

Practical Design – A Philosophy for MaineDOT

Sound design is all-important in providing a transportation system that is efficient, serves the public need and is safe. Mention road or bridge design project needs to a professional and visions of manuals, tables of criteria and other methodical approaches immediately come to mind. Defining reasonable design criteria is important, but before pulling out the CAD software, first fully answer the question - What is the function, purpose and need of the road?

MaineDOT has introduced the concept of Highway Corridor Priorities to highlight the hierarchy of road needs. Those highway corridor design needs must be further refined within the context setting of the specific location. It is clear that one size does not fit all. When properly evaluated, an acceptable range of solutions will be available. This is the backdrop of MaineDOT's Practical Design philosophy.

With the advent of Corridor Prioritization, identifying the relative roadway importance from a regional/statewide perspective, there is a parallel need to develop the Department's approach to addressing specific needs along any particular corridor. A change in overall philosophy is needed allowing the Department to focus on the most cost effective way to spend its money whatever that amount may be.

The Practical Design model is one that has been successfully implemented in Missouri. The fundamental basis for this model is to structure a project on its purposes and need – getting the best value for the least cost. By considering the surroundings of each project, sensitivity is encouraged. Be it the interstate or a low volume local road, the surrounding context helps determine the design criteria. There are several tenets that need to be adhered to in order to succeed though; safety is a consideration, the burden should not be shifted to Maintenance, and collaboration is required to reach the solution.

In recent years the Department has placed an emphasis on the available flexibility that exists within the standards. Practical Design takes this approach a step further de-emphasizing the standards and focusing on good engineering judgment instead. Project decisions such as lane and shoulder widths, clear zone offsets, and horizontal and vertical alignment are driven by the given context of the particular roadway or bridge and the true purpose and need of the project.

For example, if a bridge over a stream can no longer convey traffic safely, the purpose and need is to provide for that crossing. In the past, however, design standards would dictate that the new structure be wider, higher, and longer than the existing. There was also a tendency to upgrade other highway aspects in the general vicinity just because we were there.

Practical Design points out that, in many cases, that existing bridge had functioned fine for decades. As such, investing in additional structure, incurring additional impacts, and inflating the cost is not prudent when the only deficiency is the poor structural condition. This philosophy allows for good solutions over a broader range of the system rather than ideal solutions for isolated sections.