

**LOWER MAKEFIELD TOWNSHIP
CITIZENS TRAFFIC COMMISSION**

**TRAFFIC SAFETY, TRAFFIC FLOW ISSUES IN
LOWER MAKEFIELD TOWNSHIP**

January, 2008

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I. INTRODUCTION

We take this opportunity to thank the Lower Makefield Township Board of Supervisors for forming the Citizens Traffic Commission. Many residents of Lower Makefield have come before us with traffic problems and we have made numerous site visits. This has given residents a chance to air their concerns and feel that people in their government are trying to solve their problems.

We have developed lists of major and local problems with various classifications. There are projects which require outside funding and projects that can be handled by our Township work force. We realize that some of these projects may take several years to get the necessary funding, and some could be completed within the next few years. We also realize that our priority ranking of projects by point system must be evaluated in light of cost-benefit analyses, which are within the purview of Township officials and other professionals.

Roads are everybody's business. They carry people to work, school, shopping, and recreation. They are the lifelines of our community and country. Poorly maintained, poorly graded, and dangerous roadways affect the quality of our life every day.

The Citizens Traffic Commission sets forth its recommendations in this report to aid the process of making our roads safer. Of course, like most older townships, our roads were originally built for horse and buggy. Our newer developments have wider roads. This has led to other problems such as speeding, running stop signs, and cutting through neighborhoods between major arteries.

We will never be able to solve all of our residents' traffic problems, but hopefully we can ameliorate some and fix others.

In service to Lower Makefield Township, respectfully submitted,

Citizens Traffic Commission

Gary Gilman, Chairperson
Virginia Torbert, Vice-Chairperson
Sue Herman, Secretary
Arthur Cohn
Dick Davino
Bruce McClish
Scott Weaner

II. HISTORY AND PURPOSE OF THE CITIZENS TRAFFIC COMMISSION

On January 18, 2006, the Lower Makefield Township Board of Supervisors, in recognition of the importance of traffic safety and the free flow of traffic in and around the Township, established this Commission by formal Resolution No. 2111. (The full text of the Resolution can be found in Part A of the Appendix). All Commission members are volunteers. Each Commission member lives in one (1) of seven (7) geographic zones within the Township.

The Commission's task is to identify traffic safety and congestion problems throughout the Township by collecting and analyzing the following information:

1. Traffic volume data, accident data, and other traffic statistics;
2. Relevant complaints and information from citizens; and
3. Input from Township employees.

The Commission is to review and prioritize proposed solutions to these traffic problems.

In performing this mission, the Commission has actively sought input and advice from the citizens of Lower Makefield Township, along with input and advice from the Township Traffic Engineer, the Township Manager, the Township Police Department, and the Township Public Works Department. The Commission's primary mission is to create a priority list identifying traffic problems throughout the Township, along with potential solutions.

III. EXECUTIVE SUMMARY

An overview of the process used to develop the Major Improvements List (MIL) and Township Improvements List (TIL) is described in this report. Note that the MIL is found in Part B of the Appendix, and the TIL, wherein relatively inexpensive remedies can be put into place by Lower Makefield Township employees and/or PennDOT employees or by contractors, is found in Part C of the Appendix.

The MIL as well as the TIL were developed by collecting historical and current data from multiple sources. Each of the Citizens Traffic Commission's monthly meetings since its first meeting in July, 2006 were open to the public. The Commission considered many citizen complaints regarding traffic safety and traffic congestion. Three (3) of the Commission's meetings in the Spring of 2007 were devoted to citizen forums regarding traffic issues encompassing all seven (7) geographic zones of the Township. As a result of citizen input, Commission members, along with the Township Traffic Engineer, often met with neighbors at the sites of the complaints in order to observe traffic problems firsthand.

In addition, the Commission received historical and present-day input regarding accident data, other safety problems, and congestion problems from the Police Department, from the Office of the Township Manager, and from the Office of Public Works. The Commission also received written input from community members, several hundred of whom filled out Traffic Survey/Complaint Forms developed by the Commission and available for public review at Community Day in 2006 and 2007, on the Township website, and at various homeowners' association locations throughout the Township. Commission members also reviewed historical data relating to proposed traffic safety and traffic improvement projects. Additionally, Commission members have driven the roads within their respective geographic zones within the Township and reported traffic safety and traffic congestion problems to the Commission and to the Township Traffic Engineer.

The above-noted data were collected, collated, and evaluated, and a Priority List was developed by the Commission in conjunction with the Township Traffic Engineer by use of the evaluation matrix set forth in Part D of the Appendix. Points were assessed for problem locations based upon five (5) criteria, including functional classification, average daily traffic volume, hazard evaluation and crash history, congestion, and availability of funds for remediation. The MIL was developed as a result of total point score per problem location. As can be seen by reviewing the list, recommended potential improvements for each location are noted, as well.

The Commission has concluded that the most efficient way to approach the MIL is by cluster, which most often involves problem locations within a specific corridor within the Township. It is assumed that, as a general rule, this approach

will allow economies of scale to reduce the remediation costs and to allow traffic to flow as smoothly as possible in the Township as a whole.

Accordingly, the priority clusters contained within the MIL are as follows:

- Cluster A – The I-95 corridor
- Cluster B – Big Oak Road corridor
- Cluster C – Edgewood Road/Black Rock Road corridor
- Cluster D – Stony Hill Road corridor

Cluster O consists of traffic safety/congestion problems, portions of which are being addressed by way of existing projects being constructed and/or planned, such as the Matrix Project, the Edgewood Village Project, the Scudders Falls Bridge Project, and the Traffic Signal Enhancement Initiative Project for the Newtown By-Pass. Cluster Z involves miscellaneous projects which are not attributable to a particular corridor within the Township. Cluster T, the TIL, relates to safety/congestion improvements that can be performed using Township or PennDOT personnel or by way of a minor contract program.

Chapters IV-X of this report consist of Cluster-by-Cluster narratives summarizing the traffic safety and traffic congestion problems within each designated Cluster. This is to be read in conjunction with the detailed MIL and TIL contained within Parts B and C of the Appendix.

The Citizens Traffic Commission's recommended action as to priority/sections within the TIL and MIL are outlined in Chapter XIII. Lastly, but not least (we say with all humility), a list of the Commission's accomplishments to date which we hope will improve traffic safety and/or reduce traffic congestion problems within the Township, can be found in Chapter XI of this report.

IV. CLUSTER “A” - I-95 CORRIDOR

The two (2) I-95 interchanges located in Lower Makefield, at Taylorsville Road and the Newtown Bypass, attract the largest volume of traffic and, not surprisingly, encompass the major safety and congestion issues found by the CTC.

According to the Delaware River Joint Toll Bridge Commission, the Scudders Falls Bridge carried 59,500 vehicles per day in 2003 and at peak hours it operates at the worst (F) level of service. According to PennDOT, between 2002 and 2006, there were a total of 68 crashes either on the ramps or the lanes approaching the bridge (PA side). Unofficially, the Pennsylvania State Police report about four (4) accidents per month at or near the bridge, both major and minor.

As for the Newtown Interchange, from May 1999 through December 31, 2005, there were 89 accidents, 24 of which involved injury. In the first half of 2007 alone, there were 17 accidents, even with the new loop ramp. Most occur on or near the on-and off-ramp connections to Yardley-Newtown Road (Newtown Bypass).

The CTC considers some interim improvements to the northbound and southbound on-ramps and off-ramps at the Taylorsville Road interchange the highest priority for remediation within Cluster “A”. The Scudder Falls Improvement Project will likely not be completed for at least five (5) years and the CTC believes it advisable to make some reasonable safety improvements in the meantime, such as better signage and pavement markings, an extended acceleration lane onto Taylorsville Road and even road-or ramp-widening if necessary. In addition, we urge the Township to continue pursuing sound barriers for all residents affected by the expansion of the Scudder Falls Bridge and I-95 expansion.

Close behind in priority are improvements to the intersection of the **Newtown Bypass and Stony Hill Road**, just west of the Newtown Interchange. (See Pickering-Corts Report, May, 2005). There have been 37 accidents at this location during a six (6) year period. During peak hours, westbound Bypass traffic wishing to turn left onto Stony Hill Road backs up, at times to the Interchange. Anticipated growth in office construction in this area will only aggravate the situation. The left turn lane should be lengthened or converted to a two-lane (double) left-turn lane and the left turn green cycle should be longer. Nearby, as LMT police have recommended, a “safe center island holding lane” should be installed on Stony Hill Road so LMT Corporate Center traffic can safely exit to the left.

The CTC also believes the Newtown Interchange itself, recently reconfigured to accommodate the new loop ramp and a widened northbound on-ramp, should have several upgrades, including a two-lane southbound on-ramp with newer,

multiple yield signs, center guard rails on the bridge to prevent crossover collisions, and a new green light/arrow to allow westbound Bypass traffic to enter I-95 North without having to wait at the new traffic signal for vehicles exiting the I-95 North off-ramp.

Various traffic calming measures are also recommended to improve safety and the quality of life for residents along Taylorsville Road, many of whom have difficulty getting out of their driveways during peak hours. (This issue was part of LMT's 2003 TIP submission). Other safety/congestion improvements are recommended at the Woodside Road and Taylorsville Road, and Mirror Lake Road and Yardley-Newtown Road intersections.

V. CLUSTER “B” – BIG OAK ROAD CORRIDOR

Big Oak Road Corridor extends within Lower Makefield Township from the border of Middletown Township to the border of Falls Township. It is noted that the intersection of Big Oak and Oxford Valley Roads is not included within Cluster “B” because needed improvements have already been engineered and are to be constructed in conjunction with the Matrix Project. Accordingly, the intersection is included within Cluster “O”.

The CTC has found that the intersection of Big Oak Road and Pine Grove Road is the location of highest priority for remediation within Cluster “B”. The accident history is quite substantial (23 accidents within a recent six (6) year period, resulting in one (1) death and nineteen (19) injuries), and congestion problems are also prevalent. Traffic signal modifications, along with additional turn lanes, as deemed necessary by traffic engineers, would, in our judgment, greatly improve the safety as well as efficiency of the intersection. It is noteworthy that this intersection has, for many years, been included within our Township’s submission of priority locations to the Bucks County Planning Commission’s Traffic Improvement Program (TIP).

Not far behind in terms of priority is the first major (signalized) intersection to the west, where Big Oak Road intersects with Makefield Road. Similar safety and congestion problems exist at this intersection. Accordingly, traffic signal modifications are desirable, and additional turn lanes, where appropriate, are recommended. Regulating ingress and egress to and from the gas station by use of appropriate curbing is also recommended. Similar problems exist where Big Oak Road intersects Stony Hill Road, and similar safety improvements are recommended.

Various safety improvements are needed on the segments of Big Oak Road between Oxford Valley Road and Pine Grove Road. Signage evaluation and updates, widening for full shoulders, and the addition of a multi-use trail system are recommended. Shoulder dropoffs along Big Oak Road between its intersections with Oxford Valley and Stony Hill Roads should be evaluated and remedied as quickly as practicable. As can be determined by review of the Citizens Traffic Commission MIL, found in Part C of the Appendix, the crash occurrence rankings along the entirety of Big Oak Road within Lower Makefield Township are significant.

VI. CLUSTER “C” EDGEWOOD ROAD-BLACK ROCK ROAD CORRIDOR

The Edgewood Road-Black Rock Road corridor extends from the intersection of Edgewood Road and Yardley-Langhorne Road to the intersection of Black Rock Road and River Road, a distance of 3.9 miles. The road is a two-lane roadway with an 8-foot wide shoulder in two (2) segments; the first in the eastbound direction between Heacock Road and a point east of Long Acre Lane, and the second from the CSX rail crossing to a point west of Kings Road. In the westbound direction the 8-foot wide shoulders exist from east of Gainsway Road to the CSX rail crossing and from east of Schuyler Drive to west of Sumter Drive. In all areas where there is an 8-foot shoulder, there is also a sidewalk or paved multi-use path separated from the roadway by a grassy strip. In addition, there is a paved multi-use path in the westbound direction between the CSX rail crossing and Schuyler Drive. Elsewhere, where shoulders do not exist there are not any sidewalks or multi-use trails.

Proposed improvements within the Edgewood Road-Black Rock Road corridor can be broken into the following three categories:

- Intersection improvements
- Corridor-Wide improvements
- Brock Creek Bridge improvements

Intersection Improvements

Improvements are proposed for all signalized intersections within the corridor. The intersection of Edgewood Road at Yardley-Langhorne Road is not included in this list of proposed projects because it is part of the Edgewood Village improvement plan.

- Edgewood Road-Black Rock Road at Yardley-Morrisville Road

The CTC has found that the intersection of Edgewood Road-Black Rock Road at Yardley-Morrisville Road ranks as one of the highest priority intersections in need of remediation because of its congestion and accident history. Proposed improvements consist of upgrades to the signal system and providing separate left turn movements for all approaches to the intersection.

- Edgewood Road at Heacock Road

The Edgewood Road-Heacock Road intersection has an accident history that places it in the grouping of intersections with the highest accident occurrences in the Township. To improve safety and reduce congestion, it is recommended turn lanes be added for all approaches to the intersection, adjustments be made to the signal timing, and upgrades be made to signs and pavement markings.

- Edgewood Road at Makefield Road

The intersection of Edgewood Road at Makefield Road has a moderate accident history and becomes congested during morning and evening commute periods. Improvements proposed for this intersection include adding left turn lanes to all approaches and upgrading the traffic signal.

- Edgewood Road at Oxford Valley Road

The intersection of Edgewood Road at Oxford Valley Road provides a connection between the residential neighborhoods to the south of Edgewood Road and the public facilities along Edgewood Road (Township Center, Library, Stoddart Community Park and Edgewood Elementary School). Access across Edgewood Road and pedestrian safety could be improved with the addition of a crosswalk and pedestrian signal on the east leg of the intersection. Improvements proposed for this intersection include installing the crosswalk and pedestrian signal.

Corridor-Wide Improvements

Corridor-wide improvements consist of creating a uniform roadway cross-section throughout the entire length of the corridor. This would be achieved by providing full paved shoulders and separated sidewalks/multi-use trails throughout the entire length of the corridor.

The Edgewood Road-Black Rock Road corridor contains major destination points within the Township. These include the Township Center, Library, Stoddart Community Park (swim center, kids playground, basketball and tennis courts, baseball and soccer fields, picnic area, nature trail, rest rooms), Edgewood Elementary School, Delaware River Canal Trail, Lower Makefield Shopping Center, and Edgewood Village. Completing the multi-use trail within the corridor would encourage bicycle and pedestrian access to these facilities. Increased use of a multi-use trail not only provides personal health benefits but it also aids the environment by reducing the use of automobiles within the Township. Reducing fossil fuel consumption (automobile usage) is also in keeping with the Township's Cool Cities Program. Trail improvements on at least one side of the roadway could be provided independent of and prior to roadway shoulder widening.

The CTC has divided the Edgewood Road-Black Rock Road corridor into segments for ease in evaluating improvement needs and prioritizing the improvements. Although the rankings of the segments are fairly even, the Heacock Road to Mill Road segment had the highest occurrence of accidents. Improvements for this segment consist of adding a shoulder and multi-use trail to the north side of the road between Sumter Drive and Heacock Road and to the south side of the road from east of Long Acre Lane to Oxford Valley Road.

The remainder of the corridor has been broken into two segments: Yardley-Morrisville Road to River Road and Oxford Valley Road to Yardley-Morrisville Road. Both segments have similarly substantial accident histories. Although the Oxford Valley Road to Yardley-Morrisville Road segment has a higher average traffic volume, the Yardley-Morrisville Road to River Road segment presents greater hazard. The hazard is primarily the segment between Westover Road and the Delaware Canal. Here the narrow road is on a relatively steep grade and has a sharp horizontal curve. At the bottom of the grade is the Delaware River Canal pedestrian crossing. Vehicles tend to gain speed as they go down the hill and approach the canal crossing. The CTC has met with citizens in this neighborhood and discussed the conditions and possible improvements. As part of the Canal culvert replacement, scheduled for 2008-2009, the CTC recommends widening the east-bound shoulder between Westover Road and Glen Drive to facilitate safer movement of pedestrians and bicyclists within the corridor. Once these improvements are in place, improvements to the Oxford Valley Road to Yardley-Morrisville Road segment should be considered.

Brock Creek Bridge Improvements

Improvements at Brock Creek consist of raising the Edgewood Road profile and widening the roadway to provide full shoulders. The project also includes raising the profile of the multi-use trail crossing Brock Creek. Presently the multi-use trail is often closed due to flooding during minor storms. Since widening and raising the roadway would require replacement of the existing creek culvert, it may be beneficial to incorporate the raising of the multi-use trail into a widened roadway section. The roadway profile would be raised between Schuyler Drive and the CSX crossing. This would raise the Edgewood Road/Sandy Run Road intersection and improve sight distance for traffic on both roads.

VII. CLUSTER “D” – STONY HILL ROAD CORRIDOR

Stony Hill Road extends from the southern edge of our Township at the border with Falls Township to its intersection with Yardley-Newtown Road. Sixteen percent (16%) of all accidents in our Township occur on Stony Hill Road. There are a number of areas along Stony Hill Road that rank high in our assessment of crash occurrence and our hazard evaluation. We have identified several areas along the road that are in need of improvement.

1. **BROCK CREEK BRIDGE:** This section, just north of Oxford Valley Road, has been complained about a great many times in our conversations with the public. Given the high volume of traffic in this area, this bridge/culvert should be upgraded and widened. Until this is accomplished, consideration should be given to alternative safety upgrades.
2. **REALIGN HORIZONTAL CURVES:** Many of the curves along Stony Hill Road should be improved, if practicable.
3. **UPGRADE SIGNAGE AT CURVES:** Some improvements to signage have already occurred. We need to make sure that all of the curves along Stony Hill Road are appropriately marked.
4. **UPGRADE TRAFFIC SIGNAL AT HEACOCK ROAD:** This intersection can be quite difficult to negotiate at various times during the day. We feel that it is in need of dedicated left turn signals. We understand that the Sunrise Assisted Living Project may address some safety issues here.
5. **ADD CONNECTIONS TO BIKE PATHS/CONSTRUCT BIKE PATH:** Biking along Stony Hill Road can be quite dangerous. A wide bike path, including connections to existing paths, would be ideal.
6. **WIDEN SHOULDERS:** There are several areas along Stony Hill Road that have inadequate shoulders, especially adjacent to many of the curves.

VIII. CLUSTER “O” – PROJECTS

This cluster includes projects that have already been engineered or are involved with other projects. The Matrix Project has already been engineered. Accordingly, there are improvements in the offing for Big Oak Road, Oxford Valley Road, and the intersection of Big Oak and Oxford Valley. As the Matrix Project proceeds, the CTC will monitor the construction of/improvements to the roads and traffic patterns, and possibly offer suggestions along the way.

The Edgewood Village Project is still in the planning stages. Edgewood Road, Yardley-Langhorne Road, Heacock road, and Stony Hill Roads will all be involved in this project. Parts of these roads and their intersections will be upgraded. This project will be completed in parts, but the road improvements will have to be engineered in full. We on the CTC will be part of this process.

Various Lower Makefield Township roads are included in the Bucks County Regional Traffic Study. We are involved with other townships in efforts to assure that the recommendations contained within the study, on balance, improve traffic safety and traffic congestion issues in our township as well as in our region, while preserving our quality of life.

A project that has been installed and is awaiting completion of an after-study effectiveness evaluation is the signal timing on the Newtown Bypass. The CTC will monitor the Bypass to work toward maximum efficiency and to minimize adverse effects on roads that adjoin it. Lower Makefield Township will initiate continued coordination with Newtown Township to monitor system maintenance and periodic study of the effectiveness of the signalization.

Probably the largest project is the Scudders Falls I-95 Bridge project, in terms of adding traffic to our roads. Certainly the intersection of Taylorsville and Dolington roads must be upgraded with installation of a traffic signal and additional turn lanes. Taylorsville Road will have to be widened at the I-95 interchange. We realize this massive project will take years to complete and that state, regional, and local traffic engineers will be involved. We on the CTC, along with our traffic engineer, will keep apprised of all developments, and offer suggestions along the way.

IX. CLUSTER “T” – TOWNSHIP/LOCAL PROJECTS

Cluster “T” improvements are those that can be implemented relatively inexpensively and quickly by either Township or local PennDOT staff. These types of improvements generally include adding and/or upgrading signage and pavement markings and application of minor traffic calming measures. Cluster “T” improvements have been included in the overall project ranking. However, they have also been specifically identified in the Township Improvements List (TIL), included in Appendix C.

X. CLUSTER “Z” – MISCELLANEOUS

The projects in this cluster are on important roads but are not within any of the previously described corridors. The nature of the desired improvements is evident. However, we cannot determine whether traffic signal Projects 15 and 32 meet required warrants, nor can we determine the extent of the physical work necessary to complete Projects 47 and 48 (see Appendix, Part B for description of projects) without some preliminary engineering study and/or a field review by Township Public Works personnel.

Project 43 is intended to provide a multi-use trail system along River Road through the length of the township. Since this is not currently feasible due to physical constraints along River Road, we recommend that LMT take an active role in monitoring the planning study now underway as to designating a portion or portions of River Road as a scenic byway. Further study and evaluation is needed prior to recommending construction strategies or possible funding, such as potential inclusion in the National Scenic Byways Program. (See page 21).

XI. ACCOMPLISHMENTS TO DATE – December, 2007

The Citizens Traffic Commission has had quite a busy year, with much work done and many accomplishments. The Commission is an important link between the community and the Township government.

We have held three (3) focused community meetings to gather citizen's traffic concerns. We had excellent turnouts for these meetings. We also staffed an informational table at the first two (2) Community Pride Days. We provided surveys to be filled out, and spoke with many residents. Many surveys were returned, with many concerns put forth by the community.

We have urged the community to come to us to identify traffic safety and congestion concerns at our monthly meetings. We have met with the community on multiple occasions at specific locations to discuss traffic concerns. We met with the residents of Roeloefs/Bluestone Road and observed traffic. We visited Esther Lane and West Ferry Road. We visited Black Rock Road. We visited the school crossing on Creamery Road. Most recently, we met with residents along Hidden Oaks Drive, and along Darby Road and Liberty Drive. Along with our Township traffic engineers, and the Township Police Department, plans are being developed to enhance traffic calming measures and enforcement measures to deter dangerous speeding in neighborhoods through the Township.

We visited and, along with our Township traffic engineers, developed a plan to reduce "cut through traffic" in the Lower Hilltop neighborhood. This plan has now been implemented and is being monitored for outcome. Safety improvements are being developed along West Ferry Road, Esther Lane, and Roeloefs Road, and the intersection of Edgewood and Oxford Valley Roads.

We have been in communication with the LMT Public Works staff regarding vegetation obstructions, signs, and pavement markings in need of maintenance throughout the Township. A large number of these safety improvements have been completed. We recommended repair of a barrier along South Drive at Silver Creek. A new barrier has been installed.

Working with Lower Makefield Township Police, we have requested and received PennDOT approval to modify signing at the school crossing on Creamery Road. These modifications will be completed shortly. We supported the implementation of traffic calming improvements along Lindenhurst Road. Phase 1 of this project has been completed. We reviewed the development plans for the Matrix Development and submitted comments regarding traffic improvements.

We have attended public meetings held regarding the Bucks County Regional Traffic Study. We have reviewed and prepared comments on the Draft Bucks County Regional Traffic Study for consideration by the BOS, and recommended the Township forward comments to the Delaware Valley Regional Planning Commission. The Township has done so. We have also recommended LMT

input and monitoring of the updated signal design and maintenance plan for the Newtown ByPass, and we have requested LMT input into traffic flow situations which will be created by construction of the Veterans' Cemetery in Upper Makefield Township. Specifically, we have requested that Lower Makefield Township be part of the Highway Occupancy Permit (HOP) review process.

We regularly attend Board of Supervisors meetings to keep up-to-date with Township business which may involve the CTC, and to be available to answer inquiries from the Board or residents.

XII. FUNDING PROGRAMS/SOURCES

There are several funding sources available at the state and federal level that may be applicable to the construction of the various improvements identified by the CTC. The Township and CTC should monitor the availability of funds from the following programs to submit candidate projects from the improvements inventory.

Transportation Improvement Program

The Transportation Improvement Program (TIP) is a capital program assembled by the Bucks County Planning Commission (BCPC), PennDOT, and the Delaware Valley Regional Planning Commission (DVRPC) which identifies high priority projects that will receive state and federal funds. Typically, the TIP contains projects for the engineering, right-of-way, utilities and construction phases of roadway safety and capacity, bridge and other multi-modal improvements.

The major improvements identified in CTC improvement inventory should be submitted by Lower Makefield Township to the Bucks County Planning Commission on a bi-annual basis for their update of transportation needs in the County. In addition to submitting the list of major improvements from the inventory, the Township and CTC should identify a shorter list of projects as priorities that BCPC should seek funding for immediately. Municipal input serves as BCPC's direct input to the update of the Region's TIP.

Hometown Streets/Safe Routes to School

The Home Town Streets and Safe Routes to School are special state and federally funded programs intended to improve the quality of life in communities. PennDOT recognizes that the streets that run through the centers of cities and towns provide vital connections. Improving these streets will bring people back to town centers and promote healthy living. PennDOT can also contribute to the safety of our children by making improvements to the routes children take to school.

The Home Town Streets program can include a variety of streetscape improvements that are vital to reestablishing our downtown and commercial centers. These projects can include activities undertaken within a defined "downtown" area that collectively enhance that environment and promote positive interactions with people in the area. Projects may include sidewalk improvements, planters, benches, street lighting, pedestrian crossings, transit bus shelters, traffic calming, bicycle amenities, kiosks, signage, and other visual elements.

The Safe Routes to School program is designed to work with both school districts and pedestrian and bicycle safety advocates to make physical improvements that

promote safe walking and biking passages to school. Collectively, these efforts would save on school busing costs and promote a healthy lifestyle for children. In addition, some funding may be used for pedestrian education efforts. Examples of these types of improvements include sidewalks, crosswalks, bike lanes or trails, traffic diversion improvements, curb extensions, traffic circles and raised median islands.

A competitive application process is used to select projects for these programs. Typically, funding is offered on a bi-annual basis. The municipality is required to fund all pre-construction costs of the candidate project in order to receive program funding.

Delaware River Joint Toll Bridge Commission

The Compact Authorization Investment (CAI) program funds local transportation projects for communities which host a Delaware River Joint Toll Bridge Commission bridge. Projects eligible to receive CAI funding include those which will improve safety and traffic flow in the community. Once the Commission awards a community with a CAI grant, the funded project is managed by the local community. The Commission recognizes that there are both benefits and burdens for communities which host commission bridges. By providing grants to host communities for important local transportation projects, the Commission helps to alleviate some of the burdens for its community partners. Candidate projects can include new traffic signals, modernization of existing traffic signals, road reconstruction, intersection improvements, traffic calming and bicycle/pedestrian facilities.

Transportation and Community Development Initiative

DVRPC utilizes the Transportation and Community Development Initiative (TCDI) program to support local development and redevelopment efforts in the individual municipalities of the Delaware Valley that implement municipal, county, state, and regional planning objectives. The TCDI program is intended to reverse the trends of disinvestment and decline in many of the region's core cities and developed communities by:

- Supporting local planning projects that will lead to more residential, employment or retail opportunities;
- Improving the overall character and quality of life within these communities to retain and attract business and residents, which will help to reduce the pressure for further sprawl and expansion into the growing suburbs;
- Enhancing and utilizing the existing transportation infrastructure capacity in these areas to reduce the demands on the region's transportation network; and

- Reducing congestion and improving the transportation system's efficiency.

TCDI funds are made available on an annual basis. The funds can only be utilized for planning activities. Final design and construction activities are not eligible for funding. Based on the eligibility criteria established by DVRPC in 2007, the census tracts in Lower Makefield Township adjacent to Yardley Borough, and the area encompassing the Edgewood Village were eligible for TCDI funding. The eligible census tracts can change with each round of funding. The municipality is required to match at least 20 percent of the grant amount.

Department of Community and Economic Development

The Pennsylvania Department of Community and Economic Development (DCED) offers the single Application for Assistance to municipalities that seek funding opportunities. Through one application form, municipalities can apply for financial assistance from the DCED's various funding sources. DCED has funding available for technical assistance with land use and transportation planning activities. For example, the Land Use Planning and Technical Assistance Program (LUPTAP) funds comprehensive planning activities. Programs such as Community Development Block Grants (CDBG), Elm Street and Main Street Program fund infrastructure improvements such as repair of sidewalks, curbs and streets. Each DCED funding program has eligibility criteria that the municipality must meet to qualify. In most cases, the municipality is required to match at least 20 percent of the grant amount.

Department of Conservation and Natural Resources

The Pennsylvania Department of Conservation and Natural Resources (DCNR) offers funding for the planning, engineering, property acquisition and construction of greenways and recreational trails through its community Conservation Partnerships Program (C2P2). Matching funds are required for most projects from the C2P2.

National Scenic Byways Program

The National Scenic Byways Program (NSBP) was established under the Intermodal Surface Transportation Equity Act of 1991 (ISTEA) to bring attention to roadways that are found to be of historical, archeological, cultural, natural, or scenic benefit. An application and review process is necessary to establish a roadway as an "All-American Road" or National Scenic Byway. Through a discretionary grant program, funds are available for the preservation and maintenance of designated roadways as well as programs to enhance public use of and access to the byways. These can include trails, informational materials, and corridor management programs.

XIII. RECOMMENDED ACTION

Moving projects from a “Priority Ranking List” (such as the TIL and MIL) to completed projects that serve the community can take several paths. Some projects that require little funding can be performed using Township or PennDOT personnel and can be delivered in a relatively short period of time. Others are large projects that require engineering, planning, environmental clearance, design, and major funding before being constructed under a competitive bid process. Obviously these larger projects will need a longer time to deliver to the community than those projects that can be completed by Township or PennDOT personnel. Therefore, we have divided the projects into two (2) lists, Township Improvements List (TIL) and Major Improvements List (MIL) for delivery to the community.

The Township Improvements List (TIL) can be found in Part C of the Appendix. The CTC recommends that these projects be undertaken as soon as practicable.

The Major Improvements List (MIL) has been organized into clusters based on how the individual projects interrelate. These projects are listed in Part B of the Appendix. Generally each cluster is a listing of projects within a single corridor. Some projects within a corridor are stand-alone improvements, such as a signal modification, while others are segments of corridor-wide projects, such as roadway widening and multi-use trails. All of the Major Improvements List (MIL) projects will require significant funding, engineering planning, environmental clearance, and design before going to construction. Depending on the project, the time for planning/design will vary. For corridor-wide projects, the delivery timeline could take several years while a signal modification could be delivered within one (1) year. The CTC recommends the following:

1. Proceed with the funding, design and construction of the three (3) highest ranked stand-alone projects. These projects are:
 - Yardley-Newtown Road at Stony Hill Road; project number 2.
 - Pine Grove Road at Big Oak Road; project number 8.
 - Edgewood Road/Black Rock Road at Yardley-Morrisville Road; project number 9.

2. Proceed with funding, engineering planning and environmental clearance of the two (2) highest ranked corridor wide projects. These projects are:
 - Taylorsville Road from Dolington Road to Mt. Eyre Road; project numbers 1, 4, 10, and 13.
 - Yardley-Newtown Road from I-95 to Creamery Road; project numbers 5 and 6.

As the planning of each corridor is completed, a timeline for engineering and design can be developed, and the projects can be scheduled for construction.

Traffic Calming:

One problem consistently identified by the CTC and residents is the speeding that is occurring throughout the Township. Encouraging drivers to slow down requires a combination of driver education, law enforcement, and traffic calming. Traffic calming includes a range of measures, from minor signing, pavement marking, speed bumps, and medians, to more extreme measures including street closures and alterations to the roadway geometry. As for driver education, the CTC hopes to be part of a township-wide campaign in 2008 to encourage and promote safe driving in every neighborhood.

Several projects have been identified as appropriate locations for minor traffic calming, primarily those identified in Cluster "T". In those instances, additional signing and pavement markings have been recommended with a phased approach of greater traffic calming measures as needed. The CTC and residents will continue to monitor these locations to determine whether additional traffic calming measures should be considered and implemented. Going forward, this multi-step approach will be used for similar locations.

XIV. ACKNOWLEDGEMENTS

This project was conceived by the Lower Makefield Board of Supervisors and undertaken in 2006-2007 with the goal of identifying and improving traffic-related issues throughout the Township, in collaboration with LMT residents. Commission members would like to acknowledge all those who contributed to the research and production of this study including the following:

Lower Makefield Board of Supervisors:

Greg Caiola, Chairman
Steve Santarsiero, Vice Chairman and Supervisor Liaison to the CTC
Matt Maloney, Secretary/Treasurer
Ron Smith, Supervisor
Peter Stainthorpe, Supervisor
Grace Godshalk, Supervisor (term expired December, 2007)

Lower Makefield Township Manager:

Terry Fedorchak

Lower Makefield Township Police:

Chief Ken Coluzzi
Captain Tom Roche

Lower Makefield Public Works Department:

James T. Coyne (deceased)

Lower Makefield Engineers:

Chad Dixon, AICP, Traffic Planning & Design
Heather Sherk, AICP, Traffic Planning & Design
Jim Majewski, P.E., CMX

CTC Recording Secretary:

Robin Peters

The Commission would also like to acknowledge the assistance of the many Lower Makefield residents who attended our meetings, sent emails, letters and surveys, and took the time to meet with us in their neighborhoods to discuss their traffic concerns.

XV. APPENDIX

- A. Resolution No. 2111
- B. Major Improvements List (MIL)
- C. Township Improvements List (TIL)
- D. Evaluation Matrix

APPENDIX A

RESOLUTION NO. 2111

A RESOLUTION OF THE BOARD OF SUPERVISORS OF THE TOWNSHIP OF LOWER MAKEFIELD, COUNTY OF BUCKS, COMMONWEALTH OF PENNSYLVANIA CREATING A TRAFFIC COMMISSION AND ESTABLISHING ITS DUTIES AND RESPONSIBILITIES THEREOF

WHEREAS, the Lower Makefield Township Board of Supervisors recognizes the importance of traffic safety and the free flow of traffic in and around Lower Makefield Township;

WHEREAS, the Lower Makefield Township Board of Supervisors desires to collaborate with the residents of Lower Makefield Township in identifying and rectifying traffic-related issues throughout the Township in an open and transparent manner;

WHEREAS, the Lower Makefield Township Board of Supervisors desires to create a Lower Makefield Township Traffic Commission to identify, collect information, analyze and provide recommendations to the Board of Supervisors on issues related to the safe and free flow of traffic in Lower Makefield Township.

NOW THEREFORE, the Board of Supervisors does hereby resolve the following:

1. A Lower Makefield Township Traffic Commission (the "Commission") is hereby created to ensure traffic safety throughout Lower Makefield Township (the "Township") and to promote the free flow of traffic in and around the Township by identifying, collecting information, analyzing and providing recommendations on potential solutions to Township traffic issues.
2. The Commission shall consist of seven (7) members who are Township residents appointed by the Board of Supervisors and a Supervisor Liaison who shall be appointed by the Chairman of the Board of Supervisors. The members shall serve for a period of four (4) years; provided that the Supervisor Liaison shall be appointed on an annual basis; and provided further that the members of the commission first appointed shall be appointed to varying terms as follows:
 - Three (3) members shall be appointed for two (2) years
 - Three (3) members shall be appointed for three (3) years
 - One (1) member shall be appointed for one (1) year
3. The Board of Supervisors, in consultation with the Township Traffic Engineer, shall divide the Township into eight (8) traffic zones. The Board of Supervisors shall make every effort to appoint one (1) resident from each zone to serve on the Commission. If a resident from one (1) or more zones willing to serve on the commission can not be identified, the Board of Supervisors shall attempt to fill the position with a resident from an adjoining traffic zone. The Board of Supervisors shall have the authority to remove and replace a member of the Commission or the Supervisor Liaison for neglect of duty.
4. All meetings of the Commission shall be open to the public and a reasonable opportunity shall be given for those in attendance to provide public comment.

5. The Commission shall elect from among its members at the first meeting thereof, and at the first meeting of each succeeding year, a chairperson, secretary, and such other officers as the Commission may deem necessary by a majority vote of all members.

6. The Commission is tasked with the following:

- Identify all major traffic problems throughout the Township.
- Create a list of proposed solutions to those problems and prioritize that list in order of importance (the "Priority List") by addressing project feasibility issues and, if appropriate, establishing a schedule to complete the project.
- Explore grants and other forms of funding from outside of the Township to pay for as many of the proposed projects as possible
- Perform a semi-annual review of the Priority List and update and modify the list as appropriate.
- Provide regular updates to the Board of Supervisors on its work including a presentation of the Priority List for the Board of Supervisors' consideration and providing information about alternate funding sources. These updates shall include an annual report on the Commission's activities to be presented to the Board of Supervisors on or before September 15 of each year.

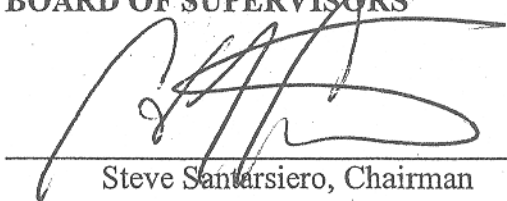
In conducting its activities, the Commission shall seek the advice of the Township Traffic Engineer, the Chief of Police, the Head of the Township Roads Department and the Township Manager.

7. An affirmative vote of a majority of all of the members of the Commission at a public meeting is necessary in order to transact any business. Each member shall have one (1) vote. The Supervisor Liaison shall have no vote, unless the Commission is equally divided.

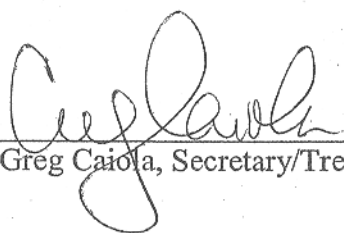
8. This Resolution shall become effective immediately.

RESOLVED, this 18th day of January 2006.

**LOWER MAKEFIELD TOWNSHIP
BOARD OF SUPERVISORS**



Steve Santarsiero, Chairman



Greg Caiola, Secretary/Treasurer

APPENDIX B

**Lower Makefield Township
Major Improvements List (MIL)
By Cluster**

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
1	1,2	A	Scudder Fall Bridge & I-95/Taylorsville Road Interchange	Additional sound barriers NB ramp improvements	6	5	4	10	8	2	35
2	1,2	A	Yardley-Newtown Road and Stony Hill Road	Add and lengthen turn lanes Modify signal timing	4	5	4	10	8	2	33
4	1	A	Taylorsville Road- Woodside Road to Mount Eyre Road	Add shoulders Re-profile Realign horizontal curve Lower speed limit Traffic calming	3	4	4	10	8	2	31
5	1,2	A	Yardley-Newtown Road- I-95 Interchange to Mirror Lake Road	Widen road Add shoulders Install guide rails on bridge Improve yield warning on SB ramp	3	3	4	10	8	2	30
6	2	A	Newton-Yardley Road- Creamery Road to Mirror Lake Road	Signal modification (at Mirror Lake Road) Minor road modification Realignment Pavement marking	3	3	4	10	8	2	30
7	2	A	Stony Hill Road at LMT Corporate Center	Create center turning area for vehicles turning left out of the Corporate Center	3	3	4	10	8	2	30
10	2	A	Taylorsville Road- I-95 Interchange to Dolington Road	Add shoulders Re-profile Realign horizontal curve Traffic calming	3	2	4	10	8	2	29
13	1	A	Taylorsville Road- I-95 to Woodside Road	Extend SB off-ramp acceleration lane Signal modification Add lanes Traffic calming	3	4	4	10	4	2	27
40	1	A	Woodside Road- Dolington Road to Taylorsville Road	Construct bike path Traffic Calming	2	3	4	6	0	2	17
8	6,7	B	Pine Grove and Big Oak Road	Signal modification Add turn lanes	3	3	4	10	8	2	30
11	5,6	B	Big Oak Road & Makefield Road	Signal modification Upgrade signal	2	3	4	10	8	2	29
21	7	B	Big Oak Road- Pine Grove Road to Trenton Avenue	Widen for full shoulders, add multi-use trail system, update signage	1	3	2	10	4	2	22
23	4,5	B	Big Oak Road- Oxford Valley Road to Stony Hill Road	Widen for full shoulders, add multi-use trail system, update signage	2	3	4	10	0	2	21
24	5	B	Big Oak Road & Stony Hill Road	Signal modification Add turn lanes	2	3	4	10	0	2	21
25	5,6	B	Big Oak Road- Stony Hill Road to Makefield Road	Widen for full shoulders, add multi-use trail system, update signage	2	3	4	10	0	2	21
34	6	B	Big Oak Road- Makefield Road to Pine Grove Road	Widen for full shoulders, add multi-use trail system, update signage	2	3	2	10	0	2	19

**Lower Makefield Township
Major Improvements List (MIL)
By Total Points**

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
1	1,2	A	Scudder Fall Bridge & I-95/Taylorsville Road Interchange	Additional sound barriers NB ramp improvements	6	5	4	10	8	2	35
2	1,2	A	Yardley-Newtown Road and Stony Hill Road	Add and lengthen turn lanes Modify signal timing	4	5	4	10	8	2	33
3	1,2	O	Newtown-Yardley Road- Lower Makefield Township Line to I-95	Signal timing	4	5	4	10	8	2	33
4	1	A	Taylorsville Road- Woodside Road to Mount Eyre Road	Add shoulders Re-profile Realign horizontal curve Lower speed limit Traffic calming	3	4	4	10	8	2	31
5	1,2	A	Yardley-Newtown Road- I-95 Interchange to Mirror Lake Road	Widen road Add shoulders Install guide rails on bridge Improve yield warning on SB ramp	3	3	4	10	8	2	30
6	2	A	Newton-Yardley Road- Creamery Road to Mirror Lake Road	Signal modification (at Mirror Lake Road) Minor road modification Realignment Pavement marking	3	3	4	10	8	2	30
7	2	A	Stony Hill Road at LMT Corporate Center	Create center turning area for vehicles turning left out of the Corporate Center	3	3	4	10	8	2	30
8	6,7	B	Pine Grove and Big Oak Road	Signal modification Add turn lanes	3	3	4	10	8	2	30
9	6,7	C	Edgewood Road/Black Rock Road & Yardley-Morrisville Road	Realignment Upgrade signal Add turn lanes	3	3	4	10	8	2	30
10	2	A	Taylorsville Road- I-95 Interchange to Dolington Road	Add shoulders Re-profile Realign horizontal curve Traffic calming	3	2	4	10	8	2	29
11	5,6	B	Big Oak Road & Makefield Road	Signal modification Upgrade signal	2	3	4	10	8	2	29
12	1	O	Stoopville Road & Washington Crossing Road/S.R. 532	Traffic operation improvements Traffic calming in area	3	3	2	10	8	2	28
13	1	A	Taylorsville Road- I-95 to Woodside Road	Extend SB off-ramp acceleration lane Signal modification Add lanes Traffic calming	3	4	4	10	4	2	27
14	4	O	Big Oak Road & Oxford Valley Road	Add turn lanes New signal Longer left-turn green time Widen road	2	5	4	10	4	2	27
15	4	Z	Covington Road/Heritage Oak Drive & Heacock Road	Install signal	2	5	4	10	4	2	27

**Lower Makefield Township
Major Improvements List (MIL)
By Total Points**

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
16	3,4	C	Edgewood Road & Heacock Road	Modify signal timing Add turn lanes Restripe Turn lane improvements	2	3	4	10	4	2	25
17	3,4,5	D	Stony Hill Road- Langhorne Yardley Road to Big Oak Road	Signage at curves Replace and widen bridge/culvert Raise road at culvert Realign horizontal curves Upgrade signal at Heacock Road Add connections to bike paths	2	3	4	10	4	2	25
18	4	D	Stony Hill Road & Lower Makefield Shopping Center	Signal modification	2	3	4	6	8	2	25
19	4	O	Edgewood Road- Yardley-Langhorne Road to Heacock Road	Widen for full shoulders, complete multi-use trail system	2	3	4	10	4	2	25
20	4	O	Big Oak Road/Township Line Road	Repair/replace road Install signal/make all-way stop	2	3	2	6	8	2	23
21	7	B	Big Oak Road- Pine Grove Road to Trenton Avenue	Widen for full shoulders, add multi-use trail system, update signage	1	3	2	10	4	2	22
22	2,3	T	Yardley-Langhorne Road, Yardley-Newtown Road & Schuyler Road	Move stop bar	3	3	2	8	4	2	22
23	4,5	B	Big Oak Road- Oxford Valley Road to Stony Hill Road	Widen for full shoulders, add multi-use trail system, update signage	2	3	4	10	0	2	21
24	5	B	Big Oak Road & Stony Hill Road	Signal modification Add turn lanes	2	3	4	10	0	2	21
25	5,6	B	Big Oak Road- Stony Hill Road to Makefield Road	Widen for full shoulders, add multi-use trail system, update signage	2	3	4	10	0	2	21
26	3,5	C	Edgewood Road- Heacock Road to Mill Road	Widen for full shoulders, complete multi-use trail system	2	3	4	10	0	2	21
27	4	C	Edgewood Road & Schuyler Drive	Install crosswalk and signage from bike path east of Schuyler Drive	2	3	4	10	0	2	21
28	6	C	Edgewood Road & Makefield Road	Upgrade/Modify signal	2	3	2	8	4	2	21
29	1	E	Lindhurst Road- Washington Crossing Road to Quarry Road	Traffic calming- Phase II	2	3	2	8	4	2	21
30	1	E	Lindhurst Road- Quarry Road to Spring Lane	Fix vertical geometry	2	3	2	8	4	2	21
31	2,4	O	Edgewood Road & Yardley-Langhorne Road	Realignment Install signal	3	4	2	6	4	2	21
32	4	Z	Cardinal Drive & Heacock Road	Install street light Reprofile road Install signal	2	5	2	6	4	2	21

**Lower Makefield Township
Major Improvements List (MIL)
By Total Points**

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
33	2	F	Quarry Road & Dolington Road & Creamery Road	Realign (combine the 2 existing 3-leg intersections into 1 4-leg intersection) Remove parking on Quarry Road and convert to right-turn lane Add sidewalks and crosswalks	2	2	2	8	4	2	20
34	6	B	Big Oak Road- Makefield Road to Pine Grove Road	Widen for full shoulders, add multi-use trail system, update signage	2	3	2	10	0	2	19
35	5	D	Bluestone Drive & Stony Hill Road	Add right-turn lane	2	3	4	8	0	2	19
36	1	F	Quarry Road & Lindenhurst Road	Traffic calming in area Modify signal timing	2	3	4	8	0	2	19
37	7	C	Black Rock Road- Yardley-Morrisville Road to River Road	Widen for full shoulders, complete multi-use trail system	2	2	4	8	0	2	18
38	2,4	O	Yardley-Langhorne Road & Stony Hill Road	Widen road Realignment Install signal	3	3	0	6	4	2	18
39	1	T	Woodside Road & River Road	Speed limit and "No Truck" enforcement	4	2	2	8	0	2	18
40	1	A	Woodside Road- Dolington Road to Taylorsville Road	Construct bike path Traffic Calming	2	3	4	6	0	2	17
41	6	C	Edgewood Road- Oxford Valley Road to Yardley-Morrisville Road	Widen for full shoulders, complete multi-use trail system	2	3	2	8	0	2	17
42	6,7	T	Pine Grove Road- Linden Avenue to Arborlea Avenue	Traffic calming	3	3	2	6	0	2	16
43	1,2,7	Z	River Road- South of Ferry Road to Mount Eyre Road	Bike/ped path	4	2	2	8	0	0	16
44	1	E	Lindenhurst Road- Twining Road to Heather Ridge Drive	Fix vertical geometry Traffic calming	2	3	2	6	0	2	15
45	1	F	Quarry Road- Gray Nun Academy to cemetery	Realignment	2	2	0	6	0	2	12
46	1	F	Quarry Road- Bridge over I-95	Bike/ped improvements	2	2	0	6	0	2	12
47	2,3,4	Z	Yardley-Langhorne Road & Mirror Lake Road	Re-stripe Add turn lanes	3	2	0	0	4	2	11
48	2	Z	Township Line Road- Stony Hill Road to Yardley-Langhorne Road	Reconstruct drainage inlets Relocate STOP signs Add connections to bike paths	3	3	0	0	4	0	10
49	2	T	Creamery Road- Quarry Road to Newtown-Yardley Road	Install streetlights at curve/school crosswalk	1	2	0	0	4	2	9
50	3	C	Edgewood Road at Brock Creek	Re-profile vertical curve Replace culvert Construct shoulder Raise road and bike path	2	3	0	0	0	2	7
51	3,5,6	T	Edgewood Road & Oxford Valley Road (southern leg of Oxford Valley Road)	Improve existing crosswalks	2	3	0	0	0	2	7

Lower Makefield Township
Major Improvements List (MIL)
By Total Points

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
52	1	O	Dolington Road- Washington Crossing Road to Woodside Road	Traffic calming	2	3	0	0	0	2	7
53	5,6	T	Bluestone Road/Roelofs Road- Stony Hill Road to Makefield Road	Traffic Calming	1	0	0	0	0	2	3
54	3	T	Knox Drive/Knox Court & Schuyler Drive	Signs Traffic calming	1	0	0	0	0	-2	-1
55	5	T	Esther Lane	Traffic calming	1	0	0	0	0	-2	-1
56	7	T	West Ferry Road- Big Oak Road to Yardley Morrisville Road	Traffic Calming	1	0	0	0	0	-2	-1

**Lower Makefield Township
Major Improvements List (MIL)
By Cluster**

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
9	6,7	C	Edgewood Road/Black Rock Road & Yardley-Morrisville Road	Realignment Upgrade signal Add turn lanes	3	3	4	10	8	2	30
16	3,4	C	Edgewood Road & Heacock Road	Modify signal timing Add turn lanes Restripe Turn lane improvements	2	3	4	10	4	2	25
26	3,5	C	Edgewood Road- Heacock Road to Mill Road	Widen for full shoulders, complete multi-use trail system	2	3	4	10	0	2	21
27	4	C	Edgewood Road & Schuyler Drive	Install crosswalk and signage from bike path east of Schuyler Drive	2	3	4	10	0	2	21
28	6	C	Edgewood Road & Makefield Road	Upgrade/Modify signal	2	3	2	8	4	2	21
37	7	C	Black Rock Road- Yardley-Morrisville Road to River Road	Widen for full shoulders, complete multi-use trail system	2	2	4	8	0	2	18
41	6	C	Edgewood Road- Oxford Valley Road to Yardley-Morrisville Road	Widen for full shoulders, complete multi-use trail system	2	3	2	8	0	2	17
50	3	C	Edgewood Road at Brock Creek	Re-profile vertical curve Replace culvert Construct shoulder Raise road and bike path	2	3	0	0	0	2	7
17	3,4,5	D	Stony Hill Road- Langhorne Yardley Road to Big Oak Road	Signage at curves Replace and widen bridge/culvert Raise road at culvert Realign horizontal curves Upgrade signal at Heacock Road Add connections to bike paths	2	3	4	10	4	2	25
18	4	D	Stony Hill Road & Lower Makefield Shopping Center	Signal modification	2	3	4	6	8	2	25
35	5	D	Bluestone Drive & Stony Hill Road	Add right-turn lane	2	3	4	8	0	2	19
29	1	E	Lindenhurst Road- Washington Crossing Road to Quarry Road	Traffic calming- Phase II	2	3	2	8	4	2	21
30	1	E	Lindenhurst Road- Quarry Road to Spring Lane	Fix vertical geometry	2	3	2	8	4	2	21
44	1	E	Lindenhurst Road- Twining Road to Heather Ridge Drive	Fix vertical geometry Traffic calming	2	3	2	6	0	2	15
33	2	F	Quarry Road & Dolington Road & Creamery Road	Realign (combine the 2 existing 3-leg intersections into 1 4-leg intersection) Remove parking on Quarry Road and convert to right-turn lane Add sidewalks and crosswalks	2	2	2	8	4	2	20
36	1	F	Quarry Road & Lindenhurst Road	Traffic calming in area Modify signal timing	2	3	4	8	0	2	19

Lower Makefield Township
Major Improvements List (MIL)
By Cluster

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
45	1	F	Quarry Road- Gray Nun Academy to cemetery	Realignment	2	2	0	6	0	2	12
46	1	F	Quarry Road- Bridge over I-95	Bike/ped improvements	2	2	0	6	0	2	12
3	1,2	O	Newtown-Yardley Road- Lower Makefield Township Line to I-95	Signal timing	4	5	4	10	8	2	33
12	1	O	Stoopville Road & Washington Crossing Road/S.R. 532	Traffic operation improvements Traffic calming in area	3	3	2	10	8	2	28
14	4	O	Big Oak Road & Oxford Valley Road	Add turn lanes New signal Longer left-turn green time Widen road	2	5	4	10	4	2	27
19	4	O	Edgewood Road- Yardley-Langhorne Road to Heacock Road	Widen for full shoulders, complete multi-use trail system	2	3	4	10	4	2	25
20	4	O	Big Oak Road/Township Line Road	Repair/replace road Install signal/make all-way stop	2	3	2	6	8	2	23
31	2,4	O	Edgewood Road & Yardley-Langhorne Road	Realignment Install signal	3	4	2	6	4	2	21
38	2,4	O	Yardley-Langhorne Road & Stony Hill Road	Widen road Realignment Install signal	3	3	0	6	4	2	18
52	1	O	Dolington Road- Washington Crossing Road to Woodside Road	Traffic calming	2	3	0	0	0	2	7
22	2,3	T	Yardley-Langhorne Road, Yardley-Newtown Road & Schuyler Road	Move stop bar	3	3	2	8	4	2	22
39	1	T	Woodside Road & River Road	Speed limit and "No Truck" enforcement	4	2	2	8	0	2	18
42	6,7	T	Pine Grove Road- Linden Avenue to Arborlea Avenue	Traffic calming	3	3	2	6	0	2	16
49	2	T	Creamery Road- Quarry Road to Newtown-Yardley Road	Install streetlights at curve/school crosswalk	1	2	0	0	4	2	9
51	3,5,6	T	Edgewood Road & Oxford Valley Road (southern leg of Oxford Valley Road)	Improve existing crosswalks	2	3	0	0	0	2	7
53	5,6	T	Bluestone Road/Roelofs Road- Stony Hill Road to Makefield Road	Traffic Calming	1	0	0	0	0	2	3
54	3	T	Knox Drive/Knox Court & Schuyler Drive	Signs Traffic calming	1	0	0	0	0	-2	-1
55	5	T	Esther Lane	Traffic calming	1	0	0	0	0	-2	-1
56	7	T	West Ferry Road- Big Oak Road to Yardley-Morrisville Road	Traffic Calming	1	0	0	0	0	-2	-1
15	4	Z	Covington Road/Heritage Oak Drive & Heacock Road	Install signal	2	5	4	10	4	2	27

Lower Makefield Township
Major Improvements List (MIL)
By Cluster

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
32	4	Z	Cardinal Drive & Heacock Road	Install street light Reprofile road Install signal	2	5	2	6	4	2	21
43	1,2,7	Z	River Road- South of Ferry Road to Mount Eyre Road	Bike/ped path	4	2	2	8	0	0	16
47	2,3,4	Z	Yardley-Langhorne Road & Mirror Lake Road	Re-stripe Add turn lanes	3	2	0	0	4	2	11
48	2	Z	Township Line Road- Stony Hill Road to Yardley-Langhorne Road	Reconstruct drainage inlets Relocate STOP signs Add connections to bike paths	3	3	0	0	4	0	10

APPENDIX C

**Lower Makefield Township
Township Improvements List (TIL)**

Project Number	Commission Zone	Cluster	Location	Improvement	Functional Classification	Existing ADT	Hazard Evaluation	Crash Occurrence	Congestion	Funding	Total Points
22	2,3	T	Yardley-Langhorne Road, Yardley-Newtown Road & Schuyler Road	Move stop bar	3	3	2	8	4	2	22
39	1	T	Woodside Road & River Road	Speed limit and "No Truck" enforcement	4	2	2	8	0	2	18
42	6,7	T	Pine Grove Road- Linden Avenue to Arborlea Avenue	Traffic calming	3	3	2	6	0	2	16
49	2	T	Creamery Road- Quarry Road to Newtown-Yardley Road	Install streetlights at curve/school crosswalk	1	2	0	0	4	2	9
51	3,5,6	T	Edgewood Road & Oxford Valley Road (southern leg of Oxford Valley Road)	Improve existing crosswalks	2	3	0	0	0	2	7
53	5,6	T	Bluestone Road/Roelofs Road- Stony Hill Road to Makefield Road	Traffic Calming	1	0	0	0	0	2	3
54	3	T	Knox Drive/Knox Court & Schuyler Drive	Signs Traffic calming	1	0	0	0	0	-2	-1
55	5	T	Esther Lane	Traffic calming	1	0	0	0	0	-2	-1
56	7	T	West Ferry Road- Big Oak Road to Yardley Morrisville Road	Traffic Calming	1	0	0	0	0	-2	-1

APPENDIX D

**Lower Makefield Township
Citizens Traffic Commission
Evaluation Matrix**

	FACTOR/CRITERIA	SCORE
1.	<p>Functional Classification</p> <p>Local Access 1 Collector 2 Minor arterial 3 Principal arterial 4 Other freeway/expressway 5 Interstate 6</p>	
2.	<p>Existing Average Daily Traffic volume (ADT)</p> <p>Less than 1,000 1 1,001-5,000 2 5,001-10,000 3 10,001-15,000 4 Greater than 15,000 5</p>	
3.	<p>Safety</p> <p>Hazard Evaluation</p> <p>Unknown/No impacts 0 No accidents or no more than 2 accidents in 3 yrs 2 Documented injury problem 4</p> <p>Crash History</p> <p>Moderate concentration of crashes (bottom third) 6 High concentration of crashes (middle third) 8 Highest concentration of crashes (top third) 10</p>	
4.	<p>Congestion</p> <p>Unknown/No impacts 0 Peak hour problems 4 Daily problems (not limited to peak am/pm problems) 8</p>	
5.	<p>Availability of Funds</p> <p>Not eligible for outside township funds -2 Unknown 0 Eligible for outside township funds 2</p>	