

Slugs and Bodysnatchers

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Adventures in Dynamic Ridesharing



slug *n* 1. A commuter, who, lacking membership in a carpool, regularly waits at designated pick-up points, hoping to catch a ride in a carpool vehicle with an unfilled seat (particular to U.S. East Coast). (1)

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High-occupancy vehicle (HOV) lanes are intended to promote more efficient use of facilities by encouraging increased automobile occupancy. Restricting use of a lane to HOVs permits operations at or near the speed limit while the non-HOV—or general-use—lanes are slowed by congestion.

People in HOVs experience reduced travel time and increased travel time reliability. These benefits encourage ridesharing arrangements. As a result, the facility can serve more people in fewer vehicles.

Back in Time

The HOV lanes on I-95/I-395 (Shirley Highway) in Virginia, south of Washington, D.C., have been operating since 1973 (Table 1). Originally conceived as reversible general-use lanes extending 12 miles from the Potomac River near the Pentagon to the Capital Beltway, these physically-separated lanes—restricted in peak periods to buses and vehicles carrying three or more persons—now extend 27 miles into Virginia (see map, page 22).

Commuters driving the full length of the HOV lanes can save 30 minutes or more compared with travel times in the general-use lanes. The significant

time savings and greatly increased reliability give drivers of single- or two-occupant vehicles strong incentives to find additional passengers to qualify for the HOV lanes.

The lanes originally were made available for HOVs to promote more efficient vehicle use during the 1973 gasoline shortages. When the shortages abated, drivers of low-occupancy vehicles quickly learned that they could reduce their travel time or—what is perhaps more important—improve their travel time reliability, by seeking riders to qualify for the HOV lanes.

Dynamic Ridesharing

Some found regular riders and established formal carpools. Other drivers with less regular schedules sought passengers in other ways. The lines of passengers waiting at bus stops on roads leading to Shirley Highway were an obvious source. It became common practice for drivers to pull up to a bus stop and ask if anyone wanted a ride to the Pentagon or downtown Washington, D.C.

Eventually informal, but well-known, locations developed, both for travel toward downtown Washington in the morning and for returning to suburban locations in Fairfax and Prince William Counties in

the afternoon. These same locations continue today, with minor changes, often retaining the names they had in the 1970s—for example, commuters in Springfield still meet at “Bob’s” even though Bob’s Big Boy Restaurant closed in the 1980s.

“Slugging” is the colloquial term that has developed to describe the dynamic ridesharing activity that occurs in the I-95/I-395 corridor. A slug is an individual who accepts a ride as a passenger in a private automobile traveling in the HOV lanes. Drivers seeking additional passengers for legal travel in the HOV lanes are known as “bodysnatchers.”

Slugging is not restricted by gender. Observation of matching activity at carpool locations has found that 30 percent of the bodysnatchers and 40 percent of the slugs are female. Observation also suggests that the ridesharing is highly egalitarian, with no distinctions of gender, race, civilian or military, or—at the Pentagon—officers or enlisted personnel, as long as the driver can find enough passengers for access to the HOV lane (see photographs on this page and facing page).

Slugging in the Shirley Highway corridor occurs both at on-street bus stops and at park-ride lots. Bodysnatchers favor park-ride lots because of the greater supply of slugs. Park-ride lots notable for slugging include Horner Road (600 spaces), Tackett’s Mill (162 spaces), and Potomac Mills Mall (500 spaces) in Prince William County, and Rolling Valley (628 spaces) and Springfield Plaza (230 spaces) in Fairfax County.

Transit Symbiosis

There is a symbiotic (some say parasitic) relationship between dynamic ridesharing and transit. Slugs generally come from lines of waiting transit passengers. By accepting a ride, a commuter waiting for a bus obtains a faster, more comfortable trip for free.

The bus service provides bodysnatchers with locations at which their prey—that is, additional riders—may be found; for bodysnatchers, the bus stops are like water holes for carnivores. For slugs, the bus service provides a way to get to and from work if a ride is not obtained.

Observation of activity at other facilities with HOV lanes (e.g., I-66 in Northern Virginia) suggests that bus services are critical to the ridesharing system. Without bus services to assure a ride, slugging could not develop.

Each waiting bus passenger who accepts a ride represents a lost fare to the transit operator. Transit operators may have originated the term slug, likening people who leave the bus stop to accept a ride from a bodysnatcher to a slug deposited in a farebox in lieu of a legitimate token. An alternative derivation—offered by a projectionist at a Transportation Research

TABLE 1 Timeline of HOV Events in the Shirley Highway Corridor

1940s	Shirley Highway constructed (4 lanes with wide median)
Mid-1960s	Reconstruction begins for 3-2-3 operation with reversible lanes
1969	Bus operation on part of reversible lanes
1973	Reversible (HOV) lanes completed to Springfield (12 miles); HOVs with four or more passengers permitted to use reversible lanes
1985	Inbound with-flow HOV in left lane, 7 miles, Occoquan to Springfield; outbound with-flow HOV in left lane, Springfield to Occoquan
1988	HOV eligibility reduced from 4 or more to 3 or more
1992	Motorcycles permitted to use HOV lanes
1994	Separated HOV lanes extended three miles to Newington
1995	Separated HOV lanes extended four miles to Occoquan
1996	Separated HOV lanes extended four miles to Opatz Boulevard
1997	Separated HOV lanes extended five miles to beyond Rt. 234



Slugs waiting.



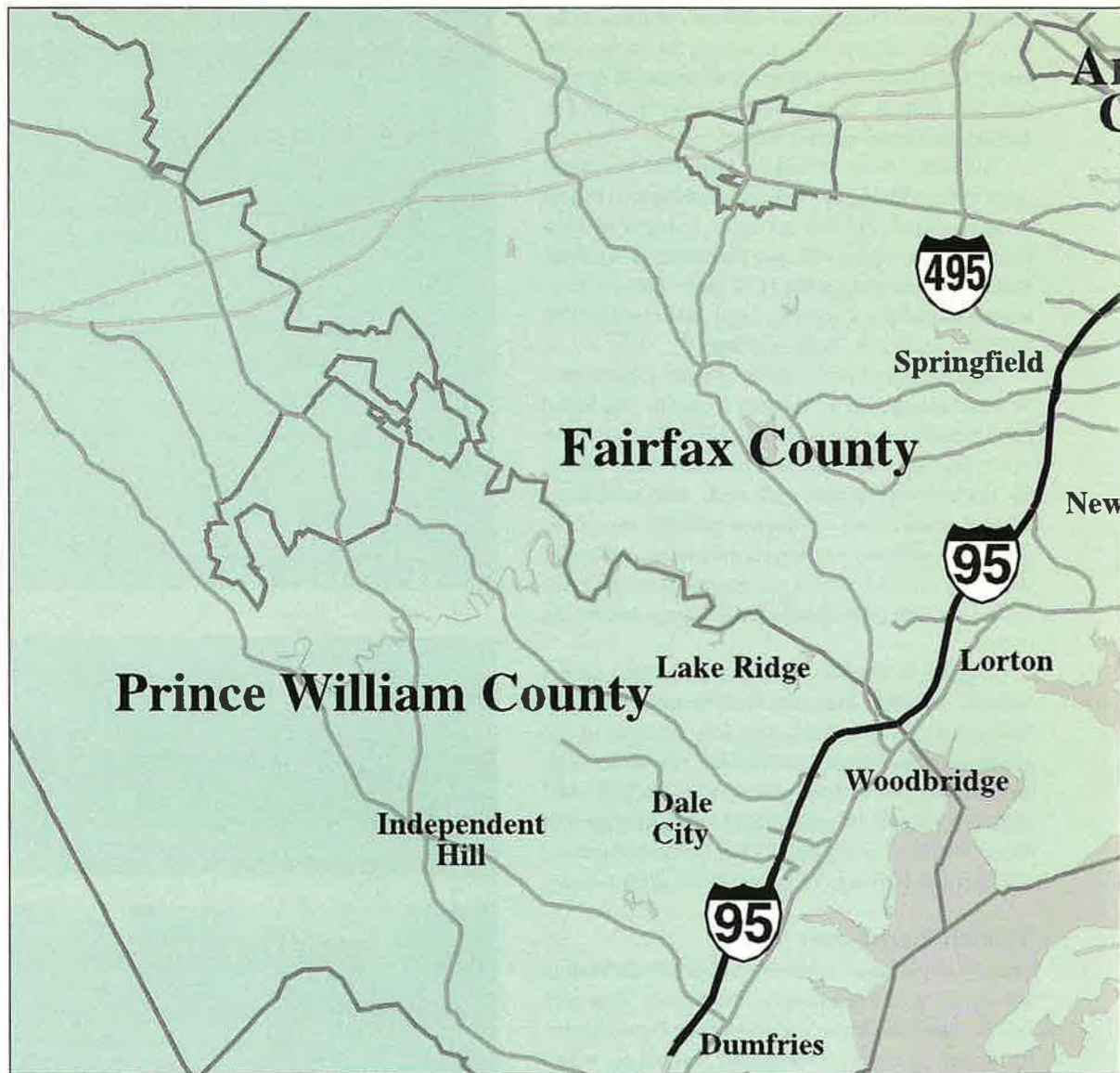
Slugs boarding.

Board (TRB) Annual Meeting session—is from a printer’s slug, a blank piece of type used to fill an empty space.

Slug Groups

Because slugging is informal and unregulated, as well as difficult to define, there are few, if any, data to quantify slugging. The Virginia Department of Transportation commissioned a study to identify the effects of changing the HOV restriction from three or more occupants to two or more; the study involved consideration and analysis of the nature of slugging (2). Researchers collected original data and developed estimates from secondary sources.

HOV lanes on I-95/I-395 in Northern Virginia. (Map courtesy of Metropolitan Washington Council of Governments; special thanks to C. Patrick Zilliacus.)



Slugs are divided into three groups:

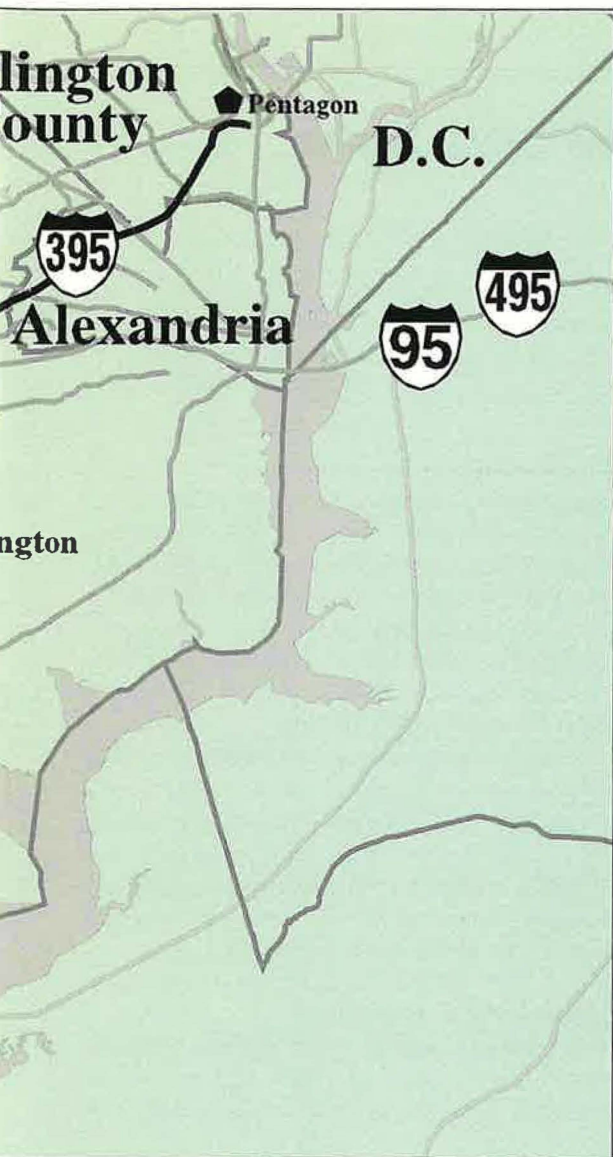
- ◆ Those who ride a bus in the morning but slug homeward in the afternoon—however, few commute in this manner regularly;
- ◆ Those who slug inbound in the morning and then use the bus for the outbound evening trip; and
- ◆ Those who slug both morning and evening.

Changing Directions

Observation of transit ridership patterns in the corridor and anecdotal information from transit riders agree that afternoon transit ridership outbound from downtown Washington, D.C., and the Pentagon exceeds the inbound morning transit ridership to the same destinations. Hypothetically, this difference may be due to persons who slug inbound in the morning but use transit for the outbound afternoon trip.

There are at least two reasons for this effect. First, the inbound morning pattern is essentially many to one—that is, a slug can accept a ride from almost any bodysnatcher and reach a downtown location, a downtown Metrobus stop, or a Metrorail station from which it is possible to travel to the workplace. The outbound afternoon trip, however, is one or few to many—a slug waiting at a bus stop may not encounter a driver heading to the same residential neighborhood or to the park-ride lot. Although some specific outbound destination pick-up points have developed, a suitable match is less certain; therefore a slug may choose to ride the bus instead.

Second, the outbound HOV restrictions end at 6:00 p.m. A bodysnatcher who has not found a rider by about 5:50 p.m. gains no time advantage. Bodysnatching ceases abruptly at this hour, so that slugs who leave work late must make use of transit.



Slugging Protocols

Slugging is a nonregulated activity that emerged spontaneously after the HOV lanes were established. In more than a quarter of a century, there have been no serious incidents; in part this is because of the HOV restrictions. Originally the lanes were restricted to use by vehicles with four or more occupants; the rule is now three or more. As a result, a bodysnatcher usually is seeking two passengers.

Informal protocols have developed among slugs for mutual protection. For example, it is bad form to accept a ride that would leave a fellow slug alone at a bus stop. Slugs travel in pairs and rarely face a ride alone with a stranger (Figure 1). More than 70 percent of the carpools that form dynamically consist of one bodysnatcher and two slugs; another 20 percent are formed by two slugs and two bodysnatchers.

A lower HOV-lane eligibility requirement (e.g., two or more persons per vehicle) probably would work against slugging—if a two-or-more-person rule had been in effect in the beginning, slugging might never have developed.

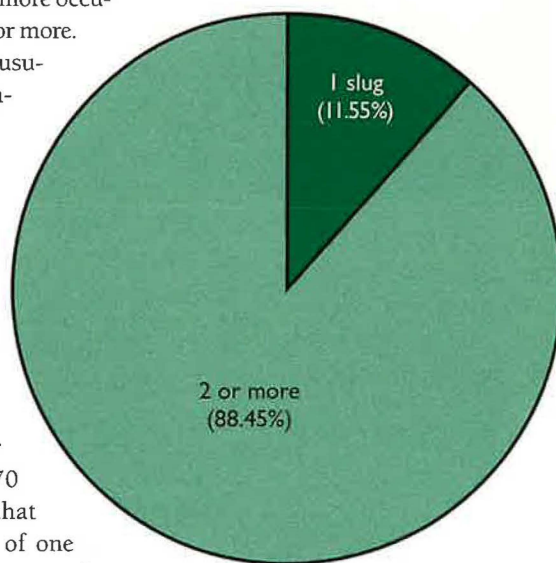


FIGURE 1 Number of boarding slugs in observed matches.

Counting Slugs

Data from the Shirley Highway corridor suggested that in 1998

- ◆ Approximately 900 persons slugged to work in the morning but used the bus to travel home in the afternoon;
- ◆ Approximately 2,200 persons slugged in both directions;
- ◆ Approximately 1,700 drivers were bodysnatchers; and
- ◆ Slugs and bodysnatchers made up an estimated 20 percent of the travelers using the HOV lanes in the morning peak period.

A more extensive analysis of the formation patterns of dynamic ridesharing is available in a recently published paper from the 2000 TRB Annual Meeting (3).

Slugging on the Web

Once a word-of-mouth activity, slugging has taken advantage of modern technology, with two slug-related websites (www.slug-line.com and www.slugvirginia.com) offering maps of locations at which rides can be found, informing the uninitiated of the behavior expected of bodysnatchers and slugs, and even maintaining a lost and found. An added benefit are stories offering inside views of this unique form of commuting.

The full report of the analysis of changing HOV eligibility on I-95/I-395 is available at www.vdot.state.va.us/proj/nova/395hovx.html.

References

1. Transport Consulting Limited, *North American Public Transit Glossary*, Vancouver, B.C., Canada, July 1998.
2. BML, *I-95/I-395 HOV Restriction Study*. Virginia Department of Transportation, Richmond, Va., Feb. 1999.
3. Spielberg, E., and P. Shapiro. Mating Habits of Slugs: Dynamic Carpool Formation in the I-95/I-395 Corridor in Northern Virginia. In *Transportation Research Record: Journal of the Transportation Research Board*, No. 1711, TRB, National Research Council, Washington, D.C., pp. 31–38.