

## TRANSPORTATION

### The Transportation System

A sound transportation system includes adequate and well-maintained roads, available public transportation, safe and convenient pedestrian access, and bicycle routes. However, few communities are able to achieve this ideal level of service. This is particularly true in small, less populated communities with limited budgets. In other words, local municipalities must evaluate transportation needs, set priorities, and garner all available resources to make improvements. It is also important to remember that there is a direct correlation between land use and transportation needs. As residential and commercial land is developed, more and more people use the roads, and the roads become congested for longer periods of time. This is particularly true for rush hours. In response, roads are improved to address the traffic congestion, the adjoining land becomes easier and more lucrative to develop, and more traffic is generated.

### Access - Mobility

Each highway, road or street in a community plays a specific role for the movement of traffic and it is useful for planning purposes to classify roads according to the particular function each serves. In general terms, the functional classification of a road is based largely on two factors -- access and mobility -- and typically, as access declines mobility increases. For example, Interstate Route 84 clearly serves a different function than does a street in a residential subdivision. Although the I-84 and private street example compares streets at the opposite ends of the road classification hierarchy, it clearly depicts the relationship between access and mobility. Traffic on Interstate 84, a limited access highway, travels over long distances at high rates of speed. On the other hand, traffic using a residential street with unlimited access from individual properties moves at minimum speeds to reach roads that connect the residential community with other areas in both municipalities and the region at large.

### Highway Classification Factors

As previously noted, access, how traffic enters the traffic stream, and mobility, the physical capability of the road to carry traffic, are the key determinants of a road's functional classification. However, several other road and network characteristics also affect the functional classification of a road. Traffic volume in

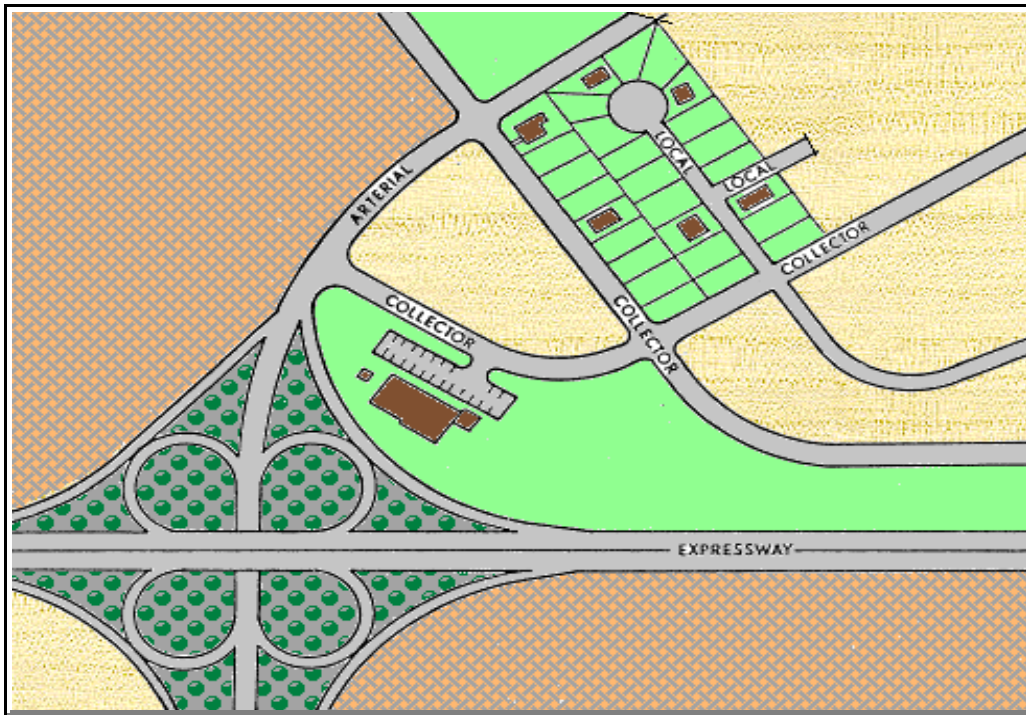
relationship to the physical design of the road, including lane and shoulder width, right-of-way alignment and surface treatment, is important to its classification. Generally, as a community develops, roads are improved to meet the increased traffic demands, with specific routes moving higher in the functional classification as they are improved.

However, in areas of rapid growth and associated traffic increases, the amount of traffic carried by specific roads may increase to the point of exceeding the road's capacity. The road, in terms of traffic, may be serving as an arterial route, but may not have been physically upgraded from a minor collector or local road. In urban areas, mass transit and non-capital approaches such as ride sharing and staggered work hours are promoted as a means of reducing traffic congestion as an alternative to upgrading roads. In a community such as Blooming Grove Township, where much of the traffic is not related to travel to work but to vacation homes and recreation, such solutions are likely impractical.

A road's location and relationship to other roads in the intra-community and inter-regional highway network may also help define the road's classification. Those roads which provide direct and convenient connection to arterial routes and expressways typically develop into roads which carry increasing amounts of traffic. Conversely, interchanges for expressways are normally located to provide connection with those roads in a community which historically have developed into



I-84 East Bound



Highway Functional Classification

arterials and collectors. Traffic flow problems and declines in level-of-service on routes connecting areas of the municipalities and routes providing access to the region are directly related to the capacity of collector and arterial roads. As traffic increases on the collectors and arterials, where access to abutting properties has historically not been limited to any significant degree, increasing traffic congestion can be expected. Also resulting from such access by adjoining residential and commercial properties and intersecting streets are the safety problems associated with increased congestion.

**Highway Functional Classification**

The nomenclature used for a *Highway Functional Classification* also differs from jurisdiction to jurisdiction throughout the Commonwealth and the United States. Road classification in metropolitan and suburban areas is often very complex, with the various categories of roads being divided into subcategories based on land use type served and the designation of specific traffic volumes.

The nomenclature for classification being used for Blooming Grove Township is based on the type and density of the land uses served by the road and the volume of traffic on the road. The relatively small-scale commercial development interwoven with

the residential development pattern within the small town setting warrants a more simplified highway classification system for the two-municipality area. While simplified, this classification will meet the needs for identification of problem areas and needed improvements, and for long-range planning. The designation of the Highway Functional Classification for roads serving the Planning Area includes *expressway, arterial highway, collector road and local road*. A description of each classification follows and, the *Highway Functional Classification Figure*, provides an illustration, and the *Highway Classification and Annual Average Daily Traffic Figures* provide an overview of the road system in the two municipalities.

**Expressway**

- Provides interregional and interstate connections
- Designed for unrestricted, high speed (55+ mph) mobility of traffic
- Limited access only – no direct access from private property
- Provides highest level of mobility
- Intersects with selected arterial or collector routes by means of interchanges
- Carries highest volumes of automobile and truck traffic with longer trip lengths



I-84 Exit 34 Route 739

Interstate 84, running east and west through Blooming Grove Township and Pike County, is the only expressway in Pike County. Township access is at the Exit 30 Route 402 Interchange and the Exit 34 Route 739 Interchange. Since its completion in the late 1970's, I-84 has played a central role in shaping the growth and development of all of Pike County. The ease of access provided for visitors and new residents has certainly contributed to the level of residential development and will continue to facilitate travel to nearby urban centers.

**Arterial Highway**

- Provides connection between commercial and population centers in the region
- Provides connection between the municipalities and adjoining communities, counties and states
- Carries larger volumes of traffic at relatively high speeds (45-55 mph)
- Serves a mix of local and through traffic
- Carries low volumes of through truck traffic
- Provides moderate to high levels of mobility
- Access limited only by PennDOT highway occupancy permits and local zoning and subdivision ordinances

Arterial highways in the planning area include the following state highways:

**Route 6:** a major east/west corridor in the Commonwealth which forms the northern boundary of Blooming Grove Township. Route 6 runs west through Pennsylvania to the border with Ohio and east to New York.

**Route 402:** a north/south route connecting Route 6 on the north and running through Blooming Grove Township, Porter Township and Monroe County to its connection with Route 209 in Marshalls Creek. Route 402 carries traffic between Pike County and areas of New Jersey and the Lehigh Valley and south in Pennsylvania.

**Route 739:** a north/south Route which connects Route 6 in the Township to Route 209 and New Jersey at Dingmans Ferry in Delaware Township. The Route carries substantial traffic between New Jersey and Pennsylvania. The Route 739 corridor just north and south of I-84 is the principal commercial area in Blooming Grove Township.

**Route 434 (known as Well Road):** a state-owned route which connects route 6 and Route 739 to I-84. The 1986 Township Comprehensive Plan classified the Well Road as a collector road, but the increasing amounts of traffic and its use as a connection to I-84 dictates the arterial classification.

**Collector Road**

- Collects traffic from local streets for connection of residential areas to commercial and activity centers and arterials
- Serves moderate levels of traffic at reduced speeds (35-45 mph)
- Serves more locally oriented traffic and few through trips
- Carries primarily only “local delivery” truck traffic
- Access from smaller and more numerous properties
- Access limited only by local municipal and



**1986 Comprehensive Plan Recommendations**

The 1986 Township Plan made the following recommendations which remain valid today:

Over-Design of Roads

*Sound planning principles should be applied to new development in order to maintain the capacity of the circulation system and ensure the adequacy of new roads. New roads should not be over designed, however, so land and energy might be conserved and stormwater problems minimized.*

Limiting Access

*Access to collectors and especially arterials must be limited and adequate site distances maintained. This can be achieved by the use of common accesses for commercial development such as cul-de-sacs, loop streets, reverse frontage or secondary marginal access roads. Access to residential developments should be limited to one point for each development. Residential development circulation should be interior oriented so no homes front on arterial or collector roads. Cul-de-sacs and loop streets can be used to accomplish this. The number of accesses within a given distance should be restricted based on the type of road and speed limits.*

Reasonable Width

*Street width affects traffic flows and speeds, side street parking and snow and ice control. The Township has little control over the Interstate and arterial roads. However, careful consideration should be given to the collectors and locals as well as any proposed new roads. Inadequate collectors should be considered for upgrading, especially as development increases traffic flows. A twenty foot pavement should be considered for new local roads where inadequate off-street parking is provided. However, pavement widths of 18 feet may be adequate for short, one-way loop streets and cul-de-sacs, subject to Subdivision Ordinance requirements.*

PennDOT highway occupancy permits and local zoning and subdivision ordinances

- Provides reduced levels of mobility

Collector roads in the planning area include:

**SR 4004 - Blooming Grove Road:** carries limited traffic, primarily residential, between Route 739/Route

434 in Lords Valley, Route 402 and Route 390 in Palmyra Township.

**SR 4002 - Egypt Road:** provides a connection for primarily residential traffic between Blooming Grove Road and Route 390.

Local Road

All other public roads in the two municipalities not classified as expressways, arterials or collectors are considered local roads.

- Provides connection of residential properties and communities and less populated areas to collectors
- Serves lowest levels of traffic at slowest speeds (less than 35 mph)
- Provides high level of access from smaller residential parcels or areas with little development
- Carries local trips only with no through trips
- Carries minimal truck traffic for local deliveries

PUBLIC ROAD MILEAGE		
Blooming Grove Township Roads		
Name	#	Length (miles)
Old Route 402	T-342	0.79
Carefree Cottage Road	T-408	0.15
Spring Road	T-410	0.68
Atkinson Road	T-412	1.14
Kleinhans Road	T-414	0.46
Mill Road	T-415	0.39
Madden Road	T-416	1.54
Ranch Road	T-418	1.40
Township Total		6.55
Penn DOT Road Total		49.42
Public Road Total		55.97

**Public Roads in Blooming Grove Township**

The total length of public roads in the Township is 55.97 miles, with 6.55 miles of Township roads and 49.42 miles of PennDOT-owned routes, including I-84. (See the *Public Road Mileage Table*.) Local municipal road mileage in Pike County ranges from a low of 6 miles in Porter Township to a high of 43 miles in Lackawaxen Township. All of the Township and PennDOT roads in Blooming Grove Township are

paved. The Township-owned roads are part of the State Liquid Fuels Programs which provides state payments to the municipalities for road maintenance and reconstruction based on population and miles of roads meeting PennDOT specifications. However, the Liquid fuels Funds comprise only a small part of the Township road maintenance budget and do not nearly cover the cost of long term maintenance and replacement.

### **Traffic Volume**

It is obvious that traffic on the roads in the Township and all of Pike County have been increasing significantly in association with the rapid development. Annual average daily traffic (AADT) volumes provide an overview of the traffic flow in the Township for planning purposes. PennDOT conducts traffic counts on state roads, and the counts do provide an means of assessing the overall traffic conditions. Traffic counts for 2005 for all state roads in the Township, reported as annual average daily traffic (AADT), are shown on the *Highway Classification and Annual Average Daily Traffic Figure*. Traffic volumes on Township roads are not available but given the limited development served by the roads, traffic volumes are minimal.

An important point to remember is that AADT does not reflect daily and seasonal traffic volumes which can far exceed AADT. The proportionate increase in daily and seasonal counts can be significant, exacerbating congestion far beyond what is found on the average day.

As would be expected, I-84 carries the highest traffic volume, ranging from 19,000 vehicles west of Route 402, to 21,000 vehicles between Route 402 and Route 739 and east to Matamoras. Traffic volumes on arterials are highest on Route 6 and Route 739. Route 6 west of Route 402 carries an AADT of 5,600 vehicles, reflecting travel to the Lake Wallenpaupack area and beyond. AADT on Route 739 south of I-84 is reported at 4,300, largely a result of trips generated by the residents of Hemlock Farms and retail/services businesses on Route 739.

### **Road Network Level-of-Service**

The traffic carrying capacity of a community's road network, and the intersections associated with the network, to handle the existing and future traffic volumes generated by development is the key element for providing safe and efficient traffic flow. Those

land uses which generate larger volumes of traffic should logically be located in the areas of a community served by roads with greater carrying capacity. For example, commercial establishments generate more traffic than a single family residence and should be located on routes which have sufficient capacity to serve the use.

The capacity of a highway or road typically decreases as the service area of the route declines. For example, the capacity of I-84 is obviously significantly greater than any arterial highway, which in turn have a greater capacity than collector roads, with the lowest capacity associated with local roads. The capacity of a rural, two lane highway is dependent on a number of design variables such as lane and shoulder widths, volume of trucks and terrain.

Local roads, because of the limited service and low traffic volumes, are not considered in terms of capacity. The quality of traffic service is discussed in terms of level-of-service (LOS). There are six levels of service ranging from LOS A through LOS F, with LOS A representing free flowing traffic and LOS F representing a total breakdown in the traffic flow or *bumper to bumper* traffic.

Level-of -service is calculated using peak hour traffic volume. The peak hour is that time when traffic volume is heaviest and this most often occurs on weekends in a rural/recreation area. The peak flow of vehicles during the busiest quarter-hour of the day is compared with the adjusted flow rate standard for each level-of-service. Obviously, the state routes serving as the collector and arterial roads in the Township continue to carry the greatest volumes of traffic, with Township roads serving primarily residences and more remote areas of the community.

The roads in the Township continue to adequately carry even peak volumes of traffic without serious delays and declines in LOS, with no significant change expected in the near term. Travelers on roads and intersections in the Township typically do not experience any significant delays. Such delays would indicate that a road is approaching its capacity and reaching an unacceptable level of service. This does not mean, however, that all roads in the Township are in optimum condition, and that particular problem areas and safety concerns need not be addressed. Problem intersections and road segments are discussed in a later section.

### **Land Use Planning Considerations**

The traffic carrying capacity of a community's road network, and the intersections associated with the network, to handle the existing and increasing traffic volumes generated by development is the key element for providing safe and efficient traffic flow. Those land uses which generate larger volumes of traffic should logically be located in the areas of a community served by roads with greater carrying capacity. For example, commercial establishments generate more traffic than a single family residence and should be located on routes which have sufficient capacity to serve the use.

### **Need for Regional Transportation Planning**

Given that traffic is an issue that transcends municipal and state boundaries and effects all the municipalities in Pike County, the County Planning Office should take the lead role in coordinating and promoting the idea of regional traffic planning. This should include the affected municipalities (in Pennsylvania and New Jersey), the County Planning Commission, the Pike County Road Task Force, PennDOT, NJ DOT and the Joint Toll Bridge Commission. This will require a long term commitment of significant staff time and effort. However, without such commitment the problem will simply intensify with no real plan or solution.

### **Township Roads -- Condition and Future Plans**

All of the roads owned and maintained by Blooming Grove Township roads are paved and in overall good condition, but shoulders and drainage along many segments should be improved. The Board of Supervisors identified routine maintenance, re-paving as necessary, improving shoulders and drainage and eliminating hazardous curves as important, with no particular concerns about widening or reducing steep grades. Replacing a failing culvert on T-341 Old Route 402 is a specific project required to correct a roadside drainage problem. A new box culvert at a cost of some \$300,000 is required.

The Board of Supervisors will focus on the maintenance and improvement of existing local municipal roads, and monitor the need and ability to correct specific alignment problems which would require reconstruction as traffic volumes dictate and available funds allow. The Township will monitor the effectiveness of new materials and practices and use such innovations to best advantage. Good examples are plastic culverts and plastic head walls.



Plastic Culvert / Plastic Head Wall, Spring Road

In terms of new road construction, the Township is not likely to undertake any new road construction. Roads serving new residential developments will be constructed by developers in accord with the applicable State or municipal standards. These roads can be accepted for public dedication by the municipality, and provided such roads meet PennDOT standards, the municipality's State Liquid Fuels Fund allocation would increase. However, the long term cost of the maintenance of public roads falls far short of the funds received from Commonwealth for liquid fuel funds. Local officials must carefully weigh the long term maintenance costs against the local tax revenues generated by development and increased state funding before accepting private roads for dedication. The annual payment from the state is based on the municipal population and the amount of road miles maintained.

### **Condition of State Roads**

The condition of the state roads in the Township is also generally good, with continued maintenance, improved drainage and identified intersections the primary concerns. Again however, given the modest traffic volumes and limited funding available, the upgrading of these roads by the state is obviously not a priority and is unlikely to occur in the near term. Although the municipalities have no direct control over state roads (the roads that carry the most traffic at

higher speeds and present the most critical safety concerns) this *Plan* identifies a number of concerns which must be monitored:

- Correction of dangerous intersections
- Increasing volumes of traffic
- Horizontal and vertical alignment
- Speed limit enforcement
- Adequate maintenance
- Improved signs for hazards and traffic control

Should the condition of these routes deteriorate due to lack of maintenance, or if PennDOT does not make improvements in anticipation of traffic volume increases over the long term, the capacity and level-of-service could degenerate. The municipalities should work with PennDOT and the Pike County Planning Commission to identify the most critical state route improvement needs in the municipalities and work to have the improvements programmed by PennDOT on their Twelve-Year Transportation Program (TYP).

Specific areas of concern include:

**SR 4004 - Blooming Grove Road:** between Route 390 and Route 739; increasing traffic; widen and correct horizontal alignment. (Also identified in *1986 Comprehensive Plan*.)

**Route 434 (Well Road):** between Route 739 and Route 6; increasing traffic; serves as arterial; correct horizontal alignment; improve shoulders. (Also identified in *1986 Comprehensive Plan*.)

**Route 739:** widen and correct sharp curves between Route 6 and Route 434 to accommodate increasing traffic from County facilities.

#### **Intersection**

**Route 739 / Route 434 (Well Road) / Blooming Grove Road:** 4-way stop signs needed.

#### **Intersection**

**Route 402 / Blooming Grove Road:** improve sight distances.

#### **Bridges**

Blooming Grove Township owns and maintains one bridge which crosses York Creek on Madden Road, and the bridge has no weight restriction.. The bridge on Spring Road which crosses Shohola Creek is maintained by the Township, but is owned by Pike

County, and it is posted with a 37 ton (40 ton combined) weight limit. All other bridges in the Township are the responsibility of the County or PennDOT.

#### **Subdivision Roads**

New road construction in the planning area is associated with residential development. The subdivision and land development ordinance sets standards for road layout, design, and construction. Roads may be owned and maintained by private communities, or if a road is constructed to the required standards of the road dedication ordinance it may be accepted by the municipality for general public use. Dedicated roads are then added to Pennsylvania Liquid Fuels Program reimbursement list and are owned and maintained by the municipality.

Specific actions for new subdivision roads include:

- Maintain an up-to-date road ordinance setting standards for construction of public roads and establishing procedures for dedication to the public.
- Maintain an up-to-date road occupancy ordinance setting standards for driveway access to Township roads and for stormwater and utility improvements within the road right-of-way.
- Review road construction standards to ensure adequacy for public safety and eliminate excessive requirements to minimize the consumption of resources for construction and long term maintenance.

#### **Airports, Railroads and Public Transportation**

Given the regional nature of airport and railroad development and required support, this *Comprehensive Plan* calls for no specific action to be taken by the Township with regard to air and rail service. Direct local municipal provision of public transportation is not feasible and no action is anticipated other than participation in regional transportation planning efforts. Area residents rely on regional airports in Pennsylvania, New York and New Jersey for major commercial carrier service. Railroad freight service is available in nearby Port Jervis, New York as well as passenger service to New York City. The Shortline Bus Company provides limited service in Pike County.

Public transportation in rural communities is generally limited by low population density, the cost of providing the service, and uncertainty of public acceptance and use. In short, the cost is too high in relation to the potential revenue from the users of the system, and without public subsidy, it is simply not feasible. In addition, even in areas where the public subsidy has been provided, use of public transport is low given long trips and limited schedules, and the historic reliance on automobiles in rural areas. A recent study conducted by the Pike County Area Agency on Aging confirmed this by concluding that a fixed route bus service in the County is not financially feasible. The Agency continues to provide van service for senior citizens and handicapped residents.

**Bicycle Routes**

*Bicycle PA* is the name for a network of cross-state bicycle routes that guide the bicycle tourist across the Commonwealth. The routes generally use existing highways that have been identified as desirable roads for bicycling. In some cases, the route uses improved rail trails to bypass difficult sections. *Bicycle PA Route Y1* runs along Route 6 in the Township and any transportation planning should consider the establishment of additional bicycle routes.

**Other Road and Intersection Actions:**

- Participate in the PennDOT Customer Advisory Board to communicate concerns to PennDOT.
- Continue to work with the Pike County Road Task Force and PennDOT officials to discuss highway improvement needs and prioritize and promote specific improvement projects.
- Work with local legislators, the County and PennDOT to schedule studies to identify improvements to correct identified road and intersection deficiencies.
- Complete and update annually a detailed Township road inventory and evaluation to identify needs and develop an improvements schedule within normal budgetary process, and to identify potential capital projects.



Bicycle Route Along Route 6

- Maintain an up-to-date inventory of road maintenance equipment as a means of planning for replacement and include it in the capital improvements program.
- Require the issuance of a highway occupancy permit by the Township for any access or drainage work along Township roads.
- Maintain up to date standards in the Subdivision and Land Development Ordinance for new development roads.