Safety Benefits of Highway Infrastructure Investments

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Background

Infrastructure improvements can reduce likelihood of:

• Drivers making errors
• Errors leading to crashes
• Crashes leading to injuries & deaths
Objective

What would be the impact of implementing all highway infrastructure safety improvements whose benefits are greater than their costs?

• Lives saved, injuries prevented

• Economic value
AAA Foundation Study

- Performed by MRI Global for AAA Foundation
- Published May 2017
Approach

Used data from previous usRAP studies

• 9 states: AL, IA, IL, KS, KY, MI, UT, WA, WI
• Data from ~12,000 miles of roads:
  o Freeways
  o Principal arterials
  o Rural minor arterials & collectors
• Identified cost-effective infrastructure improvements based on design features, traffic volumes, crash rates
Examples of Infrastructure Improvements Considered

- Adding passing lanes
- Widening lanes/shoulders
- Adding median/barrier
- Cycle lanes/paths
- Pedestrian facilities
- Improving delineation
- Adding Left-turn lanes
- Grade separation
- Signalization
- Roundabouts
Analysis

Previous usRAP studies estimated:

• Cost of implementation & maintenance for improvements
• Lives saved & injuries prevented
• Economic value of safety benefits

This study projected results to all roads nationwide
Findings

Implementing all cost-effective infrastructure safety improvements nationwide could, in a 20-year time period:

- Save 63,700 lives
- Prevent 353,600 serious injuries
- Benefit-Cost Ratio = 2.4
Findings

Key contributors to reductions in injuries/deaths:

- Intersection improvements: 30%
- Roadside improvements: 20%
- Ped facilities: 20%
- Median barriers: 14%
- Rumblestrips: 9%
- Widen/pave shoulders: 3%
- Misc. others: 4%
Conclusions

Increased investment in highway safety infrastructure is warranted,

• Potential to prevent >400,000 serious injuries & deaths over 20 years

• Economic value of benefits outweighs costs
Comment

*Study likely underestimates potential benefits*

- 36% of fatalities occur on roads not included in study
- Did not account for projected VMT growth
- Only considered economic value of safety benefits
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INTRODUCTION

Safety improvements make significant economic sense. A study concluded that the national economic benefits of investments in intelligent transportation systems (ITS) could exceed $18.6 billion per year, or $463 per vehicle on highway infrastructure investments. The study found that these investments would result in a 42% reduction in fatal crashes and a 36% reduction in property damage-only crashes.

Key Findings

- Annual value of travel time savings from improved traffic operations is $57 billion per year.
- Improved traffic operations can reduce travel time by 36% of total travel time benefits.
- Improved traffic operations can reduce greenhouse gas emissions by 36% of total benefit savings.
- Improved traffic operations can reduce accidents by 36% of total benefit savings.
- Improved traffic operations can reduce noise exposure by 36% of total benefit savings.
- Improved traffic operations can reduce crash injuries by 36% of total benefit savings.
- Improved traffic operations can reduce road maintenance costs by 36% of total benefit savings.

More Information

Contact AAA Foundation at www.AAAFoundation.org or 1-800-999-AAA.