Daily traffic assignments on a large-scale road network are described for ‘build’ and ‘no-build’ scenarios to evaluate the addition of two proposed ramps between I-295 and SR-42 in the New Jersey part of the Delaware Valley Region. The road network consists of 39,800 links connecting 1,510 zones. The user-equilibrium traffic assignment problem was solved with a new algorithm called origin-based assignment (OBA) that can achieve highly converged solutions with reasonable computing effort. The stability of link flow differences between the two scenarios in the vicinity of the proposed ramps are examined over a broad range of assignment convergence levels. Then, link flow differences over this range of convergence levels are compared to link flow differences between two very highly converged solutions. The findings reveal that a relative gap of 0.01% (0.0001) is required to ensure that the traffic assignments are sufficiently converged to achieve link flow stability. These convergence levels are then interpreted in terms of the number of Frank-Wolfe iterations and computational effort required to achieve comparable relative gaps.

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