Utah Road and Transit Cost Study

Background & Results

09/15/2021

WASATCH FRONT REGIONAL COUNCIL

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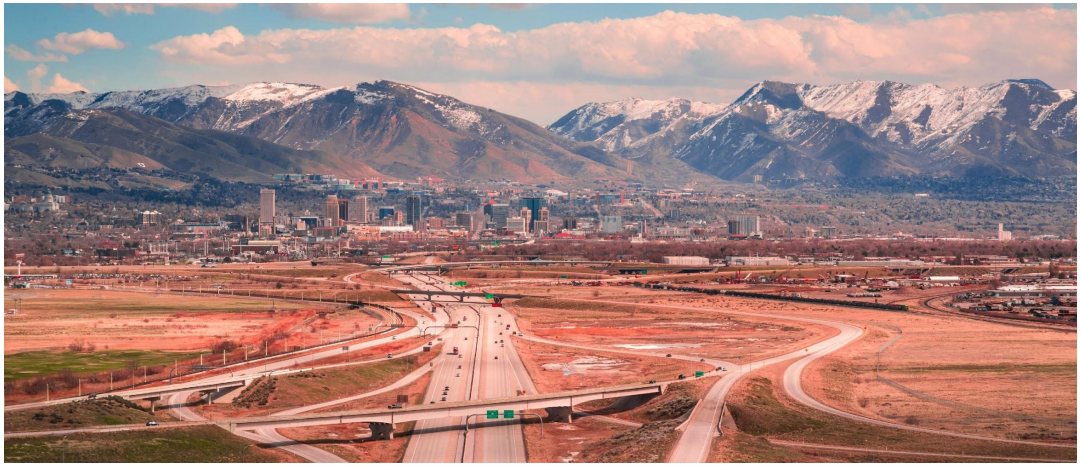
UTA



Project Purpose

The purpose of the Road and Transit Cost Study is to understand:

1. The direct cost to provide and use different parts of Utah's transportation system;
2. The cost effectiveness of different parts of the system based on usage; and
3. Sources of funding for each part of the system.

Study Extent

Road

- Statewide
- By Ownership
  - State
  - Local
- By Geography
  - Urban (MPOs)
  - Rural

Transit

- UTA Service Area
- By Mode
  - Light Rail
  - Commuter Rail
  - Bus
  - Commuter Bus
  - Demand Response
  - Vanpool

All costs are annual, averaged over 2015-2019

Preliminary Research & Literature Review

The study began with an extensive literature review and research to find similar studies that could guide methodology decisions

Preliminary Research & Literature Review

- There was no exactly comparable study.
- Several studies used historical infrastructure investment to get a "fully allocated" cost.
- Different reference units (denominators) emphasize different aspects of cost:
  - *Per Capita* – compares magnitude of costs and investment
  - *Vehicle-miles* – reflect a traffic perspective
  - *Passenger-miles* – reflect a mobility perspective
  - *Per-trip* – reflects an access perspective that gives equal value to automobile, transit, cycling, walking, and telecommuting

Costing Methods

1. Ongoing Annual Costs

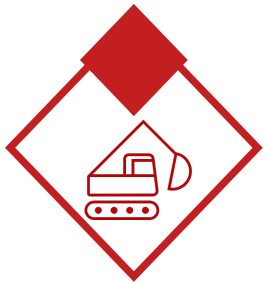
2. Fully Allocated Cost

Ongoing Annual Cost

Annual Expenditures

Agency maintenance, operations, admin costs
+
Additional private vehicle costs

Fully Allocated Cost



Capital Value

Replacement value today, annualized with a discount rate

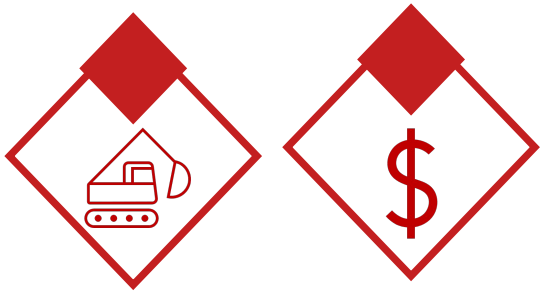
+

Annual Expenditures

Agency maintenance, operations, admin costs
+
Additional private vehicle costs

Costing Methods

Fully Allocated Costs



Vs.

Ongoing Annual Costs

The ratio between road and transit costs is effectively unchanged

Costing Methods

Fully Allocated Costs

Ongoing Annual Costs

Focus will be Ongoing Annual Costs

Ongoing Annual Expenditures

Road

- UDOT Spending
- Local Spending
- Private Spending
  (Vehicle ownership costs)

Transit

- UTA Spending
- Portion of road cost based on bus/ van VMT

Usage Statistics

Road

- VMT estimates
- Average trip lengths
- Vehicle occupancy
- Utah population estimates

Transit

- Transit trip counts
- Trip lengths
- UTA service area population estimate

Data Sources

Expenditures

Primary:

- 2019 UTP Financial Model
- IRS Vehicle Costs

Other:

- NTD Modal Spending Breakdown

Data Sources

Usage

Road

- Highway Statistics
- Utah Travel Study
- Census
- UDOT & WFRC Estimates

Transit

- National Transit Database (NTD)
- UTA service area population estimate

Results: Total Costs

	Road Cost	Transit Cost
Total	$20,141,158,763	$517,725,489
Per Capita	$ 6,470.13	$ 249.98
Per Vehicle Trip	$ 6.39	
Per Person Trip	$ 3.00	$ 11.45
Per Vehicle Mile	$ 0.64	
Per Person Mile	$ 0.30	$ 1.41

*Both vehicle- and person-level statistics are used for roads, as both perspectives are often considered in different planning contexts. Vehicle statistics are less meaningful on the transit side for this study's purpose so they are not included.

Breakdown: Local vs. State Road Costs

	State Road Cost	Local Road Cost
Total	$13,251,634,217	$6,889,524,546
Per Capita	$4,256.95	$2,213.19
Per Vehicle Trip	$6.47	$6.25
Per Person Trip	$3.04	$2.93
Per Vehicle Mile	$0.65	$0.62
Per Person Mile	$0.30	$0.29

Breakdown: Urban vs. Rural Road Costs

	Urban Road Cost	Rural Road Cost
Total	$15,081,632,213	$5,059,526,549
Per Capita	$4,844.81	$1,625.32
Per Vehicle Trip	$5.63	$8.63
Per Person Trip	$2.65	$4.05
Per Vehicle Mile	$0.56	$0.86
Per Person Mile	$0.26	$0.41

Breakdown: Transit Modal Costs

	Light Rail	Commuter Rail	Bus
Total	$166,138,264	$119,323,736	$183,524,382
Per Capita	$80.22	$57.61	$88.61
Per Person Trip	$8.95	$24.53	$9.37
Per Person Mile	$1.81	$0.93	$2.13

	Commuter Bus	Demand Response	Vanpool
Total	$8,498,621	$183,524,382	$12,580,923
Per Capita	$4.10	$12.55	$6.07
Per Person Trip	$14.99	$66.76	$10.04
Per Person Mile	$0.67	$5.94	$0.28

Funding Source Analysis

Funding Sources - 2019

Public Revenue

Spending by governments to build, maintain, and operate the transportation system

Personal Spending

Spending by individuals to access and use the transportation system, such as owning and operating a vehicle

User Fees

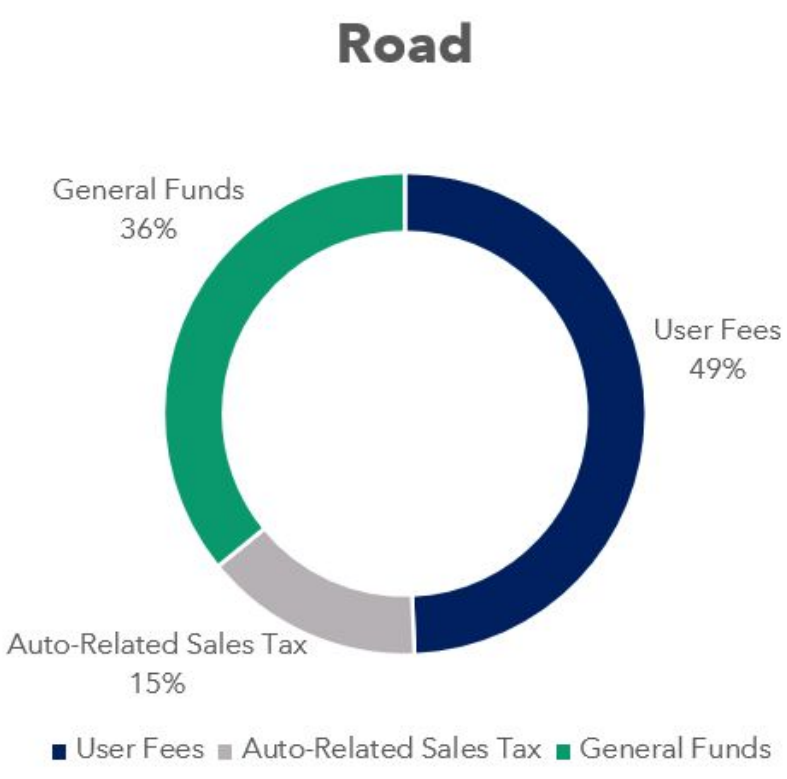
Government revenue based on system usage

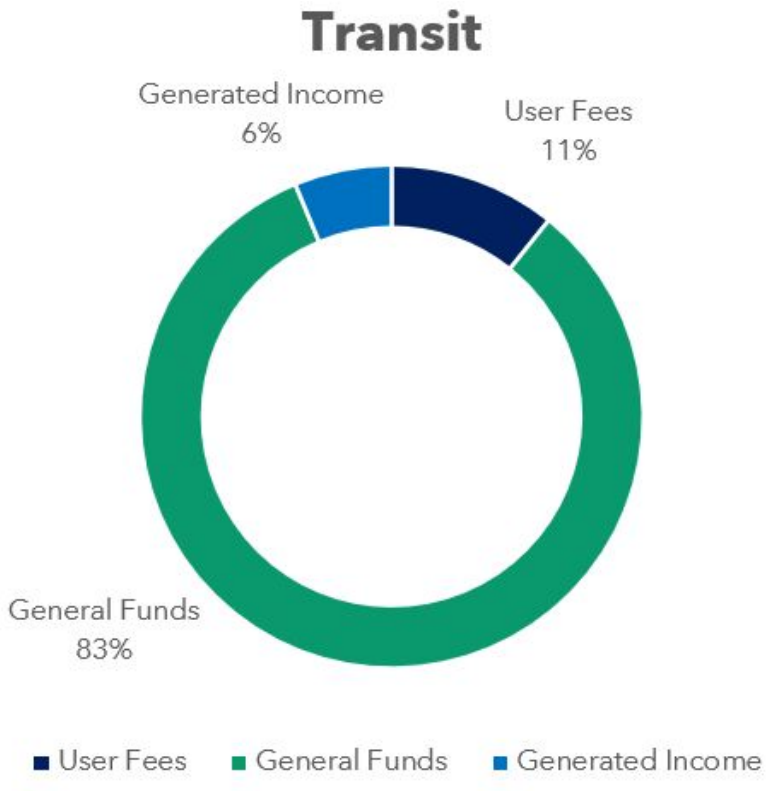
General Funds

Government revenue from activity unrelated to system usage

Funding Source Comparison

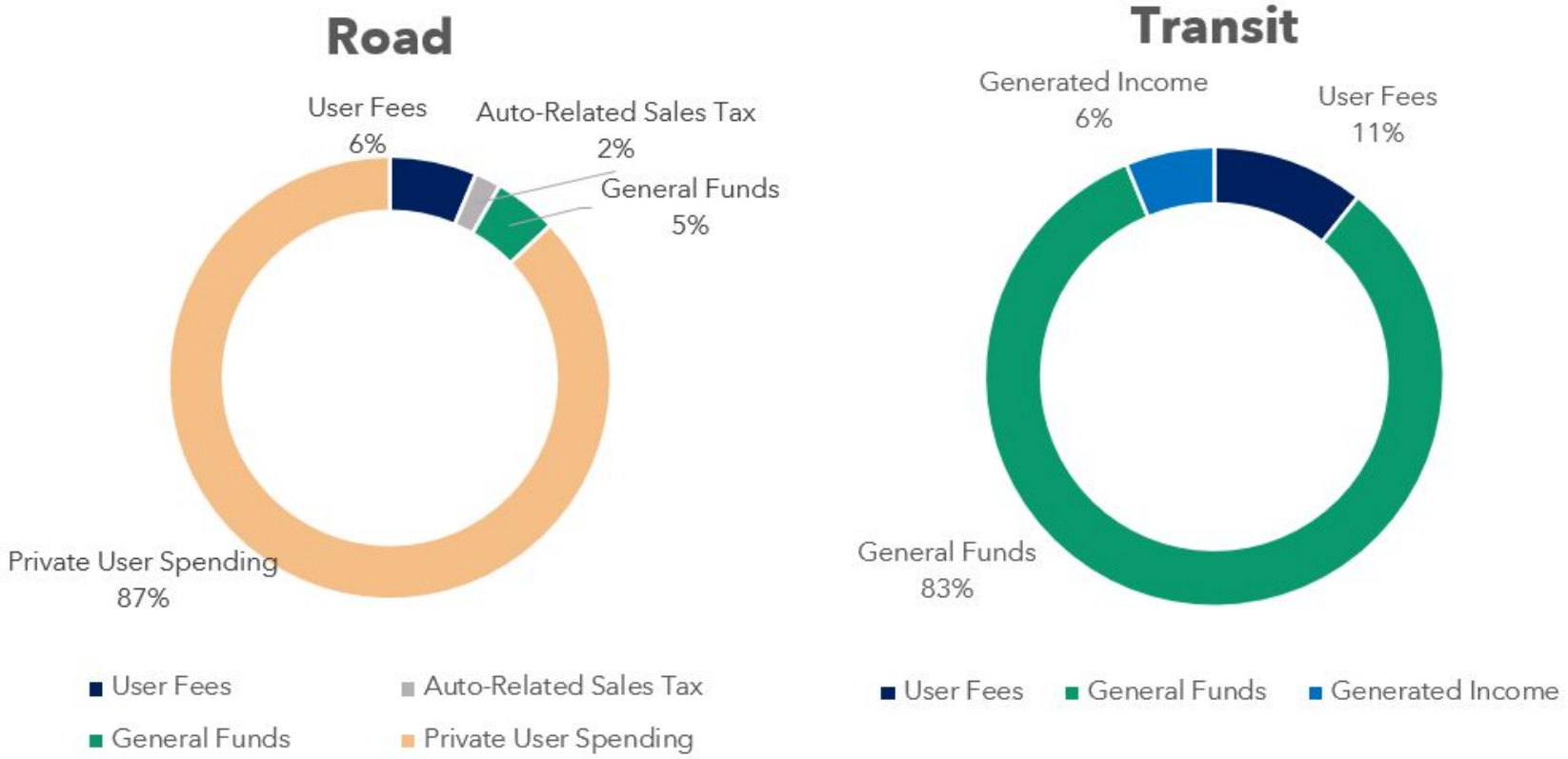
Public Revenue Only





Funding Source Comparison

Public Revenue + Personal User Spending



Summary & Key Takeaways

- Utah invests 25x more in the road network per resident than in the transit network.
- Transit is approximately 2x to 4x more expensive per trip than road travel, and 2.5x to 5x more expensive per mile.
- Cost efficiency can be improved by reducing costs or increasing marginal usage.
- Private vehicle ownership is the largest cost component of road travel.
- The majority of road travel is funding by user and private costs, while the majority of transit comes from non-user general funds.