Case study: 2

Ramp meters

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Background

• Dolf May, father of metering.

• First meter on Eisenhower Expressway (I-290) in Chicago in September 1963.

• First day of meter switched on.

• Huge reaction.

• Almost 40 years later, meters are standard on many freeways.
In Minnesota:

- It started in 1970 with six meters on Interstate Hwy. 35E north of St. Paul.

- When the first meters were turned on in 1970, no one knew if drivers would obey them.

- By 1995 there were 160 miles of highway controlled by meters at 366 freeway on-ramps in the Twin Cities area, more meters per mile than any other state.

- Today there are 430 ramp meters in the Twin Cities area.
How ramp meters are controlled

- Loop detectors
- Buried cables
- Closed circuit cameras
- Signals
- Main computer
- Traffic Management Center
- Ramp meter operators
- Traffic Reporter
- Information officers
A little history of shutting down ramp meters:

- Early 1995, drivers started to question if ramp meters were helping congestion.

- In 1997 angry commuters want turn-off-the-meters test.

- November 1999, minority Senator leader Dick Day proposes to turn off the meters on October 2000 because he doubt the value of ramp meters and to test the effects of traffic.

- February 2001, results were given to the public.
MNDot Study

- With Meters:
  - 18mph faster during peak hour
  - Lower car emissions, but more gas

- Without Meters
  - Throughput down 15%
  - 2.6 million hours/year of unexpected delay
  - More accidents (1041 accidents/yr)
MNDot Conclusion

- $40 million/year for Twin Cities travelers
  - System cost $3 - 8 million/year
  - $400 million for 10 miles of 6 lane freeway
- People want meters with modification
- Compared to other cities?
Negative attitudes around Ramp Meters.

- Longer waits.
- More congestion on Local arteries.
- Equity Issues
  - HOV lanes
  - Skipping in Line
Benefits

- Saves Time and Money
- Balances Use of Available Transportation Routes
- Improves Safety and Reduces Accidents
- Provides Consistent Commute Times
- Improves Merging Conditions
- Maintains Access to Regional Centers
- Manages Congestion and Provides Consistent Travel Speeds
- Improves Air Quality/Reduces Fuel Consumption
- Provides Travel Time Incentives to Buses and HOV’s
- Aids freight movement

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Questions to discuss:

- Do meters help commuters?
- Do ramp meters cost or save drivers time?
- What's the use of having meters when traffic cannot go anywhere.
- Are ramp meters fair?
- Do ramp meters help congestion?
- What do people not like ramp meters?
- Ramp meters vs. Congestive pricing.
- Maximizing efficiency vs Free flow speeds.
- Should certain ramps be closed during rush hour?