

Safety may be addressed through the design and construction of transportation improvements, such as sight distance, access conditions, etc. However, existing safety concerns can also be addressed and minimized through a preventative approach that is focused on managing land use, access, and transportation system design.

The tools listed in this tech sheet may help address safety concerns by providing design standards for new facilities, managing access to the transportation system, and managing land use patterns and traffic patterns through various zoning techniques. The ideal approach is to adopt integrated land use management and safe design standards that serve to address safety concerns.



Access Management Regulations / Coordinated Highway Occupancy (HOP) Processing

Access management seeks to limit and consolidate access points along major transportation corridors, while promoting a supporting local street system and unified access and circulation systems for new development. A successful access management program and ordinance will improve safety and efficiency of the transportation network by reducing traffic conflicts and thereby helping to reduce congestion and improve a community's quality of life.

An effectively implemented access management program can improve public safety and reduce traffic congestion. Studies also show that as the number of access points are reduced, crash rates also decrease.



A congested section of Route 15 looking north to Shamokin Dam. Access management programs and ordinances can reduce traffic conflicts and reduce congestion. Photo credit: Mark Pynes.

ADVANTAGES

- This relatively inexpensive solution improves roadway capacity and safety.
- Access management improves public safety for vehicles, pedestrians, and bicyclists.
- Traffic congestion is reduced.
- Managing access to roads improves safe travel speeds and reduces delay.
- PennDOT standards and municipal issues or concerns can be jointly addressed through the HOP process.
- The process provides PennDOT with the municipality's goals for a corridor to enable coordinated planning of future access points.
- Some off-site improvement needs may be addressed through the HOP process.
- Access points can be better coordinated and managed, especially in congested or growth corridors.



Site Design & Roadway Standards

Site design and roadway standards are almost always regulated in Pennsylvania through a county or municipal subdivision and land development ordinance (SALDO). Numerous aspects of a SALDO or roadway ordinance can affect safety conditions. These ordinances commonly include design standards for streets/intersections, stormwater management, and parking facilities. Design elements can also promote bicycle and pedestrian accommodations, such as improved shoulders, dedicated bicycle lanes, sidewalks, and rumble strips on the edges of the travel lanes or between lanes with conflicting directions.

ADVANTAGES

- These standards help establish consistent, safe road conditions.
- Problems associated with stormwater flooding on roadways and bicycle/pedestrian facilities are typically minimized.
- Requirements can address issues relating to a wide range of safety concerns and minimize maintenance needs through improved design.



Placing rumble strips along the centerline of secondary roads is an effective tool for reducing head-on crashes on narrow, rural roadways. Photo credit: Surface Preparation Technologies.



Traffic Operations

The traffic operations category includes a wide range of potential municipal actions to address transportation safety concerns, especially when accident clusters are known to be closely associated with congested traffic conditions. One of the most common and cost-effective techniques in traffic operations is to manage traffic signal timing, providing for maximum synchronization among signals along a corridor. Traffic incident management is another important traffic operations activity that can be implemented on the local level.

ADVANTAGES

- Signal synchronization, lane management, and similar actions produce significantly less expensive means of improving system capacity rather than adding a new lane.
- Traffic operational improvements can improve safety conditions.



Along Broad Street in Hazleton, strobe lights are attached to speed-limit reminders, with a digital reading to remind drivers of their speed. If drivers exceed the speed limit, the strobe light is activated. The new LED lights will last longer and are synchronized to promote better traffic flow. Photo credit: Standard Speaker.





Zoning for Mixed Uses and Higher Densities

While not traditionally considered a safety improvement measure, reducing the demand for vehicular trips through mixed-use zoning, resulting in smaller, higher density areas with multiple transportation options, can have a significant effect on safety. Zoning techniques that promote a mix of land uses and higher densities include transit-oriented development, traditional neighborhood design, transfer of development rights, form-based codes, and mixed-use and overlay zoning districts.

ADVANTAGES

- More concentrated, mixed-use development can reduce the number of access points onto a roadway corridor.
- Mixed uses can provide for a mix of compatible uses within walking or bicycling distance of residential areas and reduce local automobile traffic.
- Mixed-use zoning can accommodate a community's fair share of uses within a smaller footprint, helping to preserve more open space.
- A high percentage of the neighborhood is walkable.
- Bus transit tends to be efficient.
- Neighborhoods often develop a strong sense of community.
- Significant public amenities can be accommodated and maintained.



The Borough of Lititz adopted a traditional neighborhood development overlay district (TNDO), which is intended to allow for higher intensity, mixed-use development according to special design and form-based code regulations. All buildings and structures must conform to the Downtown Lititz Master Plan, September 2008, and the Form-Based Code Regulations, which incorporate design principles that are compatible with the borough's traditional character, form, and function. The TNDO applies to properties at least 10 acres in size in designated zoning districts.

