# What *Really* Happens When We Expand Transportation Capacity?

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# Latent Demand, Induced Demand, and Capacity Expansion

- Responses to added capacity
- How they affect investment benefits
- Can congestion get worse?
- What are the *real* issues?
- Fighting induced demand vs. fixing the underlying problems

## **Short-Term Responses**

- Speed on expanded facility rises
- Travel diverted to expanded facility
  - From parallel facilities or routes
  - From other hours (trips rescheduled)
  - From other modes (carpools, transit)
- Usage of expanded facility increases over time, speed slows from "opening day"
- Speeds may increase on other facilities, or at other hours

# **Longer-Term Responses**

### Households

- Linked trips may be "unchained"
- More outside-the-home activities
- Changes in auto ownership possible
- Some relocate farther from work, other activities

#### Businesses

- More frequent orders, shipments
- More logistics-intensive organization
- Some relocate to more accessible sites

#### Facility use gradually increases, speed slows further

How Induced Demand Affects Benefits from New Capacity

- Erodes immediate benefits to original users
- Adds new benefits as it does
- Total benefits with induced demand can be higher or lower than without it
  - Extent of capacity expansion
  - Sensitivity of demand to faster travel
  - Relationship of speed to use on improved facility
- Induced demand *cannot* eliminate benefits

# Can Induced Demand Make Congestion Worse?

- Not by itself
- Together with other factors, maybe
  - Rapidly growing demand
  - Irreversible cuts in transit service
- Why do people believe it can?
  - Investments often made where demand is growing rapidly
  - Compare congestion with expansion vs. without it, not before vs. after

# The *Real* Issues with Induced Demand

- Environmental impacts of added travel: air pollution, greenhouse gases, noise
- Safety consequences of more driving (including for pedestrians)
- Continued dispersion of land uses (sprawl)
- Fuels public demands for continued expansion

# **Underlying Sources of Problems**

- Environmental impacts stem from vehicle technology, carbon fuels
- Safety impacts have complex causes
- Land use impacts are responses to underpricing of transportation and utilities, housing subsidies
- Demands for more capacity persist because fuel tax disconnects payments from use
- Fighting investment doesn't fix these

## **Why Not Solve the Real Problems?**

- Tailpipe and fuel standards "second best," but hugely successful
- Fixing CAFE or raising fuel taxes could reduce greenhouse gases
- Re-focusing traffic engineering, insurance reform would help safety
- Changing pricing and investment policies, reforming zoning would improve land use decisions

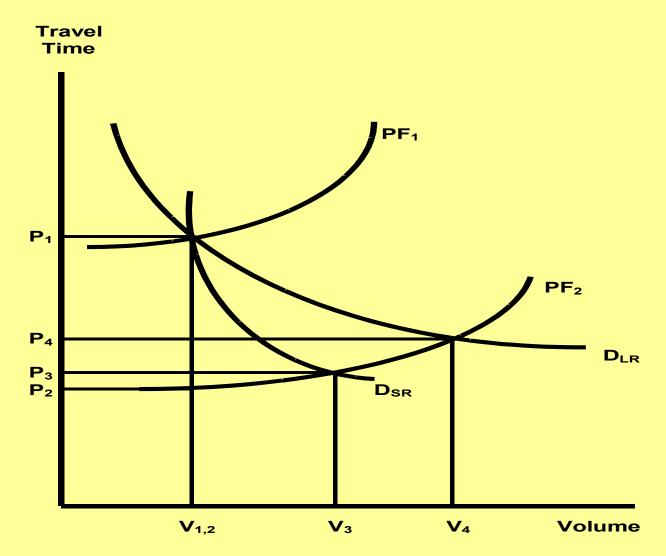
# Is Induced Demand a Serious Problem?

- Infrastructure planning and finance have problems, but induced demand doesn't cause them
  - Congestion is the wrong signal to build
  - Pressure to expand comes from underpricing and buildup of fuel tax revenues
  - Program structure turns costs into benefits
- Expanding capacity won't eliminate congestion, but the real problem is pricing, not induced demand

## **Points to Remember**

- Induced demand affects expansion benefits, but can't eliminate them
- It won't make congestion worse
- Real issues are externalities from added travel, land use impacts
- Need to address their causes, not fight expansion
- More capacity won't fix congestion, but not because of induced demand

## **Economics of Capacity Expansion**



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