

Environmental Standards Waiver Request

Whip Clean Car Wash Concept Plan; SP-8819-2021

601, 605, and 607 South Frederick Avenue, Gaithersburg

On behalf of Crain Partners, LLC (“Applicant”), the applicant for the above-referenced Concept Plan (“Concept Plan”), and pursuant to Section 38 of the City’s Environmental Standards for Development Regulation, Regulation No. 01-10, effective May 4, 2010 (“Environmental Standards”), we are hereby requesting approval of an environmental waiver to install and maintain a retaining wall located just outside the boundaries of the stream valley buffer, and to construct a micro-bioretenion facility located just outside the wetlands buffer. The maximum total area of disturbance is proposed to be approximately 1,232 square feet. This waiver request is accompanying the Concept Plan Application, and incorporates by reference the Revised Statement of Justification, dated February 6, 2022, included therewith.

I. Background Information

The subject property is covered by Natural Resources Inventory/ Forest Stand Delineation #ENV-8438-2020, approved on April 4, 2021 (“NRI”). The property is located in the southeastern quadrant of the intersection of South Frederick Avenue and Central Avenue, and consists of Parcels P103, P114 and P115 (collectively, the “Property”), all of which are in the CD Zone. Two of the parcels currently contain single family houses with driveway entrances connected to South Frederick Avenue, while the third parcel is vacant with no improvements. As shown on the NRI, a stream valley buffer covers the eastern third of the Property, and areas of floodplain and floodplain and wetland buffers are located in the northeast and southeast corners of the site, respectively.

The adjoining property to the south of the subject property is improved with a commercial use, and is also located in the CD zone. The property to the east, zoned R-A, is within a stream valley buffer for Muddy Branch Creek. Residential uses in the R-A zone confront the Property across Central Avenue to the north, and to the west, across South Frederick Avenue, is the Gaithersburg Presbyterian Church.

The Concept Plan proposes the demolition of the existing structures and pavement, the consolidation of the lots into a single record lot, and the redevelopment of the Property with a carwash use (the “Project”), which is a permitted uses in the CD Zone. Although great care was taken to ensure all improvements associated with the Project were located outside of the wetland, floodplain and stream valley buffers, as discussed below, minor encroachments associated with the installation of the retaining and micro-bioretenion facility and maintenance of the retaining wall bordering the buffer area are necessary and unavoidable.

II. Justification for Waiver

As discussed more fully after each criterion below, the Project meets the specific requirements for the granting of a waiver to allow for intrusions into the stream and wetland buffers.

Article III, Sec. 25 1.b of the Environmental Standards states:

No buildings, structures, impervious surfaces, or activities requiring clearing or grading will be permitted in stream buffers; except for public uses such as infrastructure, bikeways, and trails found to be necessary and unavoidable or necessary maintenance or minor changes to existing impervious areas that are identified on an approved site plan where impacts are minimized. Intrusions into the stream buffer may only be approved by the granting of a waiver on a case-by case basis pursuant to Section 38 of this Regulation. The applicant shall provide rationale for stream buffer intrusions addressing at a minimum the factors below. The extent to which the proposal meets the following factors will form the basis of whether or not a waiver is approved:

1. Reasonable alternatives for avoidance of the buffer are not available.

As noted above, the stream valley buffer extends over approximately one-third of the width of the Property. As shown on the Concept Plan, the width of the proposed building has been minimized, and the proposed improvements pushed towards South Frederick Avenue as much as possible in order to avoid any encroachment of the proposed improvements into the stream valley buffer. Even with these measures, however, a waiver of the minimum drive aisle width of the vacuum area parking lot area is still needed in order to ensure no intrusion. The proposed retaining wall separates this drive aisle and parking area from the environmentally sensitive areas of the Property, and while it is proposed to be located wholly outside of the stream valley buffer and has been specially designed to avoid the need to put any footings or foundation within the buffer area, it is expected that some minimal intrusions into the buffer area will be needed during construction and maintenance of the wall. Likewise, the limits of disturbance for the micro-bioretenion facility encroach slightly into the wetlands buffer to allow for the installation of that facility. Importantly, these intrusions are expected to be limited to workers briefly accessing the areas to construct these improvements. No clearing, grading or construction of any permanent improvements is proposed.

2. Encroachment into the buffer has been minimized.

The impacts to the buffer will only include temporary access by workers to install the proposed retaining wall and stormwater facility and periodically maintain the retaining wall. The disturbance will not involve any clearing or grading. As previously explained, the wall has been designed so that all footers will remain out of the buffer in an effort to limit any unnecessary disturbance. The proposed impacts to the buffer have therefore been kept to the bare minimum and it is not anticipated that these encroachments will have any significant impacts on the buffer area.

3. Existing sensitive areas have been avoided (forest, headwaters, and wetlands and their designated buffers, floodplains, steep slopes, and habitat for rare, threatened, and endangered species and their associated protection buffers).

No areas of forest or habitat for rare, threatened and endangered species exist on the Property. The floodplain and its associated buffer, located in the northeast corner of the Property, will not be impacted, and the wetland buffer located in the southeast corner of the Property will only be briefly impacted during construction of the micro-bioretention facility. The wetlands themselves, which are located off-site, will not be impacted at all.

4. The proposed use is consistent with the preferred use of the buffer (e.g., pervious areas such as tie-outs to existing grades, slope stabilizing BMPs, etc.).

The primary intrusion into the buffer area is related to the installation and maintenance of the retaining wall. The installation and maintenance of the retaining wall at the edge of the parking area will not involve clearing nor additional grading within the stream buffer and the area of encroachment will remain pervious. Moreover, the installation of this wall along the edge of paving for the proposed use will protect the stream valley by creating a physical barrier between the Project improvements and this environmentally sensitive area.

5. The plan design provides compensation for the loss of buffers.

As noted, the proposed impacts to the stream valley and wetlands buffers will be limited to temporary access for construction of the retaining wall and micro-bioretention facility and maintenance of the retaining wall. However, in recognition of the fact that the area within the stream valley buffer adjacent to the retaining wall will not be allowed to fully naturalize with mature vegetation due to the need for maintenance access, the Applicant is proposing compensation in the way of afforestation of approximately 11,500 square feet between the stream and stream buffer for re-energization of the buffer to account for the impacts.

The Project also meets the general requirements for a waiver from the Environmental Regulations, as discussed below:

Sec. 38. Waivers from Environmental Regulations

a. Completion of required approvals, rulings, permits, or waivers from all appropriate State and Federal findings agencies.

The NRI was submitted and reviewed by MDE in an effort to receive their input on the wetland location and floodplain. Once a final layout and technical drawings are prepared, plans will be resubmitted to MDE for any impacts and permits required within the floodplain. There are no impacts to the wetland noted on the approved NRI.

A Conceptual SWM Plan has been submitted to the City of Gaithersburg Department of Public Works and a Conceptual Forest Conservation Plan has been submitted to the City of Gaithersburg Environmental Planning Department. Final technical drawings will be provided to the City and to Montgomery County upon approval of the conceptual drawings and the Schematic Development Plan for any and all permits required.

b. A showing of good and sufficient cause and meeting the criteria outlined in Article III of this regulation.

The compliance of the proposed waiver request with the criteria outlined in Article III is discussed above.

As noted, the stream valley buffer covers a significant portion of the Property, and all efforts have been made to ensure the primary improvements associated with the Project do not encroach into the buffer area. Additionally, the Project is proposing to incorporate a number of measures aimed at ensuring that the sensitive environmental features on the Property are protected. The proposed micro-bioretenion areas will treat runoff through the bio media prior to it infiltrating into the soil. Water used as part of the carwash use will be recycled through three reclaim/ recycle tanks and a grease interceptor and all soaps and cleaners utilized on the Property are safe and avoid harsh acids. The improvements associated with the Project will be physically separated from stream valley buffer by the proposed retaining wall, ensuring that nothing from the Property drains into the buffer area unchecked, and a trench drain is proposed to bisect the access to the Property to further ensure that no runoff will inadvertently leave the site untreated.

c. A determination that failure to grant a waiver would result in unnecessary or undue hardship to the applicant.

As reviewed above, all reasonable alternatives to the proposed buffer impacts have been exhausted. As detailed in the Statement of Justification supporting the Concept Plan, the proposed use is in accord with the Property's zoning and will continue the commercial nature of this part of the South Frederick Avenue corridor, as envisioned by the Frederick Avenue Corridor Land Use Plan. Denial of the waiver would therefore thwart the Applicant's attempt to further the objectives of the Corridor Plan and develop a use on the Property that is consistent with its zoning¹.

Failure to grant the requested waiver for the minimal amount of buffer impact proposed would also create an undue hardship for the Applicant, who would then be forced to construct the wall and stormwater facility from only one side. Such a denial would be arbitrary when the impacts associated with the encroachments are so minimal, and the proposed compensation would not only mitigate such impacts, but greatly improve the environmental conditions on the Property.

d. A determination that the granting of the waiver will not result in increased flood heights, additional threats to public safety, extraordinary public expenses, or the creation of nuisances.

The proposed minimal and temporary encroachments into small portions of the buffers will not impact flood heights, create any threats to public safety, cause public expense or create any

¹ Given the significant area of the Property subject to environmental restrictions, and the limitations of the resultant developable area, many alternative commercial uses could not feasibly be developed on the site.

nuisance. Instead the construction of the retaining wall will create a permanent point of separation between the proposed use and this environmentally sensitive area.

e. A determination that there are no conflicts with existing local and State laws or ordinances.

There are no local or State laws or ordinances that prohibit the proposed impacts to the floodplain or stream valley buffer.



Erin E. Girard
301-517-4804
egirard@milesstockbridge.com

Laura M. Tallerico
301-517-4833
ltallerico@milesstockbridge.com

April 27, 2022

Mayor Jud Ashman
And Members of the City Council
City of Gaithersburg
City Hall
31 South Summit Avenue
Gaithersburg, MD 20877

Re: Whip Clean Carwash; Concept Site Plan SP-8819-2021

Dear Mayor Ashman and City Councilmembers,

On behalf of our client, Crain Partners, LLC (“Applicant”), the purpose of this letter is to address various questions, concerns and comments that were either raised in writing or during the March 21, 2022 public hearing on Concept Site Plan SP-8819-2021 (“Concept Plan”). As you are aware, the Concept Plan proposes the redevelopment of the properties located at 601, 605, and 607 South Frederick Avenue in the City of Gaithersburg (“Property”) with an express carwash use (“Project”). While those in opposition have made a number of claims regarding the Project that they assert warrant its denial, these claims lack merit, as detailed below, and we continue to believe the Concept Plan meets all necessary criteria and requirements for approval.

Compliance with Annexation Agreement X-150

During the public hearing, opposition attorney David Brown argued that the Project is not in compliance with Annexation Agreement X-150 (the “Annexation Agreement”). Specifically, Mr. Brown argued that the Annexation Agreement limits the uses permitted on the Property to those allowed in the C-B zone, even though the Property was subsequently rezoned to the CD zone. However, the plain language of the Annexation Agreement does not support this interpretation. Specifically, with respect to the C-B zone, it states:

The City agrees to annex the property and to simultaneously classify it in the C-B zone. The City agrees that the property may be developed with the uses allowable in the C-B zone as it exists on the date of the execution of this Agreement subject to the submission of a site plan(s) for one or more of the parcels included in this Annexation.

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 2

The plain language of this paragraph makes clear that, as part of the annexation, the City was applying the C-B zone to the Property and confirming that it could be developed with any of the uses of the C-B zone through site plan approval. The language does not indicate any prohibition on a future rezoning or development with other uses that may become available through such rezoning. As such, Mr. Brown's argument lacks merit. The Applicant's position in this regard is supported by the City's previous interpretation that the language of the Annexation Agreement in no way prohibited the currently proposed carwash use.¹ See March 9, 2020 Email from Jasmine Forbes to Brett Schaechter confirming City Attorney's interpretation that the Annexation Agreement did not restrict allowable uses to those of C-B zone, attached hereto as **Exhibit "A"**.

Compliance with the Frederick Avenue Corridor Land Use Plan

Both in written and oral testimony, Mr. Brown has further argued that the Project is not consistent with the City's 2001 Frederick Avenue Corridor Land Use Plan ("Corridor Plan") because it is not of a sufficient residential character and is not similar to the office, light retail or live-work unit uses listed as examples of what is envisioned for the Property in the Corridor Plan. At the outset, it is important to note that the relevant legal standard for approval is a finding that the Project be "in accord with" the Corridor plan, not in strict compliance with it.² Zoning Ordinance § 24-160G.7(b)(3). The "in accord with" standard is analogous to "consistent with," and the Land Use Article of the Maryland Code defines "consistency" as to "further, and not be contrary to." Md. Code Ann., Land Use § 1-303.

Moreover, the Corridor Plan is not as restrictive as Mr. Brown claims. Broadly, the Corridor Plan states that the Property is appropriate for "commercial-office-residential" use. While the plan further states that "[o]ffices, light retail or live-work units in low-rise buildings are *examples* of what is envisioned" for the property, the plain language makes clear that offices, light retail and live-work units are merely examples of potentially appropriate commercial uses, not an exclusive list of allowable uses.³ Corridor Plan, p. 8 (emphasis added). While the City's Zoning Ordinance does not specifically define what types of uses are considered "commercial," the American Planning Association defines "commercial" as "a land use or other activity involving the sale of

¹ The City recently interpreted a similar annexation agreement for 700 North Frederick Avenue in the same manner. <https://www.gaithersburgmd.gov/home/showpublisheddocument/8274/637435440132970000>.

² We note that for other properties within the plan area, the Corridor Plan explicitly states, "strict adherence to the Frederick Avenue Corridor Plan in redevelopment scenarios is a must." See, e.g. p. 10. However, no such language is included for the subject property.

³ The City recently approved a Wawa convenience store and gas station for the property located at 405 S. Frederick Avenue, which is also subject to the Corridor Plan. The Corridor Plan's recommendations for both 405 S. Frederick Avenue and the subject Property contain the exact same language stating that "[o]ffices, light retail or live-work units in low-rise buildings are examples of what is envisioned." Corridor Plan pp. 8, 10. The City found the convenience store to be a light retail use, in accord with the Corridor Plan, and the gas pumps an accessory use. This decision was upheld by the Court of Special Appeals. *Johnson v. Mayor and City Council of Gaithersburg*, 2021 WL 1233394 (Md. Ct. Spec. App. 2021). The Applicant posits that the proposed carwash use is less intensive than the approved Wawa use, and therefore can similarly be characterized as "light" commercial.

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 3

goods *or services* for financial gain.” The proposed carwash use is therefore clearly a commercial use, which is in accordance with the recommendation of the plan.

Additionally, the Corridor Plan states that any development should be “in keeping with the residential character *of this portion of the Corridor.*” *Id.* (emphasis added). Although Mr. Brown interprets the reference to residential character to mean the single family homes in the area, the reference is to the “corridor,” implying proximity to South Frederick Avenue. A substantial portion of the residential uses in the area of the corridor proximate to the Property are multi-family uses, including multifamily developments such as 17 Barkley, Flowers Apartments, Lakeside Apartments, and Montgomery House. In fact, the proposed architecture for the Project adopts themes from 17 Barkely, arguably the most prominent residential development in the area, to ensure residential compatibility. The proposed use is thus in keeping with the multifamily residential character of this portion of the Frederick Avenue corridor.

Based on the foregoing, and as further explained on pages 10-12 of the Statement in Support, in the record as Exhibit 91, the Project complies with the recommendations and objectives of the Corridor Plan.

Proximity to Residential Uses

The Project’s proximity to single family residential uses, and its proposed access off of Central Avenue, have also been challenged as being inappropriate. In response, the Applicant first notes that the Property is located squarely within the Frederick Avenue *commercial* corridor, immediately adjacent to South Frederick Avenue, a six lane separated arterial road, and a commercial office building. The Property also lies within the CD zone, which allows carwash as a permitted use.

Additionally, the proximity of the proposed carwash use to single family uses is not at all atypical. Carwashes tend to be located near residential areas in order to be convenient to potential customers. In fact, the Applicant’s Bowie location is located within 150 feet of a single-family residence, and has operated there successfully for over five years with no issues. Other carwashes in and near the City are also located near residential neighborhoods, including the carwashes located at 16425 S. Frederick Avenue and 19604 Club House Road. In fact, unlike these other examples, the proposed use will be separated from the adjacent single family neighborhood by a forested stream valley buffer, providing an attractive and natural buffer between the carwash use and the residential uses to the east.

With respect to access being provided from Central Avenue, the Corridor Plan explicitly recommends that access to this site be off Central Avenue in order to eliminate curb cuts along Frederick Avenue, and such access is required by the Annexation Agreement. Corridor Plan p. 8, Annexation Agreement, p. 2 (“Where three (3) or more parcels...are developed in a single site plan, access to these parcels shall be from Central Avenue.”). Furthermore, nothing in the Zoning Ordinance restricts ingress and egress to the Project from Central Avenue based on its classification, and the City’s 2009 *Master Plan* transportation element favors access off Central

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 4

Avenue. *See* Section 24-117(15) of the Zoning Ordinance. Central Avenue is classified as a local road in the City's 2009 Master Plan which is intended to "provide direct access to abutting land and functions for all traffic movements within neighborhoods."⁴ 2009 Master Plan, Transportation Element, p. 7. Therefore, access is not only allowed to be off Central Avenue, but also recommended.

Waiver from Environmental Standards for Development Regulation

As part of the Concept Plan, the Applicant has requested a waiver from the City's *Environmental Standards for Development Regulation* ("Environmental Standards") in order to temporarily enter the stream valley and wetlands buffers to install and periodically maintain a retaining wall and stormwater management facility located just outside the boundaries of the buffers. The Applicant's justification for this waiver request is contained in the Environmental Standards Waiver Request submitted on February 7, 2022. Without citing to any precedent or authority, Mr. Brown has argued that the City should apply a more stringent standard to this waiver request than is specified in the Code. Specifically, Mr. Brown argues that: 1) the Applicant "must demonstrate that the property cannot be significantly redeveloped with one or more CD Zone permitted uses other than a car wash, with limits of disturbance that do not extend into the environmentally protected areas;" and 2) that a contract purchaser cannot claim undue hardship. However, nothing in the Environmental Standards requires a demonstration that a property cannot be developed with another use to attain a waiver, nor has the City ever applied such a standard. Similarly, nothing in the Environmental Standards or otherwise prohibits a contract purchaser from claiming undue hardship.

1. *A demonstration that the Property cannot be redeveloped with another CD Zone use is not required by the Environmental Standards.*

In arguing that the Applicant must demonstrate that the Property cannot be developed with another permitted use in the applicable zone without impact to the environmentally protected areas, Mr. Brown completely mischaracterizes the actual waiver requirements. The two provisions of the Environmental Standards that speak to a need to demonstrate "reasonable alternatives" state:

- "The City Council shall have the authority to review waiver applications and grant waivers where the Council finds that the public interest benefits of the project outweigh the risks to the environment and there are no other feasible alternatives." Environmental Standards p. 37.

⁴ It should also be recognized that in both verbal and written testimony on the Concept Plan, a number of individuals expressed concerns with increased traffic on Central Avenue because they use it to get to work, church services, or to other parts of the City from South Frederick Avenue, and not because they are residents of that area or consider Central Avenue a residential street. *See* Exhibits 107, 110 and March 21 testimony of George Kreutz.

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 5

- The waiver findings require a demonstration that “[r]easonable alternatives for avoidance of the buffer are not available.” *Id.* at 25.

The plain language of these provisions indicates that “alternatives” refer to other ways to configure the proposed development so as to avoid or minimize the need for a waiver. This is particularly evident from the language “alternatives for *avoidance*,” which language directs an applicant to explain how the development scheme cannot be altered to avoid encroachment into the buffer. This interpretation is consistent with the City’s recent approval of an environmental waiver for 700 North Frederick Avenue (*See* Resolution No. R-16-21 attached hereto as **Exhibit “B”**), in which case the only alternatives discussed were alternative configurations for the project to reduce encroachment into the buffers. Whether alternative uses would have a lesser impact was not evaluated or discussed.⁵

Furthermore, even if the term “alternatives” was ambiguous in this context, which we do not believe it is, the City must resolve the ambiguity in favor of the property owner. To do otherwise would contravene the principle that the law of planning and zoning must be narrowly construed, as it is in derogation of common law property rights which promote free and unencumbered use of private land. *Bennett v. Zelinsky*, 163 Md. App. 292, 302–03 (2005). Interpreting waiver criteria to require a demonstration that all alternative permitted uses in the zone are not feasible would effectively restrict an owner’s ability to utilize its property for any permitted use that requires such a waiver.

In accordance with the correct interpretation of the waiver provisions discussed above, the Applicant has worked closely with City Staff to evaluate what alternatives for avoidance existed for the Project. As a result of these efforts, the area of encroachment has been reduced from an initial request of 13,055 square feet, a large portion of which was permanent encroachment, to just 1,232 square feet of temporary encroachment. Notable modifications to the plan included the relocation of a proposed storm drain outfall out of the buffer areas and into Central Avenue, and the shifting of the proposed retaining wall out of the buffer through a proposed reduction in drive aisle width.

2. *Nothing in the law prohibits a contract purchaser from claiming unnecessary or undue hardship.*

Although Mr. Brown has challenged whether a contract purchaser can claim undue hardship to satisfy the findings for a waiver, this claim has largely been rendered moot with the February 7, 2022 resubmittal of the Concept Plan that includes the owner of the Property as a party to the

⁵ Although not required for the granting of the waiver, the Applicant does note that the combination of the site topography and need for access along Central Avenue as far away from the South Frederick Road intersection as possible would create the necessity for retaining walls in almost any meaningful redevelopment of the site.

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 6

waiver request⁶. However, we note that nothing in the law precludes a contract purchaser from seeking an Environmental Standards waiver or claiming either unnecessary or undue hardship. In fact, applicants who are contract purchasers are typically heavily invested in obtaining development approvals. In this case in particular, the Applicant has expended significant amounts of time and money in pursuit of the entitlements and would clearly suffer an unnecessary and undue hardship should the waiver request be denied.

Treatment of Stormwater and Carwash Water

As noted during the March 21st public hearing, there are currently no stormwater management controls on the Property. Per the approved stormwater management plan, the Project will utilize Environmental Site Design (“ESD”) to the Maximum Extent Practicable, which will substantially improve the treatment of stormwater on the Property. Specifically, onsite stormwater will be treated through the use of three (3) micro-bioretention area planter boxes and one underground filter system. Bioretention areas will treat 1” of the overall drainage in at-grade ESDv facilities, and the remaining flow will be treated underground with a vault and filters. Given the combination of these measures, the retaining walls lining the site and the trench drain bisecting the entrance to the Property, no stormwater will escape the site untreated. Once the onsite water is treated, it will be conveyed through a pipe system to the public stormdrain network.

Additionally, all water generated by the carwash use itself will also be treated. The Applicant plans to implement WaterSavers for the Project,⁷ which limits the amount of fresh water used by the car wash to 40 gallons per wash (less than the typical home washing machine). Rinse water from the carwash will be diverted to three underground tanks. Through a series of baffles inside the tanks, the water will be filtered, with solids dropping to the bottom and oils rising to the top. The cleanest water from the center is reused in the wash again, and experts estimate somewhere between 85-90% of the water is recycled. After the water that is not recycled moves through the third tank, it hits a grease interceptor prior to discharge into the WSSC sanitary system.

On-site Circulation and Stacking

A number of concerns have been expressed regarding on-site circulation and stacking. As a preliminary matter, it is worth noting that the Applicant, who is a successful long-term carwash operator, has designed the Project to adequately accommodate times of peak demand based both on his personal experience and industry standards. For instance, while the City’s Zoning Ordinance would only require nine stacking spaces for a carwash of this size, 30 are provided in order to ensure all stacking will always be sufficiently accommodated on site. Regardless, those

⁶ The Maryland Court of Appeals has recognized that a property owner may apply for a permit for the benefit of a contract purchaser. *See City of Baltimore v. Cohn*, 204 Md. 523, 529 (1954).

⁷ More detail on WaterSavers can be found here: <https://www.carwash.org/watersavers>.

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 7

in opposition to the Project, including a nearby carwash operator clearly concerned by the prospect of competition, have used the numbers provided by the Applicant to attempt to conflate what will be occurring on the site on a given day, and have made assumptions about the operations of the Project that are simply unfounded.

In order to calculate the required parking for the Project under the City's code, the Applicant needed to determine how many "bays" the proposed tunnel would equate to. Using the standard length of a car, the Applicant determined that a maximum of nine cars would be able to fit in the tunnel at a given time, and computed the required parking accordingly. In reality, however, the preparation of cars for the wash and loading onto the conveyor takes more than 20 seconds per car. Therefore, the number of cars in the tunnel at a given time is generally only 4 or 5 and, as previously stated, the length of the wash cycle is approximately three minutes.⁸

During the public hearing, Councilman McNulty asked for additional information regarding on-site circulation and the potential for backups for cars exiting the tunnel and turning left onto Central Avenue. As noted in the Statement of Support accompanying the application, customers and employees entering the Property from Central Avenue are channelized to the right where two stacking lanes allow vehicles to queue for the pay terminals/ windows. After paying, customers merge into a single line and make the left turn into the tunnel, where their car is prepped for the wash tunnel and guided by employees onto the internal conveyor. After exiting the tunnel, customers have two options: they can either end the service, turn left, and exit out on to Central Avenue, or they can turn right and park in a parking stall to utilize the free vacuum service for interior cleaning.⁹ Therefore, not every car exiting the tunnel will be queuing to exit onto Central Avenue.

For those that are exiting, cars may take a number of routes, as described and depicted on **Exhibit "C"** attached hereto. For cars returning to South Frederick Avenue, volumes on Central Avenue are such that minimal wait time would be expected for cars making a left turn. Once on Central Avenue, the wait time to make the legal right turn onto South Frederick Avenue is likewise expected to be minimal, avoiding any significant queuing. Although testimony at the public hearing described a four minute wait to exit onto South Frederick Road from Central Avenue, the Applicant's traffic consultant believes, based on available data, that such a wait time must have been attributable to either the party testifying, or a car in front of them, attempting to make an illegal left turn onto South Frederick Road. As described in Lenhart's March 31, 2022 Site Access Evaluation, as part of future review the Applicant will work with the Maryland State Highway

⁸ In his oral testimony, Mr. Robert Durst criticized this representation by stating it took him 25 minutes to get his car washed at Applicant's Bowie site. However, the three minutes cited by the Applicant is the wash time once in the tunnel, and does not account for time spent waiting in the queue before entering the tunnel. Additionally, the Bowie site also provides full service options, which can impact timing.

⁹ Despite unsupported allegations from the opposition to the contrary, the "typical" length of time for self-vacuuming of cars is closer to 7-8 minutes.

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 8

Administration to determine whether a physical restriction prohibiting left turns or the installation of a traffic signal to allow them is most appropriate to remove any delays caused by such illegal movements, and will construct and pay for whatever improvements are deemed appropriate. Finally, even if extenuating circumstances are present and there is an unexpected backup into the site, there will be employees and an on-site manager who can control the speed at which cars are able to egress from the tunnel.

Finally, the opposition makes a number of assumptions to infer that the vacuum parking area will become congested at times of peak usage.¹⁰ In this regard, we again note that the Applicant is an experienced car wash operator whose business plan depends on customer satisfaction. Based on his years of experience and the requirements of applicable codes, the Applicant feels strongly that the number of vacuum spaces proposed will be sufficient to satisfy demand. Mere speculation by those in opposition regarding the amount and duration of usage is insufficient to reach any contrary conclusion regarding the sufficiency of the vacuum spaces proposed.

Traffic

A primary concern expressed in both written submissions and during oral testimony at the public hearing was that of traffic generation. While it was recognized at the public hearing that no traffic study is required by the City's *Traffic Impact Study Standards and Regulations* ("City Traffic Standards") at the concept plan stage, in the Applicant's submissions and in the below the Applicant has gone above and beyond any requirements to ensure that any traffic concerns are addressed much earlier than the formal process requires.

While most statements made in the oral and written testimony with regard to traffic have represented a vague and generalized fear that the Project will significantly increase traffic and create unsafe conditions, and therefore are not probative¹¹, Mr. Brown has submitted correspondence from O. R. George & Associates, Inc. ("O.R. George"), traffic engineers who have been engaged by the opposition. The first O.R. George letter, dated May 14, 2021, was addressed by Lenhart Traffic Consulting, Inc. ("Lenhart") by Memorandum dated November 18, 2021, in the record as Exhibit 73 ("November Supplemental Analysis"). The second O.R. George letter, dated December 21, 2021, is addressed more specifically herein and in Lenhart's March 31, 2022 Site

¹⁰ Additionally, the primary opponent making such allegations has in her Gaithersburg location only six vacuum spaces, none of which are ADA accessible, and they all share a drive aisle with the adjacent gas station. When cars are filling their tanks at the closest pumps, cars in the vacuum spaces are not able to exit.

¹¹ Maryland Courts have held that "vague and generalized expressions of opinion" lack "probative value. See *Clarksville Residents Against Mortuary Defense Fund, Inc. v. Donaldson Properties*, 453 Md. 516, 531 (2017) (citing *Anderson v. Sawyer*, 23 Md. App. 612 (1974)) ("Unsupported conclusions or fears of witnesses to the effect that a proposed use of property will or will not result in harm amount to nothing more than vague and general expressions of opinion that are lacking in probative value.").

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 9

Access Evaluation, a copy of which is included in the Record as Exhibit 113 and attached hereto as **Exhibit “D”**.

O.R. George’s December 21, 2021 letter claims that the traffic analysis submitted by the Applicant does “not conform with current traffic engineering practice” and even goes so far as to characterize the analysis as “misleading and inadequate.” Despite making this unfounded accusation, in the same letter O.R. George also acknowledges that “[t]he trip generation rates presented in Exhibit 1 [of the April 14, 2021 Lenhart Traffic Statement] *technically comply with the City’s Guidelines.*” (O.R. George Letter p. 1). As this statement reveals, the crux of O.R. George’s arguments are not that Lenhart’s analysis is technically incorrect or not compliant with the City Traffic Standards, but rather that an entirely different traffic analysis methodology should be used that is simply not required or endorsed by the current City Traffic Standards. Regardless, for an avoidance of any doubt, and as noted above, the vast majority of these contentions have been addressed in the April 14, 2021 Lenhart Traffic Statement, Lenhart’s Supplemental Analysis dated November 18, 2021 and the March 31, 2022 Site Access Evaluation. The remaining contentions are rebutted below.

- *Opposition Contention:* Lenhart’s data does not note the weather and traffic counts should only have been conducted on days without inclement weather due to the nature of the carwash use.

Response: With respect to weather, the City Traffic Standards only require that counts not be conducted on days when weather has “not disrupted normal daily traffic.” See City Traffic Standards, General Criteria and Analytical Techniques, Item 1.b. There is no requirement to tailor the day on which traffic counts are conducted to the specific use.

- *Opposition Contention:* The data from other Whip Clean sites in Maryland is irrelevant because it is not comparable.

Response: Data was also collected at two additional sites, one in Annapolis and one in Prince Frederick. Even if the data from the Whip Clean in Bowie is discounted, the other two sites where data was collected operate very similarly to the proposed Whip Clean in Gaithersburg.

In sum, Lenhart’s analysis complies with the applicable City Traffic Standards. It is not out of step with current traffic engineering practice and it is most certainly not “misleading and inadequate.” The City adopted its traffic standards in order to provide a uniform and predictable review criteria for development projects. Applying the standards suggested by O.R. George to the Concept Plan would be arbitrary and contrary to the uniformity achieved through the City Traffic Standards.

Noise and Light Impacts

A detailed noise and lighting analysis is not required at the time of Concept Plan. Nonetheless, we note that, with respect to noise in particular, noise generation from the Project will remain well within the Montgomery County noise standards, which have been adopted by the City. Specifically, rather than installing individual vacuum canisters at each of the outdoor vacuum

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 10

spaces, a central vacuum has been placed interior to the building to keep vacuum noise to a minimum. This central vacuum connects to each of the vacuum handles located in the exterior vacuum area. Similarly, the proposed blowers used to dry the vehicles at the end of the wash cycle will be cutting-edge stealth quiet blowers, which are enclosed within the building structure to further minimize noise impacts. Blowers and vacuums will be turned off completely outside of operating hours. Further, to ensure individual vehicles do not create a noise nuisance, signs will be posted in the vacuum area reminding customers that loud music is prohibited and this prohibition will be enforced by the lot attendant.

Although the opposing carwash owner has made numerous allegations about expected noise impacts, none are grounded in the facts of this case. For instance Ms. Ayers makes assumptions regarding loud bell noises and “standard” air hose features that emit high pitch sound, which are simply not proposed for this site. Exhibit 87, p. 3-4. As such, the very basis for her arguments lack any merit.

With regard to lighting, the Ms. Ayers similarly makes bald allegations regarding site operations that are simply untrue. For instance, Ms. Ayers asserts that vacuums “are ordinarily installed with light sensors to go on when it becomes dark” and that “[t]he *large* LED parking lot lights *may* be on 24 hours a day to protect the property.” (emphasis added). With no lighting plan on record, characterizations regarding the assumed size, location and timing for lighting on-site are wholly speculative, inappropriate, and lacking in probative value.

Impact on Property Values

Some oral and written testimony also suggested that approval of the Concept Plan would have a detrimental effect on property values in the surrounding area. As with much of the testimony regarding traffic impacts, these general statements regarding feared negative impacts lack probative value. See *Clarksville Residents Against Mortuary Defense Fund, Inc. v. Donaldson Properties*, 453 Md. 516, 531 (2017); *Anderson v. Sawyer*, 23 Md. App. 612, 618 (1974) (“in order to deny the right of the property owner to enjoy the requested [use], the Board needed before it probative evidence that the proposed use would, in fact, ...be detrimental otherwise to the general welfare of the locality involved.”). Moreover, the Applicant believes that the redevelopment of this declining property with an appropriately low-scale use that is shielded from the adjacent neighborhood by a significant environmental buffer, and which use will be less impactful than many others allowed in the CD zone, will actually stabilize property values in the neighborhood.

Perspectives

During the public hearing, Councilmember McNulty asked for images showing what the building would look like from South Frederick Avenue, given the proposed grading of the site. Such images are now being provided and are attached hereto as **Exhibit “E”**.

Mayor Jud Ashman and
Members of the City Council
April 27, 2022
Page 11

Conclusion

While the Applicant appreciates the concerns expressed by those in opposition, as detailed above and in its prior submissions, none of the questions or concerns being raised in the written and oral testimony justify a denial of the Concept Plan, and arguments requesting the imposition of more stringent standards than the City actually requires are simply improper. We therefore renew our request that the City approve the Concept Plan.

Sincerely,



Erin E. Girard



Laura M. Talerico *lee*

Attachments

cc: Gregory Mann
Jasmine Forbes
Brett Schaechter

Girard, Erin E.

From: Brett Schaechter <brett@whipclean.com>
Sent: Wednesday, March 23, 2022 1:19 PM
To: Girard, Erin E.
Subject: [EXTERNAL] Fwd: Annexation Agreement Question

EXTERNAL

Please see below.

Thank you,

Brett Schaechter
Whip Clean
brett@whipclean.com
301-943-7550

Begin forwarded message:

From: Jasmine Forbes <Jasmine.Forbes@gaithersburgmd.gov>
Date: March 9, 2020 at 9:41:46 AM EDT
To: Brett Schaechter <brett@whipclean.com>
Cc: sstewart@cpja.com
Subject: **FW: Annexation Agreement Question**

Good Morning Brett,

After our meeting on Tuesday, I had checked with our city attorney about the language in the annexation agreement. He does agree with Staff that the property may be developed with uses allowed in the C-B zone, but it is not restricted to those uses in the C-B zone and is allowed uses by right in the CD zone. If you have any additional questions, please let me know.

Regards,
Jasmine

From: Frank Johnson <Frank.Johnson@gaithersburgmd.gov>
Sent: Tuesday, March 3, 2020 11:54 AM
To: Jasmine Forbes <Jasmine.Forbes@gaithersburgmd.gov>
Subject: RE: Annexation Agreement Question

Jasmine: Yes, I'd have to agree with that interpretation (and I also find it the same basic issue discussed as to 700 North Frederick Avenue).

So yes, I'd agree with your analysis.

Thanks
Frank



Frank M. Johnson, Deputy City Attorney | Office of the City Attorney
City of Gaithersburg | 31 S. Summit Avenue | Gaithersburg, MD 20877
P (301) 258.6310 | F (301) 948.6149

From: Jasmine Forbes <Jasmine.Forbes@gaithersburgmd.gov>
Sent: Tuesday, March 3, 2020 11:52 AM
To: Frank Johnson <Frank.Johnson@gaithersburgmd.gov>
Subject: Annexation Agreement Question

Hi Frank,

Staff met with an applicant who wants to construct a car wash at 601-607 South Frederick Avenue in the CD Zone. At the time the property was annexed into the City, it was zoned C-B. During the comprehensive rezoning, it was rezoned to the CD Zone. We reviewed the annexation agreement and it stated the following:

The City agrees to annex the property and to simultaneously classify it in the C-B Zone. The City agrees that the property may be developed with uses allowable in the C-B zone as it exists on the date of the execution of this Agreement subject to the submission of a site plan (s) for one or more of the parcels included in this Annexation.

Staff interprets this as the property may be developed with uses allowable in the C-B zone, but it is not restricted to those uses in the C-B zone and is allowed uses by right in the CD zone. Greg mentioned that this situation is similar to the property at 700 North Frederick Avenue. We want to make sure that we are interpreting this part of the annexation correctly.



Jasmine Forbes, Planner I
Planning and Code Administration

City of Gaithersburg | 31 South Summit Avenue | Gaithersburg, MD, 20877
Direct: 240-805-1069 | Main: 301-258-6330 | www.gaithersburgmd.gov
Jasmine.Forbes@gaithersburgmd.gov



RESOLUTION NO. R-16-21

RESOLUTION OF THE MAYOR AND CITY COUNCIL APPROVING
A WAIVER OF THE ENVIRONMENTAL STANDARDS FOR DEVELOPMENT
REGULATION TO PERMIT 3,264 SQUARE FEET OF CUMULATIVE DISTURBANCE
WITHIN THE STREAM VALLEY BUFFER AT 700 NORTH FREDERICK AVENUE

ENV-8657-2020

WHEREAS, the *Environmental Standards for Development Regulation* was adopted by the Mayor and City Council on April 5, 2010, providing the Mayor and City Council the authority to grant a waiver; and

WHEREAS, Vika on behalf of MFV 700 NFA, LLC & DNIP4 700 NFA, LLC (Matan Inc.), submitted SDP-8957-2020 which requires the Applicant to obtain approval of an environmental waiver from the Mayor and City Council for intrusions into the stream buffer, as required by the *Environmental Standards for Development Regulation*; and

WHEREAS, included as part of SDP-8957-2020 is Environmental Waiver application ENV-8657-2020 requesting approval of waivers granted by the Mayor and City Council for intrusions into the stream buffer, 100-year flood plain, and 50-foot wetland buffer as required by the *Environmental Standards for Development Regulation*; and

WHEREAS, the cumulative disturbances arise from three purposes. The first, the removal of an existing paved foot path currently within overlapping environmental buffers: the 100-year floodplain, the stream valley buffer, and the 50-foot wetland buffer. The requested disturbance would impact 1,423 square feet of the 100-year floodplain and the stream valley buffer but only 1,400 square feet of the 50-foot wetland buffer. The second requested disturbance proposes to impact 1,644 square feet of the stream valley buffer for a stormwater drain outfall. The third proposed disturbance is for a 197 square feet of impacts for grading and removal of non-native fill; and

WHEREAS, the Applicant has submitted a waiver justification request based upon the findings required under Sections 25 and 38 of the *Environmental Standards for Development Regulation*; and

WHEREAS, the submitted justification request includes the following findings:
A. *Completion of required approvals, rulings, permits, or waivers from all appropriate State and Federal findings agencies.*

Applicant has obtained a Letter of Authorization (the "LOA") for an exemption from a permit for temporary, minimal impacts to the 100-Year Floodplain and 25-foot state wetland buffer through a joint MDE/USACE application process. The proposed work was field-reviewed by the Maryland Department of the Environment (the "MDE")

on November 23, 2020, and a LOA issuance from MDE was received on January 29, 2021 and a copy sent to the City of Gaithersburg.

B. A showing of good and sufficient cause and meeting the criteria outlined in Article III of this regulation.

Applicant's Project seeks to replace the Project's obsolete and single-user office park campus with the Project, which will provide an employment hub containing multiple commercial/employment/industrial uses with attractive landscaped open spaces at a highly visible intersection. The Project will provide area residents with significant job opportunities, bring considerable economic investment to the Frederick Avenue corridor, and offer uses that complement nearby commercial and residential areas and that are consistent with the current character of the Northern Employment District. Such redevelopment will advance long-standing City planning recommendations for the Property from the 1997 Master Plan, which are carried forward in the 2001 Corridor Plan and the Land Use Element of the 2009 Master Plan. In addition to advancing the City's master planning vision for the Property, the Project has been intentionally designed to minimize stream buffer impacts, preserve forest, and redevelop previously improved areas. Grading and other design considerations were reviewed to minimize stream buffer impacts to the extent practicable. In addition to the Section 38 regulations, all of the Recommended Standards for Stream Buffers listed in Article III, Section 25 of the Environmental Standards for Development will be met. Only storm drain outfall, a minimal amount of necessary grading impact, and temporary impact for path removal are proposed in the stream buffer.

Applicant addresses the factors below for consideration of granting this waiver according to Article III Section 25.1.b.:

1. Reasonable alternatives for avoidance of the buffer are not available

These activity footprints were minimized to the extent possible and are found to be necessary and unavoidable for this development. The maximum allowable stormflow will be directed to the existing stormwater pond at the northwest of the site; the remainder of the stormflow will be treated with onsite stormwater structures, and the storm drain outfall location extending into the stream buffer was unavoidable due to the required grade tie-out to minimize erosive velocity. As part of the grading required at the west end of the site the approximately 197 s.f. of grading into the stream buffer was unavoidable. Alternatives were considered to avoid removal of the existing pedestrian path; a portion of the southern end of the path will be unavoidably removed due to site construction and grading; reconstruction of access to the remaining portion within the stream buffer is not feasible due to grade constraints. Therefore, removal of the entire path is proposed because the undisturbed portion of the path is not allowed to remain without a connecting access path.

2. Encroachment into the buffer has been minimized.

The storm drain outfall extension into the stream buffer was terminated at the shortest distance possible while meeting grade requirements. The grading into the stream buffer was minimized to the extent possible. The path removal limit of disturbance (L.O.D.) width was minimized to two feet on either side of the path, with removal of the path to be accomplished with light-duty machinery and manual removal to minimize ground disturbance.

3. Existing sensitive areas have been avoided (forest, headwaters, and wetlands and their designated buffers, floodplains, steep slopes, and habitat for rare, threatened, and endangered species and their associated protection buffers).

Existing sensitive areas have been avoided for the permanent impacts from a small area of grading and storm drain outfall except for the stream buffer. No floodplain, wetland, wetland buffer, stream, RTE species or habitats will be impacted from these activities. Only temporary and minimal impacts for removal of the existing pedestrian path are proposed to stream buffer, 100-Year Floodplain, and wetland buffer.

4. The proposed use is consistent with the preferred use of the buffer (e.g., pervious areas such as tie-outs to existing grades, slope stabilizing BMPs, etc.).

The storm drain outfall is required infrastructure for the purpose of implementing stormwater management onsite to protect stream water quality, and the necessary tie-out of the storm drain structure to the required elevation in the stream buffer is consistent with the preferred use of the buffer. The small areas of grading within the buffer and removal of the existing path will be planted with trees and placed in a Forest Conservation easement, and therefore consistent with the preferred use of the buffer.

5. The plan design provides compensation for the loss of buffers.

After removal of the path, forest plantings will be installed, and the path area will be included in a Category I Forest Conservation easement. No mitigation is proposed expressly for encroachment into the stream buffer for grading and storm drain outfall installation, or temporary impacts for the path removal; however, the proposed afforestation and naturalized forest understory within and immediately adjacent to the existing stream buffer will expand the currently forested area and more than compensate for the loss of buffer function, significantly enhancing the existing stream buffer function overall. The additional forested area will be much larger than the stream buffer impact for the storm drain outfall and grading. The path removal impacts will be temporary with the previously described methods to minimize ground disturbance within the stream buffer, 100-Year Floodplain, and wetland buffers. This area will also be planted and allowed to naturalize within a Forest Conservation easement.

C. A determination that failure to grant a waiver would result in unnecessary or undue hardship to the applicant.

Failure to grant a waiver would result in unnecessary or undue hardship to Applicant. The land that abuts the Property to the northwest (800 North Frederick Avenue) has been improved with a FedEx transit warehouse facility. Furthermore, sites within the Property's vicinity, including those along the Frederick Avenue and Montgomery Village Avenue corridors, have been considerably improved with a wide variety of commercial development. This includes warehouses, offices, retail, personal services, restaurants, hotels, and car dealerships. The Project seeks to provide employment and accompanying retail commercial uses on the Property consistent with the existing character of the surrounding neighborhood and in close proximity to established residential communities and retail/commercial development, offer compatible buildings and uses, and advance the intent of the Property's MXD zoning. Strict enforcement of the City Code will unfairly prevent the redevelopment of the Property to the same extent as similarly situated properties along Frederick Avenue, Montgomery Avenue, and Interstate 270. Approval of the waiver will allow Applicant to create an employment hub with a flexible range of jobs, as well as synergistic retail commercial uses, all of which is consistent with the rights enjoyed by nearby property owners. This includes the ability to improve the Property in a manner comparable to the present composition of the adjacent commercial corridors, as well as in harmony with the City's long-established planning goals. The required grading and storm drain outfall at the west end of the development were minimized to the extent practical while meeting the design standards required. The storm drain outfall was required to extend into the stream buffer in order to meet elevation requirements and minimize erosive velocity. All of the 2.86 acres of required Forest Conservation plantings for the entire site (including Phase 1) are proposed to be met onsite in Forest Conservation easements along Route MD 355 and the western end of the site, providing a forested buffer extending well beyond the delineated stream buffer. For the Phase 1 development, the Green Area provided covers 41.55% of the Phase 1 portion of the site, which is in excess of the required 25% per the master plan, Green Areas provided are from afforestation in the required linear park along Route MD 355, and sensitive environmental areas on the western portion of the site. Strict enforcement and not granting the waiver would provide unnecessary hardship for Applicant by further reducing the developable area of the site.

D. A determination that the granting of the waiver will not result in increased flood heights, additional threats to public safety, extraordinary public expenses, or the creation of nuisances.

The granting of the waiver will not result in increased flood heights, additional threats to public safety, extraordinary public expenses, or the creation of nuisances. A floodplain study has been approved for this development which modeled the run-off from the entire site as entering at the high end of the on-site stream. This proposed storm drain out fall will in reality convey less than 50% of the site run-off to the stream at the proposed outfall. The remaining site run-off will outfall to the existing pond in the northwest corner of the site. It was determined to be infeasible to route all the site run-

off to the existing pond because the proposed development increases the impervious area for the site and would result in a run-off volume that exceeds the design volume of the pond.

E. A determination that there are no conflicts with existing local and State laws or ordinances.

No conflicts with existing local and State laws or ordinances have been determined. The required permit exemption (Letter of Authorization) for impacts to Maryland and USACE regulated features have been obtained through the MDE/USACE joint permit process. After State and federal requirements are met, the granting of the Environmental Standards waiver by the City of Gaithersburg would comply with State and federal requirements. The granting of Applicant's waiver request will not result in a violation or State water quality standards, nor will a measurable degradation in water quality occur as a result. On the contrary, the Project will implement measures to improve water quality. A significant area within and adjacent to the stream buffer (SB) will be placed into a Category I Forest Conservation Easement and allow for an increase in the width of forested area buffering the onsite stream. In addition, a Category II Forest Conservation Easement is proposed along the Route MD 355 road frontage in order to allow for afforestation of this area in a manner that would be consistent to include public pathways. The Project also integrates current state-of-the-art stormwater management practices, which will improve upon the Property's previous stormwater management system and enhance water quality; and

WHEREAS, staff has reviewed the Applicant's waiver request and justification findings and concurs with the findings noting disturbances within the environmental buffers are necessary and have been minimized to the maximum extent possible. This justification is founded upon the demonstrated need to construct a stormwater outfall and complete grading, both of which are necessary in order to accomplish project completion. In addition, the stream valley buffer, 100-year floodplain buffer, and the 50-foot wetland buffer, will return to a naturalized state due to the removal of impervious surfaces; the proposed plantings within the environmental buffer; and the effective management of stormwater runoff. The proposed mitigation measures will compensate for the disturbance to the stream valley buffer through the proposed restoration efforts and tree planting to be placed in a conservation easement; and

NOW, THEREFORE, BE IT RESOLVED, by the Mayor and City Council of Gaithersburg, that the request for a waiver of the *Environmental Standards for Development Regulation* to permit 3,264 square feet of cumulative disturbance within the stream valley buffer at 700 North Frederick Avenue project including one stormwater management outfall, grading, and removal of impervious surfaces is hereby approved with the following conditions:

1. The Applicant will provide final engineering and construction details as part of the approval process of the final forest conservation plan, final stormwater management plan, and/or sediment and erosion control plans for any Final Site Plan application; and
2. Storage or deposition of equipment, trucks, materials, waste, or debris within the stream buffer is prohibited.

ADOPTED by the Mayor and City Council this 15th day of March, 2021.

DocuSigned by:

52E570A57A9C472

 JUD ASHMAN, MAYOR and
 President of the Council

THIS IS TO CERTIFY that the foregoing Resolution was adopted by the City Council in a public meeting assembled on the 15th day of March, 2021.

DocuSigned by:

0606A66FBE04E0...

 Tanisha Briley, City Manager

Existing Left Turn Prohibition (by MDOT-SHA)

There is an existing prohibition on left turns out of Central Avenue onto southbound MD 355.

Routes to Points South of Central Avenue

1. Eastbound Central Avenue to left onto westbound Deer Park Road to left onto southbound MD 355.
2. Eastbound Central Avenue to right onto southbound Oakmont Avenue to Shady Grove Road.
3. Right out of Central Avenue onto northbound MD 355 to U-Turn at Fairbanks Drive.

It is anticipated that local vehicles originating from within the neighborhood would primarily utilize #1 and #2, based on the local-knowledge required to find these routes. Vehicles from the proposed carwash would likely utilize #3 given the immediate proximity of the site to MD 355 and shorter overall length of #3. It should be noted that U-Turns are legal at Fairbanks Drive, that analysis has shown the intersection will operate well within adequacy requirements even with additional U-Turning traffic, and that there is sufficient sight distance for this maneuver to be made safely.

Improvement Options for Central Avenue Egress

- The applicant will pursue the following options in collaboration with SHA as part of future entitlements:
- A. Provide channelization to enforce the existing left-turn prohibition. Traffic will utilize one of the three egress routes, described above, to access southbound MD 355. It is likely that local traffic from the neighborhood will utilize route #1 or #2, whereas traffic from the proposed site will utilize route #3 due to its proximity to the site
 - B. Eliminate U-Turn prohibition for northbound MD 355 traffic at Deer Park Drive. This would provide a shorter, more direct route for U-Turning traffic to access southbound MD 355.
 - C. Provide a traffic signal at the MD 355 & Central Avenue intersection to allow left-turns out of Central Avenue.



| | | |
|--|-------------------------------------|--|
| Site Access Evaluation | Central Avenue to Southbound MD 355 | |
| LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com | | |

SITE ACCESS EVALUATION

FOR

**WHIP CLEAN
GAITHERSBURG**

Prepared by:

LENHART TRAFFIC CONSULTING, INC.

TRAFFIC ENGINEERING & TRANSPORTATION PLANNING

March 31, 2022



Table of Contents **Page**

| | | |
|------------------|--|-----------|
| Section 1 | Introduction..... | 4 |
| | 1.1 Project Description | |
| | 1.2 Scope of Study | |
| Section 2 | Existing Conditions..... | 6 |
| | 2.1 Description of Roadway Network | |
| | 2.2 Existing Lane Configurations | |
| | 2.3 Existing Traffic Counts | |
| Section 3 | Projected Conditions with Site..... | 12 |
| | 3.1 Site Trip Generation | |
| | 3.2 Site Trip Distribution & Trip Assignment | |
| | 3.3 Total Traffic Volumes | |
| | 3.4 Projected Level of Service | |
| Section 4 | Conclusions / Recommendations..... | 19 |
| | 4.1 Results of Analyses | |

Appendices

- A Supplemental Information, Turning Movement Counts
- B CLV and HCM Worksheets

List of Exhibits

Page

| | | |
|------------|--|----|
| Exhibit 1 | Site Location Map | 5 |
| Exhibit 2 | Lane Use & Traffic Control Devices | 8 |
| Exhibit 3a | Existing Peak Hour Volumes | 9 |
| Exhibit 3b | Diversion of WB Left-turns at MD 355 & Central | 10 |
| Exhibit 3c | Existing Peak Hour Volumes with Diversions | 11 |
| Exhibit 4 | Trip Generation for Site | 13 |
| Exhibit 5a | Primary Trip Assignment for Site | 14 |
| Exhibit 5b | Pass-by Trip Assignment for Site | 15 |
| Exhibit 6 | Total Peak Hour Volumes | 16 |
| Exhibit 7a | Results of CLV Level-of-Service Analyses | 17 |
| Exhibit 7b | Results of HCM Level-of-Service Analyses | 18 |

Section 1 Introduction

1.1 Project Description

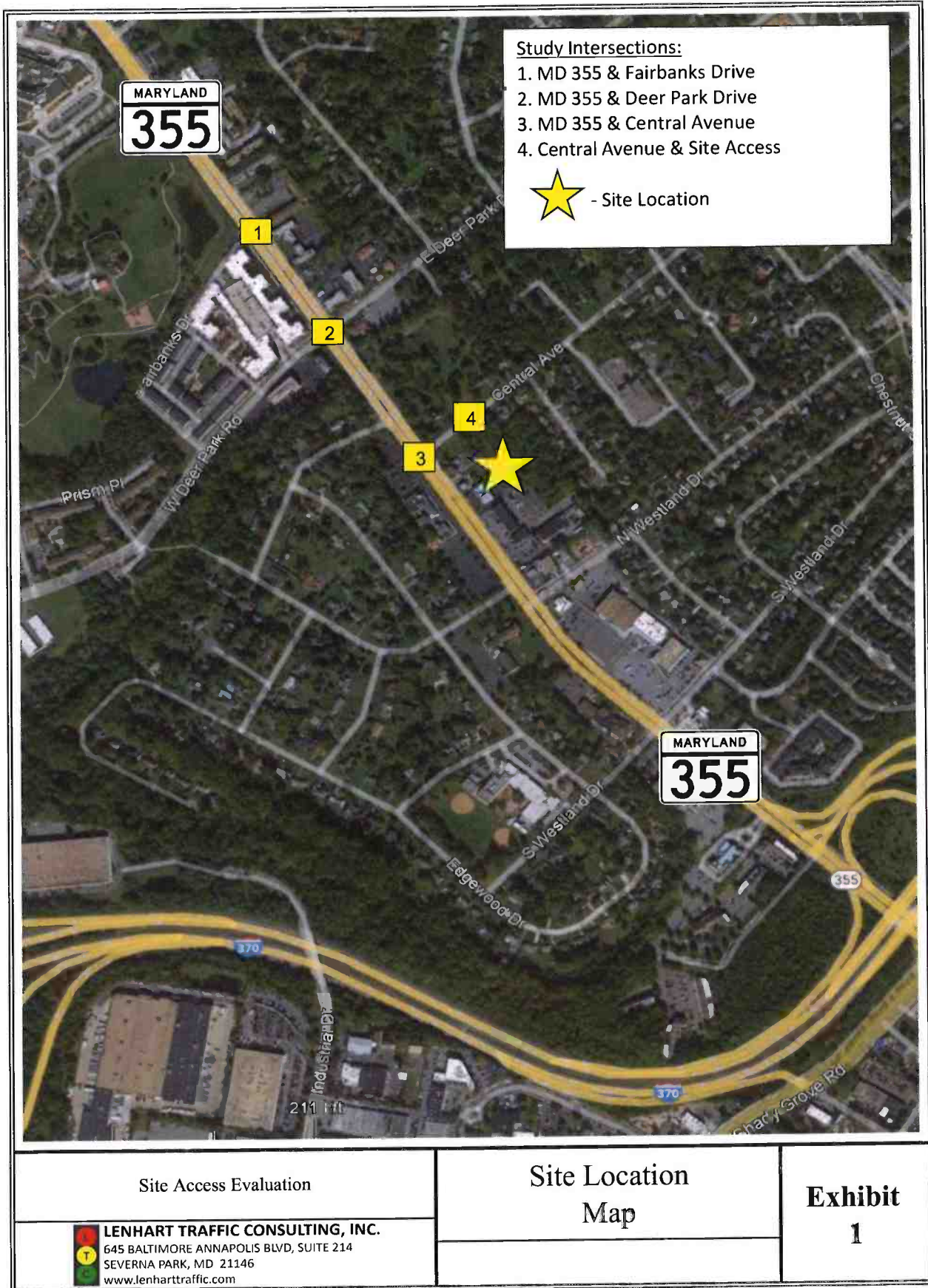
This Site Access Evaluation was prepared for the development of the Whip Clean Car Wash located on the southeast corner of the intersection of MD 355 and Central Avenue, as shown on **Exhibit 1**. The property is proposed to be developed with a single tunnel car wash.

The site will be accessed with a full movement access along Central Avenue. A site plan has been included in Appendix A.

1.2 Scope of Study

At this stage of the development process, a Traffic Impact Analysis is not required. This evaluation was prepared in order to gain an understanding of the future operations of the site access point and surrounding intersections.

A Traffic Impact Study will be required along with the future submittal of a Preliminary Plan. Again, at this point a full Traffic Impact Study is not required and this evaluation is provided for informational purposes only.



Site Access Evaluation

Site Location
Map

Exhibit
1



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Section 2 Existing Conditions

2.1 Description of Roadway Network

The key road in the study area is MD 355. MD 355 is a major highway as classified by Montgomery County with three lanes in each direction and a north-south orientation. The posted speed limit is 35 MPH within the vicinity of the site.

2.2 Existing Lane Configurations

The Lane Use & Traffic Control Devices are shown on **Exhibit 2**.

2.3 Existing Traffic Counts

Morning and evening peak hour traffic counts were conducted and the results are shown on **Exhibit 3a**.

A previous evaluation of the intersection of MD 355 & Central Avenue by the Maryland Department of Transportation – State Highway Administration (MDOT-SHA) led to the installation of a sign prohibiting left turns out of Central Avenue. However, the peak hour traffic counts revealed that a number of vehicles continue to make this movement under existing conditions at the intersection.

In order to alleviate the existing non-compliant turning vehicles, it is recommended that either: A) physical restrictions be imposed to prohibit left turns, as described below, or B) a traffic signal be installed to allow the left turns, if warranted and approved by SHA.

With respect to option A, physically restricting left turns, this could be accomplished either through physical channelization along Central Avenue to force vehicles to turn right, or via construction of a median ‘Z’ treatment to allow left turns from both directions of the MD 355 mainline while preventing vehicles leaving Central Avenue from crossing the median to make a left turn. Either option would provide physical restrictions on existing vehicles turning left out of Central Avenue. The images below provide examples of the two types of potential physical restrictions for left-turns:



Flex Posts provide channelization to enforce right-turn only.

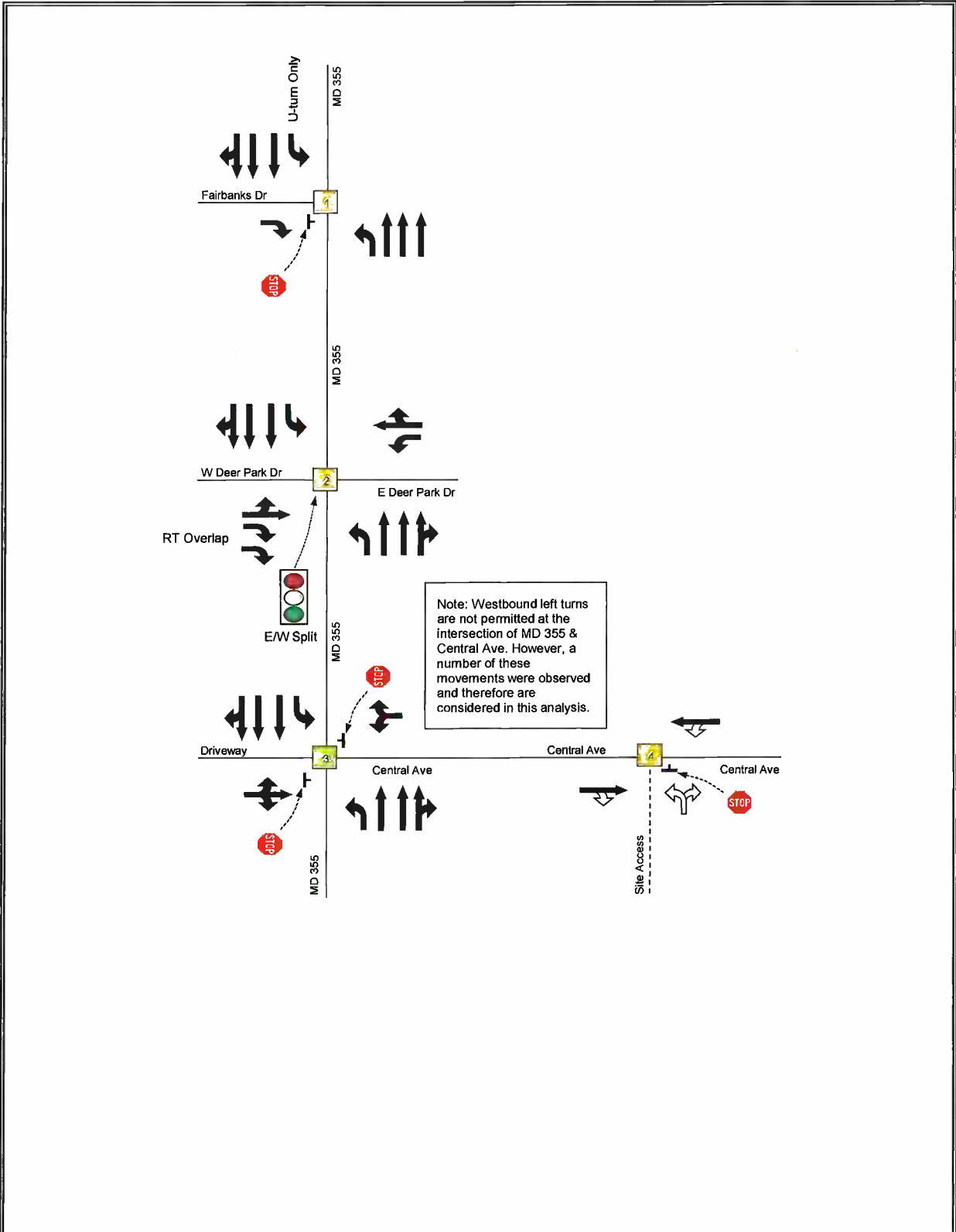


Median 'Z' treatment to enforce right-turn only.

With respect to option B, installation of a traffic signal, in order for a signal to be installed one of the nine traffic signal warrants contained in the Maryland-Manual on Uniform Traffic Control Devices (MD-MUTCD) must be met *and* MDOT-SHA must agree to allow installation of the traffic signal since MD 355 is an MDOT-SHA controlled roadway. Installation of a traffic signal would allow the prohibition on left turns out of Central Avenue to be removed.

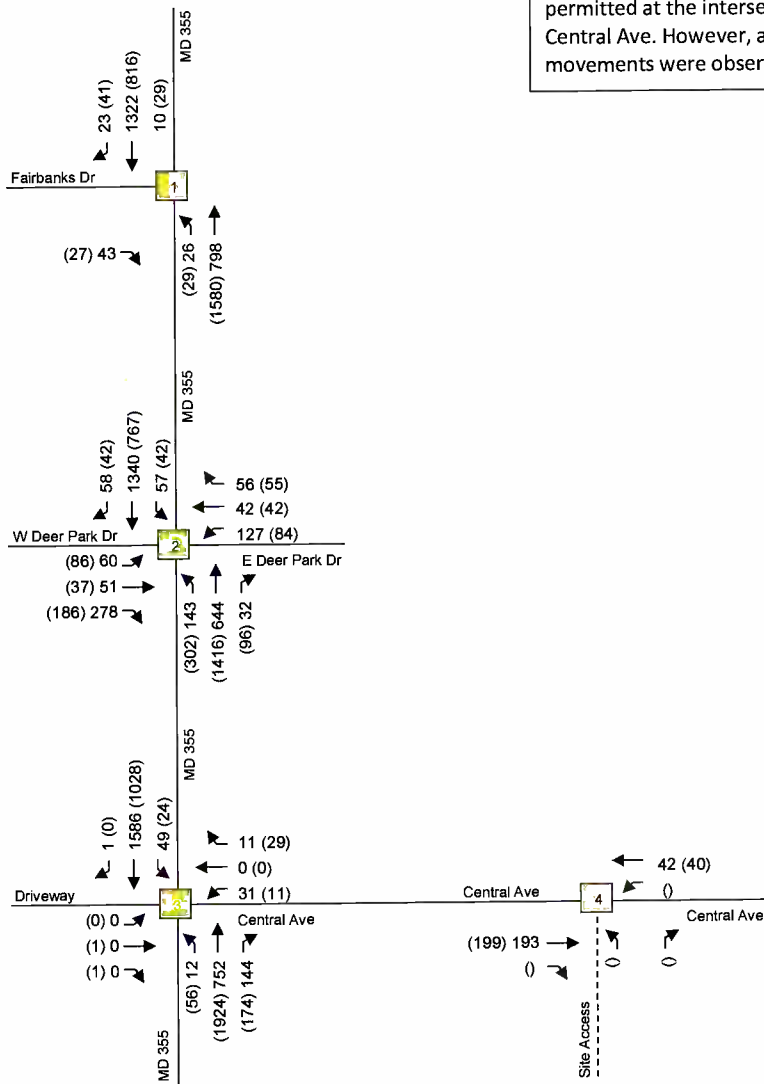
Because option A can be installed quickly as either an interim or permanent measure, whereas option B requires substantial additional evaluation and approvals, for the purposes of this study it was assumed that option A, a physical restriction of left turns from Central Avenue, would be installed. Therefore, the existing left-turning vehicles emanating from within the neighborhood, documented on Exhibit 3a, were diverted so that the restricted movement is no longer utilized. These diversions are shown on **Exhibit 3b**.

Exhibit 3c shows the Existing Peak Hour Volumes with the diversion of the westbound left-turns at MD 355 & Central Avenue.



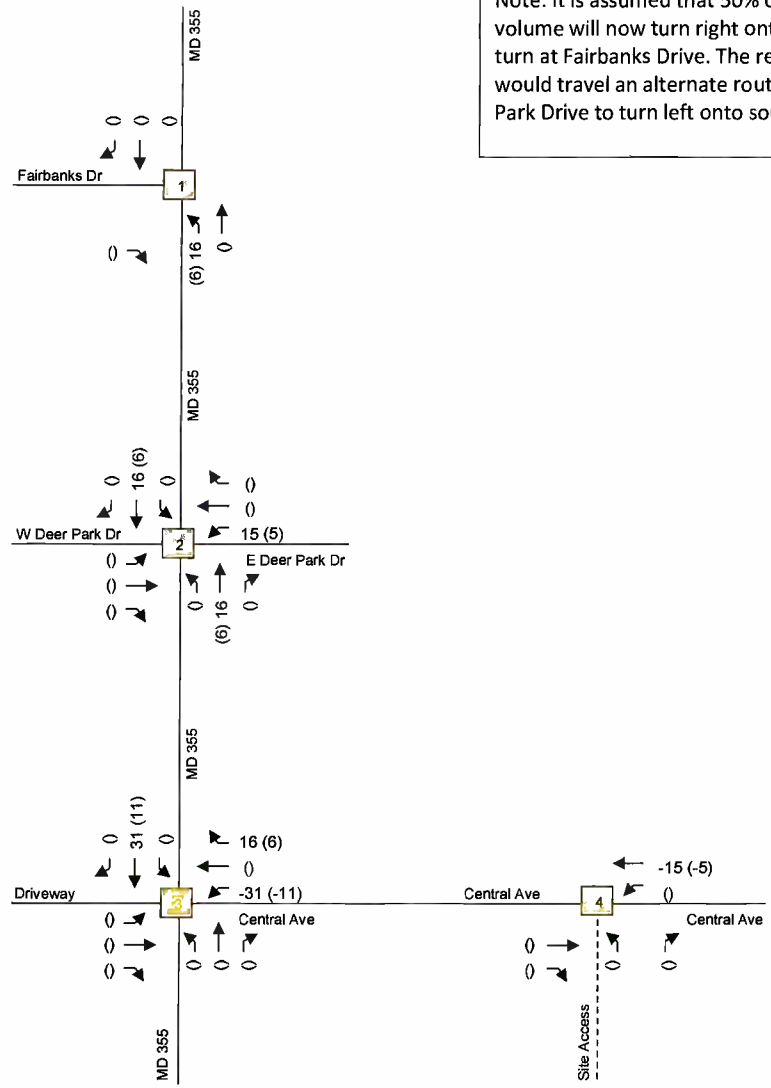
| | | |
|---|-------------------------------|----------------------|
| Site Access Evaluation | Existing Peak Hour Volumes | Exhibit 3 |
| Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning | | |

Note: Westbound left turns are not permitted at the intersection of MD 355 & Central Ave. However, a number of these movements were observed.

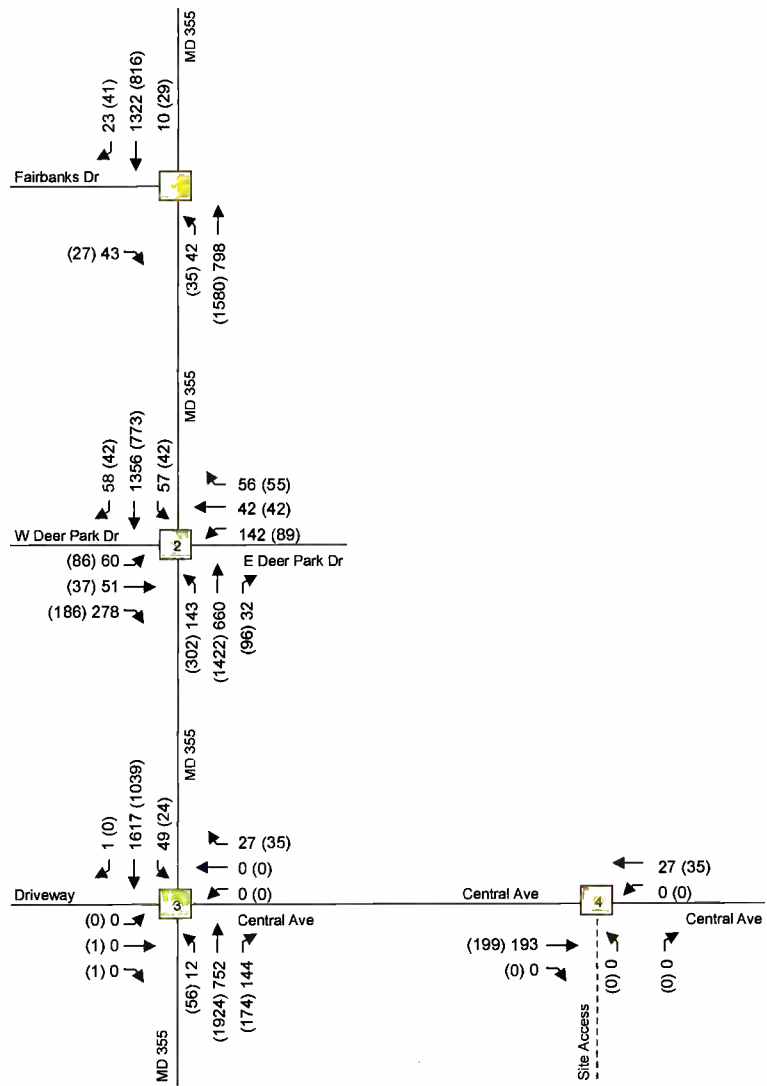


| | | |
|---|--|-----------------------|
| Site Access Evaluation | Existing Peak Hour Volumes | Exhibit 3a |
| Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning | Key: xx = AM Peak Vol's (xx) = PM Peak Vol's | |

Note: It is assumed that 50% of the left-turning volume will now turn right onto MD 355 and U-turn at Fairbanks Drive. The remaining 50% would travel an alternate route to access E Deer Park Drive to turn left onto southbound MD 355.



| | | |
|---|---|------------------------------|
| Site Access Evaluation | <p style="text-align: center;">Diversion of Westbound Lefts at MD 355 & Central Ave</p> <p style="text-align: center;">Key: xx = AM Peak Vol's (xx) = PM Peak Vol's</p> | <p>Exhibit 3b</p> |
| <p>Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning</p> | | |



| | | |
|---|--|---------------|
| Site Access Evaluation | Existing Peak Hour Volumes with Diversion | Exhibit 3c |
| Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning | | |

Section 3 Projected Conditions with Site

3.1 Site Trip Generation

The property is proposed to be developed with a single tunnel car wash.

Exhibit 4 shows the trip generation for the site. The trip generation rates were obtained from the ITE Trip Generation Manual, 10th Edition.

3.2 Site Trip Distribution & Trip Assignment

The primary trip assignment for the site is shown on **Exhibit 5a**. The pass-by trip assignment is shown on **Exhibit 5b**.

3.3 Total Traffic Volumes

The Total Peak Hour Volumes are shown on **Exhibit 6**.

3.4 Projected Level of Service

The results of the CLV analyses are included on **Exhibit 7a**.

The results of the HCM analyses are included on **Exhibit 7b**.

As shown, each study intersection operates with a LOS “A” or better during both morning and evening peak hours under total conditions when analyzed using the CLV methodology. The results of the HCM methodology indicate that any movements receiving additional traffic due to development of the site will continue to operate with acceptable LOS. Additionally, each movement at the site access point will operate with a LOS “B” or better.

SimTraffic Simulation Software was also used to analyze the 95th percentile queues of the study intersections. The SimTraffic queuing outputs are included in Appendix B. The results show that the site access point along Central Avenue and the intersection of MD 355 & Central Avenue will operate with minimal queuing; ingress/egress from the site works acceptably and will not be impacted by queuing.

Trip Generation Rates

Automated Car Wash (Car Wash Tunnels, ITE-948)

Trip Distribution (In/Out)

Morning Trips - See Notes, Below
 Evening Trips = 77.5 x Tunnels
 Saturday Trips = 41.00 x Tunnels

50/50
 46/54

Trip Generation Totals

| | AM Peak | | | PM Peak | | | Saturday Peak | | |
|--|----------|-----------|-----------|-----------|-----------|-----------|---------------|-----------|-----------|
| | In | Out | Total | In | Out | Total | In | Out | Total |
| Automated Car Wash (Car Wash Tunnels, ITE-948) | 19 | 20 | 39 | 39 | 39 | 78 | 19 | 22 | 41 |
| - Pass-by (assumed to be 50%) | -10 | -10 | -20 | -20 | -20 | -39 | -10 | -11 | -21 |
| Net New Trips: | 9 | 10 | 19 | 19 | 19 | 39 | 9 | 11 | 20 |

NOTES: Trip Generation Rates obtained from the ITE Trip Generation Manual, 10th Edition

The ITE Trip Generation Manual does not provide a rate/equation for this use during the morning peak hour. This is likely because the use generates the vast majority of its trips during the afternoon and evening hours, and very few trips during the morning peak hour of adjacent street traffic. While it is likely that a negligible number of trips would be generated during the AM peak hour, in order to be conservative it was assumed that the AM trip generation rate was 50% of the PM trip rate with the same split.

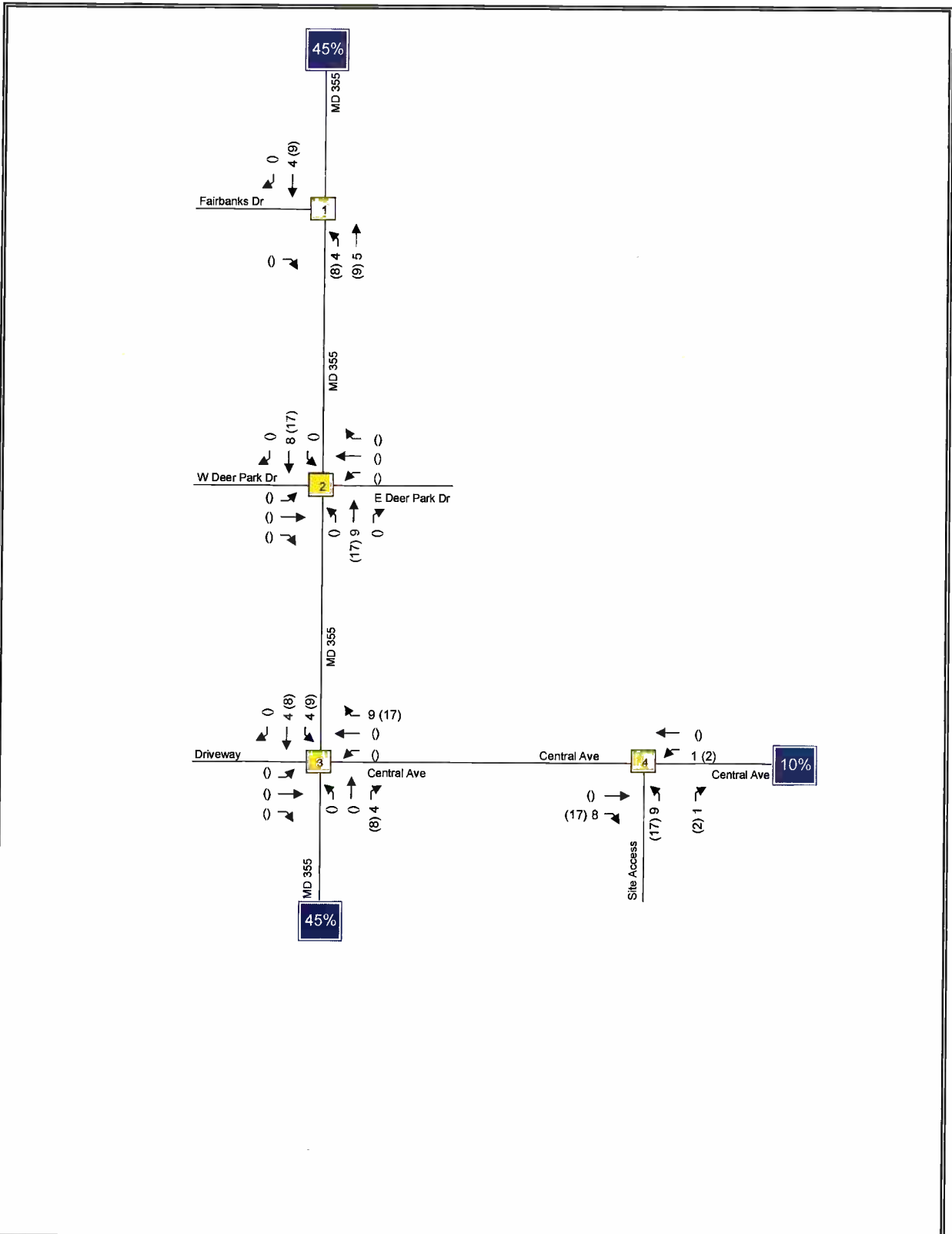
The ITE Trip Generation Manual also does not provide a pass-by trip percentage for this use. A large percentage of trips would be pass-by trips, so a 50% pass-by rate was assumed for both the AM and PM peak hour.

Site Access Evaluation

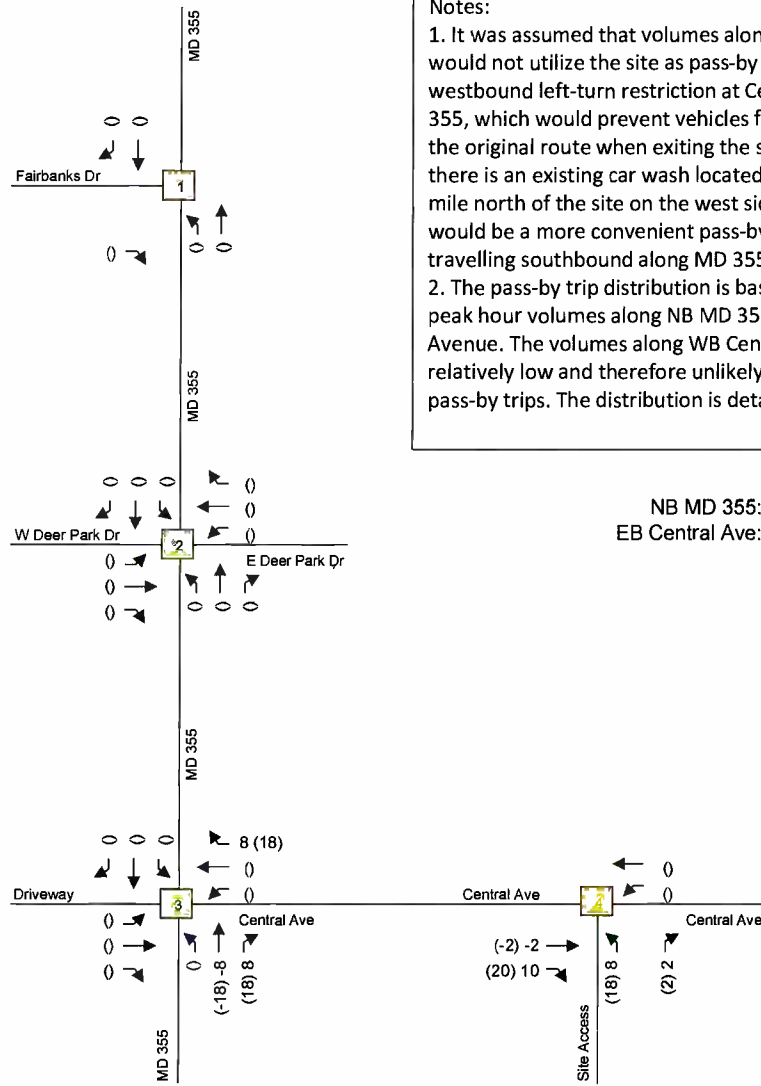
Trip Generation for Site

Exhibit 4





| | | |
|---|-------------------------------------|-----------------------|
| Site Access Evaluation | Primary Trip Assignment for Site | Exhibit 5a |
| Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning | | |

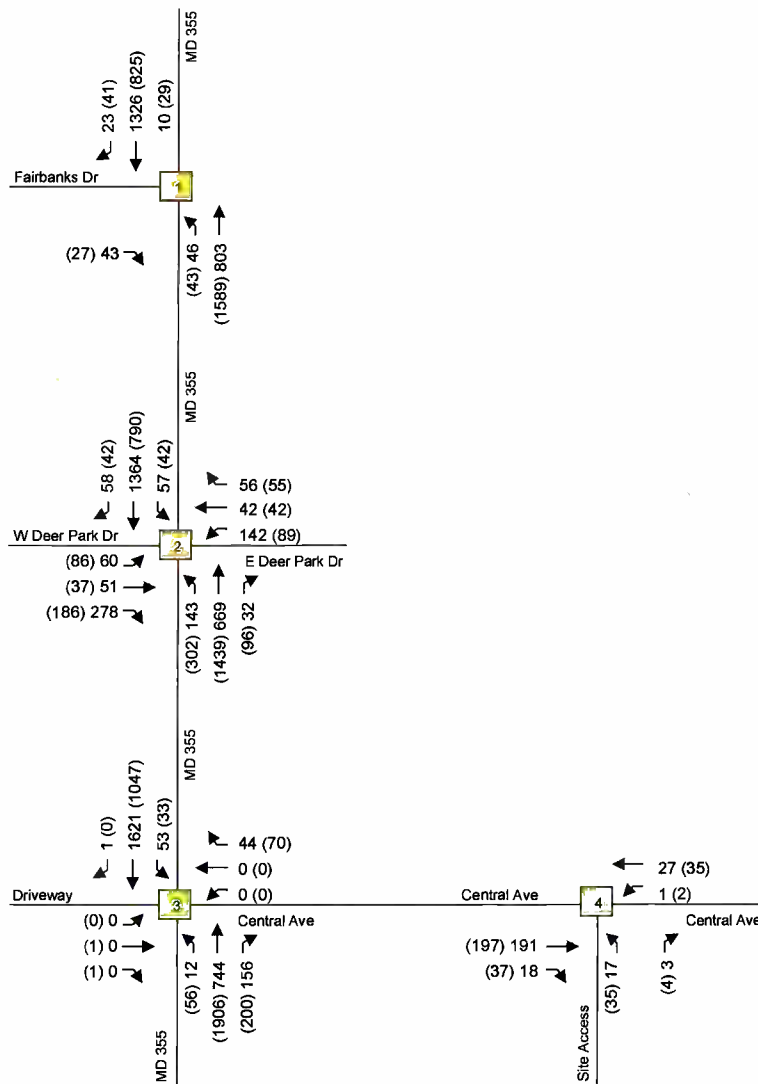


Notes:

1. It was assumed that volumes along SB MD 355 would not utilize the site as pass-by trips due to westbound left-turn restriction at Central Ave & MD 355, which would prevent vehicles from returning to the original route when exiting the site. Additionally, there is an existing car wash located approximately 1 mile north of the site on the west side of MD 355 that would be a more convenient pass-by trip for vehicles travelling southbound along MD 355.
2. The pass-by trip distribution is based on the existing peak hour volumes along NB MD 355 and EB Central Avenue. The volumes along WB Central Avenue are relatively low and therefore unlikely to generate any pass-by trips. The distribution is detailed below.

| | AM | PM |
|-----------------|-----|-----|
| NB MD 355: | 80% | 91% |
| EB Central Ave: | 20% | 9% |

| | | |
|---|--|---------------|
| Site Access Evaluation | Pass-by Trip Assignment for Site | Exhibit 5b |
| Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning | Key: xx = AM Peak Vol's (xx) = PM Peak Vol's | |




| | | |
|---|------------------------------------|----------------------|
| Site Access Evaluation | Total Peak Hour Volumes | Exhibit 6 |
| Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning | | |

CLV Level-of-Service Results

| Morning Peak Hour | Existing CLV | Total CLV | LOS D or better? |
|-------------------------------|--------------|-----------|------------------|
| 1). MD 355 & Fairbanks Drive | A / 581 | A / 586 | Y |
| 2). MD 355 & Deer Park Drive | A / 889 | A / 965 | Y |
| 3). MD 355 & Central Avenue | A / 692 | A / 705 | Y |
| 4). Central Ave & Site Access | N/A | A / 230 | |
| Evening Peak Hour | Existing CLV | Total CLV | LOS D or better? |
| 1). MD 355 & Fairbanks Drive | A / 661 | A / 665 | Y |
| 2). MD 355 & Deer Park Drive | A / 830 | A / 876 | Y |
| 3). MD 355 & Central Avenue | A / 904 | A / 945 | Y |
| 4). Central Ave & Site Access | N/A | A / 275 | |

NOTES:


1. All intersections satisfy City of Gaithersburg Guidelines of LOS "D" or better.

| | | |
|---|---|-----------------------|
| Site Access Evaluation  LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com | Results of CLV Level-of-Service Analyses | Exhibit 7a |
|---|---|-----------------------|

HCM Level-of-Service Results

| Morning Peak Hour | Existing Delay | Total Delay | LOS D or Better? |
|--|----------------|-------------|------------------|
| 1). MD 355 & Fairbanks Drive Northbound Left/U-Turn | A / 0.3 | A / 0.3 | Y |
| 2). MD 355 & Deer Park Drive Northbound Thru | B / 12.8 | B / 12.8 | Y |
| 3). MD 355 & Central Avenue Southbound Thru | C / 28.0 | C / 28.0 | Y |
| 4). Central Ave & Site Access Northbound Left/Right | B / 17.6 | B / 17.7 | Y |
| Eastbound Thru/Right | C / 20.2 | C / 20.2 | Y |
| Westbound Left/Thru | A / 0.4 | A / 0.5 | Y |
| | B / 10.5 | B / 10.6 | |
| | B / 10.8 | B / 11.1 | |
| | N/A | A / 0.8 | Y |
| | N/A | A / 9.9 | |
| | N/A | A / 0.0 | |
| | N/A | A / 0.3 | |

| Evening Peak Hour | Existing Delay | Total Delay | LOS D or Better? |
|--|----------------|-------------|------------------|
| 1). MD 355 & Fairbanks Drive Northbound Left/U-Turn | A / 0.2 | A / 0.2 | Y |
| 2). MD 355 & Deer Park Drive Northbound Thru | A / 9.9 | A / 10.0 | Y |
| Southbound Thru | C / 27.8 | C / 25.4 | |
| 3). MD 355 & Central Avenue Southbound Left | C / 23.0 | B / 19.0 | |
| Westbound Right | C / 21.6 | C / 20.2 | |
| 4). Central Ave & Site Access Northbound Left/Right | A / 0.8 | A / 1.1 | Y |
| Eastbound Thru/Right | C / 23.6 | C / 24.8 | |
| Westbound Left/Thru | C / 17.2 | C / 19.2 | |
| | N/A | A / 1.3 | Y |
| | N/A | B / 10.3 | |
| | N/A | A / 0.0 | |
| | N/A | A / 0.4 | |

| | | |
|---|---|---------------|
| Site Access Evaluation  LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com | Results of HCM Level-of-Service Analyses | Exhibit 7b |
|---|---|---------------|

Section 4 Conclusions / Recommendations

4.1 Results of Analyses

This Site Access Evaluation was prepared for the development of the Whip Clean Car Wash located on the southeast corner of the intersection of MD 355 and Central Avenue. The property is proposed to be developed with a single tunnel car wash.

As previously discussed, a Traffic Impact Study is not required by the City of Gaithersburg at this time, and this evaluation has been conducted for informational purposes only. A Traffic Impact Study will be required along with the future submittal of a Preliminary Plan.

Based on the analyses contained in this report, all of the study intersections meet the City of Gaithersburg's Guidelines of CLVs less than 1,450 in all conditions. Additionally, the results of the HCM analyses show that any movement receiving additional volumes from the development of the site will continue to operate with adequate level of service. Lastly, based on the SimTraffic queuing evaluation, ingress and egress to the site will operate well without queuing impacts from the site to Central Avenue or vice versa.

While all intersections included in this analysis are shown to operate well within required adequacy thresholds, as noted in Section 2, it is recommended that the intersection of MD 355 & Central Avenue be improved with either: A) physical restrictions to prohibit left turns out of Central Avenue, or B) installation of a traffic signal to allow the left turns, if warranted and approved by MDOT-SHA. The developer will work with the City of Gaithersburg and MDOT-SHA in order to determine which improvement can/should be implemented.

Appendix A

Supplemental Information
Turning Movement Counts

| Weekday Morning Peak Hour (6:30 am - 9:30 am) | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------|------|------|-------|------|-------------------|------|------|-------|------|------------------------|------|------|-------|------|---------------|------|------|-------|-------|------|
| Time: | MD 355 Northbound | | | | | MD 355 Southbound | | | | | Fairbanks Dr Eastbound | | | | | N/A Westbound | | | | Total | |
| | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | | Peds |
| 6:30-6:45 | 5 | 2 | 82 | 0 | 0 | 3 | 0 | 176 | 3 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 280 |
| 6:45-7:00 | 2 | 1 | 92 | 0 | 0 | 2 | 0 | 202 | 3 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 312 |
| 7:00-7:15 | 5 | 0 | 132 | 0 | 1 | 3 | 0 | 227 | 4 | 0 | 0 | 1 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 383 |
| 7:15-7:30 | 4 | 1 | 189 | 0 | 0 | 4 | 0 | 291 | 2 | 1 | 0 | 0 | 0 | 13 | 3 | 0 | 0 | 0 | 0 | 0 | 504 |
| 7:30-7:45 | 8 | 0 | 220 | 0 | 0 | 1 | 0 | 343 | 5 | 0 | 0 | 0 | 0 | 11 | 4 | 0 | 0 | 0 | 0 | 3 | 588 |
| 7:45-8:00 | 5 | 2 | 218 | 0 | 0 | 3 | 0 | 351 | 9 | 0 | 0 | 1 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 4 | 599 |
| 8:00-8:15 | 3 | 3 | 171 | 0 | 0 | 2 | 0 | 337 | 7 | 0 | 0 | 0 | 0 | 9 | 4 | 0 | 0 | 0 | 0 | 1 | 532 |
| 8:15-8:30 | 1 | 2 | 154 | 0 | 0 | 4 | 0 | 344 | 2 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 515 |
| 8:30-8:45 | 3 | 3 | 155 | 0 | 0 | 2 | 0 | 319 | 3 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 496 |
| 8:45-9:00 | 1 | 3 | 181 | 0 | 0 | 3 | 0 | 320 | 10 | 0 | 0 | 1 | 0 | 15 | 1 | 0 | 0 | 0 | 0 | 1 | 534 |
| 9:00-9:15 | 4 | 3 | 192 | 0 | 0 | 6 | 0 | 238 | 2 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 4 | 453 |
| 9:15-9:30 | 2 | 4 | 184 | 0 | 0 | 4 | 0 | 206 | 4 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 410 |

| Hourly Totals | | | | | | | | | | | | | | | | | | | | | | |
|---------------|------------|----|-----|---|---|------------|---|------|----|---|-----------|---|---|----|----|-----------|---|---|---|-------|------|------|
| 6:30-7:30 | 16 | 4 | 495 | 0 | 1 | 12 | 0 | 896 | 12 | 1 | 0 | 1 | 0 | 43 | 3 | 0 | 0 | 0 | 0 | 9 | 1493 | |
| 6:45-7:45 | 19 | 2 | 633 | 0 | 1 | 10 | 0 | 1063 | 14 | 1 | 0 | 1 | 0 | 45 | 7 | 0 | 0 | 0 | 0 | 12 | 1808 | |
| 7:00-8:00 | 22 | 3 | 759 | 0 | 1 | 11 | 0 | 1212 | 20 | 1 | 0 | 2 | 0 | 45 | 7 | 0 | 0 | 0 | 0 | 16 | 2099 | |
| 7:15-8:15 | 20 | 6 | 798 | 0 | 0 | 10 | 0 | 1322 | 23 | 1 | 0 | 1 | 0 | 43 | 11 | 0 | 0 | 0 | 0 | 16 | 2251 | |
| 7:30-8:30 | 17 | 7 | 763 | 0 | 0 | 10 | 0 | 1375 | 23 | 0 | 0 | 1 | 0 | 38 | 9 | 0 | 0 | 0 | 0 | 8 | 2251 | |
| 7:45-8:45 | 12 | 10 | 698 | 0 | 0 | 11 | 0 | 1351 | 21 | 0 | 0 | 1 | 0 | 38 | 5 | 0 | 0 | 0 | 0 | 5 | 2152 | |
| 8:00-9:00 | 8 | 11 | 661 | 0 | 0 | 11 | 0 | 1320 | 22 | 0 | 0 | 1 | 0 | 43 | 6 | 0 | 0 | 0 | 0 | 2 | 2085 | |
| 8:15-9:15 | 9 | 11 | 682 | 0 | 0 | 15 | 0 | 1221 | 17 | 0 | 0 | 1 | 0 | 42 | 3 | 0 | 0 | 0 | 0 | 5 | 2006 | |
| 8:30-9:30 | 10 | 13 | 712 | 0 | 0 | 15 | 0 | 1083 | 19 | 1 | 0 | 1 | 0 | 40 | 2 | 0 | 0 | 0 | 0 | 5 | 1901 | |
| AM Peak Hour | Northbound | | | | | Southbound | | | | | Eastbound | | | | | Westbound | | | | Total | | |
| 7:15-8:15 | 20 | 6 | 798 | 0 | 0 | 10 | 0 | 1322 | 23 | 1 | 0 | 1 | 0 | 43 | 11 | 0 | 0 | 0 | 0 | 0 | 16 | 2251 |

| Weekday Evening Peak Hour (4 pm - 7 pm) | | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------|------|------|-------|------|-------------------|------|------|-------|------|------------------------|------|------|-------|------|---------------|------|------|-------|-------|------|-----|
| Time: | MD 355 Northbound | | | | | MD 355 Southbound | | | | | Fairbanks Dr Eastbound | | | | | N/A Westbound | | | | Total | | |
| | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | | Peds | |
| 4:00-4:15 | 5 | 4 | 339 | 0 | 0 | 4 | 0 | 228 | 11 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 6 | 594 |
| 4:15-4:30 | 3 | 7 | 384 | 0 | 0 | 2 | 0 | 192 | 6 | 1 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 600 |
| 4:30-4:45 | 6 | 5 | 377 | 0 | 1 | 8 | 0 | 201 | 6 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 2 | 606 | |
| 4:45-5:00 | 1 | 6 | 388 | 0 | 0 | 10 | 0 | 201 | 12 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 623 |
| 5:00-5:15 | 2 | 9 | 378 | 0 | 0 | 8 | 0 | 211 | 8 | 0 | 0 | 0 | 0 | 8 | 7 | 0 | 0 | 0 | 0 | 0 | 5 | 624 |
| 5:15-5:30 | 0 | 5 | 423 | 0 | 0 | 5 | 0 | 177 | 13 | 0 | 0 | 0 | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 632 |
| 5:30-5:45 | 1 | 5 | 391 | 0 | 0 | 6 | 0 | 227 | 8 | 0 | 0 | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 6 | 643 |
| 5:45-6:00 | 0 | 4 | 352 | 0 | 1 | 3 | 0 | 194 | 7 | 0 | 0 | 0 | 0 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 567 |
| 6:00-6:15 | 1 | 13 | 372 | 0 | 0 | 4 | 0 | 199 | 13 | 0 | 0 | 1 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 607 |
| 6:15-6:30 | 6 | 5 | 303 | 0 | 0 | 5 | 0 | 198 | 8 | 0 | 0 | 0 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 1 | 532 | |
| 6:30-6:45 | 4 | 3 | 302 | 0 | 0 | 4 | 0 | 166 | 10 | 0 | 0 | 0 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 495 |
| 6:45-7:00 | 5 | 3 | 227 | 0 | 0 | 3 | 0 | 180 | 7 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 2 | 430 | |

| Hourly Totals | | | | | | | | | | | | | | | | | | | | | | |
|---------------|------------|----|------|---|---|------------|---|-----|----|---|-----------|---|---|----|----|-----------|---|---|---|-------|------|------|
| 4:00-5:00 | 15 | 22 | 1488 | 0 | 1 | 24 | 0 | 822 | 35 | 1 | 0 | 0 | 0 | 17 | 6 | 0 | 0 | 0 | 0 | 14 | 2445 | |
| 4:15-5:15 | 12 | 27 | 1527 | 0 | 1 | 28 | 0 | 805 | 32 | 1 | 0 | 0 | 0 | 22 | 10 | 0 | 0 | 0 | 0 | 13 | 2478 | |
| 4:30-5:30 | 9 | 25 | 1566 | 0 | 1 | 31 | 0 | 790 | 39 | 0 | 0 | 0 | 0 | 25 | 11 | 0 | 0 | 0 | 0 | 15 | 2512 | |
| 4:45-5:45 | 4 | 25 | 1580 | 0 | 0 | 29 | 0 | 816 | 41 | 0 | 0 | 0 | 0 | 27 | 12 | 0 | 0 | 0 | 0 | 13 | 2547 | |
| 5:00-6:00 | 3 | 23 | 1544 | 0 | 1 | 22 | 0 | 809 | 36 | 0 | 0 | 0 | 0 | 29 | 15 | 0 | 0 | 0 | 0 | 12 | 2494 | |
| 5:15-6:15 | 2 | 27 | 1538 | 0 | 1 | 18 | 0 | 797 | 41 | 0 | 0 | 1 | 0 | 25 | 11 | 0 | 0 | 0 | 0 | 11 | 2472 | |
| 5:30-6:30 | 8 | 27 | 1418 | 0 | 1 | 18 | 0 | 818 | 36 | 0 | 0 | 1 | 0 | 23 | 11 | 0 | 0 | 0 | 0 | 7 | 2368 | |
| 5:45-6:45 | 11 | 25 | 1329 | 0 | 1 | 16 | 0 | 757 | 38 | 0 | 0 | 1 | 0 | 24 | 11 | 0 | 0 | 0 | 0 | 7 | 2220 | |
| 6:00-7:00 | 16 | 24 | 1204 | 0 | 0 | 16 | 0 | 743 | 38 | 0 | 0 | 1 | 0 | 22 | 9 | 0 | 0 | 0 | 0 | 7 | 2080 | |
| PM Peak Hour | Northbound | | | | | Southbound | | | | | Eastbound | | | | | Westbound | | | | Total | | |
| 4:45-5:45 | 4 | 25 | 1580 | 0 | 0 | 29 | 0 | 816 | 41 | 0 | 0 | 0 | 0 | 27 | 12 | 0 | 0 | 0 | 0 | 0 | 13 | 2547 |

Peak Hour
Turning Movement Count



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 355 & Fairbanks Drive
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Wednesday, March 2, 2022
Jurisdiction: City of Gaithersburg

| Weekday Morning Peak Hour (6:30 am - 9:30 am) | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------|------|------|-------|------|-------------------|------|------|-------|------|--------------------------|------|------|-------|------|--------------------------|------|------|-------|-------|------|
| Time: | MD 355 Northbound | | | | | MD 355 Southbound | | | | | W Deer Park Rd Eastbound | | | | | E Deer Park Rd Westbound | | | | Total | |
| | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | | Peds |
| 6:30-6:45 | 0 | 9 | 70 | 7 | 0 | 2 | 6 | 179 | 2 | 0 | 0 | 8 | 5 | 53 | 0 | 0 | 25 | 6 | 6 | 0 | 378 |
| 6:45-7:00 | 1 | 15 | 72 | 7 | 0 | 0 | 3 | 209 | 3 | 1 | 0 | 11 | 9 | 64 | 0 | 0 | 17 | 3 | 3 | 0 | 417 |
| 7:00-7:15 | 0 | 14 | 119 | 10 | 0 | 0 | 10 | 224 | 7 | 1 | 0 | 11 | 7 | 68 | 0 | 0 | 31 | 5 | 13 | 0 | 519 |
| 7:15-7:30 | 0 | 29 | 151 | 3 | 0 | 0 | 10 | 277 | 11 | 2 | 0 | 21 | 7 | 57 | 0 | 0 | 29 | 7 | 22 | 1 | 624 |
| 7:30-7:45 | 0 | 29 | 165 | 6 | 0 | 0 | 17 | 326 | 19 | 2 | 0 | 23 | 9 | 71 | 1 | 0 | 30 | 10 | 28 | 4 | 733 |
| 7:45-8:00 | 0 | 26 | 184 | 9 | 0 | 0 | 22 | 339 | 16 | 0 | 0 | 15 | 17 | 84 | 0 | 0 | 32 | 8 | 15 | 2 | 767 |
| 8:00-8:15 | 0 | 47 | 155 | 8 | 0 | 0 | 11 | 336 | 13 | 0 | 0 | 9 | 14 | 56 | 0 | 0 | 32 | 10 | 8 | 0 | 699 |
| 8:15-8:30 | 0 | 41 | 140 | 9 | 0 | 0 | 7 | 339 | 10 | 1 | 0 | 13 | 11 | 67 | 1 | 0 | 33 | 14 | 5 | 0 | 689 |
| 8:30-8:45 | 0 | 34 | 140 | 8 | 0 | 1 | 7 | 313 | 14 | 0 | 0 | 11 | 6 | 64 | 0 | 0 | 36 | 8 | 9 | 0 | 651 |
| 8:45-9:00 | 1 | 42 | 162 | 16 | 0 | 2 | 10 | 307 | 20 | 1 | 0 | 20 | 13 | 76 | 1 | 0 | 34 | 14 | 2 | 0 | 719 |
| 9:00-9:15 | 0 | 31 | 171 | 7 | 0 | 0 | 10 | 233 | 8 | 0 | 0 | 12 | 6 | 74 | 1 | 0 | 24 | 8 | 9 | 0 | 593 |
| 9:15-9:30 | 0 | 32 | 171 | 14 | 0 | 0 | 2 | 208 | 10 | 3 | 0 | 10 | 9 | 37 | 0 | 0 | 19 | 2 | 3 | 0 | 517 |

| Hourly Totals | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|-----|-----|----|---|---|----|------|----|---|---|----|----|-----|---|---|-----|----|----|---|------|
| 6:30-7:30 | 1 | 67 | 412 | 27 | 0 | 2 | 29 | 889 | 23 | 4 | 0 | 51 | 28 | 242 | 0 | 0 | 102 | 21 | 44 | 1 | 1943 |
| 6:45-7:45 | 1 | 87 | 507 | 26 | 0 | 0 | 40 | 1036 | 40 | 6 | 0 | 66 | 32 | 260 | 1 | 0 | 107 | 25 | 66 | 5 | 2305 |
| 7:00-8:00 | 0 | 98 | 619 | 28 | 0 | 0 | 59 | 1166 | 53 | 5 | 0 | 70 | 40 | 280 | 1 | 0 | 122 | 30 | 78 | 7 | 2656 |
| 7:15-8:15 | 0 | 131 | 655 | 26 | 0 | 0 | 60 | 1278 | 59 | 4 | 0 | 68 | 47 | 268 | 1 | 0 | 123 | 35 | 73 | 7 | 2835 |
| 7:30-8:30 | 0 | 143 | 644 | 32 | 0 | 0 | 57 | 1340 | 58 | 3 | 0 | 60 | 51 | 278 | 2 | 0 | 127 | 42 | 56 | 6 | 2899 |
| 7:45-8:45 | 0 | 148 | 619 | 34 | 0 | 1 | 47 | 1327 | 53 | 1 | 0 | 48 | 48 | 271 | 1 | 0 | 133 | 40 | 37 | 2 | 2810 |
| 8:00-9:00 | 1 | 164 | 597 | 41 | 0 | 3 | 35 | 1295 | 57 | 2 | 0 | 53 | 44 | 263 | 2 | 0 | 135 | 46 | 24 | 0 | 2762 |
| 8:15-9:15 | 1 | 148 | 613 | 40 | 0 | 3 | 34 | 1192 | 52 | 2 | 0 | 56 | 36 | 281 | 3 | 0 | 127 | 44 | 25 | 0 | 2657 |
| 8:30-9:30 | 1 | 139 | 644 | 45 | 0 | 3 | 29 | 1061 | 52 | 4 | 0 | 53 | 34 | 251 | 2 | 0 | 113 | 32 | 23 | 0 | 2486 |


| AM Peak Hour | Northbound | | | | | Southbound | | | | | Eastbound | | | | | Westbound | | | | Total | |
|--------------|------------|------|------|-------|------|------------|------|------|-------|------|-----------|------|------|-------|------|-----------|------|------|-------|-------|------|
| 7:30-8:30 | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | |
| | 0 | 143 | 644 | 32 | 0 | 0 | 57 | 1340 | 58 | 3 | 0 | 60 | 51 | 278 | 2 | 0 | 127 | 42 | 56 | 6 | 2899 |

| Weekday Evening Peak Hour (4 pm - 7 pm) | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------|------|------|-------|------|-------------------|------|------|-------|------|--------------------------|------|------|-------|------|--------------------------|------|------|-------|-------|------|
| Time: | MD 355 Northbound | | | | | MD 355 Southbound | | | | | W Deer Park Rd Eastbound | | | | | E Deer Park Rd Westbound | | | | Total | |
| | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | | Peds |
| 4:00-4:15 | 0 | 56 | 298 | 24 | 0 | 0 | 9 | 213 | 9 | 2 | 0 | 18 | 9 | 46 | 0 | 0 | 22 | 9 | 22 | 0 | 735 |
| 4:15-4:30 | 0 | 53 | 356 | 20 | 0 | 1 | 4 | 183 | 16 | 0 | 0 | 17 | 12 | 45 | 1 | 0 | 22 | 11 | 14 | 0 | 754 |
| 4:30-4:45 | 1 | 76 | 337 | 29 | 2 | 1 | 5 | 188 | 13 | 1 | 0 | 28 | 10 | 56 | 2 | 0 | 29 | 10 | 10 | 0 | 793 |
| 4:45-5:00 | 1 | 64 | 346 | 19 | 0 | 0 | 5 | 181 | 10 | 4 | 0 | 18 | 8 | 40 | 1 | 0 | 16 | 12 | 16 | 1 | 736 |
| 5:00-5:15 | 0 | 78 | 329 | 32 | 0 | 1 | 17 | 210 | 9 | 4 | 0 | 28 | 15 | 56 | 1 | 0 | 23 | 7 | 13 | 2 | 818 |
| 5:15-5:30 | 0 | 94 | 384 | 21 | 0 | 0 | 8 | 170 | 13 | 1 | 0 | 17 | 3 | 45 | 1 | 0 | 26 | 14 | 13 | 2 | 808 |
| 5:30-5:45 | 0 | 65 | 357 | 24 | 0 | 1 | 10 | 206 | 10 | 5 | 0 | 23 | 11 | 45 | 1 | 0 | 19 | 9 | 13 | 6 | 793 |
| 5:45-6:00 | 1 | 76 | 312 | 16 | 0 | 1 | 12 | 179 | 13 | 4 | 0 | 15 | 11 | 49 | 0 | 0 | 24 | 9 | 5 | 0 | 723 |
| 6:00-6:15 | 0 | 64 | 337 | 22 | 0 | 1 | 12 | 166 | 15 | 3 | 0 | 23 | 16 | 39 | 1 | 1 | 19 | 7 | 11 | 1 | 733 |
| 6:15-6:30 | 0 | 60 | 252 | 17 | 0 | 0 | 15 | 189 | 12 | 2 | 0 | 19 | 10 | 52 | 2 | 0 | 13 | 12 | 9 | 0 | 660 |
| 6:30-6:45 | 0 | 59 | 278 | 14 | 0 | 0 | 7 | 157 | 17 | 4 | 0 | 11 | 12 | 48 | 0 | 0 | 20 | 6 | 9 | 0 | 638 |
| 6:45-7:00 | 1 | 72 | 205 | 12 | 0 | 0 | 6 | 162 | 20 | 3 | 0 | 19 | 8 | 40 | 0 | 0 | 23 | 14 | 6 | 3 | 588 |

| Hourly Totals | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|-----|------|-----|---|---|----|-----|----|----|---|----|----|-----|---|---|----|----|----|----|------|
| 4:00-5:00 | 2 | 249 | 1337 | 92 | 2 | 2 | 23 | 765 | 48 | 7 | 0 | 81 | 39 | 187 | 4 | 0 | 89 | 42 | 62 | 1 | 3032 |
| 4:15-5:15 | 2 | 271 | 1368 | 100 | 2 | 3 | 31 | 762 | 48 | 9 | 0 | 91 | 45 | 197 | 5 | 0 | 90 | 40 | 53 | 3 | 3120 |
| 4:30-5:30 | 2 | 312 | 1396 | 101 | 2 | 2 | 35 | 749 | 45 | 10 | 0 | 91 | 36 | 197 | 5 | 0 | 94 | 43 | 52 | 5 | 3177 |
| 4:45-5:45 | 1 | 301 | 1416 | 96 | 0 | 2 | 40 | 767 | 42 | 14 | 0 | 86 | 37 | 186 | 4 | 0 | 84 | 42 | 55 | 11 | 3184 |
| 5:00-6:00 | 1 | 313 | 1382 | 93 | 0 | 3 | 47 | 765 | 45 | 14 | 0 | 83 | 40 | 195 | 3 | 0 | 92 | 39 | 44 | 10 | 3169 |
| 5:15-6:15 | 1 | 299 | 1390 | 83 | 0 | 3 | 42 | 721 | 51 | 13 | 0 | 78 | 41 | 178 | 3 | 1 | 88 | 39 | 42 | 9 | 3082 |
| 5:30-6:30 | 1 | 265 | 1258 | 79 | 0 | 3 | 49 | 740 | 50 | 14 | 0 | 80 | 48 | 185 | 4 | 1 | 75 | 37 | 38 | 7 | 2934 |
| 5:45-6:45 | 1 | 259 | 1179 | 69 | 0 | 2 | 46 | 691 | 57 | 13 | 0 | 68 | 49 | 188 | 3 | 1 | 76 | 34 | 34 | 1 | 2771 |
| 6:00-7:00 | 1 | 255 | 1072 | 65 | 0 | 1 | 40 | 674 | 64 | 12 | 0 | 72 | 46 | 179 | 3 | 1 | 75 | 39 | 35 | 4 | 2638 |

| PM Peak Hour | Northbound | | | | | Southbound | | | | | Eastbound | | | | | Westbound | | | | Total | |
|--------------|------------|------|------|-------|------|------------|------|------|-------|------|-----------|------|------|-------|------|-----------|------|------|-------|-------|------|
| 4:45-5:45 | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | |
| | 1 | 301 | 1416 | 96 | 0 | 2 | 40 | 767 | 42 | 14 | 0 | 86 | 37 | 186 | 4 | 0 | 84 | 42 | 55 | 11 | 3184 |

Peak Hour
Turning Movement Count



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 355 & Deer Park Road
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Wednesday, March 2, 2022
Jurisdiction: City of Gaithersburg

| Weekday Morning Peak Hour (6:30 am - 9:30 am) | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------|------|------|-------|------|-------------------|------|------|-------|------|--------------------|------|------|-------|------|-----------------------|------|------|-------|------|-------|
| Time: | MD 355 Northbound | | | | | MD 355 Southbound | | | | | Driveway Eastbound | | | | | Central Ave Westbound | | | | | Total |
| | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | |
| 6:30-6:45 | 1 | 0 | 79 | 8 | 0 | 0 | 3 | 264 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 2 | 0 | 363 |
| 6:45-7:00 | 3 | 0 | 86 | 9 | 0 | 0 | 7 | 251 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 4 | 0 | 366 |
| 7:00-7:15 | 1 | 0 | 128 | 18 | 0 | 0 | 8 | 268 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 1 | 0 | 430 |
| 7:15-7:30 | 4 | 0 | 166 | 13 | 0 | 0 | 9 | 346 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 9 | 0 | 3 | 1 | 550 |
| 7:30-7:45 | 1 | 0 | 168 | 27 | 0 | 0 | 15 | 384 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 3 | 0 | 607 |
| 7:45-8:00 | 4 | 0 | 202 | 57 | 0 | 0 | 14 | 433 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 2 | 0 | 720 |
| 8:00-8:15 | 2 | 0 | 196 | 35 | 0 | 0 | 13 | 367 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | 3 | 0 | 624 |
| 8:15-8:30 | 5 | 0 | 186 | 25 | 0 | 0 | 7 | 402 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 0 | 3 | 0 | 635 |
| 8:30-8:45 | 5 | 0 | 178 | 29 | 0 | 0 | 9 | 346 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 0 | 7 | 0 | 581 |
| 8:45-9:00 | 15 | 1 | 215 | 33 | 0 | 1 | 10 | 413 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 5 | 0 | 701 | |
| 9:00-9:15 | 10 | 1 | 222 | 21 | 0 | 1 | 16 | 295 | 0 | 0 | 0 | 6 | 2 | 1 | 0 | 0 | 8 | 2 | 6 | 0 | 591 |
| 9:15-9:30 | 4 | 0 | 208 | 20 | 0 | 2 | 10 | 255 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 8 | 0 | 514 |

| Hourly Totals | | | | | | | | | | | | | | | | | | | | | |
|---------------|----|---|-----|-----|---|---|----|------|---|---|---|---|---|---|---|----|----|----|----|------|------|
| 6:30-7:30 | 9 | 0 | 459 | 48 | 0 | 0 | 27 | 1129 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 27 | 0 | 10 | 1 | 1715 | |
| 6:45-7:45 | 9 | 0 | 548 | 67 | 0 | 0 | 39 | 1249 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 30 | 0 | 11 | 1 | 1961 | |
| 7:00-8:00 | 10 | 0 | 664 | 115 | 0 | 0 | 46 | 1431 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 31 | 0 | 9 | 1 | 2314 | |
| 7:15-8:15 | 11 | 0 | 732 | 132 | 0 | 0 | 51 | 1530 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 33 | 0 | 11 | 1 | 2508 | |
| 7:30-8:30 | 12 | 0 | 752 | 144 | 0 | 0 | 49 | 1586 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 31 | 0 | 11 | 0 | 2590 | |
| 7:45-8:45 | 16 | 0 | 762 | 146 | 0 | 0 | 43 | 1548 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 29 | 0 | 15 | 0 | 2563 | |
| 8:00-9:00 | 27 | 1 | 775 | 122 | 0 | 1 | 39 | 1528 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 28 | 0 | 18 | 0 | 2544 | |
| 8:15-9:15 | 35 | 2 | 801 | 108 | 0 | 2 | 42 | 1456 | 1 | 0 | 0 | 7 | 2 | 1 | 2 | 0 | 28 | 2 | 21 | 0 | 2510 |
| 8:30-9:30 | 34 | 2 | 823 | 103 | 0 | 4 | 45 | 1309 | 2 | 0 | 0 | 7 | 3 | 1 | 1 | 0 | 25 | 3 | 26 | 0 | 2388 |


| AM | Northbound | | | | | Southbound | | | | | Eastbound | | | | | Westbound | | | | | Total |
|-----------|------------|------|------|-------|------|------------|------|------|-------|------|-----------|------|------|-------|------|-----------|------|------|-------|------|-------|
| Peak Hour | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | |
| 7:30-8:30 | 12 | 0 | 752 | 144 | 0 | 0 | 49 | 1586 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 31 | 0 | 11 | 0 | 2590 |

| Weekday Evening Peak Hour (4 pm - 7 pm) | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------|------|------|-------|------|-------------------|------|------|-------|------|--------------------|------|------|-------|------|-----------------------|------|------|-------|------|-------|
| Time: | MD 355 Northbound | | | | | MD 355 Southbound | | | | | Driveway Eastbound | | | | | Central Ave Westbound | | | | | Total |
| | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | |
| 4:00-4:15 | 12 | 1 | 400 | 60 | 0 | 1 | 8 | 256 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 14 | 1 | 754 | |
| 4:15-4:30 | 11 | 1 | 380 | 54 | 0 | 1 | 4 | 260 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 3 | 0 | 20 | 1 | 736 |
| 4:30-4:45 | 9 | 0 | 463 | 51 | 0 | 0 | 5 | 281 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 815 | |
| 4:45-5:00 | 19 | 0 | 453 | 47 | 0 | 1 | 2 | 272 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 9 | 1 | 808 |
| 5:00-5:15 | 10 | 1 | 390 | 48 | 0 | 2 | 8 | 270 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 6 | 1 | 736 |
| 5:15-5:30 | 12 | 1 | 480 | 39 | 0 | 1 | 3 | 267 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 11 | 1 | 816 |
| 5:30-5:45 | 11 | 1 | 486 | 48 | 0 | 1 | 4 | 264 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 4 | 820 |
| 5:45-6:00 | 14 | 1 | 487 | 48 | 0 | 2 | 9 | 263 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 9 | 0 | 839 |
| 6:00-6:15 | 16 | 0 | 471 | 39 | 0 | 1 | 3 | 234 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 3 | 0 | 4 | 4 | 773 |
| 6:15-6:30 | 10 | 3 | 386 | 47 | 0 | 1 | 7 | 236 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 1 | 700 |
| 6:30-6:45 | 11 | 1 | 364 | 35 | 0 | 2 | 4 | 222 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12 | 1 | 653 | |
| 6:45-7:00 | 11 | 0 | 334 | 32 | 0 | 0 | 3 | 194 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 578 | |

| Hourly Totals | | | | | | | | | | | | | | | | | | | | | |
|---------------|----|---|------|-----|---|---|----|------|---|---|---|---|---|---|---|---|----|---|----|---|------|
| 4:00-5:00 | 51 | 2 | 1696 | 212 | 0 | 3 | 19 | 1069 | 3 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 9 | 0 | 47 | 3 | 3119 |
| 4:15-5:15 | 49 | 2 | 1686 | 200 | 0 | 4 | 19 | 1083 | 2 | 0 | 0 | 2 | 0 | 1 | 5 | 0 | 8 | 0 | 39 | 3 | 3103 |
| 4:30-5:30 | 50 | 2 | 1786 | 185 | 0 | 4 | 18 | 1090 | 1 | 0 | 0 | 1 | 0 | 1 | 4 | 0 | 7 | 0 | 30 | 3 | 3182 |
| 4:45-5:45 | 52 | 3 | 1809 | 182 | 0 | 5 | 17 | 1073 | 1 | 0 | 0 | 1 | 0 | 1 | 5 | 0 | 5 | 0 | 31 | 7 | 3192 |
| 5:00-6:00 | 47 | 4 | 1843 | 183 | 0 | 6 | 24 | 1064 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 8 | 0 | 31 | 6 | 3221 |
| 5:15-6:15 | 53 | 3 | 1924 | 174 | 0 | 5 | 19 | 1028 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 11 | 0 | 29 | 9 | 3260 |
| 5:30-6:30 | 51 | 5 | 1830 | 182 | 0 | 5 | 23 | 997 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 13 | 0 | 24 | 9 | 3143 |
| 5:45-6:45 | 51 | 5 | 1708 | 169 | 0 | 6 | 23 | 955 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 14 | 0 | 31 | 6 | 2972 |
| 6:00-7:00 | 48 | 4 | 1555 | 153 | 0 | 4 | 17 | 886 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 10 | 0 | 24 | 7 | 2712 |

| PM | Northbound | | | | | Southbound | | | | | Eastbound | | | | | Westbound | | | | | Total |
|-----------|------------|------|------|-------|------|------------|------|------|-------|------|-----------|------|------|-------|------|-----------|------|------|-------|------|-------|
| Peak Hour | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | U-Turn | Left | Thru | Right | Peds | |
| 5:15-6:15 | 53 | 3 | 1924 | 174 | 0 | 5 | 19 | 1028 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 11 | 0 | 29 | 9 | 3260 |

Peak Hour
Turning Movement Count



LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: MD 355 & Central Avenue
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Wednesday, October 13, 2021
Jurisdiction: City of Gaithersburg

Appendix B

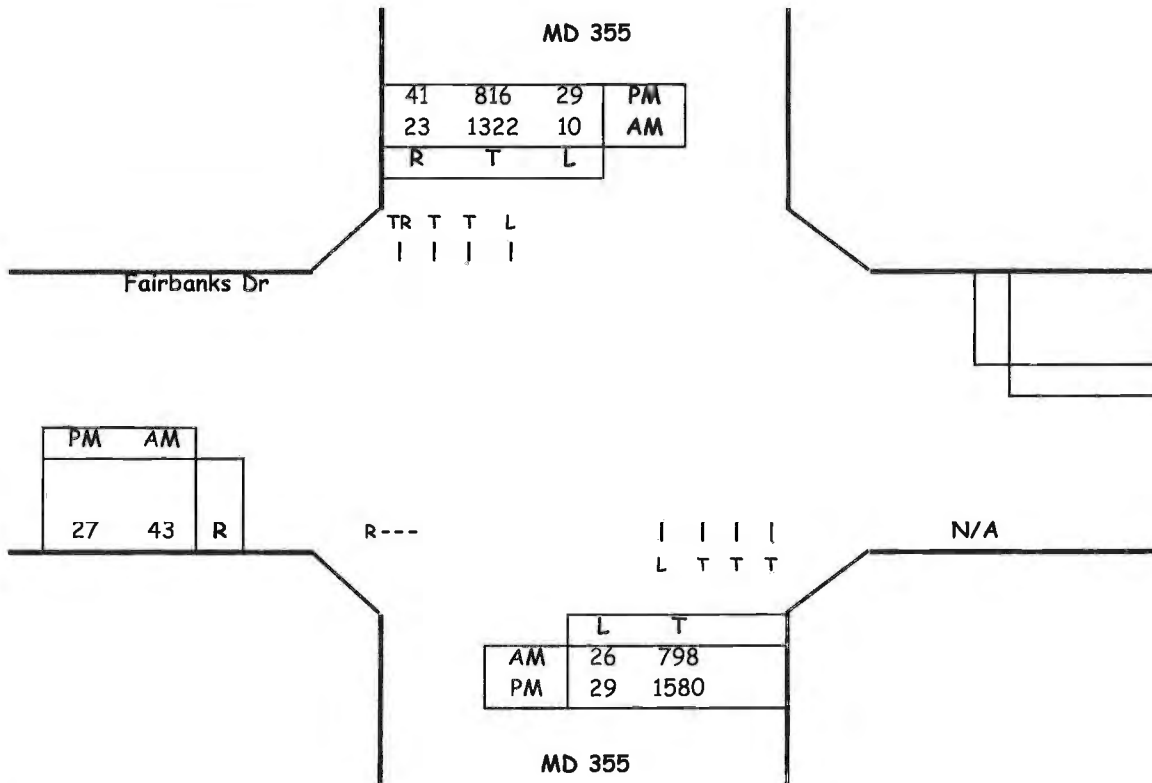
Level of Service (LOS) Worksheets

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 355
Minor Street: Fairbanks Dr
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

| Morning Peak Hour | | | | | | | |
|--------------------------|--------------|-------|---------|------------------|-------|---------|-----------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | AM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| NB | 798 | 0.40 | 319 | 10 | 1 | 10 | 564 |
| SB | 1345 | 0.40 | 538 | 26 | 1 | 26 | |
| EB | 17 | 1 | 17 | 0 | 0 | 0 | 17 |
| WB | 0 | 0 | 0 | 1 | 0 | 0 | |
| CLV TOTAL= | | | | | | | 581 |
| Level of Service (LOS) = | | | | | | | A |

| Evening Peak Hour | | | | | | | |
|--------------------------|--------------|-------|---------|------------------|-------|---------|-----------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | PM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| NB | 1580 | 0.40 | 632 | 29 | 1 | 29 | 661 |
| SB | 857 | 0.40 | 343 | 29 | 1 | 29 | |
| EB | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WB | 0 | 0 | 0 | 0 | 0 | 0 | |
| CLV TOTAL= | | | | | | | 661 |
| Level of Service (LOS) = | | | | | | | A |

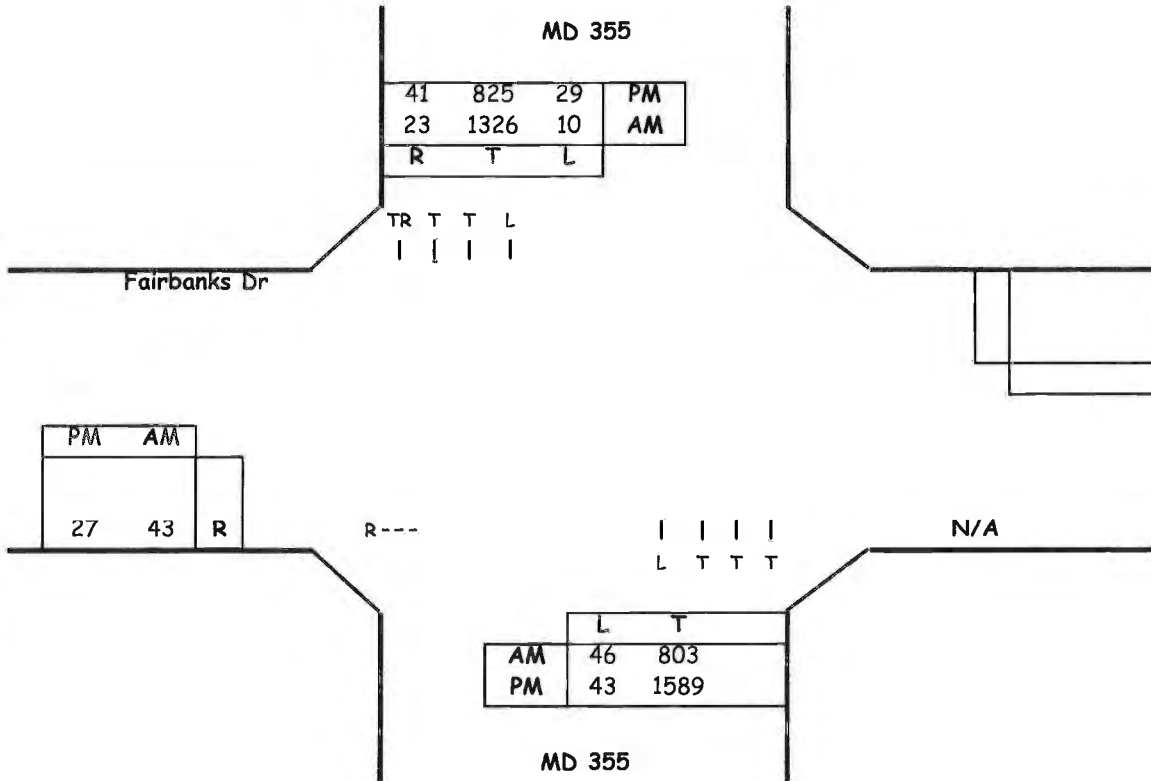
| | | |
|---|--|---------------------------|
| Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com | MD 355 & Fairbanks Dr (Existing Traffic) | Intersection 1 |
|---|--|---------------------------|

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: MD 355
Minor Street: Fairbanks Dr
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

| Morning Peak Hour | | | | | | | |
|--------------------------|--------------|-------|---------|------------------|-------|---------|------------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | AM |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | CLV |
| NB | 803 | 0.40 | 321 | 10 | 1 | 10 | 586 |
| SB | 1349 | 0.40 | 540 | 46 | 1 | 46 | |
| EB | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WB | 0 | 0 | 0 | 1 | 0 | 0 | |
| CLV TOTAL = | | | | | | | 586 |
| Level of Service (LOS) = | | | | | | | A |

| Evening Peak Hour | | | | | | | |
|--------------------------|--------------|-------|---------|------------------|-------|---------|------------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | PM |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | CLV |
| NB | 1589 | 0.40 | 636 | 29 | 1 | 29 | 665 |
| SB | 866 | 0.40 | 346 | 43 | 1 | 43 | |
| EB | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WB | 0 | 0 | 0 | 0 | 0 | 0 | |
| CLV TOTAL = | | | | | | | 665 |
| Level of Service (LOS) = | | | | | | | A |

Critical Lane Volume Analysis



LENHART TRAFFIC CONSULTING, INC.
 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
 SEVERNA PARK, MD 21146
 www.lenharttraffic.com

**MD 355 &
 Fairbanks Dr**
 (Total Traffic)

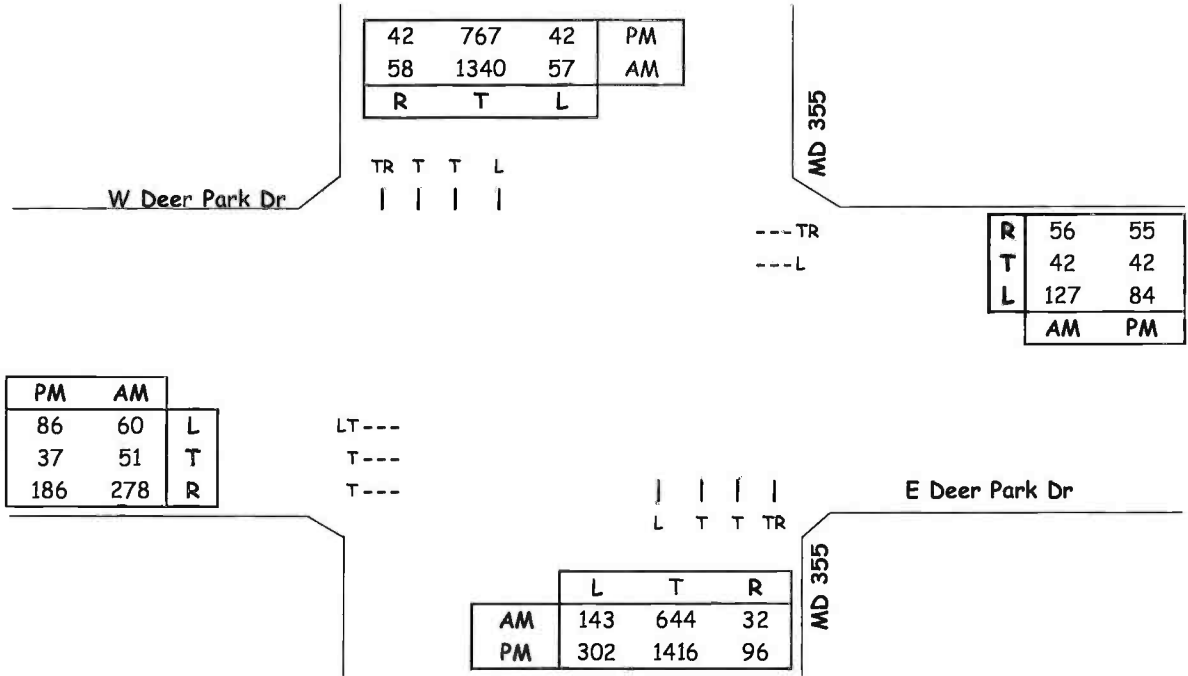
**Intersection
 1**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: MD 355
Minor Street: Deer Park Dr
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Traffic Signal Phasing includes East/West Split Phase

| AM Peak Hour | | | | | | |
|-------------------------|-----------------|-------|---------|------------------|---------------|------------|
| Dir | Through Volumes | | | + Opposing Lefts | | AM CLV |
| | VOL | x LUF | = Total | VOL | x LUF = Total | |
| EB | 60 | 1.00 | 60 | | | 60 |
| WB | 127 | 1.00 | 127 | | | 127 |
| NB | 676 | 0.40 | 270 | 57 | 1.00 57 | 702 |
| SB | 1398 | 0.40 | 559 | 143 | 1.00 143 | |
| CLV TOTAL= | | | | | | 889 |
| Level of Service (LOS)= | | | | | | A |

| PM Peak Hour | | | | | | |
|-------------------------|-----------------|-------|---------|------------------|---------------|------------|
| Dir | Through Volumes | | | + Opposing Lefts | | PM CLV |
| | VOL | x LUF | = Total | VOL | x LUF = Total | |
| EB | 86 | 1.00 | 86 | | | 86 |
| WB | 97 | 1.00 | 97 | | | 97 |
| NB | 1512 | 0.40 | 605 | 42 | 1.00 42 | 647 |
| SB | 809 | 0.40 | 324 | 302 | 1.00 302 | |
| CLV TOTAL= | | | | | | 830 |
| Level of Service (LOS)= | | | | | | A |

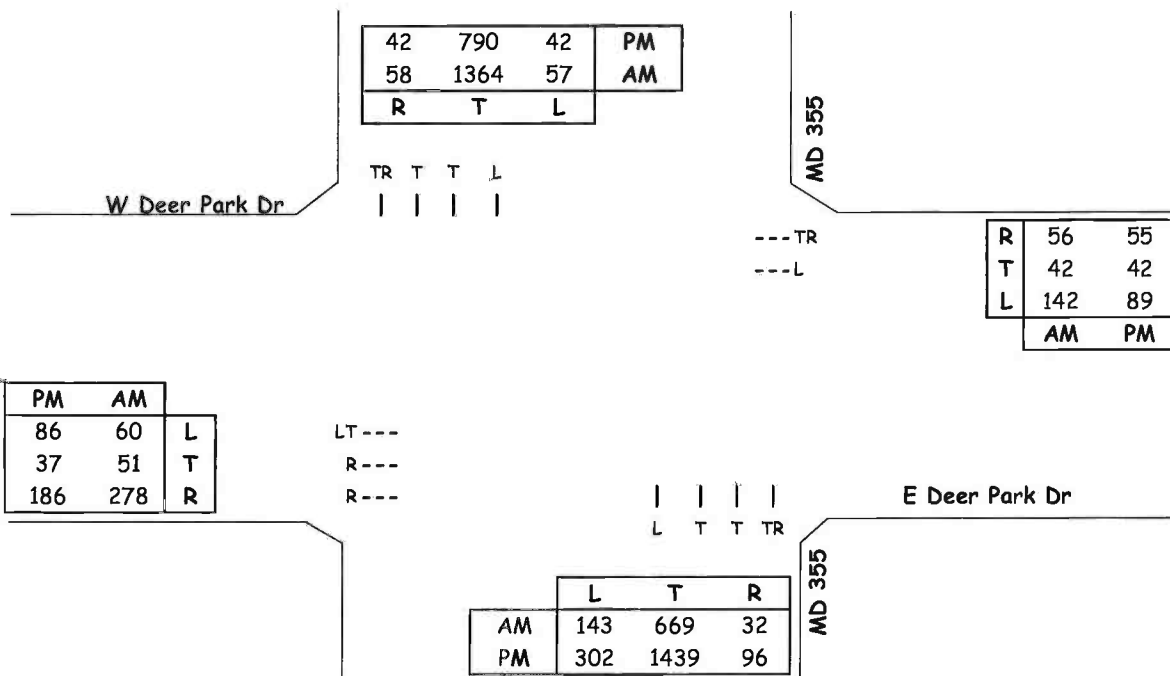
| | | |
|--|--|---------------------------|
| Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning | MD 355 & E Deer Park Dr (Existing Traffic) | Intersection 2 |
|--|--|---------------------------|

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: MD 355
Minor Street: Deer Park Dr
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Traffic Signal Phasing includes East/West Split Phase

| AM Peak Hour | | | | | | | |
|-------------------------|-----------------|-------|---------|------------------|-------|---------|------------|
| Dir | Through Volumes | | | + Opposing Lefts | | | AM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| EB | 111 | 1.00 | 111 | | | | 111 |
| WB | 142 | 1.00 | 142 | | | | 142 |
| NB | 701 | 0.40 | 280 | 57 | 1.00 | 57 | 712 |
| SB | 1422 | 0.40 | 569 | 143 | 1.00 | 143 | |
| CLV TOTAL= | | | | | | | 965 |
| Level of Service (LOS)= | | | | | | | A |

| PM Peak Hour | | | | | | | |
|-------------------------|-----------------|-------|---------|------------------|-------|---------|------------|
| Dir | Through Volumes | | | + Opposing Lefts | | | PM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| EB | 123 | 1.00 | 123 | | | | 123 |
| WB | 97 | 1.00 | 97 | | | | 97 |
| NB | 1535 | 0.40 | 614 | 42 | 1.00 | 42 | 656 |
| SB | 832 | 0.40 | 333 | 302 | 1.00 | 302 | |
| CLV TOTAL= | | | | | | | 876 |
| Level of Service (LOS)= | | | | | | | A |

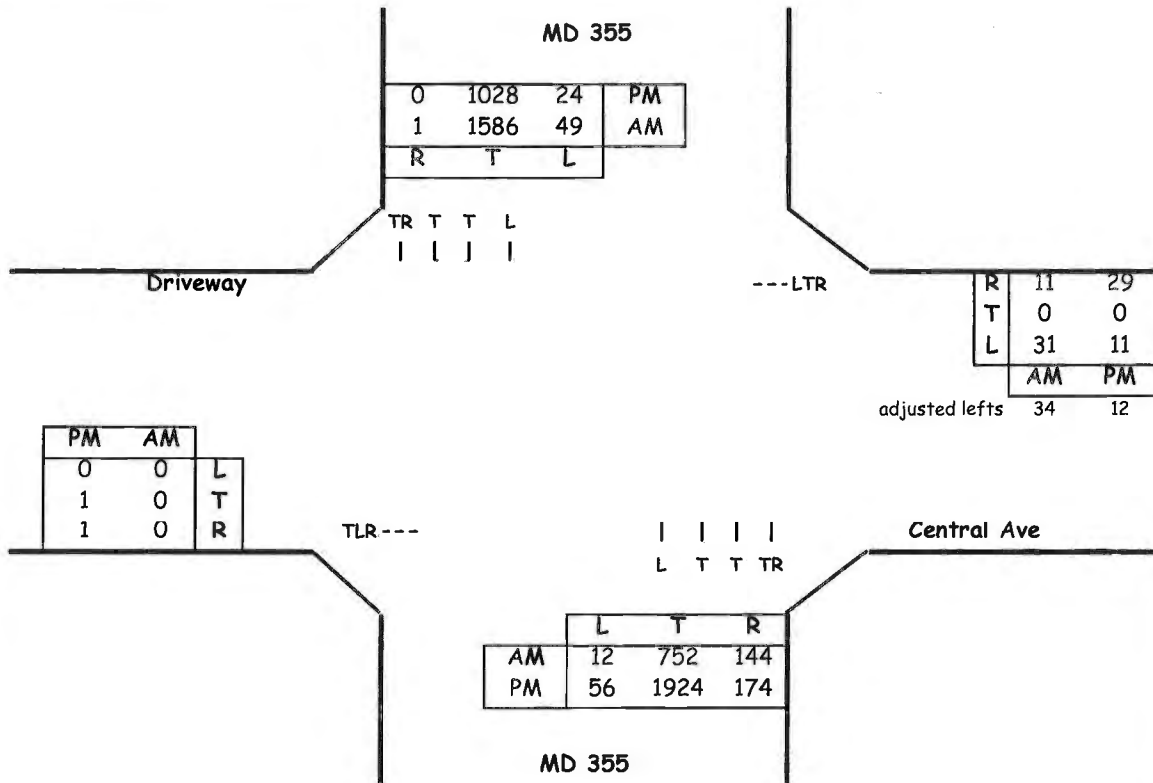
| | | |
|--|---|---------------------------|
| Critical Lane Volume Analysis Lenhart Traffic Consulting, Inc. Traffic Engineering & Transportation Planning | MD 355 & E Deer Park Dr (Total Traffic) | Intersection 2 |
|--|---|---------------------------|

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 355
 Minor Street: Central Ave
 Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

| Morning Peak Hour | | | | | | | |
|--------------------------|--------------|-------|---------|------------------|-------|---------|------------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | AM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| NB | 896 | 0.40 | 358 | 49 | 1 | 49 | 647 |
| SB | 1587 | 0.40 | 635 | 12 | 1 | 12 | |
| EB | 0 | 0 | 0 | 31 | 1 | 31 | 45 |
| WB | 45 | 1 | 45 | 0 | 0 | 0 | |
| CLV TOTAL= | | | | | | | 692 |
| Level of Service (LOS) = | | | | | | | A |

| Evening Peak Hour | | | | | | | |
|--------------------------|--------------|-------|---------|------------------|-------|---------|------------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | PM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| NB | 2098 | 0.40 | 839 | 24 | 1 | 24 | 863 |
| SB | 1028 | 0.40 | 411 | 56 | 1 | 56 | |
| EB | 1 | 0 | 0 | 11 | 1 | 11 | 41 |
| WB | 41 | 1 | 41 | 0 | 0 | 0 | |
| CLV TOTAL= | | | | | | | 904 |
| Level of Service (LOS) = | | | | | | | A |

Critical Lane Volume Analysis



LENHART TRAFFIC CONSULTING, INC.
 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
 SEVERNA PARK, MD 21146
 www.lenharttraffic.com

**MD 355 &
 Central Ave**
 (Existing Traffic)

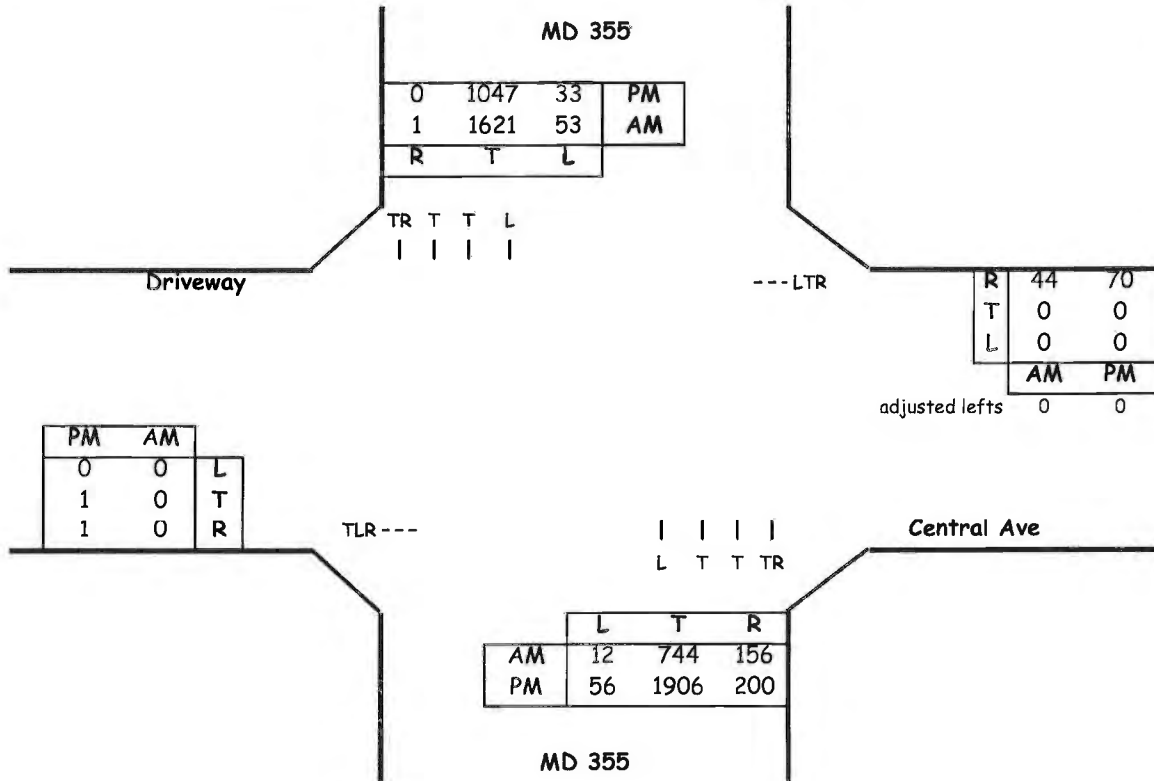
**Intersection
 3**

CRITICAL LANE VOLUME (CLV) METHODOLOGY for MSHA

Main Line: MD 355
Minor Street: Central Ave
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

| Morning Peak Hour | | | | | | | |
|--------------------------|--------------|-------|---------|------------------|-------|---------|-----------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | AM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| NB | 900 | 0.40 | 360 | 53 | 1 | 53 | 661 |
| SB | 1622 | 0.40 | 649 | 12 | 1 | 12 | |
| EB | 0 | 0 | 0 | 0 | 1 | 0 | 44 |
| WB | 44 | 1 | 44 | 0 | 0 | 0 | |
| CLV TOTAL= | | | | | | | 705 |
| Level of Service (LOS) = | | | | | | | A |

| Evening Peak Hour | | | | | | | |
|--------------------------|--------------|-------|---------|------------------|-------|---------|-----------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | PM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| NB | 2106 | 0.40 | 842 | 33 | 1 | 33 | 875 |
| SB | 1047 | 0.40 | 419 | 56 | 1 | 56 | |
| EB | 1 | 0 | 0 | 0 | 1 | 0 | 70 |
| WB | 70 | 1 | 70 | 0 | 0 | 0 | |
| CLV TOTAL= | | | | | | | 945 |
| Level of Service (LOS) = | | | | | | | A |

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

**MD 355 &
Central Ave**
(Total Traffic)

**Intersection
3**

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: Central Ave
Minor Street: Site Access
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

CENTRAL AVE

---TL

| | | |
|---|------------------|----|
| | AM | PM |
| T | 27 | 35 |
| L | 1 | 2 |
| | adjusted lefts 2 | 4 |

| | | |
|-----|-----|---|
| PM | AM | |
| 197 | 191 | T |
| 37 | 18 | R |

TR ---

Site Access

CENTRAL AVE

|
LR

| | | |
|----|----|---|
| | L | R |
| AM | 17 | 3 |
| PM | 35 | 4 |

Critical Lane Volume Analysis

| Morning Peak Hour | | | | | | | |
|-------------------------|--------------|-------|---------|------------------|-------|---------|------------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | AM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| NB | 20 | 1.00 | 20 | | | | 20 |
| EB | 209 | 1.00 | 209 | 1 | 1.00 | 1 | 210 |
| WB | 29 | 1.00 | 29 | | | | |
| CLV TOTAL= | | | | | | | 230 |
| Level of Service (LOS)= | | | | | | | A |

| Evening Peak Hour | | | | | | | |
|-------------------------|--------------|-------|---------|------------------|-------|---------|------------|
| Dir | Thru Volumes | | | + Opposing Lefts | | | PM CLV |
| | VOL | x LUF | = Total | VOL | x LUF | = Total | |
| NB | 39 | 1.00 | 39 | | | | 39 |
| EB | 234 | 1.00 | 234 | 2 | 1.00 | 2 | 236 |
| WB | 39 | 1.00 | 39 | | | | |
| CLV TOTAL= | | | | | | | 275 |
| Level of Service (LOS)= | | | | | | | A |

Critical Lane Volume Analysis





















LENHART TRAFFIC CONSULTING, INC.
 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
 SEVERNA PARK, MD 21146
 www.lenharttraffic.com

Central Ave &
 Site Access
 (Total Traffic)

**Intersection
 4**

HCM Unsignalized Intersection Capacity Analysis
1: MD 355 & Fairbanks Dr

Whip Clean Gaithersburg
AM Existing

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
| Lane Configurations | | |  | | | | |  |    | |  | |
| Traffic Volume (veh/h) | 0 | 0 | 43 | 0 | 0 | 0 | 36 | 6 | 798 | 0 | 10 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 43 | 0 | 0 | 0 | 36 | 6 | 798 | 0 | 10 | 0 |
| Sign Control | | Stop | | | Stop | | | | Free | | | |
| Grade | | 0% | | | 0% | | | | 0% | | | |
| Peak Hour Factor | 0.9 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 7 | 867 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | None | | | | | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | 666 | | | | | | | | | | | |
| pX, platoon unblocked | 0.95 | 0.95 | | 0.95 | 0.95 | 0.95 | 0.00 | | | | 0.00 | 0.95 |
| vC, conflicting volume | 1752 | 2330 | 492 | 1360 | 2318 | 289 | 0 | 1437 | | | 0 | 867 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1593 | 2204 | 492 | 1177 | 2191 | 44 | 0 | 1437 | | | 0 | 656 |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 0.0 | 4.1 | | | 0.0 | 4.1 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 0.0 | 2.2 | | | 0.0 | 2.2 |
| p0 queue free % | 100 | 100 | 91 | 100 | 100 | 100 | 0 | 99 | | | 0 | 100 |
| cM capacity (veh/h) | 67 | 41 | 523 | 124 | 42 | 961 | 0 | 468 | | | 0 | 877 |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 | | | |
| Volume Total | 47 | 7 | 289 | 289 | 289 | 575 | 575 | 312 | 0 | | | |
| Volume Left | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Volume Right | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | | | |
| cSH | 523 | 468 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | | | |
| Volume to Capacity | 0.09 | 0.01 | 0.17 | 0.17 | 0.17 | 0.34 | 0.34 | 0.18 | 0.00 | | | |
| Queue Length 95th (ft) | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Control Delay (s) | 12.6 | 12.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | B | B | | | | | | | | | | |
| Approach Delay (s) | 12.6 | 0.1 | | | | 0.0 | | | | | | |
| Approach LOS | B | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 42.7% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| Movement | SBT | SBR |
|------------------------|------|------|
| Lane Configurations | ↑↑↑ | ↙ |
| Traffic Volume (veh/h) | 1322 | 23 |
| Future Volume (Veh/h) | 1322 | 23 |
| Sign Control | Free | |
| Grade | 0% | |
| Peak Hour Factor | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1437 | 25 |
| Pedestrians | | |
| Lane Width (ft) | | |
| Walking Speed (ft/s) | | |
| Percent Blockage | | |
| Right turn flare (veh) | | |
| Median type | None | |
| Median storage (veh) | | |
| Upstream signal (ft) | | |
| pX, platoon unblocked | | |
| vC, conflicting volume | | |
| vC1, stage 1 conf vol | | |
| vC2, stage 2 conf vol | | |
| vCu, unblocked vol | | |
| tC, single (s) | | |
| tC, 2 stage (s) | | |
| tF (s) | | |
| p0 queue free % | | |
| cM capacity (veh/h) | | |
| Direction, Lane # | | |

HCM Signalized Intersection Capacity Analysis
 2: MD 355 & W Deer Park Rd/E Deer Park Rd



















Whip Clean Gaithersburg
 AM Existing

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|-------|-------|-------|------|------|---------------------------|------|------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 60 | 51 | 278 | 142 | 42 | 56 | 143 | 660 | 32 | 57 | 1356 | 58 |
| Future Volume (vph) | 60 | 51 | 278 | 142 | 42 | 56 | 143 | 660 | 32 | 57 | 1356 | 58 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.9 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.91 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.0 | |
| Satd. Flow (prot) | | 1814 | 2787 | 1770 | 1703 | | 1770 | 5050 | | 1770 | 5054 | |
| Flt Permitted | | 0.77 | 1.00 | 0.95 | 1.00 | | 0.99 | 1.00 | | 0.35 | 1.00 | |
| Satd. Flow (perm) | | 1440 | 2787 | 1770 | 1703 | | 167 | 5050 | | 660 | 5054 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 65 | 55 | 302 | 154 | 46 | 61 | 155 | 717 | 35 | 62 | 1474 | 63 |
| RTOR Reduction (vph) | 0 | 0 | 148 | 0 | 33 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 120 | 154 | 154 | 74 | 0 | 155 | 749 | 0 | 62 | 1534 | 0 |
| Turn Type | Perm | NA | pm+ov | Split | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 8 | 5 | 4 | 4 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 8 | | 8 | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 14.6 | 26.7 | 17.3 | 17.3 | | 78.6 | 78.6 | | 76.9 | 76.9 | |
| Effective Green, g (s) | | 14.6 | 26.7 | 17.3 | 17.3 | | 78.6 | 78.6 | | 76.9 | 76.9 | |
| Actuated g/C Ratio | | 0.11 | 0.19 | 0.12 | 0.12 | | 0.57 | 0.57 | | 0.55 | 0.55 | |
| Clearance Time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 151 | 626 | 220 | 212 | | 234 | 2857 | | 448 | 2798 | |
| v/s Ratio Prot | | | 0.02 | c0.09 | 0.04 | | c0.06 | 0.15 | | 0.01 | c0.30 | |
| v/s Ratio Perm | | c0.08 | 0.03 | | | | c0.32 | | | 0.07 | | |
| v/c Ratio | | 0.79 | 0.25 | 0.70 | 0.35 | | 0.66 | 0.26 | | 0.14 | 0.55 | |
| Uniform Delay, d1 | | 60.7 | 47.6 | 58.3 | 55.6 | | 20.5 | 15.4 | | 15.3 | 19.9 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 0.99 | |
| Incremental Delay, d2 | | 24.3 | 0.2 | 9.4 | 1.0 | | 6.9 | 0.2 | | 0.1 | 0.8 | |
| Delay (s) | | 85.0 | 47.8 | 67.7 | 56.6 | | 27.4 | 15.6 | | 15.3 | 20.4 | |
| Level of Service | | F | D | E | E | | C | B | | B | C | |
| Approach Delay (s) | | 58.4 | | | 63.1 | | | 17.6 | | | 20.2 | |
| Approach LOS | | E | | | E | | | B | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 28.0 | | | | HCM 2000 Level of Service | | | C | | |
| HCM 2000 Volume to Capacity ratio | | | 0.67 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 138.9 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 61.2% | | | | ICU Level of Service | | | B | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: MD 355 & Driveway/Central Ave

Whip Clean Gaithersburg
AM Existing

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | |  |  | |  |  | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 27 | 12 | 752 | 144 | 49 | 1617 | 1 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 0 | 0 | 27 | 12 | 752 | 144 | 49 | 1617 | 1 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 29 | 13 | 817 | 157 | 53 | 1758 | 1 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | | 0.83 | | | | | |
| vC, conflicting volume | 2192 | 2864 | 586 | 1614 | 2786 | 351 | 1759 | | | 974 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| yCu, unblocked vol | 1706 | 2520 | 0 | 1005 | 2425 | 351 | 1181 | | | 974 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 96 | 97 | | | 92 | | |
| cM capacity (veh/h) | 43 | 20 | 896 | 149 | 24 | 645 | 485 | | | 704 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 | | |
| Volume Total | 0 | 29 | 13 | 327 | 327 | 320 | 53 | 703 | 703 | 353 | | |
| Volume Left | 0 | 0 | 13 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | | |
| Volume Right | 0 | 29 | 0 | 0 | 0 | 157 | 0 | 0 | 0 | 1 | | |
| cSH | 1700 | 645 | 485 | 1700 | 1700 | 1700 | 704 | 1700 | 1700 | 1700 | | |
| Volume to Capacity | 0.00 | 0.04 | 0.03 | 0.19 | 0.19 | 0.19 | 0.08 | 0.41 | 0.41 | 0.21 | | |
| Queue Length 95th (ft) | 0 | 4 | 2 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | | |
| Control Delay (s) | 0.0 | 10.8 | 12.6 | 0.0 | 0.0 | 0.0 | 10.5 | 0.0 | 0.0 | 0.0 | | |
| Lane LOS | A | B | B | | | | B | | | | | |
| Approach Delay (s) | 0.0 | 10.8 | 0.2 | | | | 0.3 | | | | | |
| Approach LOS | A | B | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.4 | | | | | | | | | |
| Intersection Capacity Utilization | | | 47.9% | | | ICU Level of Service | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis
1: MD 355 & Fairbanks Dr

Whip Clean Car Wash
PM Existing

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|-----------------------------------|------|------|-------|------|----------------------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 27 | 0 | 0 | 0 | 10 | 25 | 1580 | 0 | 29 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 27 | 0 | 0 | 0 | 10 | 25 | 1580 | 0 | 29 | 0 |
| Sign Control | | Stop | | | Stop | | | | Free | | | |
| Grade | | 0% | | | 0% | | | | 0% | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 27 | 1717 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | None | | | |
| Median storage veh | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | 666 | | | |
| pX, platoon unblocked | 0.79 | 0.79 | | 0.79 | 0.79 | 0.79 | 0.00 | | | | 0.00 | 0.79 |
| vC, conflicting volume | 1536 | 2680 | 318 | 2067 | 2658 | 572 | 0 | 887 | | | 0 | 1717 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 735 | 2189 | 318 | 1409 | 2160 | 0 | 0 | 887 | | | 0 | 965 |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 0.0 | 4.1 | | | 0.0 | 4.1 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 0.0 | 2.2 | | | 0.0 | 2.2 |
| p0 queue free % | 100 | 100 | 96 | 100 | 100 | 100 | 0 | 96 | | | 0 | 100 |
| cM capacity (veh/h) | 236 | 34 | 678 | 72 | 36 | 854 | 0 | 759 | | | 0 | 558 |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 | | | |
| Volume Total | 29 | 27 | 572 | 572 | 572 | 355 | 355 | 222 | 0 | | | |
| Volume Left | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Volume Right | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | | | |
| cSH | 678 | 759 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 700 | | | |
| Volume to Capacity | 0.04 | 0.04 | 0.34 | 0.34 | 0.34 | 0.21 | 0.21 | 0.13 | 0.00 | | | |
| Queue Length 95th (ft) | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Control Delay (s) | 10.6 | 9.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | B | A | | | | | | | | | | |
| Approach Delay (s) | 10.6 | 0.2 | | | | 0.0 | | | | | | |
| Approach LOS | B | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.2 | | | | | | | | | |
| Intersection Capacity Utilization | | | 33.9% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| Movement | SBT | SBR |
|------------------------|------|------|
| Lane Configurations | ↑↑↑ | ↙ |
| Traffic Volume (veh/h) | 816 | 41 |
| Future Volume (Veh/h) | 816 | 41 |
| Sign Control | Free | |
| Grade | 0% | |
| Peak Hour Factor | 0.92 | 0.92 |
| Hourly flow rate (vph) | 887 | 45 |
| Pedestrians | | |
| Lane Width (ft) | | |
| Walking Speed (ft/s) | | |
| Percent Blockage | | |
| Right turn flare (veh) | | |
| Median type | None | |
| Median storage veh) | | |
| Upstream signal (ft) | | |
| pX, platoon unblocked | | |
| vC, conflicting volume | | |
| vC1, stage 1 conf vol | | |
| vC2, stage 2 conf vol | | |
| vCu, unblocked vol | | |
| tC, single (s) | | |
| tC, 2 stage (s) | | |
| tF (s) | | |
| p0.queue free % | | |
| cM capacity (veh/h) | | |
| Direction, Lane # | | |

HCM Signalized Intersection Capacity Analysis
2: MD 355 & W Deer Park Rd/E Deer Park Rd

Whip Clean Car Wash
PM Existing

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|-------|-------|-------|------|------|---------------------------|------|------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 86 | 37 | 186 | 89 | 42 | 55 | 302 | 1422 | 96 | 42 | 773 | 42 |
| Future Volume (vph) | 86 | 37 | 186 | 89 | 42 | 55 | 302 | 1422 | 96 | 42 | 773 | 42 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1800 | 2787 | 1770 | 1705 | | 1770 | 5037 | | 1770 | 5046 | |
| Flt Permitted | | 0.73 | 1.00 | 0.95 | 1.00 | | 0.22 | 1.00 | | 0.14 | 1.00 | |
| Satd. Flow (perm) | | 1352 | 2787 | 1770 | 1705 | | 408 | 5037 | | 252 | 5046 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 93 | 40 | 202 | 97 | 46 | 60 | 328 | 1546 | 104 | 46 | 840 | 46 |
| RTOR Reduction (vph) | 0 | 0 | 144 | 0 | 32 | 0 | 0 | 4 | 0 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 0 | 133 | 58 | 97 | 74 | 0 | 328 | 1646 | 0 | 46 | 882 | 0 |
| Turn Type | Perm | NA | pm+ov | Split | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 8 | 5 | 4 | 4 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 8 | | 8 | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 17.4 | 39.0 | 12.3 | 12.3 | | 74.0 | 74.0 | | 67.2 | 67.2 | |
| Effective Green, g (s) | | 17.4 | 39.0 | 12.3 | 12.3 | | 74.0 | 74.0 | | 67.2 | 67.2 | |
| Actuated g/C Ratio | | 0.13 | 0.29 | 0.09 | 0.09 | | 0.54 | 0.54 | | 0.49 | 0.49 | |
| Clearance Time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 172 | 888 | 159 | 153 | | 436 | 2730 | | 288 | 2484 | |
| v/s Ratio Prot | | | 0.01 | c0.05 | 0.04 | | c0.12 | 0.33 | | 0.02 | c0.17 | |
| v/s Ratio Perm | | c0.10 | 0.01 | | | | c0.29 | | | 0.06 | | |
| v/c Ratio | | 0.77 | 0.06 | 0.61 | 0.48 | | 0.75 | 0.60 | | 0.16 | 0.36 | |
| Uniform Delay, d1 | | 57.6 | 35.5 | 59.8 | 59.1 | | 19.5 | 21.3 | | 22.0 | 21.3 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Incremental Delay, d2 | | 19.2 | 0.0 | 6.8 | 2.4 | | 7.2 | 1.0 | | 0.3 | 0.0 | |
| Delay (s) | | 76.8 | 35.5 | 66.5 | 61.5 | | 26.7 | 22.3 | | 22.3 | 21.5 | |
| Level of Service | | E | D | E | E | | C | C | | C | C | |
| Approach Delay (s) | | 51.9 | | | 63.9 | | | 23.0 | | | 21.6 | |
| Approach LOS | | D | | | E | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 27.8 | | | | HCM 2000 Level of Service | | | | C | |
| HCM 2000 Volume to Capacity ratio | | | 0.69 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 136.5 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 58.4% | | | | ICU Level of Service | | | B | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: MD 355 & Driveway/Central Ave

Whip Clean Car Wash
PM Existing

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|-------|------|-------|------|----------------------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 1 | 1 | 0 | 0 | 35 | 56 | 1924 | 174 | 24 | 039 | 0 |
| Future Volume (Veh/h) | 0 | 1 | 1 | 0 | 0 | 35 | 56 | 1924 | 174 | 24 | 1039 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 1 | 1 | 0 | 0 | 38 | 61 | 2091 | 189 | 26 | 1129 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | | | | | | | | | | | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | | | | | | | | | | | | |
| tC, single (s) | | | | | | | | | | | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | | | | | | | | | | | | |
| p0 queue free % | | | | | | | | | | | | |
| cM capacity (veh/h) | | | | | | | | | | | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 | | |
| Volume Total | 2 | 38 | 61 | 836 | 836 | 607 | 26 | 452 | 452 | 226 | | |
| Volume Left | 0 | 0 | 61 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | | |
| Volume Right | 1 | 38 | 0 | 0 | 0 | 189 | 0 | 0 | 0 | 0 | | |
| cSH | 9 | 332 | 741 | 1700 | 1700 | 1700 | 219 | 1700 | 1700 | 1700 | | |
| Volume to Capacity | 0.22 | 0.11 | 0.08 | 0.49 | 0.49 | 0.36 | 0.12 | 0.27 | 0.27 | 0.13 | | |
| Queue Length 95th (ft) | 13 | 10 | 7 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | | |
| Control Delay (s) | 486.2 | 17.2 | 10.3 | 0.0 | 0.0 | 0.0 | 23.6 | 0.0 | 0.0 | 0.0 | | |
| Lane LOS | F | C | B | | | | C | | | | | |
| Approach Delay (s) | 486.2 | 17.2 | 0.3 | | | | 0.5 | | | | | |
| Approach LOS | F | C | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.8 | | | | | | | | | |
| Intersection Capacity Utilization | | | 56.5% | | ICU Level of Service | | | | | | B | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

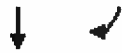
HCM Unsignalized Intersection Capacity Analysis
1: MD 355 & Fairbanks Dr

Whip Clean Car Wash
AM Total

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|-----------------------------------|------|------|-------|------|----------------------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 43 | 0 | 0 | 0 | 40 | 6 | 803 | 0 | 10 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 43 | 0 | 0 | 0 | 40 | 6 | 803 | 0 | 10 | 0 |
| Sign Control | | Stop | | | Stop | | | | Free | | | |
| Grade | | 0% | | | 0% | | | | 0% | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 7 | 873 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | None | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | 666 | | | |
| pX, platoon unblocked | 0.94 | 0.94 | | 0.94 | 0.94 | 0.94 | 0.00 | | | | 0.00 | 0.94 |
| vC, conflicting volume | 1758 | 2340 | 493 | 1367 | 2328 | 291 | 0 | 1441 | | | 0 | 873 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1596 | 2212 | 493 | 1181 | 2199 | 41 | 0 | 1441 | | | 0 | 658 |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 0.0 | 4.1 | | | 0.0 | 4.1 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 0.0 | 2.2 | | | 0.0 | 2.2 |
| p0 queue free % | 100 | 100 | 91 | 100 | 100 | 100 | 0 | 99 | | | 0 | 100 |
| cM capacity (veh/h) | 67 | 40 | 522 | 123 | 41 | 964 | 0 | 467 | | | 0 | 874 |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 | | | |
| Volume Total | 47 | 7 | 291 | 291 | 291 | 576 | 576 | 313 | 0 | | | |
| Volume Left | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Volume Right | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | | | |
| cSH | 522 | 467 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | | | |
| Volume to Capacity | 0.09 | 0.01 | 0.17 | 0.17 | 0.17 | 0.34 | 0.34 | 0.18 | 0.00 | | | |
| Queue Length 95th (ft) | 7 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Control Delay (s) | 12.6 | 12.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | B | B | | | | | | | | | | |
| Approach Delay (s) | 12.6 | 0.1 | | | | 0.0 | | | | | | |
| Approach LOS | B | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 42.8% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis
 1: MD 355 & Fairbanks Dr

Whip Clean Car Wash
 AM Total



| Movement | SBT | SBR |
|------------------------|------|------|
| Lane Configurations | ↑↑↑ | |
| Traffic Volume (veh/h) | 1326 | 23 |
| Future Volume (Veh/h) | 1326 | 23 |
| Sign Control | Free | |
| Grade | 0% | |
| Peak Hour Factor | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1441 | 25 |
| Pedestrians | | |
| Lane Width (ft) | | |
| Walking Speed (ft/s) | | |
| Percent Blockage | | |
| Right turn flare (veh) | | |
| Median type | None | |
| Median storage (veh) | | |
| Upstream signal (ft) | | |
| pX, platoon unblocked | | |
| vC, conflicting volume | | |
| vC1, stage 1 conf vol | | |
| vC2, stage 2 conf vol | | |
| yCu, unblocked vol | | |
| tC, single (s) | | |
| tC, 2 stage (s) | | |
| tF (s) | | |
| p0 queue free % | | |
| cM capacity (veh/h) | | |
| Direction, Lane # | | |

HCM Signalized Intersection Capacity Analysis
2: MD 355 & W Deer Park Rd/E Deer Park Rd

Whip Clean Car Wash
AM Total

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|-------|-------|-------|------|------|---------------------------|------|------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 60 | 51 | 278 | 142 | 42 | 56 | 143 | 669 | 32 | 57 | 1364 | 58 |
| Future Volume (vph) | 60 | 51 | 278 | 142 | 42 | 56 | 143 | 669 | 32 | 57 | 1364 | 58 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.91 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1814 | 2787 | 1770 | 1703 | | 1770 | 5050 | | 1770 | 5054 | |
| Flt Permitted | | 0.77 | 1.00 | 0.95 | 1.00 | | 0.09 | 1.00 | | 0.35 | 1.00 | |
| Satd. Flow (perm) | | 1440 | 2787 | 1770 | 1703 | | 165 | 5050 | | 654 | 5054 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 65 | 55 | 302 | 154 | 46 | 61 | 155 | 727 | 35 | 62 | 1483 | 63 |
| RTOR Reduction (vph) | 0 | 0 | 147 | 0 | 33 | 0 | 0 | 3 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 120 | 155 | 154 | 74 | 0 | 155 | 759 | 0 | 62 | 1543 | 0 |
| Turn Type | Perm | NA | pm+ov | Split | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 8 | 5 | 4 | 4 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 8 | | 8 | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 14.6 | 26.7 | 17.3 | 17.3 | | 78.6 | 78.6 | | 76.9 | 76.9 | |
| Effective Green, g (s) | | 14.6 | 26.7 | 17.3 | 17.3 | | 78.6 | 78.6 | | 76.9 | 76.9 | |
| Actuated g/C Ratio | | 0.11 | 0.19 | 0.12 | 0.12 | | 0.57 | 0.57 | | 0.55 | 0.55 | |
| Clearance Time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 151 | 626 | 220 | 212 | | 233 | 2857 | | 445 | 2798 | |
| v/s Ratio Prot | | | 0.02 | c0.09 | 0.04 | | c0.06 | 0.15 | | 0.01 | c0.31 | |
| v/s Ratio Perm | | c0.08 | 0.03 | | | | c0.32 | | | 0.07 | | |
| v/c Ratio | | 0.79 | 0.25 | 0.70 | 0.35 | | 0.67 | 0.27 | | 0.14 | 0.55 | |
| Uniform Delay, d1 | | 60.7 | 47.6 | 58.3 | 55.6 | | 20.7 | 15.4 | | 15.3 | 19.9 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 0.98 | |
| Incremental Delay, d2 | | 24.3 | 0.2 | 9.4 | 1.0 | | 7.0 | 0.2 | | 0.1 | 0.8 | |
| Delay (s) | | 85.0 | 47.8 | 67.7 | 56.6 | | 27.7 | 15.6 | | 15.3 | 20.4 | |
| Level of Service | | F | D | E | E | | C | B | | B | C | |
| Approach Delay (s) | | 58.4 | | | 63.1 | | | 17.7 | | | 20.2 | |
| Approach LOS | | E | | | E | | | B | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 28.0 | | | | HCM 2000 Level of Service | | | | C | |
| HCM 2000 Volume to Capacity ratio | | | 0.68 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 138.9 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 61.4% | | | | ICU Level of Service | | | | B | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis
3: MD 355 & Driveway/Central Ave

Whip Clean Car Wash
AM Total

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|------|-------|------|------|----------------------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | | | ↕ | | ↗ | ↑↑↑ | | ↖ | ↑↑↑ | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 44 | 12 | 744 | 156 | 53 | 1621 | 1 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 0 | 0 | 44 | 12 | 744 | 156 | 53 | 1621 | 1 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 48 | 13 | 809 | 170 | 58 | 1762 | 1 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | 853 | |
| pX, platoon unblocked | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | | 0.82 | | | | | |
| vC, conflicting volume | 2222 | 2884 | 588 | 1623 | 2799 | 355 | 1763 | | | 979 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1738 | 2540 | 0 | 1011 | 2437 | 355 | 1181 | | | 979 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 93 | 97 | | | 92 | | |
| cM capacity (veh/h) | 39 | 20 | 894 | 147 | 23 | 642 | 484 | | | 701 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 | | |
| Volume Total | 0 | 48 | 13 | 324 | 324 | 332 | 58 | 705 | 705 | 353 | | |
| Volume Left | 0 | 0 | 13 | 0 | 0 | 0 | 58 | 0 | 0 | 0 | | |
| Volume Right | 0 | 48 | 0 | 0 | 0 | 170 | 0 | 0 | 0 | 1 | | |
| cSH | 1700 | 642 | 484 | 1700 | 1700 | 1700 | 701 | 1700 | 1700 | 1700 | | |
| Volume to Capacity | 0.00 | 0.07 | 0.03 | 0.19 | 0.19 | 0.20 | 0.08 | 0.41 | 0.41 | 0.21 | | |
| Queue Length 95th (ft) | 0 | 6 | 2 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | | |
| Control Delay (s) | 0.0 | 11.1 | 12.6 | 0.0 | 0.0 | 0.0 | 10.6 | 0.0 | 0.0 | 0.0 | | |
| Lane LOS | | B | B | | | | B | | | | | |
| Approach Delay (s) | 0.0 | 11.1 | 0.2 | | | | 0.3 | | | | | |
| Approach LOS | A | B | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.5 | | | | | | | | | |
| Intersection Capacity Utilization | | | 48.0% | | | ICU Level of Service | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis
4: Site Access & Central Ave

Whip Clean Car Wash
AM Total

| | → | ↘ | ↙ | ← | ↖ | ↗ |
|-----------------------------------|------|------|-------|----------------------|------|------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↘ | | | ↖ | ↗ | |
| Traffic Volume (veh/h) | 191 | 18 | 1 | 27 | 17 | 3 |
| Future Volume (Veh/h) | 191 | 18 | 1 | 27 | 17 | 3 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 208 | 20 | 1 | 29 | 18 | 3 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 228 | | 249 | 218 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 228 | | 249 | 218 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 98 | 100 |
| cM capacity (veh/h) | | | 1340 | | 739 | 822 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | |
| Volume Total | 228 | 30 | 21 | | | |
| Volume Left | 0 | 1 | 18 | | | |
| Volume Right | 20 | 0 | 3 | | | |
| cSH | 1700 | 1340 | 750 | | | |
| Volume to Capacity | 0.13 | 0.00 | 0.03 | | | |
| Queue Length 95th (ft) | 0 | 0 | 2 | | | |
| Control Delay (s) | 0.0 | 0.3 | 9.9 | | | |
| Lane LOS | | A | A | | | |
| Approach Delay (s) | 0.0 | 0.3 | 9.9 | | | |
| Approach LOS | | | A | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.8 | | | |
| Intersection Capacity Utilization | | | 21.1% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

HCM Unsignalized Intersection Capacity Analysis
1: MD 355 & Fairbanks Dr

Whip Clean Car Wash
PM Total

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|-----------------------------------|------|------|-------|------|------|----------------------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 27 | 0 | 0 | 0 | 18 | 25 | 1589 | 0 | 29 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 27 | 0 | 0 | 0 | 18 | 25 | 1589 | 0 | 29 | 0 |
| Sign Control | | Stop | | | Stop | | | | Free | | | |
| Grade | | 0% | | | 0% | | | | 0% | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 27 | 1727 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | None | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | 666 | | | |
| pX, platoon unblocked | 0.80 | 0.80 | | 0.80 | 0.80 | 0.80 | 0.00 | | | | 0.00 | 0.80 |
| vC, conflicting volume | 1549 | 2700 | 322 | 2080 | 2678 | 576 | 0 | 897 | | | 0 | 1727 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 827 | 2260 | 322 | 1488 | 2232 | 0 | 0 | 897 | | | 0 | 1049 |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 0.0 | 4.1 | | | 0.0 | 4.1 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 0.0 | 2.2 | | | 0.0 | 2.2 |
| p0 queue free % | 100 | 100 | 96 | 100 | 100 | 100 | 0 | 96 | | | 0 | 100 |
| cM capacity (veh/h) | 206 | 31 | 674 | 64 | 33 | 871 | 0 | 753 | | | 0 | 530 |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 | | | |
| Volume Total | 29 | 27 | 576 | 576 | 576 | 359 | 359 | 224 | 0 | | | |
| Volume Left | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Volume Right | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | | | |
| cSH | 674 | 753 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | | | |
| Volume to Capacity | 0.04 | 0.04 | 0.34 | 0.34 | 0.34 | 0.21 | 0.21 | 0.13 | 0.00 | | | |
| Queue Length 95th (ft) | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Control Delay (s) | 10.6 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | B | A | | | | | | | | | | |
| Approach Delay (s) | 10.6 | 0.2 | | | | 0.0 | | | | | | |
| Approach LOS | B | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 0.2 | | | | | | | | | |
| Intersection Capacity Utilization | | | 39.1% | | | ICU Level of Service | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| Movement | SBT | SBR |
|------------------------|------|------|
| Lane Configurations | ↑↑↑ | ↘ |
| Traffic Volume (veh/h) | 825 | 41 |
| Future Volume (Veh/h) | 825 | 41 |
| Sign Control | Free | |
| Grade | 0% | |
| Peak Hour Factor | 0.92 | 0.92 |
| Hourly flow rate (vph) | 897 | 45 |
| Pedestrians | | |
| Lane Width (ft) | | |
| Walking Speed (ft/s) | | |
| Percent Blockage | | |
| Right turn flare (veh) | | |
| Median type | None | |
| Median storage (veh) | | |
| Upstream signal (ft) | | |
| pX, platoon unblocked | | |
| vC, conflicting volume | | |
| vC1, stage 1 conf vol | | |
| vC2, stage 2 conf vol | | |
| yCu, unblocked vol | | |
| tC, single (s) | | |
| tC, 2 stage (s) | | |
| tF (s) | | |
| p0 queue free % | | |
| cM capacity (veh/h) | | |
| Direction, Lane # | | |

HCM Signalized Intersection Capacity Analysis
 2: MD 355 & W Deer Park Rd/E Deer Park Rd

Whip Clean Car Wash
 PM Total

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------------|------|-------|-------|-------|------|---------------------------|-------|------|------|-------|-------|------|
| Lane Configurations | | ↕ | ↗↘ | ↖ | ↗ | | ↖ | ↑↑↑ | | ↖ | ↑↑↑ | |
| Traffic Volume (vph) | 86 | 37 | 186 | 89 | 42 | 55 | 302 | 1439 | 96 | 42 | 790 | 42 |
| Future Volume (vph) | 86 | 37 | 186 | 89 | 42 | 55 | 302 | 1439 | 96 | 42 | 790 | 42 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 0.88 | 1.00 | 1.00 | | 1.00 | 0.91 | | 1.00 | 0.91 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.92 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1800 | 2787 | 1770 | 1705 | | 1770 | 5038 | | 1770 | 5047 | |
| Flt Permitted | | 0.73 | 1.00 | 0.95 | 1.00 | | 0.22 | 1.00 | | 0.14 | 1.00 | |
| Satd. Flow (perm) | | 1352 | 2787 | 1770 | 1705 | | 417 | 5038 | | 252 | 5047 | |
| Peak-hour factor, P _H | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 93 | 40 | 202 | 97 | 46 | 60 | 328 | 1564 | 104 | 46 | 859 | 46 |
| RTOR Reduction (vph) | 0 | 0 | 148 | 0 | 33 | 0 | 0 | 4 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 0 | 133 | 54 | 97 | 73 | 0 | 328 | 1664 | 0 | 46 | 902 | 0 |
| Turn Type | Perm | NA | pm+ov | Split | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 8 | 5 | 4 | 4 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 8 | | 8 | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 15.6 | 35.6 | 12.7 | 12.7 | | 77.4 | 77.4 | | 66.9 | 66.9 | |
| Effective Green, g (s) | | 15.6 | 35.6 | 12.7 | 12.7 | | 77.4 | 77.4 | | 66.9 | 66.9 | |
| Actuated g/C Ratio | | 0.12 | 0.27 | 0.10 | 0.10 | | 0.58 | 0.58 | | 0.50 | 0.50 | |
| Clearance Time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 158 | 839 | 168 | 162 | | 445 | 2927 | | 234 | 2534 | |
| v/s Ratio Prot | | | 0.01 | c0.05 | 0.04 | | c0.11 | 0.33 | | 0.01 | c0.18 | |
| v/s Ratio Perm | | c0.10 | 0.01 | | | | c0.32 | | | 0.08 | | |
| v/c Ratio | | 0.84 | 0.06 | 0.58 | 0.45 | | 0.74 | 0.57 | | 0.20 | 0.36 | |
| Uniform Delay, d1 | | 57.6 | 36.4 | 57.7 | 57.0 | | 16.4 | 17.5 | | 20.2 | 20.1 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 0.99 | |
| Incremental Delay, d2 | | 31.3 | 0.0 | 4.7 | 2.0 | | 6.3 | 0.8 | | 0.4 | 0.4 | |
| Delay (s) | | 88.9 | 36.4 | 62.4 | 59.0 | | 22.6 | 18.3 | | 20.5 | 20.2 | |
| Level of Service | | F | D | E | E | | C | B | | C | C | |
| Approach Delay (s) | | 57.3 | | | 60.6 | | | 19.0 | | | 20.2 | |
| Approach LOS | | E | | | E | | | B | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 25.4 | | | HCM 2000 Level of Service | | | | C | | |
| HCM 2000 Volume to Capacity ratio | | | 0.70 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 133.2 | | | Sum of lost time (s) | | | 18.0 | | | |
| Intersection Capacity Utilization | | | 58.7% | | | ICU Level of Service | | | | B | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: MD 355 & Driveway/Central Ave

Whip Clean Car Wash
PM Total

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | | |
|-----------------------------------|-------|------|-------|----------------------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 1 | 1 | 0 | 0 | 70 | 56 | 1906 | 200 | 33 | 10 | 10 | | |
| Future Volume (Veh/h) | 0 | 1 | 1 | 0 | 0 | 70 | 56 | 1906 | 200 | 33 | 1047 | 0 | | |
| Sign Control | | Stop | | | Stop | | | Free | | | Fre | | | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.9 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Hourly flow rate (vph) | 0 | 1 | 1 | 0 | 0 | 76 | 61 | 2072 | 217 | 36 | 1138 | 0 | | |
| Pedestrians | | | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | | | |
| Median type | | | | | | | None | | | | | | | None |
| Median storage (veh) | | | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | 853 | | |
| pX, platoon unblocked | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | | 0.91 | | | | | | | |
| vC, conflicting volume | 2099 | 3621 | 379 | 2755 | 3512 | 799 | 1138 | | | | | | 2289 | |
| vC1, stage 1 conf vol | | | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | | | |
| vCu, unblocked vol | 1875 | 3539 | 0 | 2593 | 3420 | 799 | 824 | | | | | | 2289 | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.1 | | | | | | 4.1 | |
| tC, 2 stage (s) | | | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | | | | 2.2 | |
| p0 queue free % | 100 | 75 | 100 | 100 | 100 | 77 | 92 | | | | | | 83 | |
| cM capacity (veh/h) | 25 | 4 | 992 | 8 | 5 | 328 | 733 | | | | | | 218 | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 | | | | |
| Volume Total | 2 | 76 | 61 | 829 | 829 | 631 | 36 | 455 | 455 | 228 | | | | |
| Volume Left | 0 | 0 | 61 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | | | | |
| Volume Right | 1 | 76 | 0 | 0 | 0 | 217 | 0 | 0 | 0 | 0 | | | | |
| cSH | 8 | 328 | 733 | 1700 | 1700 | 1700 | 218 | 1700 | 1700 | 1700 | | | | |
| Volume to Capacity | 0.25 | 0.23 | 0.08 | 0.49 | 0.49 | 0.37 | 0.17 | 0.27 | 0.27 | 0.13 | | | | |
| Queue Length 95th (ft) | 14 | 22 | 7 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | | | | |
| Control Delay (s) | 558.1 | 19.2 | 10.4 | 0.0 | 0.0 | 0.0 | 24.8 | 0.0 | 0.0 | 0.0 | | | | |
| Lane LOS | F | C | B | | | | | C | | | | | | |
| Approach Delay (s) | 558.1 | 19.2 | 0.3 | | | | | 0.8 | | | | | | |
| Approach LOS | F | C | | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | | | |
| Average Delay | | | 1.1 | | | | | | | | | | | |
| Intersection Capacity Utilization | | | 57.5% | ICU Level of Service | | | | | | | | | B | |
| Analysis Period (min) | | | 15 | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis
4: Site Access & Central Ave

Whip Clean Car Wash
PM Total

| | → | ↘ | ↙ | ← | ↖ | ↗ |
|-----------------------------------|------|------|-------|----------------------|------|------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↘ | | | ↖ | ↗ | |
| Traffic Volume (veh/h) | 197 | 37 | 2 | 35 | 35 | 4 |
| Future Volume (Veh/h) | 197 | 37 | 2 | 35 | 35 | 4 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 214 | 40 | 2 | 38 | 38 | 4 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 254 | | 276 | 234 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 254 | | 276 | 234 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 95 | 100 |
| cM capacity (veh/h) | | | 1311 | | 713 | 805 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | |
| Volume Total | 254 | 40 | 42 | | | |
| Volume Left | 0 | 2 | 38 | | | |
| Volume Right | 40 | 0 | 4 | | | |
| cSH | 1700 | 1311 | 720 | | | |
| Volume to Capacity | 0.15 | 0.00 | 0.06 | | | |
| Queue Length 95th (ft) | 0 | 0 | 5 | | | |
| Control Delay (s) | 0.0 | 0.4 | 10.3 | | | |
| Lane LOS | | A | B | | | |
| Approach Delay (s) | 0.0 | 0.4 | 10.3 | | | |
| Approach LOS | | | B | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.3 | | | |
| Intersection Capacity Utilization | | | 22.6% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

Intersection: 1: MD 355 & Fairbanks Dr

| Movement | EB | NB | SB |
|-----------------------|-----|-----|-----|
| Directions Served | R | UL | U |
| Maximum Queue (ft) | 20 | 86 | 29 |
| Average Queue (ft) | 1 | 29 | 4 |
| 95th Queue (ft) | 10 | 67 | 19 |
| Link Distance (ft) | 402 | | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (ft) | | 230 | 230 |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

Intersection: 2: MD 355 & W Deer Park Rd/E Deer Park Rd

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served | LT | R | R | L | TR | L | T | T | TR | L | T | T |
| Maximum Queue (ft) | 183 | 129 | 118 | 232 | 174 | 198 | 138 | 136 | 105 | 254 | 372 | 343 |
| Average Queue (ft) | 83 | 68 | 43 | 106 | 65 | 56 | 62 | 55 | 26 | 54 | 230 | 195 |
| 95th Queue (ft) | 153 | 115 | 91 | 190 | 132 | 114 | 120 | 117 | 80 | 178 | 339 | 305 |
| Link Distance (ft) | 350 | 350 | 350 | 573 | 573 | | 756 | 756 | 756 | | 609 | 609 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | | | | | | | 375 | | | 230 | | |
| Storage Blk Time (%) | | | | | | | | | | 0 7 | | |
| Queuing Penalty (veh) | | | | | | | | | | 0 4 | | |

Intersection: 2: MD 355 & W Deer Park Rd/E Deer Park Rd

| Movement | SB |
|-----------------------|-----|
| Directions Served | TR |
| Maximum Queue (ft) | 259 |
| Average Queue (ft) | 143 |
| 95th Queue (ft) | 244 |
| Link Distance (ft) | 609 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 3: MD 355 & Driveway/Central Ave

| Movement | WB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 57 | 42 | 4 | 28 | 60 | 10 | 10 |
| Average Queue (ft) | 25 | 8 | 0 | 2 | 22 | 0 | 0 |
| 95th Queue (ft) | 49 | 30 | 3 | 13 | 47 | 7 | 7 |
| Link Distance (ft) | 60 | | 952 | 952 | | 756 | 756 |
| Upstream Blk Time (%) | 0 | | | | | | |
| Queuing Penalty (veh) | 0 | | | | | | |
| Storage Bay Dist (ft) | | 190 | | | 220 | | |
| Storage Blk Time (%) | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

Intersection: 4: Site Access & Central Ave

| Movement | WB | NB |
|-----------------------|-----|-----|
| Directions Served | LT | LR |
| Maximum Queue (ft) | 6 | 30 |
| Average Queue (ft) | 0 | 16 |
| 95th Queue (ft) | 4 | 21 |
| Link Distance (ft) | 238 | 189 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Network Summary

Network wide Queuing Penalty: 4

Intersection: 1: MD 355 & Fairbanks Dr

| Movement | EB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | R | UL | U | T | TR |
| Maximum Queue (ft) | 11 | 60 | 64 | 3 | 28 |
| Average Queue (ft) | 0 | 22 | 16 | 0 | 1 |
| 95th Queue (ft) | 8 | 52 | 47 | 2 | 13 |
| Link Distance (ft) | 402 | | | 387 | 387 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (ft) | | 230 | 230 | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

Intersection: 2: MD 355 & W Deer Park Rd/E Deer Park Rd

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served | LT | R | R | L | TR | L | T | T | TR | L | T | T |
| Maximum Queue (ft) | 208 | 82 | 69 | 56 | 153 | 264 | 237 | 239 | 288 | 179 | 290 | 254 |
| Average Queue (ft) | 97 | 40 | 24 | 71 | 63 | 116 | 120 | 131 | 120 | 36 | 164 | 132 |
| 95th Queue (ft) | 171 | 67 | 55 | 135 | 118 | 218 | 204 | 217 | 216 | 107 | 251 | 211 |
| Link Distance (ft) | 350 | 350 | 350 | 573 | 573 | | 756 | 756 | 756 | | 609 | 609 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | | | | | | 375 | | | | 230 | | |
| Storage Blk Time (%) | | | | | | | | | | | | 2 |
| Queuing Penalty (veh) | | | | | | | | | | | | 1 |

Intersection: 2: MD 355 & W Deer Park Rd/E Deer Park Rd

| Movement | SB |
|-----------------------|-----|
| Directions Served | TR |
| Maximum Queue (ft) | 173 |
| Average Queue (ft) | 80 |
| 95th Queue (ft) | 152 |
| Link Distance (ft) | 609 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 3: MD 355 & Driveway/Central Ave

| Movement | EB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served | LTR | LTR | L | T | T | TR | L | T | T | TR |
| Maximum Queue (ft) | 26 | 69 | 57 | 8 | 11 | 27 | 77 | 3 | 3 | 2 |
| Average Queue (ft) | 4 | 37 | 22 | 0 | 0 | 2 | 28 | 0 | 0 | 0 |
| 95th Queue (ft) | 20 | 65 | 51 | 4 | 8 | 14 | 68 | 2 | 2 | 2 |
| Link Distance (ft) | 399 | 60 | | 952 | 952 | 952 | | 756 | 756 | 756 |
| Upstream Blk Time (%) | | 4 | | | | | | | | |
| Queuing Penalty (veh) | | 2 | | | | | | | | |
| Storage Bay Dist (ft) | | | 190 | | | | 220 | | | |
| Storage Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |

Intersection: 4: Site Access & Central Ave

| Movement | WB | NB |
|-----------------------|-----|-----|
| Directions Served | LT | LR |
| Maximum Queue (ft) | 35 | 52 |
| Average Queue (ft) | 2 | 25 |
| 95th Queue (ft) | 16 | 48 |
| Link Distance (ft) | 238 | 189 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Network Summary

Network wide Queuing Penalty: 3



MEMORANDUM

To: Mayor & City Council, Planning Commission

From: Frank Johnson, Deputy City Attorney

Date: 3/25/22

CC: Tanisha Briley, City Manager
N. Lynn Board, City Attorney
John Schlichting, Director of Planning and Code Administration

Re: Does the Annexation Agreement prohibit a car wash on the property at 601-607 S. Frederick Avenue, and if so, is that limitation enforceable?

Answer: The Annexation Agreement could be interpreted to restrict redevelopment to residential uses, but if so, such interpretation would not be enforceable as impermissible conditional use zoning.

Introduction. Brett Schaecter, from Crain Partners, has submitted an application requesting approval of Concept Site Plan SP-8819-2021, which would authorize the construction of a 5,617 square foot automatic car wash facility at 601, 605 and 607 South Frederick Avenue, combining three lots of approximately 52,229 square feet (“Subject Property.”) The Subject Property is zoned CD (Corridor Development).

Question: Does the December 4, 1989 Annexation Agreement, X-150, prohibit a car wash use on the Subject Property?

Answer: The Annexation Agreement specifies in Section 1 the initial application of CB zoning and does not prohibit rezoning. Section 2 specifically restricts overall development to reuse of the existing residential structure and specifies that redevelopment should be limited to that of a residential character, but this limitation, if it were a zoning restriction, would be considered conditional use zoning and is therefore unenforceable.

1. *Applicable Zoning.* Section 1 of the Annexation Agreement specifies that upon annexation of the Subject Property, the City will “simultaneously classify it in the C-B zone.” The section then specifies the City agrees the property may be developed “with uses allowable in the C-B zone,” subject to submission of a site plan. The C-B zone is, per City Code §24-92, a “commercial buffer” zone which provides “sites for either low intensity convenience and personal service commercial uses,” as well as multifamily dwellings “or a suitable mixture thereof.” City Code §24-92(b) refers to use allowances at §24-22, which include dwellings, day care facilities and home based businesses.

Section 1 of the Annexation Agreement, however, does not prohibit future rezoning, and the property was, with the January 2, 2001 adoption of the Frederick Avenue Corridor Land Use Plan, rezoned to the CD Zone. The CD Zone is intended, as specified at City Code

§24-160G.1, to encourage more attractive and cohesive development patterns in the corridor, here consisting of South Frederick Avenue. Uses allowed include more intensive commercial uses. While City Code §24-160G.2(b) prohibits specified uses such as automobile repair shops, landscaping, pawn shops and self-storage facilities, among others, a car wash is not listed among those prohibited uses.

2. *Residential Restriction.* Section 2 of the Annexation Agreement, however, imposes additional restrictions for development, which are not limited in application to any specific zoning, but are, as specified in Section 3, “binding covenants against the Property Owners and/or site plan applicant, their successors, heirs and assigns.”

First, reuse of the “existing residential structures” is not limited. Thus, any future uses would fall under the initial C-B Zone or the current CD Zone limitations. Subsection (a) goes on to specify that redevelopment is permitted, as future uses “will not be limited to the reuse of existing structures.”

Second, redevelopment is limited to a “residential character” which includes specified height limits, with defined access points from Central Avenue and South Frederick Avenue. Subsection (b) thus specifies that redevelopment “should have a residential character limited to two (2) stories facing South Frederick Avenue and three (3) stories to the rear.” Subsection (c) further limits access points on a per-lot basis, but further specifies that if “three (3) or more parcels (including the corner parcel) are developed in a single site plan, access to these parcels shall be from Central Avenue.”

The City has interpreted this restriction to apply to aesthetics, not uses. This interpretation appears most reasonable, as the restriction does not specify residential uses but redevelopment which reflects a “residential character.”

3. *If Considered Limits on Residential Uses (beyond Aesthetics), the Limitations in Section 2 Would be Unenforceable as Conditional Use Zoning.* The wording of Section 2 of the Annexation Agreement most clearly refers to appearances, in requiring redevelopment of a “residential character” without specifying any use limitations. If, however, such wording was to be interpreted to require residential use limitations, it would not be enforceable. Such limits in annexation agreements which “restrict certain uses on newly annexed property” are considered “impermissible condition use zoning.” *Mayor and Council of Rockville v. Rylyns Enterprises, Inc.*, 372 Md. 514, 575 (Md. 2002). Any such restriction applies not as much to the developer as to the City’s future rezoning ability, and is interpreted to bind the Mayor and City Council “to a future zoning or condition use decision.” *Id.* Such conditional zoning which “acts as a limitation” on “otherwise permissible uses” is simply not permitted. *Id.*, citing *Board of County Commissioners of Washington County v. H. Manny Holtz, Inc.*, 65 Md. App. 574, 582-83 (1985).

Such use limitations are considered not only impermissible conditional use zoning but, as part of the Annexation Agreement with the property owner, could also be considered improper contract zoning, as “a municipality may not contract away the exercise of its

zoning powers” in the future. *Rylins*, 372 Md. At 575, *citing Baylis v. City of Baltimore*, 219 Md. 164, 170 (1959).

I will finally note that any zoning regulations must be “in accordance with” the applicable comprehensive master plan. Here, the January 2, 2001 Frederick Avenue Corridor Land Use Plan rezoned the Subject Property from the C-B buffer zone to CD, corridor development, which does not impose residential zoning restrictions but permits commercial uses as a means to encourage more attractive and cohesive development patterns on the South Frederick corridor.

Conclusion. City staff have not interpreted the Annexation Agreement as restricting future uses of the Subject Property, as the limitation to redevelopment of a “residential character” is focused on the appearance and aesthetics of the Subject Project rather than uses. If, however, such wording was interpreted as a use limitations, it would not be enforceable as improper conditional use zoning, as the Court of Appeals considers such limitations to primarily impact the Mayor and City Council’s ability to apply their zoning powers, as well as improper contract zoning.

Jasmine Forbes

From: Deby S <dsarabia301@gmail.com>
Sent: Wednesday, April 27, 2022 4:14 PM
To: MCC Services; planning@gaitHERsburgmd.go; EnerGov-Admin; Jasmine Forbes
Cc: Tanisha Briley
Subject: 601-607 Frederick Road proposed car wash

This email is from an EXTERNAL source. Please use caution when opening attachments, clicking links, or responding.

Dear Planning staff, Mayor and Council members,

I am asking you to say NO to the proposed car wash at 601- 607 South Frederick Road.

When I looked at the location, my first reaction was literally "What are they thinking?"

The proposed development is not compatible with the residential neighborhood. Central Ave is a narrow 2-lane road that goes through a residential neighborhood. The site is next to a stream with clearly visible wetlands. The residents I spoke to don't want it. Instead, we should have more walkable and livable communities with appropriately scaled businesses, small offices or shops, with plenty of green space.

The proposal creates more environmental problems. Frederick Road is a 4-mile long congested and problematic corridor and heat island. The sidewalks are inadequate for the number of people using it, and there is ZERO bike lane. The development would add to this problem by actively inviting more cars and creating over a full acre of even more heat island and impervious surface. The developer even requested a waiver to reduce green space in the parking lot from 10% to a meaningless 3%.

The proposed new car wash does not serve any community need. There is no shortage of car washes in the area, and the jobs it creates will probably be low-paid and part time.

Please DENY this application.

Thank you,

Deborah Sarabia

Gaithersburg 20877

--

Deborah Sarabia, M. En.

Jasmine Forbes

From: Azizollah Abrishamian <sheertandam@verizon.net>
Sent: Wednesday, April 27, 2022 4:23 PM
Cc: psaward@msn.com; lynn.slepski@outlook.com;
eastgaithersburgunited@googlegroup.com
Subject: Opposition to proposed Whip Clean Carwash at 601-605-607 S. Frederick Ave

This email is from an EXTERNAL source. Please use caution when opening attachments, clicking links, or responding.

Dear City of Gaithersburg Planning Team, Mayor and City Council members:

I am writing to express my opposition to the proposed Whip Clean Car-Wash slated for 601-605-607 South Frederick Ave, Gaithersburg, MD. I am pro-business so long that that business is prudent, safe, healthy, in the public interest, good for the community, not contrary to the interests of the already existing similar businesses and would enhance the living conditions and quality of life of the local residents, the affected community, and the city-at-large.

My opposition to the application of the above-mentioned Car-Wash mainly stems from the following concerns:

1. Environmental impact --- not eco-friendly:

Time and again it has been determined that the wash wastewater from professional car wash systems can have a great impact on the environment if not properly managed and discharged.

Contaminants include but are not limited to the following:

- i) From oil and grease --- contain hazardous materials such as benzene, lead, zinc, chromium, arsenic, pesticides, herbicides, nitrates and other metals,
- ii) From detergents --- biodegradable detergents which could be poisonous to fish and other living organism,
- iii) From phosphates --- these plant nutrients can cause excessive growth of nuisance life, such as algae, in water bodies. Algae look bad, smell bad, and harm water quality. Moreover, in the process of decaying, algae use oxygen in the water that fish and other living organism need to survive,
- iv) From Chemicals --- hydrofluoric acid and ammonium bi-fluoride products (ABF), and solvent-based solutions that are harmful to living organisms, including humans,
- v) From maintenance --- chemicals and oils used for the maintenance of cleaning machinery --- harmful to the environment,
- vi) From storm water drainage --- Debris clogging storm sewer inlets and gates preventing water drainage to the sewer,
- vii) Energy conservation --- employment of a fair amount of energy for each car wash,
- viii) Warming of the environment/air pollution --- fair amount of heat is generated due to the mechanical motions of the different parts of the washing system equipment,
- ix) Noise pollution --- such commercial car washing operation --- may generate fair amount of noise into the environment,
- x) Waste of precious water -- fair amount of water, at least some 45 gallons, used for each car washing.

This last matter alone is strong enough incentive to reject this application as we need to conserve water as much as possible. Please see the important documentary film, **DAY ZERO**, which everyone should see as it concerns just how important it is to conserve fresh water everywhere.

2. Workers' health:

There are a fair amount of studies highlighting the health hazards faced by workers handling hydrofluoric acid, mentioned above, in commercial car washing operations.

This chemical is commonly used to lighten aluminum, remove rust and break down roadway grime, wheel brightening, etc. Skin burn -- have been caused by workers coming in contact with this chemical. Even at low concentrations, the toxicity can be gradual, cumulative and injurious due to the fact that workers might not feel any pain after skin exposure to this chemical.

3. Impact on existing similar commercial operations and businesses:

As the City may know, there are at least three (3) similar car washing operations in close vicinity of the above-mentioned application. These operations are:

- i) Touchless Car Wash, located at 16185 Shady Grove Road,
- ii) Carwash Exxon, located at 16425 Frederick Avenue, and
- iii) Touchless Car Wash, located at 104 North Frederick Avenue.

These commercial car wash facilities have been in existence and operation for many years. Each such operation has invested a lot of money to provide services to the community and benefit from their investment.

For their continued stay in business they will face challenges from a newcomer.

Moreover, how many car washing businesses do we, the public, need so closely clustered together?

4. Traffic impact (vehicle):

There have been a multitude of studies, private and governmental, evaluating the various risks due to vehicle traffic. Among other hazards, traffic congestion increases, fuel consumption, vehicle emissions which degrade air quality --- air pollution and global warming impact and additional cost for fuel.

Studies have shown excess morbidity, mortality for drivers, commuters, and individuals subjected to traffic congestion.

This gridlock can have a tremendous negative impact on life and future prospects of the affected residents and communities. Additionally:

- i) Congested roads cause delay leading to health hazards and stress because traffic would make people late for work or anything else they intend to accomplish,
- ii) Congested traffic may cause road rage, a reaction to traffic that is common in congested traffic areas. Road rage is not healthy for anybody, resulting in shouting matches on the road, intentional tailgating, retaliatory traffic maneuvers and life threatening accidents caused by the lack of paying attention to driving.

5. Neighborhood suitability:

None of the above matters (1-4) support the need to approve the above-mentioned car wash application. It is not suitable for this residential neighborhood and should be readily rejected in view of all of the above legitimate concerns and the mounting public opposition and the affected local business operations.

I have personally witnessed and am familiar with the traffic congestion created on Shady Grove Road due to the long array of vehicles on the road waiting for their turn to get their vehicles washed by Touchless Car Wash located at 16185 Shady Grove Road. I have also had to wait on Hungerford Drive across from Montgomery College because Hungerford Drive northbound is blocked with traffic waiting to get into the car wash.

That portion of the aforementioned Shady Grove Road segment consists of multiple lanes to handle even more traffic, a fact that is lacking with regard to the above-mentioned application.

Respectfully submitted,

Azizollah Abrishamian
9328 Edgewood Court
Gaithersburg, MD 20877
(301) 977-2460