



# Road Diet Guide

April 2017



# Common Road Design Challenges

For a long time in the United States, a minimum of four lanes was the norm on major streets. Roadways were built to move car traffic and to move as much of it as possible. Often little space was left for pedestrians, bicycles, or other uses. Today there is growing demand for streets that serve a variety of uses and users, and research indicates that building more lanes doesn't necessarily result in the safest conditions for motorists.

**Communities today face a number of challenges in ensuring the comfort and safety for a range of road users.**



## Traffic speed

Residents and city leaders are often concerned with the speed of vehicles along major thoroughfares. Road design often permits speeds that, at a minimum, diminish the comfort of cyclists and bicyclists and that may increase the severity of crashes involving those road users and other motorists.



## Pedestrian safety

Traditional roadway design often considered the automobile over the pedestrian, and infrastructure like sidewalks and marked crossings was neglected. As demand for more walkable, healthier cities grows, leaders are under pressure to enhance safety and comfort of pedestrians.



## Parking operations

In suburban business districts or higher-density urban neighborhoods, there may be a demand for on-street parking. The design of parking must be balanced with other needs, such as smooth traffic flow and pedestrian safety.



## Business access

While roads are necessary for customers to be able to reach businesses, particular elements of a roadway design can help or hinder access to business. Elements that enhance the pedestrian environment may also improve the business environment and boost traffic to businesses.

# Traffic Calming Solutions

An increasingly popular approach to addressing traffic concerns while fostering a pedestrian friendly environment is to implement “traffic calming” measures along a road. These measures are **designed to slow vehicle traffic in order to reduce crashes and increase safety and comfort for pedestrians, cyclists, and motorists**. Traffic calming techniques can be classified into the following categories<sup>1</sup>:

## Vertical treatments

These treatments use vertical elements in the street that force motorists to slow in order to comfortably traverse them. They include speed humps, lumps and tables; raised crosswalks; and raised intersections.

## Horizontal treatments

These elements are meant to block and divert or slow vehicle traffic. They include mini traffic circles, roundabouts, lateral shifts, chicanes, and realigned intersections.

## Road narrowing

These approaches are designed to slow traffic by extending curbs or center medians in order to narrow the vehicle travel lane. These have the added benefit of reducing crossing distance or providing refuge islands for pedestrians. The treatments include neckdowns or bulbouts, chokers, and center islands.

## Other treatments

Additional less-intensive approaches can achieve traffic calming benefits, especially when used with other treatments. These include pedestrian crossing treatments<sup>2</sup>, parking design<sup>3</sup>, and restriping<sup>4</sup>.



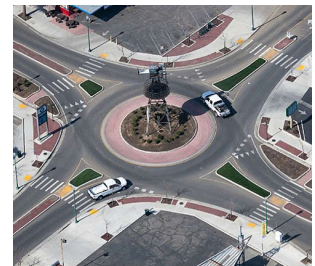
Source: BikeWalkKC



Source: FHWA



Source: FHWA



Source: FHWA



Source: FHWA



Source: Google Street View

## Road diets

*This traffic calming treatment typically involves reducing the number of through lanes for automobile traffic. Often, this reduction of travel lanes occurs in conjunction with the introduction of a center-running two-way left turn lane. Road diets have been shown to slow traffic, reduce crashes, and enhance pedestrian safety. Road diets also open up additional space that can be used for bicycle facilities, widened sidewalks, or parking.*

<sup>1</sup> Institute of Transportation Engineers; FHWA, February 2008, p. 1

<sup>2</sup> Transportation Research Board, *Improving Pedestrian Safety at Unsignalized Crossings*, Chapter 3

<sup>3</sup> Project for Public Spaces, *Traffic Calming 101*

<sup>4</sup> NACTO, *Relationship Between Lane Width and Speed Review of Relevant Literature*

# What is a Road Diet?



Simply put, **a road diet is a reduction in the number of lanes on a road or the narrowing of lanes.** Most road diets are a conversion of four lanes to three lanes, although there are many successful examples of other configurations.<sup>5</sup>

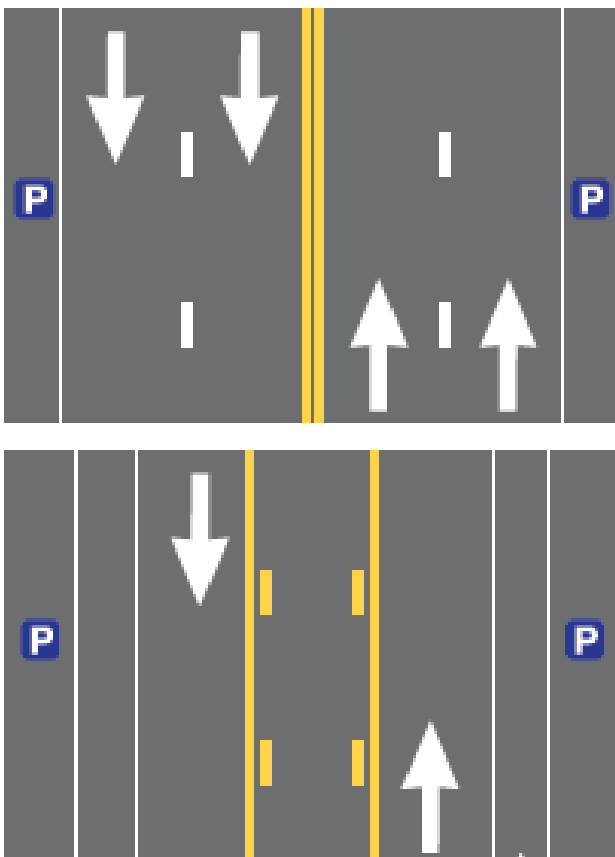
## How does it work?

A typical road diet works by reducing the number of through traffic lanes and introducing a center two-way left-turn lane.<sup>7</sup>

A key benefit of a road diet is improved safety, which is achieved by reducing the potential for collisions. The center turn lane reduces conflicts between turning traffic and through traffic, while the fewer number of lanes overall reduces the number of potential conflict points for turning traffic and vehicles entering from side streets.<sup>8</sup>

A road diet can simply involve restriping of travel lanes, but most road diets take advantage of the new space created from lane reductions to add improved pedestrian infrastructure, bicycle facilities, and/or parking.<sup>9</sup>

Road diets can achieve benefits through other configurations than four lanes to three lanes. A road diet could be a five-lane to three-lane conversion or a four-lane to two-lane conversion, for instance. The same number of lanes might be retained but narrowed, with bike lanes or wider sidewalks added. Lanes can technically be added – a four-lane road might have a center turn lane added to improve safety of turning movements, becoming a five-lane road. Safety benefits are likely greatest when the number of through lanes is reduced to one.<sup>10</sup>



Before-and-after of a typical road diet conversion. The previous four travel lanes were converted to two travel lanes, a two-way left-turn lane (TWLTL), two bike lanes, and wider parallel parking lanes. Source: FHWA

4. Rosales, p.1. FHWA, *Road Diet Informational Guide*, p. 4; Kentucky Transportation Center, *Guidelines for Road Diet Conversions*, p. 1

5. FHWA, p. 5

6. See note 5

7. FHWA *Road Diet Informational Guide*, pp. 7-9

8. Rosales, p. 1-2

9. Cebe, "Evaluation of Road Diet Projects on Roadways with 5+ Lanes". The study finds no significant reduction of crashes in road diets that retain two through lanes in each direction.

# Road Diet Benefits

Done right, a road diet represents a cost-effective way to achieve multiple benefits. The approach allows a community to feasibly manage traffic speeds and volumes, as well as enhance multimodal facilities and foster more vibrant street life. Moreover, **road diets provide an opportunity to improve safety and comfort while maintaining the same traffic capacity.**

- + Many road diets see reduced speeds and most result in less “aggressive” driving**
- + Road diets reduce pedestrian crashes by as much as 80%**
- + Road diets net an overall crash reduction of 19% to 47%**
- + More room means bike lanes and other features can be added to a road diet conversion**

## As Easy as a Coat of Paint

*Because road diets consist mostly of restriping a street, they are a relatively low-cost approach to calming traffic – especially if they are implemented during a previously planned restriping or reconstruction project.<sup>16</sup>*

## Calmer traffic

With reduced travel lanes in each direction, road diets often cut down on speeding vehicles. On a typical three-lane road diet, the single travel lane in each direction means that all vehicles are forced to travel the speed of the lead vehicle.<sup>10</sup> Most case studies of road diets report less erratic, aggressive driving, as vehicles also cannot weave between lanes to pass slower vehicles.<sup>11</sup> Average speed can be reduced about 3 to 5 mph.<sup>12</sup>

## Fewer crashes

Four-lane to three-lane road diets reduce the likelihood of a variety of crash scenarios and reduce crashes overall by 19 to 47%.<sup>14</sup> On a road with four or more lanes, left-turning traffic causes vehicles behind it to queue, producing a risk of rear-end collisions. Sideswipe crashes can occur when vehicles attempt to change lanes quickly to avoid queueing or avoid slower vehicles. With a three-lane road diet, the elimination of a second travel lane in each direction and the addition of a center turn lane reduces the risk of these types of crashes.<sup>15</sup> Road diet configurations that retain two or more through lanes may not see some of these safety benefits.<sup>10</sup>

## Better pedestrian environment

Slower and calmer vehicle traffic reduces the risk of crashes and severity of crashes, and produces a more pleasant experience for those walking. With a reduced number of travel lanes, a pedestrian has a shorter distance to cross and just one lane of traffic in each direction to cross at a time. Case studies show road diets reducing pedestrian crashes 19% to 80%.<sup>17</sup>

## Room for more features

Reducing a four-lane road that is 40 feet wide to three lanes at 30-33 feet wide opens up space for additional features on the road. These can include infrastructure for pedestrians and cyclists, such as widened sidewalks, curb extensions, or bike lanes. On-street parallel or angled parking spaces can be added as well. These new features can be designed to improve the aesthetics and livability of a street, and can have an additional traffic calming effect.<sup>18</sup> The addition of these features can be especially workable where roads currently operate below capacity for automobiles.

10. FHWA, *Road Diet Informational Guide*, p. 7

11. Ibid., p. 7; Gates, p. 15

12. FHWA, p. 7; Gates, p. 11

13. FHWA, p. 9

14. Ibid, p. 6

15. FHWA, p. 7; Kentucky Transportation Center, p. v; Gates

16. FHWA, *Road Diet Informational Guide*, p. 28; Case Studies, “Genesee Co., MI; MARC, *Complete Streets Handbook*, p. 34

17. FHWA Case Studies, “Wells Ave,” “Stone Way,” “Empire Blvd”

18. Project for Public Spaces, *Traffic Calming* 101

# Road Diet Benefits to Business

Business owners near a road diet often voice concerns that road diet projects will affect the flow of customers to their establishments. However, case studies show that in many cases **road diets boost safety and increase customer traffic**, and are ultimately well received by the business community. The examples below show cases where road diets improved business conditions along commercial corridors:

## Ingersoll Avenue – Des Moines, IA

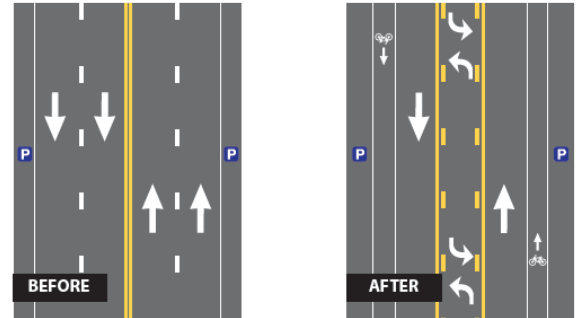
2 miles

Average Daily Trips: 11,000-17,000

In Des Moines, the business community that initially opposed a road diet conversion along the major thoroughfare ultimately came to support the project after it was completed, feeling the road was safer.

This road diet conversion was intended to calm traffic and improve conditions for cyclists and pedestrians. It was initially planned as a temporary trial and faced some community skepticism when it was implemented from people who feared it would increase congestion.

The original four travel lanes were reduced to two with a center turn lane. Bike lanes were added in both directions, and existing parking lanes were retained. After a six-month trial, the diet was found to have not only achieved its goals of improving conditions for multimodal travel, a 50% reduction in crashes was also recorded. Community reception of the project ended up being positive overall, and the new configuration was retained.<sup>19</sup>



Source: FHWA



Source: Google Street View

## Valencia Street – San Francisco, CA

1.9 miles

Average Daily Trips: 10,000-15,000

In a survey of businesses owners along this road diet project in San Francisco, two-thirds reported a beneficial impact on business.

A road diet was originally installed along several blocks of this vibrant commercial corridor in San Francisco's Mission District in 1999. Four lanes were reduced to one travel lane in each direction plus a center left turn lane. Existing parallel parking lanes on either side of the street remained. Car traffic declined along the street by 10%, while bike traffic grew 144%. Public opinion surveys showed that 94% of respondents approved of the conversion, and the project won praise in the press.<sup>20</sup> About two-thirds of business owners surveyed said that business improved after implementation of the road diet.<sup>21</sup>



Source: Google Street View

19. FHWA, *Road Diet Informational Guide*, p. 25

20. Drennen, E. *Economic Effects of Traffic Calming on Urban Small Businesses*. p. 29

21. *Ibid.*, p. 46

# Will a Road Diet Make Traffic Worse?

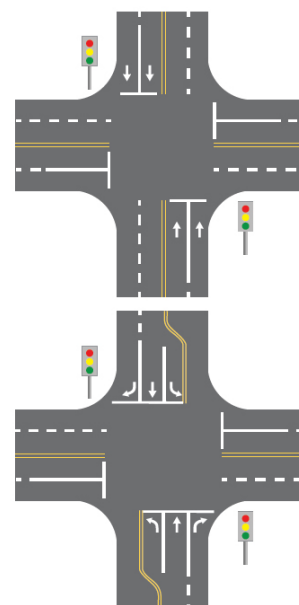
Because a road diet conversion reduces the number of through lanes, there is a common misconception that road diets result in more congested and difficult to travel roadways. When applied in the right locations, however, **road diets can maintain the effective capacity of the roadway for automobiles while improving levels of service for other modes of travel.** Generally, traffic flow along a road diet conversion is not only safer, but smoother and more predictable for a variety of users.

## Many four-lane roads already operate like three-lane roads

For corridors with many unsignalized side streets and access drives, through traffic will often utilize outside lanes to avoid queueing behind left-turning vehicles. In other words, whenever vehicles stop to turn left, the four-lane road effectively functions like a three-lane road. This means that a conversion from four to three lanes is unlikely to have a major impact on automobile capacity.<sup>22</sup>

## Intersection design may determine true capacity

Often, it is not the number of through lanes that is the constraining factor for movement of traffic but the design and operations of intersections. Road diet conversions from four to three lanes free up space at intersections to provide dedicated turn lanes. For intersections with large numbers of turning vehicles, this design can help reduce delay.<sup>22</sup>



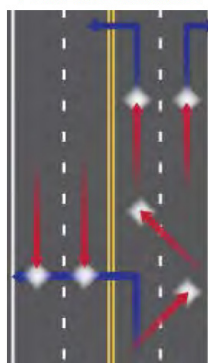
Example of intersection with added turning movements.

Source: FHWA Road Diet Mythbusters

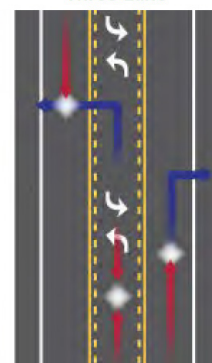
## Fewer conflict points and crashes

With a conversion of four lanes to three, drivers no longer have to pull across multiple lanes of traffic to turn left. Conflict points associated with cars stopping in through lanes or changing lanes are removed as well. Issues with visibility of oncoming traffic for left turning vehicles are also eliminated. Because they have fewer conflict points and increased visibility, three lane configurations allow for safer, smoother traffic.<sup>22</sup>

Four-Lane Undivided



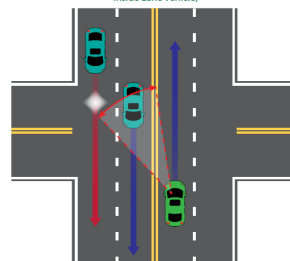
Three-Lane



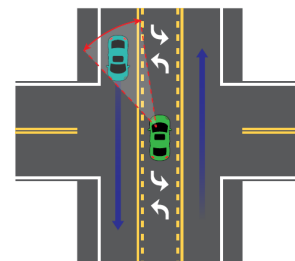
## Smoother traffic flow

By removing stopped and turning vehicles from through lanes, road diet conversions result in a more consistent traffic flow, with less “accordion-style” or “slow-and-go” traffic.<sup>23</sup>

Four-Lane Undivided  
(Outside Lane Traffic Hidden by  
Inside Lane Vehicle)



Three-Lane  
(No Hidden Vehicles)



Source: FHWA Road Diet Informational Guide

22. FHWA, *Road Diet Mythbuster*

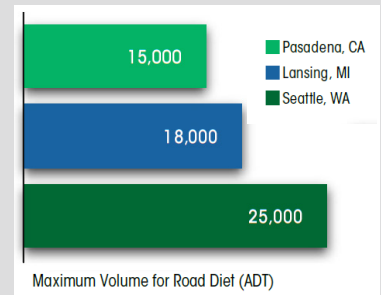
23. FHWA, *Road Diet Informational Guide*, p. 9

# Is a Road Diet Feasible?

Road diets are an adaptable approach to calming traffic and improving safety, workable in contexts ranging from rural roads to urban thoroughfares. Road diets are not feasible in every situation, however. Certain basic criteria help determine whether a road diet could work along a particular roadway:

## Traffic volume

Road diets are thought to be effective on roads that serve up to a certain number of vehicles, though the standards vary. A 2006 study recommended a maximum average daily traffic of between 15,000 and 17,500 vehicles per day for three-lane road diets.<sup>24</sup> Multiple case studies show that road diets are feasible with ADTs near this range.<sup>25</sup> Other jurisdictions have standards that allow for road diets where ADTs are between anywhere from 6,000 to 25,000 vehicles per day.<sup>26</sup>



Source: FHWA

## Intersections

The number and nature of intersections (side streets and driveways) is another basic consideration for road diet feasibility. The presence of too many high-volume side streets or driveways can increase the likelihood of crashes and diminish the effectiveness of a road diet.<sup>27</sup> Offset side street intersections increase the chances of head-on conflicts in the shared center left-turn lane of the mainline road.<sup>28</sup> Meanwhile, too many traffic signals coupled with poor sequencing can reduce the effectiveness of a road diet.<sup>29</sup>



Source: Google Street View

## Transitions and project extent

The design of transitions between road diets and different road cross sections can affect the safety outcomes of a road diet conversion.<sup>30</sup> In a study of four Kentucky road diets, the only project that resulted in more crashes had a transition that did not allow for safe merging of traffic into the single travel lane.<sup>31</sup> The FHWA states that “transition points should occur at locations where the only decision a driver needs to make is related to the lane drop or addition.”<sup>32</sup> Ultimately, intersections may be poor locations for transitions as a signal or turn lanes can add to the maneuvers a driver needs to make.<sup>32</sup>



Source: Google Earth

24. Gates, p. 17

25. See “More Case Studies” on pages 10-12 of this guide

26. FHWA, *Road Diet Informational Guide*, pp. 24-28

27. FHWA, *Road Diet Informational Guide*, pp. 43; Kentucky Transportation Center, Appendix B p. 92

28. FHWA, p. 43

29. FHWA, p. 17

30. Kentucky Transportation Center, “Executive Summary,” p. 26

31. FHWA, *Road Diet Informational Guide*, pp. 36-37; Kentucky Transportation Center, Appendix B p. 92

32. FHWA, *Road Diet Informational Guide*, pp. 36-37

# Additional Considerations

## Pedestrian crossings

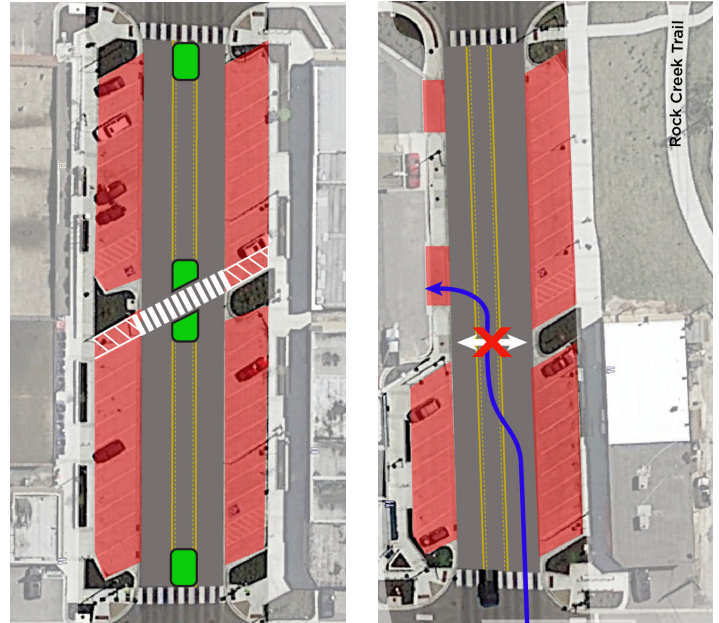
A road diet conversion is an opportunity to improve conditions for pedestrians. Sidewalks can be extended into space created by eliminating traffic lanes. Meanwhile, the center turn lane created in most road diets offers an opportunity for enhancing pedestrian crossings. The center lane offers space for islands and medians that can provide pedestrians a safer, more comfortable crossing.<sup>33</sup> (In fact, such features might even be recommended where a large volume of turning vehicles and crossing pedestrians are anticipated.) Refuge islands and medians must be carefully located to avoid obstructions where turning movements are desired, as seen at right.<sup>34</sup>

## Parking

A road diet conversion can open up space for on-street parking. The addition of parking can have an additional traffic calming effect, as vehicles entering or exiting a parking space momentarily block passing traffic.<sup>35</sup> Parking along a road diet can be parallel or diagonal. Diagonal maximizes the number of spaces per linear feet of roadway, but takes up more space on the roadway than parallel parking. Pull-out diagonal parking offers certain safety benefits over back-out parking. With pull-out parking, as drivers exit a space, they can clearly see approaching vehicles or cyclists to the left before entering traffic. Meanwhile, the loading of vehicles is safer and more comfortable because trunks are oriented towards the sidewalk instead of the street.<sup>36</sup>

## Bicycle facilities

Road diet conversion projects open up space on a roadway for new bike infrastructure. If space allows, infrastructure should be buffered from traffic, as cyclists will perceive this as safer and more comfortable.<sup>37</sup> This can be achieved by painting a buffer between a bike lane and a traffic lane, or when parking is present, by locating a cycle track between the curb and parking spaces. Where pull-in angled parking exists, bike lanes are not recommended, as visibility of a cyclist for a driver backing out of a space is limited. If bike lanes are added along angled parking, a back-in/pull-out angled parking arrangement should be considered.<sup>38</sup>



The figure illustrates how a mid-block crossing could be added to a road diet conversion (left) and where such a crossing would not be feasible due to turning movements (right).



33. FHWA *Road Diet Informational Guide*, p. 9-10; FHWA Safety, *Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations*, p. 55

34. FHWA *Road Diet Informational Guide*, p. 9-10

35. Project for Public Spaces, Traffic Calming 101, "Diagonal Parking"

36. Nelson\Nygaard Consulting Associates. *Back-in/Head-out Angle Parking*.

37. NACTO *Urban Bikeway Design Guide*, p. 19 and p. 60

38. FHWA *COURSE ON BICYCLE AND PEDESTRIAN TRANSPORTATION*, p. 19-6; Nelson\Nygaard, p. 4

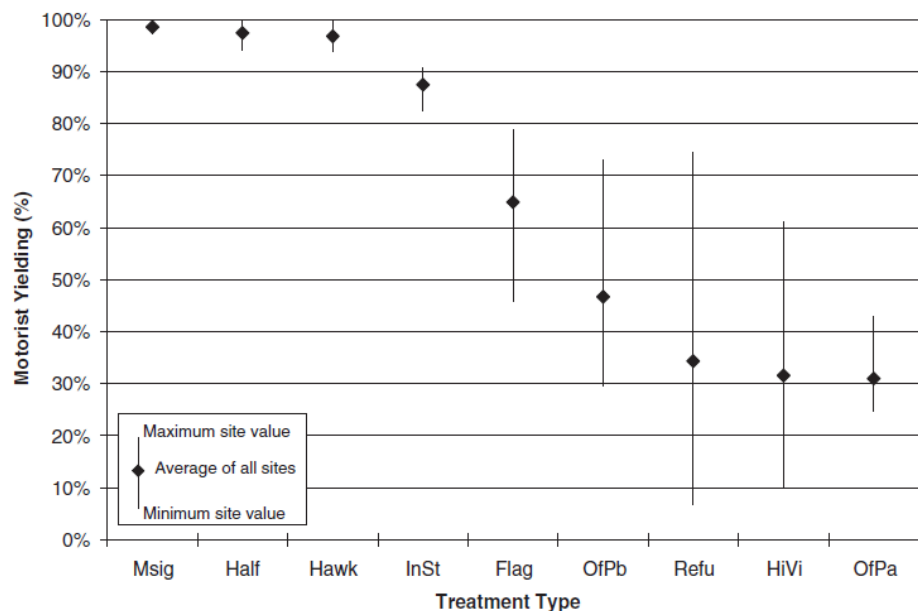
# What about Signs and Signals?

Pedestrian-oriented signage and signals are traffic control interventions that can work as relatively inexpensive alternatives to more intensive traffic calming modifications involving infrastructure. Municipalities might even be inclined to install them instead of implementing a road diet.

Overall, it is large, overhead signals that are the most effective in slowing traffic and causing it to yield to pedestrians. Mid-block signals (simply traffic signals placed mid-block) and HAWK signals (mid-block signals activated by a pedestrian) use a red signal to stop cars and are close to 100% effective. Rectangular rapid flash beacons, or RRFBs, are considered a less expensive alternative to larger, overhead traffic signals and cause just under 90% of vehicles to yield. These signs have flashing lights that are activated by a pedestrian with the push of a button and are intended to encourage motorists to yield to the pedestrian.

When placed on both sides of a street, they have been shown to increase yielding to pedestrians to 88% of the time.<sup>39</sup> Small, in-street crossing signs, though, are about as effective as RRFBs and overhead signals, causing 87% of vehicles to yield. High-visibility signs and overhead flashing beacons (which flash continuously) are among the least effective signs.<sup>40</sup>

While signage might seem like an attractive alternative to a road diet, there are limitations. The most effective sign and signal treatments also tend to be the most expensive and to have the highest impacts on traffic. Road diets are not only less disruptive to traffic flow, they bring a wide range of benefits beyond creating safe crossings for pedestrians. A modification of the roadway design through a road diet is likely still a more effective and impactful approach to creating a safer and more inviting street.



**Abbreviations:** Msig=midblock signal; Half=half signal; Hawk=HAWK signal beacon; InSt=in-street crossing signs; Flag=pedestrian crossing flags; OfPb=overhead flashing beacons (pushbutton activation); Refu=median refuge island; HiVi=high-visibility signs and markings; OfPa=overhead flashing beacons (passive activation)

Top left: Rectangular rapid flash beacon (RRFB) already installed along Johnson Drive

Middle left: An overhead "High-intensity Activated crossWalk" or "HAWK" signal  
Source: PedBikeImages.org \ Sree Gajula

Bottom left: In-street crossing sign  
Source: Institute of Transportation Engineers

Above: "Site average and range for motorist yielding by crossing treatment," See note 40.

39. FHWA Rectangular Rapid Flash Beacon

40. Transportation Research Board, *Improving Pedestrian Safety at Unsignalized Crossings*, p. 49 (Figure 24)

# More Case Studies

## Wells Avenue – Reno, NV

This project was built as part of a local complete streets initiative and was intended to reduce crashes and improve safety for bicyclists and pedestrians along a commercial corridor. The four-lane road was narrowed to one lane in each direction. The center lane was dedicated to a combination of turn lane, pedestrian island, and median. Bike lanes were added, and existing parking lanes were retained. Sidewalks were extended from eight feet to ten. The project reduced crashes by 30% overall, including a 54% drop in pedestrian crashes. Average speeds along the conversion dropped by 5 to 9 miles per hour.<sup>41</sup>

1 mile  
Average Daily Trips: 15,900



Source: Google Street View

## Stone Way – Seattle, WA

Stone Way is a north-south arterial that carries approximately 13,000 vehicles per day and numerous bus routes. Local business owners initially opposed the four-lane to three-lane road diet, concerned about traffic flow, business access, and displacement of traffic to neighborhood streets. A before-and-after study, though, alleviated business owners' major concerns. Top speeders (traveling 10 mph or more over the limit) decreased by more than 80%. Total collisions were reduced by 14%, and injury collisions decreased by 33%. Pedestrian collisions were reduced by 80%. Peak hour capacity was maintained on the street, despite traffic counts on parallel streets declining 12-34%.<sup>42</sup>

0.9 miles  
Average Daily Trips: 13,000



Source: Google Street View

## Soapstone Drive – Reston, VA

Planners took advantage of a resurfacing project to implement a road diet along two miles of this road in suburban Washington, DC. The project used three different cross sections along the length of the road. At one end four lanes were reduced to two, and a center turn lane was added. Along a middle section of the road adjacent to retail development, a parking lane was added in addition to the center turn lane. A third portion was reduced to just two lanes. Bike lanes were added along the entire length of the road. There was a 70% reduction in crashes after the project, and cycling advocates welcomed the bike lanes.<sup>43</sup>

2 miles  
Average Daily Trips: 2,000-7,000



Source: Google Street View

41. FHWA, *Road Diet Case Studies*, "Wells Avenue"

42. Ibid., "Stone Way"

43. Ibid., "Soapstone Drive"

# More Case Studies

## St. George Street – Toronto, CAN

St. George Street runs through the heart of an urban university campus near downtown Toronto. The road was originally four lanes wide. In 1993, regulations were changed to permit parallel parking at all hours, effectively making the road two lanes. Lanes were also narrowed, and the resulting space was converted to continuous bike lanes and a wider sidewalk. At key mid-block crossings, curb extensions were built and textured pavement was installed. A survey after the conversion showed that the public felt favorably about the improvements, believing them to have slowed traffic, increased safety, and improved the aesthetics of the corridor. A traffic study a decade later showed the road carried the same volume of traffic as before the road diet.<sup>44</sup>

1.1 miles

Average Daily Trips: 16,000



Source: Google Street View

## Mission Road – Prairie Village, KS

Neighbors began lobbying for a road revamp in 2015 after a crash in which a vehicle jumped the sidewalk. Residents noted that many students from a nearby elementary and high school walked along the road every school day. They were concerned that the narrow sidewalks, unbuffered from fast-moving traffic lanes, were dangerous to students.<sup>46</sup> In 2016 the City of Prairie Village completed a road diet along a half-mile stretch of Mission Road between 71st and 75th streets. The existing four travel lanes were reduced to two plus a center left turn lane. The new space made available was used for a buffered eight-foot path on one side of the road. The *Shawnee Mission Post* reported that the project cost about \$1 million, of which \$500,000 came in assistance from the Johnson County CARS program.<sup>47</sup>

0.5 miles

Average Daily Trips: 14,000<sup>45</sup>



Source: Google Street View

44. Rosales, p. 5, pp. 8-9; Transport Canada, "St. George Street Revitalization"

45. Johnson County AIMS, Mission Road at 75th and 73rd. Retrieved from <http://maps.jocogov.org/ims/>

46. Senter, J. "Prairie Village council approves reduction of Mission Road to 3 lanes from 71st to 75th"

47. Senter, J "February car wreck has area parents asking Prairie Village to improve pedestrian safety along Mission Road"

## Rainier Avenue – Seattle, WA

This four-lane arterial was long known as a hazardous street. The road had twice the number of crashes of other nearby arterials that carried twice the volume of vehicles.<sup>48</sup> Another particularly shocking statistic: in one year, eight cars had crashed into buildings along a one-mile stretch of the street through a popular business district.<sup>49</sup> After the latest crash, community groups and the city crafted a pilot road diet through this area.<sup>50</sup> Four lanes were reduced to two lanes plus a center left turn lane. Parallel parking was added to both sides of the street, and the speed limit was reduced from 30 to 25 mph.<sup>51</sup> A study after the conversion showed a 15% drop in collisions, and the number of top speeders dropped by as much as 80%.<sup>52</sup> The city plans to add safety measures along another 1.8 miles of the road by the end of 2018.<sup>54</sup>

2.8 miles

Average Daily Trips: 19,700-26,600



Source: Google Street View

## Dean Keeton Street – Austin, TX

One mile of this road near the University of Texas campus received a road diet in 2009. The road had been six lanes wide with a concrete median and an occasional parallel parking lane. One lane in each direction was eliminated. A bike lane was added, and closer to the campus, back-in/pull-out diagonal parking spaces were installed. A 29% reduction in crashes was observed after the project, and the installation of bike lanes improved conditions for cyclists, especially near on-ramps to Interstate 35.<sup>55</sup>

1 mile

Average Daily Trips: 13,500



Source: Google Street View

48. Seattle DOT, "Rainier Avenue S Corridor Improvements"

49. Daniels, "City: Road diet has cut Rainier crashes"

50. Lindblom, "'Road diet' aims to make Rainier Ave. slimmer, slower, safer;" Seattle DOT, *Rainier Pilot Project Evaluation*, p. 4

51. Daniels; Seattle DOT, *Rainier Pilot Project Evaluation*, p. 10, p. 12; Google Streetview, 5600 Rainier Ave S and 4904 Rainier

Ave S

52. Seattle DOT, *Rainier Pilot Project Evaluation*, p. 13, p. 15

53. Daniels

54. Seattle DOT, "Rainier Avenue S Corridor Improvements"

55. Cebe, p. 11; City of Austin, p. 18; Google Street View, Dean Keeton St

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This document was produced for the City of Mission, KS, and made possible with the support of LiveWell Johnson County and the Johnson County Department of Health and Environment.

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