Measuring GHG emissions reduction from land transport

Comprehensive Travel Demand Management in Boulder, Colorado

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Transport Knowledge Hub

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Boulder, Colorado

- 42 kilometers NW of Denver
- University town
- Population 105,673 (2019)

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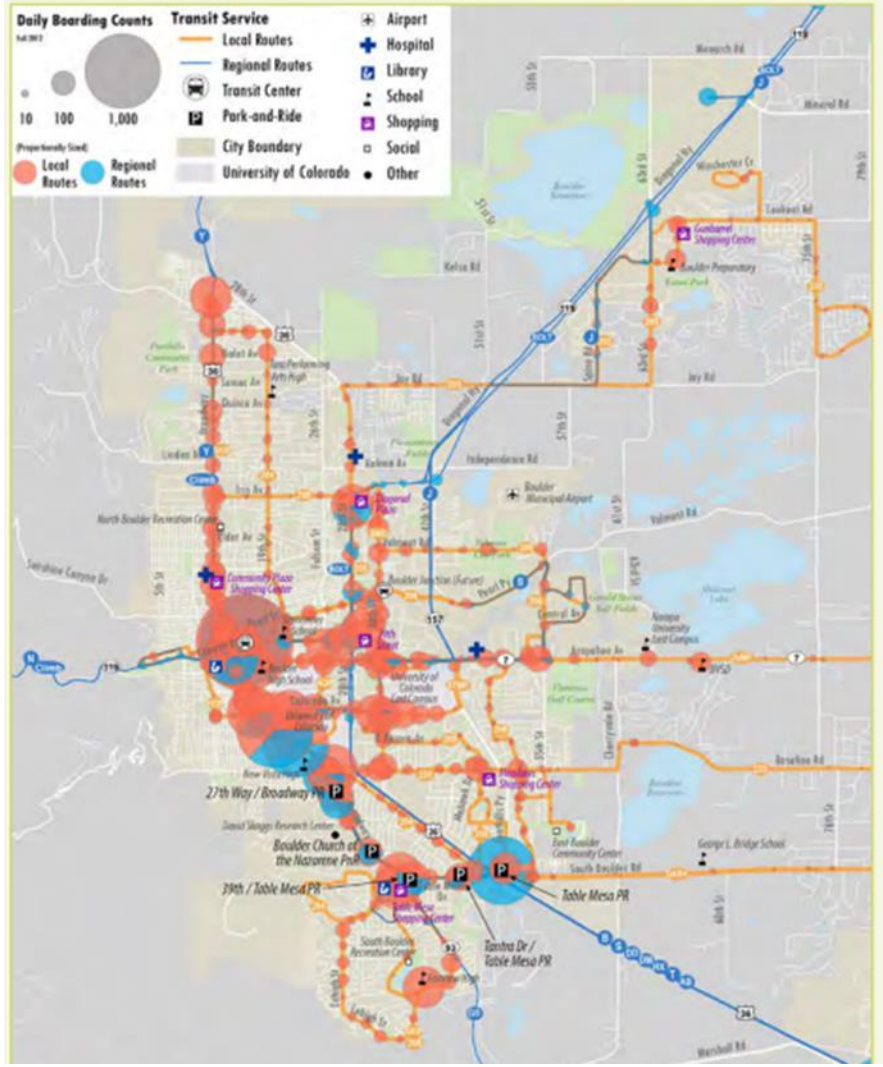
Comprehensive TDM planning

- 1989 Transportation Master Plan
- 1996 update to “no long-term growth in vehicle travel over 1994 levels
  - Achieved by 2009



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Key interventions

- PT improvements
  - Hop, Skip, Jump
  - 10 minute peak headways
- Cycle facilities
  - 95% of arterials accommodate cycling

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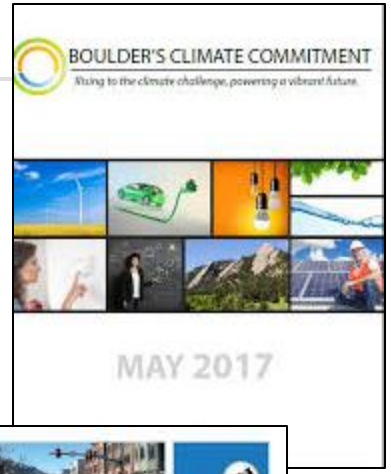
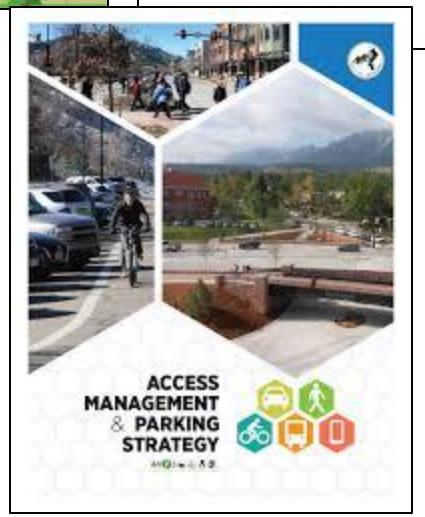
Key interventions

- Benefit investment districts
  - Parking fees invested in low carbon modes
- Parking Management
  - Key to achieving SOV reductions
- Coordinated plans





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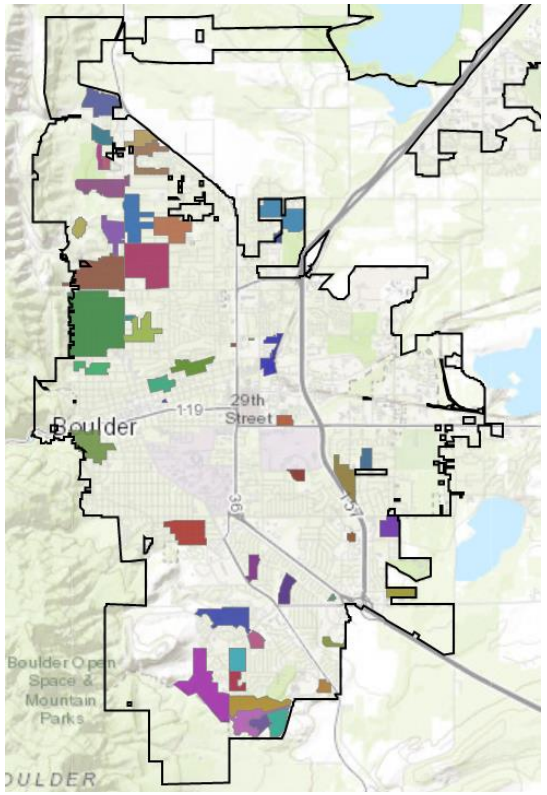
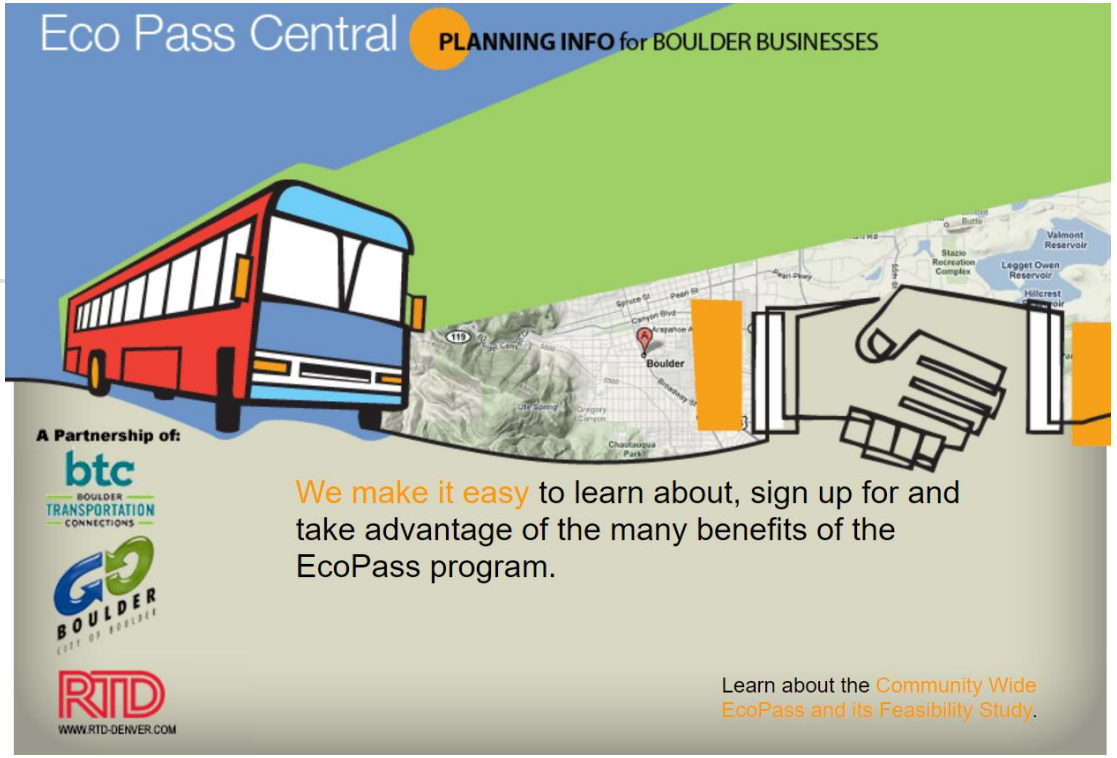
EcoPass

- Not available for individual purchase
- Insurance based model

- Universities
- Businesses
- Neighbourhoods





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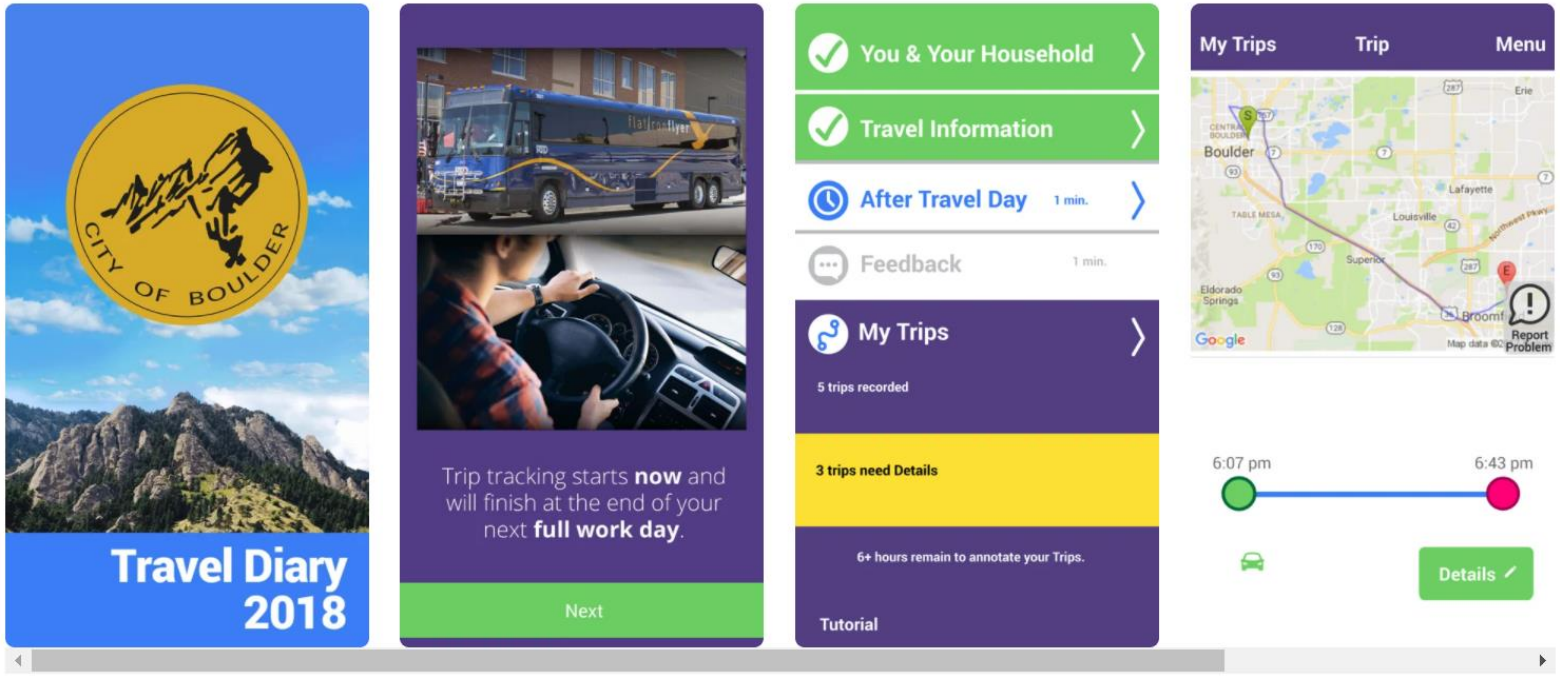
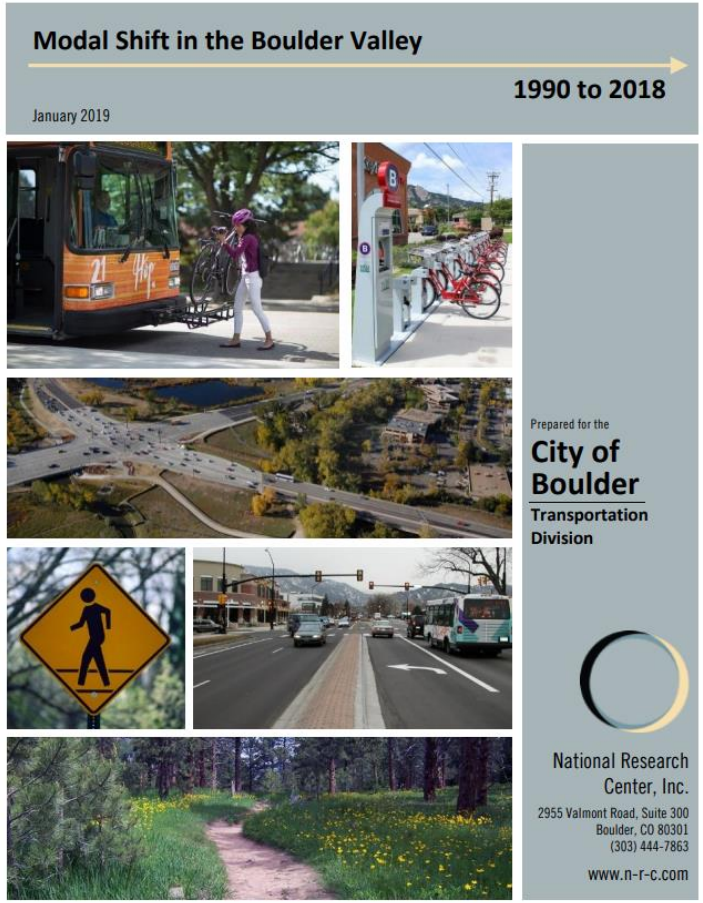
Measurement Methodology

"If you don't count it, it doesn't count"





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Outcomes - general

- By 2016 GHG emissions estimated to be 30% lower than without interventions

Figure 25: Vehicle Miles Traveled per Capita, 1990-2018

Calculating per capita VMT	2018	2015	2012	2009	2006	2003	2000	1998	1996	1994	1992	1990
Average number of SOV trips per day per person	1.80	1.75	1.65	1.80	2.03	2.00	2.36	2.28	2.41	2.37	2.34	2.49
Average estimated SOV trip length in miles	4.8	5.2	5.3	6.1	5.2	5.7	5.0	5.1	5.1	5.2	5.2	4.6
Estimated SOV VMT per capita per day (average number of trips x average trip length)	8.64	9.10	8.75	10.98	10.56	11.40	11.80	11.63	12.29	12.32	12.17	11.45
Average number of MOV trips per day per person	1.10	1.11	0.94	1.14	1.40	1.26	1.38	1.44	1.52	1.49	1.44	1.52
Average estimated MOV trip length in miles	7.0	7.8	6.0	7.5	6.2	8.6	6.4	6.1	7.5	6.8	6.6	5.8
Estimated MOV VMT per capita per day (average number of trips x average trip length)	7.70	8.66	5.64	8.55	8.68	10.84	8.83	8.78	11.40	10.13	9.50	8.82
TOTAL VMT per capita per day (SOV VMT + MOV VMT)	16.34	17.76	14.39	19.53	19.24	22.24	20.63	20.41	23.69	22.46	21.67	20.27
TOTAL annual VMT per capita per day (assumes 48 weeks a year, 336 days)	5,490	5,967	4,833	6,562	6,463	7,471	6,932	6,858	7,960	7,545	7,282	6,811

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Outcomes - EcoPass

- Residents drive 2,600 fewer miles annually
- Employees drive 2,300 fewer miles annually

- 5-9 times more likely to take public transport
- 40-55% fewer emissions for EcoPass holders

Outcomes – Mode share

Change in mode share for commute trips 1999-2018

Category	All trips	Commute trips
Single-Occupancy Vehicle	-7.5%	-32.3%
Multiple Occupancy Vehicle	-5.0%	N/A
Bicycle	+7.9%	+23.1%
Public transport	+3.4%	+8.3%

Relevance to New Zealand

- Bulk public transport passes
  - Universities
  - Employers
  - Neighbourhoods
- Benefit improvement districts
- Strong target setting and monitoring programmes
  - Measuring VKT