

# INCORPORATING ROAD USER COSTS INTO VALUE ENGINEERING

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Presented by:

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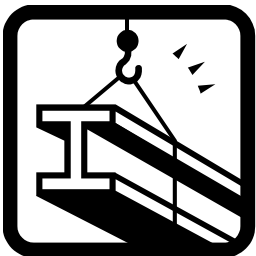
Washington, DC

# ROAD USER ISSUES

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## Cost Effective Solutions Benefits versus Costs



# Case Study: Route 49 over Railroad

## Existing Conditions

- 2 lanes undivided
- Existing multi-girder design
- Seasonal traffic volumes



# Case Study: Route 49 over Railroad

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## Initially Preferred Alternative:

- 3 Stages (500 Days)
  - 1 Lane maintained each direction
- Cost (\$4.2 Million)
  - Bridge – 2.6 Million
  - Construction Engineering – 1.5 Million
  - Road User Costs – 0.1 Million

# Case Study: Route 49 over Railroad

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## VE Alternative:

- 1 stage (180 days)  
Full Detour
- Cost (\$2.7 Million)
  - Bridge – 1.8 Million
  - Construction Engineering – 0.5 Million
  - Road User Costs – 0.4 Million

# Case Study: Route 49 over Railroad

- Original Design \$ 4.2 M (RUC = \$0.1 M)
- VE Alternative \$ 2.7 M (RUC = \$0.4 M)



# Case Study: Route 78

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## Alternative #1

- Maintain 4 Lanes in each direction
- Daily Road User Cost = \$389,500
- Construction Duration = 173 Days
- Total RUC = \$67,383,500

# Case Study: Route 78

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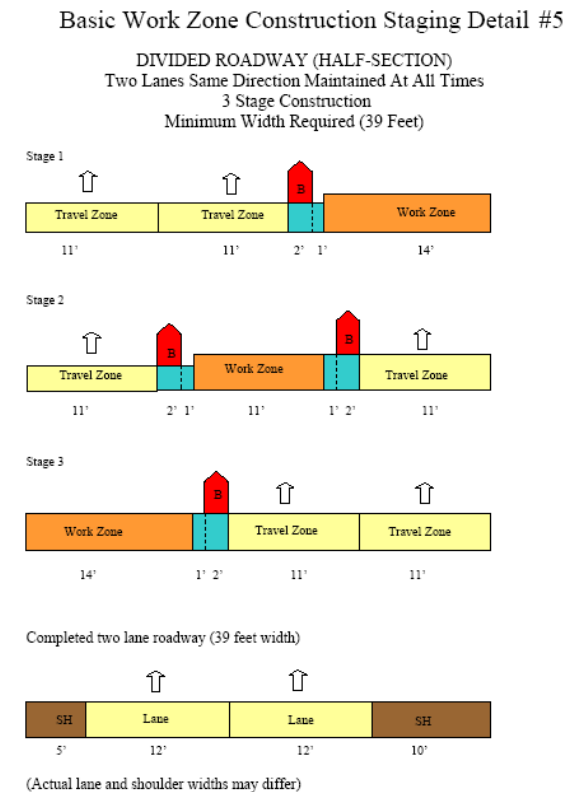
## Alternative #2

- Maintain 5 Lanes in each direction
- Daily Road User Cost = \$26,000
- Construction Duration = 537 Days
- Total RUC = \$13,962,000



# Basic, but Essential Information

- 24/7 counts rather than Peak Hour counts
- Work zone staging sheets
- Construction costs
- Traveler time and money

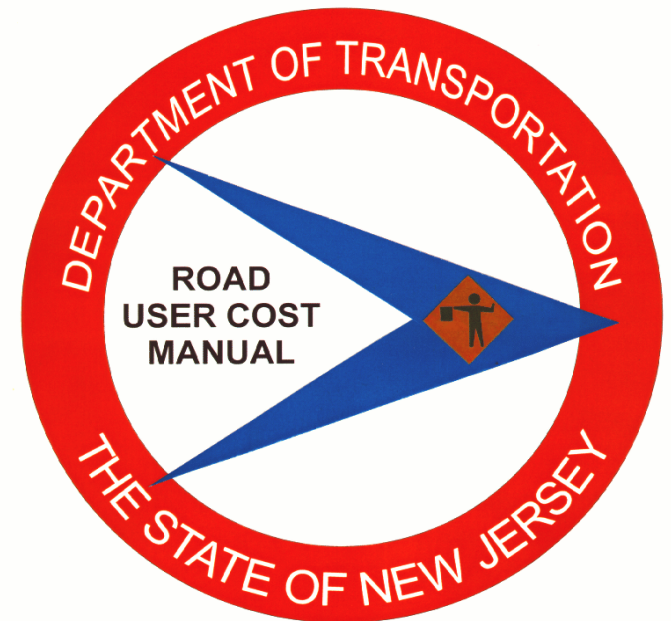


# NJDOT Road User Cost Manual

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Written and completed by NJDOT – June 2001

- Shows how to calculate work zone queues and delays
- Quantifies in dollars road user charges
- Quantifies in dollars lane occupancy charges



# RUC Calculations as a Design Tool

- Cost of lane restrictions per hour of day
- Cost of lane closures per day
- Cost of detour





**new jersey**  
**department of transportation** dot

# QUESTIONS?

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