Maryland Route 108

Setting

Maryland Route 108 is a two-lane major arterial in Olney Maryland, a suburb of Baltimore. It is one of two major highways providing principal access to and through the Olney area. The roadway widens to a four-lane section between Homeland Drive and Hillcrest Avenue. Major signalized intersections within the corridor are at Olney Mill Road, Maryland Route 97, Prince Phillip Drive, and Doctor Bird Road. The existing right-of-way varies throughout the study area.

The existing land use in the study area includes both residential and commercial land uses. Three historic sites (identified as potentially eligible for the National Register) were identified along the project corridor. Portions of the project corridor are within the 100-year floodplain of the James Creek, affecting two existing structures and raising concerns about erosion, increased run-off, and water quality.

Significant land uses along the corridor include Montgomery General Hospital, an elementary school and a middle school, and commercial development centered around the intersection of Maryland Route 97 (Georgia Avenue) and Route 108.

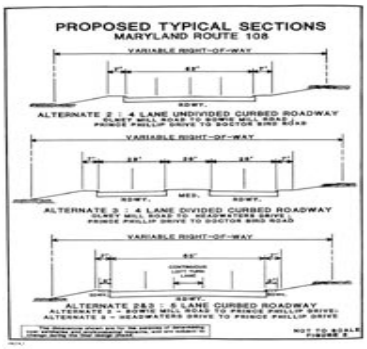
By the mid-1980s, land development was rapidly occurring, and contributing to increased traffic and resultant congestion. Over 20,000 vehicles per day used the facility, with traffic forecasts indicating a potential for as much as 35,000 vehicles per day by 2010.

The highway network and land development within the general area are considered established. There were no plans for addition of other parallel or crossing facilities that would influence traffic patterns on Route 108.

Problem to be Solved

Traffic already on the corridor exceeded the capacity of Route 108. Expected future traffic increases would further increase congestion. As a principal arterial, the function of the route was to carry such regional traffic. There were no opportunities to divert traffic to other parallel arterials. Olney and the surrounding area is suburban in character, with relatively low density development. The primary transportation mode for regional through traffic was and would remain the automobile.

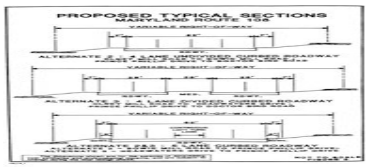
The problem to be solved was to maximize the capacity (traffic-carrying capability) of Route 108 to enable it to carry out its function as an arterial serving the region. Solving the problem required consideration of the context of the area, including both land use along the corridor and other transportation needs.



Thus, the primary problem to be solved was to relieve congestion and provide through capacity.

Initial efforts to address the project focused on standard solutions. The general plan called for Maryland Route 108 to become a multi-lane arterial throughout the project length, with intersection capacity improvements at the major intersections. Two alternatives were developed for the project, incorporating both five-lane and divided roadway solutions (see exhibit). One design speed was assigned to the entire project. Implementation of the plan would require right-of-way along the corridor and relocation of one residence on a church property was needed.

Stakeholders



- Town of Olney Mill
- Montgomery County, Maryland
- Consultants
- Maryland SHA
- Olney Mill Community Association
- Olney Mill Chamber of Commerce
- Individual business and property owners (numerous)
- Local state delegate (legislator)

CSD/CSS Approach

This project was conducted as the Maryland SHA was developing their "Thinking Beyond the Pavement" (TBTP) approach. It is illustrative of the need for this approach, the process, and the benefits.

As the project moved ahead during the late 1980s, there were concerns raised about the impacts of the proposed solutions, the character of the road, the final appearance of the highway, and other aspects such as treatment of pedestrians. While the stakeholders were generally accepting of the need for the project, there was some dissatisfaction with the solutions proposed. Stakeholder concerns included preservation of natural and historic features (including large trees along the corridor, split rail fencing, historic properties), inclusion of provision for bicycles and pedestrians across and along the corridor, safety and access to businesses, and the appearance of the corridor (a desire for landscaping and other visual features was expressed). Individual business owners were concerned about effects on driveway access associated with widening and vertical alignment.

The SHA initially conducted a normal, routine public involvement process consisting of coordination with the local town, location and design meetings, and a public hearing. The public hearing was held in June 1988, at which concerns about and objections to the plan were raised.

In response to these concerns, the SHA committed to re-evaluate the proposed design. Staff re-evaluated the project's history, justification, and commitments. The project was field reviewed and video-taped, with a focus on determining first hand which site features were significant. The re-evaluation looked at what was really needed, and questioned the scope of the improvements. Focus was placed on attempting to visualize the overall improvements.

Design Flexibility and Application of Design Criteria

It was decided that the standard template solution would not suffice throughout the 2.7-mile corridor. The corridor was segmented into three areas defined by the surrounding land uses - a residential zone, institutional zone, and commercial zone. The operating speeds and speed limits would vary by zone, as would treatment of the median.

The design approach also involved varying the alignment of the road through the corridor to better fit surrounding land uses and minimize conflicts.

The SHA demonstrated flexibility in criteria by accepting in spot locations variability in offset dimensions for the bike path relative to the roadway, and by varying the median treatment. Full standard lane widths were maintained throughout the corridor. Right-turn lanes were provided at high volume intersections to maximize capacity. Care was taken in the design of all landscaping to assure that intersection sight distance criteria were not violated.

Utilities were placed along the border area (not in the median as is typically done) to preserve the median for planting trees.

Given the urban context and design for speeds of 40 mph or less, landscaping with full-size trees in both medians and the roadside was considered acceptable from a safety perspective.

Design Enhancements – Fitting the Context

Different design challenges required different approaches in each of these zones to meet the character and local context. In the residential zone (northwest project limits) a less structured landscaping theme was developed (see photos), with the hiker/biker trail designed to meander. In the commercial zone, the right-of-way and median are narrower, and design treatment more structured. Provision for left-turn lanes precluded the ability to provide treed landscaping, but plantings along the roadside in keeping with the commercial district's environment were provided. In the institutional zone, the design focused on providing for a transition in view between the other two zones.

Stakeholder Involvement

The SHA and its consultants committed to working closely with the residents and community to address all concerns. The CSD approach relied on numerous meetings with town staff, elected officials, civic organizations and business owners, and the public. Plans were continuously reviewed, ideas suggested, and refinements made. Discussions about trees, split rail fencing, the location and design of bike trails, commercial area traffic patterns and access, and pedestrian safety were held over a series of months. Professional staff demonstrated a willingness to be flexible, propose different solutions, and strive for a consensus. Note, however, that the fundamental purpose was retained, the addition of through-carrying capacity.

In summary, Maryland's CSD approach focused on active, field-involvement of their staff to visualize the project, work directly with local stakeholders, and strive for a tailored solution that addressed the problem but was designed to fit the local context.

Lessons Learned

This project was initiated in the mid-1980s and continued through the mid-1990s. As such, it followed Maryland's advance into TBTP and CSD. This project contributed greatly to Maryland's knowledge base and advancement in CSD. A number of specific lessons were learned by Maryland's staff :

1. Early in the project, review and confirm the planning framework, including the functional classification for the project and speeds (design speed).
2. Assess what is proposed, what is desired, and what is needed. Look beyond mere mitigation; and look beyond the right-of-way to assess how the project will relate to the area.
3. Multidisciplinary teams, including specifically landscape architects, were recognized as being essential to project success.
4. Project engineers should get out in the field to visualize the project.
5. Develop the project with an emphasis on design principles, utilizing engineering principles to achieve desired safety and functionality.

"A standard design template approach will not allow, or usually doesn't provide, the opportunity to address site-specific issues. This point is particularly important given what we perceive to be a trend toward having computers (CADD) design projects. Software programs should be used for engineering. Design requires more attention to detail, and is something that computers can't do."

MD 108 Re-evaluation process report by
Dan Uebersax and Jeff Smith

From: NCHRP Report 480, Transportation Research Board