Critical Issues for Transportation Policy And Finance

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Many Issues Facing Chicago Today Were Addressed in the Burnham Plan

• Congestion

• Facilitating effectiveness & efficiency of movement by providing capital facilities

• Equitably distributing opportunities for growth

• Providing fiscal support to implement projects bringing long-term benefits

• Improving “livability” of the urban environment
The WAYS in which We Must Solve These Problems Differ Greatly from 1909

The Burnham Plan included social science analysis but its emphasis was on physical facilities.

Belief that the quality of life could be shaped by sensitive urban designs supported by infrastructure.

Providing financial resources was important but did not drive the planning process.

Analysis of social and economic conditions is more central to planning & physical plans less central.

Greater emphasis on operations & modernization rather than design of systems.

We must use financial instruments to influence behavior and maximize efficiency as well as to raise capital.

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Transportation Finance Challenges

- Roads, railroads, transit systems, ports, and airports in poor physical condition; inadequate investment in maintaining & modernizing
- Severe but localized points of congestion or “bottlenecks”
- Growing consensus that increased public spending on transportation infrastructure is overdue, desperately needed; could be an economic stimulus
- Must spend effectively, efficiently, and equitably because of attention to “pork,” “earmarks,” and “bridges to nowhere”
Congestion

- Combination of reasons . . .
  - Not enough money for new capacity
  - Population & economic growth
  - Continued suburbanization
  - Legal & environmental disputes

- Congestion growing everywhere: highways, local streets, transit systems, airports, ports
Congestion and System Deterioration are Exacerbated by Growth in Freight Traffic that is Several Times Rate of Growth in Passenger Traffic
Resolving Congestion Requires Many Approaches at Once

Getting more out of existing streets & highways; e.g. signal timing, ramp metering

Using autos more efficiently

Increasing use of many modes; transit, cycling, walking, vanpooling

Increasing highway capacity: focus on bottlenecks

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Increasing Reliance on Technology

• Cannot add enough lane miles: must add to ability of each lane-mile to carry traffic. Increase “throughput” of rail, air, and port systems

• Help travelers optimize trips through more information using computers, telecommunications devices

• Improve flow using telecommunications technology
  - Adjust signal timing
  - Ramp metering
Embedded Low-Cost Sensors in Infrastructure Can Improve Safety and Lower Cost

New technology can collect & deliver accurate & timely information on condition of structures and pavements to support efficient scheduling of maintenance and avoid unexpected failures.
Sustainability

• Urban form and transportation
• Relate transportation more effectively to urban form
  - Increase density rather than footprint
  - Increase mix of activities rather than separation
  - Coordinate transit and land use
• Widespread agreement
• Short-term actions needed but long-term prospects for results
Sustainability

- Have spent thirty years reducing urban air pollution . . . successes based on engines & fuels more than changing travel behavior
- Have learned much more about chemistry of air pollution . . . air toxics; particulates
- Internalizing formerly “external costs” increases costs to transport agencies: e.g., water treatment
- Carbon and global warming not yet widely incorporated; transportation energy is primarily petroleum based. Likely the greatest challenge for the coming decades
Transportation Finance in the Coming Decade Will Focus on

• Renewal of existing infrastructure more than system expansion

• Elimination of key bottlenecks rather than widespread system growth

• Application of new technology to increase efficiency and address sustainability

• Equitable distribution of benefits across geographic areas and population
History of Transport Infrastructure Finance

- Local streets and county roads: transportation finance: 90%++ of system mileage but 5% of traffic

- State highways bankrupting states in 1915-25 period; fastest growth of autos and roads ever . . . led to innovation of “user fees”

- Tolls most desirable user fee in principle

- Motor fuel taxes and various “car taxes” adopted as “second best” but workable
History of Transport Infrastructure Finance

- Motor fuel taxes enormously popular
- Supported by wide variety of constituencies
- Adopted in every state by 1940
- Federal motor fuel tax in thirties
- Fundamental finance mechanism for Interstate System in fifties
The Key to Transportation Infrastructure Investment is User-based Financing

• A variety of “user fees” have produced the revenue needed to finance the programs and in the future can also increase efficiency and equity
  – Vehicle license fees
  – Motor fuel taxes
  – Tolls

• Using new technology, fees can vary by time of day, route, congestion levels, vehicle characteristics to achieve social purposes and produce needed revenue
Resource Limitations

• Dominant source of transportation funding has been motor fuel taxes

• Both highway and transit capital funding at federal and state level

• Tax is levied as cents per gallon

• Must be increased by legislation

• Not increased very often or very much
  – U.S. in 1993; states vary greatly
  – Rates of increase have not matched inflation
Resource Limitations are Becoming Dramatic

- Effect of inflation is multiplied by improved fuel economy: Fleet Average
  - 10.5 mpg in 1970
  - 22.5 mpg in 2000
  - 35 mpg by 2020

- Transportation construction costs have steadily risen faster than the CPI

- Very serious: States have had to postpone many major projects and road conditions are declining
Resource Limitations

What to Do?

• Raise the fuel taxes while fuel prices are high?  
  Not politically feasible

• General fund financing?  Sales tax measures in many states?  
  Not equitable

• Increase borrowing in the short term?  
  Not really new revenue & raises total cost

• Rejuvenate user financing using new technology?  
  Electronic tolls and VMT fees?
HOT (High Occupancy / Toll) lanes are a Promising Innovation

• Add new lanes to existing freeways & charge to use new capacity: allow single occupancy drivers to pay tolls while carpools are free
  – Tolls vary with demand to keep lanes free-flowing
  – Transit can also use express lanes

• Experience to date
  – Los Angeles, San Diego, Houston, Denver, Minneapolis, Toronto all successful
  – Reduce delay, increase reliability
  – Viewed as providing additional travel choices
HOT Lanes: Promising but Challenging

- Implementation strategies
  - Control access for HOV by raising limit from 2+ to 3+
  - Convert existing free lanes to priced lanes
- Equivalent Strategies for Trucks?
- Implementation challenges
  - Community opposition based on environmental issues and equity
  - Little available ROW for constructing new lanes
Cordon Congestion Tolls are Being Used in Many Countries

- Concept: charge drivers a fee to enter congested area during peak hours
- Experience to date
  - London, Singapore, Stockholm successful
  - London example:
    - 33% reduction in auto trips into zone
    - 15% VMT reduction within zone
    - 21% increase in travel speed within zone
    - 33% reduction in bus schedule delays
    - 19% reduction in greenhouse gases
    - > €125M / year net revenues

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Cordon Pricing Not Yet Universally Accepted

- Implementation challenges
- Not optional – equity concerns
  - Local retailer concerns
  - No obvious central charging zone in polycentric cities
- Implementation strategies
  - Focus on high traffic areas
  - Invest revenue in improved transit to reduce equity concerns
- Failed in New York; studies underway in San Francisco & Los Angeles
Longer-Term Options

- Direct electronic charges based on use, energy efficiency of vehicle, cost of facility

- Electronic and GPS technology already in use in Germany, Austria, Switzerland and elsewhere for truck charges
Political/Public Acceptance: The Privacy Issue

• Fear
  – With all this on-board technology, is Big Brother watching?

• Fueled by press misrepresentations:
  – LA Times quote: “tracking devices send a signal to a GPS satellite following the car”
Trials in the USA

- Atlanta
- Twin Cities
- State of Oregon
- Seattle
Means of Charging for use
Does Impact Choices

• Pricing has reduced congestion in dozens of cities; not a single counter example

• European truck use fees have lessened road damage

• Charging on basis of energy use and place of use is feasible but seen as radical today, however may be needed to address global climate change
The Greatest Challenge

• Aligning theoretical & political concepts of equity and efficiency
  – Requires trials and demands successes; reverses may take decades to overcome
  – Requires political courage
  – Requires education and persuasion skills
Future of Transportation Finance: Summing Up

• User financing was the historical preference
• Technology available today allows user charges that are more efficient and equitable than in the past
• User fees produce revenue & influence travel choices to create more efficient use of systems
• Alternatives to user fees seem less desirable for many reasons – efficiency, equity, revenue potential
• User-based financing still faces political and public opinion hurdles
Finding the Route to the Future is Often Challenging