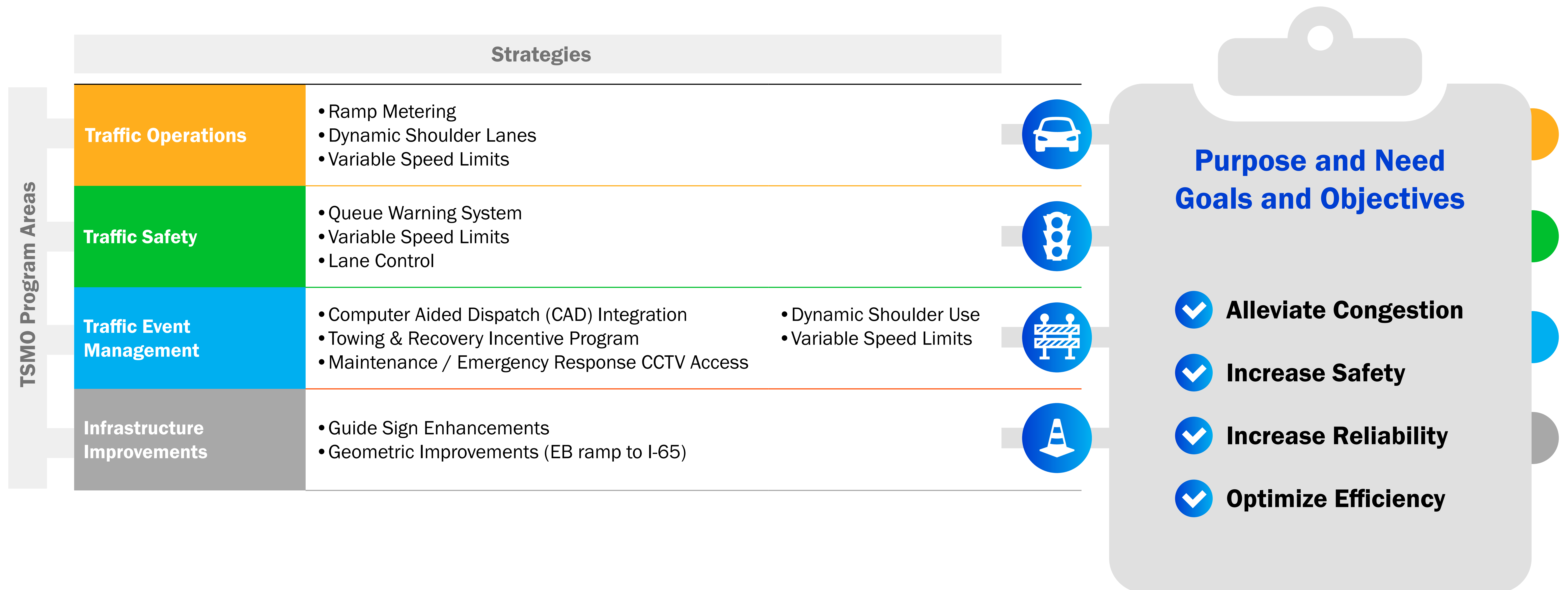


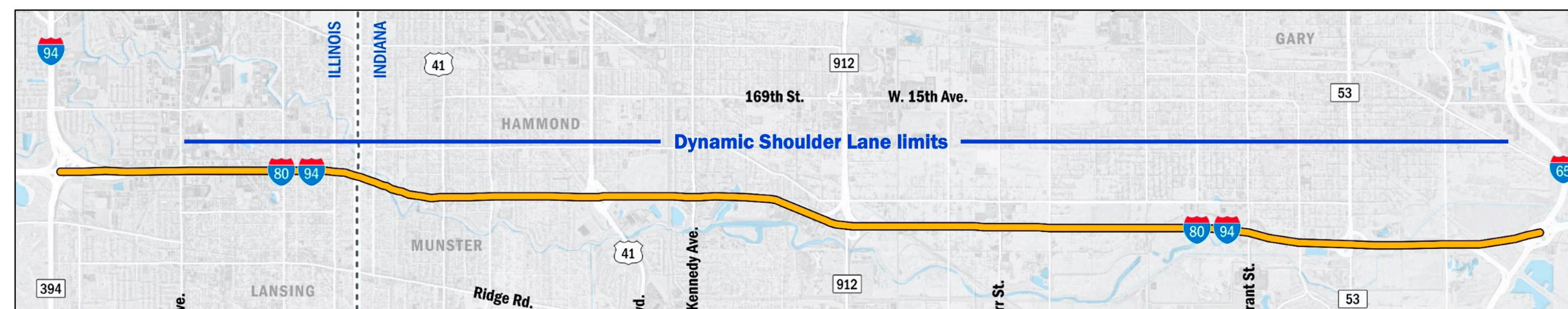
Alternatives Grouping

A Blend of Approaches and Strategies



TSMO Strategy Evaluation Results

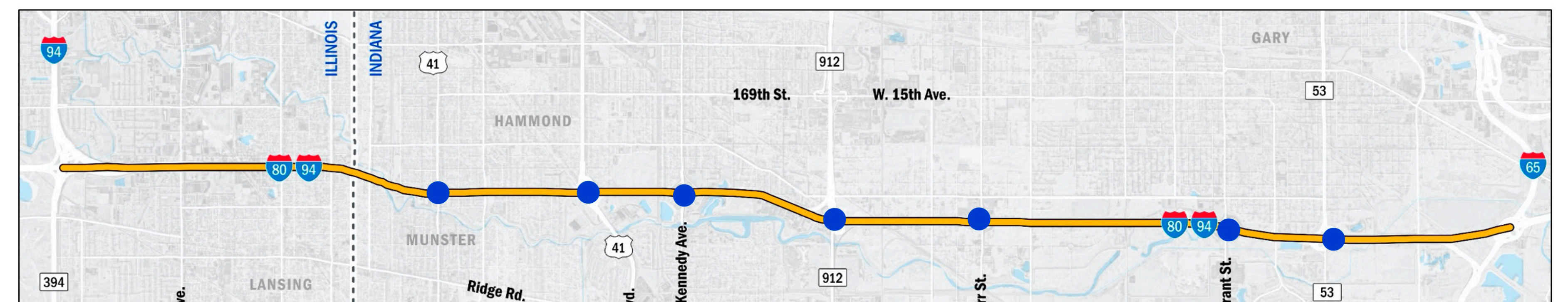
Dynamic Shoulder Lane



Travel Time	Average Speed	Travel Time Reliability	Study Area	Safety	Cost
7 minutes saved	10 mph faster during peak periods	25 minutes with strategy 31 minutes without strategy	9% reduction in vehicle hours traveled	Reduced congestion-related crashes	\$45-90 million

Ramp Metering

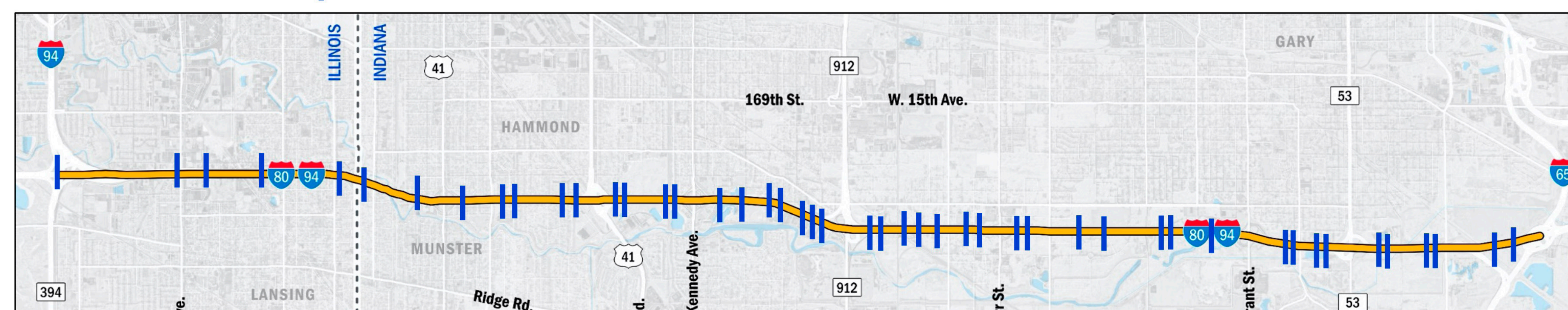
Ramp Metering Sites = ●



Travel Time	Average Speed	Travel Time Reliability	Study Area	Safety	Cost
3 minutes saved	0 mph faster during peak periods	28 minutes with strategy 31 minutes without strategy	0% change in vehicle hours traveled	Reduced congestion-related crashes	\$3-5 million

Variable Speed Limits

Variable Speed Limit Gantry = |



Travel Time	Average Speed	Travel Time Reliability	Study Area	Safety	Cost
<1 minutes saved	3 mph faster during peak periods	31 minutes with strategy 31 minutes without strategy	5% reduction in vehicle hours traveled	Reduced congestion-related crashes	\$30-35 million

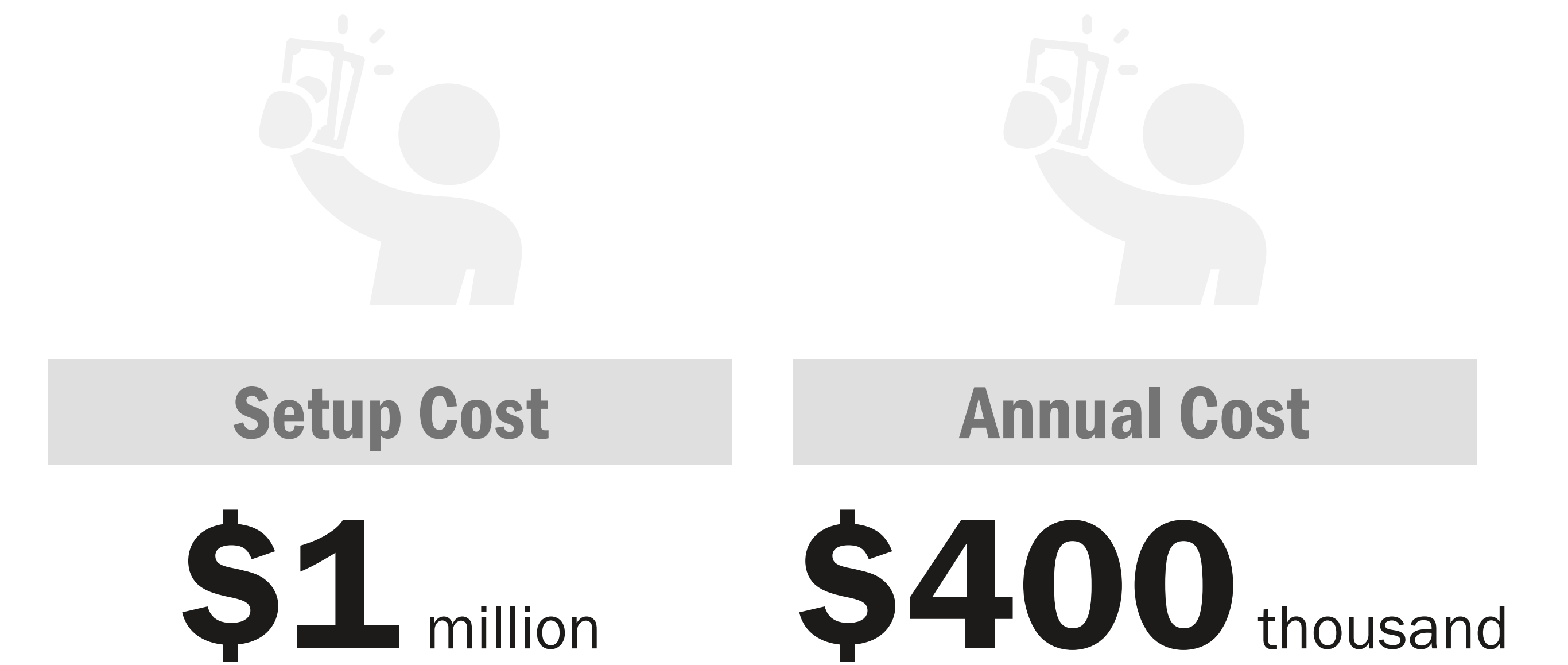
Dynamic Shoulder Lane + Ramp Metering + Variable Speed Limits

Combining strategies saves on implementation costs and maximizes performance improvements

Travel Time	Average Speed	Travel Time Reliability	Study Area	Safety	Cost
8 minutes saved	11 mph faster during peak periods	23 minutes with strategy 31 minutes without strategy	9% reduction in vehicle hours traveled	Reduced congestion-related crashes	\$55-100 million

Event Management

- **Computer Aided Dispatch (CAD) Integration**
- **Towing & Recovery Incentive Program**
- **Maintenance / Emergency Response CCTV Access**
- **Center to Center Interfaces**
- **CCTV Enhancements**



Event Management Strategies

Event Management Strategies + Dynamic Shoulder Lane (DSL)

Minor Event

Example: fender bender
1 lane closed for 60 minutes
700 hours of total delay

Clear incident 5 minutes faster
100 hours of delay avoided per event
(14% reduction)

Clear incident 5 minutes faster + open DSL
500 hours of delay avoided per event
(71% reduction)

Minor Event

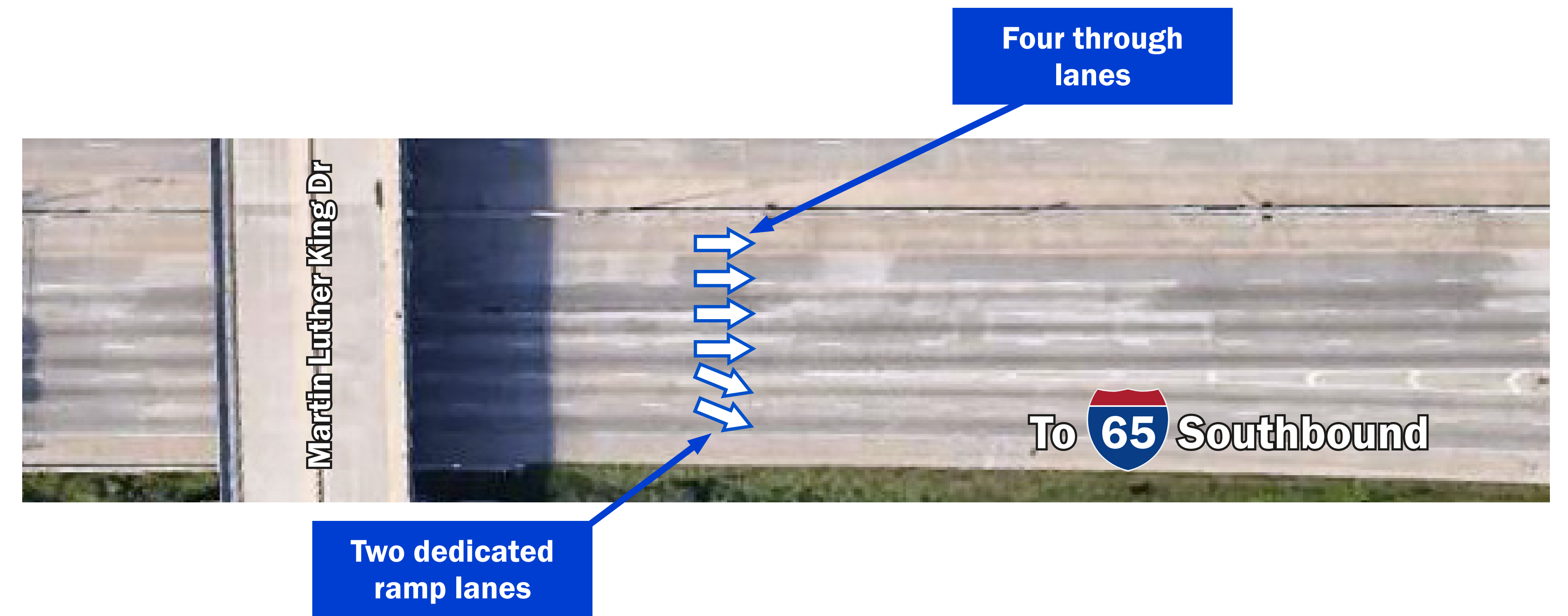
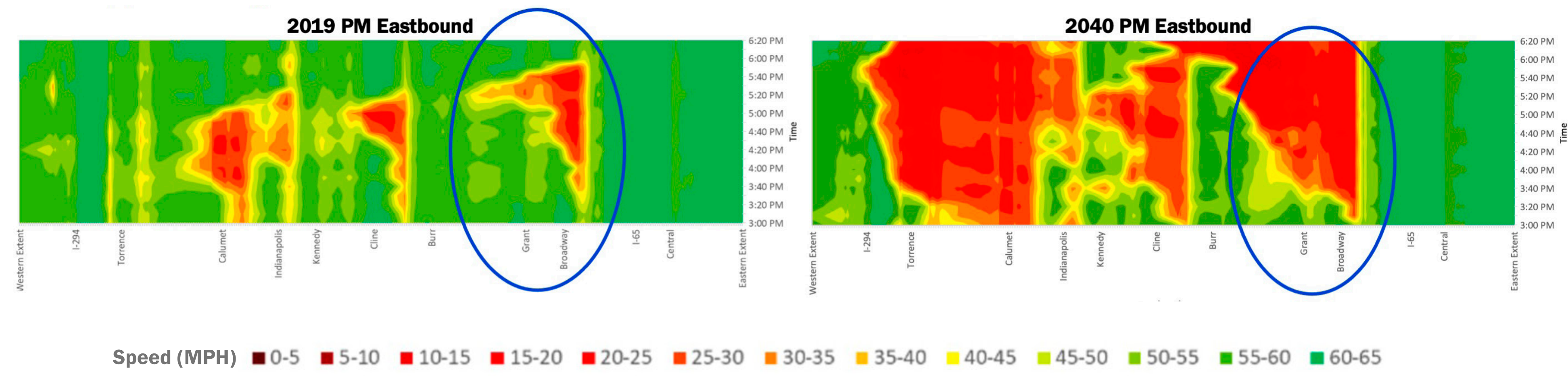
Example: overturned semi-truck
2 lanes closed for 120 minutes
11,500 hours of total delay

Clear incident 1 hour faster
1,900 hours of delay avoided per event
(17% reduction)

Clear incident 1 hour faster
6,100 hours of delay avoided per event
(53% reduction)

I-65/Broadway Geometric Improvements

Existing Geometry



Proposed Geometry

