Dean – Monona westbound lane configuration evaluation summary
02/01/21
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As part of the Dean Ave reconstruction project design (ID 11432), Traffic Engineering was asked to evaluate a lane configuration modification on westbound Dean Ave approach to Monona Dr. Alternates analyzed include:

- Current lane configuration (see below) of left-turn only (11-ft) & thru/right (11-ft), and
- Proposed single shared left/thru/right lane (17-ft) with advisory bike lane (5-ft).

A manual, peak-hour turning movement count was collected on 01/06/21. Volumes were factored to represent pre-COVID conditions and were further extrapolated at a conservative 1.5% growth rate to future +5-yr volumes for alternative operations analysis.

4pm-5pm Summary	From South				From West				From North				From East			
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
Counts	46	438	25	6	28	18	62	1	27	558	49	4	11	32	21	2
Vehicle Total	509				108				634				64			

Analysis results indicate a predicted modest increase in delay, volume-to-capacity ratio and queue lengths if the left-turn lane is removed. The analysis used the existing coordinated signal cycle length, with optimized splits for each scenario.

Dean / Monona Intersection Operations Summary

2026 PM Peak	Intersection *			EB Approach				WB Approach			
	LOS	Delay (sec)	max v/c	LOS	Delay (sec)	max v/c	95%Q (ft)	LOS	Delay (sec)	max v/c	95%Q (ft)
Existing Geom.	A	7.3	0.54	C	35.0	0.54	90	C	31.4	0.26	55
Remove WBLT	A	7.6	0.56	D	36.3	0.56	90	C	34.3	0.38	80

* NB & SB mov'ts operate at LOS A in all scenarios.

While the effects of operational impacts are generally considered tolerable, other considerations regarding modification of the current lane configuration on westbound Dean Ave approach to Monona Dr should include:

- Prior to being reconstructed in 2013/14, this approach was marked as a single lane. It was changed to its current configuration, in part, based on specific requests from neighborhood residents.
- Given available width, the existing lane configuration accommodates the peak hour turning movement proportions of left-turns to through/right-turns that are: 45%, 34% and 22%, respectively.
- The current configuration aligns the opposing left-turns (which can allow for improved sight-distance) allows through-movements to cross the intersection without deviation within the intersection. The opposing (eastbound) lanes are likely not to be modified since within City of Monona jurisdiction.
- Based on the analysis, an increased in queue length in the westbound direction is likely to result more routinely. These queues may block the driveway to the gas station/convenience store in the northeast quadrant of the intersection.
- Through-vehicle movements may attempt to bypass left-turns waiting for opposing traffic. While allowable under state law, this may violate expectancy of other road-users at the intersection.

Based on the factors above, it is generally desirable to maintain to existing lane configuration or consider a lane configuration alternative that allows for dedicated left-turn bay while transitioning the proposed advisory bike lane to a bike box at the intersection, if possible.

END