

L:\Projects\2690\Graphics\AltMap.cdr

Five-lane Roadway

A five-lane roadway can be constructed in either an urban or rural cross-section type. The difference is drainage and sometimes amenities in the form of sidewalks or walkways/bicycle paths. The five-lane urban section is compact, with curb-and-gutter drainage, and requires a minimum of right-of-way. Where more right-of-way is available, the rural section allows for side slope drainage to a ditch. In either case, the outside lane can be widened to allow for bicycle travel concurrent with vehicular travel on the roadway. The five-lane section would be augmented at intersections by exclusive left-turn and right-turn lanes. In addition, on the far sides of intersections, there may be a taper lane that allows right-turning vehicles from the cross road to return smoothly to the two-lane traffic flow. Travel demand projections at this point do not indicate any locations where more than five lanes would be required (Figure 2-4).

Figure 2-4
Five-Lane Road in Urban Area



Narrow Boulevard

A narrow boulevard provides a more aesthetic treatment than an “all concrete” five-lane road for managing two through lanes of travel in each direction. The median acts as a separator between the two travel directions, improving safety. Narrow boulevards are less favored in terms of geometrics because the narrower median offers a greater challenge for providing U-turn movements. The U-turns are necessitated because many cross streets and driveways will not have median openings (i.e., access management). For many adjacent land uses, there will be only “right turns in” and “right turns out” of the property. Left turns would be accomplished by a right turn from the cross street/driveway into traffic flow and then a subsequent U-turn. The U-turn can only occur where the median is of adequate width. In the M-15 corridor a narrow boulevard is an option, with adequate U-turn movements provided for at selected locations. This alternative will likely have fewer impacts than a wide boulevard because it is limited in its right-of-way requirements (Figure 2-5).

Figure 2-5
Narrow Boulevard



Wide Boulevard

A wide boulevard provides a full-width median to allow storage of large vehicles and U-turn capabilities along the entire road (Figure 2-6). An additional 30± feet of right-of-way is needed compared to a narrow boulevard. In tight situations, like the M-15 corridor, this additional width could cause significant changes in impacts.

An important difference between a four-lane divided roadway -- a boulevard, and a five-lane road is safety. Table 2-1 provides information on crashes by roadway type. Data compiled by MDOT indicates the crash rates for a five-lane road are greater than for a four-lane undivided road. On the other hand, a four-lane divided roadway, i.e., a boulevard, has rates for total crashes and injury crashes that are less than half of those for the five-lane facility. And, the boulevard's fatality

crash rate is one-third lower. These data are important references as conclusions are reached in the report and further work, including the examination of safety, is undertaken.

Figure 2-6
Wide Boulevard

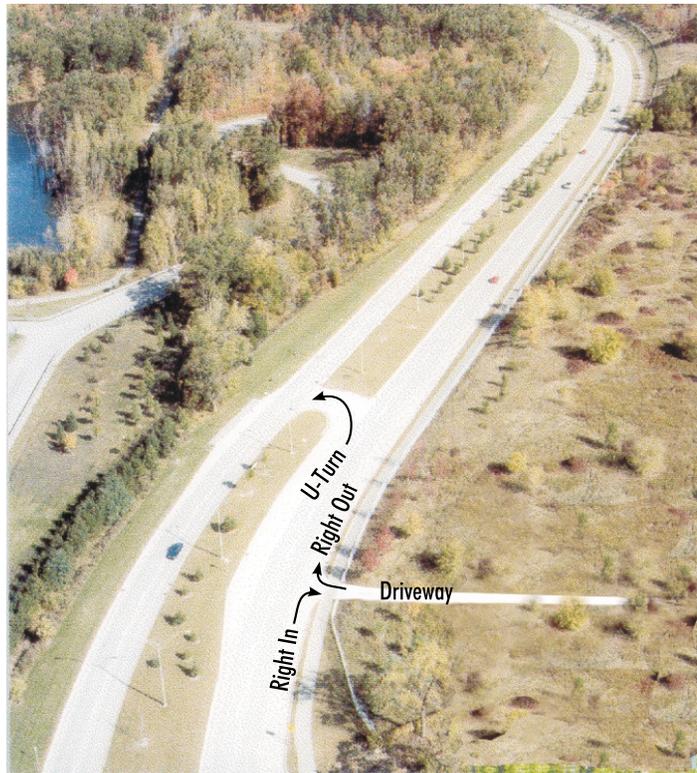


Table 2-1
Crash Analysis for
Different Roadway Designs
(1994 to 1996 Data)

4-Lane Undivided 2-Way Roads			
Average ADT	=	13,189	Total Length = 357.9 miles
Total Crashes	=	34,028	Total Crash Rate = 358.34 ¹
Injury Crashes	=	9,031	Injury Crash Rate = 174.72 ¹
Fatal Crashes	=	77	Fatal Crash Rate = 1.49 ¹
5-Lane 2-Way Roads			
Average ADT	=	22,595	Total Length = 292.14 miles
Total Crashes	=	51,791	Total Crash Rate = 716.53 ¹
Injury Crashes	=	14,429	Injury Crash Rate = 199.62 ¹
Fatal Crashes	=	128	Fatal Crash Rate = 1.77 ¹
4-Lane Divided Roads			
Average ADT	=	18,048	Total Length = 275.58 miles
Total Crashes	=	17,369	Total Crash Rate = 322.59 ¹
Injury Crashes	=	4,470	Injury Crash Rate = 82.07 ¹
Fatal Crashes	=	65	Fatal Crash Rate = 1.19 ¹

Source: Michigan Department of Transportation

¹Per 100 million miles traveled.