



PAVEMENT SPACE REALLOCATION FOR HIGHWAY MAINTENANCE AND CONSTRUCTION PROJECTS



The NHDOT Traffic Bureau operates under the New Hampshire Statewide Bicycle and Pedestrian Plan (<http://www.nh.gov/dot/programs/bikeped/documents/BikePedPlan.pdf>), adopted in May of 2000, which includes the objective: "The NHDOT will, as part of its normal road striping operations on resurfaced roads, restripe roads to allow for paved shoulders where none exist now, as long as travel lanes meet width requirement" (page 5). The Department's standard practice is to re-stripe 12-foot lanes where more than 24 feet of pavement width is available. Moving beyond Traffic Bureau's commitment to the 2000 Bicycle and Pedestrian Plan, Traffic Bureau has reached out to the Bicycle and Pedestrian Program toward improved response to communities interested in an alternate allocation of pavement space.

The AASHTO Policy on Geometric Design of Highways and Streets recommends that "where bicycles and pedestrians are to be accommodated on the shoulders, a minimum usable shoulder width (i.e., clear of rumble strips) of 4 feet should be considered." The 2004 AASHTO Pedestrian Guide notes that "where a shoulder serves as part of a pedestrian access route, it must meet ADA requirements for pedestrian walkways to the maximum extent possible." When doing overlays on limited budgets, therefore, several municipalities in New Hampshire have considered such resurfacing projects as an opportunity to reallocate the existing lane space to better meet shoulder space requirements for cyclists or pedestrians, which by definition includes persons using wheelchairs. Several municipal leaders, therefore, have made requests for special consideration from the normal pavement space allocation. Pavement space re-allocation doesn't create more total room across the pavement but it can calm traffic speeds and encourage non-motorized transportation at no additional cost. The selected allocation of lane space along any fixed pavement width may be related to truck traffic, operating speeds, traffic volumes or community values.

USDOT/FHWA publishes "[Incorporating On-Road Bicycle Networks into Resurfacing Projects](#)" on line. The publication is a comprehensive guide to understanding possible pavement space reallocation options for State Transportation agencies and local communities. Because of the variety of existing conditions and desired outcomes, there is no single formula for communities to follow in order to reclaim space in the public way for safe pedestrian and bicycle use. Below are examples of how pavement space re-allocation has been considered for several New Hampshire communities.

Concord NH 13: Prior to a 2009 overlay, NH 13 (Clinton Street) lanes under I-89 (<http://goo.gl/maps/dy03d>) were striped at 1-12-4-12-12-1 (shoulder-NB through-painted median-left turn lane-SB through-shoulder). A City Alderman, Dick Lemieux noticed that the overlay construction signs went up. Dick approached the Department to see if improvements could be made to make the highway more accessible to cyclists and pedestrians. At the request of the City and with an engineering drawings from the City, the re-striping of the 2009 overlay re-striped the Clinton Street lanes to 4.5-11-0-11-11-4.5 and made similar improvements for traffic calming and bicycle and pedestrian access all along the length of the overlay.

Pembroke US 3: Lanes were striped at about 5-13-13-5. The Department used a 2009 overlay project as an opportunity to explore a three-lane section for US 3 from NH 106 to Academy Road (<http://goo.gl/maps/qTpqa>), which would have permanently laid out lanes at about 1-11-12-11-1 in places. The temporary and experimental three-lane layout created a two-way left turn lane and two through travel lanes and provided narrower shoulder space than was available with the original striping layout. Local travelers expressed concern during the Department's observation of the traffic operation. Subsequently, the pavement was permanently marked at the original striping dimensions of about 5-13-13-5.

Hopkinton NH 9: In 2010, the local Safe Routes to School coordinator, Natalie Duval, noticed that the overlay construction signs went up along NH 9 in Hopkinton. Ms. Duval notified Hopkinton Town Administrator Leon Kenison and the Select Board. The Town administrator agreed to request the Department for lane space re-allocation. Because the pavement through a historic section of the Hopkinton Village was so narrow, the lanes had already previously been striped at 11 feet. The Town Administrator asked for - and received - 10-foot lanes within the Hopkinton Historic District and 10.5-foot lanes outside the Historic District (<http://goo.gl/maps/dCDMa>).

New London NH 11 at NH 114: In 2010, the Department had nearly completed a substantial NH 11 reconstruction project. The project eliminated truck passing lanes along NH 11 at the approaches to the NH 114 intersection (<http://goo.gl/maps/iKw0X>) and provided median protection. As the construction layout and temporary pavement surfaces and markings began clarifying the project intent, Mary Eyesenbach, approached the Department about the lack of shoulder space provided in the design. Ms. Eyesenbach invited the Department's Bicycle and Pedestrian Coordinator out to bicycle the highway with a dozen local citizens and officials. Through the town administrator, Jessie Levine, the Town of New London requested reconsideration of the striping shown on the contract plans. Before the final striping, the Department agreed to change the Eastbound NH 111 approach to NH 114 striping from 2-12-4 to 1.5-11-5.5. Travelers along the highway now sense that the design provides adequate space for non-motorized uses along the highway.

Lebanon NH 120: In 2013, a proposed resurfacing project along NH 120 in Lebanon from Hanover Street to Etna Road (<http://goo.gl/maps/hqbM2>) was reviewed by the City's bicycle and pedestrian committee. At the Committee's recommendation, City of Lebanon Senior Planner David Brooks requested that the lane use at several intersection approaches be reallocated to include a bicycle through lane per the Example of Bicycle Lane Treatment at a Right Turn Only Lane found on page 811 of the MUTCD. <http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part9.pdf> . The Department agreed to the City's request with the condition that the City would maintain the bicycle-specific lane markings in the future. Unable to add new maintenance responsibilities to its inventory, the City declined to take on new maintenance functions from an otherwise State-maintained highway and the NH 120 lane markings remain unchanged from the previous lane marking regime.

Lebanon US 4 at NH 4A: As the Department readied the Lebanon 13951 bridge replacement project (<http://goo.gl/maps/bLfbi>) for advertising in March of 2014, the City Planning director requested that the proposed 4-12-12-4 lane section proposed for US 4 be changed to 5-11-11-5. The Department had proposed 12-foot travel lanes with 4-foot shoulders. The bridge over the Mascoma river would include curb and rail, which would result in the shoulder width failing to meet the AASHTO recommended minimum shoulder width of 5 feet for the accommodation of bicycles when curb is present. The Department agreed to the lane space reallocation prior to finalizing the plans.

Wentworth NH 25: The Baker River separates the main village of Wentworth along NH 25 from the Village's convenience store. For many years, an old truss bridge off the highway that was open strictly to

non-motorized use had connected pedestrians to the business just east of the village. See <https://goo.gl/maps/HuLBg>. The old bridge decayed to the point where even pedestrian use became prohibited. In response, the Town had explored various means to provide new pedestrian space on New Hampshire 25 to cross the Baker River but no solution was found feasible. A 2014 Department overlay project offered an opportunity to reallocate lane space with narrower travel lanes and wider shoulders along the narrow section of NH 25. The Select Board learned of the possibility of lane space reallocation late in the resurfacing project process and the Board requested reallocation of the lane space to provide decreased travel way space and additional shoulder width. Unfortunately, in this case, the request came on the same day as the lanes were striped and the lane striping therefore was not implemented.

Nashua Merrimack US 3

Prior to 2014, the Department last had resurfaced [US 3 in Nashua and Merrimack](#) around 2000. This was beyond the institutional memory of anyone remaining at NHDOT in 2014. It turned out that prior to a resurfacing project in 2000, Anheuser Bush had requested accommodation along US 3 for its employees arriving to work by bicycle. Anheuser Bush in 2000, accordingly, had asked NHDOT to re-stripe the new 5-lane highway surface to accommodate shoulders wide enough to encourage bicycle use. Given the truck needs on US 3, Anheuser Bush and the Department compromised and the Department implemented a striping scheme that allocated 10.5-feet for the travel lanes in the 5-lane highway with shoulders of approximately 3.5 feet wide on each side of US 3. When US 3 came due for resurfacing again in 2014, unfortunately, neither the Town of Merrimack nor the City of Nashua responded to provide lane space allocation recommendations to the Department. The Department, therefore, striped the 5-lane section of highway with travel lanes consistent with its normal practice to provide lanes as close to 12 feet wide as practicable given the existing pavement width. This new striping scheme resulted in 5 lanes of about 11.7 feet wide each and shoulder space of about 6 inches, thereby effectively eliminating any bicycle/pedestrian-encouraging shoulder space.

Bridgewater Hebron NH 3A

[Newfound Pathways](#) introduced their vision to NHDOT through a bicycle transportation field review organized by Newfound Pathways Committee member Jan Collins in 2010. Since that time, Newfound pathways has worked toward the accommodation of 17 miles of non-motorized connectivity around Newfound Lake. For NH 3A in Bridgewater and Hebron, Newfound Pathways' solution was to work toward a re-allocation of pavement space within a 4-mile segment of the narrow paved highway surface in Bridgewater and Hebron. When the time for a periodic $\frac{3}{4}$ " paver shim treatment finally came in the summer of 2015, Newfound Pathways and the communities of Bridgewater and Hebron were ready with an affordable solution for the 4 miles of highway along the eastern shore of Newfound Lake. In 2015, accordingly, the four-mile stretch of NH 3A became the longest segment of State-maintained highway striped, by design, with 10-foot travel lanes. See http://www.nh.gov/dot/programs/bikeped/documents/Newfound_Lake_Bike_Loop_072315.pdf for more of the story about how Newfound Pathways extended its steps of successes in creating a pathway around Newfound Lake.

The Department publishes the proposed resurfacing projects for 3 years out on line. Please go to the [State Resurfacing Program](#) web page. To learn of proposed NHDOT re-surfacing program projects in advance, transportation stakeholders can use the Paving Program On-line Viewer tool at

<http://nh.maps.arcgis.com/apps/webappviewer/index.html?id=c82ded68653d41f4a1f26d80ede584e4>. Any special requests must come directly from the municipality and be sent to the attention of Bill Lambert (wlambert@dot.state.nh.us, 271-2291) Traffic Bureau Administrator.

Please visit the NHDOT Bicycle and Pedestrian Program's "[Document Library](#)" web page where you can find related information and links.