

Appendix J-2: Diamond Lane Analysis

The [1990 Bethesda/Chevy Chase Master Plan](#) includes the potential for widening Rockville Pike from six to eight lanes between I-495 and Woodmont Avenue as a long term strategy if the additional lanes are used as HOV lanes during peak periods (page 114). An analysis of mode share during peak hours shows that there is justification for a “diamond lane” concept, limiting travel in one of the four through travel lanes (25% of the capacity) to carpools and buses during the peak period.

In general, diamond lanes are an effective strategy to maximize person-throughput when the allocation of roadway capacity can be matched by person demand. On Rockville Pike, over one-quarter of roadway (> 25% of demand) users travel by these non-SOV modes. While carpools and buses represent less than 20% of vehicles on Rockville Pike, 26% and 32% of the person throughput travels by carpool or bus during the morning and evening peak hours, respectively. The reduction in travel time for the lower number of vehicles in diamond lanes helps promote travel by transit and carpool as well.

| Mode | Southbound AM Peak Hour | | Northbound PM Peak Hour | |
|--------|-------------------------|---------------|-------------------------|---------------|
| | % of People | % of Vehicles | % of People | % of Vehicles |
| SOV | 74 | 88 | 68 | 83 |
| HOV2 | 18 | 11 | 24 | 15 |
| HOV 3+ | 4 | 1 | 6 | 2 |
| Bus | 4 | 0 | 3 | 0 |
| Total | 100 | 100 | 100 | 100 |

HOV lanes on arterial roads are not new to the region. An example is found on Washington Street in Alexandria, where the northbound curb lane operates as an HOV2 lane from 7:00 am to 9:00 am and the southbound curb lane operates as a HOV2 from 4:00 pm to 6:00 pm, for through travelers. Right turning vehicles are permitted in the HOV2 lanes.



Appendix J-2: Diamond Lane Analysis

As part of the mitigation for the relocation of the Walter Reed Army Medical Center to the National Naval Medical Center, the State Highway Administration is proposing modifications to Rockville Pike. In the northbound direction, the proposal is to add an additional lane between North Wood Drive and Locust Hill Road, a distance of approximately 1/3 mile. In the southbound direction, the proposal is to add an additional lane between West Cedar Lane and Wilson Drive, a distance of approximately 1/4 mile.

While converting these lanes to diamond lanes may reduce some delay for carpoolers and buses, the benefit would not likely be significant, due to the short length of the additional lanes. Operational issues relating to turning vehicles, stopped buses, and enforcement also need to be considered. However, if these additional lanes at individual intersections can be hooked up into a more meaningful system (either bus rapid transit or diamond lanes), the above data on person-throughput indicates that the diamond lane treatment considered in the 1990 Bethesda/Chevy Chase Master Plan remains progressive policy on Rockville Pike.