1. Key Issues
2. Traffic Flow Concepts
3. WIN-WIN Recommendation
4. Safety
5. Other examples
Key Issues

- River Crossings are Constrained
- This Constrained Facility needs special attention
- HOV moves People, not just cars
- Safety by design
- Community concerns are addressed
Transportation Management

- Constrained facility
  - Limited ability to enlarge

- Facility Management (FHWA)
  - Supply & Demand
  - Get more from existing lanes (supply)
  - Operate differently, changes behavior (demand)

- Demand Management
  - Get more use w/ HOV incentives for new, efficient travel patterns (demand)
4th Street Redevelopment

- 2nd Street becomes a major arterial
- 4th Street redesign for improved parking, transit & pedestrian safety
4th Street Becomes Walkable
Planning for Regional HOV

- High Occupancy Vehicle (HOV)
- Other HOV as “Managed Lanes”
- In conjunction with High Capacity Transit Corridors
- Rapid Ride Success
Mid-Region Council of Governments

- By the year 2010 all Four Lanes of Montano will be Congested to the point of stand still
- Projected Need for 12 to 16 additional Lanes
- HOV & Transit planned to supplement supply
Traffic Flow in One Lane

- A vehicle every 2 seconds (max.)
- Equals $\approx 30$ vehicles per minute ($60/2=30$)
- Yields 1,800 vehicles per hour! ($30 \times 60 = 1,800$)
AM Traffic Flow - 4th & Montaño

- Morning eastbound, how many vehicles per hour (vph).
- Average Green time is 35% of cycle: 1,800 x 0.35 = 630 vph
- Left & Right lanes are less, 25%: 1,800 x 0.25 = 450 vph

Total flow ≈ 2,160 vehicles per hour

(630+630+450+450 = 2,160)
Balanced Design?

- One lane ≈ 1,800 vph
- w/ Two lanes, 3,600 vph
- 4th & Montaño intersection accepts ≈ 2,160 vph

- Over capacity by 1,440 vph

\[ (3,600 - 2,160 = 1,440) \]

demand – supply = excess
Emphasizes moving people
Faster lane as an incentive
2+ cars & trucks, now 16% ≈ 300 vph
If HOV use is doubled
1,800 + 600 = 2,400 vehicle demand

Flow is Balanced btw. road & intersection
2,400 – 2,140 = 260 vph
demand – supply = balance

People flow is 3,000+
Vehicle Flow Balance
4th & Montaño – eastbound in a.m.

Existing
A) 4 Lane
B-D) HOV-Bus

Link
Intersection
Recommended

Alt E – 3 lane @ Rio Grande
Alt E – 3 lane @ Rio Grande looking west
HOV Safety Gate
Alt E – 3 lane @ Rio Grande looking east
Historic Montaño Crossings

• Pedestrian crossings of Montaño need attention for improved walkability
Historic Montaño Crossings

• Elements of Design
HOV & Montaña Crossings
Safety Issues

• Opposing flows have separation
• Recommended Improvements manage speed to a safe level
• Lower speeds allow for reaction time
• Lower speeds minimize fatalities
• Improved community context
Nicholasville Road - Lexington, KY

- 2 miles in length
- 5 lane section
  - 1 lane in off peak direction
  - 4 lanes in peak direction
- From UK Campus to New Circle Road
- Controlled by signals, no barriers
The Lions' Gate Bridge

- Vancouver, British Columbia
- Reversible center lane
- 4,978 ft Br. & approaches
- 60,000 to 70,000 vehicles/day
- Originally two lanes
- Repainted to 3 lanes
- 1990s proposals to widen, but City objected to increased lanes into the urban center