

Five park and ride lots had over 20 additional motorists parking at these locations.

Several lots experienced capacity constrained conditions with motorists parking on the grass or in unmarked spaces during one of the surveys. The following locations were at or exceeded capacity during one of the surveys:

- I-68 @ US 220 N (Allegany County)
- MD 2/4 @ Ball Road (Calvert County)
- MD 32 @ Springfield Ave (Carroll County)
- US 340 @ Mt Zion Road (East and West Lot) (Frederick County)

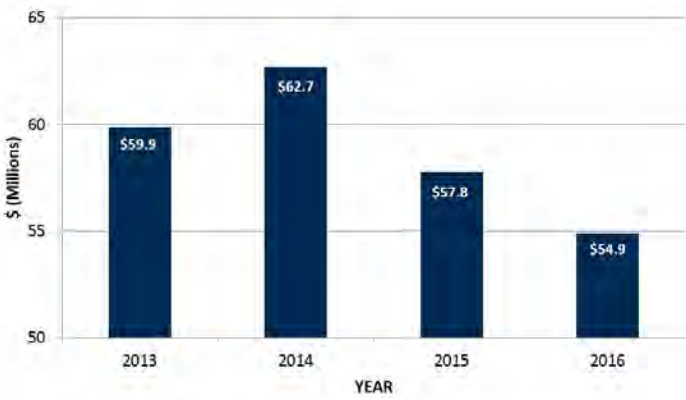
The estimated annual user savings over the past four years is shown in Figure II-9.

In 2016, MDOT SHA/MDTA Park and Ride Program reduced VMT by 101.7 million miles. This resulted in \$54.9 million annual user savings.

In addition to MDOT SHA and MDOT MDTA, other agencies provide park and ride lots. This includes MDOT MTA which provides lots for the MARC commuter trains and bus service, the Washington Metropolitan Area Transit Authority for METRO service, and various counties.

FIGURE II-9

MDOT SHA/MDTA PARK AND RIDE SAVINGS TO MOTORISTS (MILLIONS)



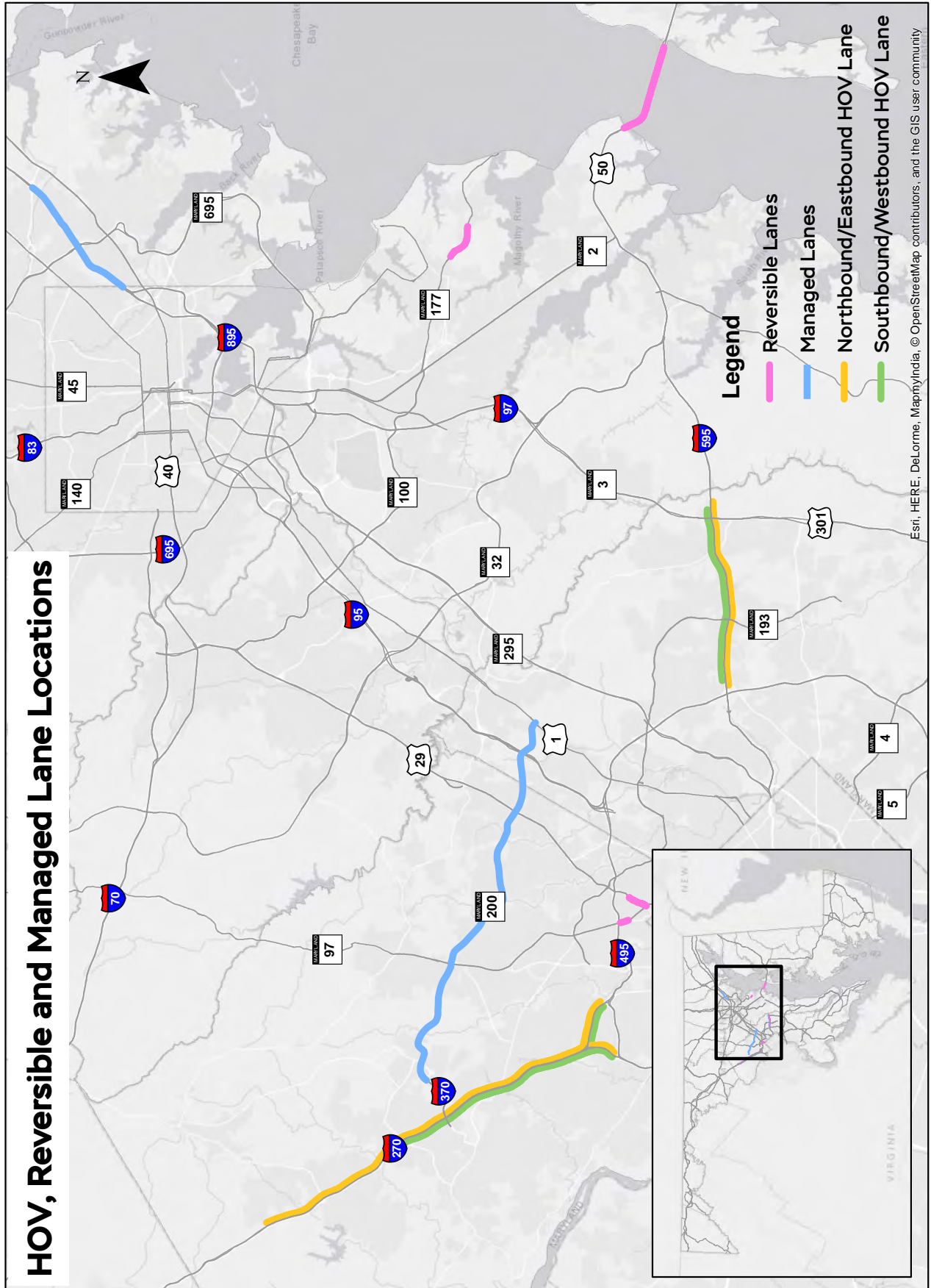
b. HOV Lane Operation (HOV)

High occupancy vehicle (HOV) lanes are utilized to encourage carpooling and reduce the number of single occupant vehicles. These lanes offer a travel time savings for multiple occupant vehicles over single occupant vehicles with the HOV lanes operating at near free flow speeds while the general purpose lanes usually experience congestion and lower travel speeds. HOV lanes, in combination with park and ride lots and transit service, increase person throughput and provide a viable alternative transportation mode for commuters in Maryland. This provides an effective Active Travel Demand Management (ATDM) strategy. In Maryland, vehicles in HOV lanes must have two or more occupants; transit vehicles, motorcycles, or plug-in electric vehicles (permits required) are exempt. There are two HOV locations in Maryland. See Figure II-10. These are along I-270 in Montgomery County and US 50 in Prince Georges County. The I-270 and US 50 HOV lanes are mostly separated by pavement markings from the general purpose lanes although, a few sections along I-270 have a physical separation between the lanes.

The I-270 HOV lanes operate southbound from 6:00 to 9:00 AM and northbound from 3:30 to 6:30 PM while the US 50 HOV lanes function the entire day.

A study was conducted to analyze the performance of the HOV lanes relative to the general purpose lanes. This was accomplished by the Metropolitan Washington Council of Government (MWCOCG) using travel time data from GPS data loggers and analyzing person throughput, and determining travel time savings. Person throughput evaluates the total number of people moved in each lane versus the total number of vehicles. On I-270, the HOV lanes transported approximately 200 to 500 additional people compared to an average general purpose lane.

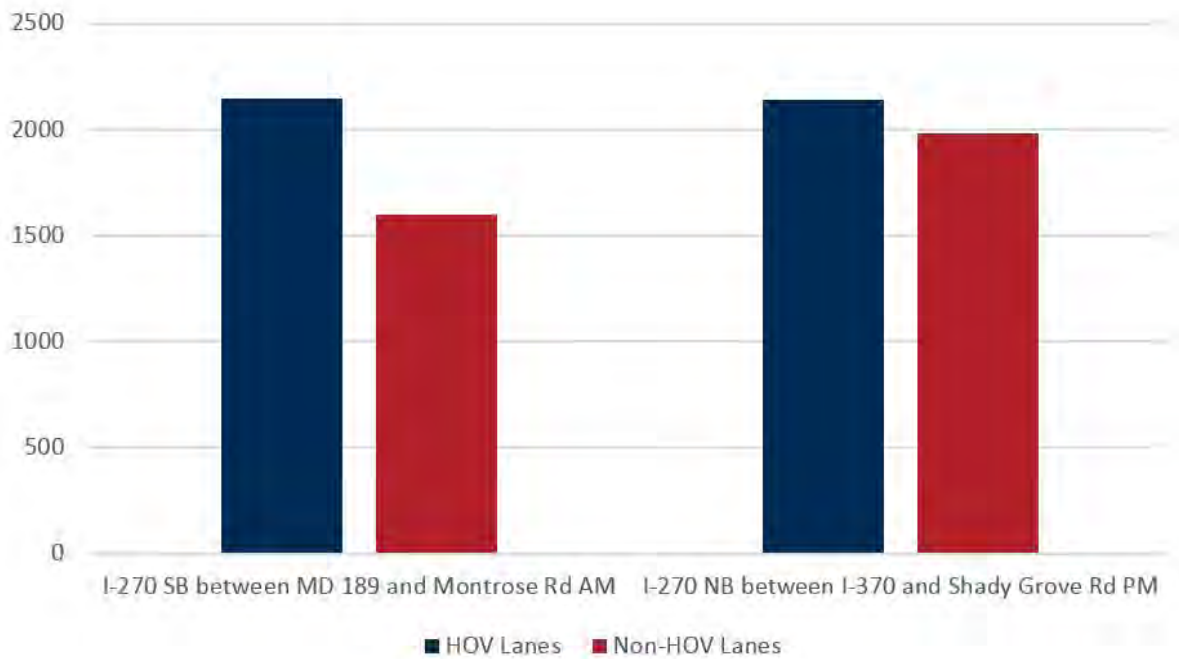
Figure II-10





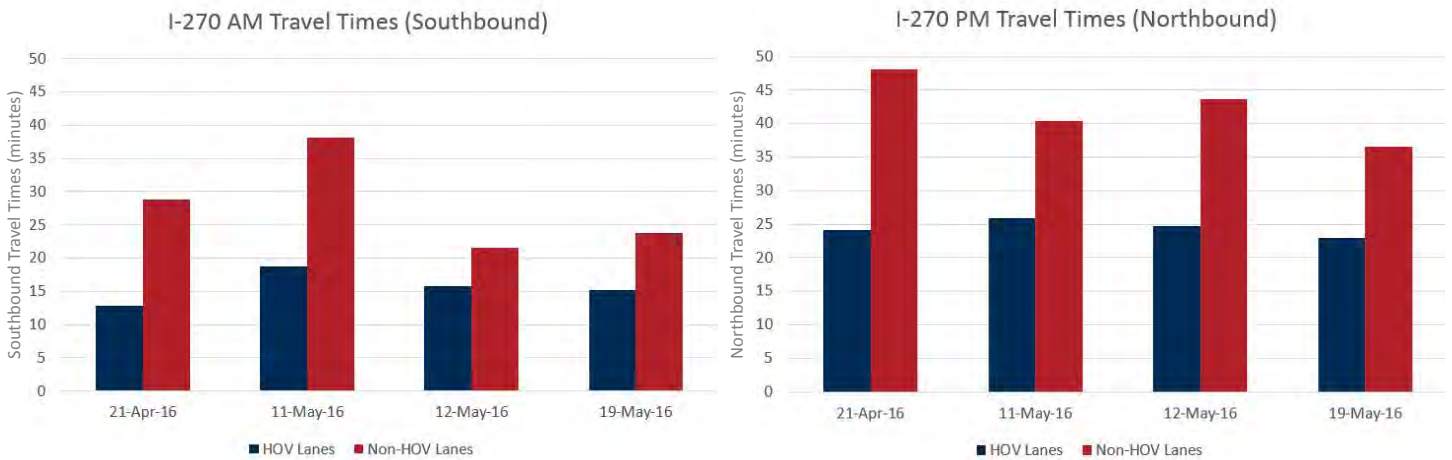
The HOV lane carries as many as 2,200 persons per lane per hour as shown in Figure II-11:

**FIGURE II-11
I-270 PERSON THROUGHPUT PER LANE PER HOUR**



Multi-occupant vehicles using the HOV lanes have a major advantage in travel time savings. Along I-270 in the morning peak period, the travel time savings was as much as 20 minutes with an average of 12 minutes. The afternoon peak period provided even greater travel time savings with a maximum of almost 25 minutes and an average of approximately 18 minutes. A minimal average time savings of two (2) minutes occurs on US 50 for the HOV users versus those motorists using the non-HOV lanes for the AM peak period eastbound. A four minute maximum travel time savings occurred during the survey. The average travel time savings on the I-270 HOV lanes versus the general purpose lanes during the AM and PM peak period of operation are depicted in Figure II-12.

FIGURE II-12



c. Reversible Lane Operation

The use of reversible lanes is another method to improve mobility. Reversible lanes increase person throughput, and reduce congestion while minimizing investment. Reversible lanes have been implemented on selected corridors with high directional traffic volumes in the peak periods. This reduces the impact to surrounding residents, businesses and environmental resources. These lanes operate through the use of overhead lane control signals designating the middle lane(s) to alternate with the peak flow of traffic. Reversible lanes are usually limited to certain hours of the day.

Reversible lane operations along MDOT roadways include:

- US 29 from Sligo Creek Parkway to MD 97 (Georgia Ave) (Montgomery County) - 1.0 miles
- US 50/US 301 Chesapeake Bay Bridge (Anne Arundel/Queen Anne’s County) - 4.5 miles
- MD 97 from I-495 to MD 390 (16th Street) (Montgomery County) - 0.5 miles
- MD 177 from MD 100 to West of South Carolina Avenue (Anne Arundel County) - 1.6 miles

