



Dan Cessna

ADVANCING SMART TRANSPORTATION

By H. Daniel Cessna, P.E.

I started with the Cadillac solution and figured we would go from there.” A practicing transportation engineer’s response to my question, “how did you come up with this?” He was explaining his proposed intersection safety improvement in a community he represents. The reason for my question surrounded why a suburban style intersection with wide lanes, shoulders, and medians was being suggested for an intersection in a rural village. The “big” design simply didn’t fit the context of the “small” community.

Many creative transportation professionals have advanced innovative solutions to transportation problems. Unfortunately, too many transportation projects were developed like this example, following very exacting criteria, which was generally applied regardless of the community context. This produced many textbook style engineering solutions, drastically altering the community character, by affecting a larger footprint than necessary to address the original problem. This view of transportation problems and solutions represents the challenge that exists in how we think about transportation in our communities. Yes, Cadillac projects might provide the ultimate engineering solution, but may go far beyond addressing the problem, sometimes detrimentally altering the character of the community that it was originally intended to improve. Furthermore, when approached from a Cadillac viewpoint, fewer transportation improvement projects

can be advanced because they simply cost more.

We wrestle with these challenges today in an environment constrained by limited resources and a huge backlog of unmet infrastructure maintenance needs. Each dollar matters and must be invested wisely to make a difference.

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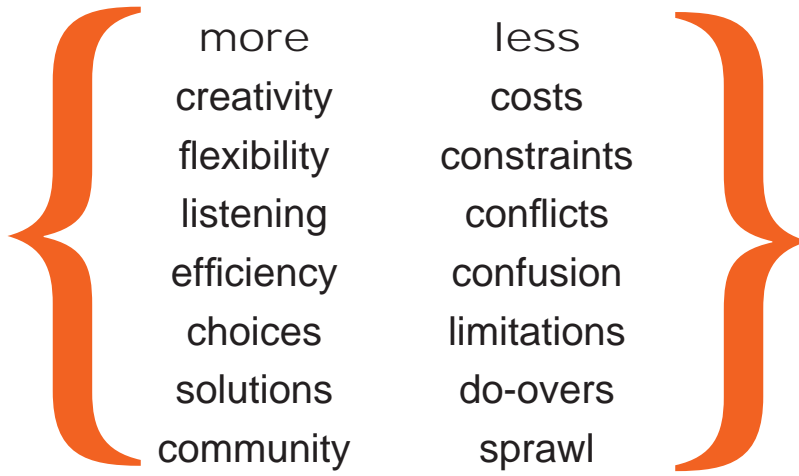
Smart Transportation in Pennsylvania emphasizes addressing transportation problems with practical improvements scaled to address the problem, considering multi-modal solutions and with an intense examination of land use. When we truly understand what the problem is and address only that, we can advance many more cost effective projects resulting in additional safety and mobility improve-

ments to our transportation system.

These transportation improvements, supporting good land use planning, can also leverage other investments in communities, further enhancing livability. PENNDOT’s Smart Transportation themes have evolved over the past several years and now set the framework for how we think about projects. Implementing these themes and changing the culture of the industry—how we think about transportation problems and solutions—requires the willingness to change, hard work, ingenuity, and a focused approach.

Smart Transportation isn’t just intended for small problems in small communities. It readily applies to some of our busiest highways. In Pittsburgh, daily commuters endure long delays on our 50 year old Parkway system. Obviously today’s traffic volumes weren’t anticipated when the system was planned. Additionally, our region enjoys the beauty of hills and river valleys that surround Pittsburgh and these highways were woven through the neighborhoods to provide access while

minimizing impacts to these natural features. While improving safety and mobility on our region’s Parkways is a goal, the option of a mega project to completely reconfigure the roads, add capacity, provide wider travel ways, medians, shoulders, and eliminate bottlenecks isn’t practical because of the lack of funds and the adverse community and environmental impacts



that such a project, with a larger footprint, would require. The lack of a mega project doesn't mean that improvements cannot be made. To this end, in cooperation with the Federal Highway Administration (FHWA), we plan to evaluate the Parkway West (I-376) between I-79 and the Ft. Pitt Tunnels, approaching downtown, to develop a range of improvements that can improve safety and mobility. Through the Smart Transportation lens, we will examine specific problems and create a menu of options to implement over time as resources allow and when improvements can logically be incorporated into other asset management focused bridge and pavement projects. Evaluating the corridor from this perspective affords a wise investment approach. With this information, fact-based decisions can be made regarding lengthening an acceleration/ deceleration lane which may require widening a bridge. Coordinating this work reduces cost and eliminates re-work. The evaluation will look at a range of options considering such things as integration of Intelligent Transportation Systems (ITS), acceleration/deceleration lane improvements, weaving conditions, modifying access to the highway and improvements to the local network to support modified access points. We expect during peak periods there will always be delays.

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However, by improving these things there will be fewer conflicts between vehicles entering/exiting the highway and those traveling through, which will reduce accidents and improve traffic flow. This methodology, once refined on this section of the Parkway West, can be applied to other

sections. To improve our transportation system in the future, we must plan now. In Pennsylvania, asset management of our existing roads and bridges is our focus; approximately 95% of our transportation funds are directed to this effort. This is necessary because we have a backlog of over 6,000 miles of poor roads and

scale projects that support well-planned land uses coupled with projects that address other transportation problems using properly scaled solutions. This can be accomplished in harmony with good asset management, rather than in place of it.

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This shift in approach requires time and trials, each experience pushing our learning further. This culture change isn't occurring overnight, but good things are coming from our work and affordable and effective improvements to our transportation system are being implemented. A transportation program focused on asset management, complemented by community enhancing safety and

mobility improvements, scaled to address the problem, that support good land use and fit within the context of the community, will preserve and enrich community character, improve transportation safety and mobility, and not lead to irresponsible sprawl adding further demand to already constrained resources. **PE**

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Smart Transportation is partnering to build great communities for future generations of Pennsylvanians by linking transportation investments and land use planning and decision making.

Smart Transportation Themes

1. Money counts
2. Leverage and preserve existing investments
3. Choose projects with high value/price ratio
4. Safety always and maybe safety only
5. Look beyond level-of-service
6. Accommodate all modes of travel
7. Enhance local network
8. Build towns not sprawl
9. Understand the context; plan and design within the context
10. Develop local governments as strong land use partners

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20% of the statewide bridge inventory is rated structurally deficient (SD). Similar statistics exist nationwide. This backlog is huge and funds to address it are limited. Therefore, to implement improvements in the operations and safety of our transportation system, we must wisely invest those limited funds and focus on solutions that can be implemented, rather than pursuing grand transportation projects with no plan for how to pay for them. The reality is that funds don't exist to do so.

This doesn't suggest that large scale transportation projects, whether completely re-doing existing roads or building new infrastructure will never be pursued. But the Smart Transportation framework linking planning and NEPA ensures we advance the most pertinent and important large