

Metropolitan Mobility and Congestion

An in-house study by Organizational Results

MoDOT Summary Statement

Congestion and mobility issues in metropolitan areas are not new, nor can they be expected to go away on their own. There is simply too much system demand from both the passenger and freight areas. While traditional engineering fixes abound, environmental factors, public perception, cost and the temporal effectiveness of these solutions limit their effectiveness. Today and tomorrow's congestion and mobility issues require a unique combination of financing and innovation to decrease the impacts of metropolitan congestion. These solutions, that combine financing and results, should be identified, implemented and monitored. When techniques, policies and practices are proven successful, they should be rapidly shared for nationwide adoption.

I'm Late Again, and Your Package Still Isn't Here!

The affect of increased demand and corresponding congestion on the roadways translates into decreased system mobility and reliability. This is a prevalent problem throughout the metropolitan areas of the nation due to residential and commercial development patterns, an increase in users and miles driven, and increasing freight loads. This trend has been apparent since the build-out of the interstate system. Further, many of the “fixes” for the problem already exist, but some require novel, out of the box ideas. But whichever solution we decide on, we are operating in a fiscally constrained setting – we can afford none of it, but it is all necessary.

The key is how to fund and improve the problem as a whole, - as a system. We must provide the public with the transportation performance they expect. The system must also provide for the development and sustainability of our economy.

What's at Stake?

- 1) The Economy – in a local, regional and global sense, our economy is dependent on transportation. Economic developers in Missouri claim that transportation, more than any other attribute, drives and supports our economy. At the regional level, each state must act as a suitor to business to draw them their state, and on the global level, if we cannot offer unimpeded mobility for business, other countries will.
- 2) Customer loyalty and satisfaction – how much congestion, delay and increase in crashes will the public stand? Our “just in time delivery,” increased freight movement and expanding pool of drivers have transformed a one hour trip into an acceptable daily commute.
- 3) Health and Environment– congestion is unhealthy. It is stressful, and the mass of cars and exhaust have now been linked to health issues in metro areas. Further, from an environmental standpoint, pollution and global warming are constantly linked to transportation, and the notion of fixing congestion with more lanes often faces stiff environmental protest over construction and operational impacts.



What's at Stake (cont'd.)

- 4) Livability – congestion problems are now driving settlement and business development. Our very quality of life is impacted by an inadequate transportation system.

What Can Be Done?

Solutions for our, “death by our own success” include *traditional engineering remedies* such as new build, *traffic management* such as ITS, *market-based solutions* such as congestion pricing to affect demand and/or to increase revenue, and *communication and marketing* of the problem to increase awareness and to draw funding to fix the problem.

Our industry is familiar and comfortable with the traditional engineering and traffic management solutions, and some of these are highly effective. But no matter what, system demand is increasing so any physical or logistical fix is generally short lived and quickly consumed by more cars or more freight.

We are even getting more comfortable with the marketing and communication solutions as a means to deal with congestion and mobility issues. Changeable message boards, and radio announcement keep the public informed of traffic, while marketing agencies dress traffic and crash data as a means of increasing awareness of transportation funding needs. However, the problem is growing and our traditional fixes are under funded. Beyond building more lanes, or timing signals – what can we do to fix this ever increasing problem and how do we pay for it?

Are Personal Jet Packs an Option?

Right now, jet packs are not an option, but we must be at least that creative to find the best solution to this national congestion and mobility problem. Novel approaches to this problem must address funding, system characteristics, and logistics and include:

Market Solutions

- Congestion pricing to influence demand in urban areas.
- Variable tolls to move traffic demand to different times.
- Privatization of Congestion issue - allow private sector to identify and fund solutions. In this case, projects would be awarded based on their ability to reduce congestion and service mobility needs at the best price.
- Decline to act. Do nothing and nothing will get better until the public and the economy collapses.
- Increase fuel or sales tax to fund traditional solutions such as increasing the number of lanes or adding message boards.

Modal Solutions

- Where appropriate, provide more and better alternatives to SOV personal transportation.
- Market transit solutions to increase ridership.



Modal Solutions (cont'd.)

- Decrease vehicle freight dependency by spreading demand to other modes or through managed transport using all modes.
- Identify impact of “just in time delivery” methods on system capacity and congestion and value transportation services to reflect true value.
- Implement freight movement systems such as pipeline capsule technology to remove freight from roadways.

Traffic management

- HOV or truck-only lanes (could involve innovative finance).
- Increased modal integration (ship to train to truck).
- Better vehicle to vehicle and vehicle to road communication (Cooperative Vehicle/Highway Automation Systems - CVHAS).
- Communicate through any means to alert travelers to road conditions and congestion.
- Provide Separate freight and passenger facilities.
- Create “Time Zone Travel” where only passenger, delivery or freight vehicles are allowed to use certain facilities at certain times of the day.

Innovations

- Speed the adoption of cooperative vehicle and highway automation systems
- Use CVHAS to electronically couple trucks
- Provide Designed Logistics - Research and Implement Freight shipping corridors that allow for integrated, multimodal freight movement and transfer using the most efficient combination of modes to reach the delivery location
- Research and implement automated freight carrier systems such as pipeline capsule technology, - similar technology could be used for passenger travel.

Conclusions

Mobility and congestion issues tend to point to a cluster of well documented and numerous solutions. These can range from increasing physical system capacity, better management of existing roadways, providing alternate routes and modes, communication with the public regarding alternatives and providing more accurate expectations to the traveling public. However we are not fixing the problem here, only dealing with the symptoms.

The industry should focus on those practices offering the most immediate benefits based on localized mobility, which also feed into larger system efficiencies. These innovations, be they management practices, physical expansions or alternative modes should then be rapidly funded and monitored for effectiveness. Where feasible, solutions should be linked to their funding mechanism to ensure support and success.

