



# 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?*

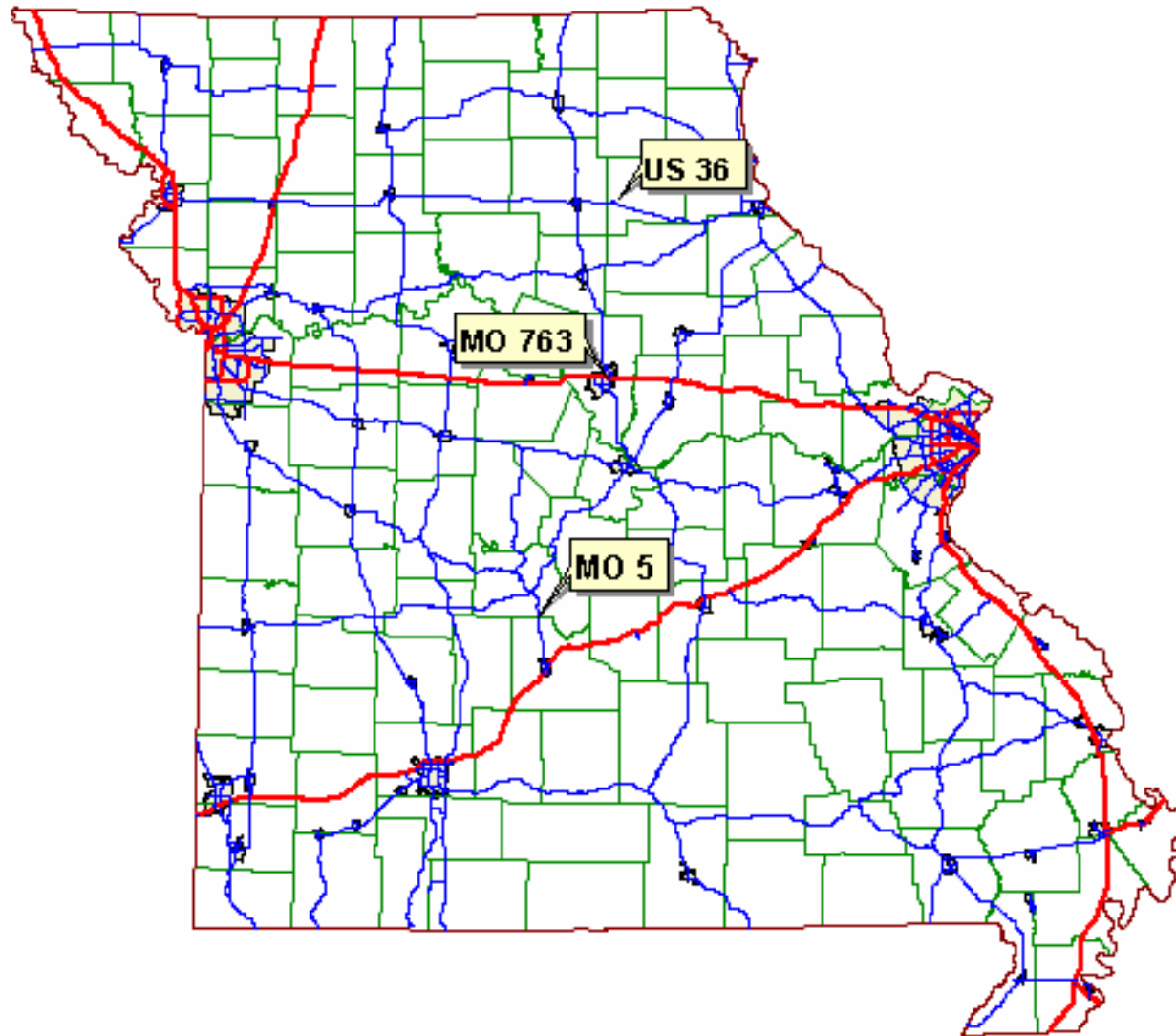
- The search for a “second” right answer



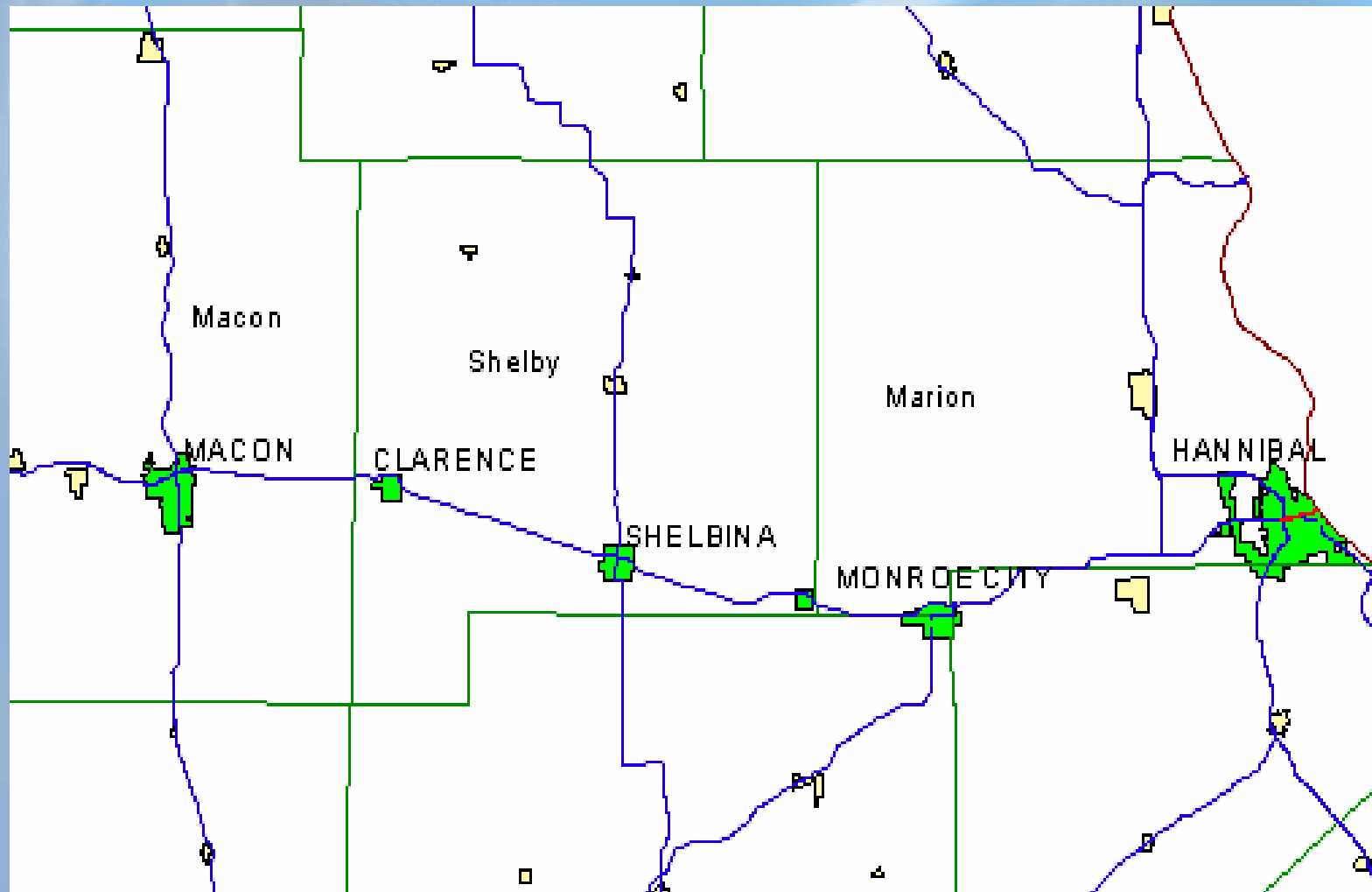
# *Design Policy:*

- **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

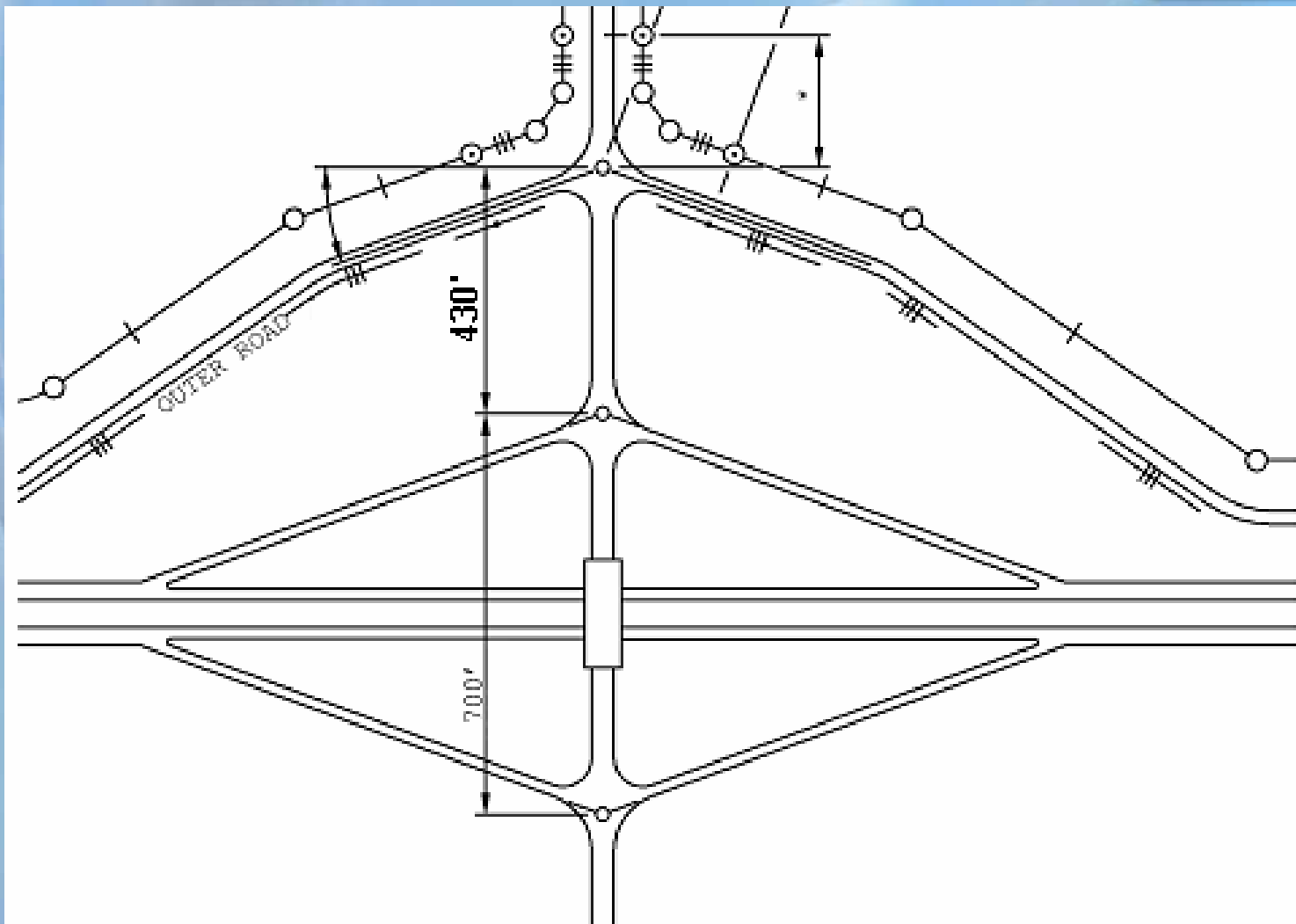
# *Project Locations*



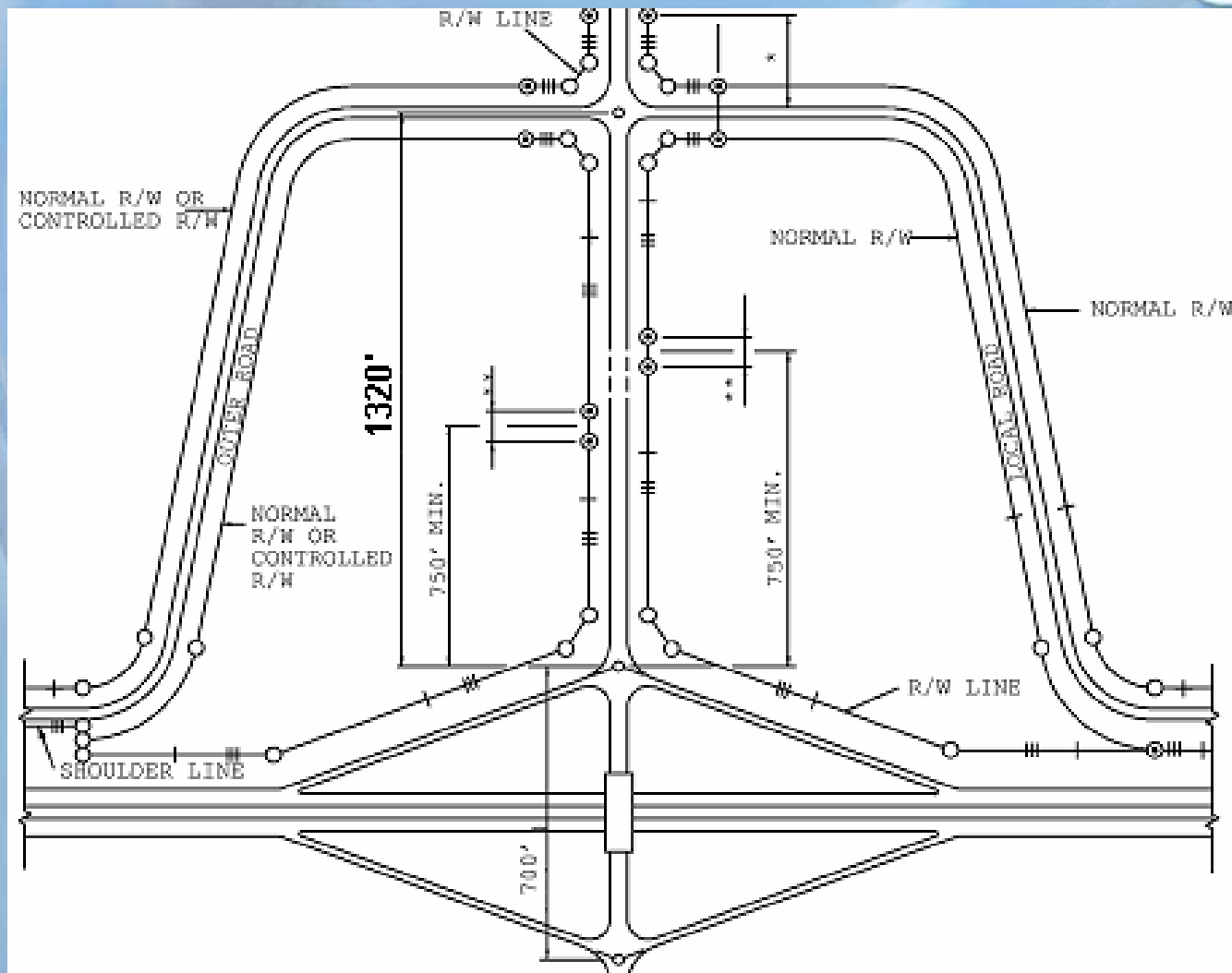
# *Route 36 Corridor*



# *Minimum Interchange Footprint*



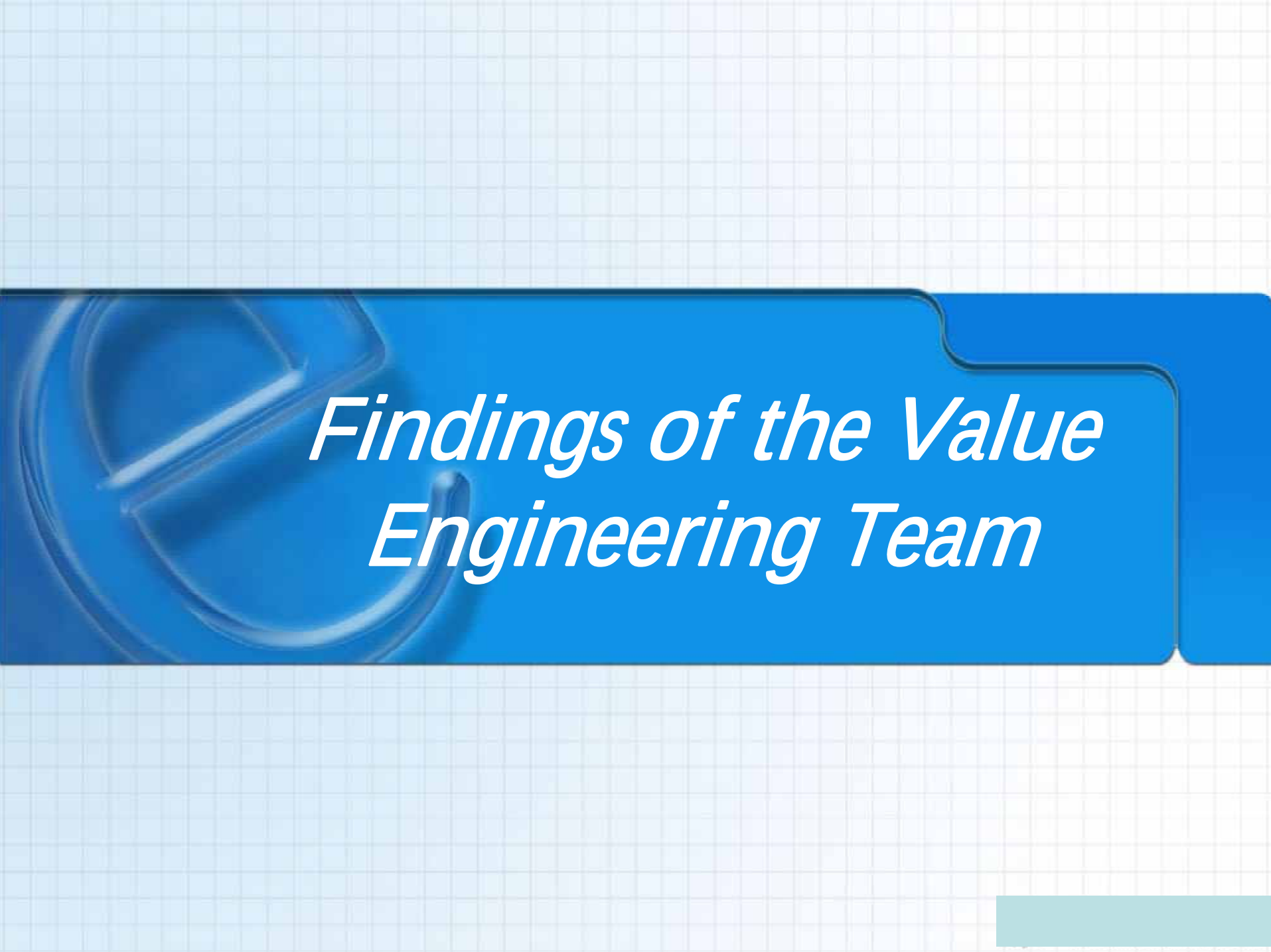
# Desirable Interchange Footprint





# *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*

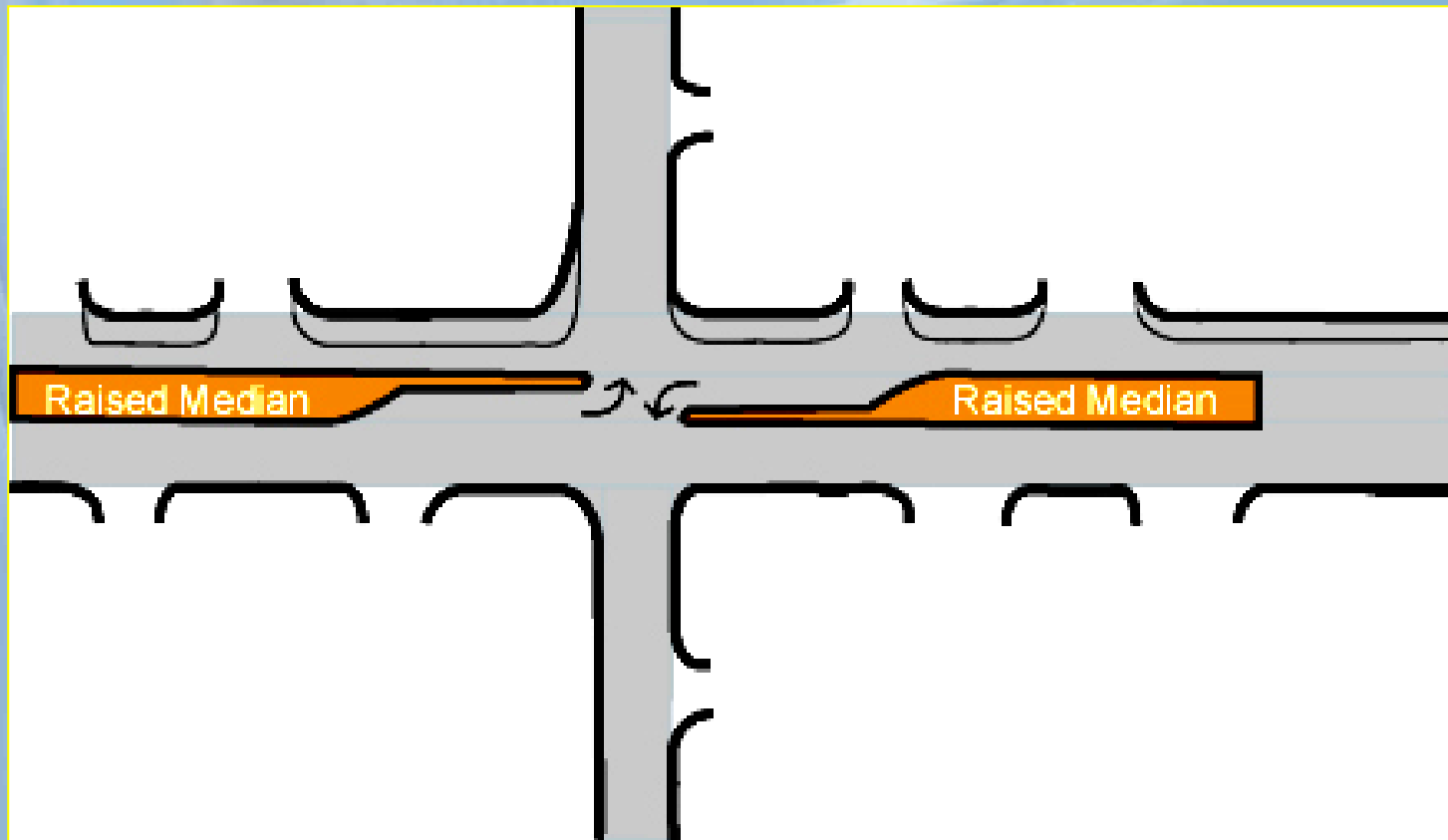
| Distance Between Ramp Terminals and Outer Road | Right-of-Way Area (Acres) | Right-of-Way Cost at \$2000/Acre | Length of Outer Road (Miles) | Outer Road Construction Cost at \$771,500/mile |
|------------------------------------------------|---------------------------|----------------------------------|------------------------------|--------------------------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

***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



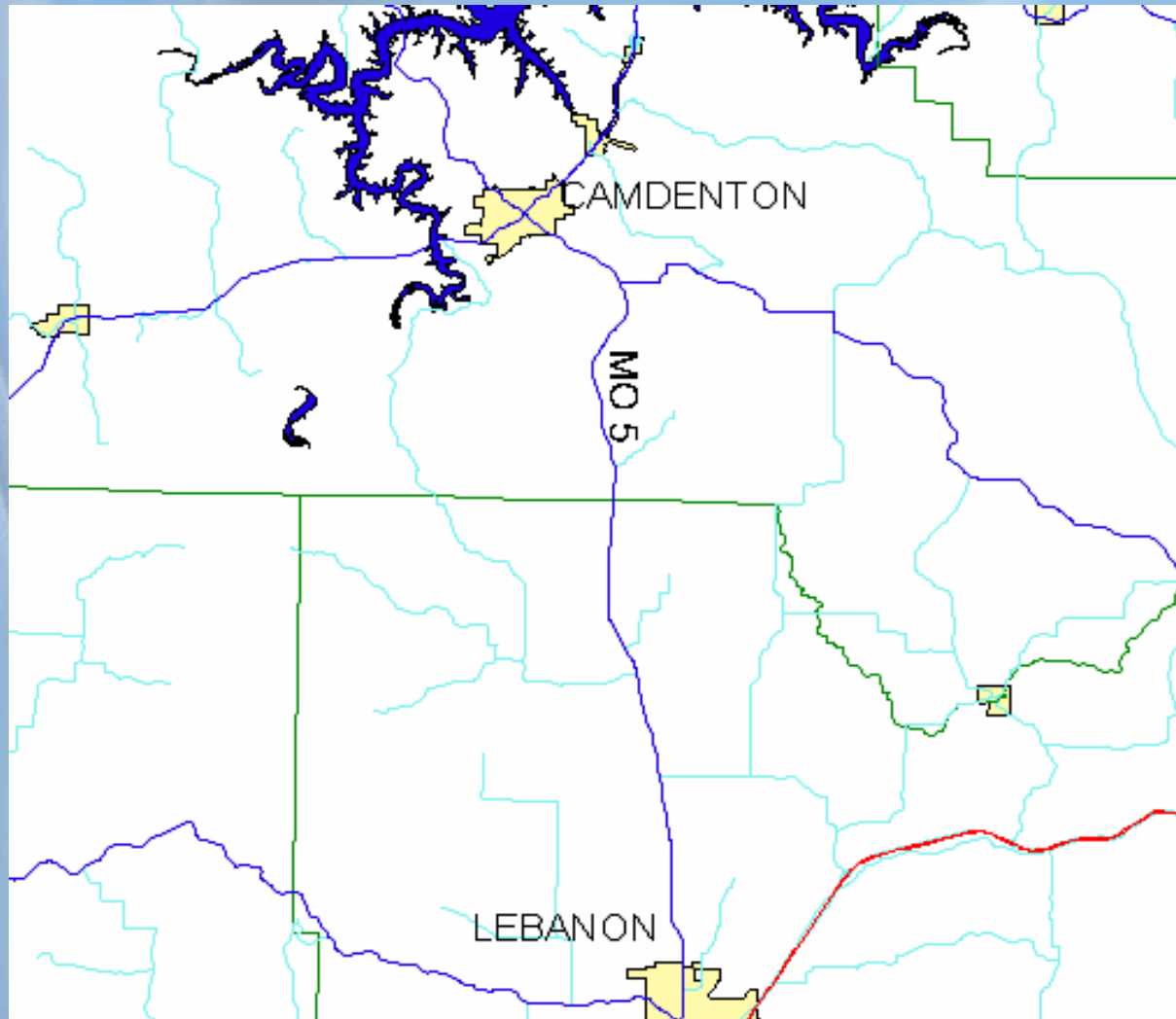
# *Urban Widening Project*

- **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  $\frac{3}{4}$  Intersections (restrict LO)**
- **Expand some city streets to provide backage roads**

# MO 5 Corridor





# *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

$$\text{Value} = \text{Performance} / \text{Cost}$$

# ***Access Management Improves Value***



***Questions?***