be granted all of the rights and shall be subject to all of the duties applicable to the driver of a vehicle by this title, except as to special regulations in this article and except as to those provisions of this title which by their nature can have no application.

§1232 Riding on bicycles. (a) A person propelling a bicycle shall not ride other than upon or astride a permanent and regular seat attached thereto, nor shall he ride with his feet removed from the pedals.

(b) No bicycle shall be used to carry more persons at one time than the number for which it is designed and equipped.

§1233 Clinging to vehicles. 1. No person riding upon any bicycle, coaster, roller skates, sled or toy vehicle shall attach the same or himself to any vehicle being operated upon a roadway.

2. No person shall ride on or attach himself to the outside of any vehicle being operated upon a roadway.

The provisions of this section shall not apply to:

(i) vehicles in an emergency operation as defined in section one hundred fourteen-b of this chapter; and

(ii) farm type tractors used exclusively for agricultural purposes or other farm equipment; and

(iii) riding on the open, uncovered cargo area of a truck with the permission of the operator of such truck; and

(iv) vehicles employed by a municipality for local garbage collection; and

(v) vehicles participating in a parade pursuant to a municipal permit.

3. No vehicle operator shall knowingly permit any person to attach any device or himself to such operator's vehicle in violation of subdivision one or subdivision two of this section.

§1234 Riding on roadways, shoulders, bicycle lanes and bicycle paths. (a) Upon all roadways, any bicycle shall be driven either on a usable bicycle lane or, if a usable bicycle lane has not been provided, near the right-hand curb or edge of the roadway or upon a usable right-hand shoulder in such a manner as to prevent undue interference with the flow of traffic except when preparing for a left turn or when reasonably necessary to avoid conditions that would make it unsafe to continue along near the right-hand curb or edge. Conditions to be taken into consideration include, but are not limited to, fixed or moving objects, vehicles, bicycles, pedestrians, animals, surface hazards or traffic lanes too narrow for a bicycle and a vehicle to travel safely side-by-side within the lane.

(b) Persons riding bicycles upon a roadway shall not ride more than two abreast. Persons riding bicycles upon a shoulder, bicycle lane or bicycle path intended for the use of bicycles may ride two or more abreast if sufficient space is available, except when passing a vehicle, bicycle or pedestrian standing or proceeding along such shoulder, lane or path, persons riding bicycles shall ride single file. Persons riding bicycles upon a roadway shall ride single file when being overtaken by another vehicle.

(c) Any person operating a bicycle who is entering the roadway from a private road, driveway, alley or over a curb shall come to a full stop before entering the roadway.

ARTICLE 37: REGULATION OF TRAFFIC BY DEPARTMENT OF TRANSPORTATION AND OTHER STATE AUTHORITIES

§1621 Other traffic regulations on state highways and on Indian reservations. (a) The department of transportation with respect to state highways maintained by the state, the intersection of any highway with a state highway maintained by the state, and any highway intersecting or meeting a state highway maintained by the state for a distance not exceeding one hundred feet from such state highway maintained by the state, may by order, rule or regulation:

2. Prohibit, restrict or regulate the operation of vehicles on any controlled-access highway or the use of any controlled-access highway by any limited use vehicle, pedestrian, horseback rider or vehicle or device moved by human or animal power.

16. Designate a portion of a slope as a path for the use of bicycles.

17. Order signs or markings to identify the portion of the highway to be used for bicycle travel.

ARTICLE 39: REGULATION OF TRAFFIC BY CITIES AND VILLAGES

§1641 Additional traffic regulations on all highways except state highways maintained by the state in cities and villages. In addition to the other powers granted by this article, the legislative body of any city or village with respect to highways (which term for the purposes of this section shall include private roads open to public motor vehicle traffic) in such city or village except state highways maintained by the state, may by local law, ordinance, order, rule or regulation:

1. Prohibit, restrict or regulate the operation of vehicles on any controlled-access highway or the use of any controlled-access highway by any vehicle, device moved by human power or pedestrian.

5. Designate a portion of a slope as a path for the use of bicycles.

6. Order signs or markings to identify the portion of the highway to be used for bicycle travel.

ARTICLE 40: REGULATION OF TRAFFIC BY COUNTY SUPERINTENDENT OF HIGHWAYS

§1650 Traffic regulations on county roads. (a) The county superintendent of highways of a county with respect to county roads in such county, may by order, rule or regulation:

6. Order signs or markings to identify the portion of the highway to be used for bicycle travel.

7. Designate preferential use lanes for specified types or classes of vehicles.

ARTICLE 41: REGULATION OF TRAFFIC BY TOWNS

§1660 Traffic regulation in all towns. (a) The town board of any town with respect to highways outside of villages in any such town, but not including state highways maintained by the state except with respect to subdivisions six, eight, nine and ten, subject to the limitations imposed by section sixteen hundred eighty-four may by ordinance, order, rule or regulation:

12. Prohibit, restrict or regulate the operation of vehicles on any controlled-access highway or the use of any controlled-access highway by any vehicle, device moved by human power or pedestrian.

14. Regulate the crossing of any roadway by pedestrians.

21. Designate a portion of a slope as a path for the use of bicycles.

22. Order signs or markings to identify the portion of the highway to be used for bicycle travel.