Pedestrian Safety in Mt. Lebanon, Pennsylvania

The adoption of the automobile as the preferred mode of transportation in America fundamentally changed the dynamics of traffic flow and design in the United States. Mt. Lebanon is no different in experiencing these shifts throughout its history. What was originally conceived as a quiet suburb outside the City of Pittsburgh has increasingly become a major thoroughfare for commuters travelling to the city from the outlying communities in the South Hills region of Allegheny and Washington Counties.

Traditionally, street and traffic design follows a simple hierarchy: trips originate on local streets; travelers are then ferried via collector streets to arterials, which are intended to carry large amounts of motor vehicular traffic long distances at high speeds. This is how the roads in Mt. Lebanon were originally planned with a number of collector roads depositing travelers into arterials like U.S. Route 19 and Pennsylvania Route 88. However, with the continued development of communities throughout the South Hills, traffic congestion flowing into the City of Pittsburgh along these arterial and collector streets has increased. Because of this increase in traffic congestion, public safety concerns regarding pedestrians and cyclists in the municipality have been heightened.

Compounding the issue of public safety in Mt. Lebanon is the tendency for its citizens to disregard the city's jaywalking and crossing laws which has led to a number of vehicular collisions with residents. Since 2010, there have been a total of 82 pedestrian-bicycle accidents involving motor vehicles inside the municipality. It should be noted that this is not a problem that is limited to Mt. Lebanon. Jaywalking and pedestrian safety along roadways is a significant problem throughout Allegheny County and the region. Between 2006 and 2013, the City of Pittsburgh, alone, had nearly 2,100 pedestrian-involved collisions resulting in injuries, damage, or death. Of these 2,100 accidents, 60% of the accidents were blamed on the driver, and 40% were due to the pedestrian.

Like many communities around the United States, Mt. Lebanon employs the "Three E's of Traffic Safety": Education, Engineering, and Enforcement to combat these issues. To strengthen existing initiatives, best practices from communities around the United States have been analyzed and selected for presentation in this white paper. The following is a summary explanation of successful safety efforts in Mt. Lebanon and around the United States.

Education

Currently, the Mt. Lebanon police department is conducting a number of initiatives to educate the public about the traffic laws within the municipality. For several years, the police department has engaged in Pennsylvania's "Aggressive Driving Enforcement and Education Project," where teams of officers monitor traffic and enforce traffic laws in the municipalities biannually. Specifically, officers are looking for aggressive driving maneuvers like speeding, running red lights, tailgating, aggressive lane changing and other "hazardous violations."

The MLPD also engage in "Buckle Up PA" traffic blitzes whose purpose is to educate primarily young drivers about state seatbelt laws. These laws make it a primary offense for minors to either be driving or riding in a car without a seatbelt. As a part of this "blitz," members of the department distributed information to students as they arrived at school. Additionally, the MLPD participates in enforcement blitzes promoted by Buckle Up PA to target all drivers who are not wearing their seat belts.

The Department has also partnered with Buckle Up PA and the Allegheny County Health Department to administer the organization's "Survival 101" program to newly minted drivers within the municipality. There are discussions about seatbelt use, aggressive driving, underage drinking, and licensing. In addition, a large amount of time is spent on pedestrian laws, parking issues, and laws regarding traffic stops, police contracts, and driver's rights. Finally, there is an additional lesson on "Work Zone Safety" to aid in the understanding of the dangers of speed related crashes in clearly marked work zones.

Partnering with the Mt. Lebanon Fire Department, Medical Rescue Team, and the Mt. Lebanon Recreation Department, the MLPD also sponsors an Annual Safety Camp. The purpose of the Safety Camp is to promote a summer activity which teaches children about Traffic and Public Safety in a fun environment. Included in the camp as well as ongoing throughout the year are Bike Rodeos where school-aged children learn the rules of the road and other safety tips that bike riders should follow while riding their bicycles.

For the past 20 years the MLPD has distributed glow sticks to the children of Mt. Lebanon at Halloween. The glow sticks are purchased through a grant from the Mt. Lebanon Police Association, and are free of charge to the students. The glow sticks are given to children in grades K-5, and are accompanied by safety instructions for trick-or-treating.

At the beginning of each school year the Crime Prevention Unit visits all the kindergarten, first, and second grade classes at each of the seven elementary schools to highlight "ten basic, safe-walking rules." To assist officers in these presentations, the department utilizes a radio controlled "robot" police car which has been used for a number of years to help educate students. This has been an incredibly effective initiative, and steps were recently taken to update and maintain the robot in order to keep teaching the classes in the future.

Mt. Lebanon has established commercial districts along Washington and Beverly Road. Inasmuch, there is always a risk of pedestrian injury from careless walking and/or driving. In an effort to prevent these types of accidents, the Mt. Lebanon Police Department created a safe walking initiative called "Road Sense." At the program's core is an educational brochure which provides tips to pedestrians, cyclists, and drivers about safe commuting. The "Road Sense" brochure is distributed by the Department's Crime Prevention Unit at community events, safety fairs, the city's public safety building, and the municipality's information booth. The brochure was also included in the municipality's new resident packet and highlighted in *MTL* Magazine.

Engineering

Mt. Lebanon has a volunteer board of seven residents who listen to traffic complaints regarding neighborhoods within the municipality. The Traffic Board allows residents and business owners the ability to publicly address issues that concern them. Upon hearing these, the board makes recommendations based on studies, signage guidelines, and applicable laws after receiving consultation from the Traffic Engineer and Traffic Services Unit of the MLPD. The recommendations may include changing speed limits, installing traffic calming devices, and adding sidewalks to streets with large amounts of pedestrian traffic. The link between the community and the Police Department ensures that MLPD has an open forum to keep the pulse of the community.

Since 2006, the Mt. Lebanon Traffic Unit began gathering information about recommended safe walking routes which are based on available sidewalks, traffic patterns, traffic control devices, and signals.

These recommendations were then fed into the GIS system to produce detailed maps of these routes. The goal of these maps are to improve the safe walking routes in the municipality, and to be able to build these routes into the curriculum provided to students.

Because Mt. Lebanon is a walking community without buses in the school system, students either walk to school or ride a bicycle. To assist the students getting safely to home and school, the MLPD employs adult crossing guards throughout the municipality. In addition to the students, the crossing guards also help citizens cross the street when needed. Each of these guards are required to attend mandatory training sessions prior to the beginning of the school year to keep with the latest safety standards. The guards are supplied with reflective vests, reflective hats, and hand held stop signs and whistles to alert oncoming traffic to stop. They are also provided with 911 capable cell phones to alert authorities when needed.

Enforcement

The MLPD firmly believes that there is a direct relationship between the visible enforcement of traffic laws and safety for motorists and pedestrians. If motorists are able to see that a concentrated effort is being made to control aggressive driving, a large number of these motorists will take notice and change their driving styles. Aggressive enforcement has also proven to reduce overall crime in communities. The MLPD uses specialized engineering equipment to check for problem areas and direct police actions in traffic enforcement. Included in this equipment is a 2 time-mark tube counter, a speed sentry radar display, and a speed sentry trailer. In addition to the equipment, the police department examines traffic data to examine ways to improve traffic flow and increase safety in the neighborhoods.

The MLPD is the lead agency for the Mt. Lebanon-area DUI task force which is comprised of officers from ten other communities in the South Hills region of Allegheny County. With grant money received from the State of Pennsylvania, the Task Force sets up stationary checkpoints and roving patrols throughout the year. Between these efforts, and the publication of arrest statistics, the task force has seen success in deterring individuals driving under the influence. Additionally, the MLPD has an officer certified as a Drug Recognition Expert (DRE) on the force. This individual is trained to detect and arrest drivers who are under the influence of substances other than alcohol. The DRE certification is one of the most difficult law enforcement certifications to attain. With the increase in awareness of drugged or medicated drivers, this effort can truly save lives.

Alternatives

These aforementioned initiatives have all proven to be successful, however, looking at the best practices and programs in other communities could prove beneficial to the municipality's efforts to improve pedestrian safety.

Vision Zero

Beginning in Sweden in late-1997, the "Vision Zero" program is a multi-national road traffic safety project which aims to achieve a highway system with no fatalities or serious injuries in road traffic. The mission statement of the Vision Zero project is "No loss of life is acceptable."

The Vision Zero project is based on the simple fact that "we are human and make mistakes." Thus, an effective road safety system should take human fallibility into account. In other words, transport systems traditionally place responsibility for safety on road users. Vision Zero flips this theory and

places the responsibility on the system's design. The Vision Zero initiative has been adopted by many cities around the globe. In the United States, New York has adopted it, and set about establishing the framework within its five boroughs.

In regards to education, the City of New York launched a Vision Zero website to gather input from its citizens and coordinate the city's plans for the program, provide data, and announce upcoming organizational events. This website is also able to publish crash and safety data in a user friendly format. The city also established a permanent Vision Zero task force in the Mayor's Office of Operations. This office is responsible for conducting presentations around the City of New York. Members of the task force will lead a state legislative campaign to give the city power over the placement of speed and red-light cameras; reduce the citywide speed limit to 25mph; and increase the penalties associated with dangerous driver behavior. The city is also embarking on a high-quality marketing and public relations campaign aimed at reducing speed, failure-to-yield and other forms of reckless driving.

Other initiatives in educating the public are conducting intensive street-level outreach concerning safety problems and traffic laws which are in areas with known crash histories. Additionally, the task force will perform initiatives in 500 schools each year, educating students about protecting themselves as safe pedestrians and working with their families for safer school zones. Included are effective, age-appropriate curriculum for the students, and hands-on safety demonstrations.

A large portion of the Vision Zero program resides in enforcement. Involved in the Vision Zero program are efforts of increasing enforcement against dangerous moving violations including speeding; failing to yield to pedestrians; signal violations; improper turns/disobeying signage; and phoning/texting while driving. At the precinct-level, police are modifying their traffic plans to increase focus on pedestrian safety as well as increasing speed enforcement at this level of the force.

Police departments are also enhancing the tools they use in traffic enforcement such as speed detection equipment (LIDAR guns), upgraded speed detection technology, and updated technology for capturing crash data. The police are also enhancing and increasing training for officers to better record and preserve crash details and site evidence. They were also asked to expand the Collision Investigation Squad cases to encompass all crashes with critical injuries.

With respect to engineering efforts, the Vision Zero initiative has made it a priority to complete 50 street improvement projects to enhance safety through reengineering intersections and corridors. Under the direction of the program, city planners are also going to implement eight new neighborhood slow zones; install speed cameras at 20 new locations; install 250 speed bumps, including new neighborhood slow zones; enhance street lighting at 1000 intersections; enhance maintenance of street markings; install traffic signals where necessary; and add additional street reconstruction projects where needed.

Minnesota's Best Practices for Pedestrian/Bicycle Safety

Minneapolis-St. Paul is widely considered one of the most pedestrian/bicycle friendly cities in the world. As such, the state's Department of Transportation has assembled a number of guides to aid other municipalities in duplicating the Twin City's efforts. Minneapolis-St. Paul is an excellent city to compare to Pittsburgh, as they are similar in size and layout with a number of outlying communities whose residents commute to the city center on a daily basis. Further, both cities see wide fluctuations in weather and climate as well as having a number of municipal amenities that residents visit on a regular basis.

Crosswalks: A variety of crosswalk enhancements may be used at marked intersections. For example, high visibility crosswalks are much more visible to traditional parallel-line crosswalks. In addition, an advance warning signal and signs at the crossing are typically installed where it is determined that signing is needed to supplement the traffic markings to better alert drivers of the crosswalk placement.

It should be noted that in Mt. Lebanon, there is no signage or indication of the crosswalks within much of the municipality. Further, the crosswalks themselves are not what would be considered highly visible. If the municipality were to improve their crosswalks for pedestrian safety, they should also consider a package of improvements that include proven strategies like supplemental signage, advance yield lines, overhead lighting, curb extensions, and/or median islands.

Medians and Crossing Islands: Medians and crossing islands are most applicable on multilane arterial roadways, and particularly those with high traffic volume. Medians provide pedestrians a simplified crossing maneuver by allowing them to concentrate on only one direction of traffic at a time, creating the equivalent of two narrower one-way streets instead of one wide two-way street. Medians also provide space for landscaping that can be used to change the visual cues of the roadway and reduce driver speeds. It should be noted that continuous, raised medians may not be appropriate or physically possible at all locations.

Short sections of median at high-priority crossings, such as schools and parks, at both intersections and min-block locations provide benefit to the pedestrians crossing the street. Pedestrian islands may also be appropriate at unsignalized and signalized crossing locations.

Curb Extensions: A curb extension is an extension of the sidewalk into the roadway that reduces the crossing distance of a roadway for pedestrians and their exposure to vehicular traffic. Curb extensions can improve the safety of pedestrian crossings by reducing the pedestrian crossing distance, improving the visibility of pedestrians, and reducing the time and distance that pedestrians are in the street. These extensions typically do not extend into travel lanes, bicycle lanes, or shoulders. Extensions are appropriate where there is an on-street parking lane.

Crosswalk Lighting: Street lights can contribute to safety by providing an advance warning to drivers that they are approaching a point of potential conflict with crossing pedestrians and bicyclists. Driver recognition of pedestrians and bicyclists is also improved because street lights illuminate them when it is dark. Crosswalk lighting is needed in isolated intersections with crosswalks that are not along continuously lit roadways and mid-block crosswalks.

Road Diet: The reallocation of roadway lanes and/or space to integrate additional modes, such as bike lanes, pedestrian crossing islands, parking, or a combination of modes on existing roadways. For example, a common roadway reconfiguration involves converting an undivided four-lane roadway into a three-lane roadway made up of two through lanes, a center two-way left turn lane, and a shoulder/bike lane.

Benefits of the Road Diet include lower speeds due to one travel lane in each direction as well as no passing lanes. Reduction in the number of travel lanes reduces the likelihood of “multiple-threat crashes.” Reduced incidence of sideswipe crashes also result because motorists no longer change lanes to pass other vehicles waiting to turn.

Western Efforts
Many western-American cities including Seattle, Denver, and Portland seek public opinion to influence policy and infrastructure changes. Similar to the Mt. Lebanon traffic board, Seattle city officials come together once a week to review citizen requests in order to perform a quick assessment of needs and priorities, by asking questions like:

- What is the crash history?
- Have there been previous complaints?
- Is it a location with a high volume of pedestrians?
- Is it likely that this problem will cause a crash?
- Is there a clear design problem?
- Is it a maintenance problem?
- Would moving a transit stop eliminate the problem?
- Is there already a project in the area that will address the problem?

By drawing upon the collective memory of the group as well as compiling this information into a database, it is often possible to prioritize the requests and identify those that require further analysis.

Denver, Colorado held public meetings in the process of developing a Pedestrian Master Plan in order to identify all potential issues and problem locations within the pedestrian environment. During the meetings, citizens were given the opportunity to comment on the general obstacles they faced in the pedestrian system, and to provide information on ways to improve the infrastructure. Similarly, the city of Portland, Oregon also compiles the needs, requests, and project suggestions gathered during transportation-related open houses, district coalition presentations, and workshops. This information is compiled into a database and used in creating Portland's Pedestrian Master Plan which addresses neighborhood transportation needs. Included in Portland's database are suggestions and/or complaints collected through phone calls, letters, and various public presentations.

Ocean City, Maryland
Each summer Ocean City, Maryland receives an influx of pedestrians due to tourism. As a result, the chances of pedestrian related traffic accidents grow exponentially. Due to this, the city government launched the "Walk Smart" initiative. This program raises pedestrian safety awareness through a full and robust public relations and marketing campaign.

Included in this program are fully-costumed mascots and brightly colored sign carriers roaming the most highly trafficked areas throughout the summer; signage facilitated by partnerships with local businesses which includes drink coasters and posters both inside and outside of businesses; televised public service announcements; and a website. These efforts were partnered with enforcement strategies to curb pedestrian-vehicle collisions.