

The Native Slugs of Northern Virginia

A Profile of Slugging in the Washington D.C.
Region

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INTRODUCTION

Slugging or casual carpooling is a unique form of commuting that takes place in a limited number of High Occupancy Vehicle (HOV) restricted corridors in the United States. Slugging is similar to traditional carpooling in that more individuals commute in fewer cars than would occur otherwise. However, slugging differs in that almost no organizational arrangements are made prior to departure. HOV restrictions require that all cars traveling on a given stretch of highway carry a minimum number of occupants, usually two to four. Slugging has evolved as a way for drivers in need of additional passengers (to qualify for HOV) and commuters in need of transportation to fulfill one another's needs. Slugging participants meet at pre-identified locations called slug lines, which have no official designation as meeting places but rather have evolved as convenient places for commuters to meet. There drivers and passengers organize carpools on the fly with anyone headed to the same destination. Because of the mutual benefits received by both drivers and passengers, no money is exchanged in the transaction. The phenomenon has been documented in three cities in the United States: Houston, Texas; San Francisco, California; and the Northern Virginia portion of the Washington, D.C., region. Slugging is alternatively known as "ridesharing," "dynamic ridesharing," "informal flexible carpooling," "informal carpooling," and "casual carpooling." In this paper the practice will be referred to as "slugging."

Slugging is a fascinating phenomenon from many different perspectives. The system works without any outside organization or intervention. Slugging is beneficial to participants who save time and money and to society in general, which benefits from decreased pollution and traffic

congestion because fewer cars are on the road. Slugging is also important because it provides a way for many more people to participate in carpools than would otherwise do so.

Slugging receives regular coverage from mass media and news outlets both domestically and internationally- see (Clarke, 2003) (NPR Morning Edition, 2008) (Kilborn, 2003) (Weiss, 2008). However these sources tend to report a limited amount of information without digging deeper into the issue or collecting hard data. Most mass media articles interview the same person and report the same general information about slugging. For all of the coverage that slugging receives, very little is known about it beyond the casual observations of those involved.

Slugging is worthy of study from a multitude of different approaches and could provide a scholar with a lifetime of research. While by no means comprehensive, this paper attempts to create a profile of who slugs and why and to shed some light on the reason why slug lines have formed in the cities where they now exist but not in the many other HOV corridors that are in place across the country. The paper is intended as a broad description of slugging and its participants and not an in-depth examination of any one particular aspect of the phenomenon.

This paper will discuss some of the history behind commuting and carpooling as well as recent and emerging trends in traffic management such as high occupancy vehicle (HOV) lanes and high occupancy toll (HOT) lanes. Additionally, the paper will introduce the slugging systems in San Francisco and Houston and discusses their similarities and differences. A case study of slugging in Northern Virginia will then be presented for further analysis and comparison with the systems in Houston and San Francisco. The Northern Virginia case study is based on a survey of

nearly 300 slugging participants conducted during the summer of 2008. The survey results will be presented along with a discussion of general trends found in the data.

The survey findings indicate that slugging is considered a safe, reliable, and normal commuting alternative for residents of the I-95/395 corridor in Northern Virginia. In the minds of participants, slugging carries as much credibility and weight as bus or train service (and sometimes more) in choosing among commuting alternatives. The evolution of slugging is an excellent example of the government using its legislative authority and police power, in a limited way, to create opportunities for new and socially beneficial behaviors. A rather simple and easily implemented HOV law has enabled the people to create their own solutions to traffic woes.

Slugging embodies the advantages of traditional organized carpooling such as a faster trip, cost savings, less pollution, and fewer cars on the road without the drawback of a rigid schedule to which all members of the carpool must adhere. State and local governments suffering strains on their public transit systems can impose similar laws and conditions to those currently in effect in Houston, San Francisco, and Northern Virginia to potentially incentivize the creation of a similar slugging system.

CARPOOLING AND MODERN COMMUTING

In the field of urban planning, transportation occupies a prominent role. Coordinating the movements of people with different needs and resources and forecasting those needs into the future requires complex planning and management. Additionally transportation infrastructure requires a great deal of money for construction and maintenance. Of all the services that a transportation system provides, commuting trips are among the largest and most consistent contributors to total traffic volume. Commuting typically involves two home-based trips per weekday. One trip originates at home and terminates at work during the morning peak traffic hours and a second return trip from work to home occurs during the afternoon peak hours.

Various transportation agencies representing state, local, and regional governments are tasked with providing safe and efficient means for commuters to travel between their home and work sites. Depending on many factors including total population, population density, concentration of employment, and topography, the government may provide any number of transportation alternatives to satisfy the needs of commuters. These alternatives may range from providing direct services such as public transit (subways, commuter rail, and bus service) to policy measures like subsidies for ridesharing and work-from-home programs that use existing infrastructure more efficiently. The promotion of carpooling is one such policy measure. For the purposes of this paper carpooling will be defined as two or more commuters, who would otherwise drive individually, sharing a vehicle for all or part of their total commute. Ungemah et al define carpooling as “a minimum of two people with common commute patterns (who) share one vehicle for their trip” (Ungemah, Goodin, Dusza, & Burris, 2007).

Carpooling can provide a number of benefits to the individuals who participate and to society in general. The chief benefit of carpooling to society is fewer cars on the road, which results in decreased traffic congestion, faster travel times, and less pollution. Benefits also accrue to individual carpool participants who save money on gasoline and parking by splitting costs among themselves. The carpool occupant(s) who are not driving may do other things with their time such as read, sleep, or socialize with fellow passengers. Carpooling has at least a sixty-year history in the United States (Ungemah, Goodin, Dusza, & Burris, 2007). It tends to be heavily promoted during wartime and/or economic crises such as World War II (Kelley, 2006) and the Arab Oil Embargo in the 1970's (Kogan, 1997).

The inherent benefits of carpooling to the individuals involved are often not enough by themselves to incentivize the creation of carpools. The personal costs of carpooling may include the inconvenience of waiting for fellow carpoolers, inflexible departure schedules, lack of mobility during the day, or lack of privacy during the trip. In order to have the desired effect of reducing traffic congestion and travel times on busy roads, the government implements tools to promote carpooling and decrease its relative cost to participants.

Measures most often adopted by governments to promote carpooling can be separated into two categories. The government implements measures either to make carpooling more convenient or to make single occupant vehicle (SOV) trips less convenient. Governments may increase carpooling's convenience by providing commuter parking lots as central meeting points for carpoolers or by offering subsidies and incentives directly to carpool participants and their employers. In the late 1970's President Carter started ride-sharing programs for federal

employees that included benefits such as free parking for van pools (Kogan, 1997). Carpool arrangements are also offered through local government or employer based programs. The Metropolitan Washington Council of Governments (MWCOC) operates *Commuter Connections RideMatching*, a service that connects prospective carpoolers with one another in the Washington, D.C., area (MWCOC, 2008).

A very popular method for making SOV travel less convenient is the placement of HOV restrictions on the roads that become most congested by commuter traffic. HOV restrictions limit travel on one, several, or all travel lanes to vehicles meeting a minimum occupancy requirement- usually 2, 3, or 4 passengers. These limits are usually expressed as HOV-2, HOV-3, and HOV-4 respectively. HOV restrictions may take effect for a portion or all of each business day- and some remain in effect on weekends. The HOV restrictions may apply to one direction of travel in the morning and the opposite direction in the afternoon as needed to mitigate congestion. Interstate I-95/395 in Virginia hosted the first HOV lanes in the United States (Ungemah, Goodin, Dusza, & Burris, 2007). Currently, there are over 130 HOV lane programs throughout the country (FHWA, 2002) Opinions on the effectiveness of HOV lanes in reducing traffic delays and decreasing vehicle travel time vary considerably (Varaiya, 2007). One report notes that in some cities 50 percent of HOV volume is composed of family members who would be traveling together anyway thereby negating the purpose of the lanes (Gilroy & Pelletier, 2007).

Based on their widespread use and long history HOV lanes help promoting carpooling and relieve congestion. In the past ten years a new variation on HOV lanes, called high occupancy

toll (HOT) lanes, has emerged, which allows the government to generate revenue while still giving carpools preferential treatment. The high occupancy toll concept allows cars with fewer than the required number of occupants to use restricted lanes (that may previously have been HOV only) in exchange for a toll payment. To avoid overcrowding, the toll varies depending on the traffic volume in the general purpose lanes. When traffic volume is light, the toll, charged on a per mile basis, is low. However, in times of heavy traffic the toll increases with congestion. Drivers are informed of the toll changes by electronic signs along the road and are given the choice of entering the restricted lanes and paying the higher toll or remaining in traffic. Ideally, HOT lanes just sell the extra lane capacity that goes unused by carpools and have no negative effect on trip time (Ungemah, Goodin, Dusza, & Burris, 2007). State treasuries may be happy about HOT lanes and their associated revenues but the feeling is not shared by all drivers. HOT lanes have been referred to as “Lexus lanes” (Fisher, 2007) because of their relative affordability to the wealthy who can pay the tolls while the poor wait in traffic.

One example of HOV to HOT lane conversion is the HOT lanes being developed along the I-95/395 and I-495 corridors in Virginia as a public/private partnership between the Virginia Department of Transportation (VDOT) and the Fluor-Transurban Company (Fluor/Transurban, 2008). Due to fiscal shortfalls at the state level that prevent the state from funding further lane expansions, a private company, Fluor-Transurban, will provide the expansions in exchange for the right to collect toll revenues. The HOT lanes plan in Northern Virginia is being closely watched by commuters along that corridor. Many doubt that current travel speeds will be maintained as that would require the toll operator to turn away paying customers in order to serve non-paying carpools (Forel Publishing, 2008).

Slugging Variations across the Country

At its essence, slugging is nothing more than a unique way of arranging carpools. However, the methods used and level of trust involved are so far outside the realm of everyday experience that non-participants find the system fascinating. Slugging has been documented in three locations: Washington, D.C., San Francisco, California and Houston, Texas. Similar, though not identical, practices exist in other parts of the country such as taxi-pooling (the sharing of a taxi by strangers) in Manhattan (Mehrotra, 2004).

Called “casual carpooling” in San Francisco, the practice centers on commuters who use the San Francisco Bay Bridge to access downtown San Francisco via Oakland (Beroldo, 1990). By using the Bay Bridge, commuters reduce a 35-mile trip around the bay to less than 10 miles. Cars are required to pay a \$4.00 toll on all westbound lanes of the Bay Bridge (Bay Area Fastrak, 2008). However, on weekday mornings from 5 until 10 a.m. drivers may avoid the \$4.00 toll by carrying three or more passengers. Thus drivers are incentivized to put more passengers in their cars for the morning trip across the bridge. The policy is also in effect in the afternoon from 3 until 7 p.m. though most commuters travel west-bound in the morning and east-bound in the afternoon and are thus unaffected by the evening policy (Beroldo, 1990). One study found that up to 33 percent of those using commuter lots in the San Francisco area use casual carpooling as their primary mode of travel (Shirgaokar & Deakin, 2005). In 1990, it was reported that 8,000 casual carpoolers crossed the Bay Bridge each day (Beroldo, 1990). Based on his studies of casual carpooling in California, Beroldo concluded that four criteria were necessary for a

slugging system to exist: time savings incentive, accessible pick-up locations, large employment clusters, and parallel transit service (Beroldo, 1990).

Interestingly, the incentive for carrying extra passengers results in a direct monetary savings (no toll) in San Francisco compared to the incentive for Washington, D.C., drivers, which is only in time saved and citations avoided. The San Francisco slugging system is similar to Washington, D.C., in that there are numerous morning pick-up points. However, San Francisco has only one destination point- downtown (Minett & Pearce, 2008). A website similar to Northern Virginia's www.slug-lines.com serves as a central information clearing house for San Francisco's casual carpoolers <http://www.ridenow.org/carpool/>.

In Houston, slugging occurs along two corridors; the appropriately named Northwest Freeway (Route 290) that approaches the city from the northwest and the Katy Freeway (I-10) to the west of the city (Ojah & Burris, 2004). During the morning commute hours both freeways have an HOV-3 requirement. Similar to Washington, D.C., the slug lines form in areas with plenty of parking, access to transit, and close proximity to HOV restricted routes (Burris & Winn, 2006). Houston is unique in that there are no apparent choke points, such as those found in Washington and San Francisco, which limit the travel route choices of commuters. In Houston there are fewer pickup and drop-off points (three and one respectively) than in Northern Virginia and fewer pickup points than San Francisco (Minett & Pearce, 2008). Texas carpoolers cite "the ability to use the HOV lanes as the most important factor in their decision to form a carpool" (Li, Embry, Mattingly, Sadabadi, Rasmidatta, & Burris, 2007, p. 110). In Houston slugging volume is not independent of seasonal fluctuations. Ojah and Burris noted that slugging "appears to be

less prevalent during the summer” due to school age children’s summer vacations (Ojah & Burris, 2004, p. 5).

Other Carpool Arrangements

Commuters also have the option of using private services like www.nuride.com, www.erideshare.com, www.goloco.org, or www.carpoolworld.com that help individuals share rides without setting up rigid ongoing carpools. Nuride is available in six metro areas of the country. Participants receive “points” for participating, which are then redeemable for gifts and prizes. The gifts and prizes are donated by government entities, employers, and civic minded companies that wish to reward pollution preventing behavior. In order to join Nuride participants are asked to demonstrate their trustworthiness by proving affiliation with a larger organization such as an employer or university. GoLoco is similar to Nuride in that it is an online community or social network that tracks how many you rides one gives and receives. GoLoco was founded by the Robin Chase who also founded the car sharing company Zipcar (GoLoco.org, 2007).

The websites www.erideshare.com and www.carpoolworld.com are simple low budget websites aimed at helping travelers connect with one another. Users post their starting and ending destinations and the time and date the ride is needed (or is being offered) and others contact them with a match. Similar services are available on other websites not specifically set up for carpooling such as the “rideshare” board on www.craigslist.org. These websites tend to be used for one-time or non-routine trips such as those covering long distances. They are not necessarily

designed for use on a daily basis though there is nothing that would prevent them from being used for that purpose.

A company based in New Zealand called Trip Convergence Ltd has created the HOVERPORT (High Occupancy Vehicles in Express Lanes) system and is promoting it as a more regulated and organized system of slugging (Kelley, 2008). The system would work much the same way that slugging works in Washington, D.C., except that all passengers and drivers would register with a central organizing body. Drivers' cars would be equipped with a sensor not unlike the "E-ZPass®" system, a small transmitter placed in the top corner of the windshield, which is used in many areas to pay road tolls. Passengers, likewise, would be equipped with an electronic token keychain "fob" like the "Speedpass™" offered by Mobil Oil for gas payment (Mobil Oil Corporation, 2008). When passengers enter a car they swipe their electronic token, which emits a radio frequency, past the driver's transmitter and all parties' information is recorded. The system is intended to increase security by helping everyone know with whom they are riding. The HOVERPORT system also keeps track of the number of rides accepted and given by each individual and is the basis for meting "HOVER credits"- a type of currency for keeping track of participation. If it were implemented in the U.S., this system might run into legal (liability) issues. If money were exchanged between passengers and drivers, it might be considered a taxi or chauffeur service and would have to be regulated as such. Taxi drivers' unions and similar groups may also oppose such a program.

NORTHERN VIRGINIA CASE STUDY

HOV restrictions are in place along several corridors in the Washington, D.C., region in addition to Interstate 95/395. However, the practice of slugging is strictly limited to the I-95/395 corridor. In Northern Virginia, certain lanes and sections of Interstate 66 and Route 267 (the Dulles Toll Road) are HOV-2 restricted on weekdays during peak hours (VDOT, 2007). In Maryland, HOV-2 restrictions are in place during peak weekday hours on designated lanes of Interstate-270. Route 50, in Maryland, has a designated HOV lane 24 hours per day (MDOT/SHA, 2008). As mentioned in the introduction, one purpose of this paper is to find out why slugging has taken hold in the few HOV corridors where it currently exists but not in other HOV corridors. Reason would suggest that with a slugging system actively functioning along I-95/395 it would likely spread to other corridors in the Washington, D.C., region. That is not the case however. This question is discussed in further detail, based on the findings of others and the survey results, in the *Recommendation and Conclusions* section at the end of the paper.

History of Slugging in Northern Virginia

No one knows exactly when slugging started in Northern Virginia. There are various reports that slugging goes as far back as 1975¹ when HOV lanes were first implemented on Interstate I-95/395 (LeBlanc, 1999). One theory claims that the name “slugging” is a derogatory term that came from bus drivers complaining about people in private cars taking their passengers. Drivers of private cars who needed more passengers in order to use HOV lanes began offering free rides

¹ The author found various sources which claim that HOV policies were first implemented on the Shirley Highway in 1971 (LeBlanc, 1999), 1973 (Spielberg & Shapiro, 2001) (Ungemah, Goodin, Dusza, & Burris, 2007), and 1974 (Reno, Gellert, & Verzosa, 1989). According to a report posted on VDOT’s website (VDOT, 1999), p.1) the dedicated lanes first opened in 1969 for buses only and were converted to HOV-4 in 1975.

to people waiting at bus stops. The bus drivers, observing this behavior, referred to the cars that were taking their clients (and their revenues) as “slugs”- the slang term used to describe a fake coin dropped in the meter box (LeBlanc, 1999). In some publications and contexts drivers are known as “bodysnatchers” (Spielberg & Shapiro, 2001) (Vanasse Hangen Brustlin, Inc, June 2006) (Kogan, 1997); in other sources (LeBlanc, 1999) (Forel Publishing, 2008) the term is a disparagement used to describe drivers who ignore protocol by picking up slugs before they reach the line.

From its inglorious start, slugging has evolved into a highly organized system. This organization was helped by the publication of David Leblanc’s *Slugging: The Commuting Alternative for Washington D.C.* in 1999, the first and only book written about slugging. The book helped standardize behavior, protocol, and line locations in Northern Virginia. In addition, the website www.slug-lines.com, which is also associated with LeBlanc, came online and became an important source of information about slugging. Prior to the publication of the book and establishment of the website, slugging was publicized by occasional media articles and word of mouth only. LeBlanc, who is often interviewed in the mass media, is considered an expert on the practice. Since slugging has no formal leadership, LeBlanc has become slugging’s unofficial spokesperson in Northern Virginia.

How Slugging Works in Northern Virginia



Slugs and drivers making arrangements at the Horner Road Commuter Lot²

There are roughly 24 morning slug line locations in Virginia (Forel Publishing, 2008), though only about 15 are consistently used. Most of the lines are located at Park-and-Ride commuter lots or locations with access to ample parking³. The Park-and-Ride lots operated by VDOT are free of charge though space is limited. The largest and most popular slug line locations have several individual lines that form according to desired destination. Lines might form for destinations such as downtown D.C., the Pentagon, Navy Yard, or Rosslyn. The term “slug line” can be confusing because it refers to a general location where slugs gather. However, the same term is used to refer to the individual lines at each site that serve various destinations.

² All photos courtesy of the author

³ Parking is not limited to public commuter parking lots. Private locations such as Potomac Mills Mall provide a fixed number of parking spaces to commuters on weekdays.



Slugs waiting for rides at the Horner Road Commuter Lot



Cars queuing to pick up slugs at the Horner Road Commuter Lot

The system that has evolved for helping passengers and drivers make connections is rather simple. Slugs line up on a sidewalk or curb and drivers line up for riders as if at a fast food restaurant drive-through. Queuing slugs take their place in line as they arrive. Accepting a ride from a car before you get to the line is frowned upon though a driver may choose any passenger

that he or she wants especially if they are friends or have ridden together previously. Typically, the driver at the front of the line rolls down his passenger side window, and calls out his destination to the first person in line. That person then repeats the destination in a loud voice so that the rest of the line can hear. Alternatively some drivers carry a sign with their desired destination. The first and second slugs in line who are headed for the announced destination enter the car, and it departs for the highway (cars that arrive with two occupants usually pick up only one additional passenger). The next car arrives at the front of the line and the process is repeated. At times, the first person in the line may depart after those farther behind in the line due to the varying destinations of the arriving cars. Likewise the first car in line may not depart first if no queuing passengers are headed to the same destination. If it is getting late in the morning and no more cars appear to be coming, slugs left waiting in line may form a carpool among themselves. This arrangement may occur with or without monetary compensation (Walsh, 2008). Most slug lines are co-located with mass transit access so that commuters have an alternative if they cannot obtain a ride through slugging.

Some commuter lots have dedicated on-ramps which allow nearly instantaneous access to the carpool lanes. Accepted protocol states that the driver sets the tone of each trip and may initiate conversation, turn the radio on/off, set the temperature, open/close windows, etc (LeBlanc, 1999). If a passenger is especially uncomfortable, he or she may request a change but it is up to the driver's discretion to comply. Conversely, drivers are expected to drive safely and have the car in a reasonable state of cleanliness. Of course, drivers and passengers do not always comply with these expectations, which can lead to unpleasant trips. Slugging etiquette is often a topic of discussion on the www.slug-lines.com message board. When slugging, drivers are not expected

to deviate from their normal route to accommodate a passenger's desired drop-off location, however, passengers may ask to be dropped off at a certain location if there is not a typical drop-off point for that route (LeBlanc, 1999).



Commuters boarding PRTC's OmniRide Bus (less than 50 yards from two individual slug lines)

In the afternoon, the slugging routine is repeated in much the same way. There are 16 evening slug lines; 11 in the District of Columbia and 5 in Arlington (Forel Publishing, 2008). A number of afternoon slug-lines are located within walking distance of major employment centers. Certain locations are more active than others and some are active only during certain afternoon hours. The process of picking up passengers can be more difficult in the city because drivers stop in the curbside lane and can disrupt traffic. Homebound trips typically have commuter lots as a destination though some neighborhoods have enough commuters that they become their own destination.



Slugs entering a car at 14th Street & New York Ave. in Washington, D.C., for the ride home

Conversations with slugs and information gathered from the message boards on the www.slug-lines.com website suggest that the greatest perceived danger or threat from slugging is unsafe driving. However, there is no evidence of any actual physical harm done or injuries received as a result of slugging. That defies belief, considering the number of people who slug, and the amount of time that the slugging system has been in operation.

HOV Lanes in Northern Virginia

The Shirley Highway (I-95/395) has two limited access lanes situated between the regular general purpose lanes where the median would be on a typical highway. These lanes extend for 28 miles from the Pentagon south to Dumfries and carry traffic only in one direction at a time. Traffic flows northbound to Washington, D.C., in the morning and southbound in the evening. As reported by Fuhs and Odenberger, utilizing the HOV lanes can result in a 30+ minute time savings for travelers on Interstate 95/395 in each direction (Fuhs & Odenberger, 2002). VDOT reports a similar time savings of 31 minutes (VDOT, 2007).

The limited access lanes on I-95/395 have an HOV-3 requirement. However, there are a few notable exceptions. Taxi-cabs may use the lanes with a minimum of two individuals (driver and passenger). Motorcycles and law enforcement vehicles (with or without lights on) are allowed to use the lanes without restriction. Cars designed to carry only two passengers (with only two seat belts) such as sports cars are not permitted on the HOV lanes because they cannot legally carry three passengers (VDOT, 2008). The Virginia State Police patrols the HOV lanes and tickets violators. Fines for a first offense start at \$125 (VDOT, 2008). Fines increase for the second offense and subsequent violations result in points added to the offender's license.

Within the past several years Virginia has enacted a law to allow hybrid "special fuel" cars to travel on the HOV lanes with a single occupant. The measure was designed to incentivize the purchase and use of low emission vehicles by commuters. However, hybrids do not enjoy permanent HOV exemption status. By act of the Virginia legislature, low emission vehicles have guaranteed access to the HOV lanes when carrying fewer than the three required occupants only through June 30, 2009. It is possible that the legislature will extend the exemption for another year or two as it has done in the past.

In addition to the HOV and general purpose lanes there are a total of seven bus operators (four public, three private) and two rail lines available to commuters along the I-95/395 HOV corridor (VDOT, 1999). The majority of slug lines are nearly co-located with bus stops or train stations. One of the most popular bus services used as a backup by slugs is the OmniRide provided by the Potomac and Rappahannock Transportation Commission (PRTC). The OmniRide bus costs

\$4.00 each way when paid with an electronic SMARTPASS. If paid with cash, the ride costs an additional \$1.50 (\$5.50 total) each way (PRTC, 2008). The Virginia Railway Express (VRE) and METRO trains are other popular alternatives modes of transportation used by commuters along the corridor.

Survey Introduction

There is relatively little hard data available about slugging in Northern Virginia. In 2006 the Virginia Department of Transportation commissioned a study to quantify the number of people slugging to work on a typical morning. The study concluded that about 6,500 people commute by slugging as passengers on a typical weekday (Vanasse Hangen Brustlin, Inc, June 2006). This is more than a 100 percent increase in participation since the last data on slugging was collected in 1999. VDOT's report also noted that the farther from Washington, D.C., a slug line is located, "the earlier in the morning slugging activity begins and ends" (Vanasse Hangen Brustlin, Inc, June 2006, p. 60). Total time savings should be the greatest for the slugs living farthest from their destination point because of the accumulated benefit of bypassing additional miles of traffic. Beyond these raw numbers little is known about who is participating in slugging as a passenger or driver, their reasons for making this choice, and their opinions about slugging.

To better understand the phenomenon of slugging, the author collected additional data through an on-line survey of slugging passengers and drivers. The survey consisted of 30 total questions (23 questions about slugging behavior and 7 demographic questions) and was hosted on the Virginia Tech survey website (www.survey.vt.edu). A copy of the survey, including all questions, is included in the Appendix.

The survey was initially advertised on the message board on www.slug-lines.com, which resulted in approximately 20 responses. The author then distributed flyers advertising the survey at morning and afternoon slug lines on August 11 and 12, 2008. During the two-day period 950 flyers were distributed at four morning and two afternoon slug line locations. All of the morning slug lines were located in Prince William County, and both afternoon lines were in the District of Columbia. The survey was open for one full month beginning on August 6 and ending on September 6, 2008.

Data Collection Activities

The author estimates that 80 percent of those approached to take the survey accepted a flyer. Approximately 950 flyers were distributed among the six different slug lines locations. The author estimates that slightly more than 200 of the 284 total survey responses came about as a result of the flyers. This corresponds to a response rate of better than 20 percent.

Many different factors must be taken into account when using the results of a voluntary survey. The fact that the survey was only offered online limited participation to those who are computer literate and have access to a computer at home or work. Thus many lower income slugs, who cannot afford a computer, and less educated slugs, who lack computer literacy, were left out of the data collection process. Among the slugs approached and asked to take a survey, some cited lack of a home computer as a reason for not accepting a survey flyer. Perhaps in future research paper copies of surveys should be made available for those who do not have a computer or are not computer literate. A paper copy of the survey may also facilitate better response levels

because those who receive copies of the flyer may lose it or forget about the survey before they have the opportunity to use a computer. Further, if flyers and copies of the survey could be provided in Spanish that may result in greater participation from the Spanish-speaking population of slugs. A copy of the survey flyer is included in the Appendix.

Slugging meets the Information Age

The author made further efforts to recruit survey participants by emailing list-serves that cater to slugs at the Navy Yard and Rosslyn. These destinations have less volume than others and so slugs have devised a way to match drivers and passengers using email⁴ list-serves. These slightly more organized systems for arranging rides might be described as “Slugging 2.0”. Those in need of passengers or in need of rides send emails to the list-serve with their desired schedules and those with similar schedules respond. From the outside, it seems to be a cumbersome process to go through each day but the size of the groups attests to their efficacy. The Navy Yard group reports that it has over 500 members (Yahoo Groups, 2008) and the Rosslyn list-serve reports 250 members (Yahoo Finance Groups, 2008). The administrators of both list-serves distributed the request to participate in the survey to their email pools.

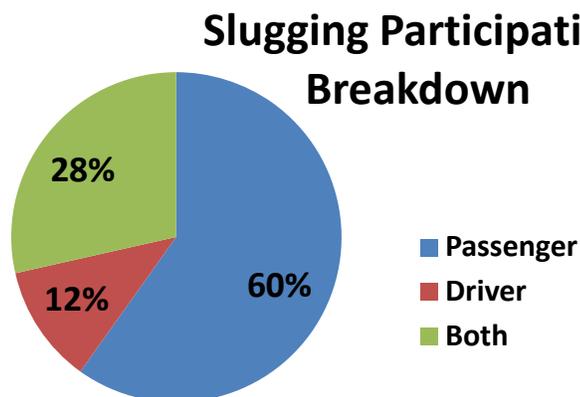
The survey administrator also made an effort to secure permission to distribute flyers advertising the survey at the slug lines located in the Pentagon’s south parking lot. After the administrator spoke with Pentagon security and the building management office; he determined that this would not be possible.

⁴ The author debated whether this practice should be considered as true slugging and ultimately concluded that it fits the definition because strangers make connections on a trip-by-trip basis without having an ongoing carpool relationship.

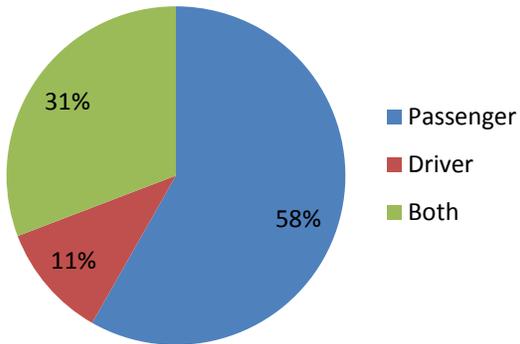
Data Analysis and Descriptive Statistics

The following data is based on 284 survey responses received over a one-month period from August 6 to September 6, 2008. Response totals vary by question because some questions were left unanswered, and others instructed participants to “check all that apply” resulting in a greater number of responses than total participants.

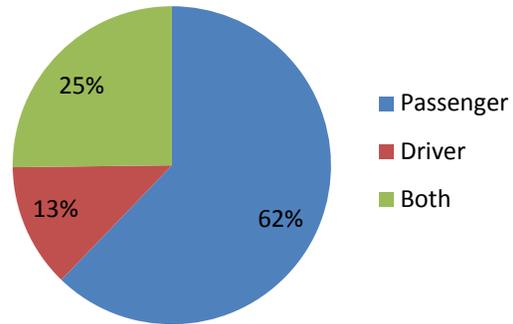
The majority of survey respondents, about two thirds, reported that they participated in slugging as passengers only. Twelve percent reported participating as only drivers, and 28 percent as both. The ratios roughly correspond to expectations based on the assumption that a carpool trip requires a minimum of one driver and two passengers or a 1:2 ratio. A greater percentage of females than males participate in “both” roles and a slightly smaller percentage of females participate as drivers only.



(Females)

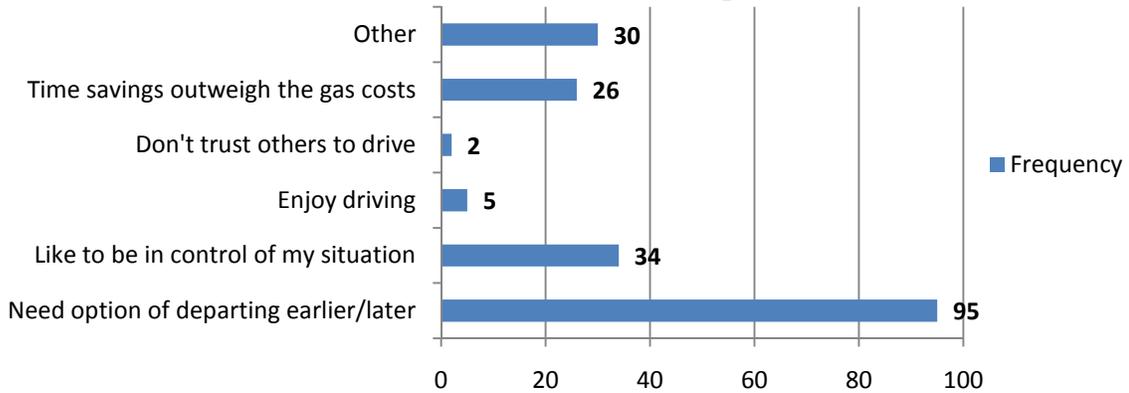


(Males)



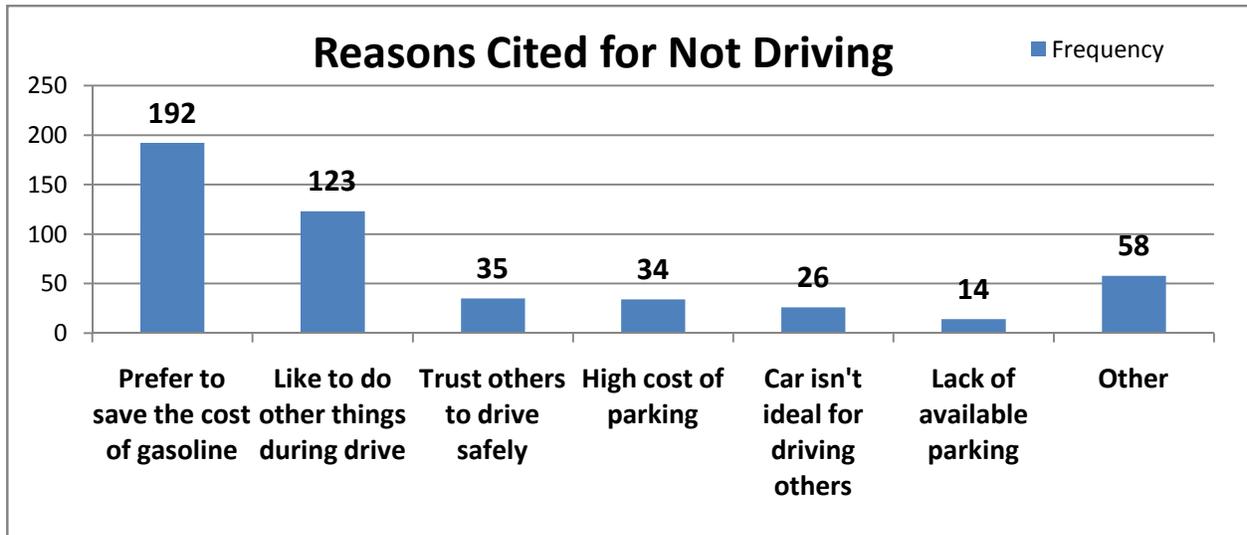
Drivers cited one principal reason for driving; that they needed the flexibility of departing earlier or later than others. One respondent specifically cited a child’s medical condition as reason for that need.

Reasons Cited for Driving

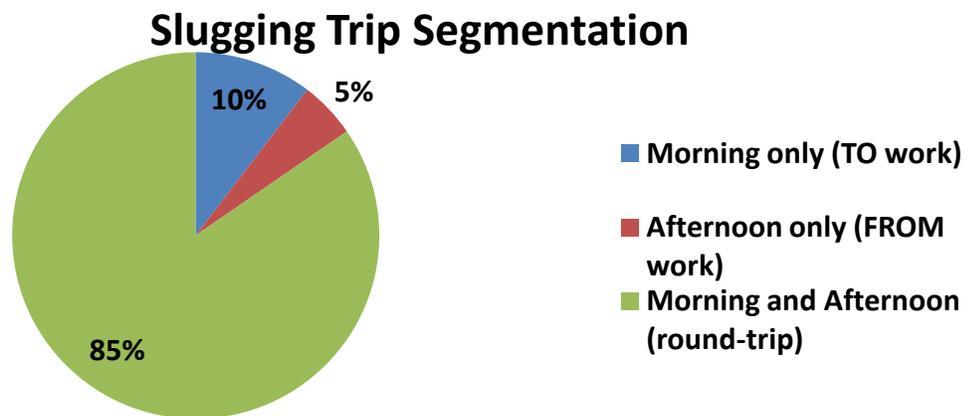


Passengers were asked to indicate all their reasons for not driving. Saving the cost of gasoline was the most frequently cited, while the desire to do other things like reading or sleeping returned a distant second. This question had a very large number of “other” responses. The written responses for the “other” category reveal that the cost and availability of parking also weigh very heavily on this decision. The prohibitive cost of parking and lack of available

parking at the jobsite were cited as reasons for not driving by 34 and 14 respondents respectively. One respondent said that by slugging he/she avoids parking costs of \$20 per day. Only two respondents answered that they do not drive for lack of car ownership.

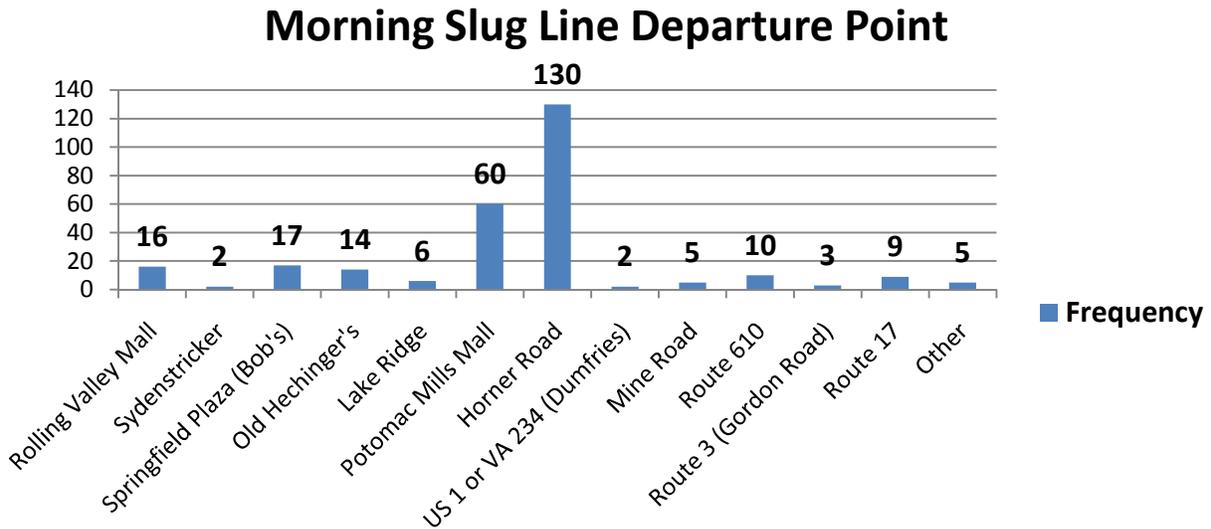


The vast majority of participants use slugging as their main form of transportation for trips both to and from work. Only about 15 percent of slugs make one-way trips. Among those who travel one-way, morning trips outnumber afternoon trips by two to one.



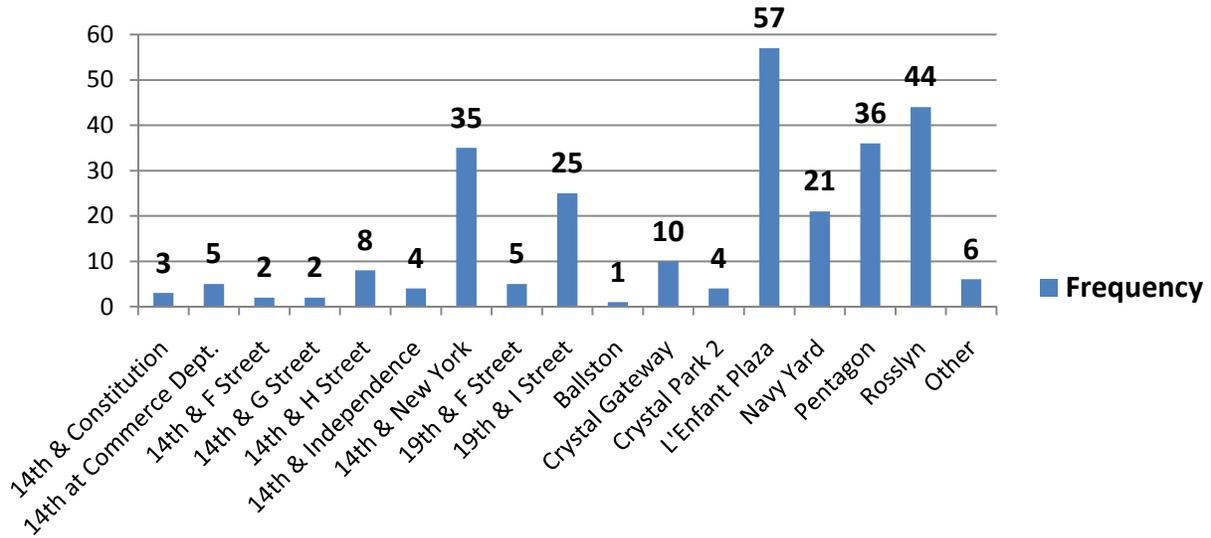
Respondents overwhelmingly used the Potomac Mills Mall and Horner Road slug lines as their morning departure points. This was to be expected because the vast majority of survey flyers

handed out at morning lines were distributed in these two locations. The rest of the respondents were spread fairly evenly among ten other morning lines and only five stated that they use “other” locations. The “other” responses were Tackett’s Mill (4) and Montclair (1).



Survey respondents represented a wide swath of afternoon slug line locations. The greatest number came from L’Enfant Plaza. Again, as with the morning lots, this is to be expected because flyers were distributed there. However, the second and third most popular evening lines were not flyer distribution locations. Only six respondents answered that they use “other” locations in the afternoon. The “other” locations included 14th & Pennsylvania, 19th & Pennsylvania, 19th & E, and other assorted combinations of lines.

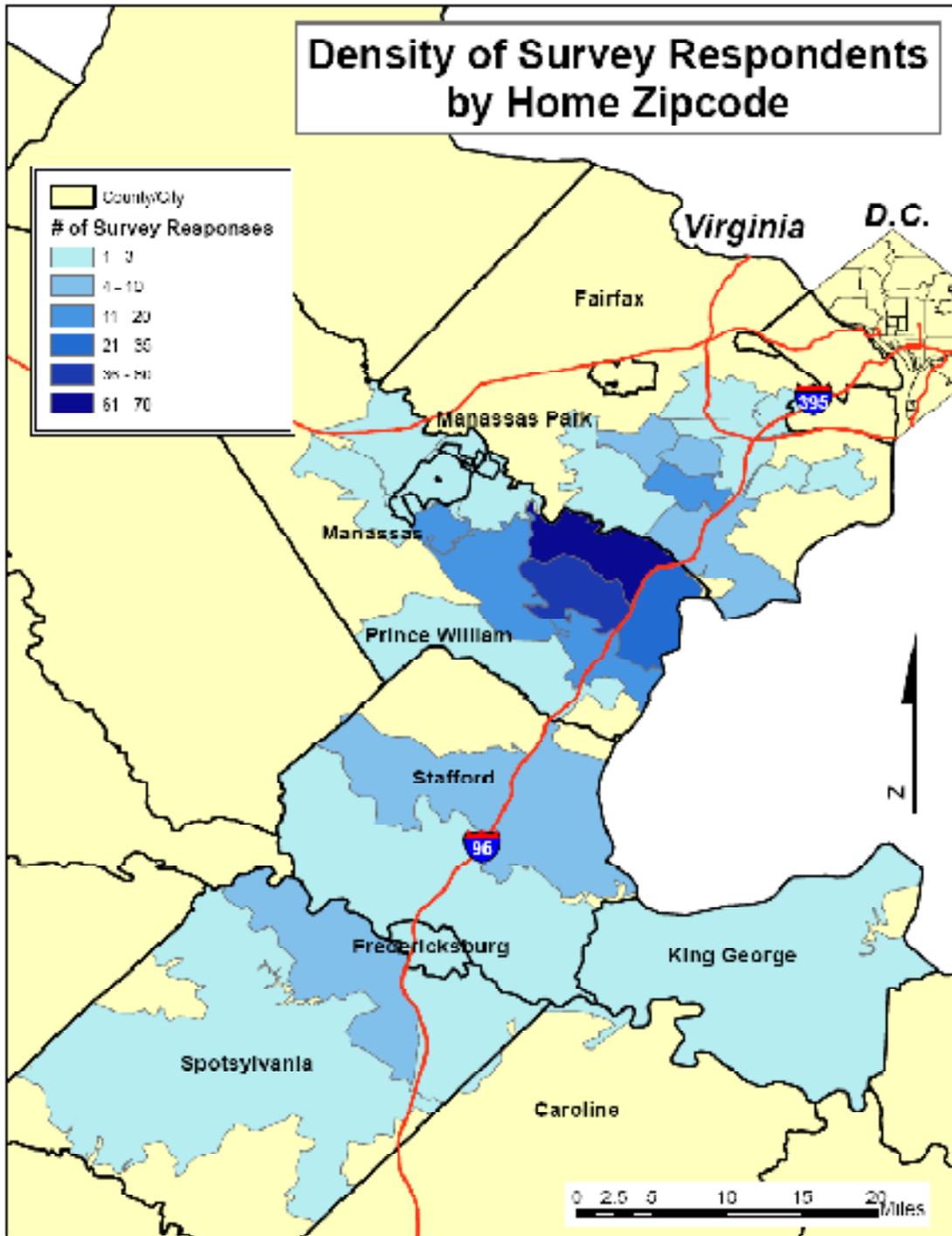
Afternoon Slug Line Departure Point



Survey respondents were asked to report their five-digit home and work zip codes in order to geographically plot where they live and work. The home zip codes correspond (geographically) rather closely to the location of the morning slug lines where survey flyers were distributed.

Home zip codes also closely follow the I-95/395 corridor with only a few farther than ten miles from the highway. As can be seen in the map below, two zip-codes near I-95 in southeast Prince William County and the north end of Stafford County had no survey responses. These zip-codes are co-located with Quantico Marine Reservation.

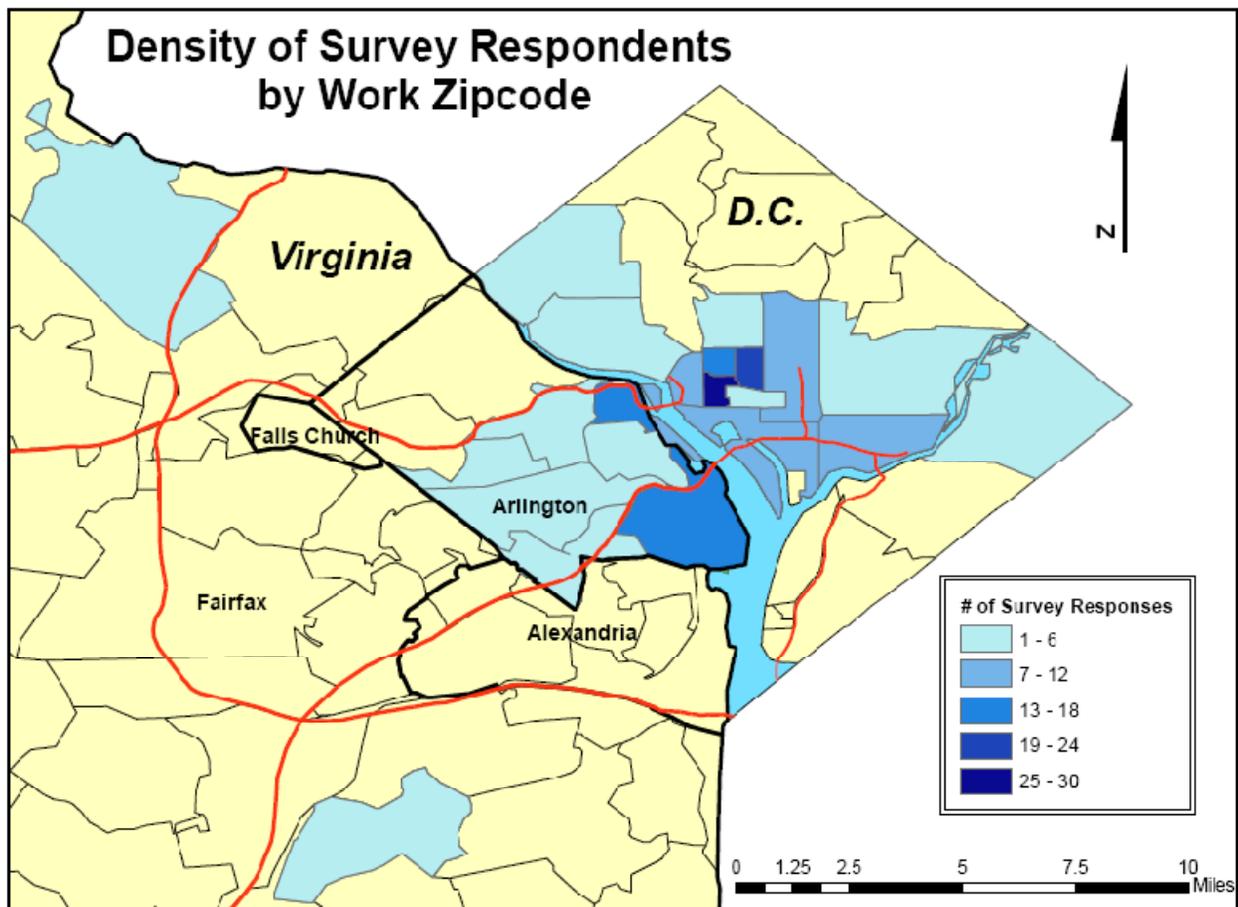
Where Slugging Passengers and Drivers Live



Fewer work zip-codes could be geographically located than home zip codes. This is attributed to the fact that many federal buildings and departments are assigned individual zip codes unrelated

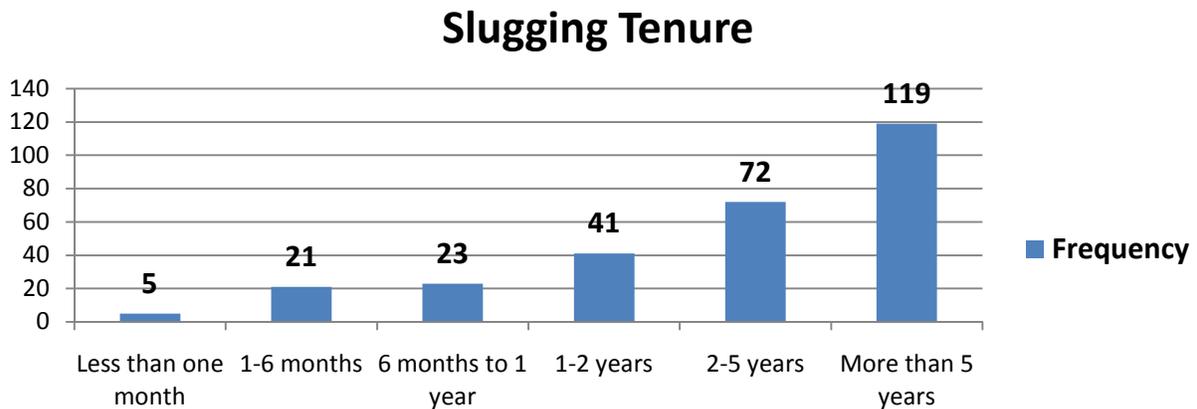
to their geographic location. For example, the Pentagon is assigned six separate zip codes depending on military branch and other criteria (USDOD, 2008), (though none of the Pentagon's six zip codes were reported by survey participants). The zip code location files used to create these maps come from the Census Department and do not include the spatial locations of individual government branches. The work zip codes that did register with the GIS (Geographic Information System) software show that the largest concentrations of workers are in the heart of Washington, D.C., and in southeast Arlington near the Pentagon. The two most popular zip codes, 20005 and 20006, encompass the areas west and north of the White House where many federal offices are located.

Where Slugging Passengers and Drivers Work



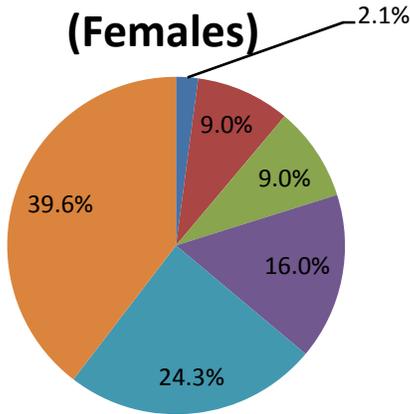
On the whole survey respondents have spent a great deal of time slugging. 119 out of 281 respondents, or 42 percent, report that they have been slugging for five years or more. That figure translates into a minimum of 595 accumulated years of slugging experience. About 20 percent of respondents have been doing it for less than one year. Because the survey was conducted during the summer months, some summertime interns may have been included in the results.

In conversations with the author, slugging participants noted that there are seasonal variations in the number of drivers and passengers. The summer months can be an unpredictable time for passenger and driver levels because of summer vacations and children being out of school. The fall, winter (except for the holidays), and spring tend to have more consistent participation rates.

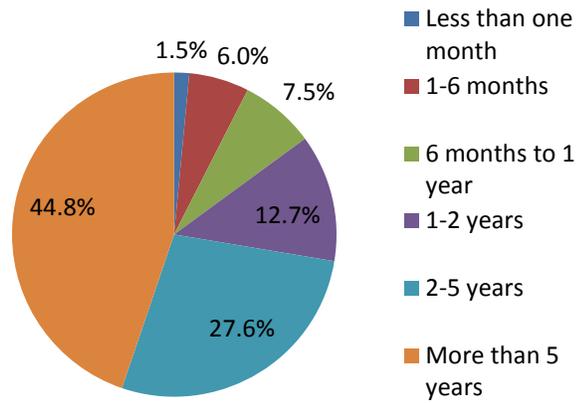


On the same question of slugging tenure, two years emerged as the threshold of change for men and women. A greater percentage of females reported that they had been slugging less than 2 years while a greater percentage of males reported slugging for 2 or more years.

Slugging Tenure (Females)

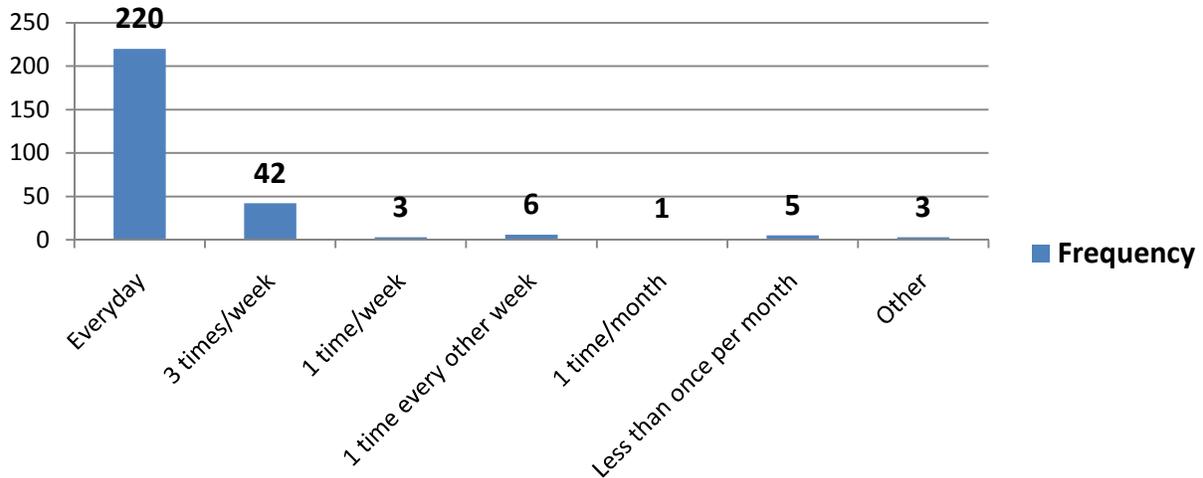


Slugging Tenure (Males)



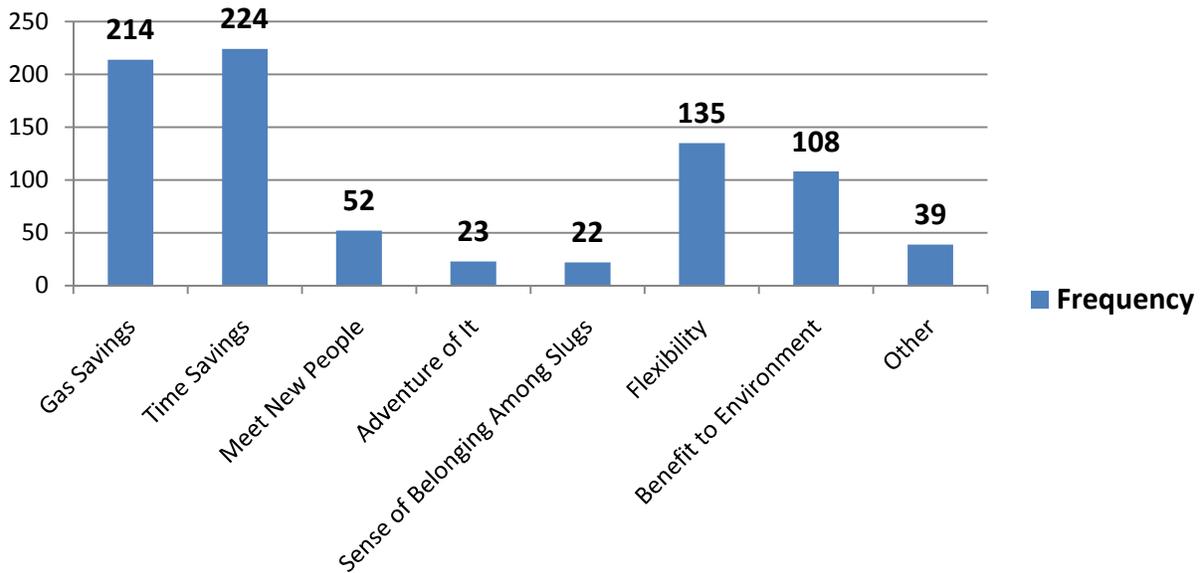
Slugging is the principal means of transportation for the vast majority of survey participants' daily commute.

How Often do you Commute by Slugging?



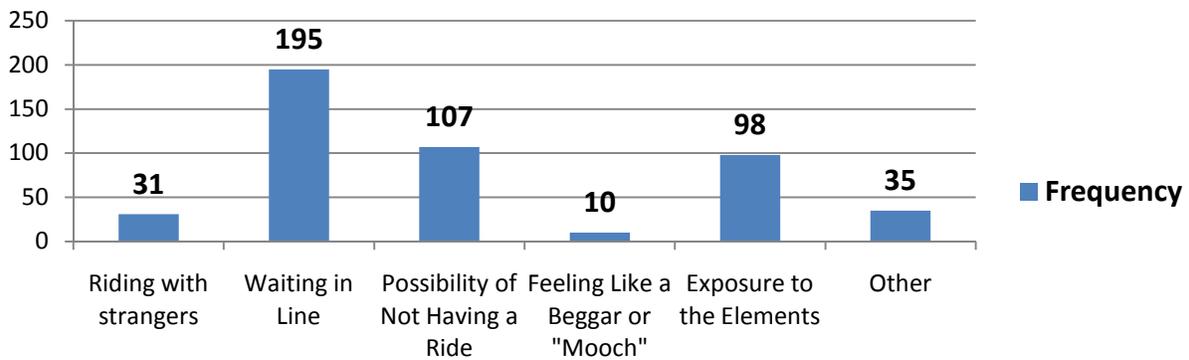
Participants rated time savings, gas savings, flexibility, and carpooling's benefit to the environment as their favorite aspects of slugging (in that order). Those who responded "other" cited convenience and the cost savings associated with not paying for parking as other leading reasons to like slugging.

What do you like the most about Slugging?



The least favorite aspects of slugging were the uncertainty associated with not finding a ride, waiting in line, and exposure to the elements. Those that responded “other” centered their complaints on unclean cars and dangerous driving.

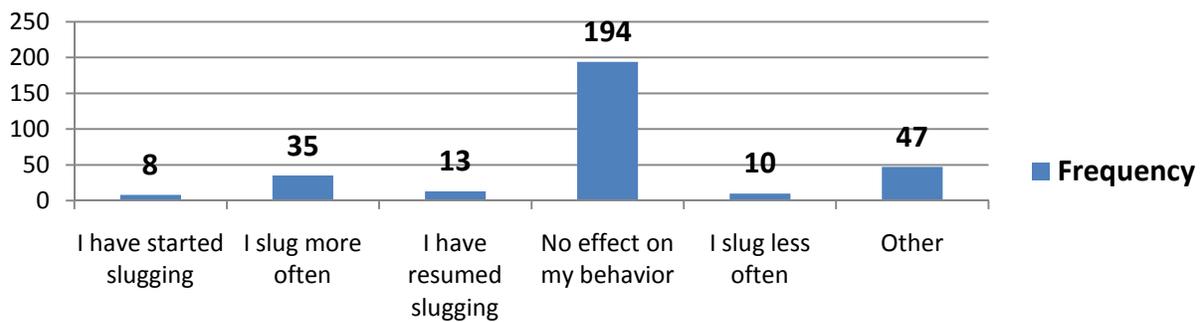
What do you like least about slugging?



The survey asked about the effect of the surge in gasoline prices during the summer of 2008 on slugging behavior. (Gasoline prices in July and August hovered around \$4.00 per gallon.) The responses to this question were interesting in comparison to the responses given on other

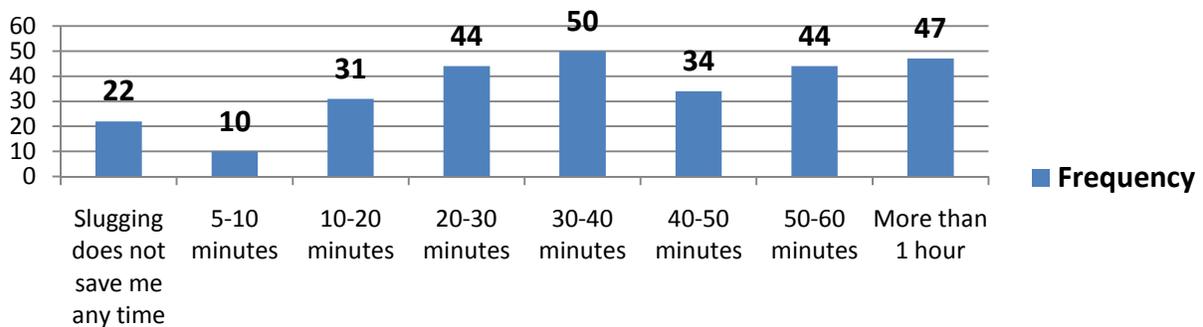
questions. Two-thirds of respondents reported that higher gasoline prices had no effect on their behavior and only 12 percent reported that they slugged more often. However, one of the main complaints about slugging in the open-ended responses was the increase in the number of queuing passengers and subsequent increase in wait time at slug lines since gas prices went up. Individuals may have an easier time noticing changes in the behavior of others versus their own behavior or perhaps those who started slugging as a result of the higher gasoline prices were less inclined to respond to the survey.

Effect of Gas Prices on Slugging Behavior



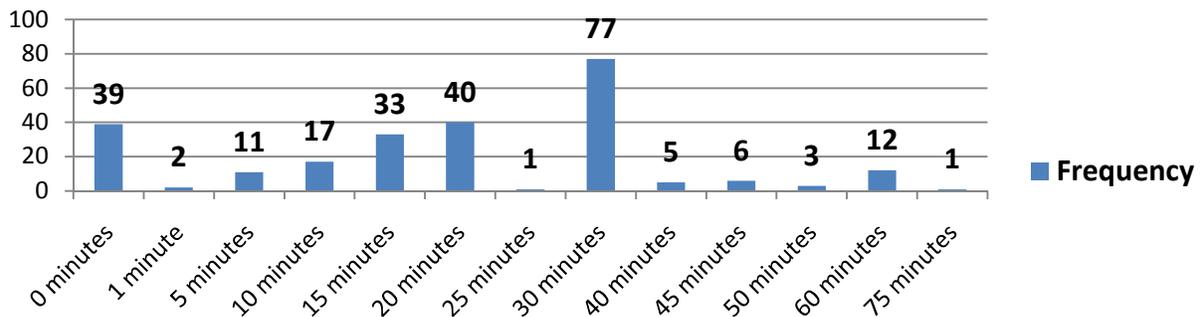
Sixty percent of respondents report that slugging results in a time savings of at least 30 minutes per day on their roundtrip commute.

Estimated Daily time savings from Slugging



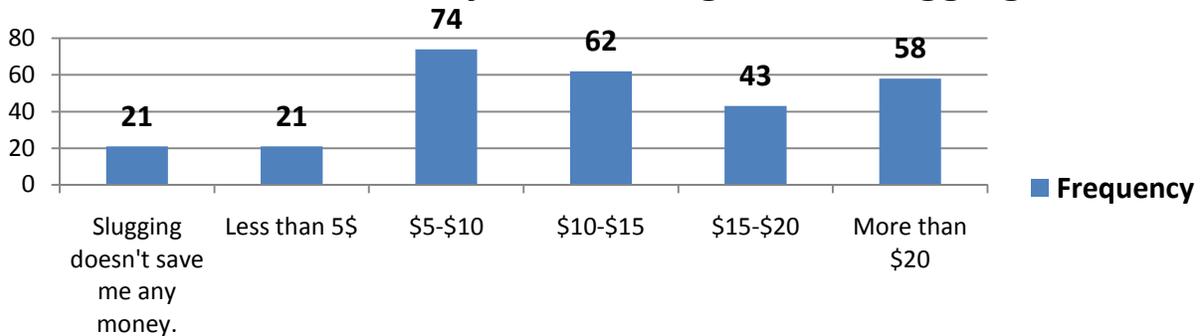
When asked the minimum amount of time that slugging must save to be worth its while, 38 percent responded 30 minutes or greater. When compared to the daily time savings reported in the above chart- it is evident that for most participants time savings is not the most important reason for slugging.

Minimum Amount of TIME that Slugging Must Save to be Worthwhile



Fifty eight percent of respondents estimate that slugging saves them \$10 or more dollars per day versus their normal roundtrip commute and 20 percent report that it saves more than \$20.

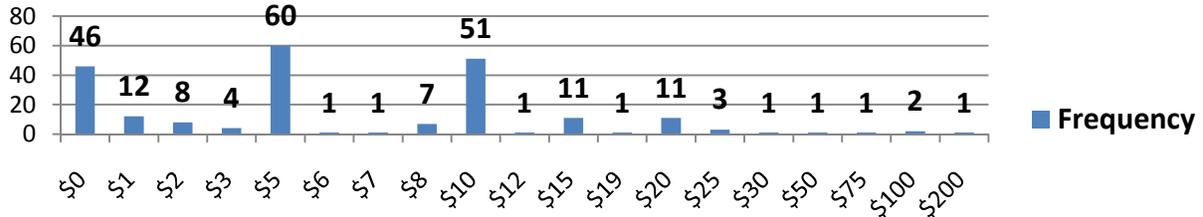
Estimated Daily Cost Savings from Slugging



Survey participants were asked how much money slugging must save them at a minimum for it to be worth their while. While left open ended, a large number of respondents answered \$0, \$5,

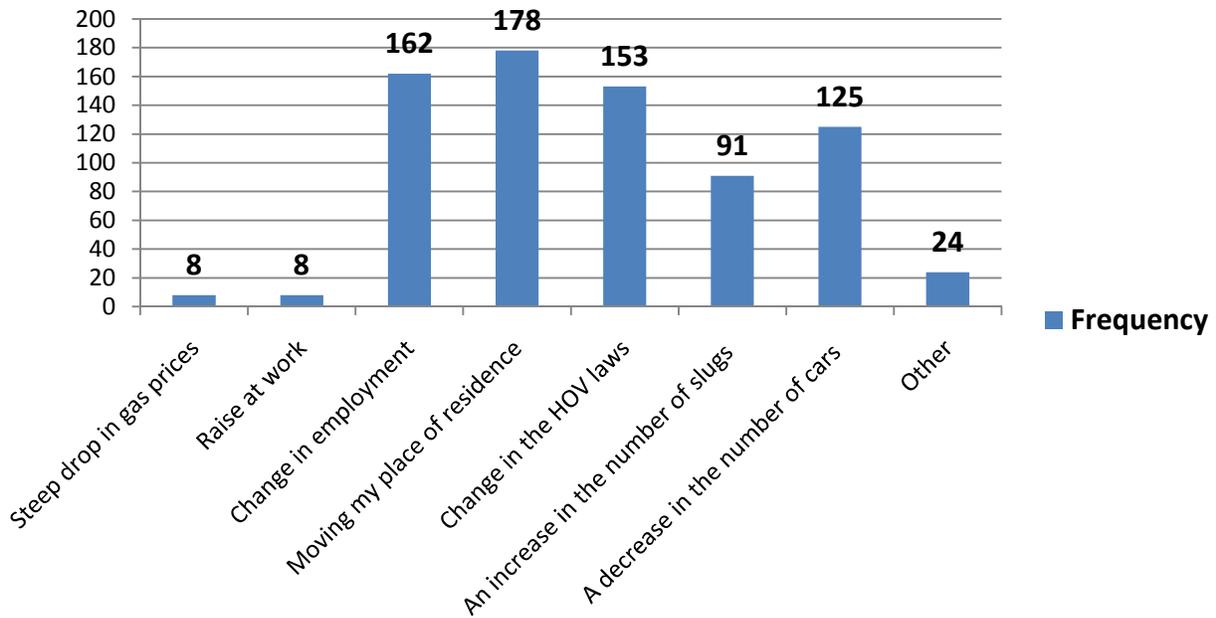
or \$10. When compared with the actual cost savings of slugging it becomes apparent that participants are saving more money by slugging than the minimum they require to participate.

Minimum Amount of MONEY that Slugging Must Save to be Worthwhile

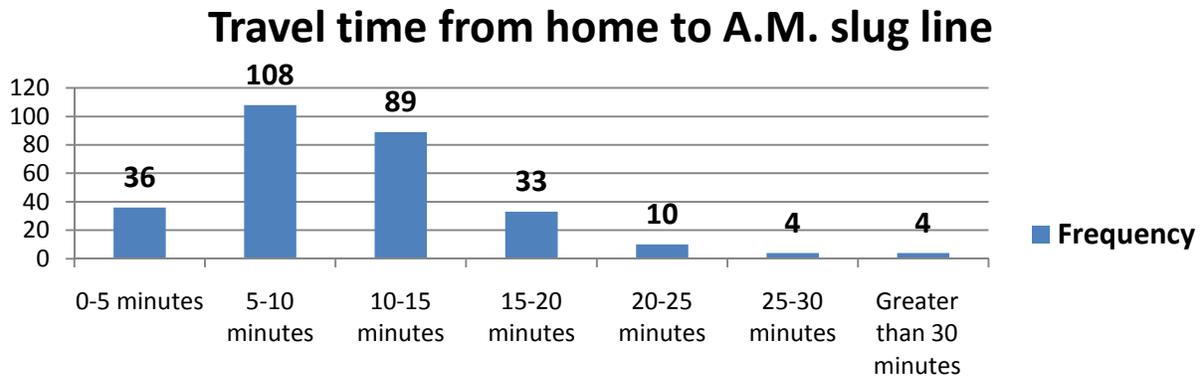


The following chart reveals that the demand curve for slugging (based on user preferences) is mostly independent of gas prices and salary levels. The two most popular potential reasons to stop slugging are wait time (affected by number of slugs in line and number of cars available to provide rides) and geographic factors (such as location of employment or residence).

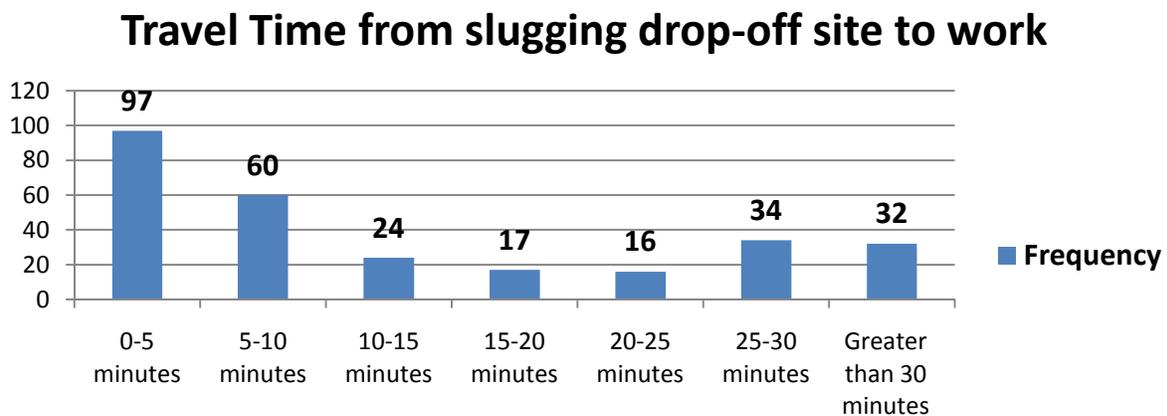
Which scenario might cause you to stop slugging?



The large majority of respondents, over 80 percent, live within 15 minutes of their morning slug line.



About 55 percent of respondents are within 10 minutes of their work place from their morning drop-off point (the location where slugs and drivers part ways). However, a large number, 23 percent, are still at least 25 minutes from work at the slugging drop-off point. This may represent slugs who have another significant leg to their trip after being dropped off. Getting to work may require another trip on the subway or bus for this group.

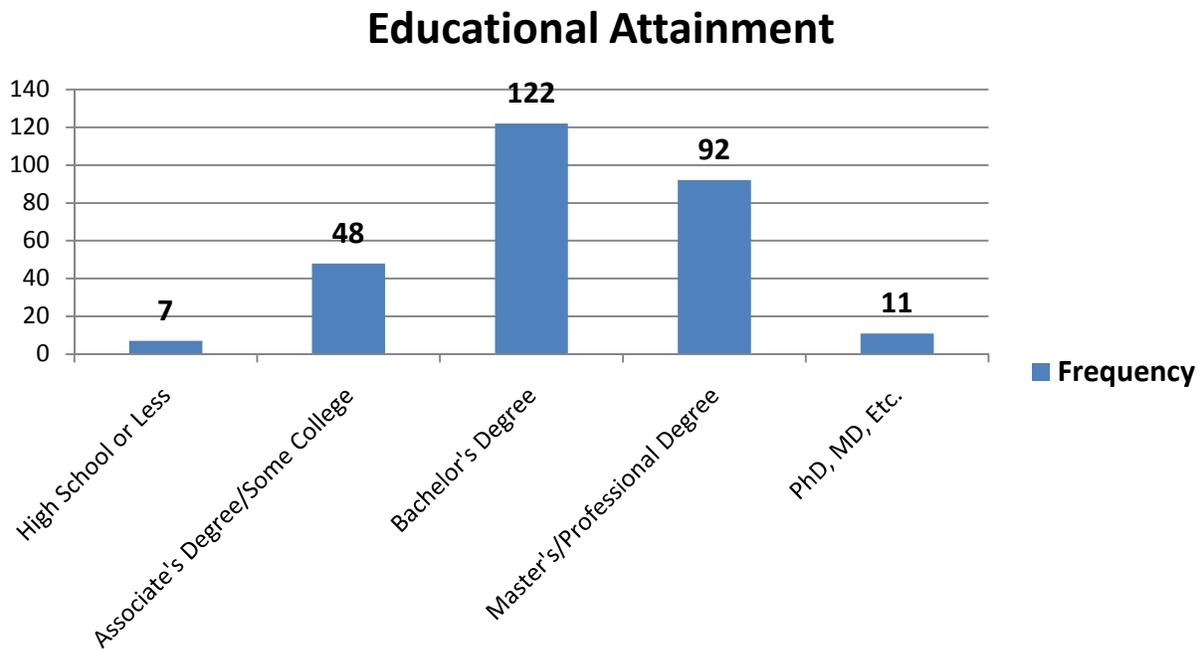


The final question in the survey, an open-ended opportunity for further comments and suggestions, may be the most revealing of all. In total, survey respondents provided over 10,000 words in comments about slugging. Respondents wrote at length about their concerns with the

high occupancy toll (HOT) lanes that have been approved for the Capital Beltway (I-495) and the Shirley Highway (I-95/395) in Virginia. Many expressed their general satisfaction with the system.

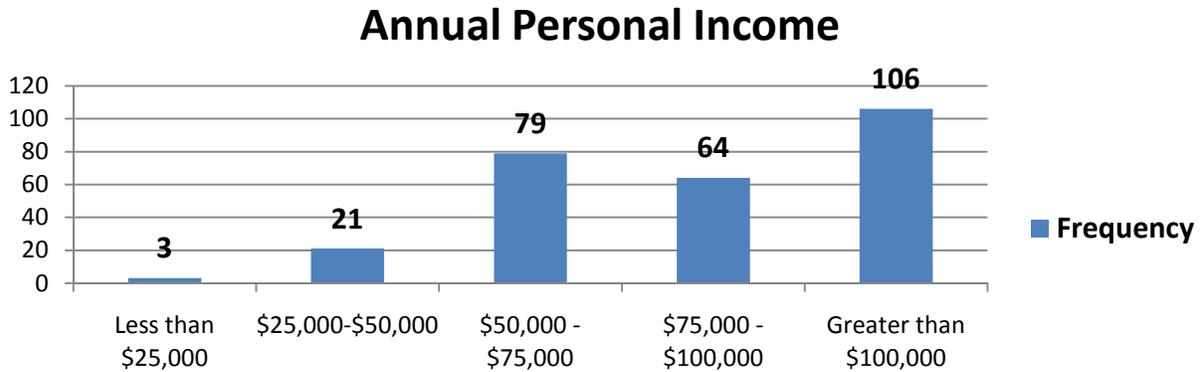
Demographic Characteristics

Respondents were well educated with nearly 80 percent reporting a bachelor's degree or higher. This high level of educational attainment is, however, not unusual for the area. The home zip code most frequently reported by respondents, 22192, had a bachelor's degree attainment rate of 45 percent as of the 2000 Census compared to a national rate of 24 percent (U.S. Census Bureau, 2008). Zip code 22192 is located in eastern Prince William County bordered on the north by Fairfax County and on the east by I-95.

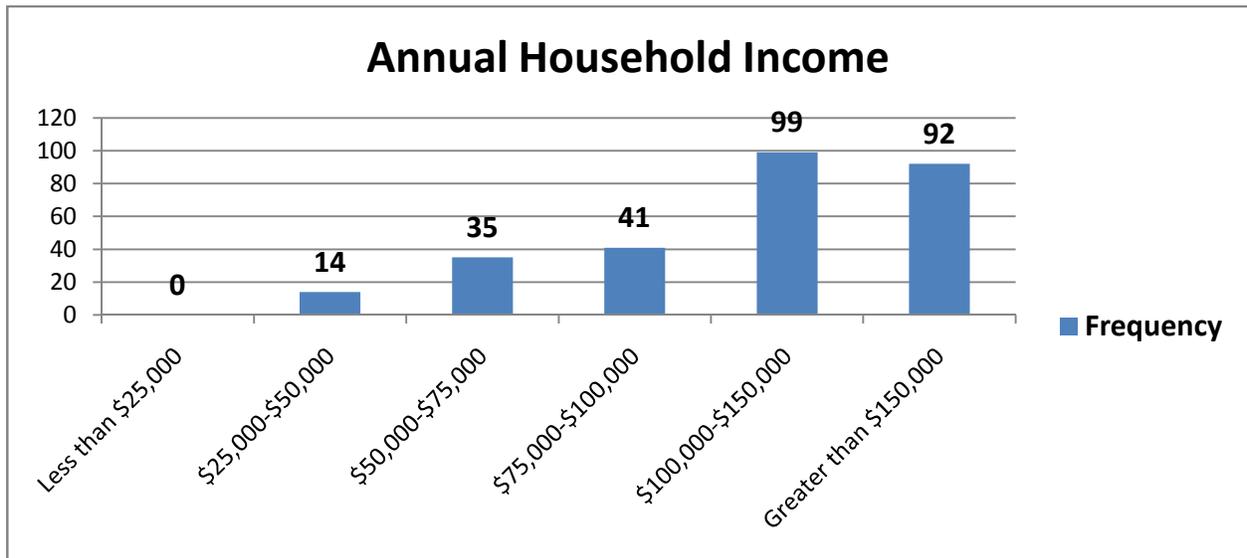


Survey respondents report very high incomes. Nearly 40 percent earn over \$100,000 per year in personal income alone. The questions about personal and household income may be the most

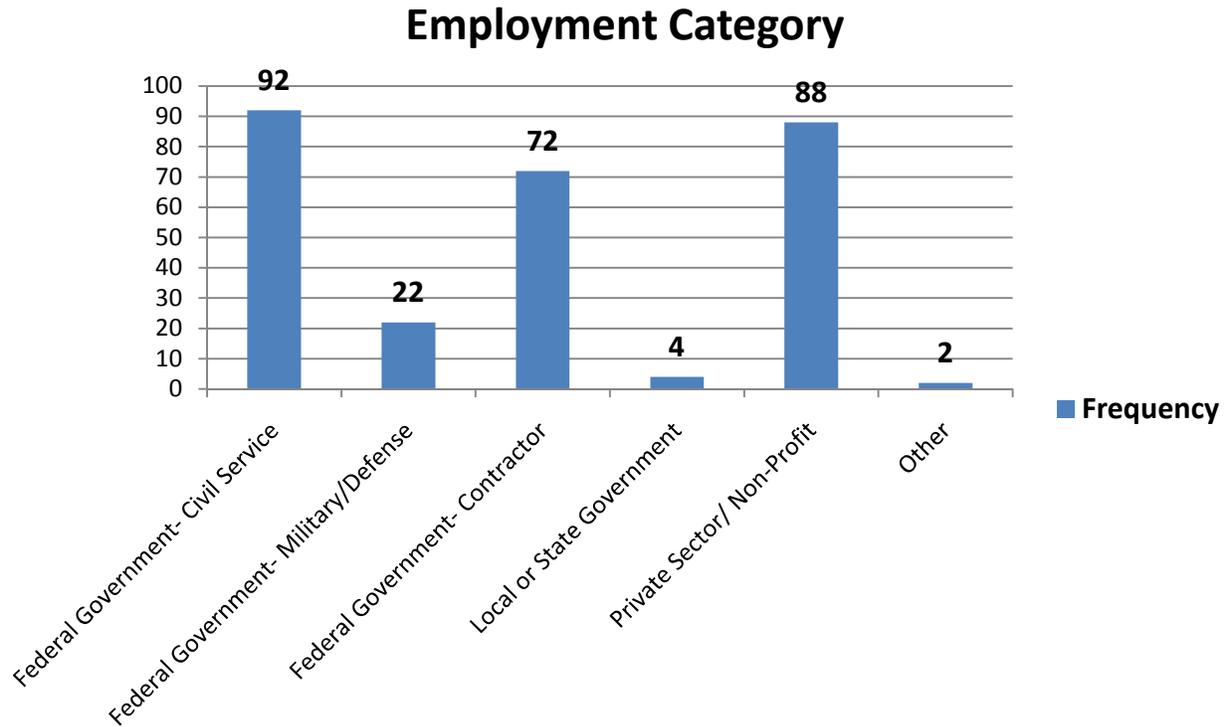
revealing of the characteristics of the subset of slugs and drivers that consented to participate in the survey.



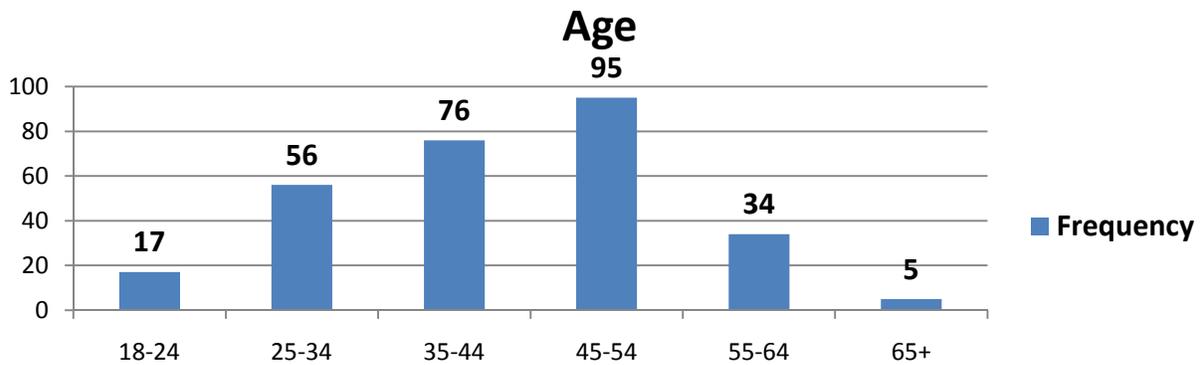
Household income levels are correspondingly high with almost 70 percent of households earning \$100,000 or greater. However, Northern Virginia is also an extremely affluent area and income levels such as those reported are not uncommon. Again the most frequently reported home zip code for slugging, 22192, reported a median household income of over \$72,000 as of the 2000 Census compared to a national median of \$42,000 (U.S. Census Bureau, 2008)



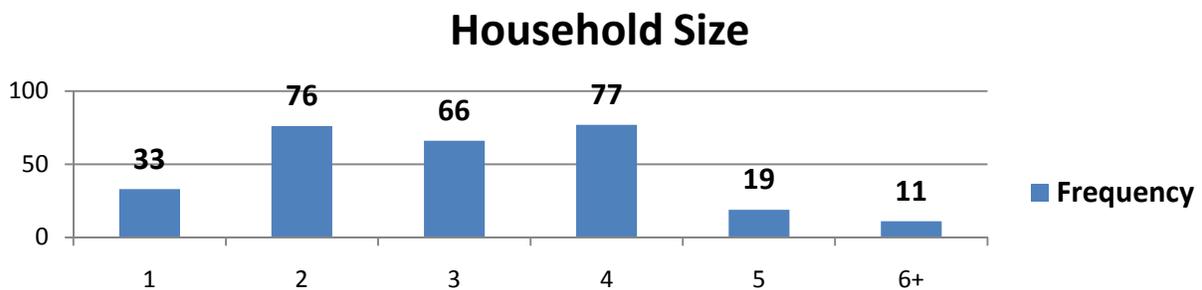
As can be expected in the Washington, D.C., area, the majority of respondents (66%) are employed by the federal government either directly (civil service or military) or indirectly as contractors.



Survey respondents are roughly middle aged. Sixty percent of respondents are in the 35 to 54 age range. The survey author would have expected slugging to attract younger participants both for the risk-taking associated with youth and the monetary benefits that might appeal to those still at the beginning of their careers.

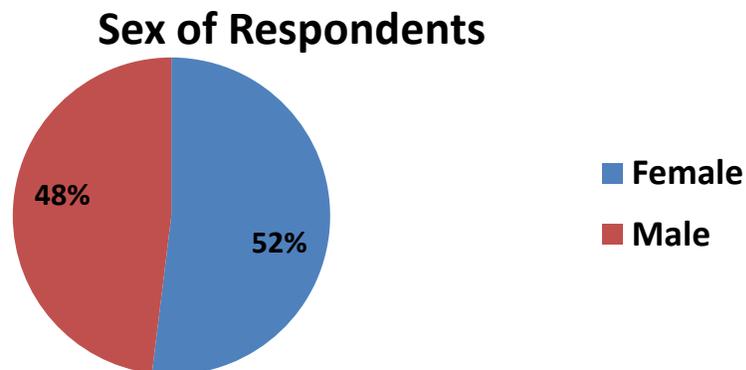


Roughly 61 percent of participants’ households have three or more members. The responses to the age and household questions indicate that slugging is not limited to young singles but also includes older, married individuals with children (a cohort that would not be expected to engage in risky behavior). This is not to say that slugging is risky behavior but that this group’s participation is an endorsement of slugging as a mainstream and safe method of commuting. Another study of Houston commuters found that nearly 75% of carpools involve members of the same family or “fampooling” (Li, Embry, Mattingly, Sadabadi, Rasmidatta, & Burris, 2007). “Fampooling” may also account for some of the slugging volume.



Slightly more females than males responded to the survey. There is no way of knowing if that slightly different response rate represents greater participation rates in slugging by females or merely that females were more willing to complete the survey. The overall equal participation

rate by females is somewhat surprising. Due to the potential risks of slugging one might expect females to have a lower participation rate. The survey results, however, indicate otherwise.



Based on the findings of this survey a typical slugging participant would have the following characteristics.

The participant:

- Is equally likely to be a male or female.
- Slugs for the time flexibility it affords (if participating as a driver) or for the cost savings it affords (if participating as a passenger).
- Uses slugging for traveling both to and from work.
- Lives in Prince William County.
- Works in east or southeast Arlington or near the White House in Washington D.C.
- Has been slugging for several years.
- Uses slugging as his/her primary daily method of commuting.
- Saves at least 30 minutes in time and \$10 in costs by slugging each day.
- Lives within 15 minutes of his/her morning slug line and works within 10 minutes of his/her slugging drop-off point.

- Is educated to the level of a bachelor's degree or higher.
- Has a household income of over \$100,000.
- Works for the Federal Government.
- Is between 35-54 years of age.
- Has a household size of 2-4 persons.

Hypothesis Testing and Statistical Analysis

The author formulated the following hypotheses for statistical testing:

- H0: (Null Hypothesis) There is no association between variables.
- H1: Drivers will have higher household income than passengers.
 - H1a: Drivers (*excluding the "both" category*) will have higher household incomes than passengers.
- H2: Drivers will be older than passengers.
- H3: Females will answer "riding with strangers" statistically more often to question 12 (things they like least about slugging) than will males.
- H4: The first 20 percent and last 20 percent of respondents will be statistically similar.
 - H4a: There will be an association between ROLE and when the person responded.
 - H4b: There will be an association between HHINCOME and when the person responded.
 - H4c: There will be an association between AGE and when the person responded.
 - H4d: There will be an association between SEX and when the person responded.
- H5: Both slugs and drivers will be highly educated.

These hypotheses were tested with a Chi-squared test using JMP statistical software. The only hypothesis for which any statistical association was found was that drivers have a higher household income than passengers (when those reporting a role as “both” were removed from consideration). In other words, there is less than a 5 percent chance that the role participants choose in slugging is completely independent of household income. This is reasonable because those with higher incomes can better afford to pay for gasoline, car maintenance, and parking than the less affluent. Further they may value their time such that they are not willing to wait in line for a ride.

All of the other hypotheses returned no (or very little) evidence of association between variables. There is no evidence that a participant’s age has any bearing on whether he or she participates as a driver or passenger. This was surprising because it was expected that younger respondents would drive less because they tend to earn less money (they are earlier in their careers). The statistical testing also discovered that women were not more likely to cite safety concerns as something they dislike about slugging than men. Perhaps the long experience that most respondents have with slugging has assured them of its safety.

Groups that found out about the survey through different means responded at different times. For example, the first 20 respondents learned about the survey through the www.slug-lines.com message boards. The last several dozen to take the survey were contacted later through email list serves. Due to the differing times of contact between groups hypothesis 4 was designed to test for significant differences between early and late responders to the survey. Very little difference between early and late responders was found.

The final hypothesis test looked for an effect of educational attainment on the role played (driver or passenger) in slugging. No evidence of association between education level and role was found.

| Hyp. | Association Between: | P-Value (Prob. > χ^2) | Pearson | Conclusion |
|-------------------------------|---------------------------|--------------------------------|---------|---|
| H1 | ROLE & HHINCOME | .2189 | .2720 | No evidence of association |
| H1a | ROLE (no both) & HHINCOME | .0497* | .0641 | Evidence of association. |
| H2 | ROLE & AGE | .8598 | .9357 | No evidence of association |
| H3 | SEX & NOLIKESLUG1 | .3490 | .3509 | No evidence of association |
| H4 | EARLY & _____ | | | Not much difference between early and late responders |
| H4a | ROLE & EARLY | .7739 | .7738 | |
| H4b | HHINCOME & EARLY | .5065 | .5194 | |
| H4c | AGE & EARLY | .2728 | .2969 | |
| H4d | SEX & EARLY | .9879 | .9879 | |
| H5 | ROLE & ED | .1411 | .1818 | No evidence of association |
| *significant at the .05 level | | | | |

Survey Improvements

The results of the survey should be approached with caution. Due to the nature of the survey as a voluntary instrument, standard sampling protocol such as randomness could not be introduced. Survey participation was entirely voluntary and required some effort on the part of participants. The author theorizes that the survey results will be skewed to represent the better educated and more computer literate contingent of slugging participants.

Visual observation of the slug-lines indicated that blue collar workers had a sizeable participation rate and that participants were highly racially diverse (among both drivers and passengers) though the survey instrument collected no data on race due to space limitations. The author's opinion based on personal observations when distributing flyers is that English is a

second language for many participants. The racial and ethnic makeup of slug lines would be an interesting topic for further study.

Another possible reason for skewness toward the wealthier and better educated contingent of total slugs is their familiarity with higher education and academic research in general. Having attended college and perhaps graduate school themselves, this group probably felt more comfortable talking to a graduate student, and perhaps sympathized with the survey administrator in their decision to participate.

The Virginia Tech survey instrument (www.survey.vt.edu) returned error messages to several individuals who attempted the survey. The author received emails from five separate individuals indicating that they were not able to access the survey. In addition, two people waiting in the 14th and New York slug lines told the survey administrator that they had tried to access the survey but had encountered an error message and would not be trying again. For this reason, some data points that would have been included in the survey results were certainly missed.

If another survey were compiled in the future to study slugging, the author would recommend that separate surveys be created for passengers, drivers, and those who fulfill both roles. Some survey respondents who only participated as drivers commented that the survey instrument appeared to be geared to passengers and not drivers. Efforts were made in formulating the survey instrument to make it equally answerable to both passengers and drivers. However, based on comments left by participants it appears that not all drivers answered all questions because they felt they that some questions only applied to passengers. For example the question “How

often do you commute by slugging?” is intended for both passengers (who are the actual slugs) and drivers who pick up the slugs. A number of drivers thought it was intended only for passengers and thus did not answer. Future studies on this topic would do well to have two surveys, one written for each group.

DISCUSSION

Supply and Demand Stability

One consequence of higher gasoline prices during the study period was that passengers had to wait in longer lines. However, those who were still willing to drive were rewarded with shorter wait times for passengers. The survey administrator noted that in slug lines that had long lines of passengers queuing, those in line after the driver had recruited two passengers would often ask if the driver would take a third passenger. This may be indicative of the high number of people who had stopped driving and started riding when gasoline prices spiked in the summer of 2008.

The request to add an additional passenger changes the fundamental economic relationship of slugging. Slugging has typically worked well because it is considered an equal relationship between driver and passenger where both receive an equal benefit. The passenger benefits by receiving a ride and the driver benefits by qualifying for HOV lanes and saving time. When a third passenger (fourth occupant) is introduced, the exchange loses its equality. The third passenger is a freeloader because the driver receives no additional benefit in exchange for giving him/her a ride. The third passenger also affects the relationship between the other two passengers and the driver because the passengers must compete with one another to give the driver that benefit. The driver knows that the service he/she gives is in high demand and so is in

a position of power compared to the passengers. This is a position that drivers did not previously occupy.

Given that it is rather easy to bring an extra person in the car, some drivers may not see it as a burden. However, the third passenger should be aware that he is receiving a handout and should act accordingly by being extra courteous and grateful. Discussions on the slug-lines.com message board centering on this topic reveal that some drivers hesitate to take a third passenger because the added weight affects gas mileage and creates more wear and tear on a car.

This observation is in agreement with other sources that show that it has historically been the case that drivers will tend to take only the minimum number of passengers needed to qualify for HOV and no more. Before 1989, when the requirement was HOV-4, cars that had the capacity to carry more than 4 occupants rarely did so (Reno, Gellert, & Verzosa, 1989). A VDOT study came to the same conclusion that drivers “tend to pick up only as many slugs as they need to meet the minimum occupancy required to use the HOV lanes” (VDOT, 1999, p. 18). This suggests that a greater motivator for participating in slugging is fear of punishment for violating the HOV law and not charity or altruistic idealism.

Consequences for the Government

Slugging has an interesting relationship with public transit. Most slug lines co-locate with transit stops because slugs need a backup plan for getting home in case they cannot find a ride. For example, the majority of slug-lines in Houston, San Francisco, and Northern Virginia are co-located with transit stops. Thus reliable public transit can be considered a requirement for a

successful slugging system. However, if the public transit system is overly reliable and convenient it may lure participants away from slugging and eliminate the incentive to slug (Mouras, 2008). Public transit needs to be reliable enough to serve as a backup but not so reliable as to lure participants away from slugging.

In Northern Virginia, one competitor for slugging is the “SmartBenefits®” commuting subsidy offered by the Washington Metropolitan Area Transit Authority (WMATA). SmartBenefits® is available to commuters through their employers and redeemable with 100 different transportation providers throughout the Washington, D.C., region. Formerly called “Metrochek,” the system provides a monthly subsidy for using the OmniRide bus, Virginia Railway Express train, and METRO train, among many others (WMATA, 2008). The cost savings provided by the “SmartBenefits®” program decreases the marginal benefit of the monetary savings provided by slugging.

Reno et al (1989) concluded that “Springfield instant carpools (slugging) result in a cost saving to WMATA and the county” (p. 58) because fewer buses are needed to transport commuters. There is another side to this argument however. Slugging takes much needed fare revenues from the coffers of government transit agencies. All public transit systems in the U.S. require a subsidy to operate; thus every transit fare is critical for a transit system’s support. For each person who slugs instead of using transit, tax payers must subsidize an additional empty seat on the bus or train. Beroldo reports that in California public transit agencies began operating fewer buses as a result of slugging. The Alameda and Contra Costa Transit District attributed a \$900,000 loss in revenue to slugging (Beroldo, 1990).

RECOMMENDATIONS AND CONCLUSIONS

Recommendations

One might argue that because slugging is a leaderless system, making recommendations is futile. In reality though, slugging is dependent upon a host of individuals and organizations for its continued success. It is also highly affected by the various transportation policies of individual municipalities and regional planning bodies along Interstate 95/395. Government entities such as VDOT and the departments of transportation in Fairfax, Prince William, Stafford, and Spotsylvania counties can benefit from knowing more about this particular segment of carpoolers. In addition, those who participate in slugging may be able to improve the system based on the findings of this report.

One survey respondent recommended that the terms “slugging” and “slugs” be discontinued because they originated as derogatory terms. The practice is known as “casual carpooling” in Houston and San Francisco though to the author that is a misnomer because there is very little that is casual about slugging’s deliberate system. In the author’s opinion the term “flex-pooling” is the best descriptor of the practice. Because, at its core, slugging is just a creative way to organize carpools while the major difference (as well as major advantage) between slugging and traditional carpooling is its flexibility.

Survey respondents are extremely worried about the coming HOT lanes and their effect on slugging. The Commonwealth of Virginia has made plans to convert the two HOV lanes along the I-95/395 corridor into three High Occupancy Toll (HOT) lanes, which will allow vehicles with less than the required number of occupants to use the reserved lanes for a fee. Concerns

about HOT lanes are three-fold. First, respondents are concerned that the number of cars paying the toll will be so high that the reserved lanes will be as crowded as the general purpose lanes and all time savings will be lost. Second, they are concerned that the HOT lanes will not recoup enough money from single and dual occupancy vehicles to cover costs and that the management company will in turn petition the state to collect tolls from all vehicles regardless of their passenger load. Third, they are concerned that drivers will find it more convenient to pay the toll than to pick up slugs and the number of carpools formed by slugging will decrease. This is not to mention concerns about the overall social and economic equity of the plan.

Organizing an effort among slugging participants to respond to the HOT lanes proposal is difficult because of slugging's decentralized structure. However, among the three cities nationwide with slugging- the Washington, D.C., group is certainly the most well organized and well equipped to deal with such a threat. A recent article in the Washington Post reports that Prince William County has called for a study of the HOT lane's impact on slugging (Weiss, 2008). Additionally, VDOT has conducted focus groups with slugs to learn more about the potential effect of the HOT lanes (Weiss, 2008).

Slugging has very few known drawbacks. Some transit providers may object to slugging because it competes with transit for ridership but its true effect on transit ridership is debatable. Safety is another general concern about slugging. However, the author has yet to come across an account of a serious crime or injury occurring as a result of slugging. There is no way of knowing what the effect of just one crime, injury, or fatality linked to slugging would have on the system. The consequence could potentially be catastrophic, but based on slugging's long

history and record of safety, the system would probably recover with time. Other possible contributors to slugging's relative safety are the randomness with which ride matches are made, the busyness of the slug lines and route, and the presence of uniformed military personnel who slug to the Pentagon (Richardson, 2008).

Slugging is beneficial to the Washington, D.C., region. Local governments can help support slugging by recognizing and supporting it rather than ignoring it. Jurisdictions in Virginia (in cooperation with VDOT) should continue to build and fund commuter lots along the I-95 corridor. Signage at the individual slug lines would also be very beneficial. Arlington County is the only municipality known to have taken this step so far. Other token improvements could be made such as the addition of covered waiting areas like those currently found at bus stops to protect queuing slugs from the elements. Likewise, the D.C. government should look for ways to accommodate afternoon slug lines in safer locations away from traffic lanes. However, local and state government should be careful so as not to get overly involved in "helping" slugging. The system works very well as it is and could be harmed by excessive government intervention. Though, undoubtedly, a few small and well placed changes on the government's part could go a long way.

Although the system is dependent on government enforcement, the Virginia Department of Transportation and other municipal bodies avoid dealing with slugging directly. Though not uninterested, these bodies may distance themselves from the practice for liability concerns. If VDOT were to support or promote slugging and someone were to become injured while doing it, then the Commonwealth could potentially be held liable for any damages incurred. However,

government entities are protected under “sovereign immunity,” a legal designation that prohibits civil suits against them, which begs another explanation for their lack of involvement.

VDOT and the respective municipalities along the I-95/395 corridor are careful to take only a pro-carpooling stance, and not concern themselves with how carpools are formed. Thus commuter lots and dedicated on/off-ramps have been built to better serve both traditional and “casual” carpools along the HOV corridor. This is not the case in San Francisco where the Bay Area Rapid Transit District (BART) provides signage- “CASUAL CARPOOL LOADING/ UNLOADING PASSENGER LINE FORMS HERE” designating “casual carpool” pickup locations at commuter lots (Rides for Bay Area Commuters, Inc., Jan. 1999). The reason for BART’s public recognition of slugging (known as casual carpooling there) and VDOT’s comparative silence is unknown.

One potential explanation for the limited attention that slugging receives from government bodies is that its contribution to the overall traffic volume may be comparatively insignificant. A 2006 study commissioned by VDOT concluded that about 6,500 passengers commuted by slugging on a given weekday (Vanasse Hangen Brustlin, Inc, June 2006). That translates to roughly 3,250 vehicles, each occupied by two slugs and a driver. According to VDOT traffic counts, I-95/395 has daily traffic volumes of 200,000-290,000 vehicles (VDOT, 2007). Including the effects of roundtrip travel, at a minimum, slugging accounts for 2.25 percent of daily I-95/395 vehicle volume. For another comparison of slugging’s relative effect, the Virginia Railway Express (VRE) train service carries between 15,000-16,000 commuter passengers per day (Virginia Railway Express, 2008). In spite of its small footprint, slugging moves enough

people and contributes enough traffic volume to the roadway for it to warrant attention from transportation planners at all levels.

Conclusions

Beroldo hypothesized that, based on his studies of casual carpooling in California, four criteria are necessary for a slugging system to exist (time savings incentive, accessible pick-up locations, large employment clusters, and parallel transit service) (Beroldo, 1990). The author has elaborated and expanded on those criteria to explain why slug lines have formed in only three U.S. cities when HOV lanes are prevalent throughout the country. The list is by no means exhaustive or definitive, but merely serves as a base for additional research. The author theorizes that slug lines require the majority of the following characteristics in order to succeed:

- **HOV-3 or greater occupancy requirements for safety:** HOV-2 requires that only a driver and passenger be present in a car. Slugging passengers or drivers may find this awkward and feel unsafe in this situation. HOV-3 is probably the ideal because it is the minimum needed to allay major safety concerns (Burriss & Winn, 2006). Additionally, as has been Virginia's experience, HOV-4 may be excessive for the purposes of maximum lane utilization. The I-95/395 corridor in Virginia was originally restricted to HOV-4 from 1974 to 1989. But after 15 years, Virginia lawmakers concluded that HOV-4 restrictions resulted in too few cars on the road and underutilized lane capacity and the law was relaxed to HOV-3 (Reno et al, 1989).
- **Strict enforcement of the HOV laws and stiff penalties for violators:** If drivers don't believe that they will be caught or that punishments will be light, they lose their incentive to pick up slugs and incentives are what drive the system.

- **Large groups of commuters who live and work near one another:** Since it can only be expected that a minor subset of total commuters will use slugging as a means of commuting, there must be a sufficiently large number of people who live and work near one another to create a critical mass of drivers and riders for the system to function.
- **HOV length and type:** The HOV lanes must cover a sufficient distance to make it worth a person's while to slug. Most slugs (passengers) drive to a commuter lot, wait in line for a ride, and walk to work from the drop-off point. The time saved must make the extra effort and inconvenience of slugging worthwhile. This is not to mention the added risk of encountering inclement weather, a dirty car, or an unsafe driver. Additionally, the type of HOV arrangement has a big effect on time savings. HOV lanes that are physically separated from the general purpose lanes provide a greater time savings benefit than a single HOV lane separated from the general purpose lanes by only a painted stripe.
- **Convenient transportation alternatives:** Bus, train, or other transit must be available in close proximity to the slug lines for those who need to travel outside of the normal slug line hours or who are unable to obtain a ride.
- **A choke point to eliminate substitution:** Both the San Francisco and Washington, D.C., slug corridors have obvious choke points that make it very difficult for commuters to use alternative routes to work. San Francisco's choke point is the Bay Bridge, which provides a route from Oakland to downtown which is 70 percent shorter than its best competitor. In Northern Virginia there are multiple choke points though none is as dramatic as San Francisco's. The Potomac River closely parallels I-95/395 (within 5 miles or less) between just north of Fredericksburg and the Fairfax/Prince William County line. In addition, the river has no convenient crossings between the Woodrow

Wilson Bridge at the Capital Beltway (I-495) and Route 301 east of Fredericksburg, a distance of over 50 miles. Further choke points are created by the Quantico Marine Base and the Fort Belvoir Military Reservation that both border the highway and are restricted access facilities. Quantico is especially difficult to bypass because it straddles I-95. The only other major road that bisects the Quantico reservation is Route 1, a four lane road regularly punctuated with traffic lights and busy strip malls.

The following table illustrates an application of the above criteria to explain the lack of slug lines on the other HOV corridors of the Washington, D.C., region (I-66, Route 267, Route 50 in Maryland, and I-270).

Comparison of Washington, D.C., Area HOV Corridors with Necessary Conditions

| | HOV-3+ | Strict HOV enforcement | Many commuters | HOV length & type | Convenient transportation alternatives | Choke point |
|------------------|---------------|-------------------------------|-----------------------|------------------------------|---|--------------------|
| I-66 | No | Yes | Yes | Partial | Partial | No |
| Route 267 | No | Yes | Yes | No | Partial | No |
| Route 50 | No | Yes | Yes | No | No | No |
| I-270 | No | Yes | Yes | Partial | Partial | No |

Working against them, all four corridors have an HOV-2 requirement which reduces slugging’s appeal for safety reasons. Further, they lack choke points which help eliminate substitution.

However, in their favor, all four have well enforced HOV laws and large numbers of commuters headed into the city.

Routes 267 and I-66 have the most promising HOV lane setup for slugging. Route 267 has two tolled sections administered by different tolling authorities: the Dulles Airport Toll Road and the Dulles Greenway. Route 267 feeds into I-66 near Falls Church where I-66 is HOV-2 restricted

inbound during the morning commuter. All of the I-66 lanes inside the Beltway (I-495) are HOV-2 restricted during the morning (inbound) and evening (outbound) peak hours. Outside the Beltway, only the far left lane is designated HOV-2 during rush hour, though it functions in the same way. The HOV lanes inside the beltway are perfectly set up for slugging except for their HOV-2 designation. These lanes began as HOV-4 in 1982 and were then downgraded to HOV-3, before becoming HOV-2 today. The author cannot speculate as to why slugging did not take hold when I-66 was HOV-3 and HOV-4, but it would be an interesting topic of further research. I-66 has Metro train service along much of its length and commuter bus service is available along much of Route 267. In the author's opinion subsidizing tolls for cars with three or more passengers on Route 267 would be the tipping point for introducing slugging to the corridor between Leesburg and the District along Route 267 and I-66. The current toll for a two-axle car traveling from Leesburg to I-66 on Route 267 is \$5.75 (VDOT, 2008) (Dulles Greenway, Inc, 2009). Saving \$11.50 per day would be a very strong incentive for drivers to find extra passengers to fill the car. Slugging would serve to fill that demand very well.

The community that has formed around slugging is very proud of the fact that the system exists and thrives without any organizational intervention from the government. Spielberg and Shapiro note that "the general view of slugs is that any attempt at formalizing the activity would destroy it" (Spielberg & Shapiro, pre 2003). Likewise Beroldo notes that participants in California "tend to be very proud of their system and are capable of defending it" (p.147). One interesting note is that slugging owes its existence to the HOV regulations enacted by the state government. The ongoing enforcement of HOV laws is a key enabler of slugging's continued existence. The author theorizes that if the Virginia State Police stopped enforcing HOV restrictions, slugging

would be dead as a practice in less than six months (and possibly in six weeks). A certain irony exists in the fact that this “headless” system is entirely reliant on the enforcement of state HOV laws for its ongoing existence. The slugging community probably doesn’t realize or appreciate the service that the Virginia State Police render to sustain slugging.

Slugging in Northern Virginia is largely a product of the HOV system. Instead of putting the HOV system in place, Virginia could have tried to set up a formalized government sponsored and funded system like slugging that would have cost a great deal of money and probably been much less effective than the present system. Instead the government imposed rather simple limitations on the corridor and let the people create their own solutions in response. The interplay between minimal legislation and the creativity of the people should be a shining example for the government in its quest to solve other similar social challenges.

Slugging is a good thing for Northern Virginia. It takes cars and the associated traffic and pollution they create off the roads and helps provide a faster and easier commute. Slugging still has not reached its potential in Northern Virginia. It could provide even more benefits to commuters and the region in general with a little help from the state and local government. Transportation planners should take slugging into account and incorporate it (by name) into regional transportation plans. A few simple legislative changes could help bring slugging to I-66 and the Dulles Access Road (267), the two other major commuting corridors in Northern Virginia. Interstate 66 would probably need its existing HOV lanes (outside the beltway) to be separated from the general traffic lanes and raised to HOV-3 (they are presently HOV-2) to incentivize slugging. As previously stated, slugging might also develop along Route 267, in the

model of San Francisco, if the toll fees were waived for vehicles with 3 or more passengers.

Both corridors already have the foundations for a reliable backup transportation system (Metro trains and commuter buses).

Slugging is not most interesting for what it can teach about carpooling. Rather, the trust among strangers and the leaderless organization that have evolved in slugging are its truly fascinating characteristics. Slugging is a contradiction to the everyday culture of America. Americans are cautious of strangers and have traditionally embraced rugged individualism and independence. Those activities that do require coordination typically become bogged down by bureaucracy or legal requirements. Slugging is a truly democratic form of commuting. Observers find it baffling that perfect strangers can summon enough trust in one another to share vehicles and surrender their personal safety to the care of a stranger. Further, slugging occurs not once or twice among a few individuals but on a daily basis with thousands of participants. Slugging is a symbiotic relationship that benefits all parties involved and even society in general. Although the scope of this study was limited more to the mechanics of the slugging system than the underlying “community” involved, further studies of the phenomenon would do well to focus on the creation and maintenance of the slugging community and the social benefits it provides.

One important purpose of this paper is to document slugging as it exists in Northern Virginia in 2008. Though officials have given their reassurances that the change to HOT lanes will not affect the commutes of current carpoolers, the feeling among slugging participants is that the new HOT lanes may signal the end of slugging as it currently exists. The future will show the

full effect of the HOT lanes on this unique system of commuting but the feeling among many is that slugging could disappear.

In short, slugging embodies the advantages of traditional organized carpooling such as a faster trip, cost savings, less pollution, and fewer cars on the road without the drawback of a rigid schedule to which all members of the carpool must adhere. Perhaps slugging can best be summed up by the final comment left by an anonymous survey respondent: “A great way to save time and money. Safe, easy and reliable. I highly recommend it.”

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APPENDIX

Survey Text⁵:

Comprehensive Survey of "Slugging" or Casual Carpooling

Thank you for your willingness to participate in this research study. The survey is being conducted by a graduate student in the Virginia Tech Department of Urban Affairs and Planning as part of a broader study of casual carpooling.

All survey responses are confidential. No identifying information will be recorded from your survey response.

Anyone who participates in slugging (or has done so in the past) as a driver or passenger and is over 18 years of age is invited to participate in the survey.

NOTE: Beginning the survey implies that you give consent to participate in it.

Survey participants will receive no monetary compensation for their time. It is hoped that the information collected will contribute to a better understanding of "slugging" behavior in general.

1) What is the zip code of your home address?

2) What is the zip code of your work address?

3) What role do you most often take in slugging?

- Driver (bodysnatcher)
- Passenger (slug)
- Both driver and passenger

4) If you answered "Driver" or "Both" in question 3 please indicate your reason(s) for driving. (Check all that apply)

- Need option of departing earlier/later
- Like to be in control of my situation
- Enjoy driving

⁵ The term "sluggers" was originally used in parts of the survey instead of "slugs." However, it was later discovered that "slugs" is the more commonly used and accepted term. All relevant materials were subsequently updated.

- Don't trust others to drive
- Time savings outweigh the gas costs

Other:

5) If you answered "Passenger" or "Both" in question 3 please indicate your reason(s) for NOT driving. (Check all that apply)

- Prefer to save the cost of gasoline
- Don't own a car
- My car isn't ideal for driving others (i.e. old, unreliable)
- Like to do other things (read/sleep) during the drive
- Trust others to drive safely

Other:

6) Do you typically slug in the morning only, afternoon only, or both (round-trip)?

- Morning only (TO work)
- Afternoon only (FROM work)
- Morning and Afternoon (round-trip)

7) Please select the slug-line that is your typical morning departure point.

- Rolling Valley Mall
- Sydenstricker
- Springfield Plaza (Bob's)
- American Legion Post
- Lorton
- Old Hechinger's
- Lake Ridge
- Potomac Mills Mall
- Horner Road
- US 1 or VA 234 (Dumfries)
- Mine Road
- Route 610
- Route 630
- Route 3 (Gordon Road)
- Route 17

Other:

8) Please select the slug line that is your typical afternoon departure point.

14th & Constitution

14th at Commerce Dept.

14th & F Street

14th & G Street

14th & H Street

14th & Independence

14th & New York

19th & F Street

19th & I Street

Ballston

Crystal Gateway

Crystal Park 2

L'Enfant Plaza

Navy Yard

Pentagon

Rosslyn

Other:

9) How long have you been slugging?

Less than one month

1-6 months

6 months to 1 year

1-2 years

2-5 years

More than 5 years

10) How often do you commute by slugging?

Everyday

3 times/week

1 time/week

- 1 time every other week
- 1 time/month
- Less than once per month
- Other:

11) What do you like most about slugging? (Check all that apply)

- Gas Savings
- Time Savings
- Meet New People
- Adventure of It
- Sense of Belonging Among Slugs
- Flexibility
- Benefit to Environment

Other:

12) What do you like the least about slugging? (Check all that apply)

- Riding with strangers
- Waiting in Line
- Possibility of Not Having a Ride
- Feeling Like a Beggar or "Mooch"
- Exposure to the Elements

Other:

13) How has the recent increase in gasoline prices affected your slugging behavior? (Check all that apply)

- I have started slugging
- I slug more often
- I have resumed slugging
- No effect on my behavior
- I slug less often

Other:

14) How much TIME (in minutes) would you estimate that slugging saves you each day (roundtrip) versus your next best commuting option?

- Slugging does not save me any time

- Less than 5 minutes
- 5-10 minutes
- 10-20 minutes
- 20-30 minutes
- 30-40 minutes
- 40-50 minutes
- 50-60 minutes
- More than 1 hour

15) What do you consider the minimum amount of TIME (in minutes) that you must save per day in order for slugging to be worth your while?

Minutes

16) How much MONEY (in time saved, gas, etc) would you estimate that slugging saves you each day (roundtrip) versus your next best commuting option?

- Slugging doesn't save me any money.
- Less than 5\$
- \$5-\$10
- \$10-\$15
- \$15-\$20
- More than \$20

17) What do you consider the minimum amount of MONEY (in dollars) that you must save per day in order for slugging to be worth your while?

Dollars

18) Which of the following scenarios might cause you to stop slugging or at least reconsider it? (Check all that apply)

- Steep drop in gas prices
- Raise at work
- Change in employment
- Moving my place of residence
- Change in the HOV laws
- An increase in the number of slugs competing for rides
- A decrease in the number of cars that pick-up slugs

Other:

19) How long does it take to travel from your home to the slugging pickup site?

- 0-5 minutes
- 5-10 minutes
- 10-15 minutes
- 15-20 minutes
- 20-25 minutes
- 25-30 minutes
- Greater than 30 minutes

20) How long does it take to travel to your place of employment from the slugging drop-off site?

- 0-5 minutes
- 5-10 minutes
- 10-15 minutes
- 15-20 minutes
- 20-25 minutes
- 25-30 minutes
- Greater than 30 minutes

21) On days that you slug to work- what other forms of transportation do you employ in addition to slugging? (Check all that apply)

- Private car
- Bicycle
- Walk
- Bus
- Metro Train
- Commuter Rail

Other:

22) Please indicate all the forms of transportation that you would use on a typical commute if you did not slug. (Check all that apply)

- Private car
- Bicycle
- Walk

- Bus
- Metro Train
- Commuter Rail

Other:

Demographic Data

23) Please choose the category that best describes your highest level of educational attainment.

- High School or Less
- Associate's Degree or Some College
- Bachelor's Degree
- Master's/Professional Degree
- PhD, MD, Etc.

24) What is your annual PERSONAL income?

- Less than \$25,000
- \$25,000-\$50,000
- \$50,000-\$75,000
- \$75,000-\$100,000
- Greater than \$100,000

25) What is your annual HOUSEHOLD income?

- Less than \$25,000
- \$25,000-\$50,000
- \$50,000-\$75,000
- \$75,000-\$100,000
- \$100,000-\$150,000
- Greater than \$150,000

26) Please choose the category that best describes your occupation.

- Federal Government- Civil Service
- Federal Government- Military/Defense
- Federal Government- Contractor
- Local or State Government

- Private Sector/ Non-Profit
- Other:

27) Please indicate your age group.

- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65+

28) How many people live in your household?

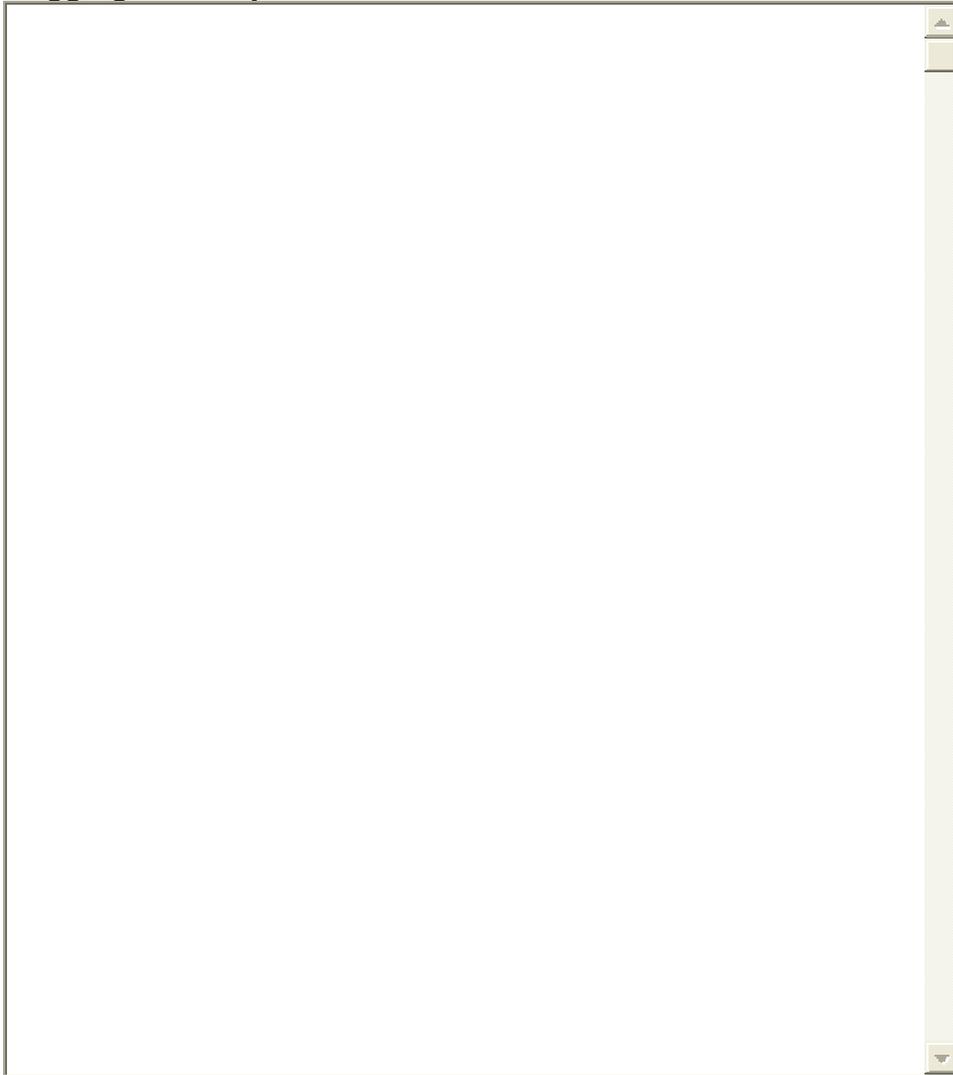
- 1
- 2
- 3
- 4
- 5
- 6+

29) Please indicate your gender.

- Female
- Male

30) Please write any further comments or suggestions you may have about

slugging in the space below.

A large, empty rectangular box with a thin black border. On the right side of the box, there is a vertical scrollbar with a light beige background and a small grey handle at the top and bottom. The box is intended for text entry.

Survey Flyer

Slugging Research Project- Participants Needed

Please participate in an online survey of “slugs” (or those who commute by casual carpooling) in the Washington, D.C. area. The survey is being conducted by the Virginia Tech Department of Urban Affairs and Planning as part of a broader study of casual carpooling. The survey consists of 30 questions and is anticipated to take about ten minutes to complete.

Who is eligible to take the survey? Anyone who participates in slugging (or has done so in the past) as a driver or passenger and is over 18 years of age is invited to participate in the survey.

The survey is available at: <https://filebox.vt.edu/users/molipha/Index.html>

If you have any questions or concerns about the survey please contact: Marc Oliphant-Survey Administrator at molipha@vt.edu or at 540-951-4390

Survey participants will receive no monetary compensation for their time. It is hoped that the information collected will contribute to a better understanding of “slugging” behavior in general.

Survey Results:

Cells highlighted in green received a proportionately higher number of responses.

| 1) What is the zip code of your home address? | Zip Code | Freq. |
|---|----------|-------|
| | 22556 | 4 |
| | 22554 | 7 |
| | 22407 | 4 |
| | 22406 | 3 |
| | 22401 | 3 |
| | 22315 | 3 |
| | 22193 | 58 |
| | 22192 | 70 |
| | 22191 | 33 |
| | 22172 | 3 |
| | 22153 | 12 |
| | 22152 | 5 |
| | 22079 | 4 |
| | 22026 | 11 |
| | 22025 | 17 |
| | 22015 | 7 |
| | 20112 | 17 |
| | 20111 | 3 |

| 2) What is the zip code of your work address? | Zip Code | Freq. |
|---|----------|-------|
| | 22209 | 14 |
| | 22203 | 4 |
| | 22202 | 16 |
| | 22201 | 4 |
| | 20594 | 5 |
| | 20593 | 3 |
| | 20591 | 5 |
| | 20590 | 8 |
| | 20585 | 3 |
| | 20546 | 3 |
| | 20536 | 3 |
| | 20376 | 6 |
| | 20374 | 4 |
| | 20330 | 4 |
| | 20310 | 9 |
| | 20260 | 9 |
| | 20037 | 7 |
| | 20036 | 15 |
| | 20024 | 8 |
| | 20006 | 26 |
| | 20005 | 24 |
| | 20004 | 4 |
| | 20003 | 8 |
| | 20002 | 4 |
| | 20001 | 12 |

| 3) What role do you most often take in slugging? | Passenger | Driver | Both | TOTAL |
|--|-----------|--------|------|-------|
| Freq. | 170 | 33 | 81 | 284 |
| % | 59.9 | 11.6 | 28.5 | |

| 4) If you answered "Driver" or "Both" in question 3 please indicate your reason(s) for driving. (Check all that apply) | Freq. | % | TOTAL |
|--|-------|------|-------|
| Need option of departing earlier/late r | 95 | 49.5 | 192 |
| Like to be in control of my situation | 34 | 17.7 | |
| Enjoy driving | 5 | 2.6 | |
| Don't trust others to drive | 2 | 1.0 | |
| Time savings outweigh the gas costs | 26 | 13.5 | |
| Other | 30 | 15.6 | |

| | | | | | | | | | |
|-------------------------------------|-------|-----|---------------------|------------|--------------------|-----------|-----------|-------------------|-------|
| 9) How long have you been slugging? | | | Less than one month | 1-6 months | 6 months to 1 year | 1-2 years | 2-5 years | More than 5 years | TOTAL |
| | Freq. | 5 | 21 | 23 | 41 | 72 | 119 | 281 | |
| | % | 1.8 | 7.5 | 8.2 | 14.6 | 25.6 | 42.3 | | |

| | | | | | | | | | |
|---|-------|----------|--------------|-------------|-------------------------|--------------|--------------------------|-------|-------|
| 10) How often do you commute by slugging? | | Everyday | 3 times/week | 1 time/week | 1 time every other week | 1 time/month | Less than once per month | Other | TOTAL |
| | Freq. | 220 | 42 | 3 | 6 | 1 | 5 | 3 | 280 |
| | % | 78.6 | 15.0 | 1.1 | 2.1 | 0.4 | 1.8 | 1.1 | |

| | | | | | | | | | | |
|--|-------|-------------|--------------|-----------------|-----------------|--------------------------------|-------------|------------------------|-------|-------|
| 11) What do you like most about slugging? (Check all that apply) | | Gas Savings | Time Savings | Meet New People | Adventure of It | Sense of Belonging Among Slugs | Flexibility | Benefit to Environment | Other | TOTAL |
| | Freq. | 215 | 225 | 52 | 23 | 22 | 135 | 108 | 39 | 819 |
| | % | 26.3 | 27.5 | 6.3 | 2.8 | 2.7 | 16.5 | 13.2 | 4.8 | |

| | | | | | | | | |
|---|-------|-----------------------|-----------------|----------------------------------|----------------------------------|--------------------------|-------|-------|
| 12) What do you like the least about slugging? (Check all that apply) | | Riding with strangers | Waiting in Line | Possibility of Not Having a Ride | Feeling Like a Beggar or "Mooch" | Exposure to the Elements | Other | TOTAL |
| | Freq. | 31 | 195 | 107 | 10 | 98 | 35 | 476 |
| | % | 6.5 | 41.0 | 22.5 | 2.1 | 20.6 | 7.4 | |

| | | I have started slugging | I slug more often | I have resumed slugging | No effect on my behavior | I slug less often | Other | TOTAL |
|--|-------|-------------------------|-------------------|-------------------------|--------------------------|-------------------|-------|-------|
| 13) How has the recent increase in gasoline prices affected your slugging behavior? (Check all that apply) | | 8 | 35 | 13 | 194 | 10 | 47 | 307 |
| | Freq. | 2.6 | 11.4 | 4.2 | 63.2 | 3.3 | 15.3 | |
| | % | | | | | | | |

| | | Slugging does not save me any time | 5-10 minutes | 10-20 minutes | 20-30 minutes | 30-40 minutes | 40-50 minutes | 50-60 minutes | More than 1 hour | TOTAL |
|--|-------|------------------------------------|--------------|---------------|---------------|---------------|---------------|---------------|------------------|-------|
| 14) How much TIME (in minutes) would you estimate that slugging saves you each day (roundtrip) versus your next best commuting option? | | 22 | 10 | 31 | 44 | 50 | 34 | 44 | 47 | 282 |
| | Freq. | 7.8 | 3.5 | 11.0 | 15.6 | 17.7 | 12.1 | 15.6 | 16.7 | |
| | % | | | | | | | | | |

| | | 0 minutes | 1 minute | 5 minutes | 10 minutes | 15 minutes | 20 minutes | 25 minutes | 30 minutes | 40 minutes | 45 minutes | 50 minutes | 60 minutes | 75 minutes | TOTAL |
|---|---------|-----------|----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|
| [15] What do you consider the minimum amount of TIME (in minutes) that you must save per day in order for slugging to be worth your while?] | | 39 | 2 | 11 | 17 | 33 | 40 | 1 | 77 | 5 | 6 | 3 | 12 | 1 | 247 |
| | Minutes | 15.8 | 0.8 | 4.5 | 6.9 | 13.4 | 16.2 | 0.4 | 31.2 | 2.0 | 2.4 | 1.2 | 4.9 | 0.4 | |
| | Freq. | | | | | | | | | | | | | | |
| | % | | | | | | | | | | | | | | |

| | | Slugging doesn't save me any money. | Less than 5\$ | \$5-\$10 | \$10-\$15 | \$15-\$20 | More than \$20 | TOTAL |
|--|-------|-------------------------------------|---------------|----------|-----------|-----------|----------------|-------|
| 16) How much MONEY (in time saved, gas, etc) would you estimate that slugging saves you each day (roundtrip) versus your next best commuting option? | | 21 | 21 | 74 | 62 | 43 | 58 | 279 |
| | Freq. | | | | | | | |

| 25) What is your annual HOUSEHOLD income? | Dollars | | Less than \$25,000 | \$25,000-\$50,000 | \$50,000-\$75,000 | \$75,000-\$100,000 | \$100,000-\$150,000 | Greater than \$150,000 | TOTAL |
|---|---------|-----|--------------------|-------------------|-------------------|--------------------|---------------------|------------------------|-------|
| | Freq. | % | | | | | | | |
| | 0 | 14 | 35 | 41 | 99 | 92 | | 281 | |
| | | 0.0 | 5.0 | 12.5 | 14.6 | 35.2 | 32.7 | | |

| 26) Please choose the category that best describes your occupation. | TOTAL | |
|---|-------|------|
| | Freq. | % |
| | 92 | 32.9 |
| | 22 | 7.9 |
| | 72 | 25.7 |
| | 4 | 1.4 |
| | 88 | 31.4 |
| | 2 | 0.7 |
| | 280 | |

| 27) Please indicate your age group. | Age in Years | | 18-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ | TOTAL |
|-------------------------------------|--------------|-----|-------|-------|-------|-------|-------|-----|-------|
| | Freq. | % | | | | | | | |
| | 17 | 6.0 | 56 | 76 | 95 | 34 | 5 | 283 | |
| | | | 19.8 | 26.9 | 33.6 | 12.0 | 1.8 | | |

| 28) How many people live in your household? | # of People | | 1 | 2 | 3 | 4 | 5 | 6+ | TOTAL |
|---|-------------|------|------|------|------|-----|-----|-----|-------|
| | Freq. | % | | | | | | | |
| | 33 | 11.7 | 76 | 66 | 77 | 19 | 11 | 282 | |
| | | | 27.0 | 23.4 | 27.3 | 6.7 | 3.9 | | |

| 29) Please indicate your gender. | Sex | | Female | Male | TOTAL |
|----------------------------------|-------|------|--------|------|-------|
| | Freq. | % | | | |
| | 146 | 52.0 | 135 | 48.0 | 281 |
| | | | | | |

Full-Text Answers to Questions Answered “Other”⁶

Question 4) If you answered "Driver" or "Both" in question 3 please indicate your reason(s) for driving.

| |
|---|
| Because of the longer lines & waits, more drivers are needed. |
| Convenience outweighs the gas costs |
| Doctor apps. and others |
| evening activities in DC, doctors appointments, etc. - public trans not available later |
| free parking from work |
| going to events |
| I have parking at work |
| I only drive if I have an appt. |
| I'm in a carpool that is sometimes short one rider to use the HOV lanes. |
| informal carpool w/same people |
| Job not near Metro station |
| Leaving from work for a long weekend or vacation or to spend the weekend somewhere other than home. |
| Medical appointments during day |
| meetings or activities downtown after slugging hours |
| My carpool needs a third person for the HOV |
| My son has asthma, thus the need to control my situation. Have had to leave ASAP previously. |
| need car during the day |
| Need to be able to drive directly from work to second location. |
| No direct public transportation is available to the final destination. |
| No slug lines in my area of work |
| nobody goes to where I work |
| Parking at work downtown |
| Part-time job |
| Riding with a friend who lives closer to my job |
| running late and don't have time to wait in slug line |
| Sometimes need my car during the workday |
| VERY Rarely drive, I mostly slug |
| When Lot fills up-- I don't have any other choice |
| Work is too far from a Metro stop to walk so I have to drive |
| work short hours |

⁶ Efforts have been made to clarify particularly confusing typos. Otherwise answers appear as they were originally typed.

Question 5) If you answered "Passenger" or "Both" in question 3 please indicate your reason(s) for NOT driving.

| |
|--|
| winter driving on bad days |
| when my carpool falls apart |
| VRE is unreliable Slugging saves on commuting time |
| Too expensive to park @ work |
| The one car we own is reserved for the family |
| save wear on car gas parking fees at office area |
| save time over public transportation |
| Save my sanity |
| save gas and parking and headache |
| Quicker than the bus in the evening |
| prefer to save on cost of metro traffic and wear and tear on car |
| Parking is expensive \$ per day |
| Parking Cost |
| parking and driving costs |
| Parking & cost of gasoline is too expensive |
| no parking available downtown |
| no DC parking available |
| No available parking for contractors |
| need car at home for family |
| I'm the passenger now because I drove for 10 years and now that my twins are in High School I can sit back and enjoy and let someone else do the driving for me. |
| I used to slug but not since I joined a regular carpool parking was and still is a problem in DC |
| I only drive if I need to leave early |
| flexibility & time savings |
| Faster and no cost |
| Don't like to drive into DC. |
| Don't have free parking. So I have to spend on gasoline as well as for parking |
| Don't have a place to park. otherwise I would switch on and off with driving |
| Don't feel like driving 5 days per week. |
| different time to back home |
| commute is exhausting |
| work too far |
| wear and tear on vehicle |
| two seat car |
| Traffic parking is too expensive |
| The others in my carpool are not going in to work that day |
| Saves wear and tear on my car |
| save the cost of a bus ride |
| save cost of parking |

| |
|--|
| Prefer to save the cost of parking |
| prefer to save commuter bus fare |
| Parking too expensive in city |
| Parking in Crystal City |
| Parking fees |
| Parking costs time savings |
| One vehicle in family |
| no parking for me |
| No parking available at work |
| no good parking garage near job |
| Much quicker to get to work than metro |
| Less mileage on my new car and I don't have to drive or park in D.C. |
| It is faster than the METRO BUS or VRE |
| I do not wish to put a lot of miles on my car |
| Husband and I carpool together with him driving in the morning and me being a passenger in the afternoon. He often works late and drives himself home. |
| have a ride in just need a ride home |
| Forces me to keep decent hours at work |
| faster free |
| environmentally sound to share |
| Ecological responsibility |
| Don't want to pay for parking in the city |
| don't like/ |
| Do not like driving to the District |
| Cheaper than the bus/train. |
| Cannot afford the parking prices in DC |
| budget purposes (cheaper to be a passenger) |
| Also saves cost of car maintenance |
| Also like to save the cost of parking in DC |
| afraid to drive in DC |
| Slugging is faster than driving and is better for the environment |
| save the wear and tear on the car too |
| Save the cost of parking |
| save mileage on older car |
| save cost on parking |
| Parking is too expensive where I work |
| Parking is Difficult/Expensive |
| Parking cost in DC is a problem |
| only car in the household |
| Offers flexibility not available with public transportation or carpooling |
| not my turn w/informal carpool |

| |
|---|
| no parking at work |
| No Parking |
| limited parking at work |
| lack of affordable parking near workplace |
| Gets me to my destination faster than the bus |
| Get to work faster than riding bus |
| Faster and I don't have to worry about parking |
| don't want to pay for parking and maintaining car |
| Don't like driving in the city |
| don't have to pay to park no 'wear and tear' on my car |
| Don't feel like driving. |
| Don't always have access to a free or low cost parking space in DC. |
| do not want to pay \$20 a day to park in the city |
| Cost/Availability of Parking |
| cost of parking |
| Cost of parking |
| Cost of daily parking car is to high |
| check out the cars: Hummer, BMW, PT Cruizer, Charger etc |
| cheaper and faster than other forms of mass transit |
| car pooling is good for the environment |
| can't afford parking in DC |
| benefit the environment |
| not very good in driving far |
| I have a two-seater so can't pick up. |
| avoid cost of parking |
| If you don't have a reserved spot parking in DC is EXPENSIVE!! |

| |
|--|
| Question 7) Please select the slug-line that is your typical morning departure point. |
| 13 Tackett's Mill |
| 13 Tackett's Mill Lot on Minnieville Rd. |
| 13 Tackett's Mill |
| 13 Montclair |
| 13 Tackett's Mill |

| |
|---|
| Question 8) Please select the slug line that is your typical afternoon departure point. |
| I tried off... Rosslyn if I want to get home fast. 19th & I if the line looks like its moving, most of the time it isn't. And when the weather is nice I walk 1 1/2 miles to 14th & D and take the PRTC bus home, allowing me a chance to exercise before going home. |

| |
|---|
| 14th and Penn |
| 19th & Pennsylvania |
| slug-list (google group) |
| 19th & E Street |
| Do not slug in the afternoon |
| If I slug from 610, I'll go to L'Enfant for a return ride home. Otherwise I'll take the bus back to Crystal Park 2. |
| When I select riders I use the Navy Yard eslug system established on Yahoo on the net. |

| |
|--|
| Question 10) How often do you commute by slugging? |
| as often as possible. If it is too busy, will take bus |
| 5 times/week |
| 3-4 days per week |
| 3-4 |
| every day in nice weather |
| when a slug ride arrives before the commuter bus (1 - 3 times a week) |
| 4 times/week |
| As required to fill up the carpool vacancy - can be up to 2 if regular members are absent. |
| Never I drive |
| 4 times a week, on average |

| |
|--|
| Question 11) What do you like most about slugging? |
| time to relax |
| The government neither funded a costly study nor came up with a high priced solution the people with a commuting problem did. And no college or research guys were involved. |
| Test-ride in different/new cars |
| saving bus fare |
| Saves money (parking fees) |
| Saves Money |
| Saves gas due to constant speed in HOV lane, not stop and go in regular lane |
| save on cost |
| SAVE MONEY |
| Save cost of Parking |
| Relax |
| Reading |
| Parking savings catch up on reading |
| Occasional door-to-door service |
| not having to drive in rush hour traffic |
| no wear on car no parking fees |

| |
|--|
| No cost |
| Less stress |
| less miles on my car |
| Less cost on both gas and wear and tear to my car and don't have to pay for parking in the city. |
| I started before the gas crisis it was just convenient. I didn't have parking at work. NOW it is an incentive but not the reason I started this. |
| I HATE driving...anywhere |
| I especially like the beneficial factors to the environment- not producing as much emissions is important to me. |
| I don't have to drive and park in D.C. |
| I buy one tank of gas every other month |
| great savings all around |
| for riders it is free |
| Extra sleep |
| didn't like organized car pool/van pool |
| Cost Savings (vs. bus train metro) |
| Convenience |
| Convenience |
| Convenience |
| convenience at both ends / free parking |
| Cars are more comfortable than bus get dropped closer to office |
| Can rest & write my agenda for the day |
| Bus-Commuter Savings |
| Avoiding driving in traffic |
| ALL |
| a lot more comfortable and convenient than metro bus transfer to metro |

Question 12) What do you like the least about slugging?

| |
|--|
| When you wait in the evening and don't get a ride that's happened to me twice |
| There is very little downside compared to the alternatives |
| The way government hassle us and try to mess it up |
| the occasional filthy car |
| Stop whining - There is a price to pay for everything so get used to it. |
| Sometimes the walk to the slug line when I don't wear walking shoes. |
| Riding in Dirty or Stinky cars |
| Possibility of Not Finding Riders (this question is structured for riders not drivers) |
| Occasional wait as a driver |
| Occasional crazy driver |
| None |
| lack of parking spaces |

| |
|---|
| I like everything about it. |
| free ride |
| Dirty cars |
| Being able to get out in time in the afternoon |
| waiting in heat/cold |
| Unpredictability of wait time |
| time constraints on p .m. side |
| The drivers: can be rude, careless, messy, stinky, noisy |
| Some peoples driving |
| rude people in the slug line |
| Perfume/Cologne on Riders |
| Parking is restricted forcing earlier commutes |
| Lack of flexibility. If I need to go to my corporate office in McLean for instance I have to know well enough in advance to know to drive in on that day. |
| Lack of available parking after 7:30 |
| Keep in mind neither the rider nor the driver is obligated to get into any vehicle. I've passed up a ride many times because of the size of the car reputation of the driver or previous experiences. |
| Inconsiderate/bad drivers (radio too loud, tailgaters etc.) |
| Drivers who play political talk radio |
| dirty cars/smokers |
| Dangerous Drivers |
| cars that are too hot or cold or loud |
| being in a dirty/rude car |

Question 13) How has the recent increase in gasoline prices affected your slugging behavior?

| |
|---|
| Wait longer for rides |
| The slugging lines have gotten longer so it takes a bit more time to make my trip |
| The lines to get a ride are MUCH longer |
| The line is longer and fewer drivers are available. |
| The line has gotten way too long most days I end up taking the bus |
| take the bus more b/c of lack of drivers |
| Started driving more (due to lack of drivers) |
| slugging takes significantly longer |
| Show up earlier at the line to compete with more sluggers an less drivers |
| more slugs on line so longer getting a ride in line |
| longer wait times (more drivers are not slugging) |
| longer slug lines |
| Line in the morning is longer correlates to longer wait to get car |
| I've been slugging even before gas prices increased |
| it takes longer to get a ride |

| |
|---|
| I ride with the same person now |
| I joined a vanpool |
| I have to leave my house earlier because more drivers/people are slugging now |
| I have to leave earlier - more people in line slows process down |
| I have to get to the slog lot earlier because the lines are getting longer and cars don't come as often |
| I have to arrive earlier |
| I have always slugged to D.C. |
| I drive less and ride more |
| I drive less |
| I changed slug lines because there were too many slugs at Potomac Mills but not enough drivers |
| I am now more likely to slug when my carpool buddies are gone rather than drive in myself. |
| I am a passenger now more than I drive and pick up slugs |
| I allow more time to catch a ride |
| Going earlier to make sure will catch a car |
| drive much less |
| There are more riders which is good |
| There are more passengers than drivers now!!!! |
| slug lines are longer |
| On certain days I carpool w coworkers (who also slug) to avoid the long lines and save time. |
| Now take the bus b/c of long lines |
| it's still the most economical way to commute |
| In car pool when not slugging |
| I work at home one extra day. |
| I still try to slug as often as possible otherwise I take the bus |
| I SLUG EVERYDAY. |
| I only slug one way |
| I drive more often due to the increased waiting times. |
| I don't want to drive but I have no choice. |
| I do it because of the cost of Metro fares |
| But there are more riders now which is good for the drivers - less waiting time |
| because there are fewer drivers I end up riding the bus |
| As one who picks ups slugs occasionally it has been great! |

Question 18) Which of the following scenarios might cause you to stop slugging or at least reconsider it?

| |
|--|
| Nothing. Slugging is good for the environment and reduces congestion on the highways |
| No riders. |
| Improved VRE service/costs (Again question is structured for riders) |
| if not in my area |
| Free Metro parking and lower Metro fares. |

| |
|---|
| criminal acts by drivers or riders |
| too many cars in HOV including other growth of NON-HOV such as Hybrids, motorcycles, hot-lane traffic (future) |
| The only change would be if I could finally walk to work! |
| Requiring me to have a destination point outside of the usual slug drop off points in the morning. Or VDOT being completely wrong about the HOT lanes and charging carpoolers to drive in the HOT lanes once they are in use (only true if drivers then ask sluggers to pay). |
| PRTC bus that goes to the State Dept as the first stop oppose to the last stop |
| I prefer the word 'commuter' vs. slug. I'm not a slug. LOOL. but ride the bus to come home now because it takes too long to wait for a ride. I can go to a stop that has the bus pick up and/or i can pick up a slug ride. When I'm ready to go home I want NO delays. Coming to work so far takes longer because of the lines -- but the variety is mixed in the morning. coming home everyone is going to the same place for the most part...depending on what line you're in. coming to work I'm in line that goes to several places: L'Enfant the Regan Building Navy Yard State Dept. Coming home it's Horner and if the line is long... It's just long! You gotta wait. So I take the bus now to come home. Sorry this is so long just thought you'd like info. |
| However I would have to move to LA before I would stop slugging. |
| HOT will kill HOV and increase traffic so I plan to retire then |
| HOT Lanes will kill slugging as we know it. |
| Free Bus ride (i.e. Code Red days) |
| Company started paying for D.C. parking. |
| slugging becomes illegal |
| Primarily the last two choices to the extent the system became imbalanced and I could not get a reliable ride either way I would have to change to a more reliable alternative |
| parking fees at Horner |
| Only if it no longer worked. This has not happened yet. |
| HOT lanes |
| Having to pay for slugging |

| |
|---|
| Question 21) On days that you slug to work- what other forms of transportation do you employ in addition to slugging? (Check all that apply) |
| None - I drive entire way in Private car |
| None |
| OMNI LINK |
| The distance depends on where the driver drops me off. |
| shuttle bus |
| I am a driver only |
| I drive myself to Potomac Mills, where I get in line to slug. |
| NONE |
| when I don't get a ride |
| driving to parking lot |

| |
|--|
| n/a |
| None |
| None |
| Carpool to slug lot |
| None |
| do not slug to work |
| sometimes I slug to Rosslyn or the Pentagon and metro to work from there \$1.65 vs. \$5 on bus |
| Commuter Bus |
| I take a Bus in the evening only, if the slug line is long |

| |
|---|
| Question 22) Please indicate all the forms of transportation that you would use on a typical commute if you did not slug. (Check all that apply) |
| Motorcycle |
| I would drive to the commuter lot and take the PRTC bus. Or, I would drive to the Franconia-Springfield metro station and take the metro |
| shuttle bus |
| Carpool |
| about two hours |
| It is either private car or commuter rail with some walking thrown in with both. |
| I'd join a carpool; bus and train take too long! |
| van pool |

| |
|---|
| Question 26) Please choose the category that best describes your occupation. |
| *(the majority of these answers fall within the predefined categories, thus the author added them to the general survey answers) |
| Military |
| Union |
| Federal Govt. – Congressional |
| trade association |
| Quasi Govt. we get all the holidays, but no metrochecks or flex time like REAL gov't jobs. |
| International Organization |
| IT in Legal Environment |
| Corporate |
| Legal |
| Marketing |
| Gov't contractor employee |
| Private consulting firm |
| Legal |
| Law Firm |

Question 30) Please write any further comments or suggestions you may have about slugging in the space below.

| |
|---|
| <p>Your research should also consider the option of commuter buses, since there is typically a choice between taking the bus or slugging from most of the slugging locations. On days when the slug lines are longer, the bus tends to be favorable from a time perspective. There is also the question of employers subsidizing commuting options, such as MetroChecks and other commuter benefits.</p> |
| <p>You may want to ask questions about conventional carpooling v. slugging. I used to go conventional when I commuted on I-66. Slugging's advantages are cost (avoid driving/parking most of the time) and flexibility (in car pools it seems like you're always waiting for a specific person and working around vacation/travel issues). However, as wait times have grown due to higher gasoline prices, conventional carpooling looks more attractive.</p> |
| <p>You could (probably should) have considered including questions regarding safety. When I tell people who are not familiar with slugging, the primary and first issue for them is concern about safety. In my 15 years plus of slugging I have had only a few times when safety was a concern, which was in all instances was a driver tailgating. For those unfamiliar with slugging are also concerned about getting into vehicles with people you don't know. Especially women who will get into cars with only men. However, most of the time if you slug at a specific time every day, you will see many of the same people in line and the same cars picking up riders. I have ridden with the same drivers as many times a three times in the same week.</p> |
| <p>You ask for both driver and slug to answer...yet obviously some questions deal only with the slug...unless you also want to know the info re. the driver and where he picks up etc. Therefore...I only answered a few questions...found it interesting to see the questions - look forward to tallied responses...but why ask use drivers to participate...looks like this survey really is for slugs and no one else...if I'm wrong then not thought through</p> |
| <p>Why is no sign in Washington DC for where the slug lines are? Please if you mark the location the people do not get confuses or get lost looking for the slug line.</p> |
| <p>Why is it that politicians are always messing with the slug-line?... Now it's with the Toll lines etc. If anything, the slug-lines should be an example for the rest of the country and should be hailed and encouraged.</p> |
| <p>Who ever came up with the idea was a genius. It is well organized, and for the most part we are all respectful of one another. We are just people trying to get back and forth to work.</p> |
| <p>Whoever started slugging, but it's best for environment as well as convenience for both drivers and riders.</p> |
| <p>While I'm slugging, I noticed on occasion that some of sluggers feel that drivers should take a fourth person in their cars and are fairly assertive (an on occasion, rude) about it. I've also seen some drivers hand pick people who they know will treat their cars gently. It would be interesting to know about rider etiquette and driver perceptions.</p> |
| <p>when, where, and how will we see the results of this study?</p> |
| <p>What an amazing system--and it WORKS. A truly symbiotic relationship in which all parties benefit, and the environment benefits as well. I hate to think that it's going to be screwed up by the HOT lanes, but it's typical that people can't resist fucking up something that perfect.</p> |
| <p>We need additional parking spaces at the majority of the lots in Prince William County. HOT lanes are going to kill slugging, as the HOV lanes are going to become packed and it won't be beneficial anymore.</p> |

-To pick up more often at 19th and I. -Hybrids should pick up people too, not just drive by themselves without picking up anybody, creates more traffic on HOV and more people in line. -Give these flyers to drivers(bodysnatcher)

This is a great thing. I've enjoyed it so much. Everyone is so polite and considerate. Sometimes you may come across a couple of people who are rude but you watch out for them. If you don't like the car or the person who drives, you don't pick them up. I have saved so much in gas and mileage on my car as a whole. Now that I've slugged I will never go back to doing anything else. I feel that doing this is truly helps the environment one person at a time. Even when I have to drive, I still pick people up. You feel a sense of connection to all of the people who are out there because you are one of them. You see the same people everyday. Even though you may not always talk to them, you know them and their schedules. Thank you for this survey and hopefully this will educate others.

There are wayyy too many long term rider slugs that do NOT know their place! They do not get to choose my radio station, car model, whether or not I can drink coffee while i drive.

The proposed HOT lanes will destroy slugging. Most slug riders and drivers I have spoken to are adamantly opposed to HOT lanes, as am I. HOT lanes are counter to the environmental movement, and will put more cars back on the roads.

The commuter lots need to increase in the parking area. For example, Potomac Mills has cut the amount of cars permitted to park in their parking lot and as a result created difficulty for many people. We are encouraged to park our cars and ride the bus, slug or some other source of transportation, yet, we are discouraged by the parking spaces being so limited. Something should be done about this.

The best thing since sliced bread :o)

The axiom of slugging/HOV success on I-95/I-395 is the physical barrier system that defines the HOV lanes. Those barriers require that a driver commit to the HOV lanes and expose himself to nearly inescapable law enforcement. That distinguishes I-95/I-395 from many other HOV lanes that have diamond (or other) markers. It is easy for a law-breaker in this latter group of HOV lanes to change lanes quickly when law enforcement is sighted and merge back into the general traffic population. A main corollary of slugging/HOV success on I-95/I395 is the easy reversibility of the lanes. They come north in the morning and go south in the afternoon. That makes excellent use of the lanes. All studies of the slugging/HOV aspects of I-95/I-395 should keep in mind that the primary objective is to "move people". Secondary objectives (definitely secondary) are to "move vehicles" and to "save fuel". These three objectives are NOT synonymous. Examples of secondary objective rules being established that conflict with the primary objective are allowing hybrid cars and motorcycles to use the HOV lanes. Both of those measures were implemented to "save fuel". In the case of hybrid cars, it is great that they use relatively less fuel. They can do that in the regular lanes also. They should be required to have three occupants before they can use the HOV lanes. If so, they will aid the primary objective (move people) as well as save fuel. Motorcycles are a challenge. They save fuel for the operator, but it isn't practical to require them to carry a passenger (pick up a slug). Thank you for conducting this study.

Thank you for the opportunity to provide input. Here is another source of info: <http://www.slug-lines.com>. Random thoughts, in no particular order: 1) Virginia needs to eliminate the HOV Hybrid exemption. It has outlived its usefulness and makes no sense when comparing actual gas mileage (e.g. Hybrid Lexus versus conventional Honda Civic). It also makes no sense when you consider the effects on the local air quality, which is the reason HOV-3 was instituted on I-95/I-395 to begin with. 2) They also need to create more commuter lots to encourage carpooling/buses/slugging. 3) High-Occupancy Toll (HOT) lanes will kill slugging in Virginia, which has flourished and solved a lot of commuting problems in N. Va. IN SPITE of local and state government rather than because of it. 4) I have been slugging for 9 years. I have tried Virginia Railway Express (VRE), but it is crowded, expensive, and unreliable. If I take the Potomac & Rappahannock Transit Commission (PRTC) Omni-Ride buses, it adds at least 30 minutes to my commute (each way).

Slugging, because of the HOV lanes save time.

Slugging works because it is not regulated or managed by the government. The biggest threat to slugging is the tendency in Richmond to find new ways to allow non-HOV cars into the HOV lanes. For example, despite the angst over congestion, Richmond keeps extending the hybrid exemption in HOV lanes, despite the increasing presence of large hybrids that get worse gas mileage than standard small cars. The transition to HOT lanes will exacerbate this problem.

Slugging to and from works saves me approximately 3 hours total of commuting time. On average in the fall and winter, I wait approx 5-10 minutes for a ride at L'Enfant Plaza. In the Spring and Summer, I wait approx 10-30 minutes for a ride. I have been slugging for approx 1 year and to date, everyone (except for one rude lady, who violated the slug "rules of behavior" and was obnoxious) has been kind and respectful.

Slugging is Virginia hidden secret. First of all its safe, cost efficient and faster. Half of Washingtonians don't know about slugging. When I lived 15 min from my job in DC, my commute still took more than 45 min each way and wear and tear on my vehicle and not to mention gas. I have lived in Woodbridge for more than two years now and I haven't had to purchase brakes. My total commute time is 45min in the am and 30min in the pm all free!

Slugging is the perfect way to have inexpensive way to get to work. I leave in Manassas by I-66 and I think the local government needs to put effort to built designated HOV lines on I-66 which will help to establish slug lines along the interstate that will help commuting a lot.

Slugging is the most efficient business ever. It is the ultimate supply and demand. No committees, no gov't rules make it what it is.

Slugging is the greatest commuting option, because it is mutually beneficial to driver/sluggger, completely free, uncontrolled by any entity, and runs smoothly based on decency and manners. Everyone in the slugging community fears the future of slugging with the HOT proposal, and the impact it will have. I think more cities in the DC area need to develop slugging, and roads need to accommodate carpoolers better. I-66 and I-270's HOVs are nothing in comparison to I-95. I think work towns like Rosslyn, Tyson's Corner, and Arlington need to create safe areas for pickup/drop-off. Also, there needs to be more public outreach because many people have never heard of slugging and don't realize it's an option in their hometown.

Slugging is the best and quickest method of transportation when commuting to DC. I slug because the overall benefit as a working mother is it provides me more time at home in the morning with my kids and allow me a fast commute back to Woodbridge. I have tried the bus and metro train, however slugging as proven to be the fastest commute to and from work. I have met some nice price slugging. Slugging in the DC area is just a convenient method to commute to DC, due to the limit parking and the high cost of commuting in the District. I would love to be able to drive into the District everyday, how since this is a very high cost price to live, slugging has provided me a avenue to save money and to stay within in my budget. I use the money I save from slugging to clothes for my kids and pay for their school lunch everyday. Without slugging, I probably would not be able to work in DC due to the high cost of gas and parking. Thanks for during this survey. Maybe you could provide your survey results on slug-line.com.

Slugging is most democratic institution in this country. The HOV Hot Lanes for I-95 project is one of most ill thought ideas ever.

Slugging is great because of: 1) saving wear and tear on my car - saves my tires, makes oil changes less often, etc. , 2) I drive less miles so I pay less insurance, 3) I can leave at different times and still get a ride, not like a car/van pool where I must leave at a certain time, and 4) the surprise is that by slugging I MUST leave during slugging times. This is great and an important consideration for me because when I drove years ago I would come in early and stay late to avoid traffic. I always would spend lots of time at work. Now I pretty much just put in my eight hours and then head home. Much better.

Slugging is fascinating. It is the result of a generation of concerned individual citizens trying to make life a bit easier and save some natural resources. It never would have worked if it was under the authority of a Government bureaucracy. It has all the benefits of having a sedan pick me up almost immediately when I am ready but does not have the downside of taking care of "high maintenance" drivers and others. The vast majority of drivers and riders are very nice people whom are very respectful of others. Importantly, I am concerned that the HOT lanes will eventually kill slugging. When the profit motive comes up against the altruism of the common citizen and human decency -- the profit motive invariably wins. I suspect in a matter of time the VA Government will cause slugging to fail so Flour and other firms -- who undoubtedly will make huge campaign contributions --can make millions. Sadly, by allowing businesses to contribute to political campaigns we end up with a corrupt system of Government but that can be the topic of a future survey, Marc. While you are at it, consider recommending a better term than "slugging." As you know, it was originally meant to be derogatory. It still is. I do appreciate that changing a cultural term is not easy. However, in my parent's time negative ethnic slurs such as Whop, Pollack, Kike...were accepted. No longer. We need to change the "slug" term similarly. It needs to imply adventuresome spirit, concern for the environment, helping one's fellow man, and fiscal prudence. As the old saying goes "weak men follow precedent, strong men set it." Sluggers (and drivers) are setting precedent in their own way. Thanks for wading into this. I enjoyed contributing. You are a good man, Sir!

Slugging is an excellent system. I slug at Horner Road for 5 to 6 years already. I noticed that now, since there's a lot who moved to Woodbridge, it's much harder to get a parking space. I need to leave the house 30 minutes than before. I know there's a lot of places to slug but I think because of the steep gas price, there are lesser car and more sluggers. Maybe they should give an incentive for drivers so that they can compensate the gas price and for others to start driving. Or so that the HOV lanes won't be congested, maybe the bus could give some kind of a frequent flyer pass or a weekend pass. Bus fare is also very expensive. If not, I am willing to use the bus too.

Slugging is an awesome system. It makes my daily commute so much faster.

Slugging is a wonderful commuting option. No changes should be made in HOV policies that would

discourage it.

Slugging is a very organized, cheap, and comfortable transportation system. The most important sluggers contribute with environment

Slugging is a two party cooperative. Your questions seemed focused on the rider experience. Next project you may want to explore the motivations, justifications and challenges for the other side of the cooperative. Also, I came here as a result of your note in slug-lines.com. You would do well to respond to the inquiry "what happens to the results?". If this is a sponsored project where will you disseminate? If dissertation or thesis - where/when will you defend? Publish? Present? Sluggers are fairly sophisticated and want the knowledge you create. Good luck.

Slugging is a great way to commute. It saves time, which is most important to me and money. I've tried car pools, van pools and the bus. Slugging is my preference. It's flexible, because you can call in sick and not have to consider the other car pool members as to whose turn it is to drive and will my absence necessitate a need for them to pick up a slug. The commuter bus and train takes too long - might as well be driving backwards! Van pools I don't like because it's either too cold, too hot, people start thinking they own a certain seat, it's expensive, it's not flexible and it takes longer than slugging. My last car pool, someone joined who had a drinking problem and it was a nightmare. That's when I had had it and started slugging and I've been never regretted it. In the summer, if a driver picks me up who doesn't run the air conditioning, I don't hesitate to get out. HOT is gonna kill slugging and put more cars on the road, so I plan to before HOT is implemented.

Slugging is a fantastic way to get to work and take the HOV lanes. It is a good feeling when you are flying up I-95 towards DC and you look over to the regular lanes and they are congested and barely moving. I think that the biggest reason that people pick up slugs is the time factor. You save SO Much time using the HOV lanes. I've seen cars that will wait for slugs for up to 10 or even 15 minutes sometimes because it is still faster to sit in the commuter lot and WAIT for a slug rather than get into the regular lanes and try to fight the traffic on 95. The DC HOV lanes are an extremely efficient way to commute to and from the city. Also, I love cars and it is always exciting to ride in different vehicles. Sometimes you get a brand new Mercedes, and sometimes you get a 1980's Volvo. Occasionally there's a Hummer or great big truck. It is always fun. When the gas prices shot up recently, the slug lines got VERY long. Nobody wanted to drive. More and more people were taking the busses to and from the city. In fact, the first couple of weeks, there was nothing but standing room on all the busses going into dc and coming home. I have never had a terrible experience with slugging. Just as a side note, I think that the new "hot lanes" that they are trying to create are an awful idea. We need to reward people for being innovative and saving the environment by taking extra passengers and keeping an extra vehicle off the road. Good luck with your project!

Slugging has been very beneficial to me. I initially started picking up slugs as a means of not idling and inhaling gas fumes. I have been diagnosed with Interstitial Lung Disease (Pulmonary Fibrosis) and thus smoke fumes were doing more damage to my lungs. It was either go to work later and get home at dark or try slugging. So slugging has been two-fold for me. I save time, money, and my health. I am a driver mainly because my son has severe asthma. He once had an asthma attack while I was here at work and I had to rush home. Thus, I don't ever want to be caught without transportation home. Sure OmniRide and RideShare say they will provide a way home but when that phone call comes I want the security of knowing my car is right outside and I don't have to wait for anyone to pick me up to take me to the hospital. My daughter is on the cusp for asthma so I truly need to drive daily. A trip that use to take 1.5 - 2 hours is now 30 minutes. Can't beat that.

Since I moved here I come to like slugging, I hope nothing disturbs the flow of it.

Question 3 above lists "Driver (bodysnatcher)" as a term. That is an error. Bodysnatchers cruise through the parking lots and pick up riders OUTSIDE the slug lines, and are scum. <http://www.slug-lines.com/Slugging/Slugging%20Terms.asp> Body Snatching: the tabooed practice of drivers picking up slugs as they are walking to the slug line. This violates the "first come - first served" principle for the other slugs as well as the other drivers waiting in line.

Question 12: No rider who utilizes the slug line considers themselves as a beggar or a mooch. This past spring when gas went up to \$4 per gallon, a driver posted a question on the slug web page asking if riders would contribute towards the cost of gas. The majority of slugs who responded said that is not the way the system works. Drivers became upset at the slugs opinion that no money exchanges hands, and the postings became quite heated. Waiting in line, exposure to the elements and riding with strangers (where one doesn't know if the driver is safe or reckless on the road) are legitimate concerns of slugs. But your one option of asking if we consider ourselves as beggars or a mooch is offensive.

Parking at the remote commute places like Horner Road is getting less and less available (i.e. filling up earlier in the morning) Slugging volume is self-regulating. Too many riders means some will drive... too many cars waiting for riders means some will end up as slugs. There is quite a bit of support at the 'work' end of the commute. Pentagon has a circular drive specifically for picking up slugs. Government provided signs mark pickup points at the Pentagon. Also, in Roslyn, government provided signs mark pickup points as well.

Parking access is a big issue and a big incentive to commute by bus or slug. Slugging is more flexible and cheaper than a bus, which I also did for 15 years, but the bus is also a great back-up for after 6:00 work requirements. More parking is needed at Horner and at 234. The other issue is capacity of the HOV. The HOT lanes are going to add more vehicles and reduce the advantage of the HOV to everybody. HOV is about moving people - not vehicles! Slugs reduce the number of vehicles as do buses. HOT is about vehicles and wealth.

One less car on the highway helps everyone and the environment.

None.

No more Hybrids!

No HOT lanes and repeal the hybrid car grandfather clause (there are currently lots of 1ppv hybrid cars on the HOV lanes). If HOV lanes become more congested and begin to fail to realize commuters' significant time savings, then more people will go back to their private cars which means more cars on the road, more pollution in the air, etc. We need to be encouraging carpooling not discouraging it.

My husband and I slug together and when we first started slugging we did a cost analysis to metro-ing. We're both Federal Government employees and were both receiving subsidies for commuting via metro. However even with the subsidies we were exceeding the cost. Living at the end of the blue line and having to pay for parking is far more expensive than slugging every day. And we drive in and factored in the cost of gas.

More participation on the website so people can communicate better about new lines, line changes, and we can become more of a voice to advocate for slugging. Expand the 7 lot and, most importantly, don't convert HOV into HOT Lanes! Since that probably won't happen, then the legislature at least needs to pass a law requiring that HOV always be free, even once the lanes are converted to HOT. They maintain that HOV will be free on HOT lanes, but the contract actually allows HOV cars to be charged if the revenue projections aren't met. So sad that our lawmakers are selling a road we already paid for!

If you are looking for a better understanding of slugging behavior, it might behoove you to expand the survey in a few areas. In addition, take a turn as a rider and as a driver. Something your survey fails to consider is waiting time. This has increased dramatically in the last 6 months as fuel prices increased. Every former slug driver who converts to a rider has a compound effect as 2-3 other riders no longer have that driver as an option. Wait times have climbed at the stops I use from an average of 15 minutes to over thirty. Last week I got in the L' Enfant Plaza line early and still waited over 1 hour and twenty minutes. This was not due to a large number of riders in front of me but rather the dearth of drivers going to Rolling Valley. Time has become less of a benefit as it is just a matter of whether I spend that time in my car or standing in line. If I fail to get a ride at all, the time penalty for taking Metro to Springfield and then a bus to Rolling Valley is well over an hour. Another aspect your survey ignores is available parking. At my prior job, I had a parking place provided at no cost to me. I was a slug driver then as it saved time and fuel was less of an issue. There was also the convenience of being able to work later if needed. If I work on a Federal Holiday, the meters are free and the availability of potential drivers is low so I will often drive in very early. Finally, your survey ignores the social/cultural aspects of slugging. Although it sprung up informally, there developed a rather formal code of behavior such as not eating or drinking in someone else's car, calling out the destination and number of passengers loudly if one were at the head of the line, etc. The level of courtesy and adherence to this code has declined as the recent influx of new riders has outstripped their integration into the prevailing culture. Not unlike the wave of immigration the US is experiencing. I heard second hand about a recent incident where a rider jumped the line and got into a car ahead of many others who had been waiting longer. Good Luck with the study.

Love to see more slug line work. Lately, Rolling Valley Line/L'Enfant is very very slow. There is new park & ride lot at Gambrill Rd (across Syndenstricker), how to make the slug line work here?

Love the whole slugging concept. What a great system!

LET'S GO HOKIES!!!

I've been commuting to and from the Woodbridge area for more than 25 years. I've used every mode of mass transit except for VRE (too expensive and always late I hear). I commuted to the Pentagon for the first 22 years. My first choice of transportation to the Pentagon was the Omniride Bus (for convenience). My second choice commuting to the Pentagon was picking up slugs and driving. Traffic, driving, and parking are not as much of an issue at the Pentagon as it is in DC. If you work at the Pentagon (many people who slug to the Pentagon don't actually work at the building), slugging in the morning is very convenient, but in the afternoon, it's a bit less convenient (the Pentagon slug lines are way down in the boonies). DC commuting is a whole other fish. I've been commuting to DC for 3 years now and it's a lot more troublesome. Unfortunately, the slug and bus lines are a few blocks from my building so I have to walk, but once in a blue moon, I get lucky and get door-to-door service. The driving and parking in DC is horrendous. Luckily, I can get a parking pass, but a lot of drivers have to pay for the gas and \$20+ for parking, not to mention the stress. To drive from Woodbridge into DC, I have to contend with all the major traffic jams, Dale City, Springfield, Pentagon, 14th Street Bridge, and 14th Street all the way up. So I avoid driving into DC just to save my sanity.

Its much easier to get a ride in the morning than in the afternoon to Potomac Mills. Most people in the afternoon are going to Horner Road. Most afternoons I have to take the bus back to Potomac Mills.

It's a wonderful system that I have come to love and rely upon. I am worried that the introduction of HOT lanes is going to ruin a good thing.

It's a wonderful system created by ordinary working people.

It's a great example of spontaneous order without government intervening. It proves that citizens can

self organize and create a great voluntary system without many problems.

It works because it is a bottom-up self regulating system - little or no government involvement. It gets many cars off the road and provides a demand outlet to the public transportations systems. Without this outlet additional public funding (taxes) would be required to increase the supply to pick up the additional demand. The slugging "community" is very concerned about the coming HOT/HOV changes. If the HOV lanes are turned over to a private company then what will be that company's goal? If it is profit - then the focus might shift to how to put more cars on the road in order to increase that profit. The impact remains to be seen, but, looking at other areas of the country where HOT lanes have been put in place, it appears that many of the advantages of our current HOV lanes (reduce the number of cars - congestion, pollution, public costs) might be lost.

It just makes sense to slug - win win for both driver and slug

It is difficult to answer questions 15 and 17 because it is a combination of gas and time savings that makes slugging so attractive.

It is a wonderful feeling of being in a group that through common sense and a sense of community as well as a group sharing of savings, comes together and is organized, helpful (sluggers help each other out) and does so without the government trying to horn in and ruin it. Sigh. There is the hot lane thing, trust someone to come up with an elitist and money grubbing way to muscle in or a good thing and probably mess it all up.

In question 8, I don't think there are pick-up lines for all the slug locations you listed. In the evening I'm on 14th between NY and H, which is where you gave me the flyer yesterday. I think the next stop leaving the city is across from the Reagan Building. The bus no longer stops at 14th and G, so a person has to walk down to 14th and F. Same with taking the bus into the city in the morning. My choices of hopping off are 14th and F or 14th and NY. I'm glad you did this survey. I will send the link to others who were not in the line yesterday. Let me know the results, if you're allowed to do so. Best of luck with your studies.

In question 18, I indicated "Criminal Acts by drivers or riders" Here's a clarification The slugging system is a fragile one, which involves a great deal of trust between drivers and riders. A single incident of "driver crashing because of unsafe driving", "driver diverting to unwanted destination" or "rider harassing or assaulting other riders or drivers". Any of these incidents could cause the collapse of the "trusted relationship" which has developed over the past 35 years. Good luck with your research project, I would like to see the results when your research is complete.

I'd be interested in the outcome/results of this survey (maybe in the form of a link advertised at Horner Road, etc.) Overall, I slug because it's nice not having to drive and the time can be used to nap/read/etc. On days where work may go longer than usual, I drive. Rising gas prices are certainly one more reason to slug but is not my main factor. After all, I have been slugging >5 years and gas prices was not high then. Longer lines/waits than usual lately have been pushing me more to driving these days. Seems like my time is more valuable than the price of gas currently.

I would like clear posted "rules" at every slug line site, so all slugs and drivers can learn proper etiquette. Expanding existing lots and adding more, convenient lots to Prince William and Stafford counties.

I usually commute in a vanpool - it's not as fast (additional pick-up and drop-off points), but cheaper than driving and parking. On days when I need flexibility to work longer, leave early for a doctor's appointment, etc., I pick up slugs. Not having the HOV option would make my job untenable - I would look for new employment elsewhere rather than face the non-HOV commute every day.

I used to slug in 1998 when I first moved to the area. I started again in February 2007 when I moved back to Lake Ridge. I will be moving closer in to the city soon. I think slugging will continue to be

great if new people obey the simple etiquette of slugging. Otherwise, it can get "crazy" and rude.

I typically ride the commuter bus but slug rides are an excellent supplement to the bus. The bus and slug lines are right next to each other at 14th and New York so it is possible to wait in the slug line until a bus arrives. I only let a bus pass and wait for a slug ride if I am first in the line, otherwise I simply take whichever transportation method arrives first.

I thought you might have a question about any concerns with safety, either from an unsafe driver or from someone wanting to do harm. My daughter who is in college would not slug unless we did it together, which we did a few times this summer (she had an internship downtown). One other benefit is getting to ride in a variety of vehicles, many of which are nicer than mine. The gas prices do seem to have increased slug riders a bit. I like the flexibility of not having to leave at a prescribed time like when I was in a car pool. Sometimes I coordinate with my wife's departure from Fairfax Hospital (slugging isn't an option) so that she can pick me up at Horner Road and occasionally go to happy hour for dinner.

I think you should do two surveys, one for the slug rider and one for the driver picking up slugs. Interesting things about slugging: Neatness counts as does personal deportment when a guest in someone's car. The last thing a slug wants is a bad reputation. I have seen comments posted to the website that a slug is a slob, rude, plays an i-Pod too loud, eats or drinks or spills beverages on the way or most damning label of all is to be called 'Stinky' for lack of hygiene. Drivers recognize the regular slugs and what to expect in short order.

I think the slug rules and pick-up/drop-off locations should be broadcast on cable TV's county info channel. A short demonstration showing the role of the driver and passenger should follow, to include the role of "the caller" (the first person in line). Not everyone has access to a computer and/or knows how to find the slugger's website. As a female, I have discovered that slugging is very safe. My co-worker showed me how to slug, if he hadn't walked me through the process, I would have been too apprehensive and skeptical to try it.

I think slugging is awesome!!!! and it should be done by a lot of people .. even if the gas prices reduce .. it helps with the environment!!!! too bad the work place do not offer opportunities like slugging ... it would be better!!!!

I think it is a great service and somewhat beneficial to the environment, but really everyone taking public transportation /telecommuting would be the most beneficial to the environment

I think drivers should have tax benefits, but I'm not sure how we would verify who truly drives.

I think converting the HOV lane to a toll lane is a travesty, and the local government should support policies that uphold efficient and environmentally friendly practices like slugging, instead of enacting policies that jeopardize such well-established systems.

I started slugging in 2005 and it offers a great low/no cost means of getting into work. Even on the occasional days I drive slugs myself, I'm in to work faster and can feel good about the carpooling/environmental aspect of riding in. New challenges for slugs/slug drivers could make this process less useful or time-saving, like gas prices and the HOT lanes. I'm concerned however at how the HOT lanes will work and what it could do to traffic for slugs. The increase in gas prices has certainly increased wait times in line and the rate at which the Horner Road lot fills up in the morning. My other concern is with the organization of the line I use in the morning, which condenses all 14th street, L'Enfant, and Navy Yard lines into one. There is often confusion by drivers and slugs, resulting in frustrations on both sides. Perhaps breaking this line out into its different components would be good at this point.

I slug less now because my employer gives us a transportation subsidy of \$75 per month which can be used on the bus. I also slug less because the wait for a ride is too long since gas prices have gone up. In the time I would spend standing in line waiting for a ride; I could be on a bus and get home as fast, if not faster, than waiting for a ride.

I really enjoy slugging. I feel safe and the people I meet (both riders and drivers) are very very nice.

I love slugging. I rarely drive and I save hundreds more like thousands of dollars a year on gas, car maintenance. I also am less stressed by not driving and it is surprisingly extremely safe. I have made several business connections and actually brought in some additional business to my company due to my contacts through slugging. My boyfriend and I both slug everyday and his father has slugged for 25 years. It is such a great system.

I love slugging. The only thing that would make me stop is a significant threat to my safety.

I love SLUGGING I hope that it NEVER STOPS. Thank you.

I hope your survey doesn't become screwed because some people might forget that in question 3 you establish "slugging" as an activity in which the participants fill the role of driver and/or rider. A lot of people feel if you are riding you are "slugging" and don't broaden the definition to include drivers. I have lived in the Woodbridge area for the past 18 months. I loved slugging when I first moved there and was telling all my out of state friends about this fantastic way to commute. Due to the high cost of gas, slugging has changed. The line is longer because there are fewer drivers. People who used to drive are now standing in line. I hate how this bites into my free time. My coworkers (who also slug as riders) and I have formed carpools to be able to get into and out of the city faster. Although carpooling costs us more even though we take turns driving and we hate losing the flexibility (slugging means you don't have to commit to meeting anyone at a specific time) slugging allows, we have realized we value our free time and are willing to sacrifice in other areas to maintain our level of free time or get a little more of it. Slugging used to save me time but with the longer lines and less drivers it is costing me time.

I Hope this could influence the abolishment of the HOT lanes.

I have the option of catching the PRTC commuter bus from Montclair in the morning. It takes about 15-20 minutes longer taking the bus than slugging. I can also slug from directly from Montclair because a lot of drivers pick people up who are waiting for the PRTC bus. In the evenings, we always slug from the Pentagon because it saves us 20 minutes or more over the bus and the bus is always crowded.

I have participated in "casual carpooling" since 1996 and found it to be stress-free, cost-effective, and time-saving. With the increase in population within Prince William County and gas prices, slugging has become extremely stressful! Within the past 5 years, parking spaces have become scarce by 7:00 a.m. and the lines are extremely long. Since March 2008, I have discovered the bus, Omniride, and now compute the kinder gentler way. The trade-off of \$4 each way for bus fare versus fighting traffic to/from the commuter lot, fighting for a parking space, walking 10 minutes to the line, and then waiting 15 minutes or more for a ride is well worth taking the bus. The bus equals out in time but surpasses slugging in less hassle.

I have observed slugging since its inception in the 1980's. It fascinates me how this efficient form of commuting naturally developed over time. This was not any sort of government program; it was simply commuters adapting to the traffic patterns of 95.

I have noticed that as gas prices have increased there are less drivers and more sluggers. The wait time for a ride has increase significantly- especially in the morning. I have started taking the bus more in the morning because I do not want to be late for work.

I have met some really great people slugging and end up forming an informal carpool with those same people that turn into lasting friendships even when the carpool falls apart due to scheduling changes.

I have found slugging to be a relatively safe, inexpensive, and time saving way to get to and from work.

I have been slugging to/from work for almost 20 years now. It was around long before I started doing it!! If I'm not slugging, I pick up slugs even if the HOV is already open. It is a relatively safe, quick and inexpensive way to get to/from work. Slug commuters are just people trying to get to/from work like me. You see the same people every day. Even though you might not know their names, you feel like they are friends. There is an etiquette that slug commuters try to follow so that everyone enjoys their trip. Bad drivers sooner or later find it hard to pick up riders because word gets around quickly. Slug commuting has become an institution in the northern VA area.

I have been slugging since my husband and I moved here, from the west, about 15 months ago. I think it is extremely innovative and beneficial to all parties. If you have not already, check out the website www.slug-lines.com and you will find a lot of information. Pay particular attention to the Lost/Found section. I have accidentally left two things behind, after extremely harrowing days at the office. Both of the items were returned to me because of the Lost/Found section. Also, another comment on living in PW county and slugging. This morning, August 11th, I left my home (I live closer to Dumfries than I do "old" Woodbridge) at 6:56 a.m. I was at the lot and parked by 7:10. I was in the city at the drop-off point of 18th & F by 7:45 a.m. I get to work faster, and at less cost to myself, than counterparts who live in Maryland and outer Fairfax County. Especially since about half the people I work with who live on the Orange Line, no longer park at the metro. Between high gas prices and Metro raising the parking fee, they have decided to start taking the bus to the metro. Their commutes are longer than mine on average. When I myself drive and pick up slugs, my trip from my home into the city, parked and everything, lasts 35-40 minutes. My one worry is that the HOT lanes will turn into a nightmare for the government and for carpoolers, a la California.

I have been slugging since day one. In fact, my father invented it (I stick by that claim!). I wouldn't change a thing. If I could afford the gas, I'd pick up riders because it's the neighborly, earth-friendly thing to do. If I couldn't afford the gas, I'd stand in line but drive at least once a month to give back to the system. Some drivers have mentioned charging a small amount due to the price of gas. I say this will ruin the system. Sometimes the drivers feel they're doing the riders a HUGE favor, which they are, but if they take off with no riders, another driver will pull up. When money begins to exchange hands, riders will become more picky about temperature/radio station and government will get involved. As I said, it will ruin the system. I have stood in long lines for more than an hour, but in 15+ years, I have NEVER been unable to get a ride on the days I was the rider, but I HAVE been unable to get riders on days I was the driver.

I have been slugging for several years and I like it despite the waiting time that at times may be up to 20/25 minutes. I believe it is worth it and fun.

I have been slugging for more than 15 years. I have never been stranded without a ride or experience any type of safety issue. A concern I have is the more visibility slugging receives the greater my concern for safety. I also wanted to add I rather slug than car pool because I don't have to worry about being a certain location by a certain time. Slugging allows flexibility.

I have been doing it since November 2007 and have no regrets. I think I have saved thousands of dollars by not riding the bus and not spending money on gas to get to work in DC. Not to mention the wear and tear that could be placed on my vehicle if I drove in to work more often. I look forward to the results of this experiment. Thanks!...

I find it funny that there is such a large interest in slugging now. It has been around for years. I use slugging to get to work because the bus which is crowded takes at least 50 mins, whereas if I slug, I can get to work with 30/35 mins. I would take the bus, but with all the stops it just takes too long. I receive metro checks (vouchers for commuting expenses) from the government which more than covers my expenses with slugging. If there was an official slug line from the Navy Yard I would probably give up the metro checks and slug home too. But for now all they have is the E-Slug line which is an email system of slugging. I have included that link for your use in this project.
eslug@yahogroups.com

I don't think I will ever go back to Metro Riding (sardine commuting). If I move, I would move to a location that I could slug (Springfield). Even socializing with strangers in the car prove enjoyable and entertaining: stick to general topics like vacations, education, growing up, traffic, news reports, and other crazy facts! I hope HOT option doesn't clutter the HOV entrances with stupid (brake-happy) people. And for the free ride, stealing or damaging is not even a thought because of the continued benefit I receive. Are thieves up at 6:30am going to work anyway? Heck, last week I was in a car where we starting talking about repaving a driveway, I've done it 4 times and the driver's husband does it for a living. So the other passenger listened to our stories to know how to attack the weekend project!! It was hilarious and what a lucky break for the other passenger! That's where I found out about the 529 College Plan and that the new Avalon's have reclining back seats!! Like I said - stupid facts for your enjoyment to pass the time!

I do slug home, when I get off in time to catch a ride, but my schedule usually precludes me from receiving a slug ride home, so I take the bus to the lot where I am parked.

I did not answer questions #17 and #15 because slugging is worthwhile to me mostly for the time I can spend reading or sleeping. I don't have a minimum cost-savings or time-savings to keep slugging.

I believe that slugging is the best method of travel out of the city. It is great being able to rest while someone else drives. There are occasions when I could do with a different radio station or a change in the temperature, but overall my experience over the past eight years has been excellent. I recommend this mode to all of my friends and family.

I am an intern and therefore only slug in the summers- the rest of the time I am at school, at Virginia Tech! Go Hokies! :)

HOT lanes will destroy the I-95 / 395 slug system. Slugging will be entirely eliminated within one year of HOT lanes enactment with car overload. Further, it will be so devastating; we already know we will move from Woodbridge before HOT lanes take effect.

Hot Lanes should not be passed.

HOT lanes are not a good idea because everything (especially the high cost of gas) has suggested that consumers will pay almost anything for convenience. Which will surely congest what we HOVer hold dear. The one thing we have given up - convenience. We stand in the elements spring, summer, winter and fall, to get where we need to go with strangers - for the most part, and all HOT laners will have to do is pay a fee, which they will gladly do rather than pick someone up to drive by themselves. Not cool at all, not at all cool.

Hot Lanes are going to destroy the SLUG lines. The Hot Lanes are going to be filled with DC workers who either can afford the high tolls at peak times or will be reimbursed for the tolls by their companies.

HOT lanes and hybrids will corrupt I95 Express Lanes and add time to our commutes. All citizens (police / FBI / taxies) unless with lights on in official capacity should adhere to the HOV-3 law. No one should be exempt. This would cut at least 10 minutes off my daily commute. HOV rules should go into effect from 5am-10am and from 2pm-8pm. This would mitigate "Cheaters" from entering five minutes early in order to utilize the lanes. Slugging prior to hybrids worked much better (faster / more drivers / riders, etc.). I've ridden as a slug or driver since 1989.

Hot lanes & hybrid access to express lanes defeat the purpose of HOV lanes and force slugs (not sluggers!) to drive or take alternate routes. The decision to slug is a combination of desire for flexibility, saving time, saving money, and enjoying the people you meet - often meeting up with the same folks and getting to know them. My alternative, the VRE, is good, but expensive, crowded, and limited in scheduling. It also takes longer. I can snooze either way, but can read only on the train - get carsick. Bad weather will "drive" me to the train, as will the need to stay late at work, since rides cease at 6 p.m. As to safety, have never heard of anyone being in danger, except for some drivers who are aggressive or use cell phones while driving. Riders get to know and avoid drivers they don't feel comfortable with. Altogether a great system.

Hope the system stays alive...

Hate the concept of HOT. I see that HOT lanes will destroy the way of life that has evolved over the years around slugging. I have slugged since 1993. I have only driven to work a couple times during all those years and each time on a federal holiday. The concept of HOT is a flawed concept that will create lasting problems for the area on 95 in NoVa. Increase the capacity at the high volume commuter lots and more people will slug. Increase the HOV hours and more will slug. Enforce the laws and get the HOV violators out of the HOV lanes and there will be less backup. Get the Hybrids out of the HOV lanes - Hybrid drivers are for the most part the speeders, the rude and unsafe drivers - you can drive like an idiot when you are alone. For the most part the drivers in carpools and who pick up slugs are much better drivers since others are next to them watching. Hybrids clog up the HOV lanes and along with the violators cause significant back-up every morning around 6AM. You could also make Hybrid hours from 0730-0900 when the lanes are less crowded. I could go on for hours but you get the idea. Slugging is the one thing that works in NoVa and the government got involved and they are screwing it up.

Had never heard of slugging until moving to DC. Was not planning to slug but neighbors convinced me it was a much better option than train or bus. I agree for the morning commute it is fairly easy to get a ride and the drop off in DC leaves a reasonable walk. Slugging home is much more difficult. The lines are long, the wait is long and the chance of a ride is unpredictable. The bus comes before I have any chance of getting a ride and the idea of getting home rather than waiting and hoping for a ride is worth the \$4 per day for the predictability of the ride home.

Great way to network with other professionals. Also have met great people who became our best friends.

Great way to commute. They should have the I66 corridor as HOV 3 like that on I95. If they did it would work there as well. HOT lanes will ruin the slug system. Go Hokies!!

Good Survey.

Good luck with the project.

Go Hokie!

For time and cost, slugging is the best and fastest way to get to and from work. Only carpooling door to door from commuter lot to work is faster, but cost to help with gas enters in then. My ideal is having a steady car pool that I contribute toward gas (used to be \$20 per week in a car of 5). But currently my job is in Ballston and no car pool was available. I oppose the upcoming "Hot Lanes" and

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| think it will greatly interfere with a delicate system that's worked well for years. |
| For me the biggest advantage to slugging (whether I ride or drive) is about the time I save. I have serious concerns about the hot lane changes and how that will significantly slow down the flow of traffic. Right now when I get on HOV between 7:30-8:00 traffic is able to move at speed (65mph). With the hot lane change that it likely to be reduced to 30 mph. That kind of change is going to almost double my commute time. |
| FIRST, THE PRICE OF GAS AND THE NEW VOLUME OF SLUGGERS, PARKING IS BECOMING A BIG CONCERN. SECOND, THE COMMUTER LOT AT 123, MUST HAVE BEEN DESIGNED BY SOMEONE WHO DOESN'T SLUG. GETTING IN AND OUT OF THE COMMUTER LOT IS NOT CONVENIENT. |
| DO NOT call us SLUGGERS even in quotes. It is offensive. We are SLUGS. |
| Biggest concern is that HOT will end need to take riders. Also, that contract will allow Transurban to own public right-of-way and set prices too high for regular daily use. Prices will be set by casual users on one-time trips, or those on expense accounts or who can write it off (as in business travel or company vehicles, such as plumbers.) Also, as the lanes fill, VDOT has already said that they will need to limit the number of free (as in HOV) users on the I95 corridor to ensure enough paying users. That means either eliminating HOV during rush hours, which can be done with a simple law change in Richmond where nobody knows or cares about NoVA, or by charging carpoolers. Finally, Transurban has not ever demonstrated any feasible means of determining the number of occupants in a vehicle, meaning that all cars will have to be charged the same amount or that they will make carpoolers pull into special "counting" lanes for eyeball inspection, thus further disincenting ridesharing by slowing it down. Go ahead: ask them how they plan to tell the difference at highway speeds between a panel van with three occupants and a panel van with two. Or a minivan, or a tinted-window vehicle with a child in a car seat. Can't be done. |
| Big future question is HOT - have yet to see an explanation of how it will work for HOV/slugging. It does not make sense they will be able to monitor # of persons in a car and manage payment/no payment without installing toll booths |
| As a federal employee, I receive a subsidy for taking public transportation. I ride the bus home in the afternoons, but slug in the mornings. Why? From the Potomac Mills parking lot to my office is usually a 20 minute slug ride, whereas, it's at least an hour bus ride! I've suggested to OmniRide that they include a couple of "Express" routes along with their regular routes. An Express with three stops...directly from Horner, one stop midway and final stop at State. It would certainly save time. |
| As a driver, I pick up slugs because they get me onto the HOV lanes, thereby saving a great deal of time, without the need to commit to more formal carpool. Also, most slugs and drivers are well aware that traffic management professionals are ambivalent at best regarding slugging and most would eliminate it if they could. Nevertheless, it is the single most effective way of relieving congestion on our highways. The fact that it does so in an independent way that confuses and annoys the micromanaging control freaks who become professional traffic managers is a welcome bonus. Now, if we can just divert some of the money wasted on ineffective mass transit to actually support slugging instead of trying to find ways of ending it, we just might get somewhere. |
| Anything that makes slugging easier is a win win for everyone. The driver (quicker ride), rider (a free quick ride), other drivers (less traffic to compete with), the environment less pollution, and the taxpayer (less road infrastructure needed, no government oversight). |
| Although I live in Alexandria, my parents and sister are in Woodbridge so I use the slug lines to be able to make it to Woodbridge for a weekday dinner at a reasonable hour or to pick up my son who stays with my parents every once in a while. Without the slug lines, that wouldn't be an option because of the time it takes to make the trip. Good luck with the research. |

all metal plates of vehicle openly monitored and recorded at pick-up or drop-off sites because of a possible potential for violence (i.e. being with strangers who also can be dangerous wanders...), just never know.

Age, income, household income, and number of people in the home are private areas not to be answered in any survey.

Adamantly opposed to HOT lanes. I believe they will greatly increase traffic on HOV lanes and increase the commute time, perhaps even eliminating the potential advantage of HOV lanes. Prince William County is very supportive of slugging as they have a realistic number of parking spaces at Horner Road Lot and Potomac Mills.

About the questions -- You might want to divide the questions better between riders and drivers.

A lot of the time slugging is the most cost effective way to get to home but occasionally it's frustrating not knowing when you'll get a ride.

A great way to save time and money. Safe, easy and reliable. I highly recommend it.

Credits

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