Access Management in Value Engineering

Access Management National Conference
Kansas City, Missouri
Aug 29-Sept 1, 2004
Items for Discussion:

- Diamond Interchange Footprint
  - Distance Between Ramp Terminals & Outer Road
- Urban Widening
  - Retrofit with Median Strip
- Left Turn Lane Placement
  - Warrants
What is Value Engineering?

- The search for a “second” right answer
Design Policy:

- Project Development Manual (PDM)
  - Contains our current design standards

- Access Management Guidelines (AMG)
  - Approved by MHTC in Sept. 2003 as “Guidelines”
  - Being incorporated into PDM
Project Locations
Minimum Interchange Footprint
Desirable
Interchange Footprint

1320'

NORMAL R/W OR
CONTROLLED R/W

NORMAL R/W OR
CONTROLLED R/W

NORMAL R/W

NORMAL R/W

SHOULDER LINE

R/W LINE

R/W LINE

700'

750' MIN.

750' MIN.

ANIMATION FACTORY
www.animationfactory.com
Why 1320’ of Managed Access?

• Better Signal Progression
• Allows time for turning vehicles
• Ensures queues do not develop down ramps onto freeway
• Space for Future Development
• Less Congestion - Economic Development Opportunities
Findings of the Value Engineering Team
### Economic Analysis

<table>
<thead>
<tr>
<th>Distance Between Ramp Terminals and Outer Road</th>
<th>Right-of-Way Area (Acres)</th>
<th>Right-of-Way Cost at $2000/Acre</th>
<th>Length of Outer Road (Miles)</th>
<th>Outer Road Construction Cost at $771,500/mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum - 430 feet</td>
<td>65.8</td>
<td>$131,600</td>
<td>1.15</td>
<td>$888,400</td>
</tr>
<tr>
<td>Desirable - 1320 feet</td>
<td>62.8</td>
<td>$125,600</td>
<td>1.61</td>
<td>$1,244,900</td>
</tr>
<tr>
<td>(3)</td>
<td>(3)</td>
<td>($6,000)</td>
<td>0.46</td>
<td>$356,500</td>
</tr>
</tbody>
</table>

**Net Difference:** Adds approx. $350K/interchange
Findings

• An insignificant amount of R/W is needed to implement Access Management Standards

• In rural areas, minimum and desirable footprint have the same R/W costs

• Approximately $0.35 M in extra paving and grading

• Purchase of R/W at current costs vs. higher future costs would offset future outer road construction costs
Urban Widening Project

- Widen from 2 lanes to 4 lanes
  - Add raised median strip
  - Provide protected left turns at appropriate locations

- Goal of VE Team:
  - Find proper balance between applying access management principals and minimizing R/W impacts
Recommendations of VE Team:

• 50-60 entrances within project limits
  – close 6
  – relocate 3 to side roads
  – remainder are RI/RO

• Added three ¾ Intersections (restrict LO)

• Expand some city streets to provide backage roads
Rural Bypass Project

- Relocate 8 miles of Rte 5 around Camdenton south to Laclede County line
  - Part 4 lane
  - Part 2 lane

- Goal of VE Team:
  - Apply Access Management judiciously and as economically as possible
Creative Ideas

Add Left Turn Lanes

+ Access Management Guidelines
+ Reduce conflict / Enhanced safety
+ Increase capacity

- Increased pavement construction
- $137,000 additional cost
Conclusions

• VE Team initially thinks A.M. principles are excessive
• VE Team recommends increasing costs to improve performance
• Increasing distance between ramp terminals & O.R. increases costs <10% on rural diamond interchanges
• Applying Access Management techniques improves the chance for most projects to deliver it’s purpose and need and achieve its goals

Value = Performance / Cost
Access Management Improves Value

Questions?

July 11, 2003