The Silent Killer
..... and the Irreplaceable Role of County Commissioners

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Although titled The Silent Killer – this session is not about highway fatalities. It is about highway-access, access-management, and the role of county government. This title emphasizes the fact that unmanaged-access quietly and subtly reduces (kills figuratively) the ability of highways to perform their important task.

This presentation will attempt to answer the question: “Why is it important for county commissioners to care about managing highway-access?” The session will explain how county officials are the only public officials who can directly implement highway access-management; not only on county highways, but on INDOT highways as well. See how we can leave a positive legacy by implementing simple, low-cost, access-management plans.

This session will be in plain-English, using photos to visibly and simply explain highway planning and engineering.

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Presenter: Jodi Coblentz Cass County Highway Engineer / Director
Panel: Stephanie Yager Brown County Commissioner
Panel: Bill Haan Executive Director, Indiana Association of County Commissioners
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Why Access Management Is Needed Now

We will be forced to use our existing roadway corridors for generations to come because new routes will not be feasible. Without access management the safety and travel speed capability of existing thoroughfare roadways will be greatly lowered by the ongoing and escalating land-development in rural areas.

Three factors make access management highly important and urgently needed.

Factor 1. Unmanaged access reduces the traffic-carrying efficiency of roads that should be thoroughfares.

Factor 2. Once access has been granted it is not feasible to un-do access. Not having an access management system in-place is the same as approving unmanaged access.

Factor 3. New corridors for roadways will not be practical. We and future generations will be forced to use today’s existing corridors.

These three factors will be discussed below. But first, we need to define some terms that describe roadway construction and land-development.

For this discussion roadway construction must be thought of as being in one of two categories. One is “new construction,” the other is “re-construction.” We will define them as follows.

• New construction – visualize a brand new roadway being constructed across what up to that road construction had been open fields. A new right-of-way corridor has been acquired.

• Re-construction – visualize an existing roadway with one or more lanes closed by construction barrels while lanes are being rebuilt or new lanes added. Some new right-of-way alongside the existing roadway may have been acquired, but the same basic route for the corridor is being utilized. Most roads will be rebuilt, reconstructed, over time, but along the same route, along the same corridor.

For the discussion that follows we must define the term “land-conversion.”

• Land-conversion is the event that occurs only once for any land parcel. Land-conversion is the term used to describe when a parcel of land is converted from any non-developed use (typically agriculture) to any type of developed use. Land-conversion can range in area from a lot for a home, or hundreds of acres for a large subdivision or industrial complex.

This discussion is only about applying access management at the point of a land-conversion process. Access management is most effective when it is being implemented when parcels are undergoing the land-conversion process.

Applying access management after the land-conversion process has occurred is retro-fitting. Retro-fitting is a band-aid approach and is much less effective.
Discussion of the Three Factors

Factor 1: Unmanaged access reduces the traffic-carrying efficiency of roads that should be thoroughfares. This is a basic highway engineering principle. Increased access leads to lower safe travel-speeds traffic-capacity.

Factor 2: When land-development is already in-place, rarely is it physically feasible to construct alternate roads or driveways to get vehicles on and off land parcels to an alternate roadway.

A simple method of eliminating an access point is to buy out a parcel. But buying out even a single home, much less a business establishment, is very expensive. It is impractical to think of buying out entire strips of development along a roadway.

Think about the miles and miles of roadways that should be thoroughfares offering safe, higher-speed traffic. If access management is not implemented now, and those miles of roadway were stripped out with development, and then someone decides to have a re-do by buying out all the development. The cost in money to the tax-paying public, and the aggravation and disruption to landowners

Factor 3: New corridors will be impractical and rare

Obtaining new right-of-way can be difficult and expensive, even in the “easy” situations. But when there is existing development in-place, it’s a different, exponentially larger problem. Whether the development is residential, commercial, or industrial property, there are conflicts that frequently result in expensive acquisition. And while any financial cost is a burden to taxpayers, the property owners are also affected. Property owners likely will feel that they are being pushed around and taken advantage of by “big, bad government.”

There is a movement of people out of urban areas to the rural areas. This is leading to the subdivision of land into smaller parcels and development on that land. This is making it nearly impossible to find any routes for new contiguous corridors for new routes over any substantial distance. It may be possible to find a stretch of ½ mile here and there, but new, contiguous, multi-mile long corridors are not going to happen, except in rare instances.

Undoing development style and highway access style after the land-conversion event is not feasible. In most cases it is nearly impossible. The fact that new roadway corridors will not be created in the future is a Key Point because it means that we, and the future generations, will be using the same roadway corridors we are using today.

Proactive and Preventive policy versus Reactive and Corrective Actions

Prevention is better and far more effective than correction. Trying to “correct” access problems after development has been allowed to be built is not practical, and usually not feasible.

Access management is basically free to implement, making it by far the least expensive of the three “GAP” categories to implement, if implemented prior to the land-conversion event. But ironically, it is so expensive to address and correct after land-conversion has occurred, and development is in-place, that for practical purposes, the most beneficial aspects of access management cannot be retrofitted.
Highway Engineering Fundamentals (page 1 of 2)

The terms highway, roadway, street, and road will be used interchangeably here to refer to all of the physical and non-physical features that together make up a roadway.

One physical feature is the riding surface, frequently referred to as the pavement. A riding surface can also be stone, dirt, or other material. An important point here is that the terms highway, roadway, street, and road also include all the other features of a road besides the pavement, such as the shoulders and the ditches.

There are also non-physical, intangible features of a highway. We will be discussing them below.

To explain the fundamentals of highway engineering, we will first answer the question, “What is the objective of highway engineering?” The objective of highway engineering is also the basic job of us highway managers and highway engineers. Our basic job is to supply roadways that allow vehicles to travel from location to location.

“Supplying roadways for travel” is accurate, but it’s too simple. To gain insight we will take another step and answer the question, “What attributes of travel can we identify?”

Travel Attributes

**Travel-Time**

Travelers want to get from place to place as quickly as possible. Reducing the amount of travel-time is normally the most important factor to motorists. Therefore, our goal should be to reduce travel-time.

**Travel-Speed**

To reduce travel-time, the average travel-speed must be increased. Therefore, our goal should be to increase average travel-speeds.

**Travel-Safety**

Travel-safety is what limits allowable travel-speed. Therefore, highway speed-limits are set at the highest safe travel-speed.

To increase allowable travel-speed, we must increase the safety of a roadway. For a road to be capable of a 40-MPH speed limit, it must be safe for travel at 40-MPH. For a road to be capable of a 55-MPH speed limit, it must be safe for travel at 55-MPH. For a road to be capable of a 70-MPH speed limit, it must be safe for travel at 70-MPH.
Our goal should be to reduce travel-time by increasing average travel-speeds, and therefore, our **bottom-line** goal should be to increase **travel-safety**.

Our next logical step is to identify specifically, **how to improve the travel-safety** of roads.

Travel-safety itself is an intangible item. Travel-safety cannot be directly confronted. It cannot be picked up in one’s hand or counted. There isn’t a “Highway Safety Warehouse” that we can call and just order-up some safety.

**Key-Point:** Travel-safety is the result of the **tangible** highway attributes. Those tangible attributes can be identified and confronted and tackled by us.

To effectively address safety, we must consciously recognize the tangible attributes that do determine the travel-safety of highways. Fortunately, this is a straight-forward matter.

The tangible attributes that determine highway safety can be grouped into **three categories**.

- **Factor 4. Pavement.** The riding surface must be smooth enough and have enough traction to maintain control of vehicles at the safe speed. (The term “pavement” will used in place of “riding surface” for simplicity and ease of communication.)

- **Factor 5. Geometry.** The sharpness of hills & curves, the widths of the lanes and shoulders, the profile of the roadside, and the configuration of intersections are factors of the safe speed.

- **Factor 6. Access & Adjacent Land-Use.** The amount and type of intersecting roads and driveways, and the amount and type of activity along the road segment are attributes that must be suitable for the speed-limit.

**Geometry; Access; Pavement.** (Memory aid acronyms; GAP; or GPA; or PGA.)

The safe, allowable **speed limit** of a road segment is determined by the GAP attribute(s) with the lowest safety value.

We should improve the tangible attributes of a roadway to a level that meets the proposed speed-limit of that road segment. If we improve more than the planned speed-limit, it is wasteful. If we do not improve to the proposed speed-limit, we are not properly promoting safety.
Implement a long-term roadway planning system with a “speed-classification” for each roadway. Every segment of roadway is speed-classified.

On road segments that are unhampered by development and where the road is geographically aligned to be a connecting thoroughfare, a speed-classification of 55-MPH could be assigned.

On the other end of the speed spectrum, residential neighborhood streets would have a speed-classification of 25-MPH. Many existing roadways could be speed-classified at 35-MPH. Other roadways could be classified at 45-MPH.

An important note about long-term planning and assigning speed-classifications. This is for long-range planning, and our effort to leave allowance for the transportation needs of those of the future that will follow us and must live and cope with the built environment that we leave.

The planned-for speeds will not necessarily reflect today’s situation, conditions, or be the mandates for short-term design periods (such as the typical 20-year design-life.) It would not mandate a higher design or posted speed limit than is currently practical, or mandate it for the next 20-year design period. Rather, it indicates what may be desired of the roadway in the future.

Planning leaves allowance for those that follow us to have the opportunity to construct their own facilities, without being unduly hampered by our lack of planning and our lack of consideration for the future generations.

Notes about INDOT roads.

This draft ordinance is a county ordinance, for enactment by a county. But, it should regulate the effects of development along INDOT jurisdiction roads as well.

Along INDOT roads, the proposed ordinance only applies to development alongside the roads, it does not regulate within INDOT r/w. Along INDOT roads, the ordinance only implements access management. The sample ordinance does not regulate within the right-of-way of INDOT roadways. Items not regulated by the county ordinance include regulation of utility companies, standards for construction of driveways within the right-of-way, and bonding.
### Example of a Speed–Classification Table

<table>
<thead>
<tr>
<th>Speed Classification</th>
<th>Frontage Minimum Length (requirement when creating a new parcel with access)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 35 mph</td>
<td>Per zoning requirements</td>
</tr>
<tr>
<td>35 mph</td>
<td>_ _ _ ft *</td>
</tr>
<tr>
<td>45 mph</td>
<td>_ _ _ ft *</td>
</tr>
<tr>
<td>55 mph</td>
<td>_ _ _ _ ft *</td>
</tr>
</tbody>
</table>

* This table is to illustrate the layout of a classification table. The frontages are not shown in this example.
The Silent Killer

The Irreplaceable Role of County Commissioners in Indiana’s Highway System
What Is Access Management?

- The management of driveways and intersections along roadways
- A management tool to increase safety and decrease travel time.
Why Is Access Management So Important?

• Creates and implements a long-term plan for highway development.
Why County Commissioners Are Key

- Local government has the sole authority over land-use, including for INDOT roads.
Highway Engineering Fundamentals

- Improving Highway Safety
- Reducing travel-time
- The tangible attributes that determine highway safety can be grouped into three categories.
Jodi & Jim out taking photos
Pavement
Geometry
Access
Helpful to Home shoppers

- Speed limit and type of traffic flow in front of house
- Access Management will “alert” home shoppers
Responsibility of Commissioners

Set standards in an ordinance that dictates minimum frontage based on the speed-classification of roadways
## Speed-Classification

<table>
<thead>
<tr>
<th>Speed</th>
<th>Minimum Frontage</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 - mph</td>
<td>xxx - feet</td>
</tr>
<tr>
<td>45 - mph</td>
<td>xxx - feet</td>
</tr>
<tr>
<td>55 - mph</td>
<td>xxx – feet</td>
</tr>
<tr>
<td>under 35 – mph</td>
<td>per zoning ordinance</td>
</tr>
</tbody>
</table>
“But it’s only one driveway”
Conclusion
Simple Solution

Speed-Classification

Example
County Map – No Classes
55 – MPH Roads
45 mph & 55 mph