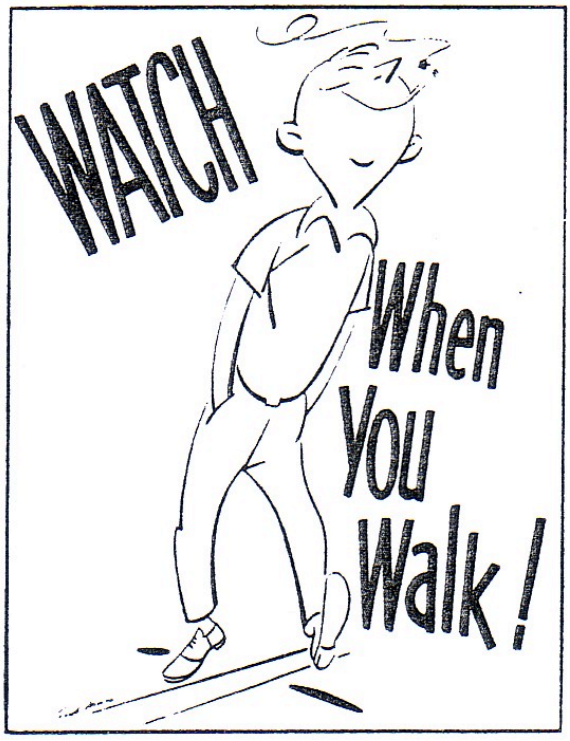
Pedestrian Safety in 20th Century Pittsburgh

79-410 History & Policy Project Course Fall 2006



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Executive Summary

This report provides an empirical and historical analysis of pedestrian safety in Pittsburgh in the context of increasing automobile use. It aims to provide a comprehensive examination of pedestrian-automobile interaction, and the civic, judicial, and legislative responses. Our basic conclusion is that collisions that resulted between pedestrians and automobiles should not be viewed as random and isolated incidents, but rather were the result of systematic problems. These systematic problems range from poor planning in terms of traffic flows and inadequate signage to ineffective safety education of both drivers and pedestrians. Public policy, however, frequently only reacts to crisis. Only crashes with devastating and often times fatal consequences that cause a public outcry seem to drive legislative initiatives to produce preventative measures to reduce future collisions.

A key source for tracking pedestrian-related collisions over time has been the Better Traffic Committee of Pittsburgh, a civic advisory group formed in 1925 that was apparently merged into the Pittsburgh Department of Public Safety in the 1970s. This committee published annual *Traffic Accident Summaries* that provided statistics enumerating pedestrians injured or killed by collisions with vehicles. In addition, this data set included information concerning pedestrian and driver behavior and time of collision. The data, however, was not published after 1970. We have therefore analyzed the data for 1936 to 1970 and plotted trends over time for the following categories:

- Number of pedestrian deaths from 1936 to 1970
- Percentage of pedestrian deaths relative to population change
- Pedestrian's behavior at the time of collision

- Driver's behavior at the time of collision

- Time of day

The data illustrates a decrease in the percentage of pedestrian deaths relative to population from 1936 to 1970. However, although deaths were reduced considerably, population also declined. The declining rates of pedestrian deaths and injuries in Pittsburgh are actually the result of many forces. Legislation regarding driving behavior produced safer conditions for both drivers and pedestrians. Non-governmental organizations and projects of neighborhood groups also worked to produce safer conditions in particular communities. Educational efforts contributed to declining rates, as pedestrians adjusted to an environment where automobiles were the primary form of vehicular traffic. Municipal infrastructure improvements, such as traffic lights, also contributed to lower deaths and injuries, while the diversion of through traffic away from areas with heavy pedestrian flows created a safer walking environment. Although still requiring further investigation, vastly improved emergency response and greater access to health care undoubtedly sharply reduced pedestrian deaths. These improvements, however, do not diminish the significance of the problem of risks to pedestrian safety. While the population of Pittsburgh as well as the volume of pedestrians has decreased considerably, the number of automobiles in the city has increased. Thus, the need to take future action in regards to pedestrian safety is clear.

In summary, the most effective means of protecting pedestrian safety is with local action in coordination with statewide and national measures. Local measures would allow Pittsburgh city officials to identify specific areas that demand greater attention

while also creating particularized programs that will address the particular problems of Pittsburgh.

1. *Introduction*

Perhaps no technological innovation has altered the American landscape and culture throughout the 20th century as dramatically as the automobile. The automobile opened up parts of the nation that were previously difficult, or even impossible to reach. Americans could now independently move as they desired, free from the constraints of public transportation and crowded city sidewalks. Costs initially limited the number of Americans who could possess an automobile and they continued to walk or use public transport. Automobile growth in crowded cities increased the possibilities of pedestrian interaction, often with fatal results. As more individuals began to drive automobiles and trucks, the threat to pedestrian safety increased. This report attempts to chronicle Pittsburgh's struggle to balance the benefits that the automobile supplied, such as increased speed and point to point travel, with the need to provide adequate safety mechanisms for its pedestrians.

The Pittsburgh driving environment is conditioned by its unique topography, with the site bisected by three rivers and burdened with a rugged hill and valley configuration.

2. *Trends*

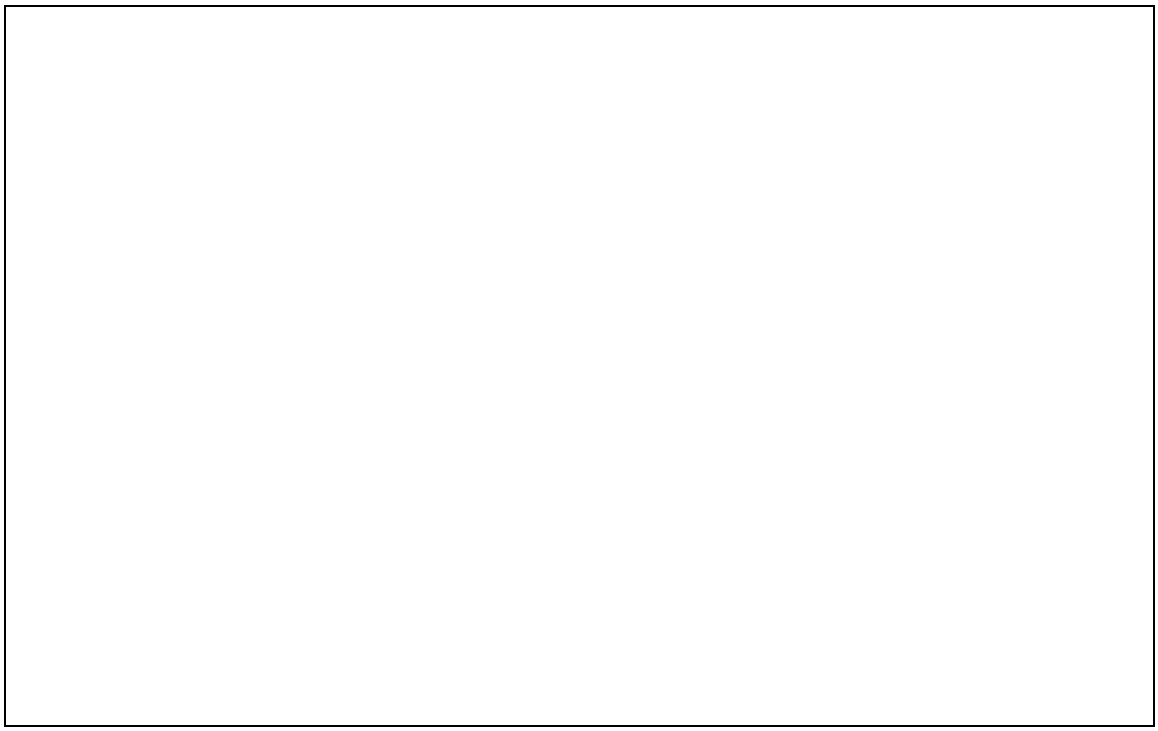
2.1. Statistical Analysis

2.1.1. Population Trends

The time period covered by the analysis is 1935-1970. The start date is when the Better Traffic Committee began to collect and publish crash data while the end point is when the Better Traffic Committee is eliminated and data ceases to be published.

During this period, as illustrated in Figure I, the city experienced a sharp drop in population, from approximately 660,000 in 1930 to 520,000 in 1970, with the sharpest decline after 1950 -23%). (Today the city's population stands at approximately 330,000.)

Figure 1: Population of Pittsburgh: 1900-2000



2.2.1 Vehicular Crashes 1935-1970

From 1936 to 1950, as Figure 2 shows, the number of collisions per year increased from about 3,700 to almost 5,000, marking a 33% increase compared to a 2% population growth. From 1950 to 1970, as Figure 2 shows, the number of collisions in Pittsburgh increased from 5000 to 17,800, a per centage increase of 264%, while population decreased 23%.

Figure *2: Total Vehicular Crashes 1935-1970*

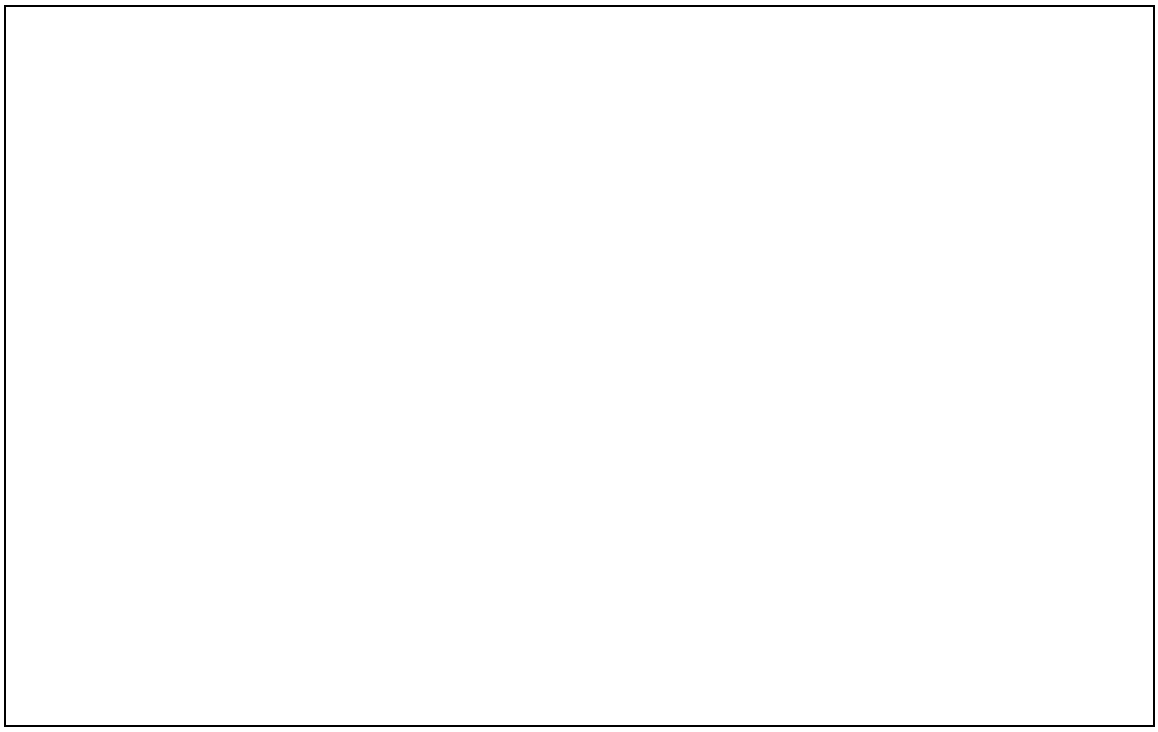
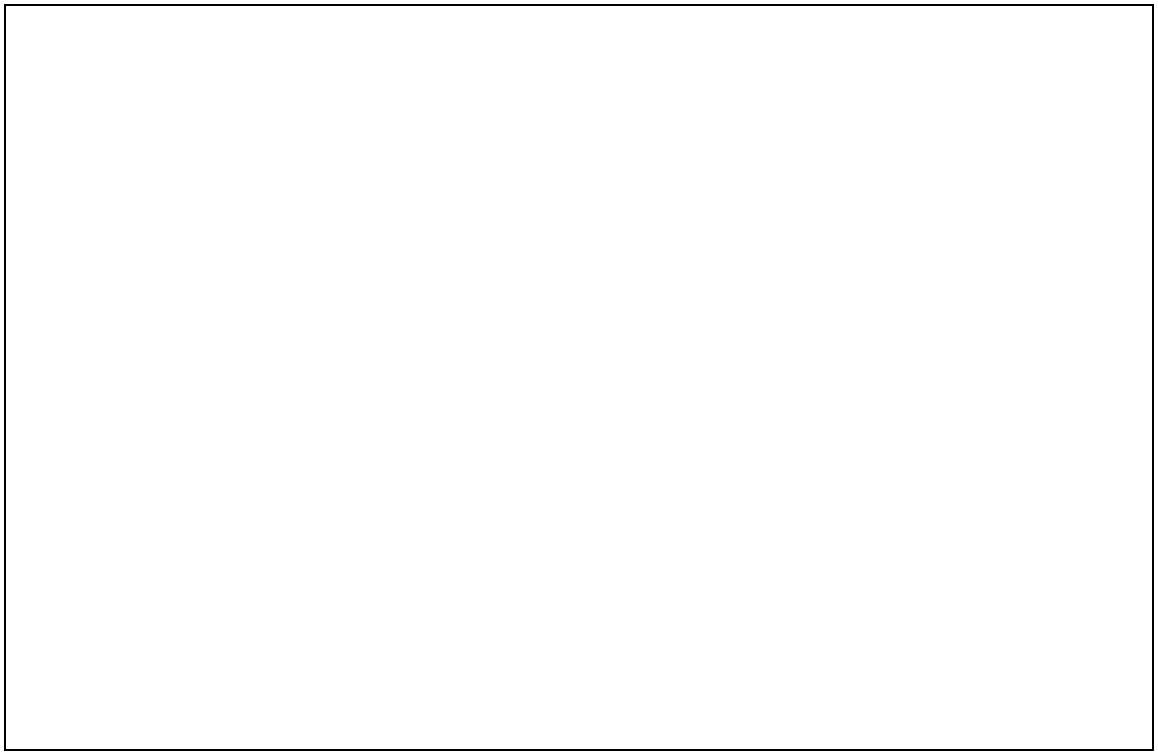


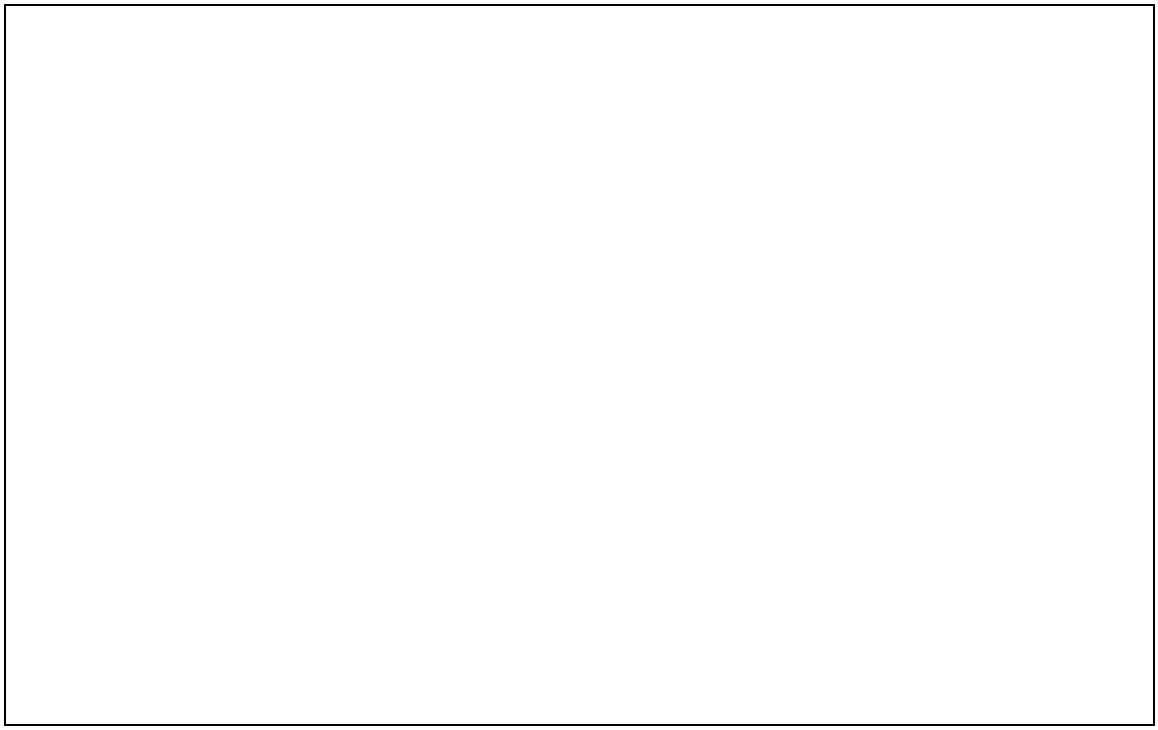
Figure 3: Number of Vehicle Trips Compared to Crashes: 1950s



2.2.2 Number of Pedestrians Injured by Automobile Collision

Pedestrian injuries from automobiles in 1936 compared to 1970, as shown in Figure 5, shows a decrease in the number of pedestrians injured from about 1,250 to 752, a percentage decrease of almost 40% The downward slope, however, is eratic, with increases in the late 1950s followed by renewed declines through 1970..

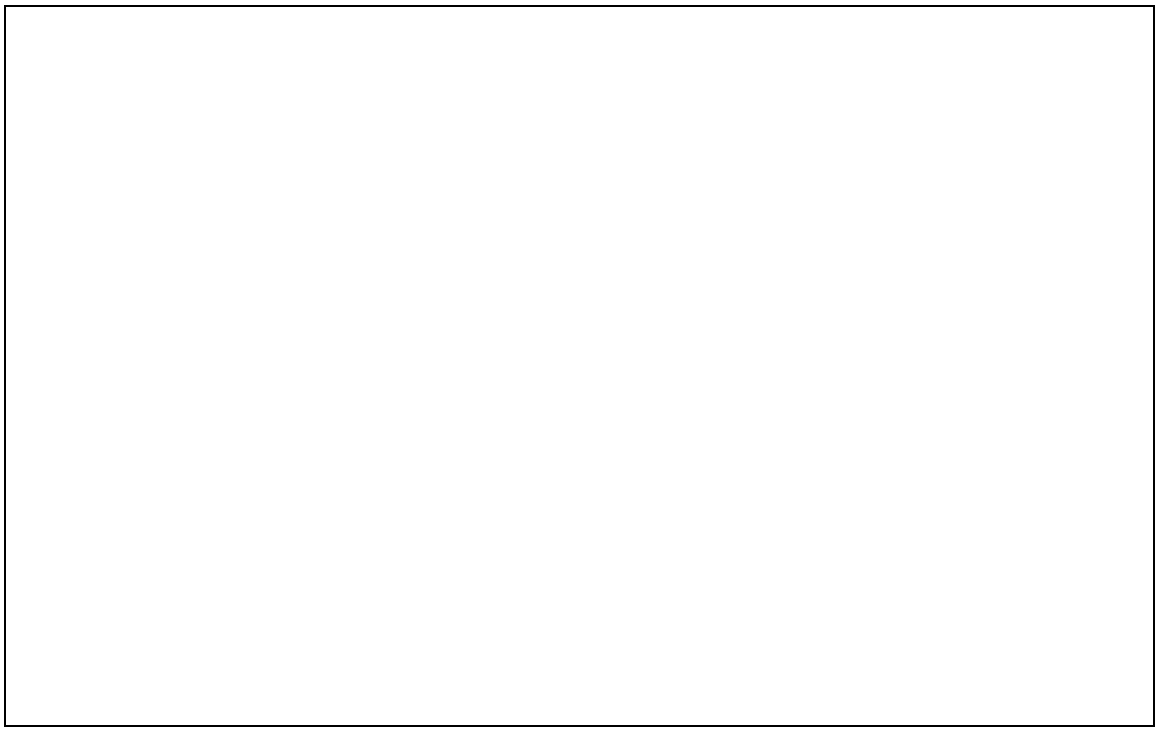
Figure 5: Number of Pedestrians Injured by Automobile Collision



2.2.3 Pedestrian Deaths 1935-1970:

Pedestrian deaths steady decline from 1936 through 1970, as seen in Figure 6. Pedestrian deaths drop about 45% from 1946 to 1969, while the Pittsburgh population drops approximately 36% from 1950 to 1970.

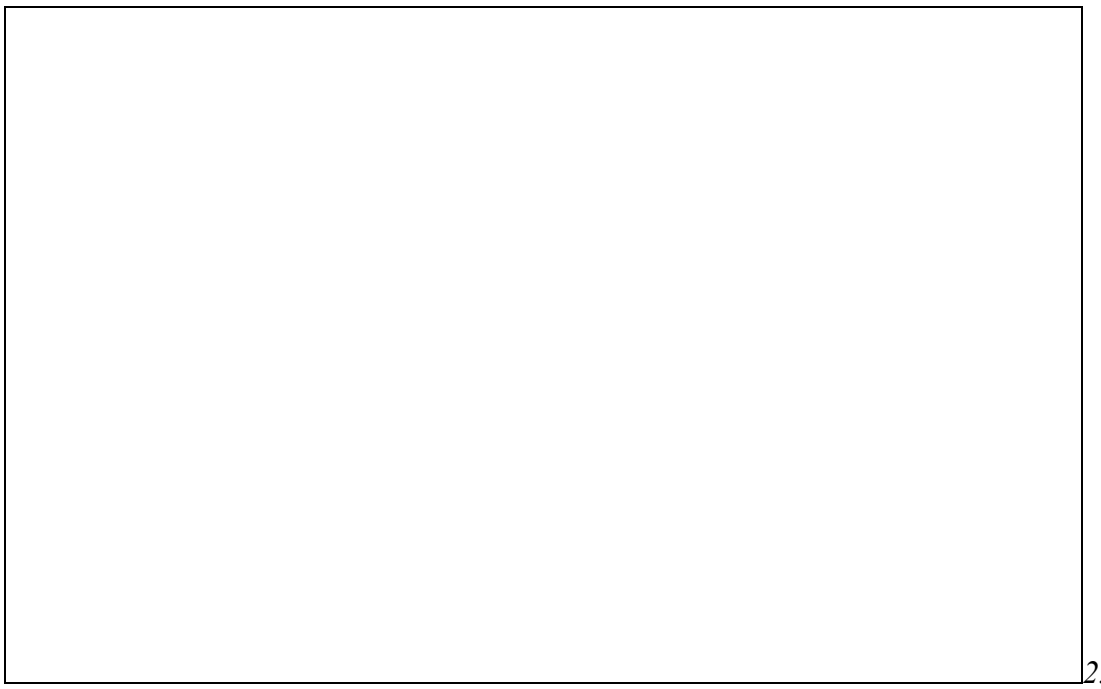
Figure 6: Pedestrian Deaths: 1935-1970



2.2.4 Percentage of Deaths in Collisions

From 1936 to 1970, as seen in figure 7, there was a decrease in the percentage of pedestrians who died in automobile crashes. In 1936, 93% of the pedestrians involved in crashes survived, and in 1970, 98% of the pedestrians survived.

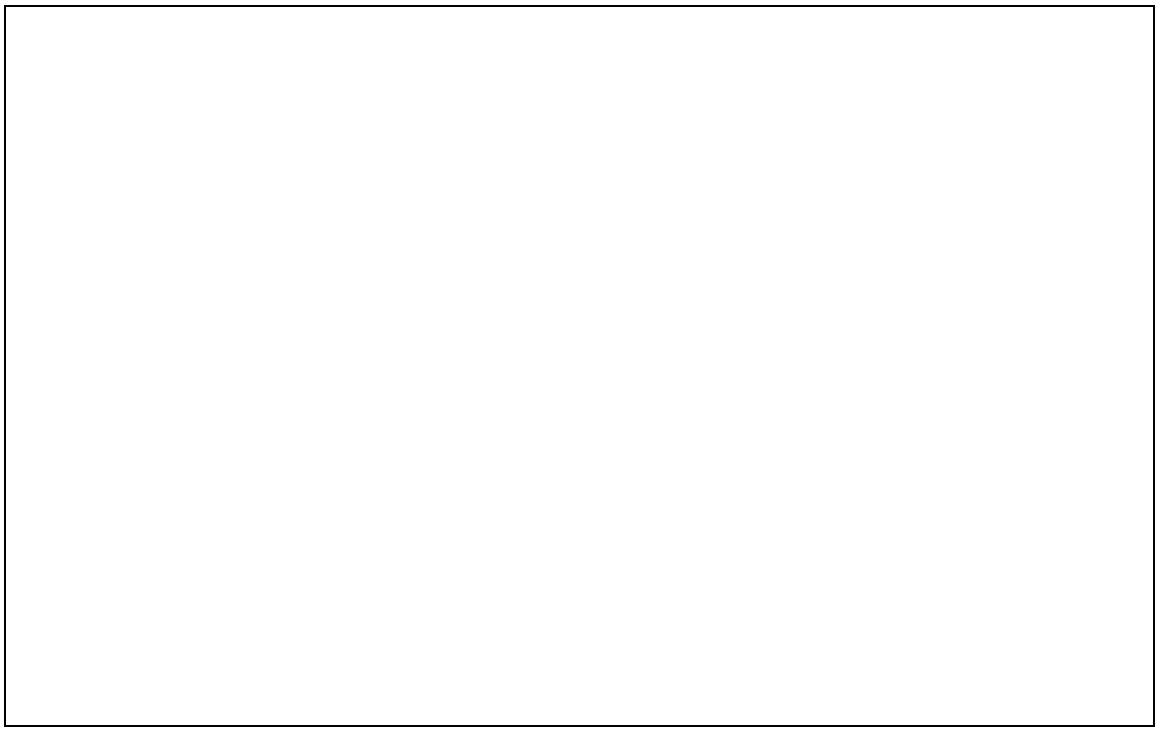
Figure 7: Percentage of Deaths in Collisions



2.2.2. 2.5 Pedestrian Deaths by Age Group Relative to Population: 1935-1970

In this period almost 11% of the population was under 10 and this age group accounted for 21% of the pedestrians hit in collisions. The next age cohort was between the ages of 10 and 45, composing 52% of the population, and accounted for 14% of the pedestrians hit in crashes as shown in figure 8. Almost 25% of the population was over the age of 55 and this group accounted for almost 54% of the pedestrians hit in collisions. This suggests that those very young and very old were more likely as pedestrians to be hit in crashes, a pattern that conforms to national data.

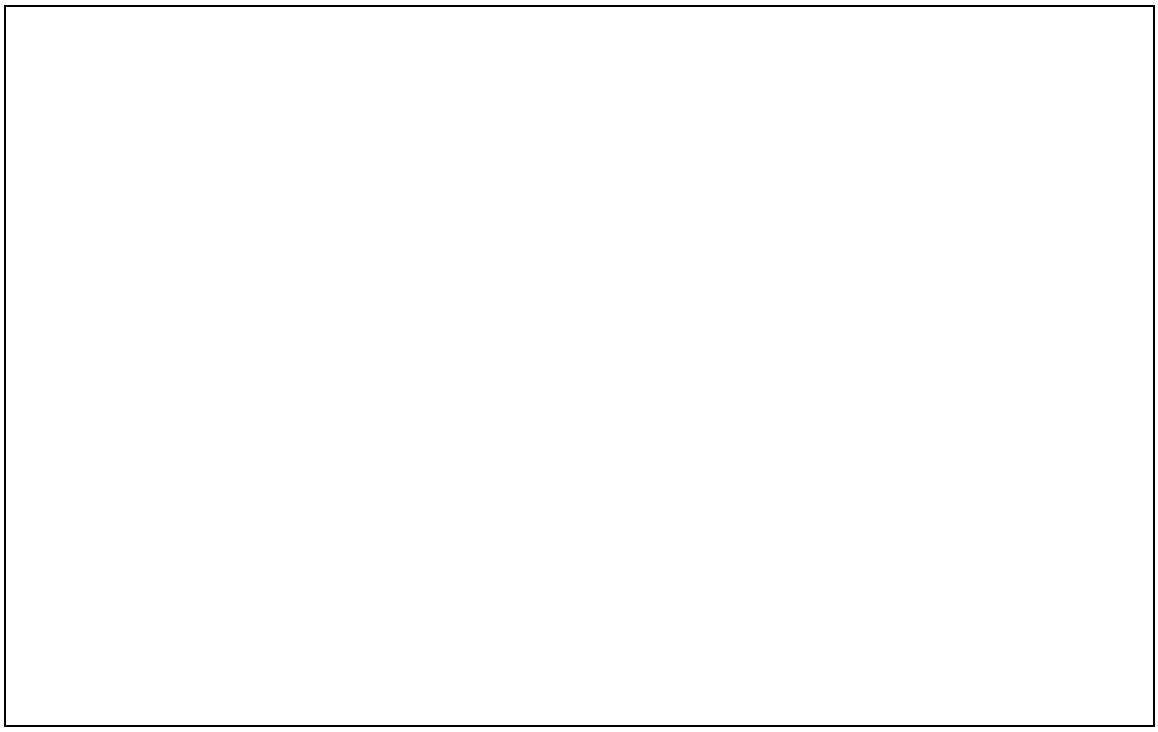
Figure 8: Pedestrian Deaths by Age Group Relative to Population: 1935-1970



2.2.9 Pedestrian Crossing Behavior and Collisions

Most pedestrian collisions occur while crossing the street where no intersection exists (such as in the middle of the street or block). Next most frequent are collisions that occur because of crossing an intersection with no light, crossing against the light, and crossing with the light.

Figure 9: Manner of Pedestrian Crossing at Time of Non-Fatal Collision: 1935 - 1970



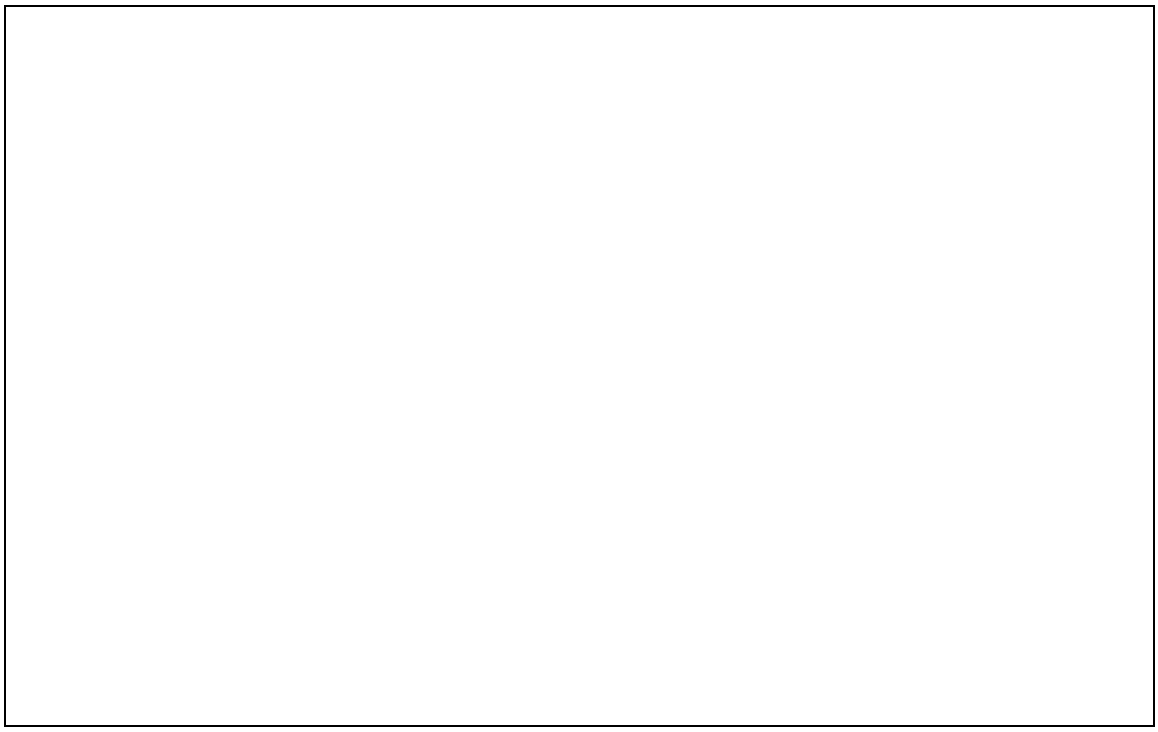
2.2.6 Timing of Pedestrian Accidents

In the decade of the 1950s, 11% of the day's accidents occurred between 7 a.m. and 9 p.m., and almost 23% of the day's accidents occurred between 4 p.m. and 6 p.m. Over the same time period, Pittsburgh Traffic Flow data shows that 38,000 cars drove through town from 7 a.m. to 9 p.m., and 43,000 from 4 p.m. to 6 p.m. During the decade 1950-1960, there were almost 12% more automobiles in Pittsburgh from 4 p.m. to 6 p.m. than from 7 a.m. to 9 p.m., but there are almost twice as many collisions from 4 p.m. to 6 p.m. than from 7 p.m. to 9 p.m.

2.2.10 Speeding

Drivers exceeding the speed limits accounted for at least 40% and as high as 80% of crashes resulting in pedestrian deaths from 1935-1970 as shown in Figure 10. The three years with the highest percentage of deaths from speeding were 1940, 1969 and 1970.

Figure 10: Percentage of Pedestrian Deaths from Exceeding Safe Speed Limit: 1935-1970



3. *Traffic and Pedestrian Flows*

3.2 Background

As automobiles became a more pervasive part of everyday life in Pittsburgh, the city government several non-governmental organizations initiated studies with the goal of controlling automobile and pedestrian interactions. The prime objective was to create urban design and planning recommendations to accommodate this new mode of transportation. Many of these reports, however, did not discuss pedestrians, demonstrating the focus upon improving automobile flows.

3.2.1 A Major Street Plan for Pittsburgh: Citizens Committee on City Plan of Pittsburgh

1921 was a seminal year in urban design and street construction in Pittsburgh. With the advent of the automobile only decades before, mass consumption of cars led to many unforeseen problems and dilemmas. Automobiles shared the congested streets with

streetcars, horse-drawn vehicles, and pedestrians. The several modes of transportation inhabiting the public streets necessitated a uniform system to ensure the continued flow of traffic while also protecting the safety of all involved. In September of 1921, the Citizens Committee on City Plan of Pittsburgh, in an effort to gain a greater understanding of the contemporary situation and suggest long-term strategies, in issued a report entitled "A Major Street Plan for Pittsburgh." The Citizen's Committee, an unofficial organization of private citizens, initiated the study under the belief that a definitive and practical system of traffic development was essential for the maintenance of Pittsburgh's commerce and transportation.

The authors of the report conducted automobile traffic counts on city intersections for one day - October 28, 1920 - from 7:00 a.m. to 6:15 p.m. The Committee primarily studied seventeen metropolitan district routes, most of which were primary arteries that extended out of the city and into the suburbs. The Committee used this data to make recommendations on how to alleviate street traffic on these arteries. Most of the recommendations involved the widening of lanes in order to accommodate a greater number of vehicles.

The report also studied 63 other important thoroughfares. The Committee suggested that these streets could be improved through amplification, or enlargement of the roads to handle larger flows of traffic as it had in regard to the metropolitan district routes. The report named five different mechanisms by which traffic capacity could be increased: removal of streetcar lines, street widening involving the removal of buildings; street widening accomplished by moving the sidewalks into arcaded ways under the

buildings; the prohibition of vehicles from stopping at curb; and, the creation of two-level and three-level streets, an expensive and not always feasible recommendation.

The Citizen's report focused largely on “The Triangle” or central business district (CBD). The report maintained that district functionality was threatened by CBD congestion and made a series of recommendations: improvement of existing streets found in the Triangle; improvement of thoroughfares beyond the Triangle in order to encourage through-traffic to pass around this district; and legal and financial means of achieving street modifications and new construction.

Pedestrians are barely mentioned in the report.

3.3.2 Arterial Plan for Pittsburgh, 1939

Robert Moses and Associates produced this plan in November 1939. It showed that automobile registration had increased from approximately 30,000 in 1920 to 80,000 in 1930, and to over 120,000 in 1938, while population had only increased from about 600,000 to 700,000. Like the previous Citizen's Committee Report, it recommended improving various CBD streets and constructing various bypass routes. This Report noted that Pittsburghers would have to be prepared to put up with traffic congestion at peak morning and evening hours unless they were prepared to undertake measures that would be very expensive. It also noted that trolleys contributed "largely to Pittsburgh's traffic difficulties," suggesting the removal of tracks and the substitution of buses. However, like the previous report, it made no significant mention of pedestrian traffic and safety.

3.2.4 Pittsburgh Area Transportation Study, 1961

In the period after World War II, automobile use increased greatly in the daily lifestyles of Pittsburgh residents, with the highest concentrations in the Golden Triangle which experienced an accumulation of close to 100,000 persons a day

In an attempt to cope with the issues of traffic conditions that seemed to be hampering city and regional growth, the city, county and state joined to produce the most comprehensive report on automobile use in Pittsburgh to this time. The two volume study gathered information on many parameters including traffic flow, land use, population distribution, trip characteristics, method of transportation and vehicle distribution, made 1980s forecasts for these parameters and provided recommendations.

The study reported that there were 393,000 autos in the region, or 0.7 autos per household in Pittsburgh and 1.0 auto per household outside of Pittsburgh. Higher automobile to household density was found as one moved out from the Golden Triangle. The surveys conducted for the study found that peak hours for automobile travel were 7-8 a.m. and 4-6 p.m., reaching close to 38,000 vehicle trips at both times. (Commercial travel was most intensive in the daylight hours from 8 a.m. to 5 p.m. at around 5,000 vehicle trips.) The highest density of mass transit trips involved residents living in and near the Golden Triangle.

These vehicle trips were converted into person trips, to better reflect the impact of mass transit. Like vehicle trips, person trips were found to peak from 7 to 8 a.m. with about 240,000 person trips, while in the evening trips peaked from 2 to 5 p.m., averaging just fewer than 200,000 person trips. Person trips remained high from 5 to 8 p.m. and then steadily declined. The morning spike was primarily due to trips to school and work. Between peaks trips were dominated almost equally by trips home, for personal business

and shopping, with an average of around 80,000 person trips. Trips home dominated the afternoon and evening spikes, with personal business, shopping, and recreation playing larger roles during the evening spike.

In total 21.1% of trips were to work, 15.3% for school, shopping or eating, 12.1% for personal business and 9% for social purposes. 80% of trips had either home as the start point or destination, and 96% were either home or work related. Trucks and other commercial vehicles were found to have only 14.2% of trips with home base destinations, the rest were either devoted to delivering or picking up goods or performing services such as maintenance work.

Around 80% of these person trips were made by car either as driver or passenger; the remainder was made by mass transit. No count of pedestrian trips was made, though the study did examine how many blocks were walked by mass transit takers: over 50% walked less than a block, and only 15% walked three or more blocks. Most automobile trips were found to be less than four miles in length, with trips to work averaging 3.5 miles and trips home averaging 2.8 miles. The study found that each trip making resident spent about one hour making trips totaling about 11 miles in length. This slow average speed of 11 mph emphasized that the traffic system needed improvement to promote faster, more efficient vehicular trips. Again, however, these extensive traffic-planning reports made no attempt to measure or discuss pedestrian traffic.

Figure 1: Vehicle Trips by Time (Auto Traffic vs. Commercial Traffic)

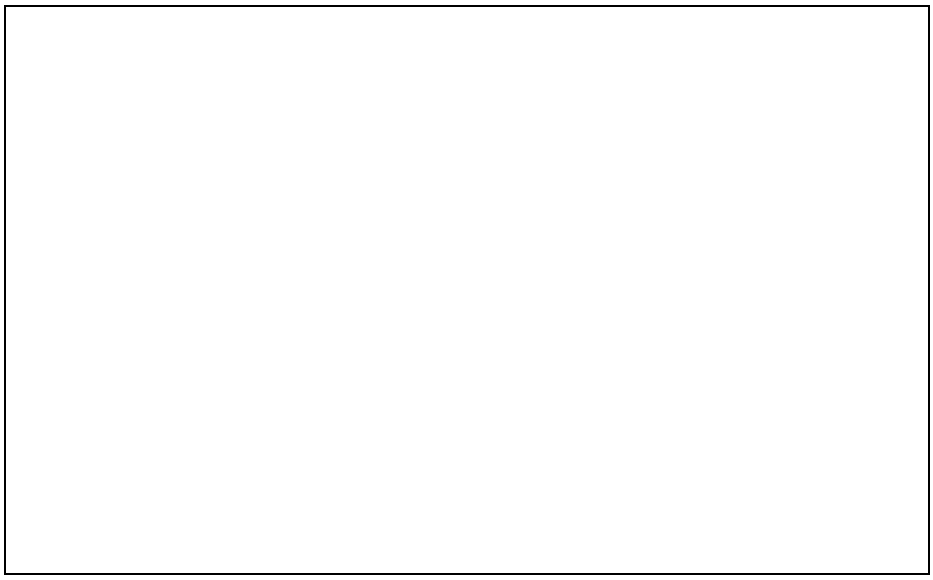


Figure 2: Pedestrian Flow Inbound/Outbound of Golden Triangle

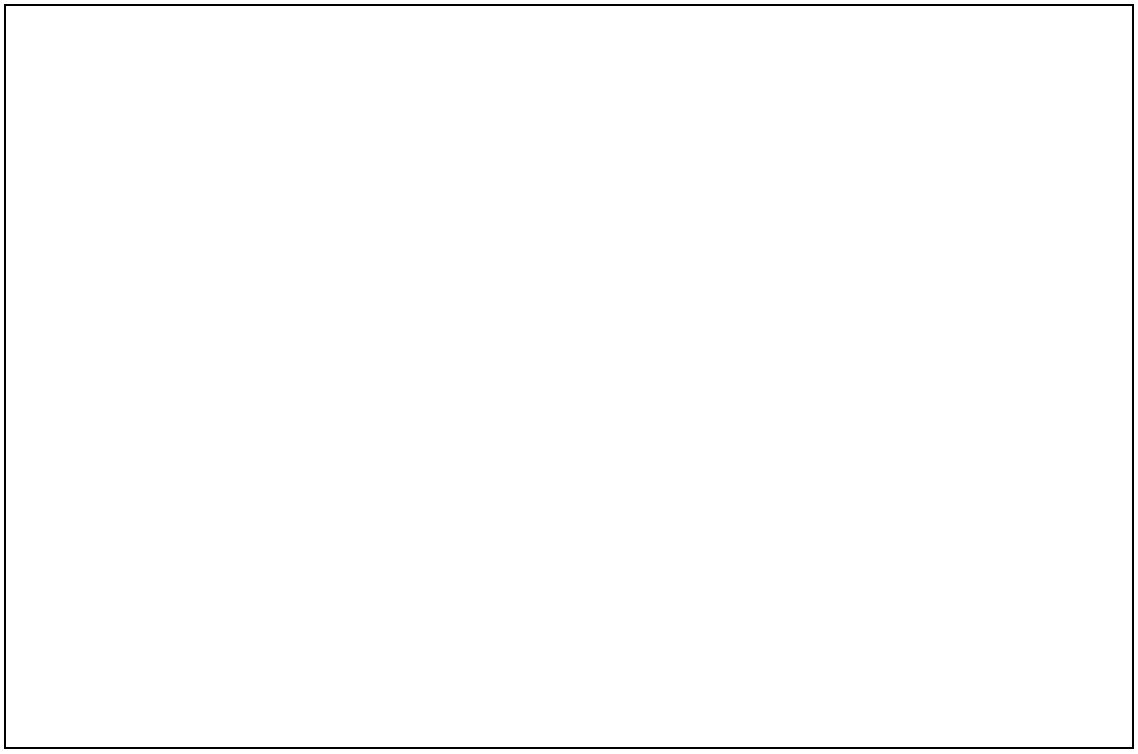
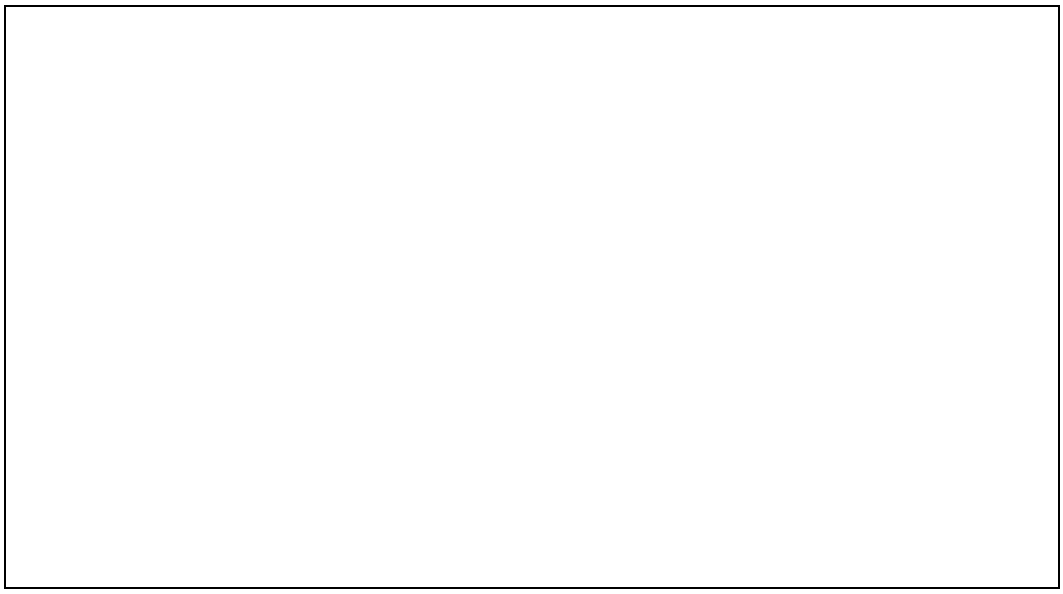


Figure 3: Average Vehicle Speed by Time

Figure 4: Percent of Transit Trips by Blocks Walked



3.2.5 Golden Triangle Cordon Count of 1963

Since the 1920s, the city of Pittsburgh has conducted cordon counts of vehicle traffic at five-year intervals but only the study for the 1963 report was found. The primary purpose of the study was to gather data so that a comprehensive analysis of

existing traffic patterns and movement of people entering and leaving the CBD could be determined and recommendations made to facilitate traffic flows. The 1963 study found that a total of 106,795 vehicles entered and 103,402 left the Golden Triangle on a typical day. This was a reduction of approximately 3% compared to 1955 and 8% compared to 1953.

4. *Traffic Laws and Ordinances*

Cities, like Pittsburgh, mostly have jurisdiction over parking, traffic flows, and safety zones. The time period covered in this research spanned the time period of 1919-1970. The most significant motor vehicle changes took place in the 1920s, specifically in 1927, the first year that specific legislation was passed for pedestrian and driver interactions. Actual texts can be found in Appendix 2.

Enforcement also changed drastically over this time period. In the early 1920s one was less likely to be pulled over by the police for law violation than in the 1950s and 1960s. In the 1920s, police officers had difficulty documenting automobile speeding. One officer would have to be at one point of the road and the other officer had to be at least one-eighth of a mile away from the other officer to clock driver's speed. Thus, the technology in these years was not very efficient or accurate in monitoring driving speeds.

Another important piece of legislation that was significant is law that makes the driver in a crash responsible for the well being for the other people involved. It was the duty of the driver to take the injured person(s) to receive medical care. Ambulances were not as relied upon in this time period. This legislation was found in 1927 and was still in effect in 1956. The legislation specifically states,

> "The driver of any vehicle involved in any accident resulting in injury or death to any person, or damage to property, shall also give his name, address, and the registration number of his vehicle, and exhibit his operator's license to the person struck, or the driver or occupants of any vehicle collided with, and shall render to any person, injured in such accident, reasonable assistance, including carrying of such person to a physician or surgeon for medical or surgical treatment, if it is apparent that such treatment is necessary or is requested by the injured person."

[] []

There are other laws that dealt with driver responsibility. Another law found in the 1945 legislation said that if a person in an accident or who witnessed an accident failed to report it then they could have their license suspended. This put a lot of responsibility on drivers and non-drivers in an accident to report it and make sure that the injured party can be compensated. The Right-of-Way law also has a lot to do with responsibility. When a pedestrian is at a designated crosswalk then they have the right of way but if they are in the middle of a block that is not a designated crosswalk then the driver has the right of way and the pedestrian has to let the drivers pass before crossing. This law is still the same today.

4. Pedestrian Behavior

4.1 Research and Recommendations of the NHTSA re. Pedestrian Safety:

In 1970, the Highway Safety Act established the National Highway and Traffic Safety Administration. Its mission is to "Save lives, prevent injuries and reduce economic costs due to road traffic crashes, through education, research, safety standards and enforcement activity." (www.nhtsa.gov) The NHTSA pursues research on several topic areas, including pedestrian risks and safety.

The NHTSA's 1978 report "Urban Crossing Problems," outlines the most common types of pedestrian/vehicle collisions, called Potential Accident Causal Types (PACTS). The NHTSA also suggests countermeasures for each PACT, summarized in the chart below:

Table 1: Countermeasures for Potential Accident Causal Types

POTENTIAL ACCIDENTAL CAUSAL TYPE (PACT)	DEFINING CHARACTERISTICS	COUNTERMEASURES
Pedestrian Preoccupation	∗ Lone pedestrian crosses without looking both ways ∗ Usually occurs in intersection without traffic signal	∗ Distinctive stimulus, such as auditory signal or change in sidewalk surface, to mark intersection ∗ Education measures to inform public about meaning of stimulus
Vehicle Turning	∗ Vehicle must slow or stop to avoid hitting pedestrian ∗ Vehicle passes unusually close to	∗ Improve the likelihood the pedestrian will search in all directions before crossing, through signaling or

	pedestrian ∗ Pedestrian not paying attention	other means
Pedestrian Extreme Haste	∗ Pedestrian runs across street ∗ Pedestrian does not search for traffic at all or at appropriate time	∗ Improve the likelihood the pedestrian will search in all directions before crossing, through signaling or other means ∗ Do not implement an ordinance – it will be ineffective, unpopular & difficult to enforce
Right-of-Way Challenge	∗ Pedestrian is crossing at intersection ∗ Vehicle is legally able to proceed through intersection ∗ Vehicle may change speed/direction or wait for pedestrian to avoid collision	∗ Revise right-of-way ordinances to reduce emphasis on pedestrian precedence ∗ Public information campaigns to educate about revised ordinance ∗ Selective enforcement of fines or mandatory education program for violating pedestrians
Pedestrian Slow Crossing	∗ Pedestrian is crossing at such a slow pace, a threat may develop even if pedestrian searched adequately before crossing	∗ Special advisory signs in areas with large elderly populations ∗ Longer signal timing
Pedestrian Over-reliance on	∗ No or inadequate searching by the	∗ Public information to educate

Other Pedestrians in a Group	group as a whole ∗ Individual pedestrian may be distracted by conversation or assume safety in a group	pedestrians to search for traffic themselves or to make sure that someone in the group has
Pedestrian Caught by Signal Change	∗ Light changes to red as pedestrian enters crosswalk ∗ Pedestrian is unaware of threatening vehicle	∗ Public information and enforcement
Driver Through-Crosswalk Stop	∗ Vehicle pulls through crosswalk, intending to stop for the sign/signal ∗ Pedestrian either appears suddenly or does not adequately search ∗ One or both of the parties must change speed/direction to avoid collision	∗ Make parking spaces be set back to allow maximum visibility ∗ Remove obstructions and mount mirrors to aid visibility if possible ∗ Create a marked crosswalk and a stop limit line ∗ Provide pedestrian warning signs

The report also lists the behaviors of safe pedestrians when crossing the street, as paraphrased below: (G2-G3)

1. Search in all directions for traffic before beginning to cross
2. Depend on visual search, not hearing or peripheral clues
3. Always yield right-of-way to automobiles
4. Do not assume driver is in total control of vehicle
5. Establish eye contact with driver

6. Increase speed if light changes while crossing
7. Stay alert while crossing
8. Search while crossing
9. Move cautiously near obstructions until field of vision is clear
10. Do not stand in potential path of turning vehicles
11. Cross by shortest route possible.

The NHTSA undertook the Pedestrian Injury Causation Study in the mid-1970's to uncover the impact of vehicle design on pedestrian injuries and fatalities with the aim of advising Congress on regulations for the automobile manufacturing industry. The study took place in several US cities, including Buffalo, NY and San Antonio, TX. Some of the major findings of the study were discussed in the 1979 report "Passenger Car/Pedestrian Impact Protection System Evaluation." In the Code of Federal Regulations (CFR), Congress had passed regulatory measures to make the front end of the vehicle "less aggressive." (Pedestrian Injury Causation Study, 34) These measures included a revised design for the bumper and leading edge of the vehicle, including using plastic and foam to make the front end "softer and more yielding," as well as more flexible, plastic mountings for the headlights.

While the NHTSA performs national research and provides for national regulation standards, it advocates that pedestrian safety initiatives are most effective at the local level. Its 1990 report, "Planning Community Pedestrian Safety Programs: An Agenda for Action," found that pedestrian safety initiatives are most promising when they are

institutionalized in a community and integrated into a plan for traffic safety and other health/safety initiatives. (Planning Community Pedestrian Safety Programs, 1)

It recognizes four components of traffic safety: (1) regulations/laws; (2) enforcement; (3) traffic/facilities engineering; (4) education programs and outreach for pedestrians and drivers. It outlines a plan for establishing a local program, which includes assessing the problem, creating a pedestrian safety task force, assessing resources, targeting groups, implementing and integrating the program, and then assessing the effectiveness and outcome. The report recommends assessing the problem by obtaining information from local organizations such as the state Department of Transportation, the police department, the local AAA, community public works office, local hospitals, public health officials, and schools. The task force would have the responsibility to estimate the scope and magnitude of the problem, the number of high-risk intersections, the quality of school safety programs, and recommending laws and ordinances. It also suggests targeting high-risk groups of pedestrians for education and outreach. The report recommends integrating a pedestrian safety initiative with other initiatives in the community, such as consistent law enforcement efforts, community movements for health, the environment, downtown revitalization, etc, and local media campaigns.

The 1981 Report reported important statistics. The NHTSA recognized 31 accident types, and the report showed that 7 accident types accounted for more than 50% of all accidents: (1) pedestrian dart out (33%); (2) pedestrian intersection dash (8%); vehicle turn-merge (6%); multiple threat (3%); bus stop related (3%); ice cream vendor related (2%); vehicle backing up (2%).

6. Infrastructure

6.1. Background

Vehicles of all types, including automotive, public transit and trucks, combine to create street traffic in a city. Pedestrian traffic occupies the sidewalk but also interacts with vehicle traffic in the street both at intersections and non-intersections. As the number of wheeled vehicles on the streets has increased dramatically since the 1920's, concern about pedestrian safety has become de-emphasized in most cities, as planners have focused on facilitating vehicular traffic. Traffic volume is not only a concern for automobiles, but also for pedestrians. The largest problem area in Pittsburgh is the downtown. The downtown area has been an area of interaction between pedestrians and vehicles for decades but especially since the 1920's. As automobiles became more prevalent in the city, pedestrians were forced to use the sidewalk rather than the street as a by-way

6.2 Traffic Control Devices

There are a number of traffic control devices that have been used in the last eighty years. Not all of these methods have been employed in Pittsburgh but they have been used in similar cities with varying effects. The major traffic control devices include traffic lights, stop signs, pedestrian crosswalks, roundabouts and a variety of traffic calming devices used at intersections.

The most common point where pedestrians and automobiles interact is at intersections. Intersections are one of the major problems for controlling traffic. The most essential part of traffic control devices is to get the largest volume of traffic through an intersection in the safest way possible. As the number of cars increased in Pittsburgh,

vehicle-pedestrian interactions at intersections grew. One of the most dangerous aspects was left turns that ignored pedestrians. A 1927 study found that 68% of drivers making left turns at intersections in Pittsburgh were traveling at high speeds and failed to enter the correct lane as the car turned. This same study also found that the improper placement of traffic signals in the intersections had an effect on their safety by blocking the driver's line of sight.

As traffic signals became more prevalent, traffic engineers encountered new problems in intersections. In the 1970's, a new problem for intersections was the increased conflict of multiple traffic control devices at intersections. A solution for this was the narrow-beam left turn signals to continually indicate to drivers whether or not left turns were allowed or not. This type of turn signal was designed to clearly indicate to drivers and pedestrians who had right of way to make left turns, which had already been shown to be a dangerous part of intersections.

Another form of traffic control at intersections was the traffic sign. The most common traffic sign at intersections is the stop sign. The first stop sign was designed by a police office in Detroit and was installed in 1914. Prior to 1926, there were no laws or customs regulating how traffic signs were to be designed, with the result that there was a proliferation of a variety of types of traffic signs. In 1926 the National Conference on Street and Highway Safety standardized signs to a style that we are familiar today with standard sizes, colors, lettering and height from the ground. In 1953, reflective paint was added as a requirement.

6.3 Traffic Signals

The first method of automobile traffic control was police officers trained to direct automobiles and pedestrians through intersections. This method of traffic control is one that endures to modern times. However, police-directed traffic control was quickly found to be expensive and time-consuming. The cost of training officers and maintaining a police force large enough to control the heavily traveled intersections in the city is extremely high. The first form of electric traffic lights was the semaphore, which was a manually by police, used from 1908 through approximately 1930.

The first traffic light was invented in 1918 in Cleveland, Ohio and was a two-color traffic signal, with only red and green. The major improvement in the traffic light over the semaphore was the improved visibility at night. The first traffic lights were similar to the semaphores in that police direction was still required because the signal was only two-directional.

In 1920, the four-directional traffic light was invented. This took police officers out of intersections and also added a yellow caution light as part of the traffic light. Traffic lights became more complex and shifted to a multiple bulb system arranged horizontally. Pedestrian traffic signals did not come into common use until the 1970's.

In 1927, Pittsburgh installed a progressive traffic light system on 100 downtown intersections. This system was very similar to the light system that is used on Pittsburgh's streets today. It is a "stop and go" system to govern the traffic flow through intersections. Street design caused problems with the progressive light system since the timing of the light must be shorter in order to prevent traffic jams on these shorter thoroughfares. Placement of signals so drivers could clearly see them was also an issue.

6.4 Effect of Traffic Lights and Signs

Developing traffic lights and signs was only the first step in controlling traffic for the improved safety of automobiles and pedestrians. One of the first obstacles in installing traffic controls was the objections of business people and residents of neighborhoods. Many citizens, particularly in the early 1920's, had concerns over how the installation of traffic controls would affect traffic directly around their businesses or homes. Business owners had concerns over whether or not traffic controls would discourage traffic from stopping at their stores. Neighborhoods worried over the dangers of the increased speed of traffic on the streets as a result of traffic lights. One of the biggest proponents of traffic safety in the 1920's was Burton W. Marsh, who became traffic engineer of Pittsburgh in 1925, the first in the nation.

By the 1930's, traffic engineers throughout the country worked together to standardize the regulatory system.

6.5 Street Infrastructure

The problem with designing safe streets for automobiles and pedestrians is not limited to intersections but include factors such as street lighting, maintenance, cleaning, landscaping, and parking arrangements. Since pedestrians and automobiles occupy two different thoroughfares, it is important to clearly define both environments while still designing for clear sight paths.

The lighting of streets is a major factor in pedestrian accidents, particularly in the evening and early morning hours. Street lighting has always been a costly problem for cities, but a unique aspect of street lighting in Pittsburgh was industrial smog. Because of the heavy dense smoke that hung over the city as a by-product of coal burning, street

lighting became of supreme importance, as the city would frequently be dark in the middle of day.

Street maintenance was also a problem. Street maintenance includes the maintenance of asphalt surfaces as well as the maintenance of sidewalks. Street maintenance affects the automobile-pedestrian relationship in that poor maintenance of streets distracts drivers from paying attention to the actions of pedestrians. Sidewalk maintenance is important because if sidewalks are not maintained or not present, pedestrians do not have a way of safely getting around the city. Street maintenance is a source of concern because of its high cost.

The availability of parking has been a problem in Pittsburgh. Although there are parking garages, there are also numerous streets in downtown with street parking. Parking is important to the automobile-pedestrian relationship parked cars can impede both pedestrians and driver's visibility. Curbs are also significant because they separate automobiles and pedestrians.

Removing snow and de-icing the roads is crucial to improve the safety of roads and sidewalks for both pedestrians and drivers. But while the city does attempt to deice the roads, it does not have the money to salt the sidewalks for pedestrians. Salting the sidewalks has always fallen to the residents or businesses rather than a city funded effort. The lack of salting for the sidewalks is indicative of the lack of concern over the ease of travel for pedestrians. This shows more concern over the safety of automobiles over the ease of travel of pedestrians.

7. Safety Education

By the 20th Century, the introduction of the automobile into urban environments required changes in pedestrian behavior. Pedestrians were accustomed to sharing their streets with horse-drawn vehicles and streetcars. Historically, both the urban working and middle-classes had used roads as playgrounds in environments absent of open public spaces. While streetcars reduced street use to some extent, many remained as centers of community interaction and children's play spaces. Now, however, all streets became spaces for automobile use and pedestrians often found themselves at risk.

7.1 Pittsburgh Research and Education

Like many other cities across the United States, Pittsburgh undertook preventative measures to curb the rising number of automobile accidents involving children. As early as the mid-1920s, the city of Pittsburgh used education as a means to prevent traffic accidents. In 1929, the *American City Magazine* published an article entitled, "The Teaching of Safety in the Schools," that recommended a broad number of programs that could be incorporated into existing school lesson plans. Pittsburgh developed programs in their schools that followed many of these general recommendations. Other civic organizations, especially The Better Traffic Committee, encouraged both parents and teachers to teach safety education using visual aids to help children recognize signs, traffic officers, and crosswalks. The Education Section of the National Safety Council and the Highway Education Board advanced the same concept nationwide.

In 1929, the Better Traffic Committee allocated $17,500 to be spent over five years for safety education. Pedestrian educational programs instructed teachers on how to teach safe behavior to children at play, on roads and streets, and with cars. Major efforts

throughout the century to reduce accidents involving children included establishing crossing guards, creating lesson plans in schools, and supporting traffic control ordinances meant to modify driver behavior. In 1930, Burton Marsh wrote in the *American City* that, "the continuous, coordinated educational program which has been carried on by various [Pittsburgh] agencies has played a major part in accident prevention" (Marsh, "Traffic Accident Problem Receives Continuous, Scientific Study in Pittsburgh", *American City*, V.42, February, 1930).

7.2 Traffic Talks (1926, 1927)

In 1926 and 1927, the Better Traffic Committee distributed one hundred and fifty thousand copies of twenty-two messages called "Traffic Talks" throughout the city in department stores, gasoline stations, schools, and clubs.

7.3 Boy Scouts and Crossing Guards (1926)

A major measure to improve pedestrian safety involved the creation and use of crossing guards. In 1926 the city of Pittsburgh spent $5,000 funding a project to place Boy Scouts at the city's most dangerous intersections with signs to warn motorists and pedestrians of the risks. Schoolboy patrols were also utilized at designated corners. Twenty thousand "Sentinels of Safety," sponsored by the Pennsylvania Motor Federation (PMF) and the AAA, patrolled Pittsburgh neighborhoods. In 1939 the Better Traffic Committee boasted about their role in reducing traffic accidents. PMF Motor Clubs claimed that over a 10-15 year period since the implementation of the patrols no fatal traffic accident or injury at a Patrol-guarded intersection had taken place. (The Better Traffic Committee published an article in their newsletter in 1939, "School Boy Patrols:

Sentinels of Safety") The Boy Scouts implemented such a program of crossing guards throughout the United States.

7.4 Essay Contests (1926-1930)

The Better Traffic Committee sponsored essay contests on pedestrian awareness that offered cash rewards and scholarships to students in elementary schools and high schools throughout the Pittsburgh area. Students were expected to write about topics related to traffic safety for children. In 1928 the topic of the essay contest was the "Value of Traffic Law Enforcement," and in 1931 it was, "Cross streets at intersections on the go-signal." From 1926-1930, the students of public and parochial schools wrote 170,000 essays on traffic safety. (BTC Report Oct. 1930 p.3)."

The goal was to encourage students to think critically about solutions that would reduce traffic accidents at intersections. The Better Traffic Committee published the winning essays in short-print form. The goal of these contests was to stimulate thinking about safe pedestrian behavior among children and encourage discussion of safety among parents and schools. In 1926, 40,000 to 50,000 children participated.

The Better Traffic Committee also organized and facilitated funding for a film "dealing with violations and safe practices in traffic."

Table 2: Essay Contest Participation

Participation in Traffic Essay Contests in Pittsburgh, Pennsylvania, from 1927-1930, out of 145 Public and 83 Private Schools		
Year	Public Schools	Private Schools
1927*	103/145	61/83

1928	106/145	36/83
1929	122/145	42/83
1930	139/145	49/83

Source: "A Third of A Million", *The Better Traffic Committee.* Pittsburgh, Pennsylvania: 1930. (McIntyre, "The Pedestrian Education and Safety", *Expediting and Controlling City Traffic*, 46 Volume, Issue 4, 1928).

7.5 Lectures (1927-Present)

In 1927, the Better Traffic Committee began a program with Pittsburgh school authorities to use police officers as school lecturers in order to teach children about safe pedestrian behavior. On the request of school authorities, policemen would make presentations at the schools stressing that "exercising caution at all times" was critical (McIntyre, "The Pedestrian Education and Safety", *Expediting and Controlling City Traffic*, 46 Volume, Issue 4, 1928). Firefighters were also eventually used for this purpose 7.6 Safety League (1927)

The Pittsburgh Bureau of Recreation and the Local Safety Council organized a *playground safety league* in which children signed pledge cards promising to abide by ten safety commandments, including obedience to officers, lights, and crossing streets (Marsh).

7.7 Posters (1928 – Current)

In addition to the school talk by policemen, the Safety Council and the Better Traffic Committee distributed safety posters to garages, schools, filling stations, and playgrounds. In 1928, the Better Traffic Committee appropriated $12,500 towards safety education for pedestrians. The local chapter of the Automobile Association (AAA) of America was also responsible for distributing posters encouraging safe pedestrian behavior for school-age children. Posters are still used today in Pedestrian Education safety initiatives by the Federal Highway Administration and the AAA.

7.8 Pedestrian Week (1928)

Pedestrian Week included the distribution of pamphlets that emphasized safe pedestrian behavior such as the observation of road signs, crossing at the proper intersections, giving vehicles the right of way, and looking both ways at street crossings. The Better Traffic Committee established a Court of Public opinion as part of the effort to discourage jaywalking. Assigned "Undertakers" distributed summonses to Jaywalkers to attend the "Court of Public Opinion" where they were given educational lectures and pamphlets with rules for safe behaviors. Questionnaires were also distributed, asking parents to give their opinions on safe behaviors for children and traffic. The survey results included identification of dangerous street zones, conditions, and practices (McIntyre). Twenty-four radio addresses were given, encouraging parents to supervise children when crossing the street and children to be mindful of cars and road conditions. The Boy Scouts, local celebrities, and organizations, also worked with the Pittsburgh Police Department directing traffic and galvanizing interest in pedestrian safety.

7.9 Traffic Memorial (1928)

A traffic memorial was erected in order to keep tally of accidents and to

continue the effort of creating awareness for street conditions in Pittsburgh.

7.10 Movie Trailers, Motion Pictures, and Films (1928)

The Better Traffic Committee continued its efforts to educate the public through the creation of educational films, movie trailers, and the support of motion pictures that demonstrated positive pedestrian or motorist behavior.

7.11 Pamphlets and Newsletters and Other Activities

The Pittsburgh Bureau of Traffic Planning and Educational Activities as well as the Better Traffic Committee distributed newsletters and pamphlets. These documents were aimed at motorists and pedestrians, reminding drivers of changing ordinances, cautioning against speeding, and parking violations (McIntyre).

In spite of these safety activities, the Better Traffic Committee found that in 1929 forty-one children died as compared to 17 children in 1928. In addition, 180 men, women and children were killed in 1928 compared to 152 in 1927. Seeking to reduce these high numbers, in 1930 the AAA conducted a "3-Year AAA [Pittsburgh] Pedestrian Protection Survey" which explored Parenting and its relationships to children's accidents.

7.12 Theories of Pedestrian Education

Today the Federal Highway Administration's educational groups are defined by changing behavior patterns in children. Recommended programs for Junior High and High School encourage awareness when crossing at intersections, boarding buses to and from school, and distinguishing between multiple threats in parking lots and on streets. Similarly, programs for High School students focus on information about safe pedestrian behaviors at night, and warn against walking while intoxicated. According to the Federal

Highway Administration, cities with active Pedestrian Education programs typically have lower accident rates in comparison to cities without active programs. In order to be effective, these education programs should be aimed at children and adults of all ages.

For preschool children, the FHWA recommends that parents take primary responsibility for this education. Walking in "Traffic Safely (WITS)," and the film "Watchful Willie" are recommended as means of teaching children to recognize street signals and avoid dangerous situations, such as *mid-block crossing*.

Elementary children include children from the age of 3 to the age of 12 or 13. Programs such as the AAA Poster Contest, Walk Safely Films, and "Willie Whistle Safe Street Crossing" film were meant to educate children on how to identify and use crosswalks under safe crossing conditions. This program used complex messages, which the FHWA defines as *multiple threat situations*. In a multiple threat situation a child would have to be attentive to several factors before crossing the street, such as a changing light or walking through a parking lot at night.

The junior high and high school groups include young men and women between the ages of 14 and 18. Awareness programs focus on teaching safe pedestrian behaviors while walking at night, boarding buses, and intoxicated. The FHWA recommends substance abuse programs, driver education, and recommends the distribution of pamphlets, such as *WALK ALERT—A Pedestrian Safety Booklet for Junior High Students*.

Adult education includes walking tours organized by civic leaders and traffic safety officers, public service announcements, programs at work, and pamphlets or newsletters distributed through hospital and health programs. Adult education focuses

primarily on Driver Education because the FHWA recognizes driver behavior as a major element of pedestrian safety.

7.13 Education Methodology and Theories in Pittsburgh

In 1940, broader teaching methods aimed at children emerged. "Original Safety Songs", composed by School Children of Pittsburgh for the Better Traffic Committee was another joint effort between a private organization and the public schools of Pittsburgh aimed at creating safer streets for children. The songs included recommendations such as looking both ways before crossing the street, slowing down at intersections, and holding hands with partners. In 1945, as a response to car accidents involving children, the Pittsburgh School Board established the *Director of Traffic Safety and Education*. The Annual School Board reports do not record any funds distributed towards pedestrian education or traffic safety programs in the Pittsburgh Public Schools, but efforts to encourage safety education continued. In 1953 a nation-wide effort to ensure that drivers are qualified and hold proper credentials began. This included safe driver education for teens and young adults.

In Pittsburgh, by 1930 driver education programs were working in correlation with School Safety Committees, established throughout the city. Pittsburgh's education programs followed the trend of other programs nation-wide. The Federal Highway Administration published a 1994 report that standardized principles of pedestrian safety education for motorists and pedestrians. Educational programs in schools should operate around a system of approaches, each catering to their respective communities. According to the report, education programs should encourage "lawful and responsible behavior among bicyclists, motorists, and pedestrians" through cooperation with teachers and

administrators, and comprehensive messages about safety should be created (FHWA, *Bicycle and Pedestrian Transportation*, 5). Educational messages that are important to each community should be identified, and solutions should be based on crash studies in order to identify the audience. Committees should also work with local media such as newspapers or stations who can easily reach targeted audiences. Radio, television, printed media, and film, were all successful methods of increasing pedestrian education.

8. Better Traffic Committee

8.1 Background

Founded in 1925 by Pittsburgh Mayor William Magee, the Better Traffic Committee was an advisory group created to study the Pittsburgh Traffic Problem and develop local policy recommendations. Guided by the principle, "The greatest good for the largest number," the committee concentrated on getting maximum efficiency from the city streets and devising recommendations for the Bureau of Traffic Planning that were both practical and inexpensive. The Better Traffic Committee investigated problems such as "whether or not pedestrian traffic could or should be educated to observe traffic lights and signals to the same extent that vehicles are required to do; an analysis of the psychology of the pedestrian to determine how this could be made most practically effective; to what extent economic results might be secured through the reduction of liability insurance premiums, etc." (McIntyre: "The Pedestrian- Education and Safety")

While the Better Traffic Committee itself was not directly funded by the city, it was included in the appropriations for the Bureau of Traffic Planning. To operate efficiently, The Better Traffic Committee was divided into four sub-committees: the Educational and Publicity Sub-Committee which, through school safety campaigns and safety literature, taught the general public traffic safety - how drivers should conduct themselves, who has right of way, and why regulations are adopted; the Engineering Sub-Committee, which was concerned with traffic studies, traffic signs and traffic signals; the Laws and Enforcement Sub-Committee which was concerned with the development of good laws and how to effectively enforce them; and the Traffic Flow Sub-Committee which dealt with problems related to free flow of traffic on streets, including parking,

loading one way streets and turning. The Better Traffic Committee also appointed special sub-committees when necessary, such as the 1927 Special Survey Sub-Committee that collected data to aid in making recommendations on implementation of electric traffic control devices. Seven city of Pittsburgh and 15 civilian representatives staffed these committees. The civilian representatives were appointed by the mayor and were unpaid.

In addition to individual committee members, various Pittsburgh groups helped collect data and worked as the manpower for the Better Traffic Committee. These groups included the Boy Scouts of America, Downtown Retail Stores, Retail Merchants Association, Yellow and Green Taxicab Companies, several railroad companies, Automobile clubs, the Pittsburgh Motor Coach Company, Pittsburgh Railway Company, and the Duquesne Light Company (caveat: There may have been other businesses/groups that contributed but so far this is the list we have compiled). Specifically the Boy Scouts of America turned out to be a highly effective and catalytic factor for the committee and essentially 700 scouts took basic vehicular counts. The activities of these satellite groups included surveys by Downtown Retail stores to identify how people got downtown; the use of cabs for speed checks and traffic counts by cab companies; counts of speed and number of street cars made by the Pittsburgh Railway Company; and counts by the Baltimore and Ohio Railroad, Pennsylvania Railroad, Pittsburgh and Lake Erie Railroads to identify how many people came into the central business district by train.

One of the goals of the Better Traffic Committee was to identify overall pedestrian behavior. Traffic Engineer and University of Pittsburgh Professor Lewis McIntyre described how the pedestrian question might have differed in various

urban/suburban settings and he therefore stated that a system of comprehensive investigation was necessary to determine the treatment of pedestrians. In a 1928 composition he broke pedestrians into two groups uncontrolled districts and controlled districts. In each district the rights and duties of the pedestrian were considered in intersections and between intersections. [McIntyre, The pedestrian- education and safety p.2]."

A committee of the Better Traffic Committee prepared Traffic Accident Summaries. The committee counted and charted traffic volumes and growth, gathered/checked/analyzed fatal and non-fatal accident data, monitored vehicular speeds, pedestrian volumes, and other contributing conditions, and prepared comparative studies. The three Pittsburgh newspapers helped in promoting safety education and the Safety Congress Conference.

In their 1927 report the Better Traffic Committee attributed the Pittsburgh traffic problem to Pittsburgh's growing population, the growing number of automobiles registered per person, the concentration of places of business in the downtown area, the downtown street system and pavement conditions and the improper use of streets. The growth of both population and the number of automobiles does not require consideration, but this report will explore business concentration in the downtown area, through traffic counts, and the rapid rise of vehicle traffic entering and leaving the compact downtown business district. The Better Traffic Committee report identifies short streets, narrow streets and sharp turns as the main cause of congestion. The short streets could only accommodate a small number of stopped cars without extending the jam into intersections and blocking them. The narrow streets meant less street space per vehicle,

which meant more congestion. For example, from 1917-1927, the number of vehicles entering or leaving downtown increased by 112%, while the downtown street area had only increased by 6% since 1870. Compounding the problems of narrow streets were the sharp turns, over 90% of which had a curb radii of 10 feet or less, since they required vehicles to use more than one lane. The main issue of the final congestion cause of improper street use dealt mostly with the inefficient left turns of streetcars and automobiles.

The report discussed impediments to pedestrian as well as vehicular traffic, mostly in the form of sidewalk obstructions. Some of these obstructions were part of the city infrastructure, such as signs, light poles and fire hydrants. Others included items such as merchandise displays, sidewalk elevators and chutes. The report does not note that crossing pedestrians added to automobile congestion or that turning autos creating hazards for pedestrians.

After outlining the causes for the Pittsburgh traffic problem (using detailed graphs charts and diagrams) the Report assessed the feasibility of implementing electric traffic controls.

The Better Traffic Committee's safety education work was supported through the Bureau of Traffic Planning. Covering the full spectrum of public education, the program consisted of pedestrian safety programs for primary school students as well as driver education programs for those in high school. Such programs were designed according to the results of tests and questionnaires about traffic laws, driving skills, automobile facts and personal opinions.

In addition to the education program, the Report advised enacting a ban on left turns at the Blvd of the Allies as well as the installation of two “special lights” in downtown Pittsburgh that would provide for a pedestrian only interval.

Twenty years later, the 1947 the Better Traffic Committee reported that the city had reduced congestion and accidents in downtown Pittsburgh by implementing a strict no parking, no stopping policy during rush hour during which parked cars were towed (to be re-claimed for $3), and cars stopped for any reason but traffic lights were given $2 fines. In addition, there was a general crackdown on traffic violators. The experiment resulted in a great increase in the number of violations handed out; the week prior to the crackdown there were 2,557 tickets issued, three weeks later 3,547 tickets were handed out. The recommendations for the strict ticketing program probably came from the Better Traffic Committee.

In the October 1930 Better Traffic Committee Report, Lewis W. McIntyre, Traffic Engineer for the city of Pittsburg= wrote that,"we must deal with the problem of fitting a very modern machine into a very obsolete place of operation (p.1 BTC Oct. 1930).”

> With the mass production of the automobile, a revolutionary new technology came the burden of revamping an older environment previously marked by horse-drawn carriages and extensive foot-travel to the new user. Increased numbers of automobiles meant increased unforeseen problems for civil and street traffic engineers. Most important of these problems was the manner in which pedestrians, automobiles, and street cars interacted. Rules had to be created, pronounced and effectively enforced to maintain some form of order between the several players in street traffic especially when it came to intersections.

McIntyre went on to say, “Cross roads represent the crux of the traffic engineer’s problem” since both drivers and pedestrians, claimed rights of way.

The Better Traffic Committee worked with other safety-oriented organizations and Pittsburgh bureaucratic administrations to bring positive attention to the region in regard to traffic flow improvement and safety. In 1930, through its efforts, the Nineteenth Safety Congress of the National Safety Council (BTC Report Oct. 1930) was held in Pittsburgh. The committee also addressed traffic signal issues, traffic control devices, as well as illegal parking. In 1930, the Committee commissioned roughly 500 citizens to observe automobile regulation violations. These 500 citizens were not identified as observers.

The Better Traffic Committee also made recommendations for automobiles and streetcars. The committee took part in State Inspection Campaigns, the Pittsburgh Accident Research Association, Traffic Accident Analyses, and The Interfleet Safety Contest among others.

8.2 Traffic Accident Summaries

In conjunction with the City of Pittsburgh's Department of Public Safety and Bureau of Traffic Planning, the Better Traffic Committee released an annual *Traffic Accident Summary* (*TAS*) from the years 1936 to 1970. The contents of the *Traffic Accident Summaries* differed from year to year but always contained quantitative data organized by graphs, data tables, pie charts, and histograms. These well-organized statistical data sheets, labeled "Statistical Summary of Motor Vehicle Accidents," and "Circumstances of Motor Vehicle Traffic Accidents," contained sub-sections that described the number of pedestrians killed and injured and the manner in which they were crossing the street.

Many of the earlier summaries (1936-to mid 1940s) were more detailed and contained qualitative written assessments of the data in the proceeding years. The 1942 TAS, in a section labeled "Condition of Driver and Pedestrian," for example contained data on the percentage of drivers that had been drinking prior to being involved in an accident (3%). It also noted that a much higher number of pedestrians were intoxicated when they were involved in a traffic accident (10.5%) (*Traffic Accident Summary* 1942 p.4).

The 1943 Traffic Accident Summary stated on the first page that "*Pedestrians are the most frequent victims in traffic accidents and, while being involved in only 26% of the total accidents, they comprise 62.5% of the number of persons killed and 36% of the number of persons injured* (*Traffic Accident Summary* 1943, p.1)." The reports also made qualitative and quantitative comparisons to the preceding years. These comparisons offered the reader a method to judge how effective traffic safety initiatives had been.

Besides statistical data, the Traffic Accident Summaries contained cartoons and caricatures aimed at illustrating traffic safety issues as well as adding visual commentary to make the reading audience more aware of the dangers of automobile and pedestrian activity.

8.3 Better Traffic Procedures and Ordinances

The Better Traffic Committee, besides organizing educational initiatives, made policy recommendations to the City of Pittsburgh. The Committee proposed and submitted budget estimates to the mayor and City Council mostly for much needed traffic equipment and engineering improvements. In some instances the Better Traffic Committee drafted city and local legislation and petitioned the appropriate magistrates to

get their policy through the bureaucratic channels. Some of these legislative measures were incorporated in the Codified Traffic Codes and Ordinances, which became an official Pittsburgh law on April 8, 1932 (BTC, Volume III, Number 1). Among the Codified Traffic Codes and Ordinances were written descriptions of proposed regulations followed by tables of penalties of no-parking streets, one-way streets, of Thru Traffic streets, etc.; "intersection," "crosswalk", "safety zone", and "parking" were carefully defined; he duty of the Bureau of Police, particularly in cases of emergency were defined; outlined meanings of traffic signs and signals, pedestrians' rights and duties, street cars and railroad trains' rights and duties, proper vs. improper stopping, standing, and parking of vehicles, as well as the penalties and procedure of arrests; and defined lawful and unlawful behaviors for the operation of vehicles.

8.4 Safety Education for Pedestrians in Pittsburgh

In recognition of the need for a long-term initiative to increase pedestrian safety, in 1926, the Mayor of Pittsburgh appointed 30 individuals to the Educational Sub-Committee of the Better Traffic Committee of Pittsburgh. The Better Traffic Committee in Pittsburgh believed that education should be a continuous process and sponsored activities and programs for several decades throughout the 20th Century. Continuing a national trend, within Pittsburgh there was recognition that safety-education for pedestrians and motorists was the best way to prevent accidents in urban areas. In 1928, at a summit sponsored by the Engineer's Club of Philadelphia, Lewis McIntyre presented data that he believed demonstrated a positive correlation between education programs and a decline in traffic-related fatalities in Pittsburgh, Pennsylvania.

Table 3: Pittsburgh's Traffic Record

Pittsburgh's Traffic Record				
1927			1928	
Month	All Fatalities	Children	All Fatalities	Children
January	18	3	16	0
February	16	3	18	1
March	11	4	8	0
April	11	2	10	1
May	14	4	11	2
June	22	6	17	4
July	11	3	13	3
August	11	3	16	3
Total	114	28	104	14

"The total number of fatalities in the first eight months of 1927 was 114; in 1928, 104. The total number of child fatalities in the similar period of 1927 was 28; in 1928, 14; a fifty percent decrease" (McIntyre, "The Pedestrian: Education and Safety", *Expediting and Controlling City Traffic*, 46 Volume, Issue 4, 1928).

8.5 Overall Assessment

Most of our qualitative data came from the very detailed reports from 1927-1933 when the Better Traffic Committee appeared to be most active. It appears that staff changes made by the Pittsburgh mayor during the 1930s caused the committee to lose

much of its focus and the material we have for the Better Traffic Committee from the mid 1940s to 1970s is derived from The Traffic Accident Analyses and Summaries. Pertinent information may exist that but we have yet to encounter it in our current research. Finding this potential material seems a very appropriate avenue for further research. The material the committee collected (such as vital statistical data) and activities that the committee implemented are still applicable today.

9. Conclusion and Recommendations

As automobiles emerged as the primary mode of transportation in Pittsburgh, not only did they alter the city landscape, but also how pedestrians utilized the streets. In addition to horses and streetcars, pedestrians had to contend with this new and significantly faster mode of transportation. As illustrated in the graphs depicting pedestrian deaths and injuries, during the earlier years pedestrians were at a higher risk of injury or death than in later years. However, these numbers decrease as the years pass, posing the questions, why have the numbers decreased if more cars are on the road?

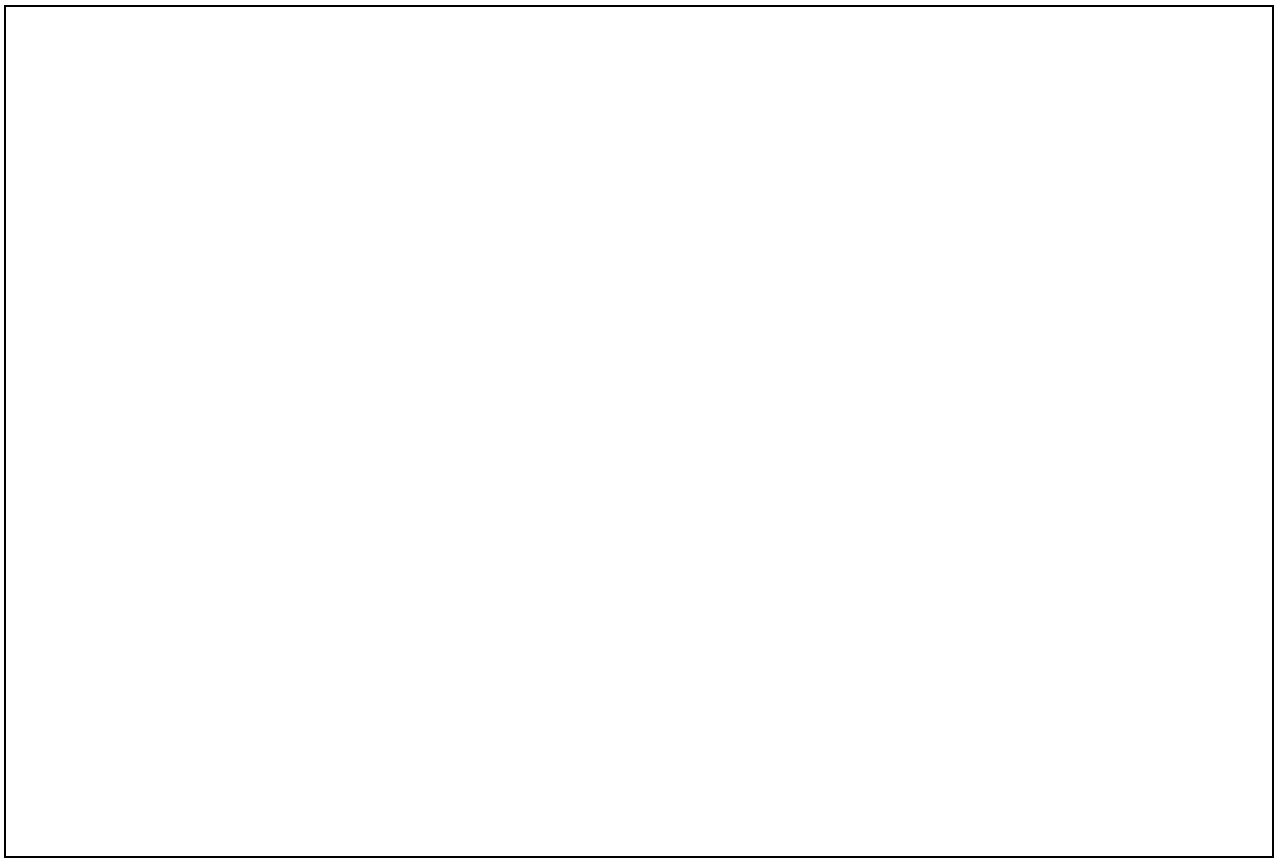
From the findings of our research, the responses to these questions involve several factors. First and foremost, laws and governmental regulations and their enforcement have shaped how automobiles and pedestrians interact, setting the legal definition of who has the right of way. Secondly, changes and advancements in street infrastructure and traffic controls, in addition to studies on traffic flows in Pittsburgh, have impacted the flows of both pedestrians and automobiles. Thirdly, actions by civic response groups, like the Better Traffic Committee, and safety education, have reduced traffic problems, especially those concerning pedestrians. Another factor, though not researched fully in this paper, is the decline in walking among the public. In the 1920s, nearly 10% of

people walked to work, but by 1980 this number decreased to 7% and even further by 2000, to less than 4%. If there are fewer pedestrians, then logically there are fewer pedestrian deaths and injuries. We also believe that improved emergency medical care had an important role in reducing pedestrian deaths, but this topic has yet to be researched in full.

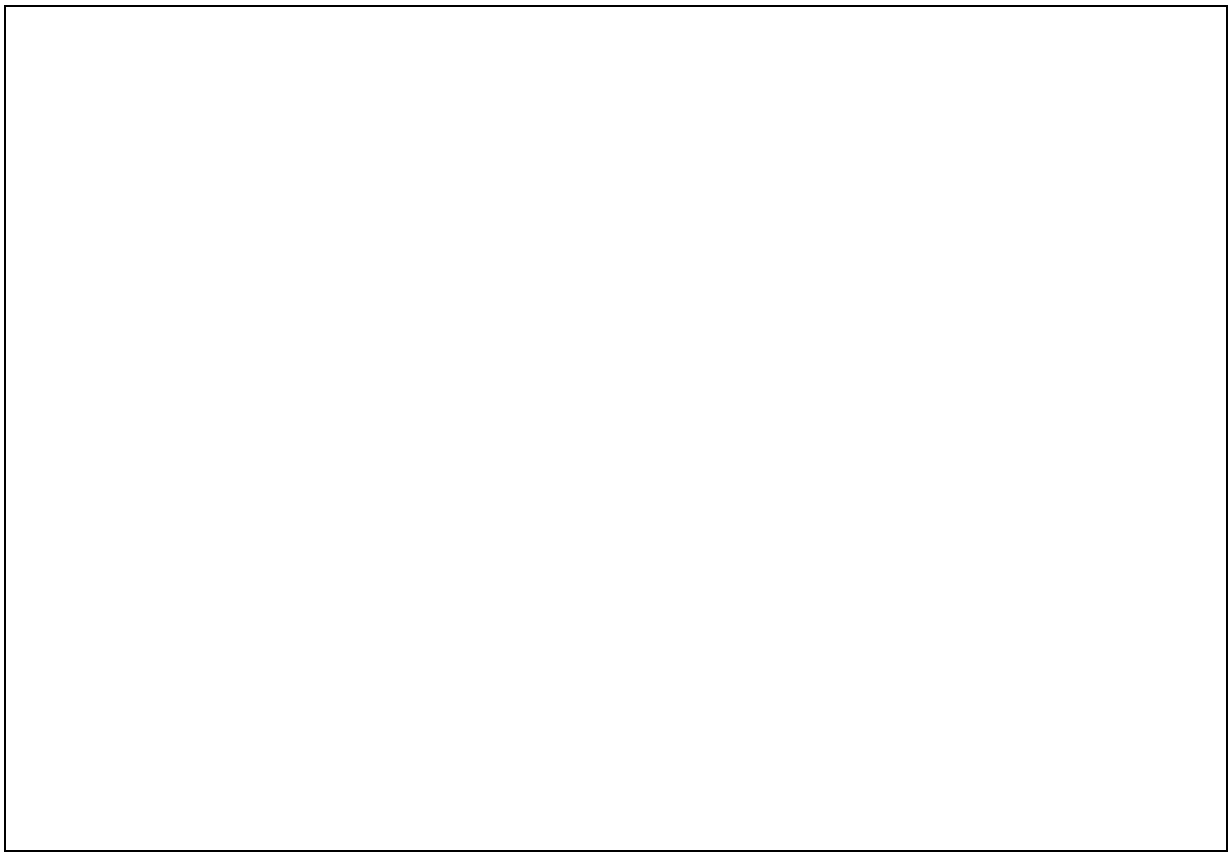
In spite of these decreases, pedestrian safety remains an important goal that the city of Pittsburgh should continue to pursue. Our research, along with that of the NHTSA, illustrates that the most effective method of improving safety is taking action at the local level, either via the local government or civic organizations like the Better Traffic Committee. In addition, in attempting to continuously improve pedestrian safety in Pittsburgh, more research should be undertaken to further analyze past conditions and trends so that key turning points and effective means of prevention can be identified.

Appendix 1: Relevant Graphs and Tables of Pedestrian and Traffic Flow in the Golden Triangle Cordon Count of 1963

Graph 1: Percent of People Entering and Leaving Central Business District on May 8, 1963.



Graph 2: Percent of Total Traffic Entering and Leaving Central Business District on May 8, 1963



Graph 3: Accumulation of People Within Central Business District on May 8, 1963

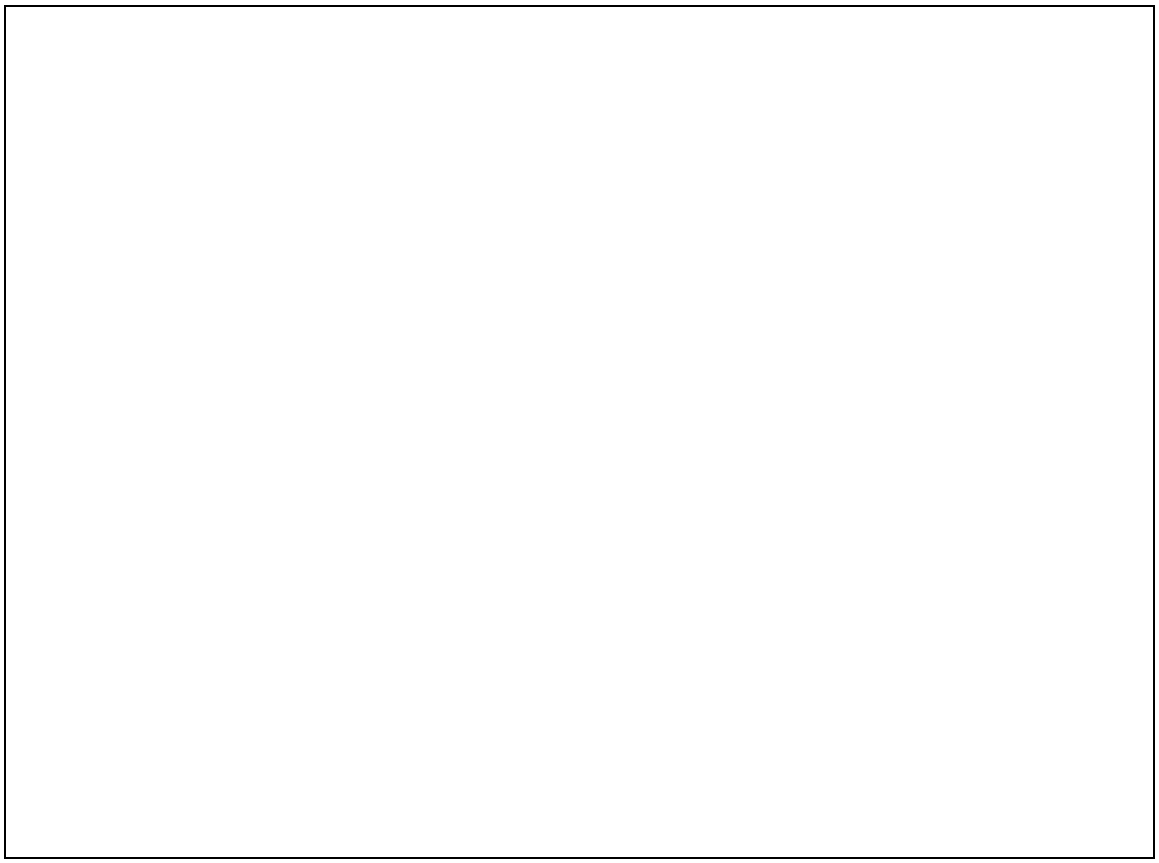


Table 4: Total Persons Entering and Leaving Central Business District by Various Modes of Transportation

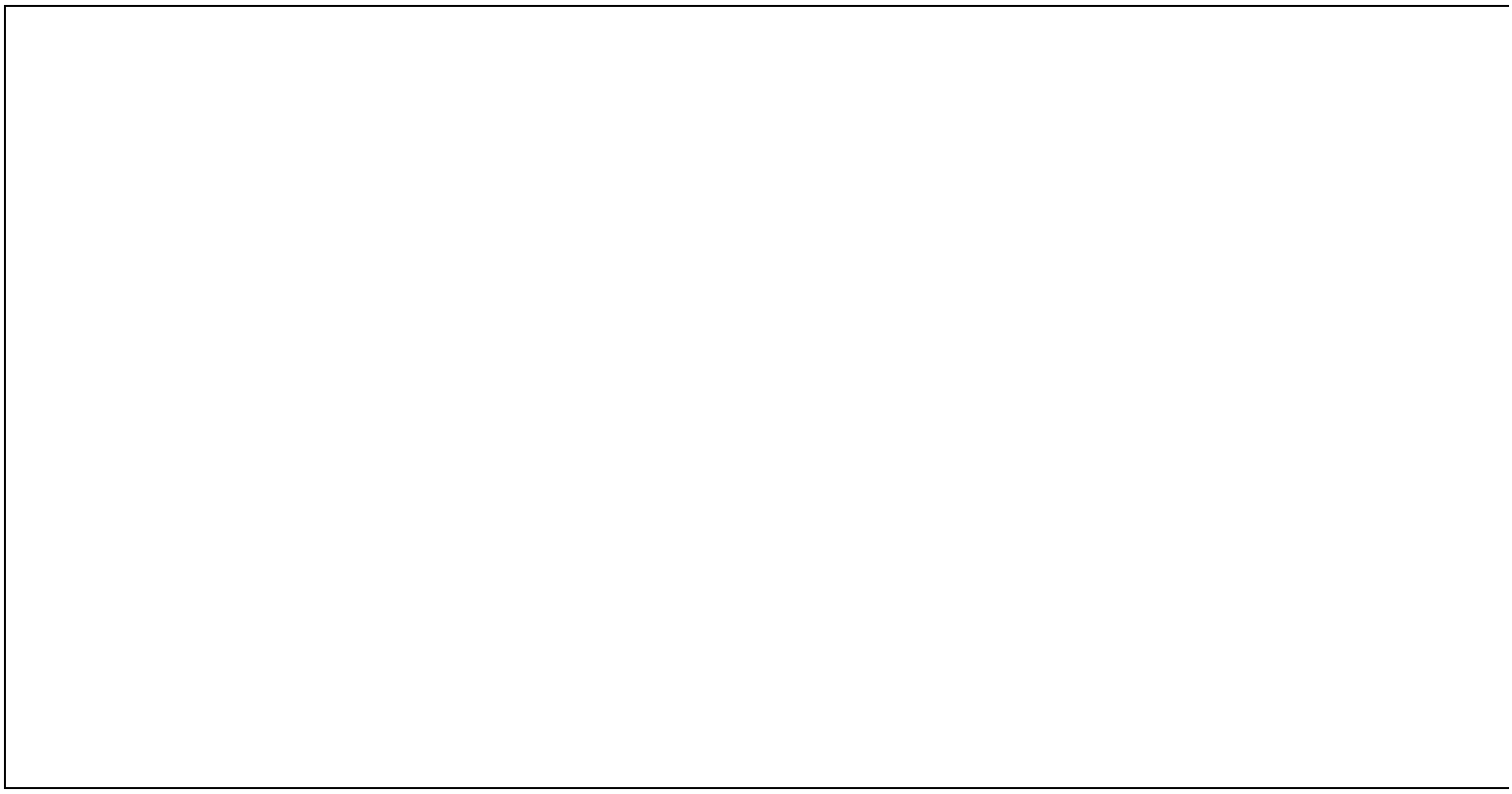


Table 5: Inbound/Outbound Pedestrian and Overall Data Summary

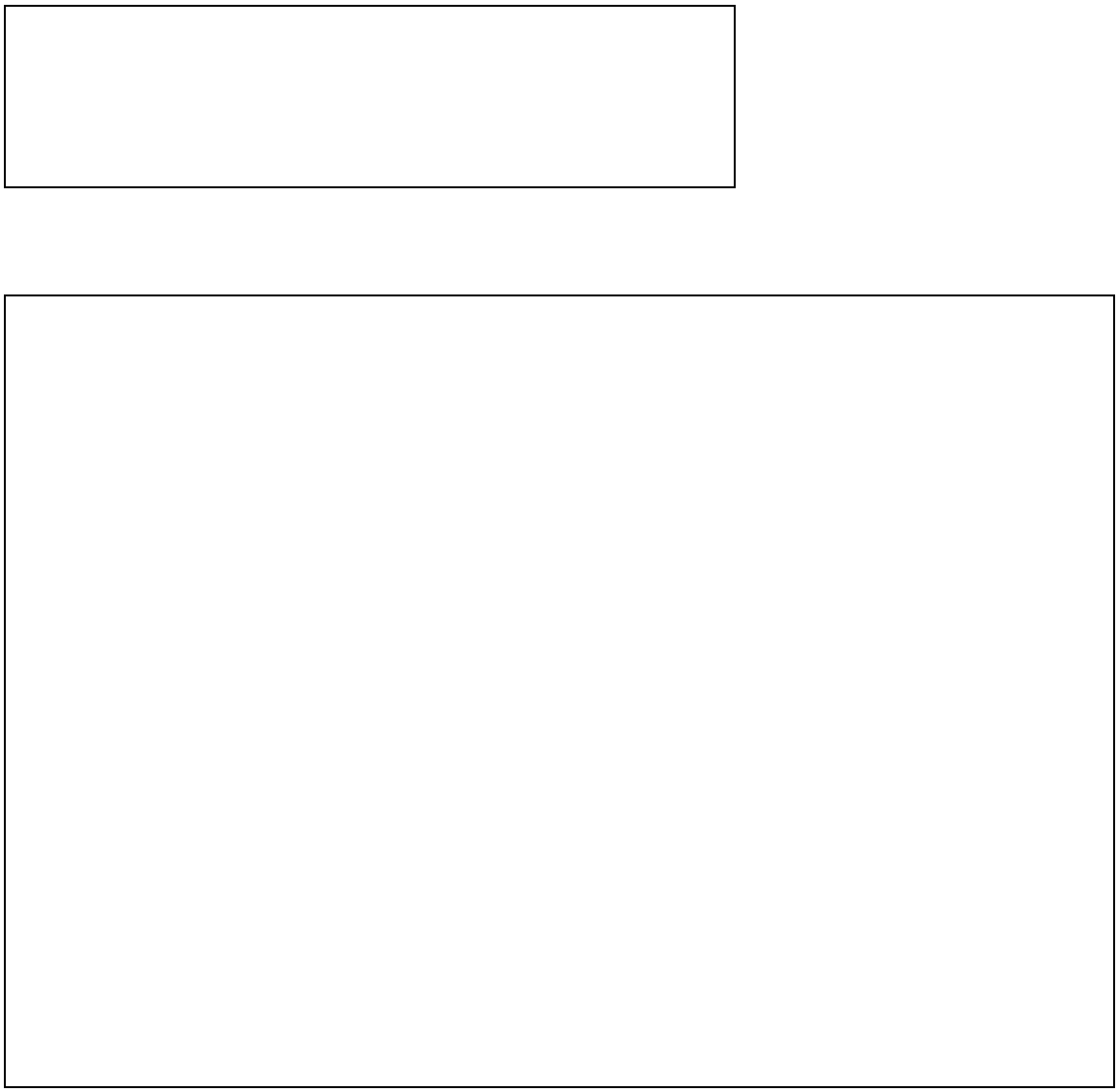


Table 6: Buses, Trolleys, and Passengers Count

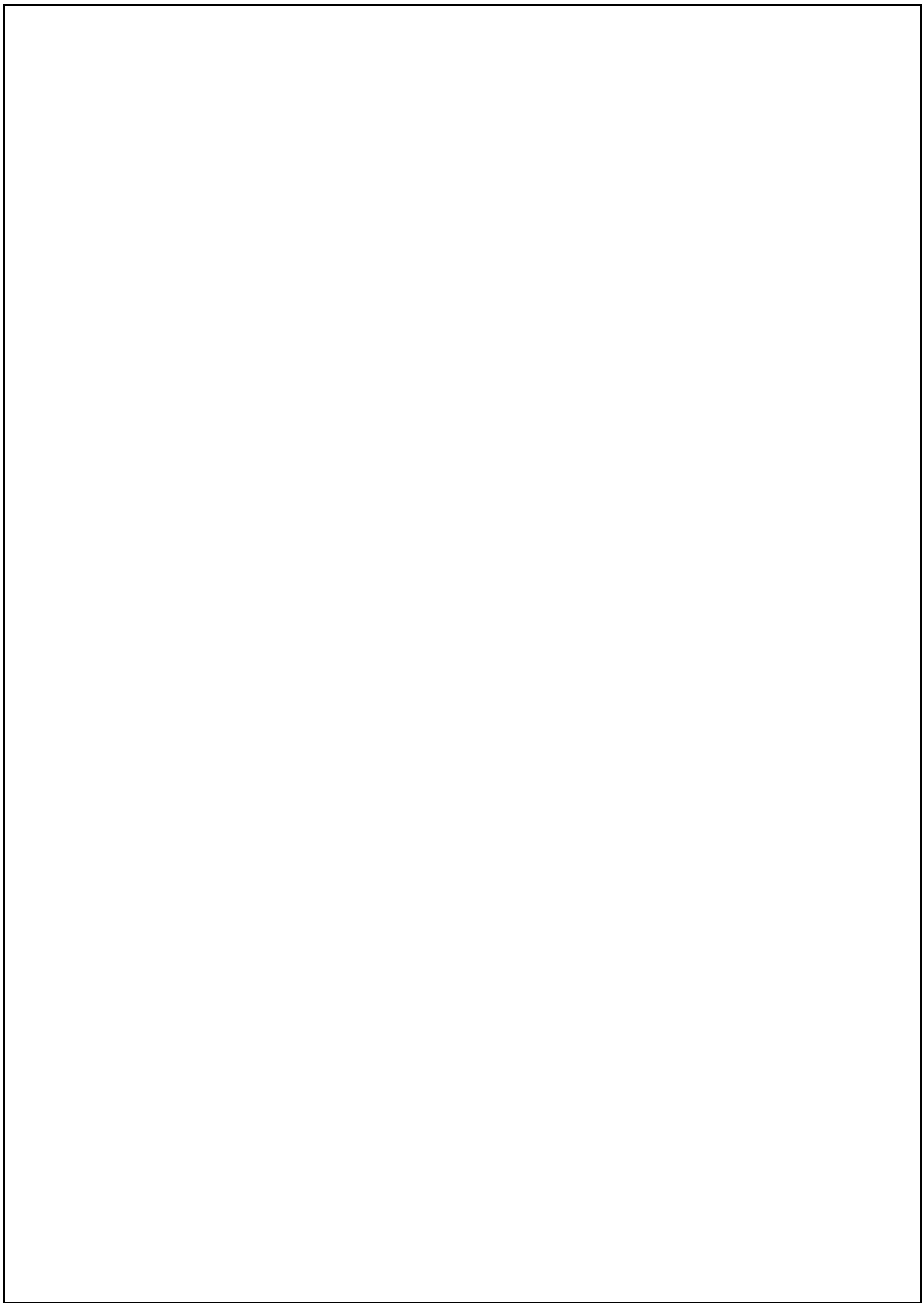
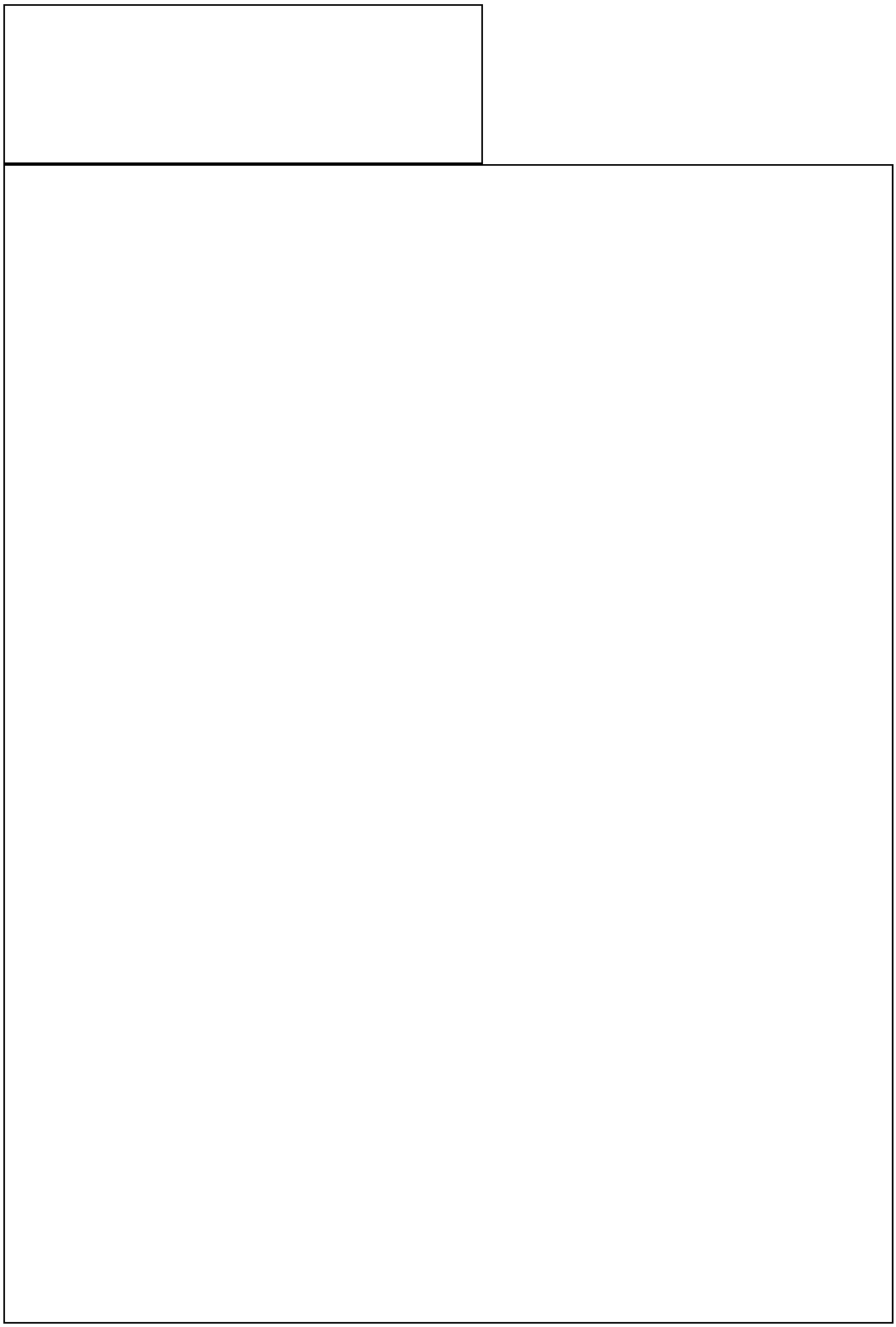


Table 7: Accumulation of People within the Central Business District from May 8, 1963

Count	

Table 8: Pedestrians Entering and Leaving Central Business District



Appendix 2: Important Legislation Between 1919-1970 Dealing with Pedestrian and Driver Accidents

1919 Laws of Pennsylvania pg. 678
No. 283 An Act

Pg. 69 under Section 2
License

Pg. 685 Under section 10

No person shall operate a motor vehicle upon any public highway until such person shall have had issued to him a license or permit by the Sate Highway Department. No such license or permit shall be issued to any person less than sixteen (16) years of age, or, in the case of paid drivers, less than eighteen (18) years of age, and who has not had at least five (5) days experience in the operation of a motor vehicle.

Under section 11 pg. 686

The applicant may also, at the option of the State Highway Commissioner, be required to submit himself to such test of his ability and examination as to his knowledge of the operation of motor vehicles as may be required by the State Highway Commissioner, for which examination no charge shall be made.

Under Section 13 pg. 687

The State Highway Commissioner may refuse to issue a license to any applicant who is shown by proper evidence to be a reckless or careless operator endangering the safety of the public, or an habitual violator of the provisions of the act.

The State Highway Commissioner may, upon investigation, suspend the license of any owner, operator, or paid driver, who has been involved in an accident resulting in injury to person or property, upon the sworn statement of two reputable persons that such accident was the result of recklessness or carelessness on the part of such licensee, and, after a hearing before the commissioner or his representative, shall annul the license issued to such person if the evidence justifies such action.

Under Section 19 pg. 689

No person shall operate a motor vehicle on the public highways of the State recklessly or at a rate of speed greater than is reasonable and proper, having regard to the width, traffic, and use of the highway, or so as to endanger property or the life or limb of any person. No person shall drive a motor vehicle at a rate of speed exceeding one (1) mile in two (2) minutes, and no commercial motor vehicle in class AA, as provided in section nine of this act, shall at any time exceed a rate of speed of twenty (20) miles per hour.
Pg. 690 Signs

Section 21 pg. 692

Every motor vehicle shall be provided when in use with adequate brakes, capable of controlling such vehicle under all normal conditions, and with an adequate horn, bell or other signal device, and, where such vehicle is so constructed or covered as to prevent the operator thereof from having a sufficient view of the traffic following, it shall be equipped with a mirror or other device that will enable the operator to see the road to the rear.

Section 22 pg. 692

Every operator of a motor vehicle shall sound his horn, bell, or signal device, giving reasonable warning of his approach whenever necessary to insure the safety of other users of the highway, and before passing any vehicle he may overtake or pedestrian using any part of the highway other than the sidewalk, also at curves and intersecting highways where the view of approaching vehicles for a distance of one hundred (100) feet is obscured, but the horn, bell, or other signal device, shall not be sounded unnecessarily.

Under Section 23 pg. 692

No person shall operate a motor vehicle while under the influence of intoxicating liquor or any narcotic or habit producing drug, or permit any person who may be under the influence of intoxicating liquor or narcotic drugs to operate any motor vehicle owned by him or in his custody or control.

Any operator of a motor vehicle who shall have injured the person or property of any other user of his highway shall stop, and render such assistance as may be necessary, and shall, upon request, give his name and address to the injured party or his proper representative. This provision shall apply to the owner of the motor vehicle present, whether he was operating such vehicle or not.

Under Section 25 pg. 694

No operator of a motor vehicle who meets or overtakes a street passenger car that has stopped for the purpose of taking on or discharging passengers, shall pass said car on the side on which the passengers get on or off until the car has started and until any passengers who may have alighted shall have reached the side of the highway.

Section 27 pg. 695

Operators of motor vehicles shall have the same rights upon the public highways as the drivers of other vehicles, and no public highway open to other vehicles shall be closed to motor vehicles.

Section 28 pg. 695

It being the purpose of this act to provide a system or code of law regulating the use and operation of motor vehicles throughout this Commonwealth, no city, borough, incorporated town, township, or county, shall hereafter adopt, maintain, or enforce any rule, regulation, or ordinance, regulating

the speed, equipment, use, or operation of motor vehicles, other than city, or borough ordinances regulating the stopping and parking of vehicles, the use of certain streets as one-way streets, or regulating the kind and weight of traffic on certain streets and in public parks, or the establishment of safety zones: Provided, however, That no such special regulation shall be effective unless notice of the same is posted conspicuously, by the municipality making the same, at points where any highway affected thereby joins other highways, and no regulation shall be valid which excludes such vehicles from any State highway or from any main highway leading from one municipality to another:

Provided, That any city may regulate the transportation by motor vehicles of passengers for pay within the limits of such city or from points in the city to points beyond the city limits, and make and enforce regulations for any operation of such vehicles, not inconsistent with this act, and designate certain streets upon which such vehicles may be operated.

Section 29 pg. 696

All informations for offenses defined in this act, committed by motor vehicle owners or users, shall be brought under this act, and not under any local ordinance, rule, or regulation, and all such informations shall be made before a mayor, burgess, magistrate, alderman, or justice of the peace, within the city, borough, incorporated town, or township, wherein such offense is alleged to have occurred, except in the case of misdemeanors, when the information shall be made in the county wherein the offense is alleged to have occurred.

When the rate of speed of any motor vehicle is timed on a measured stretch of any highway for the purpose of ascertaining where or not the operator of such motor vehicle is violating the provisions of this act, such time shall be taken by not less than two (2) persons, one of whom shall have been stationed at each end of such measured stretch, and no convictions shall be had upon the unsupported evidence of one person, and no such measured stretch shall be less than one-eighth (1/8) of a mile in length.

Section 37. pg. 700

The act, approved April twenty-third, one thousand nine hundred and three, entitled “An act relating to automobiles, or motor vehicles; providing for the registration thereof; regulating the speed limit upon the public highways within this Commonwealth; providing for the licensing of the operators thereof, and fixing the amount of the license; regulating the service of process and of proceedings in actions of damages arising therefrom; and prescribing the penalties for the violation of the provisions of the same”; and the act approved April nineteenth, one thousand nine hundred and five entitled “An act relating to automobiles , or motor vehicles; regulating the speed limit upon the streets and public highways of this Commonwealth; providing for the licensing of the operators thereof by the State Highway Department, and fixing the amount of said license; regulating the service of process and of proceedings of actions in damages arising therefrom; and prescribing the penalties for the violations of the provisions of the same”; and the act, approved April twenty-seventh, one

thousand nine hundred and nine, entitled "An act relating to motor vehicles; regulating their speed upon the public streets and highways of the Commonwealth of Pennsylvania; providing for their registration, and the licensing of operators, by the State Highway Department; establishing the rights of motor vehicles upon the public highways, with relations to other vehicles; regulating the service of process and to other vehicles; regulating the service of process and of proceedings in actions for damages arising therefrom; prescribing the penalties for violations of the provisions of this act, and providing for the disposition of fines imposed thereunder"; and the act, approved April twenty-first, one thousand nine hundred and eleven entitled "An act to amend section seven of an act, entitled 'An act relating to motor vehicles; regulating their speed upon the public streets and highways of the Commonwealth of Pennsylvania; providing for their registration, and the licensing of operators, by the State Highway Department; establishing the rights of motor vehicles upon the public highways, with relation to other vehicles; regulating the service of process and of proceedings in actions for damages arising therefrom; prescribing the penalties for violations of the provisions of this act, and providing for the disposition of fines imposed thereunder,' by striking our from section seven of said act the word 'hire' wherever it may occur in said section" ; and the act, approved June first, one thousand nine hundred and eleven, entitled "An act to amend the first section of an act, approved the twenty-seventh day of April, Anno Domini one thousand nine hundred and nine, entitled 'An act relating to motor vehicles; regulating their speed upon the public streets and highways of the Commonwealth of Pennsylvania; providing for their registration and the licensing of operators, by the State Highway Department; establishing the rights of motor vehicles upon the public highways, with relation to other vehicles; regulating the service of process and of proceedings in actions for damages arising therefrom; prescribing the penalties for violations of the provisions of this act, and providing for the disposition of fines imposed thereunder,' by exempting hospital motor ambulances, and motor fire-engines and motor fire-apparatus and requiring them to be furnished, free of charge, with registration certificates and number tags"; and the act, approved July seventh, one thousand nine hundred and thirteen, entitled "An act relating to and regulating motor vehicles; controlling their speed upon the public streets and highways in the Commonwealth of Pennsylvania; providing for their registration, and licensing of certain operators, by the State Highway Department; prohibiting the operation of any motor vehicle by any person when intoxicated, or without the consent of the owner; forbidding the passage of any law laying a tax upon or requiring the registration of motor vehicles, or licensing of any operator, or regulating the speed of motor vehicles, by any county, borough, city, incorporated town, and township; establishing the rights of motor vehicles upon the public highways, with relation to other vehicles; providing for their equipment and for the width of tires to be used upon motor vehicles, and vehicles trailing after or propelled by motor vehicles; regulating the service of process and proceedings in actions for damages arising therefrom; providing for arrest, and for services of process, and proceedings for violation of this act; prescribing the penalties therefore; and providing for the disposition of

fees collected and fines imposed thereunder," and all acts or parts of acts inconsistent herewith shall be, and the same are hereby repealed:

Provided, however, That the provisions of the said act, approved July seventh, one thousand nine hundred and thirteen, relating to the registration of motor vehicles and trailers, and the licensing of operators, and the fees therefore, shall remain in full force and effect until December thirty-first, one thousand nine hundred and nineteen.

Approved-30th day of June, A.D. 1919.

1921 Laws of Pennsylvania
No.265. pg. 265
Additions to 1919 legislation

To possess twenty (20) per centum of normal vision, one must be able, with one eye to read all the letters on the line marked twenty (20) of standard test types, at a distance of four (4) feet.
To possess two (2) per centum of normal hearing, one must respond when addressed in a natural tone of voice by another standing one (1) foot behind

Amendment to Section 28 from 1919 Legislation pg. 609

It being the purpose of this act to provide a system or code of law regulating the use and operation of motor vehicles throughout this Commonwealth, no city, borough, incorporated town, township, or county, shall hereafter adopt, maintain, or enforce any rule, regulation, or ordinance, regulating the speed, equipment, use, or operation of motor vehicles, other than city, or borough ordinances regulating the stopping and parking of vehicles, *or the establishment of zones in which vehicles may park at night without lights as provided in section 20 of this act,* the use of certain streets as one-way streets, or regulating the kind and weight of traffic on certain streets and in public parks, or the establishment of safety zones: Provided, however, That no such special regulation shall be effective unless notice of the same is posted conspicuously, by the municipality making the same, at points where any highway affected thereby joins other highways, and no regulation shall be valid which excludes such vehicles from any State highway or from any main highway leading from one municipality to another:

Provided, That any city may regulate the transportation by motor vehicles of passengers for pay within the limits of such city or from points in the city to points beyond the city limits, and make and enforce regulations for any operation of such vehicles, not inconsistent with this act, and designate certain streets upon which such vehicles may be operated.
Amendment to Section 29 from 1919 Legislation pg., 610

All informations for offenses defined in this act, committed by motor vehicle owners or *operators*, shall be brought under this act, and not under any local ordinance, rule, or regulation, and all such informations shall be made before a mayor, burgess, magistrate, alderman, or justice of the peace, within the

city, borough, incorporated town, or township, wherein such offense is alleged to have occurred; *If there be no mayor, burgess, magistrate, alderman, or justice of the peace, within the city, borough, incorporated town, or township, wherein such offense is alleged to have occurred, then information shall be made before a nearby mayor, burgess, magistrate, alderman, or justice of the peace;* except in the case of *a misdemeanor or*, when the information shall be made in the county wherein the offense is alleged to have occurred.

When the rate of speed of any motor vehicle is timed on a measured stretch of any highway for the purpose of ascertaining where or not the operator of such motor vehicle is violating the provisions of this act, such time shall be taken by not less than two (2) persons, one of whom shall have been stationed at each end of such measured stretch, and no *conviction* shall be had upon the unsupported evidence of one person, and no such measured stretch shall be less than one-eighth (1/8) of a mile in length.

1923 Laws of Pennsylvania (Nothing new dealing with Pedestrians)

1927 Laws of Pennsylvania pg. 886
No. 452 An Act

For the protection of the public safety; regulating the operation of vehicles and bicycles, pedestrians, and the riding of animals upon the highways of the of this Commonwealth; providing for the titling, registration, and licensing of certain vehicles and the operators thereof upon the payment of prescribed fees; prescribing and limiting the powers of local authorities to deal with the subject matter of this act; conferring powers and imposing duties upon the Department of Highways, sheriffs, police officers, constables, mayors, burgesses, magistrates, aldermen, justices of the peace, the courts and the clerks thereof; imposing upon counties, cities, boroughs, townships, and other public corporations within the Commonwealth liability for damages caused by the negligent operation of their motor vehicles; imposing penalties; providing for the disposition of fines and forfeitures; and making an appropriation.

Article X pg. 934
Traffic
Operations of vehicles; rules of the Road
Section 1001. Reckless Driving 935

(a) Any person who drives any vehicle upon a highway carelessly and willfully or wantonly disregarding the rights or safety of others, or in a manner so as to endanger any person or property, shall be guilty of reckless driving.
(b) If investigation into an accident, arising from the use and operation of a motor vehicle, discloses that the accident occurred due to the front seat of the motor vehicle having been occupied by more than three (3) persons, the operator shall be guilty of reckless driving.
(c) No person shall participate in any physical endurance test or any race or speed contest with a motor vehicle on any highway.

Section 1002. Restrictions as to Speed.

(a) Any person driving a vehicle on a highway shall drive the same at a careful and prudent speed, not greater than is reasonable and proper, having due regard to the traffic, surface, and width of the highway and of any other conditions than existing, and no person shall drive any vehicle upon a highway at such a speed as to endanger the life, limb or property of another person.

(b) Subject to the provisions of subdivision (a) of this section, it shall be lawful for the driver of a vehicle to drive the same at a speed not exceeding the following:

1. Twenty (20) miles an hour when approaching within two hundred (200) feet of a grade crossing of any steam or electric railway operating over its own private right of way, where signs are erected as provided in paragraph four of subsection (b) of this section.
2. Fifteen (15) miles an hour when passing a school during school recess or while children are going to or leaving school during opening or closing hours.
3. Twenty (20) miles an hour when approaching within fifty (50) feet, and in traversing an intersection, of highways within a business or residence district.
4. No person shall operate a motor vehicle on any highway within a business or residence district at a rate of speed in access of twenty (20) miles per hour, where signs erected by the proper authorities are displayed bearing the words "TWENTY MILE SPEED LIMIT," in letters not less than four (4) inches in height. Said signs shall be placed on the right-hand side of the highway facing the traffic to be controlled. Such limit shall be observed for a distance beyond said sign for not more than one-eighth (1/8) of a mile. An additional sign shall be placed at intervals not greater than one-eighth (1/8) of a mile, and any extensions of such limited zone shall be marked by additional signs in like manner. At the end of such limited zone there shall be a sign, similarly placed as to traffic bearing the lettering "END OF TWENTY MILE SPEED LIMIT," in letters not less than four (4) inches in height.
5. Thirty-five (35) miles an hour under all other conditions.

In every complaint, charging violation of this section, the complaint, also the summons to appear, shall specify the speed at which the defendant is alleged to have driven and the section and subsection alleged to have been violated.

When the rate of speed of any motor vehicle is timed on a measured stretch of any highway for the purpose of ascertaining whether or not the operator of such motor vehicle is violating the speed provisions of this act, such time shall be taken by not less than two (2) officers, one of whom shall have been stationed at each end of such measured stretch, and no conviction shall be had upon the unsupported evidence of one (1) officer, and no such measured stretch shall be less than one-eighth (1/8) of a mile in length.

Section 1016. Signals on Starting, Stopping, or Turning pg. 940

(a). The driver of any vehicle upon a highway before starting, stopping, or turning from a direct line shall first see that such movement can be made in safety, and, if any pedestrian may be affected by such movement, shall give a clearly audible signal, by sounding the horn, and, whenever the operation of any other vehicle may be affected by such movement, shall give a signal as required in this section, plainly visible to the driver of such other vehicle, of the intention to make such movement.

Section 1017. Right of Way. Pg. 940

(c.) The driver of any vehicle upon a highway, within a business or residence district, shall yield the right of way to a pedestrian, crossing such highway within any clearly marked crosswalk, or any regular pedestrian crossing included in the prolongation of the lateral boundary lines of the adjacent sidewalk at the end of a block, except at intersections where the movement of traffic is being regulated by traffic officers or traffic direction devices. Every pedestrian, crossing a highway within a business or residence district at any point other than a pedestrian crossing, crosswalk or intersection, shall yield the right of way to vehicles upon the highway.

Section 1021. Passing Street Cars. Pg. 942

(c) No operator of a motor vehicle, who meets or overtakes a street passenger car that has stopped for the purpose of taking on or discharging passengers, shall pass said car on the side on which the passengers get on or off, until the car has started, and until any passengers who may have alighted have reached the side of the highway, except that, where a safety zone has been established, or at an intersection where traffic is controlled by an officer or a traffic stop-and-go signal, a vehicle need not be brought to a full stop before passing any such railway, interurban or street car, but may proceed past such car at a speed not greater than is reasonable or proper and in no event greater than ten (10) miles an hour and with due caution for the safety of pedestrians.

Section 1029. Duty to Stop in Event of Accident. Pg. 943

(a) The driver of any vehicle involved in an accident resulting in injury or death to any person shall immediately stop such vehicle at the scene of such accident.

(b) The driver of any vehicle involved in an accident resulting in damage to property shall immediately stop such vehicle at the scene of such accident.

(c) The driver of any vehicle involved in any accident resulting in injury or death to any person, or damage to property, shall also give his name, address, and the registration number of his vehicle, and exhibit his operator's license to the person struck, or the driver or occupants of any vehicle collided with, and shall render to any person, injured in such accident, reasonable assistance, including carrying of such person to a physician or surgeon for medical or surgical treatment, if it is apparent that such treatment is necessary or is requested by the injured person.

Section 1030. Duty to Report Accidents. Pg. 944

The operator of any

Section 1038. Uniform Marking of and Erection of Signs on Highways. Pg. 946

The Secretary is hereby authorized to classify, designate, and mark both intrastate and interstate highways, lying within the boundaries of this Commonwealth, and to provide a uniform system of marking and signing such highways under the jurisdiction of this Commonwealth, and such system of marking and signing shall be correlate with and, so far as possible, conform to the system adopted in other states.

Sections 1039. Local Traffic Signs.

Local authorities in their respective jurisdictions may cause appropriate signs to be erected and maintained as may be appropriate to give notice of local parking and other special regulations. Local parking and other special regulations shall not be enforceable against an alleged violator, if, at the time and place of the alleged violation, an appropriate sign, giving notice thereof, is not in proper position and sufficiently legible to be seen by an ordinarily observant person.

Section 1040. Signal Interpretations.

This section talks about how street lights should be put up.

1929 Laws of PA. pg. 905.
No. 403 An Act

Pg. 942 X. Traffic
Penalties added for offenses
Right of way- fine of ten dollars, costs of prosecution, undergo imprisonment for no more than 5 days.
Penalties Section 1016 pg. 981 (Right of Way)
Penalty.—Any person violating any of the provisions of this section, shall, upon summary conviction before a magistrate, be sentenced to pay a fine of five ($5) dollars and costs of prosecution, and, in default of the payment thereof, shall undergo imprisonment for not more than three (3) days.

Penalties Section 1017 pg. 982 (Passing street cars)
Penalty.—Any person violating any of the provisions of this section, shall, upon summary conviction before a magistrate, be sentenced to pay a fine of ten ($10) dollars and costs of prosecution, and, in default of the payment thereof, shall undergo imprisonment for not more than five (5) days.

1935 Laws of Pennsylvania
Act no. 335 pg. 1056

Section 1017 pg. 1085 Amendments
No operator of a ~~motor~~ vehicle, who meets or overtakes a street passenger car, *or a school bus,* that has stopped for the purpose of taking on or discharging passengers, shall pass said car *or school bus* on the side on which the passengers

get on or off, until the car *or school bus* has started, and until any passengers who may have alighted have reached the side of the highway, except that, where a safety zone has been established, or at an intersection where traffic is controlled by an officer or a traffic ~~stop-and-go~~ signal, a vehicle need not be brought to a full stop before passing any such railway, interurban or street car *or school bus*, but may proceed past such car *or school bus* at a speed not greater than is reasonable or proper and in no event greater than ten (10) miles an hour and with due caution for the safety of pedestrians.

Section 1103 pg. 1087 Amendments to local Authorities

Local authorities, except as expressly authorirized by this act, shall have no power or authority to alter any speed limitations declared in this act, or regulation contrary to the provisions of this act, except that local authorities shall have power to provide by ordinance for the regulation of traffic by means of peace officers or traffic signals on any portion of the highway where traffic is heavy or continuous, any may regulate or prohibit parking, stopping or loading of vehicles, or prohibit other than one-way traffic upon certain highways, and may regulate the use of the highways by processions or assemblages, and may regulate the kinds and classes of traffic and its turning on certain highways at all or certain hours, and may regulate the transportation by motor vehicles of passengers for compensation within the limits of a city, or from points in the city to points beyond the city limits, and make and enforce regulations for the operation of such vehicles not inconsistent with this act, and designate certain streets upon which such vehicles may be operated.

Local Authorities may designate any highway or any part of a highway under their jurisdiction a "Play Highway" and may close such designated highway to general traffic where interference to traffic will not be serious. Such highways or portions of highways shall be used for play purposes and shall be clearly designated by appropriate signs, specifying the hours between which such highways shall be closed to general traffic. (*an amendment to a previous law)

All traffic lights after 1932 had to have three-color system with the yellow light in the center and not lasting more than three seconds before proceeding to red. Pg. 1089

Approved—The 16th day of July, A.D. 1935.

Laws of PA 1943

Has motor vehicles as some of first acts passed for the session Definitions mentioned under 1945 were approved 18th day of Feb.A.D. 1943 Act No. 2

Laws of PA 1945 and Special session 1944

Section 4. Effect of Failure to Report Accidents.—

The secretary shall suspend the license or any non-resident's operating privilege of any person who willfully fails, refuses or neglects to make report of a traffic accident as required by the laws of this State.

Sections 39 and 40 pg. 1357

Says that now owners must carry in their car with them proof of their financial responsibility for the vehicle.

Act. No 129 pg. 290
Amendments to 1929

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. Section one hundred and two of the act, approved the first day of May, one thousand nine hundred and twenty-nine (Pamphlet Laws, nine hundred five), entitled "An act for the protection of the public safety; regulating the use of highways, and the operation of vehicles, tractors, street cars, trackless trolley omnibuses, bicycles, pedestrians, and the riding of animals upon the highways of this Commonwealth; providing for the titling, including liens, encumbrances, and legal claims; registration of certain vehicles and licensing the operators thereof, upon payment of prescribed fees; prescribing and limiting the powers of local authorities to deal with the subject matter of this act; conferring powers and imposing duties upon the Department of Revenue, the Department of Highways, peace officers, mayors, burgesses, magistrates, alderman, justices of the peace, the courts and the clerks thereof, owners of vehicles, and garage keepers; providing that records are admissible as evidence; imposing upon owner, counties, cities, boroughs, incorporated towns, townships, within the Commonwealth, liability for damages caused by the negligent operation of their motor vehicles; imposing penalties; imposing certain costs upon counties, providing for the disposition of fines, forfeitures, fees, and miscellaneous receipts; making an appropriation and providing for refunds" as last amended by the act, approved the twenty-sixth day of April, one thousand nine hundred and forty-three (Pamphlet Laws, seventy-four) is hereby further amended:

"Crosswalk" – That portion of a highway ordinarily included within the prolongation of curb and property lines at intersections, or any portion of a highway clearly indicated for pedestrian crossing by lines or other markings on the surface.

"Learner's permit"—A permit issued to any person to learn to operate a motor vehicle or tractor.

"Safety Zone." – The area of space officially set aside within a highway for the exclusive use of pedestrians, and which is so plainly marked or indicated by proper signs as to be plainly visible at all times while set apart as a safety zone.

"Traffic."—Pedestrians, vehicles, and street cars, either singly or together, while using any highway for purposes of travel.

Approved The 25th day of April, A.D. 1945.

1951-1952 Laws of PA
Act No. 336 pg. 1368

Section 601. Operators Must be Licensed.—pg. 1371

No person, except those expressly exempted under this act, shall operate any motor vehicle *or tractor* upon a highway in this Commonwealth, unless such person has been licensed as an operator or a learner by the department under the provisions of this act. No person who has been issued a restricted license to operate motor vehicles *or tractors* by the secretary shall operate any motor vehicle *or tractor* in violation of such restrictions.

Penalty.—Any person violating any of the provisions of this section, shall, upon summary conviction before a magistrate, for a first offense, be sentenced to pay a fine of ten ($10) dollars and costs of prosecution, and, in default of the payment thereof, shall undergo imprisonment for not more than five (5) days, and for the second offense, twenty-five ($25) dollars and costs of prosecution, and, in default of the payment thereof, shall undergo imprisonment for not more than five (5) days, and for the third and any subsequent offense, fifty ($50) dollars and costs of prosecution, and in default of the payment thereof, shall undergo imprisonment for not more than (10) days.

Section 604. Persons Not to be Licensed.—pg. 1373

(a) An operator's license or learner's permit shall not be issued to any person under the following conditions:

1. When less than eighteen (18) years of age. Unless such person is sixteen (16) years of age or more and includes with his application for an operator's license or learner's permit a statement of his parent or a person in loco parentis, made under oath or affirmation, that such applicant has the consent of such parent or person in loco parentis to obtain a learner's permit or operator's license, or unless such person is in possession of a valid learner's permit or operator's license before the effective date of this act.

(c.) The secretary may issue an operator's license, or learner's permit, to a person afflicted with, or suffering from, a weakness or disability in vision or hearing, upon the receipt of such evidence or demonstration as shall satisfy him that such person has had sufficient experience in the operation of a motor vehicle *or tractor* to enable him to do so without endangering the safety of the public, and provided that such person shall not operate a motor vehicle *or tractor* unless same is equipped with a mirror so located as to reflect to the operator a view of the highway for a distance of at least two hundred (200) feet to the rear.

Section 606. Learner's Permit pg. 1374

(a). The department, upon receiving from any person eighteen (18) years of age or over, or upon receiving from any person less than eighteen (18) years of age and more than sixteen (16) years of age, when accompanied by an affidavit of consent of a parent or person in loco parentis, an application for a learner's permit may, in its discretion, issue such a permit, entitling the applicant while having such permit in his immediate possession to operate a motor vehicle *or tractor* upon the

highways for a period of (90) days from date of issue, or until such learner has failed three (3) times, at any time within the ninety (90) day period, the examination prescribed by the secretary, and when accompanied by a licensed operator who is actually occupying a seat beside the holder of the learner's permit, except that permittees operating *tractors*, motorcycles or bicycles with motor attached need not be so accompanied.
Penalty—Any person violating any of the provisions of subsection (a) and (b) of this section, shall, upon summary of conviction before a magistrate, be sentenced to pay a fine of ten (10) dollars and costs of prosecution, and, in default of the payment thereof, shall undergo imprisonment for not more than five (5) days.

Section 608. Examination of Applicants and Operators.—pg. 1375
(a). Before issuing an operator's license to any permittee, except as otherwise provided, the secretary shall require the applicant to demonstrate personally to him, or his representative, in such a manner as the secretary may direct, that such applicant is a proper person to operate a motor vehicle *or tractor*, has sufficient knowledge of the laws and regulations concerning motor vehicles *or tractors* and their operation.
(d). The secretary may, in his discretion, issue an operator's license under this act, without examination, to any person applying therefore, who is of sufficient age as required by this act to receive the license applied for, when the secretary is satisfied that the applicant is fully qualified as an operator of motor vehicles *or tractors*, and to any person who at the time of such application has a valid unrevoked license of like nature issued to such person in another state under a law requiring the licensing and examination of operators.

Approved- The 24th day of August, A.D. 1951.

Act No. 605 pg.2128

- deals with driving schools-what they should teach, what credintials they need, and how to advertise. Approved-The 18th day of January, A.D. 1952.

Laws of PA 1959
Act No. 32 pg. 58
Can be referred to as "Vehicle Codes"

Article VI. Operators

Section 605. pg. 114 Age Limits for Drivers of School Busses and Public Passenger carrying Motor Vehicles.—It shall be unlawful for any person, who is under the age of twenty-one (21) years, to operate a motor vehicle of the bus type in the transportation of pupils to or from school, or to operate a motor omnibus in the transportation of passengers.

Section 606. pg. 115 Learner's Permit.—
(a). The department, upon receiving from any person eighteen (18) years of age or over, or upon receiving from any person less than eighteen (18) years of age and

more than sixteen (16) years of age, when accompanied by an affidavit of consent of a parent or person in loco parentis, an application for a learner's permit may, in its discretion, issue such a permit, entitling the applicant while having such permit in his immediate possession to operate a motor vehicle or tractor upon the highways for a period of (90) days from date of issue, or for one hundred twenty (120) days if the learner is a high school student enrolled in an accreditied driver training course, or until such learner has failed three (3) times, at any time within the ninety (90) day period or one hundred twenty (120) days as the case may be, the examination prescribed by the secretary, and when accompanied by a licensed operator who is actually occupying a seat beside the holder of the learner's permit, except that permittees operating tractors, motorcycles or bicycles with motor attached need not be so accompanied.
Article X. Traffic pg. 200

Section 1012. pg. 209 Signals on Starting, Stopping, or Turning.—

(a) The driver of any vehicle upon a highway, before starting, stopping or turning from a direct line, shall first see that such movement can be made in safety, and, if any pedestrian may be affected by such movement, shall give a clearly audible signal by sounding the horn, and whenever the operation of any other vehicle approaching or following may be affected by such movement, shall give a signal, as required in this section, plainly visible to the driver of such other vehicle of the intention to make such movement.

Section 1013. pg. 210 Right of Way.—

(c.) The driver of any vehicle, streetcar, or trackless trolley omnibus, upon a highway within a business or residence district, shall yield the right of way to a pedestrian crossing such highway within a crosswalk, except at intersections where the movement of traffic is being regulated by a peace officer or traffic signal. Every pedestrian crossing a highway within a business or residence district, at any point other than a crosswalk, shall yield right of way to vehicles upon the highway.
Penalty.—Any person violating any of the provisions of this section, shall, upon summary conviction before a magistrate, be sentenced to pay a fine of ten dollars ($10.00) and costs of prosecution, and in default of the payment thereof, shall undergo imprisonment for not more than five (5) days.

Section 1027. Duty to Stop in Event of Accident.— pg. 218

(a) The operator of any vehicle involved in an accident, resulting in injury or death to any person or damage to property, shall immediately stop such vehicle at the scene of such accident.

(b) The operator and owner, if present, of any vehicle involved in any accident, resulting in injury or death to any person or damage to property, shall give his name, address, and the registration number of his vehicle, and exhibit his operator's license to the person struck, or the operator or occupants of any vehicle involved, or the owner or custodian of any property involved, unless the person struck, or the operator of the vehicle or the custodian of the property involved,

signifies that no injuries have been received or damages sustained, and shall render to any person injured in such accident reasonable assistance, including the carrying of such person to a physician or surgeon for medical or surgical treatment, if it is apparent that such treatment is necessary, or is requested by the injured person.

Section 1028. Traffic Signal Interpretations pg. 220
Gives meanings for traffic colors and what other signs mean such as No "U" Turns

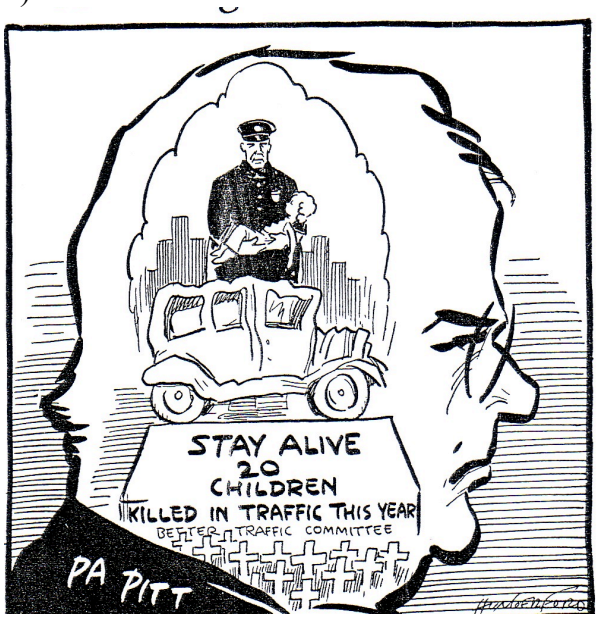
Section 1033. Pedestrians Soliciting Rides.—
It shall be unlawful for any person to stand on the main traveled portion of any street or highway for the purpose of soliciting a ride from the driver of any vehicle.
Penalty.—Any person violating any of the provisions of this section, shall upon summary conviction before a magistrate, be sentenced to pay a fine of two dollars ($2.00) and costs of prosecution, and, in default of the payment thereof, shall undergo imprisonment for not more than one (1) day.

Laws of PA 1965
No. 393 Act price of PA operator's license increases to $4.00 pg. 1045

Act no. 393 Amendment to 1959 legislation enacting "vehicle codes"
Amends Section 1002. Restrictions as to Speed.—
(g) *No person shall operate a motor vehicle on any limited access highway or on any highway under the supervision and control of a turnpike commission at a speed which is less than forty (40) miles per hour unless weather, traffic, road surface conditions, grade or emergency conditions warrant such slower speed.*
Approved 1st day of September, A.D. 1965.

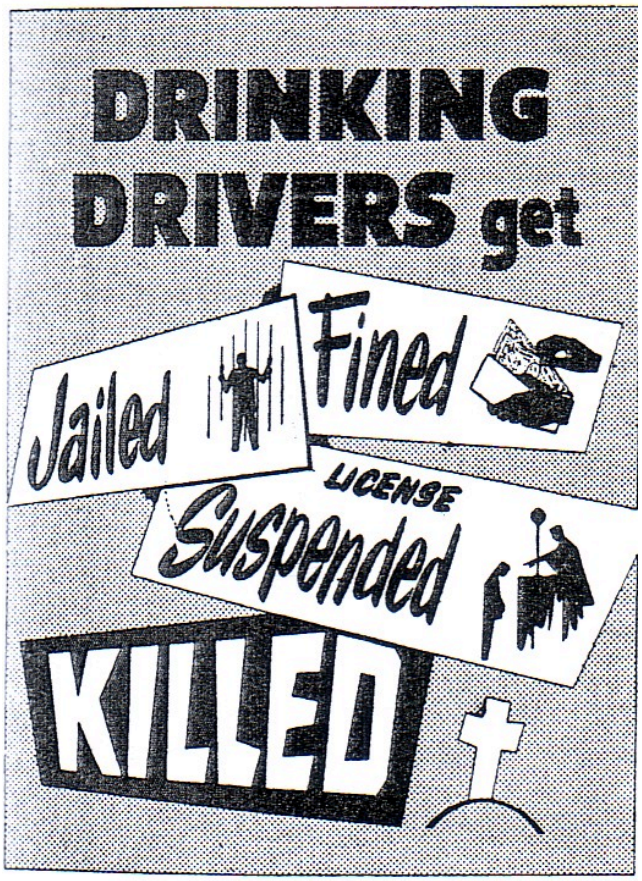
Appendix 3: Illustrations/Cartoons Utilized to Promote Better Driver and Pedestrian Safety

1)



2)

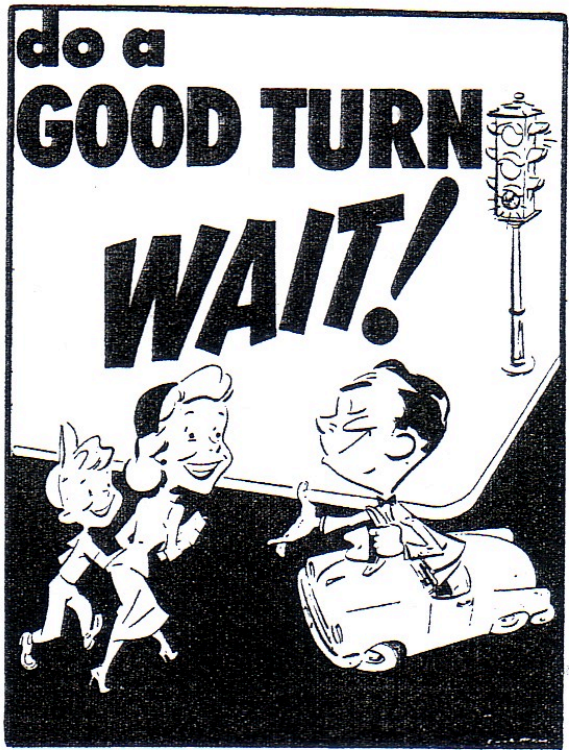
3)


DRINKING
DRIVERS get
Jailed
Fined
LICENSE
Suspended
KILLED

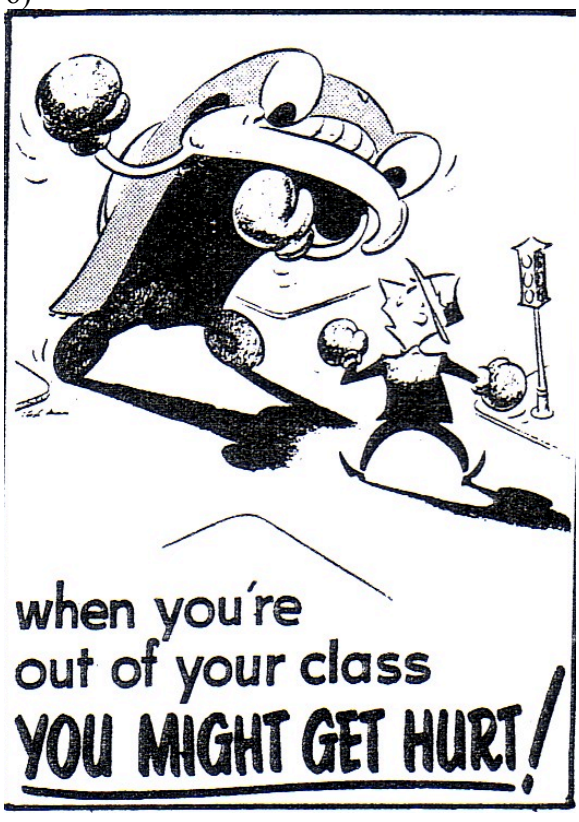
4)


HELP the
SCOUTS
HELP
YOU!
Be Prepared
PREVENT ACCIDENTS
SAFETY GOOD TURN 1954

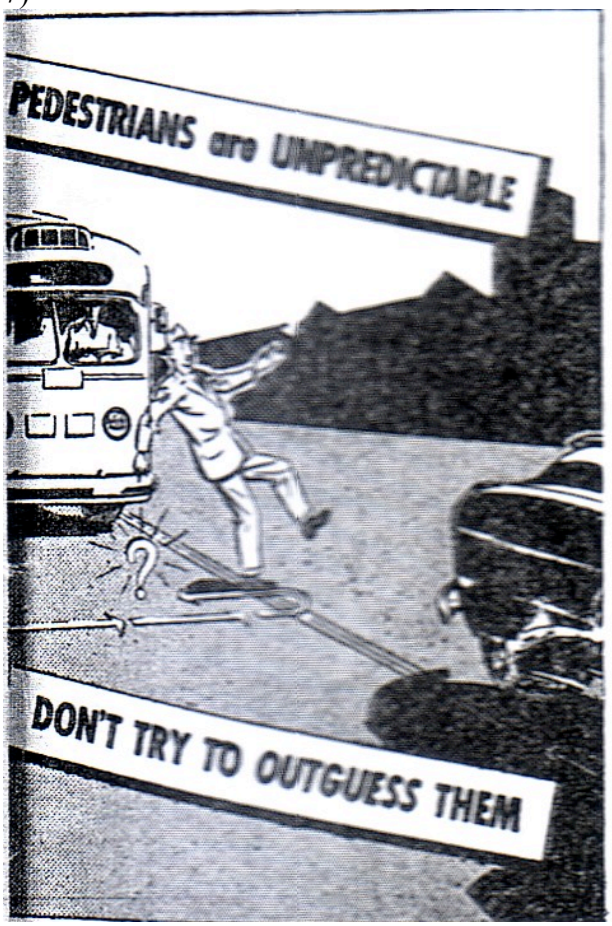
5)


do a
GOOD TURN
WAIT!

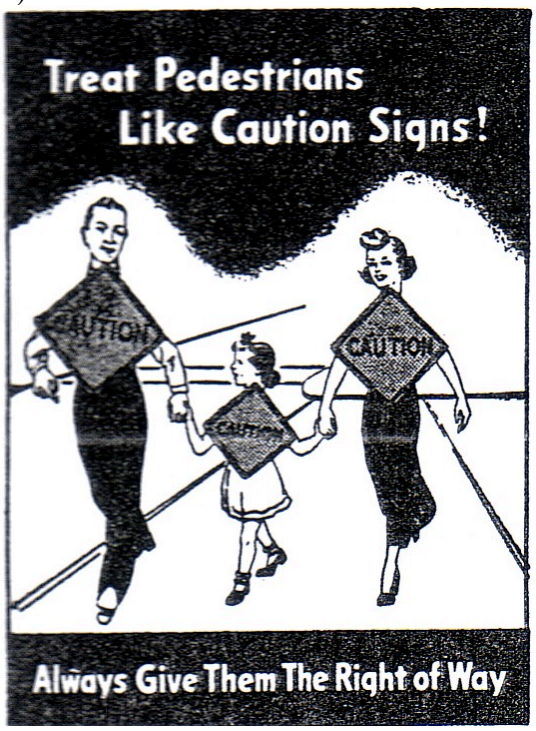
6)


when you're
out of your class
YOU MIGHT GET HURT!

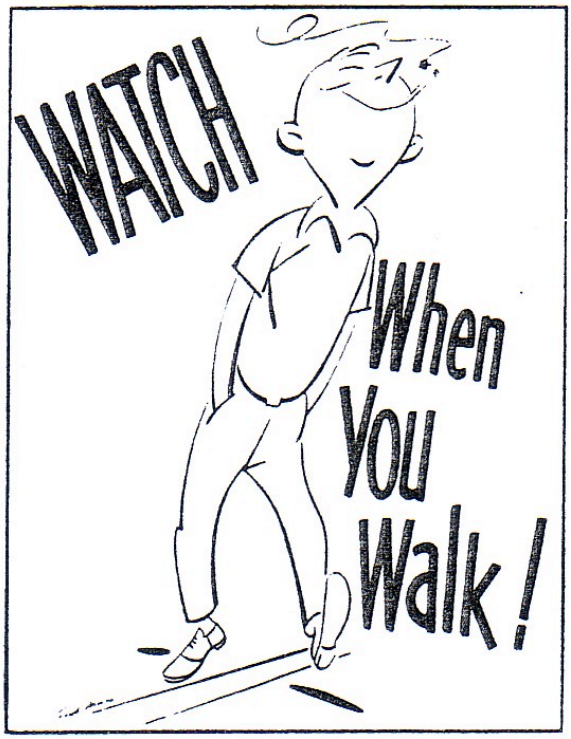
7)


PEDESTRIANS are UNPREDICTABLE
DON'T TRY TO OUTGUESS THEM

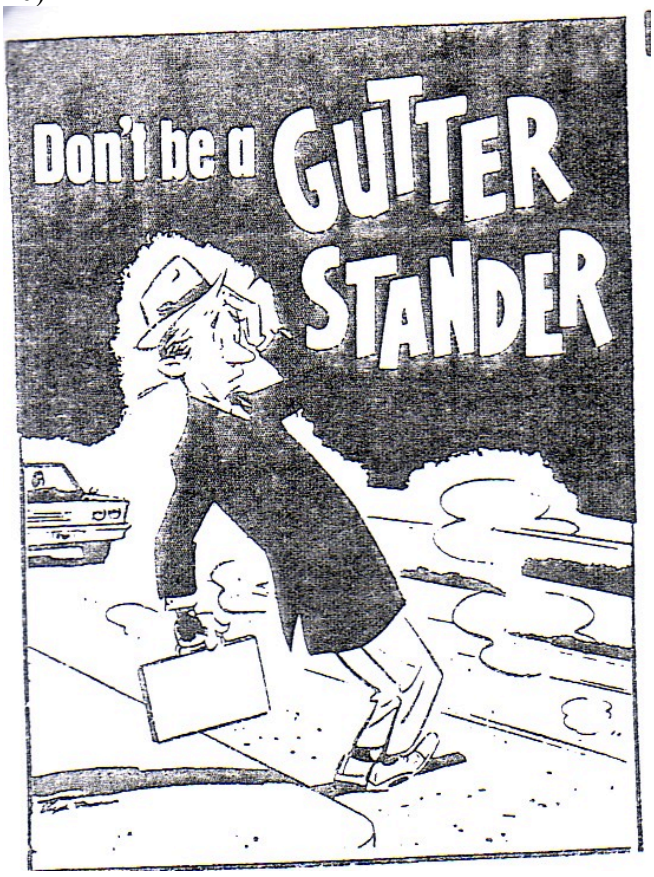
8)


Treat Pedestrians
Like Caution Signs!
CAUTION
CAUTION
Always Give Them The Right of Way

9)



10)



11)

12)

PEDESTRIANS MAY BE WRONG,
BUT DON'T MAKE THEM
DEAD WRONG

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