

Concepts for Transforming our Streets and Creating More Walking and Biking Opportunities

Road Diets in the PlanET Region



A Plan East Tennessee Demonstration Project

Road diets are a way to improve the safety and efficiency of our transportation system. A road diet narrows or eliminates travel lanes on a street or highway to make more room for pedestrians, bicyclists and parking. In addition to creating room on the street for other uses, road diets also increase safety for drivers and can improve the flow of traffic. This poster describes the road diet concept and provides information about current and proposed road diet projects in our region.

CONCEPTS

Strengthen our existing cities and towns.

Recent research has demonstrated that property values for both commercial and residential properties increase when infrastructure for walking and biking is improved. Marketability of properties, including faster sales and leases, has also increased in neighborhoods that have improved their walkability. New businesses, new jobs and increased tax revenues are all documented economic benefits related to an increased walkability of mixed-use districts.

Provide options for people who don't drive.

Around 30 percent of the people in any given community don't drive. Reasons for not driving can include age, disability and the costs associated with using a car. Whatever the reason, people who don't drive need ways to meet their daily needs and live independent lives. When road diets create safe, comfortable places for people to walk, bicycle and access transit, they create essential links for our friends and neighbors who can't or don't drive.

Assure the safety of our communities.

More than 4,000 pedestrians are killed on streets in the U.S. every year. Senior pedestrians age 65 and older have a higher fatality rate than any other age group. More than 600 people are killed in crashes every year while riding a bicycle. Road diets that provide safe facilities for pedestrians and bicyclists – such as sidewalks, crosswalks, curb extensions and bicycle lanes – can help reduce the risk of crashes involving pedestrians and bicyclists. This encourages more walking and cycling, which also increases safety, by increasing drivers' awareness of the presence of people on foot and bicycle in their communities.

Enhance our existing transit system.

When road diets are created on streets that have transit service (or where transit service is planned), transit amenities can also be added. Benches and shelters make bus stops comfortable and attractive places. A wide transit pad as part of the sidewalk makes it easier for people to enter and exit a bus, especially those with disabilities. And when the entire street is safer for pedestrians and bicyclists, it makes it easier for transit users to get to and from the bus stop.

KNOXVILLE

The City of Knoxville is in the process of implementing several road diet projects, independent of Plan East Tennessee. Those projects are highlighted here as examples from our region where streets are being "right-sized" to accommodate more types of users and to improve the economic viability and attractiveness of the streets. These Knoxville projects will provide inspiration to communities such as Lenoir City and Townsend as they consider road diets.



CENTRAL STREET

The City of Knoxville has already re-striped part of Central Street to reduce it to two through lanes, plus bicycle lanes. Their next step will be to resurface and in some places reconstruct the street, adding decorative crosswalks and landscaping. Between Pearl Place and Baxter Avenue, the extra pavement on the east side of Central will be converted into a tree-lined linear park.

CUMBERLAND AVENUE

This image from the City of Knoxville shows the plans for the road diet on Cumberland Avenue near the University of Tennessee. The street will go from four through lanes to two, with the addition of a median with turn lanes, wider sidewalks, and streetscaping. The result will be a safer and more attractive pedestrian environment, and a safer street, since drivers won't have to change lanes to get around left-turning vehicles. The Cumberland Avenue road diet will be phased, with construction scheduled to begin in 2014.



BICYCLE LANES AND SHARROWS

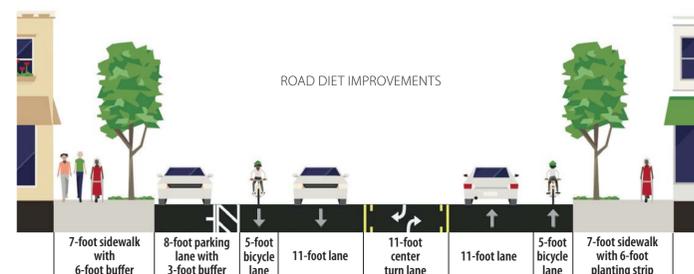
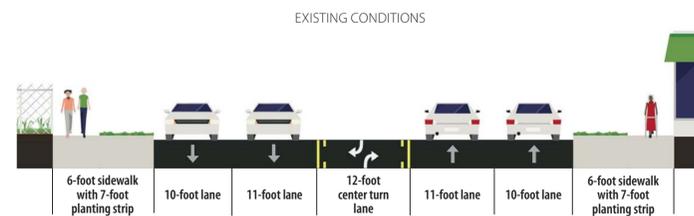
Road diet proposals typically call for on-street bicycle lanes where there is room and shared lanes with "sharrows" where there isn't room for a separate bicycle lane. The sharrow, or shared-lane marking, is a fairly new type of pavement marking, although many places have been studying its use for years. It indicates to bicyclists where to ride in a shared lane, and alerts drivers to the fact that bicyclists may be in the travel lane. It is especially useful in the context of on-street parking, where it helps direct bicyclists to stay clear of the "door zone" of parked cars.



LENOIR CITY

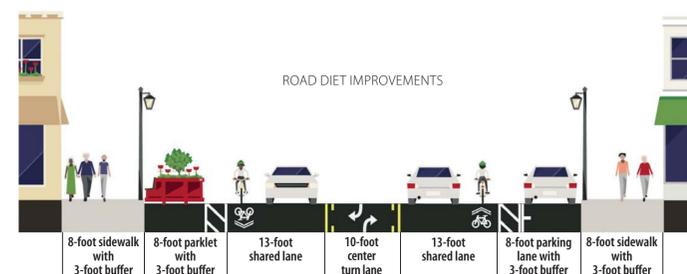
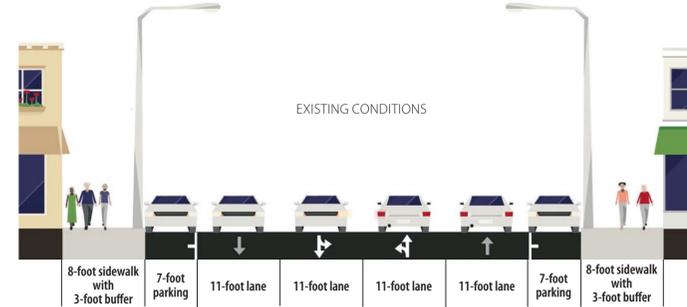
BROADWAY NEAR CITY HALL

As part of a PlanET Demonstration project, MPC and TPO staff proposed a road diet for Broadway in Lenoir City that improves on-street parking and adds bicycle facilities. At Broadway near City Hall, the road diet would transform the existing conditions into a street with one motor vehicle lane in each direction, a two-way turn lane, on-street parking on one side, two bicycle lanes, and wider sidewalks.



BROADWAY AT A STREET

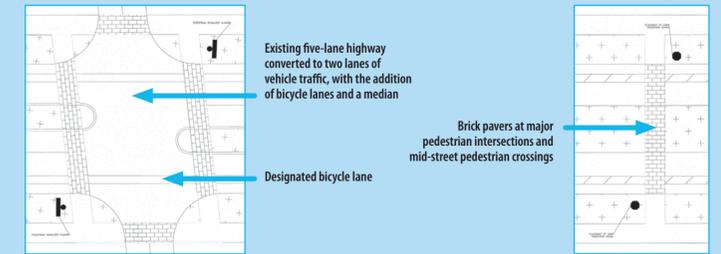
West of City Hall, on Broadway at A Street, there is a desire for on-street parking on both sides of the street. The proposed road diet would replace the existing conditions with one travel lane in each direction (for both motor vehicles and bicycles), a two-way turn lane, and on-street parking interspersed with parklets on both sides. The parklets are pockets of greenspace that can also include outdoor seating.



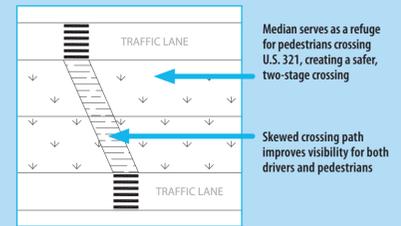
TOWNSEND

IMPROVING PEDESTRIAN SAFETY

As part of the demonstration project in the City of Townsend, civil and environmental engineering students from the University of Tennessee studied the U.S. 321 corridor from several perspectives. The transportation students were asked to develop ideas that would improve safety for pedestrians and bicyclists while maintaining safe and efficient travel for drivers. One team recommended a road diet that would convert the five-lane highway to a two-lane facility with bicycle lanes, a median, turn lanes and attractive crosswalks for pedestrians.



Another team of transportation engineering students recommended a wide planted median with crosswalks at regular intervals. The skew in the crossing means pedestrians are angled toward oncoming traffic for better visibility between drivers and pedestrians. The scaled-down street pavement reduces water pollution and discourages speeding, making it much safer for pedestrians and bicyclists to cross the street. Businesses also benefit from greater visibility when drivers are moving at a more reasonable pace.

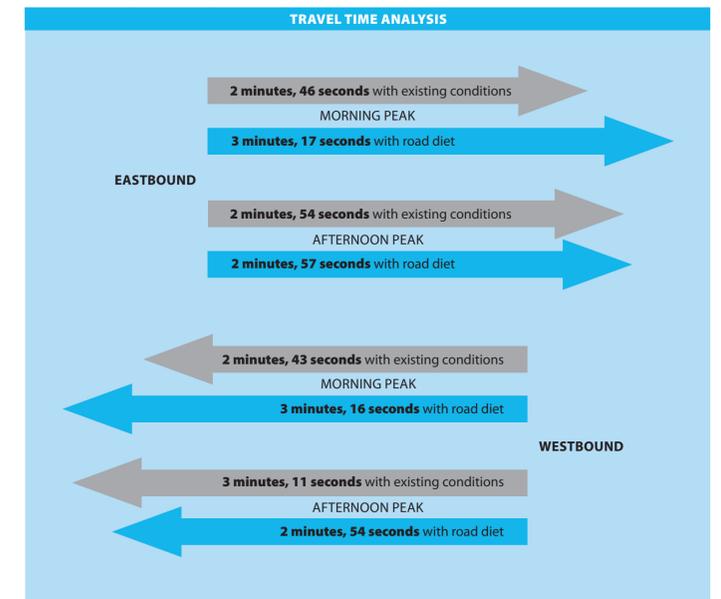


Mode of Transportation	LEVEL OF SERVICE	
	Before Modifications	After Modifications
AUTOMOBILE	A	B+
PEDESTRIAN	B-	A-
BICYCLE	D-	D+

Level of Service (LOS) is a measure of the capacity of street segments and intersections. The students found that even with the reduction in the number of motor vehicle lanes, the LOS for drivers on U.S. 321 in Townsend remained high. The reduced driver speeds and more frequent crossings increased the LOS for pedestrians. The LOS for bicyclists remained poor, but the greenway through Townsend gives them an alternative to the on-street bike lanes.

TRAVEL TIME IMPACT OF ROAD DIET

TPO staff studied the impact of the proposed road diet for the 1 mile of Broadway between Walnut and G Streets in Lenoir City. The analysis predicts that travel time through the corridor during peak hours either increases slightly or actually decreases. The slight decrease in the westbound afternoon travel time may be due to the addition of the dedicated turn lane, which eliminates the weaving that occurs when a left-turning vehicle is blocking the left through lane of traffic. The amount of added delay that's predicted for the eastbound peak times and westbound morning travel time is within the day-to-day travel time variation that motorists experience, so it would not be likely perceived by the average driver.



About Plan East Tennessee (PlanET)

Imagine East Tennessee in 30 years. What will be the condition of our roads, housing, and environment? Will our economy be healthy? Will we be healthy? Is action needed to make certain our children thrive in the communities they inherit? Plan East Tennessee (PlanET) is a regional partnership of communities from Anderson, Blount, Knox, Loudon, and Union counties formed to ask East Tennesseans these questions and develop the tools to ensure that our future reflects our vision and values. For more information visit: www.planeasttn.org

About PlanET Demonstration Projects

The PlanET Demonstration Projects offer ideas about protecting our region's valuable resources and addressing our shared challenges regarding jobs, housing, transportation, a clean environment, and community health. The work that provided the basis for this poster was supported by a Sustainable Communities Regional Planning grant from the United States Department of Housing and Urban Development.

About this Project

Several PlanET demonstration projects have recommended road diets as a way to improve the safety and efficiency of our transportation system. A road diet narrows or eliminates travel lanes on a street or highway to make more room for pedestrians, bicyclists and parking. In addition to creating room on the street for other uses, road diets also increase safety for drivers and can improve the flow of traffic. These road diet recommendations have been inspired by other ongoing road diet projects in our region. This poster will describe the road diet concept and provides information about both current and proposed road diet projects.

Acknowledgements

The Lenoir City and Townsend demonstration projects were the work of faculty and students from the University of Tennessee, Knoxville in the College of Architecture and Design and the Department of Civil and Environmental Engineering. Their work was reviewed by local government partners. Analysis of the proposed Lenoir City road diet was carried out by staff of the Knoxville Knox County Metropolitan Planning Commission (MPC) and the Knoxville Regional Transportation Planning Organization (TPO). The City of Knoxville road diets projects are being carried out by staff from the City's Policy and Redevelopment Department and Engineering Department.