

**Congestion-Clearing Payments to Passengers**  
Dataset available at: <https://doi.org/10.31979/mti.2020.1817>

(This dataset supports report **Congestion-Clearing Payments to Passengers**)

This U.S. Department of Transportation-funded dataset is preserved by San Jose State University in the digital repository SJSU ScholarWorks (<https://scholarworks.sjsu.edu/>), and is available at <https://doi.org/10.31979/mti.2020.1817>.

The related final report **Congestion-Clearing Payments to Passengers**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/56229>.

**Metadata from the SJSU ScholarWorks record:**

Description:

Peak period motor vehicle traffic volume congests roads all over the world. This project hypothesizes implementing congestion-clearing payments to passengers as a permanent congestion-management solution. Ongoing congestion-free travel would be achieved by removing existing congestion, and absorbing (re)generated demand, at costs that would be expected to increase as the total number of travelers increases over time. The project develops a comprehensive, step-by-step methodology to calculate the benefits and costs of paying for drivers to become passengers at a congestion-clearing level and to maintain this level over time. The method is derived from the literature, analysis by the project team, and development of a case study. The case study, based on a long-standing bottleneck location in California, enabled the project team to think through the real challenges of developing and evaluating such a solution.

The project finds that the conceptual underpinning of the solution is sound. Based on a survey, the case study finds that there is a level of payment that could clear congestion and maintain free-flow for twenty years, with benefits that outweigh costs on a net present value basis by about four to one—though calibration is required. After the initial reward clears the queue at the bottleneck, a significant intra-peak demand shift would occur as existing and new travelers depart home at times that are more to their liking, potentially causing the queue to re-form. A second incentive manages time of travel, rewarding people for traveling as passengers earlier (or later) than the preferred high demand peak-of-the-peak. In the case study, the high proportion of people who say they will only drive alone would eventually result in some periods of single-occupant-vehicle-only traffic during peak, which is an unintended and undesirable consequence. For the case study route, a limit on single-occupant-vehicle travel during the peak-of-the-peak would ensure that high-occupancy-vehicle travel is given preference and would reduce the overall cost of the solution.

For the case study, the cost of the congestion-clearing payments-to-passengers solution on a net present value basis is within the estimated range of costs of the alternative of expanding the facility, and the benefits are expected to be greater than for facility expansion. Congestion-clearing payments to passengers can be implemented much sooner and will have greater positive

long-term economic impacts. Facility expansion would provide lower and shorter-term benefits and would be expected to return to congested conditions within a year.

The project team proposes a pilot project on the case study route to test and calibrate the solution, as well as recommending development of further case study routes to find out how different routes vary and determine the causes of any variations.

Publication Date:

7-2020

Publication Type:

Report

Topic:

Transit Issues

MTI Project:

1817

Mineta Transportation Institute URL:

<https://transweb.sjsu.edu/research/1817-Congestion-Clearing-Payments>

Keywords:

Shared mobility, Highway capacity, Urban transportation policy, Congestion management systems, Incentives

Disciplines:

Civil Engineering | Transportation Engineering

**Recommended citation:**

Paul Minett, John S. Niles, Richard W. Lee, and Brittany Bogue. "Congestion-Clearing Payments to Passengers" *Mineta Transportation Institute Publications* (2020).

<https://doi.org/10.31979/mti.2020.1817>

**Dataset description:**

This dataset contains 1 .zip file collection described below.

**Congestion-Clearing Payments to Passengers.zip:**

This collection contains 2 files and 2 files types, listed below.

- 1817-RB-Minett-Congestion-Clearing-Payments.pdf
- Project#1817Dataset.xlsx

File Type Descriptions:

- The pdf file extension is first and foremost associated with Adobe Acrobat Portable Document Format (PDF) documents. Portable Document Format (PDF) is a file format proprietary to Adobe Systems for representing two-dimensional documents in a device

independent and resolution independent fixed-layout document format. Each PDF file encapsulates a complete description of a 2D document (and, with the advent of Acrobat 3D, embedded 3D documents) that includes the text, fonts, images, and 2D vector graphics that compose the document. PDF files do not encode information that is specific to the application software, hardware, or operating system used to create or view the document. This feature ensures that a valid PDF will render exactly the same regardless of its origin or destination (but depending on font availability). PDF files are most appropriately used to encode the exact look of a document in a device-independent way. While the PDF format can describe very simple one page documents, it may also be used for many pages, complex documents that use a variety of different fonts, graphics, colors, and images. (for more information on .pdf files and software, please visit

<https://www.file-extensions.org/pdf-file-extension>)

- File extension xlsx is associated with Microsoft Excel, one of the most popular and powerful tool for creating spreadsheets, graphs and much more. (fore more information on .xlsx files and software, please visit <https://www.file-extensions.org/xlsx-file-extension>)

**National Transportation Library (NTL) Curation Note:**

As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (<https://doi.org/10.21949/1503647>) Section 7.4.2 Data, the NTL staff has performed *NO* additional curation actions on this dataset.

NTL staff last accessed this dataset at <https://doi.org/10.31979/mti.2020.1817> on 2021-07-14

If, in the future, you have trouble accessing this dataset at the host repository, please email [NTLDataCurator@dot.gov](mailto:NTLDataCurator@dot.gov) describing your problem. NTL staff will do its best to assist you at that time.