

Pressure to Spend: Transportation Project Selection under ARRA

Arseniy Braslavskiy, University of Maryland

January 30, 2026



DEPARTMENT OF
ECONOMICS

An Influx of Federal Funds for Transit

The **American Recovery and Reinvestment Act** (ARRA) of 2009 allocated \$7.3 billion of transit-specific funding to localities based on formulas.

- Amount: 70% of all regular federal funding for transit in 2009, 100% of federal capital spending.
- Timing: unexpected influx of funds, required to be assigned to a project in the following year and spent before 2015.
- Conditions: any capital* project, no matching requirement.

* some capacity for operational expenditures was available, resulted in < 10% of total funds.

Many Questions

Big question:

- What's a good transit funding policy?



Intermediate question:

- Did ARRA change provision of transit, its usage, and driving patterns?



Specific question:

- What kind of projects was funded with ARRA money?

Analyzing Project Descriptions

Approach: Use ChatGPT to analyze messy text descriptions, extract useful information, and classify transit projects.

1. Identify specific projects from award descriptions. [Done]

- ▶ “Invest in public transportation by providing accessibility improvements at the Wedgemere commuter rail station by installing two new mini-high platforms and accessible ramps to the platforms; and making repairs to the floating slab track structure on the Red Line between Harvard and Alewife Stations, including water leak mitigation within the tunnels.” →
- ▶ 1. Install 2 new mini-high platforms and accessible ramps to the platforms. 2. Repair the floating slab track structure, including water leak mitigation within the tunnels.

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Approach: Use ChatGPT to analyze messy text descriptions, extract useful information, and classify transit projects.

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2. Classify what each project does specifically: whether new buses/railcars are bought, whether they replaced old buses/railcars, whether new facilities are built, etc. (38 variables) [Done]

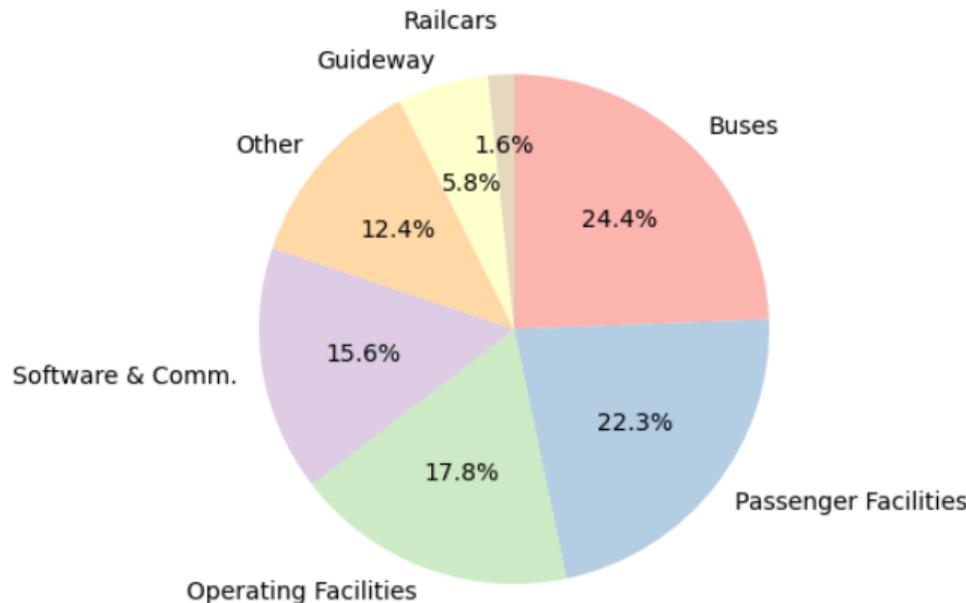
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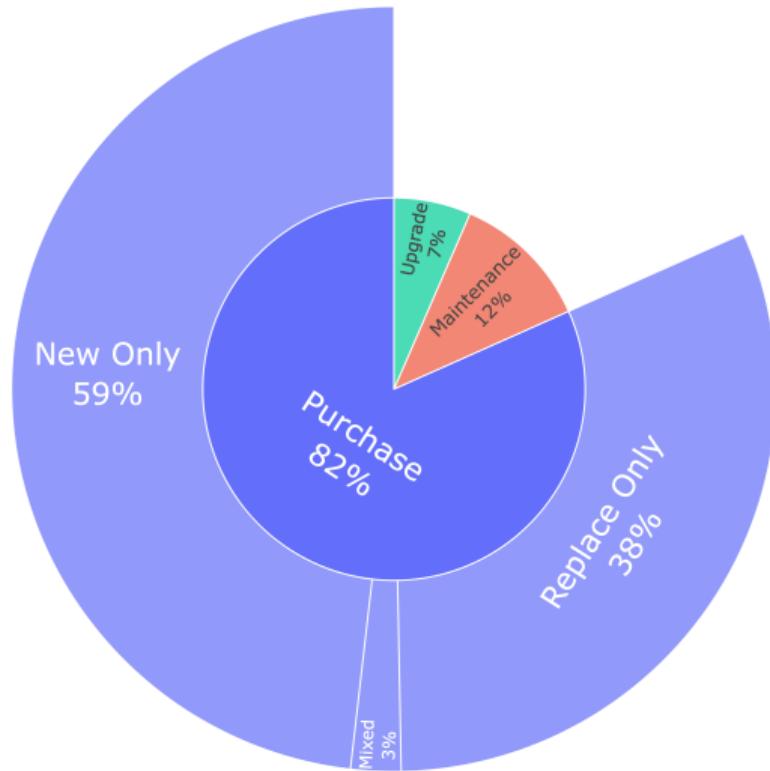
1. Identify specific projects from award descriptions. [Done]
2. Classify what each project does specifically: whether new buses/railcars are bought, whether they replaced old buses/railcars, whether new facilities are built, etc. (38 variables) [Done]
3. Infer, both from the text and logically, what were the goals and effects of each project (expansion, maintenance, staff satisfaction). [In Process]

Spending Categories

- 954 awards → 3763 projects → 2751 projects with one spending category (focus for now).



Spending on Buses



How Much Expansion?

- Collecting expansionary parts across spending categories, the share of projects that could potentially lead to transit service expansion is **25-40%**.
 - ▶ 25% includes only passenger-facing expansions;
 - ▶ 40% includes all expansions and the full 'other' category.
- Weighting by dollar amount of each project (in most cases implied from the award amount) does not change this substantially.
- Is it too little for a policy like ARRA?

Some Future Questions

- Were ARRA projects different from regular projects?
- How did ARRA projects change local transit systems: True expansion in service from new buses? More usage from increased reliability and comfort?
- How did different ARRA projects affect future project selection: Funds freed for expansion? Does expansion begets expansion vs maintenance?
- What affected the choice of ARRA projects: Degree of under-maintenance? Local bureaucratic restrictions?



Thank you!