

# ROAD DIET



Safety | Livability | Low Cost

## Road Diet Evaluation Metrics

A Road Diet repositions pavement lines in order to improve safety for all users while adding space for other travel modes.

Data can be a powerful tool for telling a story. Evaluating performance both before and after implementing a Road Diet is key to an agency successfully implementing its next Road Diet project. Data helps agencies choose the most appropriate projects to meet their needs, supports design decisions, helps garner public support, and provides a building block for future implementations.

Agencies can collect a multitude of data, and practitioners may be thinking,

*Where should I start?*

*How much level of effort is this going to take?*

*Do I need to collect everything?*

To begin, an agency should define the purpose of and need for the potential Road Diet project. This starts with understanding who the road users are (i.e., pedestrians, business owners, freight industry, bicyclists, motorists, emergency vehicles, elderly, students, etc.), the nature of the surrounding community, and the current and future purpose of the roadway. The overarching goals for a particular project can provide insight into the types of data that are most useful.

Agencies should also consider potential public concerns about the Road Diet project, such as traffic diversion, congestion or delays, negative business effects, or loss of parking. Understanding the project's purpose and need as well as the desires and concerns of the public are the foundation for defining evaluation metrics, executing a Road Diet data collection plan, and building a successful Road Diet program.

## Types of Evaluation Metrics

To improve the likelihood of success in current and future Road Diet projects, it is good practice for agencies to collect a base set of data for every Road Diet project (e.g., traffic counts, speed, and crash frequency and severity). Additional information can be added to compliment the base data, support public outreach efforts,



Source: City of Charlotte, NC



Road Diet on East Boulevard, Charlotte, NC

guide planning processes, and influence design features. Each Road Diet project is unique, with different goals, environment, roadway users, and outreach needs, so practitioners may not track and evaluate the same metrics every time. The table below outlines some commonly used metrics that transportation professionals use to evaluate the performance of a Road Diet project.

**Example Evaluation Metrics**

Operational	Safety	Livability/Economic Development
Daily traffic counts	Travel speeds	Transit ridership
Peak hour traffic counts	Percent of drivers over the speed limit	Availability of on-street parking
Turning movement traffic counts	Percent of top-end speeders (Greater than 10 mph over speed limit)	Overall public satisfaction
Intersection queue lengths (main street and side street)	Crash frequency, type, severity, and rate	Property values
Travel times (vehicles)	Perceived level of safety	Resident/public feedback
Travel time (transit)		Business feedback/sales records
Adjacent street traffic counts and speeds		Number of new businesses/residences
Bicycle counts		
Pedestrian counts		

**Noteworthy Practices**

The following section demonstrates how agencies are using evaluation metrics and performance measures to ensure successful Road Diet installations.

**Portland Bureau of Transportation**

Over the years, the Portland Bureau of Transportation (PBOT) installed over 30 Road Diets (or road reconfigurations). PBOT evaluates the performance of their Road Diets by analyzing changes in crash rate, traffic volume, and 85 percentile speeds for each project. Using this information, Portland experienced an average reduction of 37 percent in traffic crash rates and 10 percent in 85th percentile speeds on traditional four-lane to three-lane conversion projects.<sup>1</sup>

In addition to these basic evaluation metrics, PBOT collects other data tailored to the purpose and need of the Road Diet. For each metric tracked, PBOT completes a baseline measurement, defines a performance target, and collects data post installation. Examples are shown below.<sup>2</sup>

Metric	Baseline Measurement	Performance Target	Collection Date Plan
Change in daily volumes	Average ADT over 3 days	Remain within 10% of baseline	6-12 months after
Queue length	Modeling software	Equal to or less than model	1 month & 6-12 months after
Change in top vehicle speeds	Percent drivers 10+ mph over posted speed	Reduction in drivers 10+ mph over posted speed	6-12 months after
Average Daily Traffic & speeds on adjacent local streets	ADT & 85th percentile speeds	Within 10% of baseline or below	6-12 months after
Transit travel times	Travel time (transit tracking)	Similar to baseline	6-12 months after
Bicycle volumes	2 hour count, projected daily count	Increase in bicycle ridership	6-12 months after (considering season)

1 Portland Bureau of Transportation, PBOT Analysis: Road Reconfigurations Reduce Crashes and Speeding in Portland, 2014. Available at: <https://www.portlandoregon.gov/transportation/article/505257>.

2 Wendy Cawley, "Road Diet Performance Measures: The Portland Experience," PowerPoint Presentation at the Western Road Diet Peer Exchange, 2016. [Wendy.Cawley@portlandoregon.gov](mailto:Wendy.Cawley@portlandoregon.gov).

PBOT uses data and analysis methods to develop an efficient, successful design prior to construction. After implementation, the agency identifies additional mitigation measures through project performance evaluations. For example, the data might indicate a need for traffic engineers to adjust signal timing and coordination or to implement traffic calming measures on adjacent local streets.

For more information on PBOT’s process, contact PBOT at: [safe@portlandoregon.gov](mailto:safe@portlandoregon.gov).

**Seattle Department of Transportation**

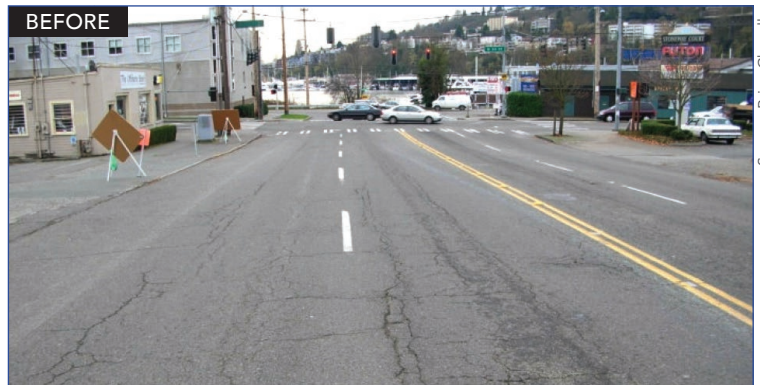
With more than 70 Road Diets, the Seattle Department of Transportation (SDOT) has developed a reliable process for implementing successful reconfiguration projects. The agency evaluates every project to determine the Road Diet’s effect on the corridor. SDOT uses this information during the pre-design phase to make better decisions and during public outreach to garner the community’s support.

The SDOT evaluation process includes the development of before and after reports of completed Road Diets. Each report includes the project’s goals and outcomes, roadway characteristics, and evaluation metrics collected for the project. SDOT collects detailed data on crash frequency, speeding, and traffic volume data. For crash data, SDOT breaks down crash frequency by type. For speeding data, the agency collects:

1. 85th percentile speed
2. Percent driving over the speed limit
3. Percent driving 10+ mph over the speed limit (top-end speeders)

Depending on the project goals and unique roadway characteristics, the agency may collect additional data such as bicycle traffic, freight use, or alternate route traffic volumes. This thorough evaluation and documentation allows SDOT to implement a successful Road Diet program.

For more information on SDOT process, contact James Le with SDOT at: [James.Le@seattle.gov](mailto:James.Le@seattle.gov).



Road Diet on Stone Way, Seattle, WA

Source: Brian Chandler

Source: City of Seattle, Department of Transportation

COLLISIONS BY TYPE			
	2005-07	2007-09	Change
Right Turn	1	0	-100%
Pedestrian	5	1	-80%
Sideswipe	14	6	-57%
Angle	34	15	-56%
Left Turn	12	9	-25%
Parked Car	34	29	-15%
Head On	1	1	0%
Pedalcyclist	7	7	0%
Rear End	17	28	65%
<b>Total</b>	<b>159</b>	<b>137</b>	<b>-14%</b>
<b>Injury</b>	<b>52</b>	<b>35</b>	<b>-33%</b>
<b>Percent Injury</b>	<b>33%</b>	<b>25%</b>	

SDOT’s Collision Analysis Breakdown for a Road Diet on Stone Way, Seattle, WA

### Performance Evaluation using Drones

To complement data metrics, the Vermont Agency of Transportation (VTrans) gathers aerial videography with drones. This footage can provide an overall view of traffic flow at intersections and throughout a corridor, which can be helpful during the design stage and when evaluating the performance of a Road Diet installed on a trial basis.

Content source: Vermont Agency of Transportation



Source: Pixabay

### Evaluating Road Diets

Many Road Diets are implemented to improve safety, but Road Diets are also great for revitalizing neighborhoods and spurring economic development. Because of this, another unique way of evaluating the effects of a Road Diet is to analyze data or metrics that gauge the change in livability (and associated profitability) of the area.

Examples include property values; new businesses, homes, and apartments; vacancies; renovations; and sales taxes generated. Another, less formal qualitative metric is to ask affected citizens to complete a business or property owner survey.

Many cities, including New York, Indianapolis, and Chicago, are using these types of evaluation metrics to show the meaningful success that a Road Diet can bring to an area.



Source: PeopleForBikes