



MUNICIPALITY OF PRINCETON

Department of Infrastructure
& Operations

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MEMORANDUM

To: Mayor and Council of Princeton
From: James J. Purcell, PE, *Assistant Municipal Engineer*
Subject: North Harrison Street Road Diet and Bicycle Lanes Installation
Date: June 6, 2025

The Department of Infrastructure and Operations seeks Council concurrence at their June 9, 2025 meeting to conduct a pilot project on North Harrison Street between Terhune Road and Clearview Avenue. The pilot project will remove one lane of vehicular travel in each direction to accommodate a buffered bicycle lane.

The road diet recommendation is included in Princeton's Bicycle Master Plan and the Harrison Street Corridor Study, prepared by Michael Baker International Inc. The road diet is one of many recommendations for safety improvements throughout the corridor, including traffic calming measures between Nassau Street and Franklin Avenue; adjustments to traffic signal pedestrian phases at Franklin Avenue and Hamilton Avenue; and roundabouts at Valley Road, Terhune Road, and Bunn Drive.

The permanent road diet would reduce the width of North Harrison Street to a single lane in each direction and bicycle and pedestrian facilities would be vertically separated from the roadway. In the interim, the recommendation from the consultant is to install pilot bike lanes within the roadway in each direction and evaluate their effectiveness before implementing the capital construction of curbing and shared-use paths.

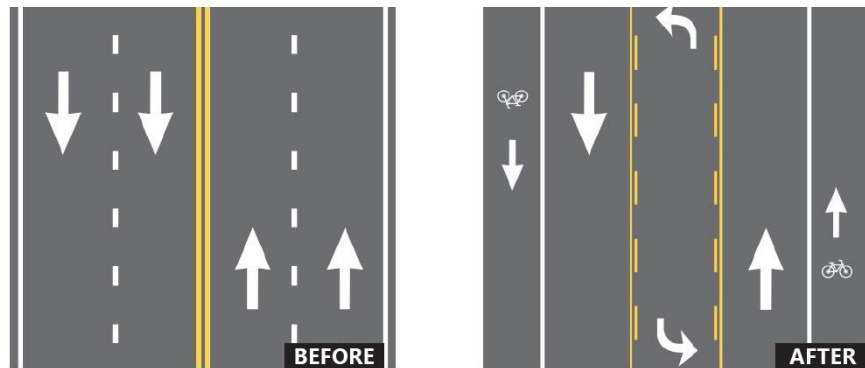
The Federal Highway Administration has identified 28 countermeasures and strategies effective in reducing roadway fatalities and serious injuries and strongly encourages those who are responsible for roadway safety to consider widespread implementation of these countermeasures to accelerate the achievement of safety goals.¹ This Road Diet and Bicycle Lanes Installation implements two of these measures.

A Road Diet (also known as a roadway reconfiguration) "can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life."² While a road diet "typically involves converting an existing four-lane undivided roadway to a three-lane roadway consisting of two through lanes and a center two-way left-turn lane,"³ the main focus is to reduce traffic to a single through lane to eliminate the conflict between vehicles passing in the same direction. As noted in the FHWA Proven Safety Countermeasures initiatives, lane reductions are often accompanied by the installation of bike lanes. In the figure below, the center two-way left turn lane represents the area on North Harrison Street that is the center landscaped median. The center median already precludes left turns along this portion of North Harrison Street and is not proposed to be changed – the median openings that exist today will remain for left and u-turns.

¹ USDOT FHWA Proven Safety Countermeasures initiative - <https://highways.dot.gov/safety/proven-safety-countermeasures>

² USDOT FHWA Proven Safety Countermeasures initiative – Road Diets - <https://highways.dot.gov/safety/proven-safety-countermeasures/road-diets-roadway-reconfiguration>

³ USDOT FHWA Proven Safety Countermeasures initiative – Road Diets - <https://highways.dot.gov/safety/proven-safety-countermeasures/road-diets-roadway-reconfiguration>



Before and after example of a Road Diet. Source: FHWA

The installation of bicycle lanes has been proven to be a safety countermeasure by providing separation between motor vehicles and bicycles. “Bicycle Lanes align with the Safe System Approach principle of recognizing human vulnerability—where separating users in space can enhance safety for all road users.”⁴

North Harrison Street in the vicinity of the Princeton Shopping Center has motor vehicle traffic volumes that are similar to those both north and south of the two-lane sections of roadway. Recent analysis performed for the Harrison Street Corridor Study reveals that the number of vehicles per hour at each of the four proximate intersections (Hamilton Avenue, Franklin Avenue, Valley Road, and Terhune Road) are nearly identical. Each of these intersections experiences between 350 and 475 vehicles per hour traveling through or turning right. These intersections all operate at a level of service (LOS) A or B for the Harrison Street movements. This analysis reveals that only one lane in each direction on North Harrison is necessary for through and right-turn movements and that a road diet is an appropriate measure in this area.

In the North Harrison Street road diet pilot project, the bicycle lanes will be delineated using pavement markings and signage, and the motor vehicle lanes will similarly be remarked to indicate through and right turn movements. The following elements will be included in this pilot project:

- Bicycle lane markings in white
- Enhanced bicycle lane markings in white with green background
- Longitudinal lane markings to separate motor vehicles from bicycles, with painted diagonals in a four to five foot buffer zone
- White or green skip markings across residential driveways (in white), commercial driveways and intersections (in green)
- “Bicycle Boxes” – areas painted in green with white bicycle markings at signalized intersections that give left-turning bicycles priority over motor vehicles
- Painted median extensions for pedestrian refuge – these yellow pavement markings will extend from the ends of the physical medians to encompass the crosswalks at the signalized intersections, providing a refuge area for crossing pedestrians
- Shared-use lane markings (“sharrows”) where the bicycle lanes end at the southern end
- The buffered bicycle lane and intersection markings at The Alice on North Harrison Street will also be improved to seamlessly connect with the pilot program installation
- Flexible delineators will be installed where appropriate to direct proper vehicle turning movements
- Signage regarding these features

⁴ USDOT FHWA Proven Safety Countermeasures initiative – Bicycle Lanes - <https://highways.dot.gov/safety/proven-safety-countermeasures/bicycle-lanes>

The following pages provide graphic depictions of these elements and attached is the overall full-size plan. This proposal was presented to the Pedestrian and Bicycle Advisory Committee, Traffic Safety Committee, and Infrastructure & Operations Committee and received favorable approvals from all.

This pilot project will remain in place until a capital improvement project is undertaken to reduce the roadway width and vertically separate the bicycle and pedestrian facilities from the roadway. The judicious use of flexible delineators will also allow for efficient snow removal operations in the winter for the full roadway cross section including the bicycle lanes.

The reconfiguration of North Harrison Street will be evaluated while the pilot bike lanes are in effect. We will monitor the following roadway usage parameters to determine if the bike lanes have proven to be effective. Much of the analysis will rely on feedback from the public, supplemented by the collection of data on traffic volumes, flow, and crash reduction.

- Motor vehicle traffic volume – it is anticipated that the improvements will not result in any increase in traffic volume, but post-development volume will be an important metric to determine implementation of a permanent lane reduction.
- Motor vehicle speed profiles – it is anticipated that speeds will be reduced, since the “passing lane” will be eliminated. Analysis of before and after speeds will inform us whether the road diet is effective in enhancing safety.
- Bicycle traffic volumes – increased usage during the pilot will inform us of next steps in implementing permanent facilities.
- Perceived level of traffic stress (LTS) from bicycle users using a survey and feedback from the motoring public on the perceived impact to their driving habits.

Upon Council approval of the pilot program, the Department of Infrastructure and Operations will solicit bids to install the proposed roadway striping and signage changes. We also ask that Council request that the Pedestrian and Bicycle Advisory Committee provide assistance in promoting and analyzing the success of the pilot program. Their tasks could include preparing promotional materials and letters to the editor to encourage use of the pilot bike lanes, developing educational materials for distribution to the community, and potentially assisting in obtaining bicycle volume counts.

Please let me know if you have any questions or require any further information.

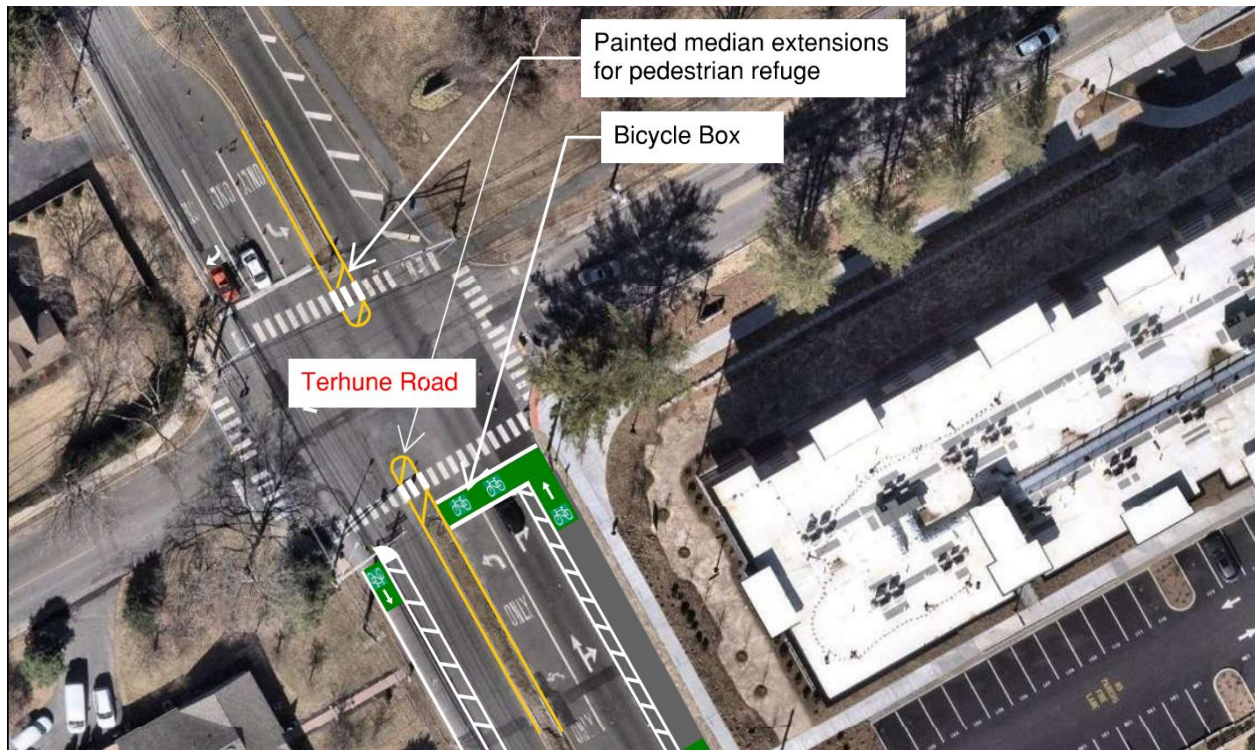


Figure 1 - Terhune Road intersection showing pedestrian refuge and bike boxes for left turns



Figure 2 - Valley Road / PSC intersection showing green skip lines for bicycle crossing a major intersection and enhanced bike lane marking for motorist visibility



Figure 3 - Roadway section showing standard bike lane markings, buffer zone markings, and treatment at minor driveways



Figure 4 - Southern end of bike lanes showing delineators for motor vehicle right turns, transitions from shared lanes to bike lanes, and sharrows for shared lane use.



- LEGEND
- BICYCLE LANE MARKING
 - BICYCLE LANE BUFFER ZONE
 - ENHANCED BICYCLE LANE MARKING
 - INTERSECTION DELINEATION
 - BICYCLE BOX (FOR LEFT TURNS)
 - SHARROW

