



State
Smart Transportation
Initiative

Practical Solutions to Move America Forward



Big data: Getting beyond the hype

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Big data uses

- System planning
- Project development
- Operations
- System performance
- Customer service
- Parking optimization
- Law enforcement
- Pricing
- Transportation/land use connections
- And many more

Conventional measures incomplete



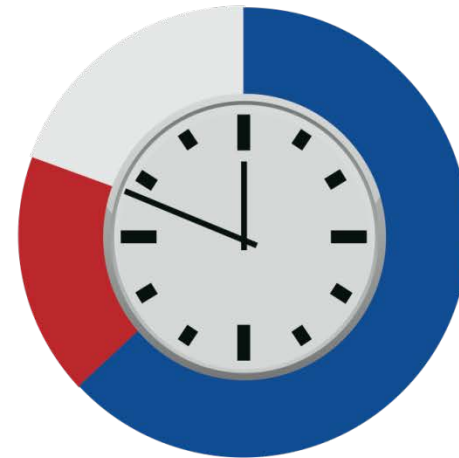
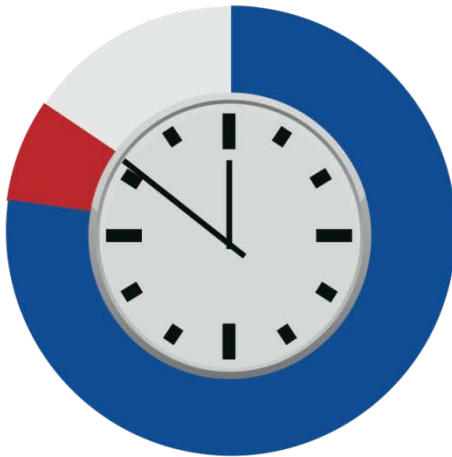
Denver 1982

1.09
50.6 minutes
46.4 mins
4.2 mins

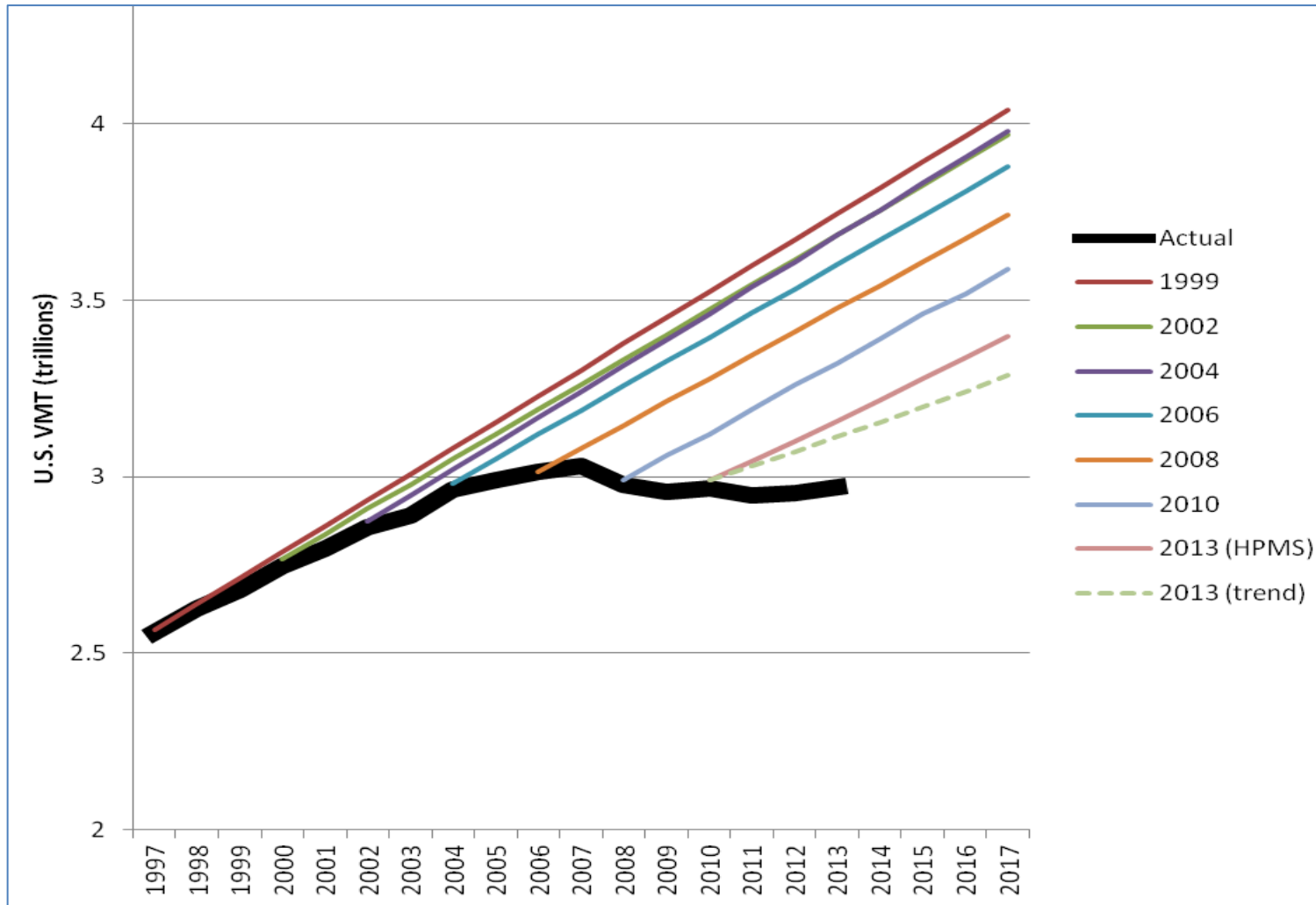
Travel Time Index
Average travel time
Travel time without traffic
Extra rush hour delay

Denver 2007

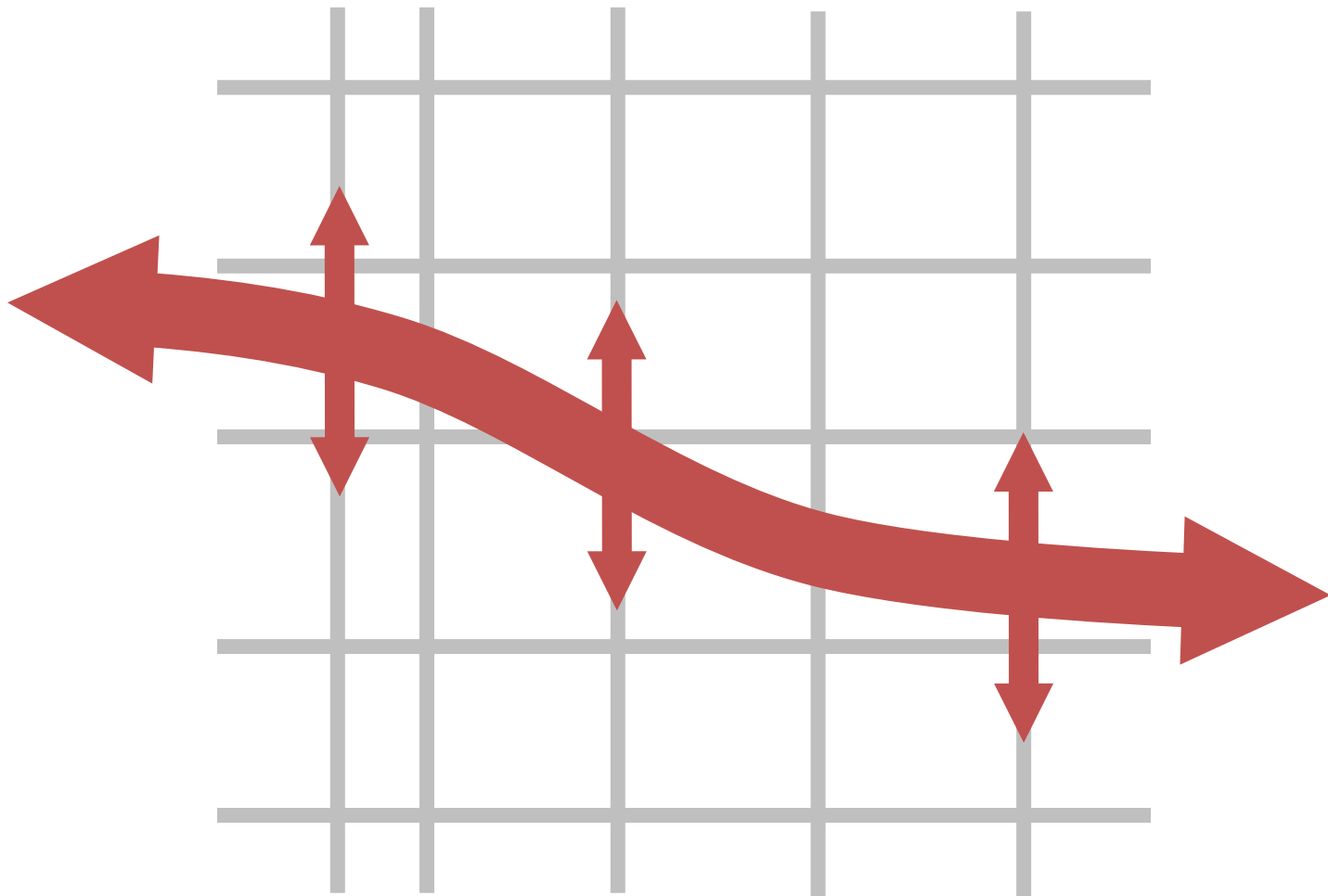
1.31
49.6 minutes
37.9 minutes
11.7 minutes



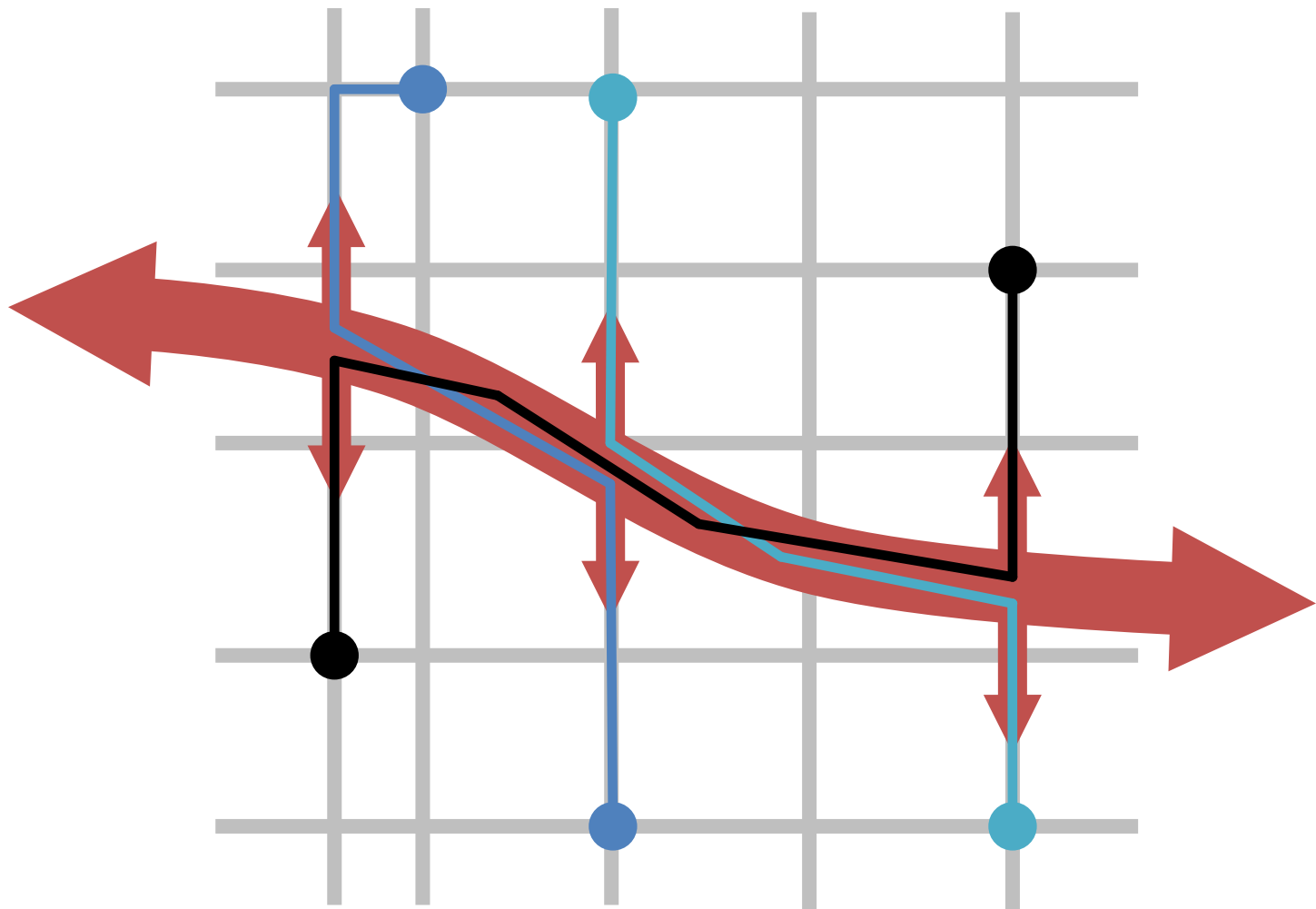
Conventional projections inaccurate



Mobility: Volume, speed, delay



Accessibility: Origins, destinations, routes



Example: U.S. 1 in Pinehurst, N.C.



Location	Internal-external	Internal	Through	Total
US 1 between Cameron and Vass	10,809	607	1,204	12,620
US 1 North of May Street split	14,450	9,856	3,388	27,694
US 1 North of Morganton Road	7,262	11,797	3,233	22,293
US 1 South of 211/15-501 merge	10,524	7,307	2,358	20,189
US 1 at Aberdeen	15,279	8,402	3,860	27,541
US 1 North of Pine Bluff	8,123	3,970	3,115	15,208
Average	11,075	6,990	2,860	20,924
Share of traffic	52.9%	33.4%	13.7%	100.0%

Big data sources



Source	Mobility	Accessibility/ Connectivity
Bike/ped counts	Yes	No
Bluetooth	Yes	No
Camera sensors	Yes	No
Cellular telephone signals	Yes	Yes
Custom smartphone apps	Yes	Yes
Fitness smartphone apps	Yes	Yes
GPS devices	Yes	Yes
Loop detectors	Yes	No
Mapping smartphone apps	Yes	Yes
Smart parking meters	No	Partial
Social media	Partial	No
Taxi logs	Partial	Yes
Tolls	Yes	No
Transit fares/smart cards	Yes	Partial
Truck logs	Partial	Yes

I-70 Denver



Thank you



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