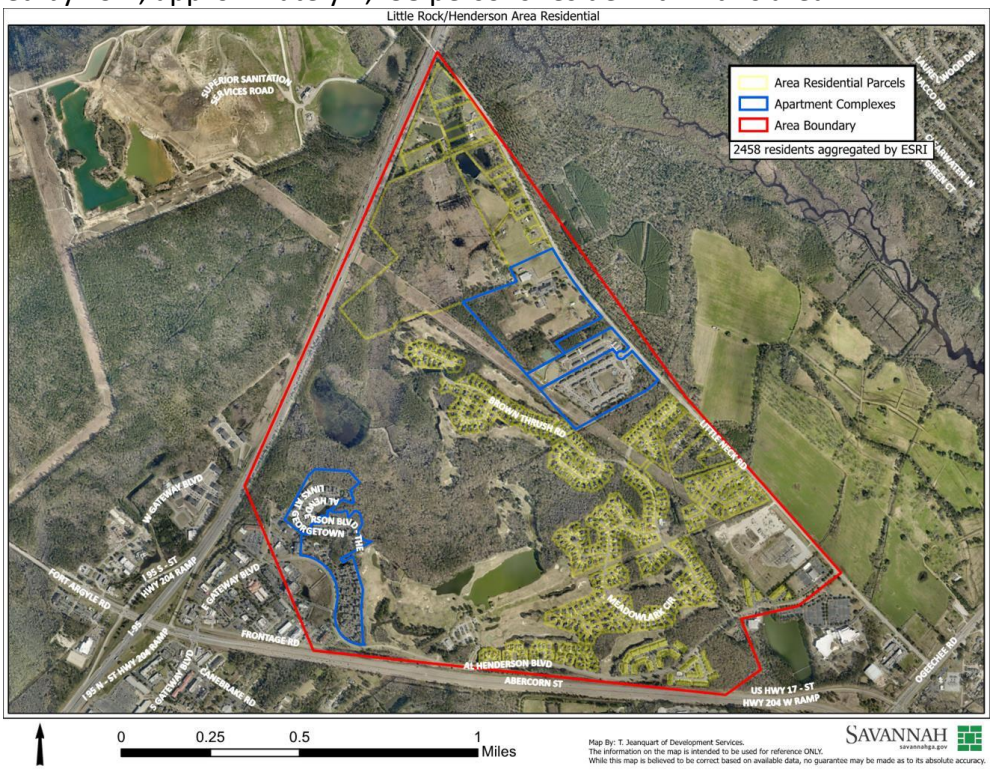
This document represents responses to questions received from the West Chatham County Watch Coalition on September 27, 2021. The responses have been vetted by representatives from the City of Savannah, Chatham County and the Metropolitan Planning Commission. The developer also provided information. Please note, the petition is for the rezoning of the property. If approved, each phase of project will have to go through the site plan and development review processes to ensure compliance with City regulations.

1. How many people and houses are currently on Little Neck Road and in Henderson?

   Approximately 576 residential parcels are between Little Rock and 204/95. Of these parcels, 572 are single family and four are apartments. According to aggregate data provided by ESRI, approximately 2,458 persons reside within this area.



2. Do you know there is already flooding in Henderson and Henderson Drive has “high water” signs?

   The City is aware.

3. Where will the connection point be for sewer and water lines?

   This has not been determined and will be part of the development process.

4. Why start a development before roadwork is completed?

The roadwork will occur to prepare for future growth of the Little Neck Road Corridor as outlined in the Little Neck Road Traffic Study dated August 10, 2016 (Exhibit A).

5. Will materials used for the new 4 lane be compatible with the materials being used in New Hampstead?

   The pavement design for Little Neck Road was designed to meet the needs of current and future traffic volumes.

6. How will the city make sure new buyers and renters know they are living within 2 miles of a landfill with almost no buffer between?

   It is not the City's responsibility to notify buyers and renters of the landfill.

7. Why are you taking land from people already living in the area for the 4 lane project instead of taking it all from the other side?

   Chatham County is currently acquiring right-of-way to protect the Little Neck Road corridor in light of future development. Consideration was taken during the planning of Little Neck Road to reduce the land acquisition for all property owners impacted by the project.

8. Are you going to pay for plants and landscape to help current landowners with the noise from the new traffic and pollution in the area?

   The project will only rebuild the existing two lanes north of Al Henderson Blvd. No increase in noise level is anticipated.

9. What are you going to do to make sure the renters, who are not invested in the community, take care of the land and natural resources in the area?

   The City of Savannah will address City Code violations through the Code Compliance Department. For more information about their services, please refer to this website: https://www.savannahga.gov/516/Code-Compliance Any parcels outside of the City will have to be addressed by the jurisdiction the parcel is located.

10. If any community agreements are made, who will be held accountable for making sure the agreements are kept?

    A community benefit agreement is a contract between a coalition of community groups and a developer. The agreement is between the community groups and the developer.

11. Has any consideration been given to stringent onsite storm water management?

The proposed development will comply with all local, state, and federal stormwater permitting requirements. Please refer to the Stormwater Management Strategy-Hopeton Landing (Exhibit B).

12. Has any consideration been given to lower density development? Buildings with LEED design?

    No, because the petitioner intends to observe density requirements of the City of Savannah under their Zoning Ordinance, and not the density requirements of the Chatham County Zoning Ordinance. The Zoning Ordinance and the City's task force on housing encourages reasonable, 21st century density. The proposed density for single family residential is similar in nature to Ardsley Park. LEED design will increase the cost and affordability of housing. Further, we are not aware of any neighborhood that has been asked to be LEED compliant, and this property should not be treated differently than other properties. Notwithstanding the foregoing, developers of pad sites will independently determine what standards can be implemented for Hopeton Landing.

13. What kinds of reconsiderations have been given to this PD since Chatham County's recent Climate Change Symposium?

    In September 14, 2021, Chatham County in partnership with the MPC and Georgia Tech hosted a public symposium and information session on climate change and sea level rise and the potential future impacts to the Georgia coast. The session highlighted current efforts underway within the metropolitan area to both measure, forecast and adapt to the impacts of climate change and sea level rise in the region. The proposed development will comply with all local, state, and federal stormwater permitting requirements. Please refer to the Stormwater Management Strategy-Hopeton Landing dated September 17, 2021 (Exhibit B).

14. Why is this property already listed in the 2040 Plan?

    Plan 2040 is a Comprehensive Plan update that relates to all of Chatham County—Unincorporated and Cities of Savannah, Pooler, Garden City. The property would have been part of Comprehensive Plan update regardless of if it was annexed into the City.

15. How is this property eligible for development right now when the 2040 Plan mentions not having too many developments within the same area at one time?

    The Comprehensive Plan does not and cannot prohibit any property from being developed. Development rights are based on the zoning of the property and the allowed land uses and standards associated with a property.

16. How is this property eligible for development right now when it defies the environmental and flooding aspects of the 2040 Plan?

The statement that the development "defies the environmental and flooding aspects of the 2040 Plan" is not accurate. Any development in Chatham County is required to meet local and State of Georgia regulations for stormwater management. Recommendations have been made in the Stormwater Management Strategy-Hopeton Landing (Exhibit B). No review of how the development will meet these requirements has occurred; this will be determined once development plans have been submitted.

17. How many actual residents of the City of Savannah currently live in West Chatham County between the area of Highway 17, Little Neck Road, John Carter, and Fort Argyle, NOT including the recent apartments built behind the Shellhouse?

    Approximately 546 residents of the City of Savannah live in West Chatham County between the area of Highway 17, Little Neck Road, John Carter, and Fort Argyle based on the aggregate data provided by ESRI. This does not include the apartments behind the Shellhouse.

18. How will this development affect the current homelessness issue that currently going on in this area?

    More information is needed on the specific issue.

19. How will this development affect the current shoplifting problems at the local WalMart?

    WalMart is located at 6000 Ogeechee Road (11029 04042) and is located in Chatham County. Enforcement of shoplifting for this establishment would be handled by the West Chatham Precinct. The incident map last updated on 09/29/2021 indicates no incidents at this address.

20. How will the City of Savannah contribute to the extra stress put on the Chatham County Sherrif's office for road patrol, enforcement, crime fighting activities?

    Hopeton Landing has been annexed into the City, and the development will be serviced by the City. The Southside Precinct, which is approximately 14 miles from the subject property, will be responsible for providing public safety services to properties within the City's jurisdiction. The City is exploring options to add an additional police facility in growth areas.

21. Why are you not worried about protecting the Little Ogeechee River when you know it's already impaired and that Savanah is listed 1st in the steering committee set up to clean up land and water pollution at the Vernon River, one of the water ways that the Little Ogeechee runs through?

The proposed development will comply with all local, state, and federal stormwater permitting requirements. Please refer to the Stormwater Management Strategy-Hopeton Landing (Exhibit B).

22. Why is such little regarding being given to the historically black cemetery on the property that is on file with the MPC?

    The Keller family purchased the Hopeton site in 1922. At the time of the purchase, there was an existing cemetery in the southwest corner of the parcel consisting of approximately 2 +/- acres referred to as the Woodstock Cemetery. The oldest grave on-site dates back to the 1800s.

    Hopeton Landing met with Bethel Missionary Baptist Church of Savannah located at 5863 Ogeechee Road. The property owners of Hopeton Landing agreed to donate the cemetery to the church before the end of this year. The property owners are in the process of subdividing the cemetery to allow for this donation. Descendants will continue to be buried at the site until all plots have been used. At that time, the cemetery will be formally closed pursuant to Georgia law. A separate family burial area is adjacent to this cemetery for the Keller family.

    The Hopeton Landing Master Plan provides for continued access to the site, and it will be amended to reflect ownership by Bethel Missionary Baptist Church.

23. The owners of the property have only had the land since 1912 or so, but the tombstones on the cemetery go back to the 1800's. How can the owners say they are confident there are no other cemeteries on this property?

    The property owners have walked the site, and the burial area has always been fenced. Neither the owners nor Bethel Missionary Baptist Church are aware of any other burial areas on the property.

    Chatham County as part of the Little Neck Road improvements hired a firm that used Ground Penetrating Radar (GPR) to look for potential additional grave sites along the roadway and property line. They revised the design to ensure that they would not impact any potential sites.

24. Has the City of Savannah or Chatham County been invited to come and view this cemetery for themselves and ask questions?

    The City and developer have had several discussions about the two cemeteries.

25. Why can't county neighborhoods be added as recognized neighborhoods on SAGIS? Doesn't the County contribute funds to SAGIS?

The City sends mailed notices to all property owners whose property boundary lies within 300 feet of the boundaries of the subject property receive rezoning notices.

26. Which came first? The date for the 4-lane on Little Neck or the planned development for Hopeton Landing? Please provide dates for each and where the referenced information is located.

    On August 10, 2016, the Little Neck Road Traffic Study (Exhibit C) was completed and stamped by a registered engineer with Hussey Gay Bell.

    On October 27, 2020, the City received a rezoning application for Hopeton Landing to rezone the parcels from R-A-CO to a Planned Development (Exhibit D). We believe the City rezoning application was received after the petitioner withdrew its rezoning petition from Chatham County.

27. What considerations have been given to the flooding that might take place due to the new 4 laning and road improvements?

    The Little Neck Road project will rebuild the existing two lane section north of Al Henderson Blvd. This project will meet all local, state, and federal stormwater permitting requirements.

28. Why have sidewalks on a road with overloaded dump trucks and trash trucks fighting deadlines?

    Please refer to the City's Complete Street's Ordinance: http://online.encodeplus.com/regs/savannah-ga/doc-viewer.aspx?secid=959&keywords=completed%2Ccompletes%2Ccompleting%2Ccomplete%2Cstreet%2Cstreet%27s%2Cstreets%27%2Cstreets#secid-959

29. Will weight limit signs be put on Little Neck Road for enforcement purposes?

    The pavement structure for Little Neck Road is designed for current and anticipated traffic volumes. Weight limit signs will not be required.

30. What will be put in place to make sure Bush Road isn't used any more than it already is as a cut through road after this development and 4 lane is built?

    Bush Road is not within the limits of this project. Bush Road is a collector road that provides connectivity from Little Neck Road to Fort Argyle Road. Bush Road may be considered for improvements in a future project.

31. Why is the City of Savannah trying to displace current residents in the Little Neck/West Chatham area?

    The City of Savannah is not displacing current residents of the Little Neck/West Chatham area. The subject parcel is approximately 293 acres of developable uplands and approximately 240 acres of acres of salt and freshwater wetlands. The property is currently used for agricultural purposes.

32. What will happen to property taxes for current people living in West Chatham when Hopeton Landing is developed?

    The exact impact of the proposed development on land or home values cannot be predicted without a detailed study of current economic conditions, land values, local incomes, community culture, and tax structures. The development has the potential to benefit those that live in the new dwellings units as well as improve the economy of the entire community.

    Residents of Chatham County who own and occupy a home and the land it rests on as their permanent place of residence should apply for an exemption with the Chatham County Board of Assessors. Exemptions include the Homestead, Stephens-Day, and/or Special exemptions. For more information about this process, contact the Chatham County Board of Assessors: https://boa.chathamcountyga.gov/homestead

33. What will happen to our land and home values?

    Refer to response from question 32.

34. Is this rezoning and annexation not an indication of rural gentrification?

    No, this is not an indication of rural gentrification.

35. The trees cleared from the shoulders of I-95 are already creating standing water that did not used to be there. How will runoff from Hopeton Landing not make this worse?

    The proposed development will comply with all local, state, and federal stormwater permitting requirements. Please refer to the Stormwater Management Strategy-Hopeton Landing (Exhibit B).

36. Are you not worried about all the thousands of people who will have their homes flooded during the next big storm event when water pushes from the ocean and back flows into the Little Ogeechee, especially after it continues to be impaired by other City of Savannah developments along the Little Ogeechee?

For several decades, the City has made it a priority to address flooding. By investing millions of dollars in stormwater projects, many areas of the City have been relieved from flooding through the construction of pumping stations and retention ponds as well as the replacement of storm pipes. For information on the City's draining projects, please refer to this link: https://public.sagis.org/cip/

The City is currently updating the Flood Hazard Mitigation Plan that will reduce flood insurance premiums by 25% for Savannah homeowners as well as aid the City's ongoing floodplain and storm water management efforts to consider in reducing or eliminating future flood losses. Through this process, the City is also assessing current flood hazard conditions to include historically flooded areas and the most critical repetitively flooded properties. Upon completion of the plan, it is the City's intent to continue its aggressive floodplain management efforts by evaluating, targeting and applying for Federal grant funds to assist in the implementation of future flood hazard mitigation projects. For more information about the Flood Mitigation Plan, please refer to this link: https://www.savannahga.gov/2364/Flood-Hazard-Mitigation-Plan

37. The original application for this rezoning stated that the reason for building was that the City of Savannah needed more housing. Why are you building out here when SCAD is taking over more than their fair share for students and when SCAD also doesn't pay taxes?

    The City does need more available, accessible, and affordable housing. In July 2021, the City's Housing Savannah Task Force completed a ten-month exercise to research Savannah's housing affordability issues and developed the City's Housing Savannah Action Plan. The document identified recommendations to support the continuum of housing for the more than 21,000 persons who are in need of housing throughout the City.

38. Is it true that the City of Savannah approached the property owners of Hopeton Landing to annex?

    The property owner petitioned to be annexed into the City. On September 12, 2019, Council acknowledged the receipt of the annexation petition for the property.

39. With some of the property for Hopeton Landing being in a tidal area, is the City not worried about sunny day flooding?

    The proposed development will comply with all local, state, and federal stormwater permitting requirements. Please refer to the Stormwater Management Strategy-Hopeton Landing (Exhibit B).

40. What are you going to do about controlling them mosquitoes that are already a problem in the area once Hopeton is built and has more standing water along the marsh?

Chatham County Mosquito Control is responsible for providing a comprehensive, cost effective mosquito abatement program for Chatham County and all of its municipalities. Information their program may be accessed through this link: https://mosquitocontrol.chathamcountyga.gov/

41. Are you trying to make this traffic mimic pre-Georgetown?

    The goal of the Little Neck Road Project is to improve the safety and operation of Little Neck Road for Chatham County road users.

42. Why are you building a 4 lane out here when there's already a traffic problem in all local areas that have access to Little Neck?

    The project will only rebuild the existing two lanes north of Al Henderson Blvd. The goal of this project is to improve safety and operations of Little Neck Road.

43. We can't even keep the light up at the intersection of Highway 17 & Little Neck. Why 4 lane this, make it a raceway, allow for more traffic, and have more wrecks?

    The project will only rebuild the existing two lanes north of Al Henderson Blvd. The goal of this project is to improve safety and operations of Little Neck Road.

44. How does it make any sense at all that the development will be completed in 2030, but the road completed in 2037?

    The four lane section on Little Neck will be built when volumes warrant four lanes and when funding is available; the traffic study anticipates that volumes will reach that level in 2037, however, that is for planning purposes only and is not a hard date.

45. The 4 lane will only go up to Henderson Blvd right now, which is where the development's 1st neighborhood road will be located. Is it a coincidence that this 4 lane is being put in for Hopeton Landing's convenience at the expense of all the local residents?

    The Hopeton Landing development shows the first drive at Henderson Oaks Road. There are already additional lanes between Al Henderson and U.S. 17. That segment of Little Neck has much higher traffic volumes due to the Church, the commercial area and Al Henderson Blvd, which is why that area will have some additional widening as part of the Little Neck Road Reconstruction Project.

46. Who is going to take responsibility for major water pollution in the area? Chatham County or City of Savannah?

The Watershed Protection Branch (WPB) of the Georgia Department of Natural Resources protects and restores Georgia's water resources. The WPB take the lead in ensuring clean and safe water—with partners like the City of Savannah and Chatham County—and pursue a sustainable environment that provides a foundation for a vibrant economy and healthy communities through regulatory and protection programs, monitoring, assessment and planning. As part of this partnership, the City monitors water quality regularly: http://savannahwaterquality.com/

47. Are there plans to add more CAT stops on Little Neck Road because of Hopeton Landing?

    Chatham Area Transit serves the area via an existing bus stop on the corner of Little Neck Road and Silk Hope Road.

48. Are you going to have any funding set aside for those who move in on the property and get cancer from the landfill or from the power lines on the property?

    No, funding will not be set aside for this purpose.

49. How does Savannah plan on providing emergency services to this area during a disaster with it being so far away from the rest of Savannah?

    The proposed development on Little Neck was annexed into the City and will be protected by two City Fire stations—Fire Station #15 located at 1751 Grove Point Road and Savannah Fire Station #12 located at 1205 Bradley Boulevard—with additional stations that will respond due to what types of emergency occurring. The City is budgeting for a new fire station at Highgate near the entrance to the Palms subdivision development.

50. What about our rural trash pick up that we pay for? Will expenses be transferred to us because it is harder for us to be services with a 4 lane, red lights, and extra traffic?

    Rural trash pick up will be determined by the service provider and the amount of trash generated.

51. Do you expect traffic back up on Highway 17/Little Neck due to a red light being placed to closed to it on Little Neck? It is already hard enough to turn at that light during rush hour.

    Additional turn lanes are planned for the current Little Neck Road project to reduce queue times for certain turning movements.

52. This land has been used as both a pasture and to grow crops. What will be done to ensure that current residents are not subjected to the poisons from chemicals and animal waste that will blow through the air when the land is turned over?

    The land disturbing activities associated with the development will be similar to the agricultural activities taking place when the property was actively farmed. Farming operations require the land to be tilled and rowed exposing the underlying soil on a bi-annual basis. The development of the property will require the land to be disturbed and the Erosion and Sedimentation Act along with the NPDES (National Pollutant Discharge Elimination System) regulate land disturbing activities and include requirements for design standards, monitoring, reporting, inspections, and turbidity standards. Specifically, to address preventing surface and air movement of dust from exposed soil surfaces, there are several Dust Control methods approved by the Georgia Soil and Water Conservation Commission that will be employed that include mulching, the use of Tackifers, watering, temporary vegetation, and tillage. The City of Savannah's Erosion, Sedimentation, & Pollution Control Ordinance addresses these concerns and all land disturbing activities mush adhere to these regulations.

53. Who will pay for current resident's housing when they experience new flooding after homes are built on Little Neck?

    Anywhere it can rain, it can flood. Poor drainage systems, summer storms, melting snow, neighborhood construction, and broken water mains can all result in flooding. As a coastal community, Savannah is susceptible to hurricanes, heavy rains, high wave, and storm surge. As a result, structural flooding has occurred in the City during major rain events and hurricanes dating as far back as 1871 and most recently in 1994 through 1999, 2002, 2003, 2006, 2007 and 2017 during Hurricane Irma. If property owners are concerned about flooding, it is recommended they obtain flood insurance, conduct preventative maintenance procedures and/or retrofit their property.

54. What current projects can be put in place to compensate for pollution into the Little Ogeechee that may kill the land and aquatic species that spawn in that area?

    The proposed development will comply with all local, state, and federal stormwater permitting requirements. Please refer to the Stormwater Management Strategy-Hopeton Landing (Exhibit B).

55. Why do we continue to let builders out of Atlanta continue to come in to Savannah and rural parts of Chatham Couty and create communities better suited for Atlanta?

    We do not have the ability to control who develops properties in Savanah and rural parts of Chatham County.

56. Do the current property owners know where the slave cabins were located? Has this been studied?

    There have been no slave cabins located on the property since the current owner's family purchased the property 1922.

57. Why can't this PD wait until after the natural resource section of Plan 2040 is amended? (The section mentioned by Melanie Wilson.)

    The current petition is for the rezoning only. Each phase of the development will have to comply with the regulations and policies of City at the time of submission.

58. Do trash trucks contribute to the maintenance of Little Neck Road?

    Yes, Waste Management contributes towards maintenance of Little Neck Road.

59. Who will be responsible for keeping dirt build up off the roads from Hopeton Landing?

    Need more clarification. Are you referring to during the development of Hopeton Landings or Little Neck Road improvements?

60. Who will be responsible for repairing neighbor's driveways when construction equipment messes them up?

    Contractors are responsible for any damage to private property. Driveways that are expected to be impacted by construction are included in the construction plans.

61. Have any traffic numbers taken into consideration as it pertains to the 4 land and Hopeton Landing regarding the influx of trash trucks due to expanding the landfill?

    Chatham County conducted the Little Neck Road Traffic Study in 2016 (Exhibit A) that recommended widening the corridor due to the expected increase in vehicular demand. The report considered the landfill and the heavy truck traffic which impacts the performance of the roadway pavement.

Questions in place from September 9th Council meeting:

62. How will the poor drainage of the I95 overpass with the narrow, limited sight bridge be handled?

    This issue has been reported to Georgia Department of Transportation.

63. How much of the forest will be removed?

The total area of the property is approximately 490-acres consisting of 249-acres of upland and 241-acres of wetlands. The majority of the "forested" area on the property is contained within the wetlands as the upland acreage has historically been used as agricultural land in the form of pastures, crops, and planted pines for timber. It is the intent of this development to utilize the upland acreage for development and minimize impacts to the wetlands.

64. What about school bus traffic added from New Hampstead's K-8 vs. heavy equipment & trash trucks?

    Little Neck Road is designed for current and anticipated traffic volumes with the goal of improving safety and operations of Little Neck Road.

65. How many wetlands will be destroyed?

    The wetlands on the property are aquatic resources that are under the jurisdiction of Section 404 of the Clean Water Act and require permits from the Department of the Army prior to mechanized land clearing or the placement of fill. The Dept of the Army requires concise justification for all wetland impacts and for those impacts to be mitigated for prior to the issuance of permits. As the development plan is still in the conceptual design phase the exact acreage of impacts are not defined at this time, but it is anticipated that less than 5% of the 241-acres of wetlands will be impacted.

66. What about county fire coverage in the area?

    The proposed development on Little Neck will be protected by two City of Savannah Fire stations—Fire Station #15 located at 1751 Grove Point Road and Savannah Fire Station #12 located at 1205 Bradley Boulevard—with additional stations that will respond due to what types of emergency occurring. The City is budgeting for a new fire station at Highgate near the entrance to the Palms subdivision development.

67. Do we have a Cultural Resources Environmental Survey?

    A survey was conducted by an unrelated third party, and the property owner is working on acquiring a copy.

68. Do we have any Corps of Engineer reports?

    Yes, a wetland jurisdiction determination has been completed by the U.S. Army Corps of Engineers, and the Master Plan reflects the wetlands delineation.

Little Neck Road

Traffic Study

Chatham County, Georgia

August 10, 2016

Prepared by

HUSSEY GAY BELL

Established 1958

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Executive Summary

Chatham County plans to rehabilitate the pavement along Little Neck Road between US 17 and I-95. Plans to develop land along the Little Neck Road Corridor are expected to increase vehicular demand on the roadway and, as a result, the County anticipates the need to widen the facility in the future.

Little Neck Road connects US 80 and US 17 within Chatham County. This study focuses on the portion of Little Neck Road between I-95 and US 17. The existing ADT within the study area ranges from 3,390 vehicles per day near I-95 to 7,600 vehicles per day at US Highway 17.

The current roadway section on Little Neck Road is adequate to serve the existing and near-term traffic loads on the roadway; however, significant growth is expected to occur as new developments are completed along the Little Neck Road Corridor. As well, the location of a landfill just north of I-95 generates high volumes of heavy truck traffic which impacts the performance of the roadway pavement.

Development of the New Hampstead community located on Little Neck Road north of the study area is currently underway. The Keller Tracts development is in the planning stages and will be located on the north side of Little Neck Road between US 17 and I-95. These two developments are expected to significantly increase the Average Daily Traffic on Little Neck Road such that improvements will be needed along the facility. By the year 2037, the ADT on Little Neck Road within the study area is expected to range between 19,100 and 28,830 vehicles per day.

Based on the increased traffic loads expected over the next 20 years, and the impacts the additional traffic will have on the quality of service experienced by roadway users, the following improvements are recommended:

- Little Neck Road should be widened to provide a typical section with two lanes of travel in each direction between I-95 and US 17.
- A traffic signal should be installed at the intersection of Little Neck Road and Al Henderson Boulevard as development of the Keller Tracts reaches the appropriate volume threshold.
- A second, exclusive right-turn lane should be added to the eastbound Little Neck Road approach at US 17.
- A second, exclusive left-turn lane should be added to the eastbound Little Neck Road approach at US 17.

Introduction

Chatham County plans to rehabilitate the pavement along Little Neck Road between US 17 and I-95. Plans to develop land adjacent to Little Neck Road are expected to increase vehicular demand on the roadway and, as a result, the County expects to widen the facility in the future. The purpose of this study is to analyze the traffic conditions on Little Neck Road, both existing and future, to determine what type of mitigation measures might be necessary to handle future traffic loads. The results of this study will be used to inform the current rehabilitation efforts so that the proposed construction plans can account for future improvements to the roadway.

Study Area

The study area includes the east end of Little Neck Road, beginning just west of I-95, at the Superior Landfill driveway, and ending at the eastern terminus of Little Neck Road, where it intersects with US 17/SR 25 (Ocean Highway). Within the study area, adjacent land includes residential developments, three churches, a cemetery, and large areas of undeveloped land. Figure 1 provides an aerial image that highlights the study area and identifies the study intersections.

Little Neck Road is classified as an Urban Minor Arterial Street between I-95 and US 17. West of I-95, Little Neck Road is considered a Rural Major Collector. Within the study area, Little Neck Road is a two-lane highway with a posted speed limit of 45 mph. Approximately 1,000 feet west of the intersection at US 17, Little Neck Road develops a second through/right-turn lane in the eastbound direction. The second lane extends to the intersection at US 17 where it becomes a right-turn only lane. Exclusive turn lanes are provided at major side streets and entrances to major developments. There are no paved shoulders nor is curb and gutter present. At present there are no sidewalks or bicycle facilities within the study area. To the north of the study area, Little Neck Road provides direct access to I-16 as well as US 80.

Al Henderson Boulevard is an urban, local road. The roadway begins at SR 204, on the east side of the interchange with I-95 and follows a circuitous alignment to a terminus at Little Neck Road, west of the intersection of Little Neck Road and US 17. Near the I-95 interchange, Al Henderson Boulevard is lined with traveler oriented services such as hotels, fueling stations, and major chain restaurants. East of the commercial businesses, the road provides access to residential developments. The Savannah Christian Church campus is located on the east end of Al Henderson Boulevard near the intersection with Little Neck Road.

US 17/SR 25 (Ocean Highway) is classified as an Urban Principal Arterial. US 17 begins in Florida and extends northward nearly 1200 miles into Virginia. Within the local region, US 17 provides access to the City of Richmond Hill, just south of Chatham County, as well as to the City of Savannah. Within the study area, US 17 is a divided highway with two through lanes of travel in each direction and a grassed median. The posted speed limit is 45 mph. US 17 includes striped bicycle lanes and paved shoulders, but no sidewalks.

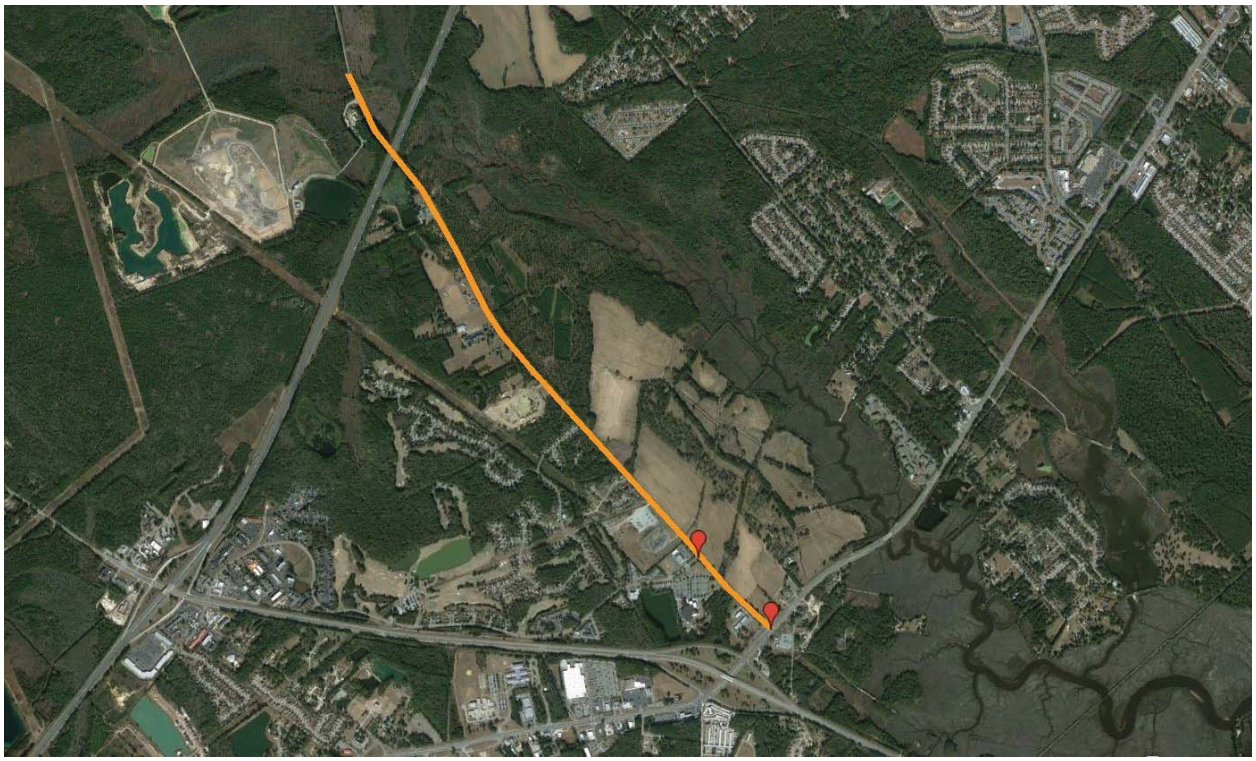


Figure 1 - Little Neck Road - Aerial View of Study Area and Study Intersections

For the purposes of this study, two intersections, identified in Figure 1, were examined in detail:

1. Little Neck Road and Al Henderson Boulevard
2. Little Neck Road and US 17/SR 25 (Ocean Highway)

Little Neck Road and Al Henderson Boulevard form an unsignalized T intersection. The northbound Al Henderson Boulevard approach is controlled by a stop sign and includes one shared left-turn/right-turn lane. A landscaped median is located on Al Henderson Boulevard and extends approximately 575 feet south of the intersection. There is a break in the median at church driveways located 200 feet south of the intersection. As well, there is an unsignalized crosswalk at the church driveways to connect the campus grounds on either side of Al Henderson Boulevard. The Little Neck Road approaches operate freely. The eastbound approach has one shared through/right-turn lane while the westbound approach has one exclusive left-turn lane and one through lane. The westbound left-turn lane currently provides 150 feet of storage with a roughly 70-foot taper.

Little Neck Road and US 17/SR 25 (Ocean Highway) form a signalized T intersection. The eastbound Little Neck Road approach includes an exclusive left-turn lane and an exclusive right-turn lane. The exclusive turn lanes begin approximately 400 feet west of the intersection, at the driveway to Savannah Christian Church. There is a striped median between the left-turn lane and the westbound receiving lane. The southbound US 17 approach includes an exclusive U-turn lane with 90 feet of storage and a 145-foot taper, two through lanes, a through bicycle lane, and an exclusive right-turn lane with 130 feet of storage and a 150-foot taper. The northbound approach includes an exclusive left-turn lane with 195

feet of storage and a 190-foot taper, two through lanes, and a through bicycle lane. A driveway for a small car dealership is located on the westbound approach, but there are no signal phases assigned to the westbound approach. Crosswalks are striped across the northbound and the eastbound approaches. Pedestrian signal heads serve the two crosswalks. Permanent R9-3a and R9-3b signs with the "No Pedestrians" symbol and "Use Crosswalk" plaque are posted at either end of the southbound approach. The northbound approach provides protected/permitted left turn phasing, while the southbound approach has only permitted left turn phasing. The southbound and eastbound right turns are channelized with yield signs posted. A signalized intersection is located 770 feet south of the US 17 intersection at Little Neck Road at the westbound SR 204 ramps.

Savannah Christian Church

Savannah Christian Church is located at the eastern end of the study area, by the intersection of Little Neck Road and Al Henderson Boulevard. The church is considered a major trip generator and has a significant impact on existing Wednesday evening traffic. The main building features a 1,300 seat Worship Center as well as a coffee bar, bookstore, classrooms, and offices. The campus also includes a separate youth-centered building called The Link as well as an Adult Ministry Center. The Link and the Adult Ministry Center are located on Al Henderson Boulevard. The parking lot serving the main building has entrances on Al Henderson Boulevard and Little Neck Road.

Currently, the church offers a worship service as well as middle and high school services on Wednesday nights. The middle school service meets in The Link youth building while the high school service is located in the Adult Ministry Center. The Wednesday night worship service is held in the main sanctuary and is one of the more popular services offered during the week.

A new worship building with a 2,500-seat sanctuary is currently under construction and is expected to open in 2016. At present, the church has an on-going goal to double in size every 5 years. As part of this study, Wednesday counts were performed in order to account for any significant impacts to the traffic.

Superior Landfill

The Superior Landfill is located on Little Neck Road just west of the I-95 overpass and just outside of the study area. The landfill generates a significant amount of heavy truck traffic within the study area. As part of this study, 48-hour classification were performed on either side of the landfill entrance to provide a better understanding of how the trips generated by the landfill impact traffic in the study area. The location of a heavy truck trip generator adjacent to the study area is expected to have a significant impact on the pavement design on Little Neck Road.

New Hampstead High School

New Hampstead High School is located on Little Neck Road west of the study area. The school opened in 2012 and currently serves approximately 1,350 students residing in west Chatham County. Figure 2 shows a detail of the high school zones for residents in the northwest portion of Chatham County. Little Neck Road is highlighted in blue, and the location of New Hampstead High School is indicated by a red circle.

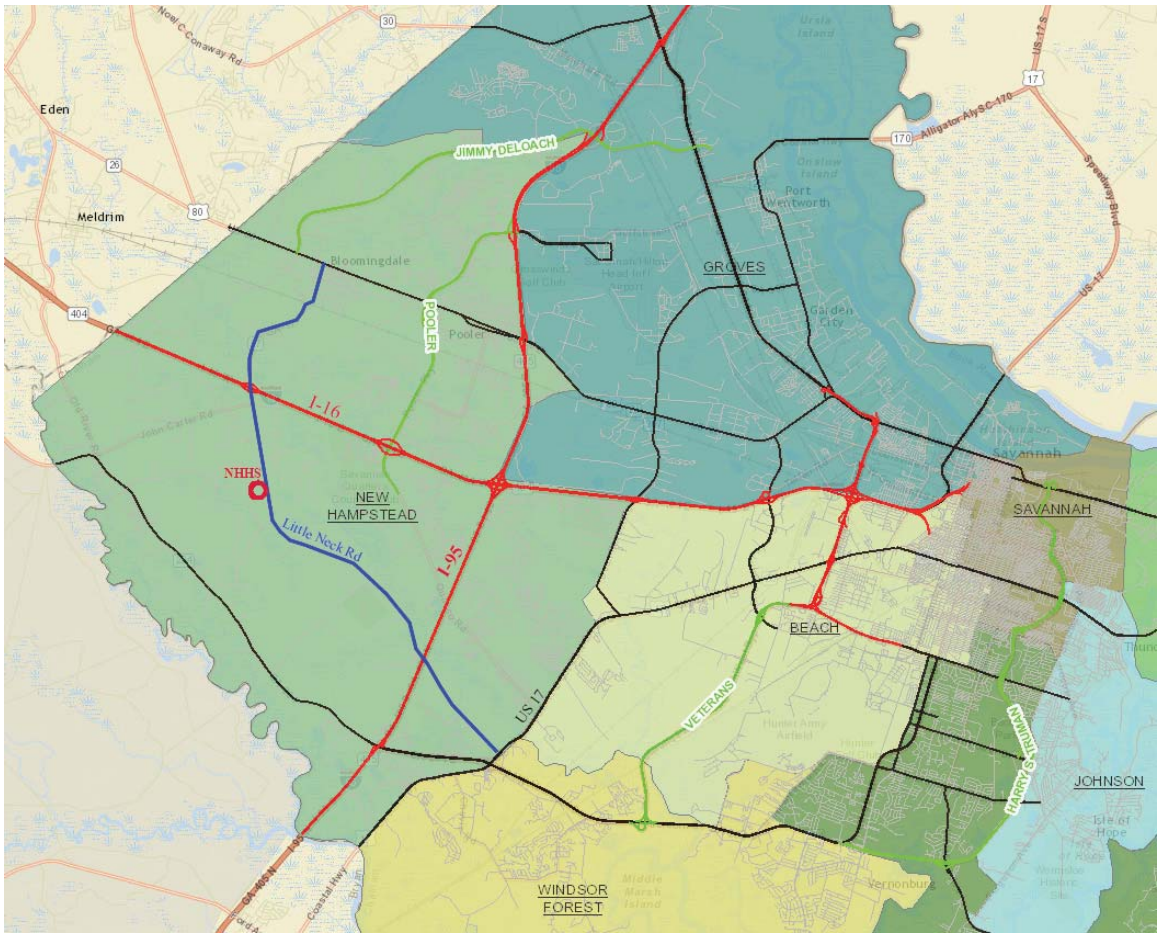


Figure 2 - Savannah Chatham County High School Districts - Northwest Chatham County

Nearby Developments

Two major developments are currently planned on Little Neck Road. Both developments are expected to generate significant traffic through the study area in the 2037 design year. Master plans for each development are included in APPENDIX A.

New Hampstead

New Hampstead is a Planned Unit Development (PUD) that is planned for a 4,400 acres site north of the study area on Little Neck Road, just south of I-16. The mixed use development is expected to include single-family neighborhoods, multi-family neighborhoods, retail, office, institutional (churches) and municipal uses.

Keller Tracts

At present, a master plan has been created for a new community to be located on the north side Little Neck Road between I-95 and US 17. The plan is still in the early stages of development, but is expected to be built out in the next 20 years. Current plans include single family residences, multifamily residences, mixed use residential developments, commercial/office developments, and some institutional developments.

Existing Traffic

Existing traffic data for the study area was obtained by performing traffic counts in the field. Counts were performed on February 10th and 11th, 2016, and included 48-hour vehicle classification counts at three locations on Little Neck Road. Turning movement counts at the intersection of Al Henderson Boulevard and Little Neck Road were performed during the evening peak hour on Wednesday February 10, 2016 and during the morning peak hour on Thursday, February 11, 2016. Peak hour turning movement counts at the intersection of Little Neck Road and US 17 were performed by GDOT on November 6, 2014. Figure 3 identifies the locations where traffic counts were performed. The red lines mark the three locations where 48-hour classification counts were gathered. The green marker represents the turning movement counts performed in 2016 at Al Henderson Boulevard, and the blue marker identifies the intersection at US 17 where GDOT counts were performed. Raw count data for each location is included in APPENDIX B.

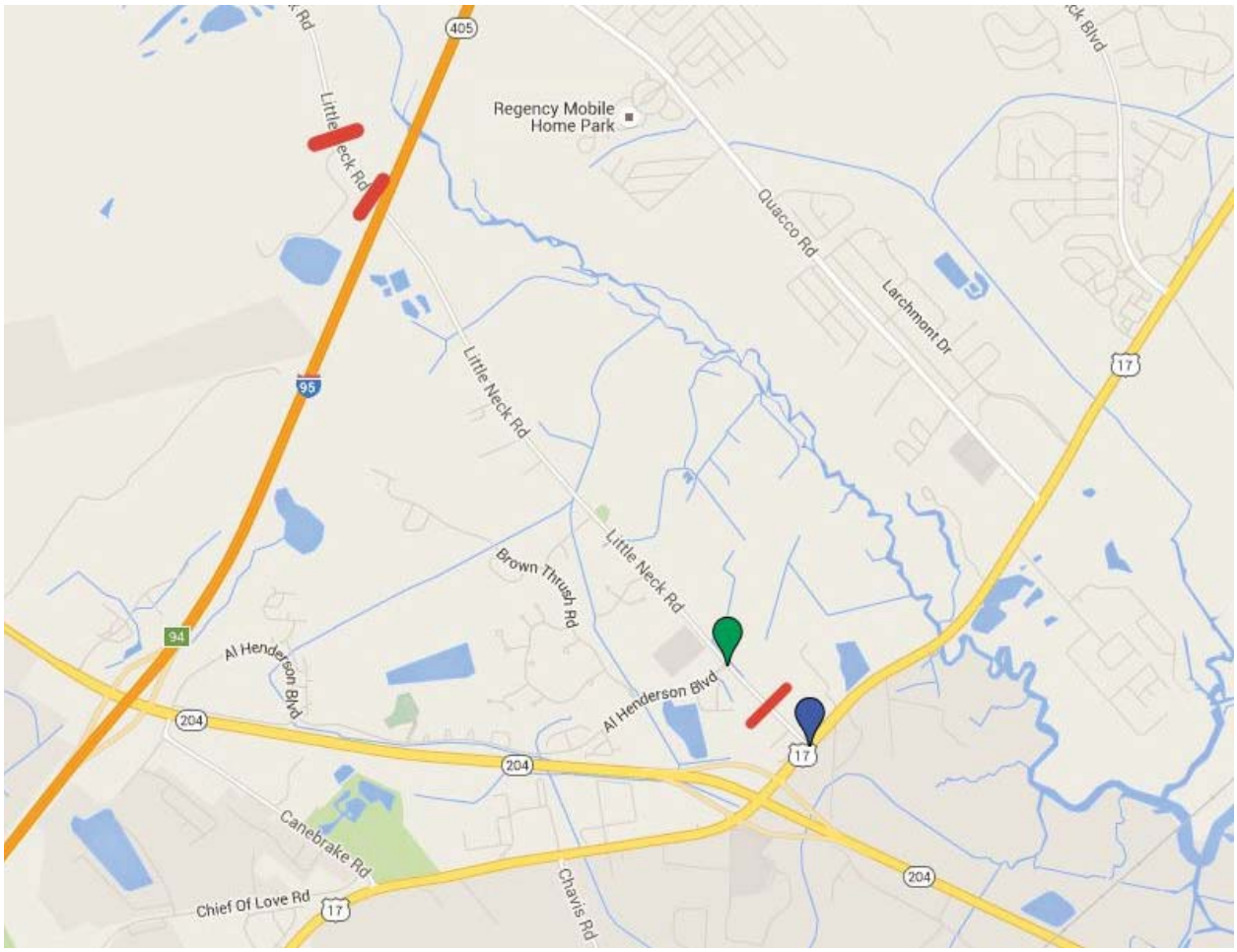


Figure 3 - Little Neck Road Traffic Count Locations

Table 1 lists average 24-hour volumes recorded at each count location on Little Neck Road. The table also includes the truck volume and truck percentage for each count location. The truck percentage is greatest (27 percent) just east of the landfill; however the truck volume is greatest in the section of Little Neck Road east of Al Henderson Boulevard.

Table 1 - 2016 Average Daily Traffic (ADT), Truck Volumes, and Truck Percentages on Little Neck Road

Location	ADT	Truck Volume	Truck Percentage
West of Superior Landfill	2,800	380	13.50%
East of Superior Landfill	3,390	930	27.40%
East of Al Henderson Blvd	7,600	1,330	17.50%

The traffic counts gathered in the study area were used to determine existing peak hour turning movement volumes at the two study intersections. Peak hour proportions (K-factors) and directional distribution factors (D-factors) were estimated based on the classification count data collected on Little Neck Road. Table 2 lists the K- and D-factors for the West and East segments of Little Neck Road. Figure 4 presents the morning and evening peak hour volumes at each intersection. The 2016 turning movement volumes at the US 17 intersection were estimated by adjusting the 2014 volumes using a 0.5 percent annual growth factor[1].

Table 2 - Peak Hour Proportions (K) and Directional Distributions (D) for Little Neck Road

Roadway Segment	From	To	Peak Hour	K-factor	D-factor	Peak Dir.
Little Neck West	I-95	Al Henderson Blvd	AM	0.1	0.54	WB
			PM	0.08	0.53	WB
Little Neck East	Al Henderson Blvd	US 17/SR 25	AM	0.08	0.6	EB
			PM	0.07	0.6	WB

The analysis of peak hour volumes indicated that the Wednesday evening peak hour is shifted slightly later as a result of the church service related traffic. In the long term, as traffic on Little Neck grows, the church related traffic is expected to have a less pronounced influence over the Wednesday evening peak hour traffic. For the purposes of this study, the evening peak hour traffic was adjusted and balanced to fit more with other typical weekday evening traffic patterns.

[1] The growth factor was determined based on historical AADT traffic data as discussed in a later section of this report.

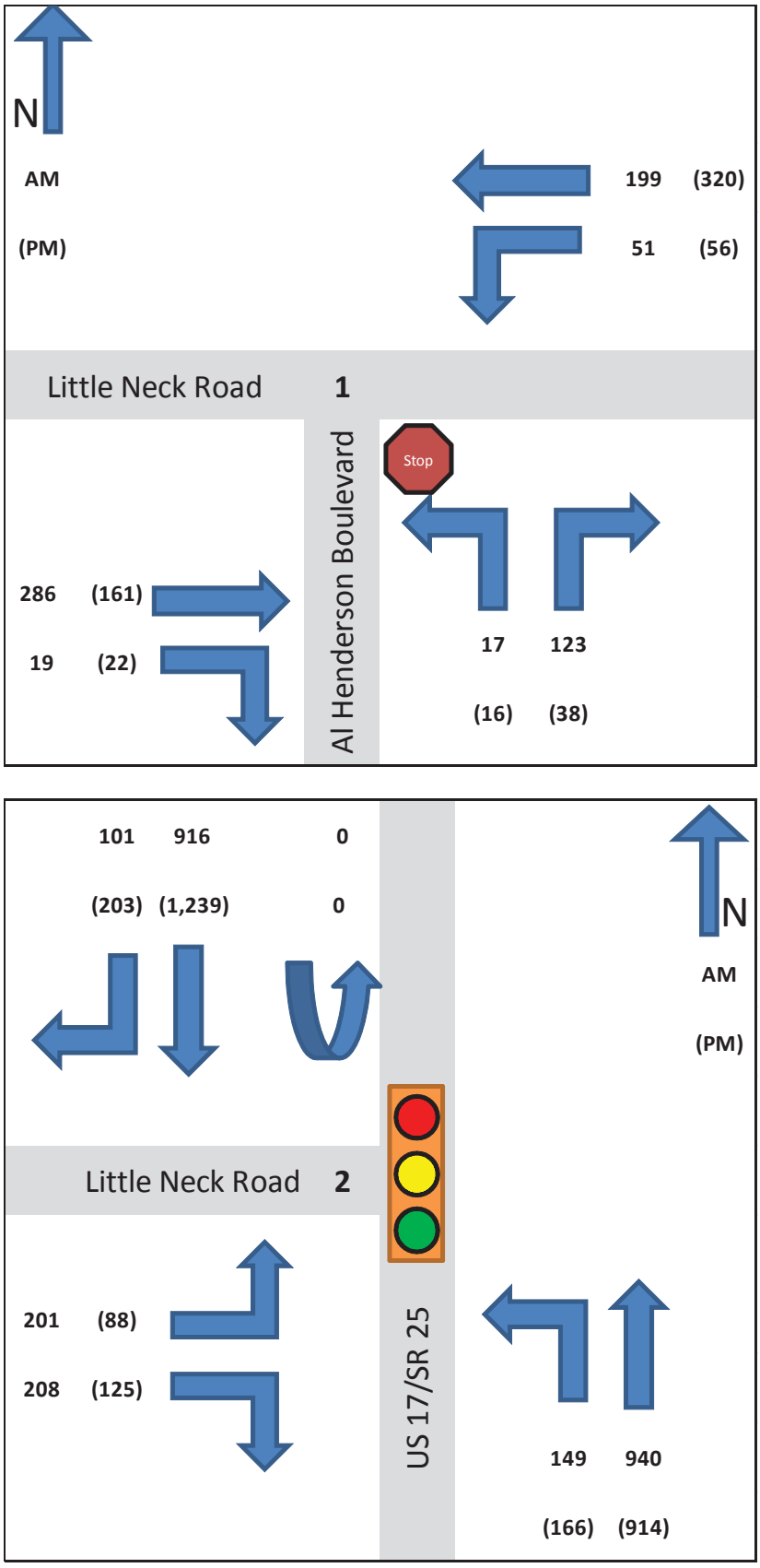


Figure 4 - 2016 Existing Peak Hour Study Intersection Volumes

Crash Data

A summary of reported crashes along Little Neck Road and at the intersection of Little Neck Road and US 17 was provided by the GDOT Crash Reporting Unit. The crash history, which included incidents reported for the years 2010 through 2015, is provided in APPENDIX C. Statewide crash, injury, and fatality rates organized by roadway type were provided by GDOT Office of Traffic Safety and Design and are also included in APPENDIX C. Statewide rates for 2015 are not currently available.

Over the last six years, the majority of reported crashes occurred at the intersection of Little Neck Road and US 17. Figure 5 presents a map indicating the approximate locations of crashes reported in the study area. Table 3 summarizes the crash data reported for incidents that occurred within the study area for the years 2010 through 2015. The table includes crash, injury, and fatality rates per 100 million vehicle miles (100 MVM), as well as the statewide rates for minor arterials.

For the years 2010 through 2014, the overall crash rates recorded in the study area are lower than the statewide reported crash rates on similar roadways; however, the injury rates for the years 2014 and 2010 are significantly higher than the statewide injury rates for those years. A closer look at the crash data for 2010 reveals that three reported incidents, all occurring at the intersection of Little Neck Road and US 17, involved 3 or more injuries. The data reported in 2014 includes 4 incidents (all reported at the US 17 intersection) which involved 2 or more injuries per crash. For the years listed in the table, no fatalities were reported. Table 4 presents the data broken down by crash type and location (intersection vs. non-intersection). The assessment did not indicate any need for geometric improvements based on safety concerns.

Table 3 - Little Neck Road Crash History and Comparison to Statewide Rates (2010-2015)

Year	Crashes	Crash Rate (per 100 MVM)		Injuries	Injury Rate (per 100 MVM)		Fatalities	Fatality Rate (per 100 MVM)	
		Little Neck	Statewide		Little Neck	Statewide		Little Neck	Statewide
2015	38	761	N/A	4	80	N/A	0	0	N/A
2014	20	401	608	10	200	183	0	0	1.14
2013	15	300	610	7	140	190	0	0	1.20
2012	19	378	476	3	60	178	0	0	1.13
2011	9	378	482	3	126	166	0	0	1.20
2010	18	738	464	13	533	172	0	0	1.19

Table 4 - Little Neck Road Crash History, Totals by Type and Location (2010-2015)

Year	Crashes at Intersections					Non-Intersection Crashes				
	Angle	Head On	Rear End	Side-swipe	Other	Angle	Head On	Rear End	Side-swipe	Other
2015	9	0	18	3	5	0	0	1	0	2
2014	6	1	10	1	0	1	0	1	0	0
2013	3	0	11	1	0	0	0	0	0	0
2012	6	0	9	2	0	1	0	1	0	0
2011	1	0	7	0	0	0	0	0	0	1
2010	4	0	7	0	1	0	0	1	0	5
Total	**29**	**1**	**62**	**7**	**6**	**2**	**0**	**4**	**0**	**8**

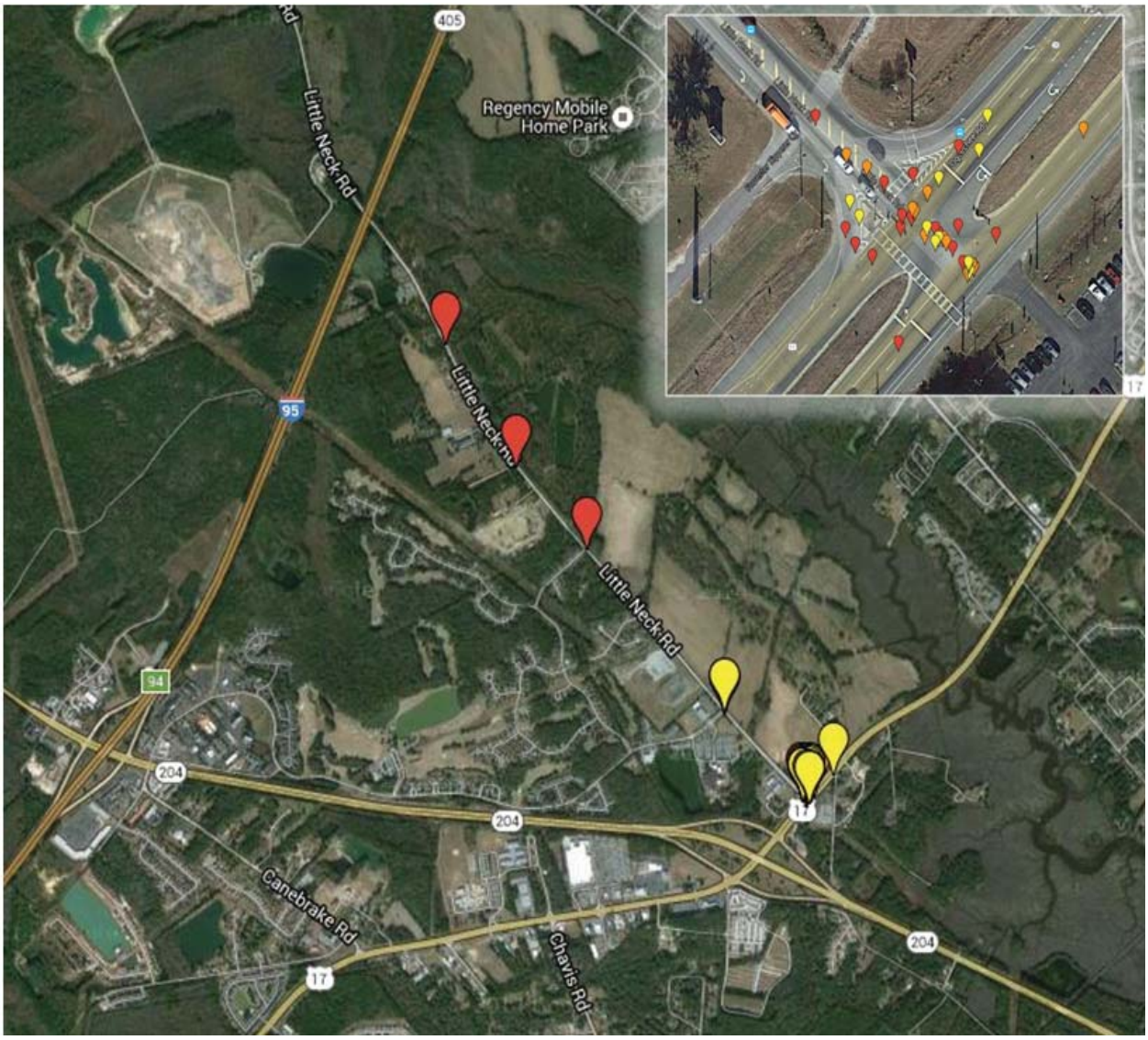


Figure 5 - Locations of Reported Crashes on Little Neck Road, 2013-2015

Future Traffic

Historical Traffic Data

Georgia Department of Transportation (GDOT) currently maintains three traffic counting stations in and nearby the study area on Little Neck Road. Station 0510447 is located on Little Neck Road between US 17 and Al Henderson Boulevard. Two stations are located on US 17: station 0510194 to the south of Little Neck Road, and station 0510196 to the north of Little Neck Road. Figure 6 identifies the GDOT count stations that were examined as part of this study.

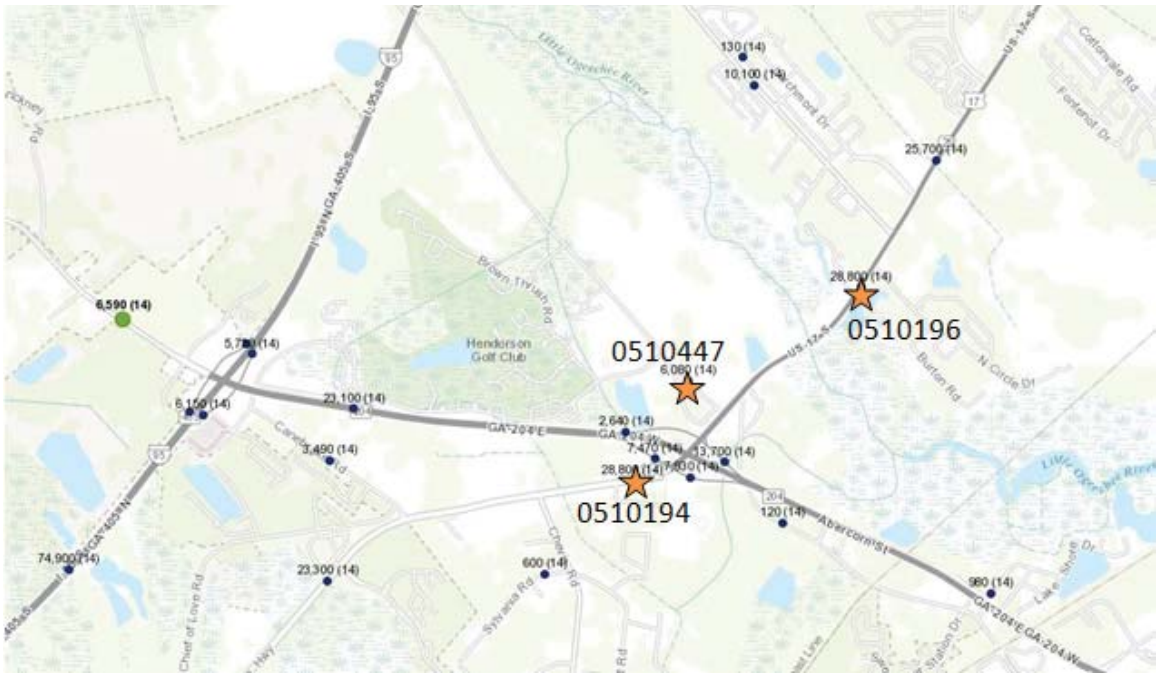


Figure 6 - GDOT Map of Count Stations, Chatham County Detail

Establishing a Growth Rate

Least squares regression analysis was used to examine the historical ADT data for each count station identified in Figure 6. Extreme or outlying data points were ignored in the analysis. The count data obtained for the stations on US 17 was used to confirm the growth rate established based on the Little Neck Road count station.

Little Neck Road

ADT counts on Little Neck Road are listed in Table 5 for the years 2005 through 2014. In 2012, a sudden, significant increase in traffic on Little Neck Road occurred. This increase in traffic corresponds with the opening of New Hampstead High School which is located on Little Neck Road to the north of the study area.

Figure 7 presents a graph of the AADT counts versus time for data recorded at the station on Little Neck Road. Linear trend lines were drawn to identify patterns in the data. Data points that were considered outliers are indicated in red. The orange trend line represents the overall growth trend over the entire study period, from 2005 through 2014. The average growth rate associated with the 10 year period is 8.82 percent; however this growth rate does not appear to be representative of actual growth patterns on the roadway.

Table 5 - Historical GDOT AADT Counts on Little Neck Road

Little Neck Rd	
Year	Sta. 0510447
2005	4,110
2006	3,070
2007	3,070
2008	2,990
2009	3,000
2010	2,970
2011	2,900
2012	6,120
2013	6,080
2014	6,080

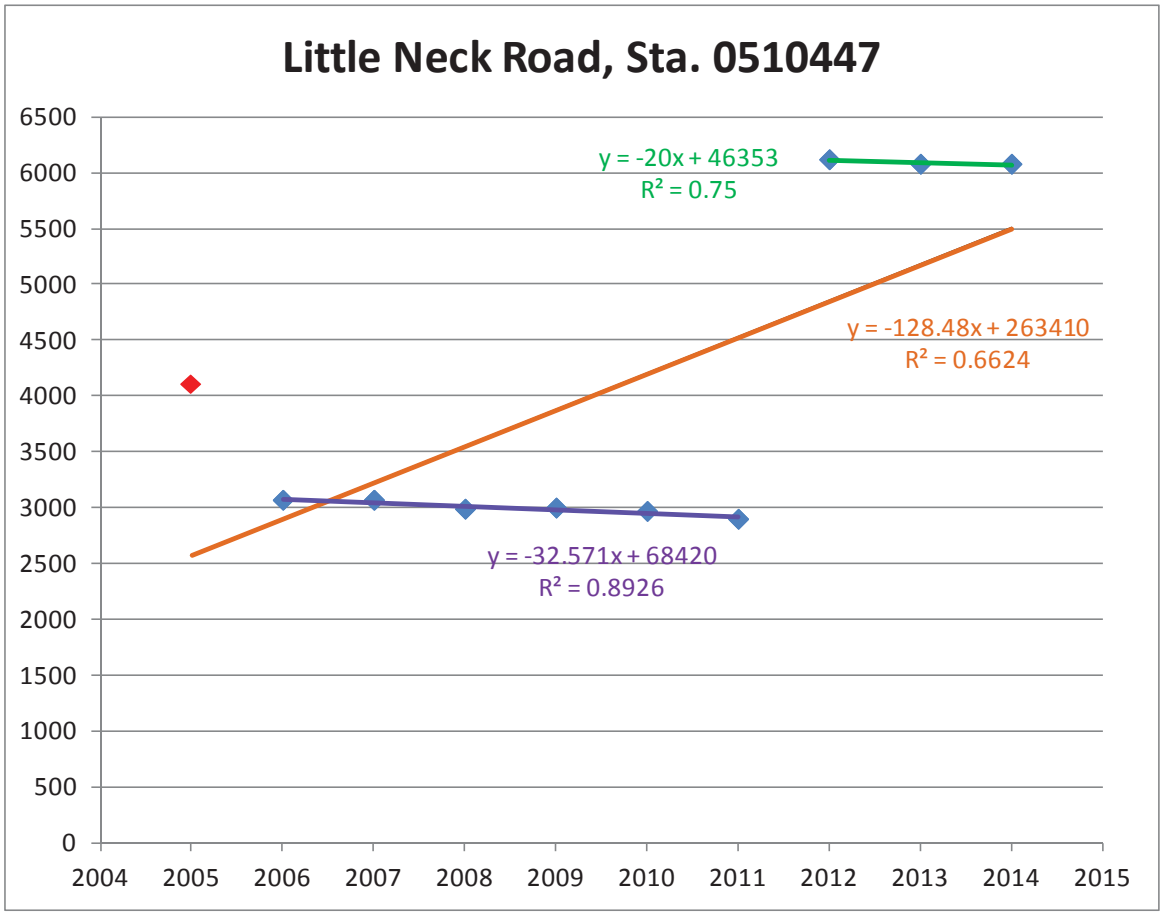


Figure 7 - AADT vs. Time, Little Neck Road Station 0510447

In order to better understand the annual traffic trends on Little Neck Road, the data was divided into two periods – the period before the opening of New Hampstead High School, and the period after the high school opened. The purple trend line shown in Figure 7 indicates the traffic growth pattern on Little Neck Road before the opening of the high school, while the green trend line tracks the post-high school traffic growth. Prior to the opening of the high school, traffic on Little Neck Road exhibited a negative growth rate of 1.07 percent per year. In the three years after the high school opened, the traffic experienced a negative growth rate of 0.33 percent per year, despite a significant increase in the number of vehicles on the roadway versus before the high school opened.

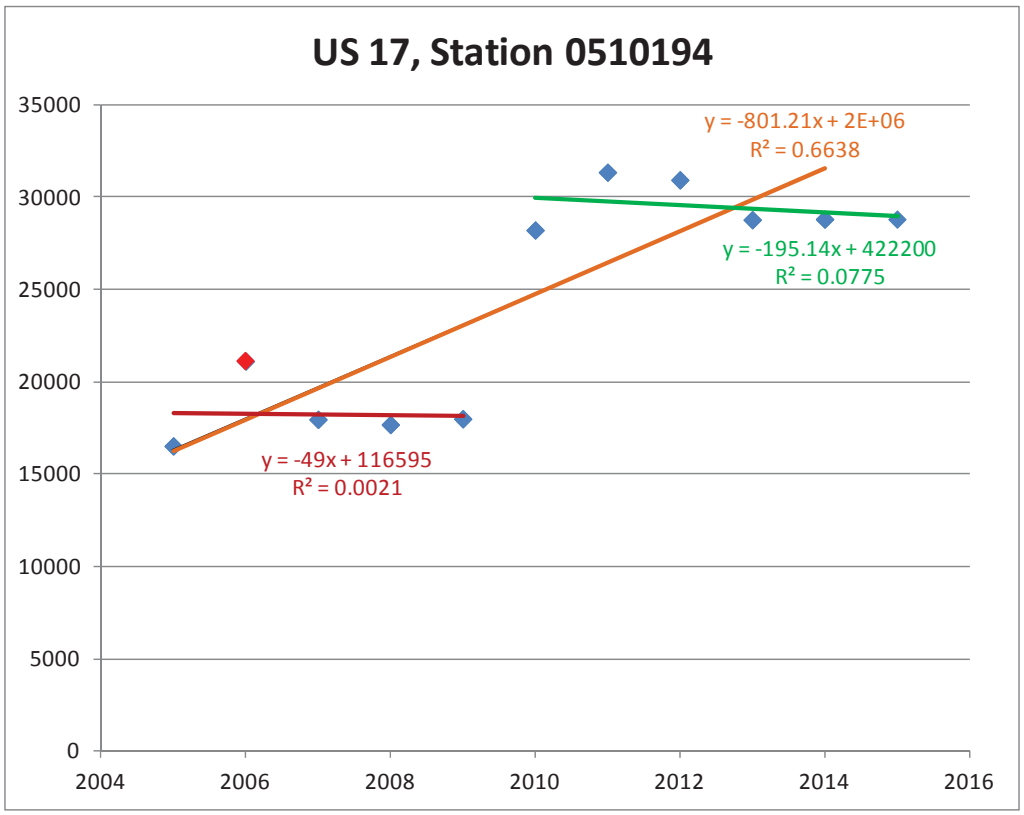
Based on the pre- and post-high school traffic trends exhibited at station 0510447 on Little Neck Road, the Average Daily Traffic appears to be steadily declining with time; however, other factors were also taken into consideration when establishing a growth rate for use in this study. Little Neck Road is located in an area of Chatham County that has not yet reached a "built out" status. As well, Little Neck Road can be used as an alternative route for traffic originating from nearby Effingham County that wishes to access developed areas of Chatham County. There remains significant potential for growth both along and to the north of Little Neck Road; therefore a positive growth rate was considered more appropriate for use in this study. For the purposes of this study, **an effective growth rate of 0.5 percent per year was established.**

US 17/SR 25

ADT counts for the two count stations on US 17 are listed in Table 6. Data was published for the years 2005 through 2014, with the exception of no data available at Station 0510196 for the year 2009. Figure 8 presents graphs of the AADT versus time for each count station on US 17. Data points that were considered outliers are indicated in red. The orange trend line represents the overall growth trend over the entire study period, from 2005 through 2014.

Table 6 – Historical GDOT AADT Counts on US 17

US 17 Station		
Year	Sta. 0510194	Sta. 0510196
2005	16,520	15,240
2006	21,110	22,520
2007	17,960	18,410
2008	17,680	18,120
2009	17,990	Not Avail.
2010	28,210	19,760
2011	31,340	19,480
2012	30,930	25,700
2013	28,770	25,610
2014	28,800	28,800



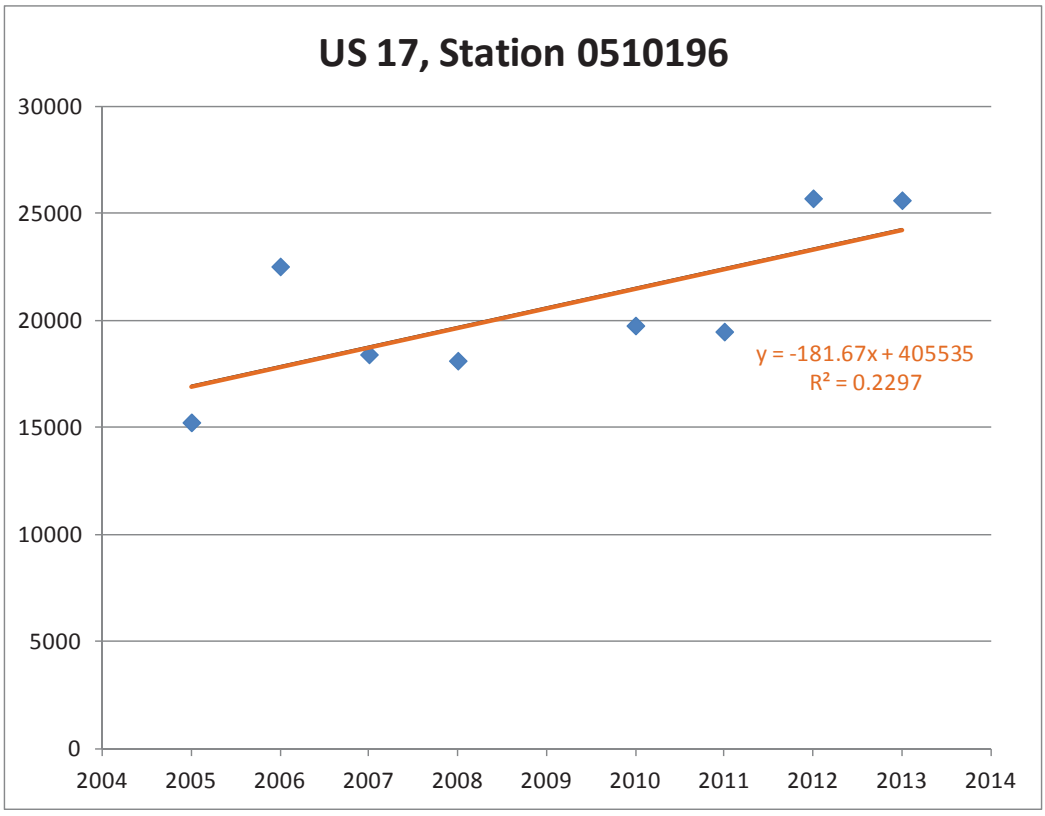


Figure 8 - AADT versus Time, US 17 Count Stations

The AADT counts on US 17 at Station 0510194, located south of SR 204 and the study area, indicate that a sudden increase in traffic on the roadway occurred in 2010. General traffic trends before and after the jump in volumes appear consistent with each other. It is likely that a new development was completed in 2010 and added new traffic to the roadway.

AADT counts recorded at Station 0510196, located on US 17 north of the study area, show a general upward trend between 2005 and 2014. A jump in the traffic volumes is exhibited in the year 2012, consistent with the opening of New Hampstead High School. A new apartment complex located adjacent to the count station location also opened in 2012. The station experiences a general growth trend of about 4 percent per year.

The counts recorded at the GDOT stations on US 17 support the use of a 0.5 percent per year growth rate for the study area.

Trip Generation

Trip Generation analysis was used to account for traffic that will be added by the New Hampstead and Keller Tract developments in the 2037 Design Year. Trip Generation data for New Hampstead was taken from a traffic study prepared for the community. Trips expected to be generated by the Keller Tracts were estimated as part of this study using Online Traffic Impact Study Software (OTISS) and the 9th Edition of the *Trip Generation Manual* (TGM) published by the Institute of Traffic Engineers (ITE).

A Traffic Impact Study for the New Hampstead community was published by Kimley Horn and Associates in 2005 and included a trip generation analysis for the development. The study indicates that 20 percent of the trips generated by New Hampstead are expected to be distributed to Little Neck Road and would travel through the study area identified for this study. Daily and peak hour trips generated by the New Hampstead development were adjusted based on the assumption that the community will reach 50 percent build out by the year 2037. The adjusted daily and peak hour trips were added to future background traffic volumes estimated for the study area.

A Trip Generation analysis was performed based on the proposed Keller Tracts Master Plan which identifies acreages for different land uses within the development. Table 7 lists the results for Weekday trips, while Table 8 summarizes the weekday peak hour results. Since the proposed development is still in early stages of planning, some assumptions were made regarding some of the land uses, as follows:

- Commercial/Office Center
  - Land Use code 710 – General Office Building
  - Leasable Area (Square Feet) was estimated as 25% of listed acreage
- Commercial Out Parcels
  - Land Use code 820 – Shopping Center
  - Leasable Area (Square Feet) was estimated as 25% of listed acreage
- Multifamily Residential
  - Land Use code 220 – Apartment
- Townhouse Residential

- Land Use code 230 – Residential Condominium/Townhouse
- Single Family Residential
  - Land Use code 210 – Single Family Detached Housing
- Mixed Use Residential
  - Land Use code 270 – Residential Planned Unit Development
  - Assumed that "units" listed on master plan are residential units
- Institutional
  - Assumed to be Elementary School because a school land use would be expected to have a greater impact on peak hour traffic versus other institutional land uses listed in the *Trip Generation Manual*

Table 7 - Keller Tracts Weekday Trip Generation Results

Land Use	Ind. Variable	Weekday Trips		
		Entry	Exit	Total
820 - Shopping Center	270 KSF	7919	7919	15837
Internal Trip Reduction		1397	1183	2581
Total New Trips		6522	6736	13256
710 - General Office Building	330 KSF	1428	1428	2857
Internal Trip Reduction		183	342	525
Total New Trips		1245	1086	2332
520 - Elementary School	100 KSF	812	812	1624
Internal Trip Reduction		0	0	0
Total New Trips		812	812	1624
210 - Single-Family Detached Housing	152 DU's	837	837	1674
Internal Trip Reduction		182	184	366
Total New Trips		655	653	1308
220 - Apartment	671 DU's	2205	2205	4410
Internal Trip Reduction		455	485	940
Total New Trips		1750	1720	3470
230 - Residential Condominium/Townhouse	101 DU's	341	341	683
Internal Trip Reduction		82	75	157
Total New Trips		259	266	526
270 - Residential Planned Unit Development	522 DU's	2175	2175	4350
Internal Trip Reduction		449	479	928
Total New Trips		1726	1696	3422
Total Trips Generated		**15717**	**15717**	**31435**
Total Internal Trips		**2748**	**2748**	**5497**
Total New Trips		**12969**	**12969**	**25938**

Table 8 - Keller Tracts Weekday Peak Hour Trip Generation Results

Land Use	Ind. Variable	Morning Peak Hour			Evening Peak Hour		
		Entry	Exit	Total	Entry	Exit	Total
820 - Shopping Center	270 KSF	186	114	301	589	638	1227
Internal Trip Reduction		66	14	80	198	23	221
Total New Trips		120	100	221	391	615	1006
710 - General Office Building	330 KSF	262	262	524	236	236	472
Internal Trip Reduction		23	60	83	24	47	71
Total New Trips		239	202	441	212	189	401
520 - Elementary School	100 KSF	274	274	547	57	70	127
Internal Trip Reduction		0	0	0	0	0	0
Total New Trips		274	274	547	57	70	127
210 - Single-Family Detached Housing	152 DU's	31	94	126	105	61	166
Internal Trip Reduction		1	3	3	2	28	30
Total New Trips		30	91	123	103	33	136
220 - Apartment	671 DU's	70	280	350	265	142	407
Internal Trip Reduction		1	8	10	5	66	71
Total New Trips		69	272	340	260	76	336
230 - Residential Condominium/Townhouse	101 DU's	9	45	55	43	21	64
Internal Trip Reduction		0	1	2	1	10	11
Total New Trips		9	44	53	42	11	53
270 - Residential Planned Unit Development	522 DU's	64	226	290	250	135	385
Internal Trip Reduction		1	7	8	5	62	67
Total New Trips		63	219	282	245	73	318
Total Trips Generated		**896**	**1295**	**2193**	**1545**	**1303**	**2848**
Total Internal Trips		**92**	**93**	**186**	**235**	**236**	**471**
Total New Trips		**804**	**1202**	**2007**	**1310**	**1067**	**2377**

Distribution and Assignment

The daily trips generated by the Keller Tracts development were distributed with 80 percent to/from the east and 20 percent to/from the west. The peak hour Keller trips were distributed as follows:

- 80 percent of morning peak hour trips to/from US 17
- 20 percent of morning peak hour trips to/from the west on Little Neck Road
- 85 percent of evening peak hour trips to/from US 17
- 15 percent of evening peak hour trips to/from the west on Little Neck Road

The western section of the Keller Tracts development includes areas that would only have one access point on Little Neck Road. Trips generated by these areas were assigned to Little Neck Road based on the established trip distribution. The eastern section of the Keller Tracts development includes two access points on Little Neck Road, and one access point on US 17, to the north of the intersection at US 17 and Little Neck Road. For the purposes of this study, it was assumed that a traffic signal will be installed at the Keller Tracts entrance onto US 17. If no signal is installed at the US 17 entrance, then the majority of traffic generated by the development would likely be distributed to the existing signalized intersection at US 17 and Little Neck Road, thereby exceeding the capacity of the intersection.

Base Year 2017 Traffic

A base year of 2017 was established for this study. 2016 volumes were grown by the 0.5 percent per year growth rate established for the study. No proposed developments are expected to add new trips to the study area in the year 2017. Figure 9 presents the 2017 Base Year peak hour volumes at the two study intersections.

Table 9 -2017 Average Daily Traffic (ADT), Truck Volumes & Truck Percentages on Little Neck Road

Location	ADT	Truck Volume	Truck Percentage
West of Superior Landfill	2,810	380	13.50%
East of Superior Landfill	3,410	930	27.40%
East of Al Henderson Blvd	7,640	1,340	17.50%

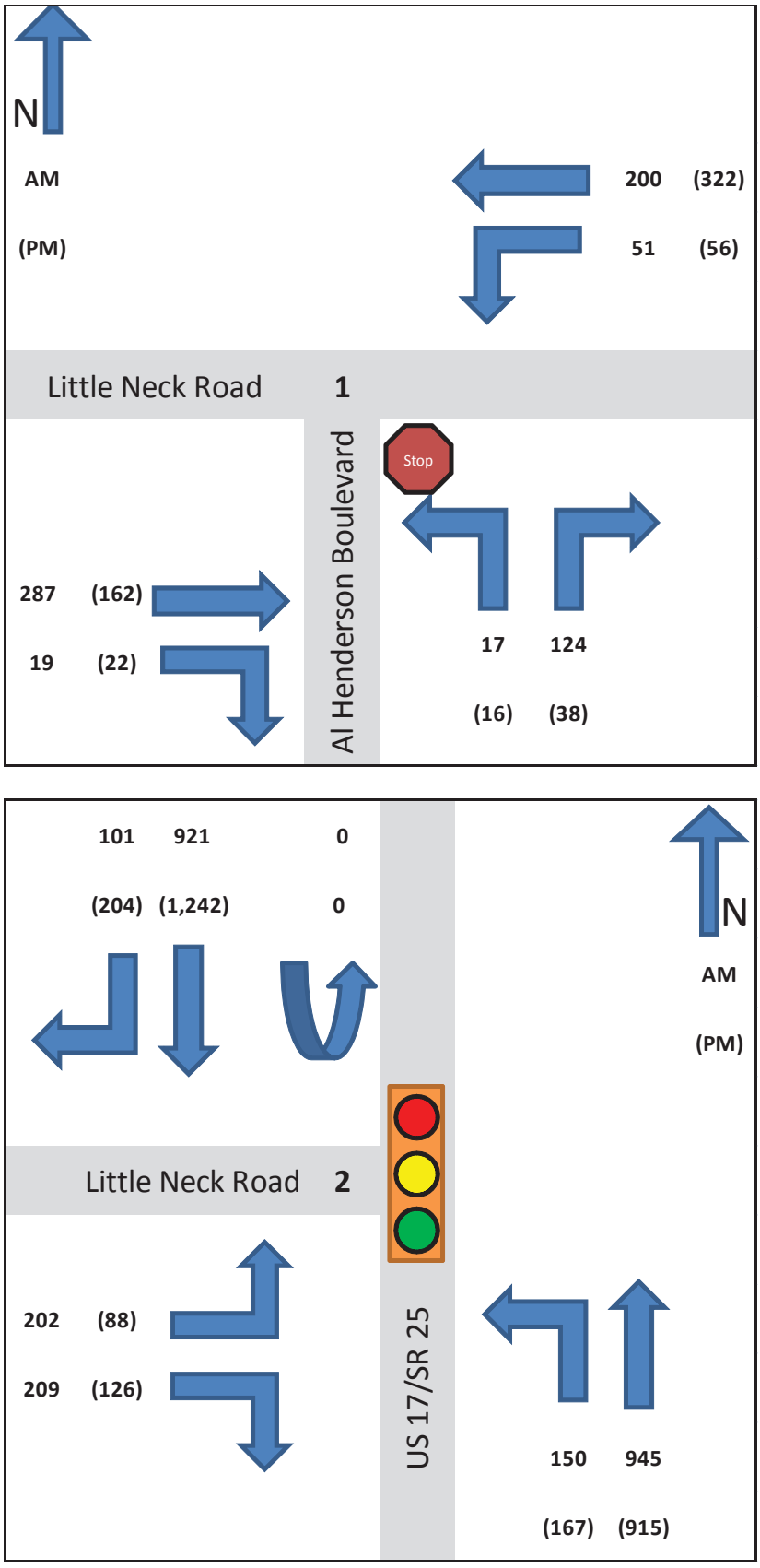


Figure 9 - 2017 Base Year Peak Hour Study Intersection Volumes

Design Year 2037 Traffic

Background Volumes

A design year of 2017 was determined for this study. 2037 background traffic was estimated by growing the base year traffic over a 20-year period using the 0.5 percent per year growth rate established for the study area. For the purposes of this study, it is assumed that the New Hampstead development proposed along Little Neck Road west of the study area will reach 50 percent build out by the year 2037. The New Hampstead Study completed by Kimley Horn estimated that 20% of the traffic generated would utilize Little Neck Road to the east; 50% of this volume (calculated as 10,275 vehicles/day) was added to the background traffic volume for the year 2037. The peak hour volumes associated with component of the background volumes are presented as Table 10 This study assumes that the proposed Keller Tracts development will reach build out by the year 2037. Volumes expected to be generated by the Keller Tracts development were also added to the 2037 background traffic. It is assumed that, in the build out condition, a traffic signal will be installed at the Keller Tracts entrance on US 17. Based on this assumption, a significant portion of the Keller traffic that is expected to head north on US 17 was assigned to the Keller entrance on US 17.

Table 10 – New Hampstead Background Peak Hour Volumes on Little Neck Road

Peak Hour	Trips on Little Neck		50% Build Out	
	Eastbound	Westbound	Eastbound	Westbound
AM	930	538	465	269
PM	991	1273	495	637

Table 11 lists the ADT and truck volumes as well as truck percentages forecast for Little Neck Road for the 2037 Design Year. Figure 10 shows the peak hour volumes at the study intersections for the 2037 Design Year. It should be noted that the ADT volumes in Table 11 are based on the counts that were performed just east of the Superior Landfill driveway. Volumes just west of Al Henderson Boulevard are expected to be slightly higher because of the location of several driveways for residential developments between Al Henderson Boulevard and I-95.

Table 11 - 2037 Average Daily Traffic (ADT), Truck Volumes & Truck Percentages on Little Neck Road

Location	ADT	Truck Volume	Truck Percentage
West of Superior Landfill	13,390	420	3.14%
East of Superior Landfill	19,100	1,030	5.39%
East of Al Henderson Blvd	28,830	1,480	5.13%

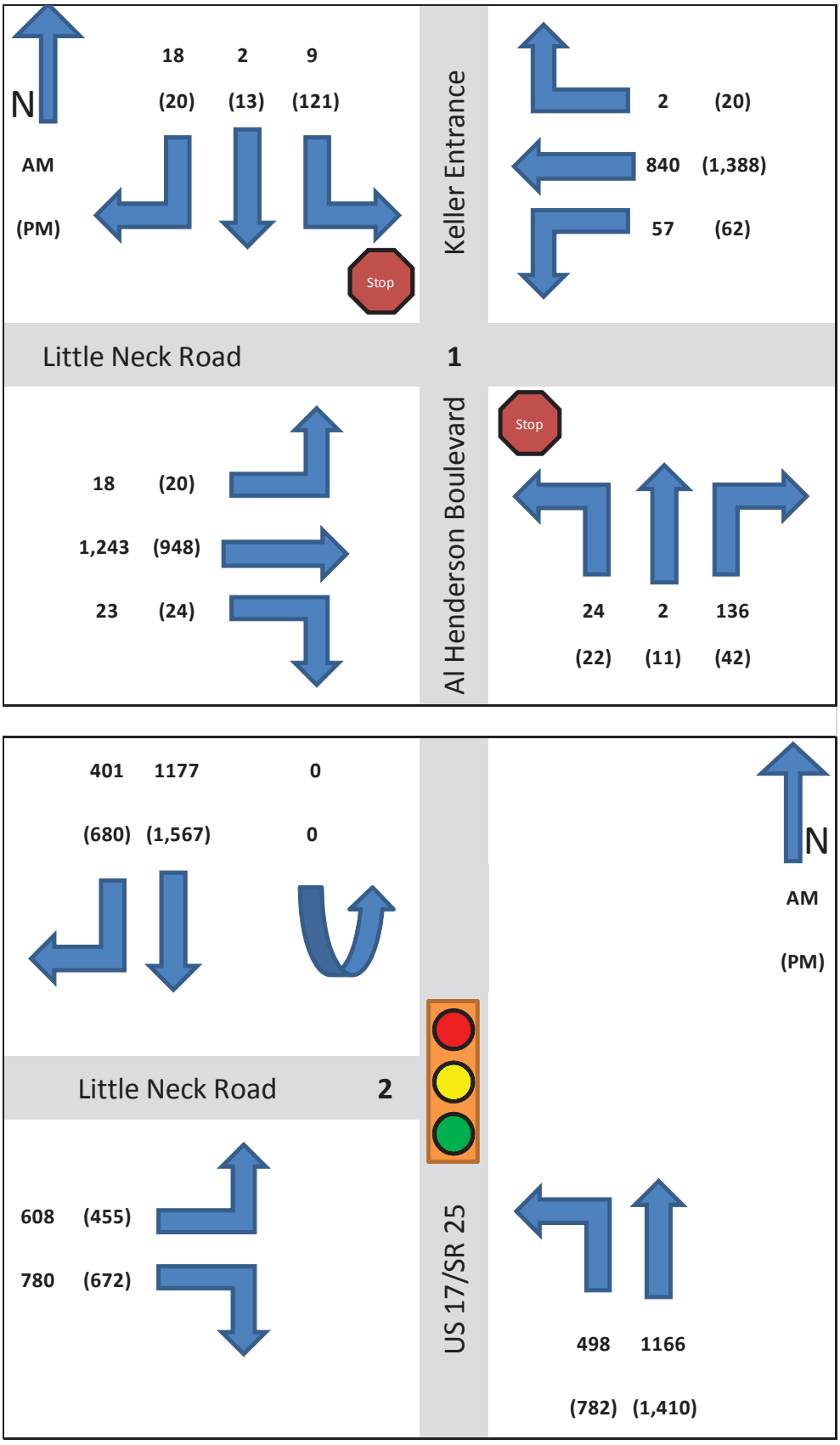


Figure 10 - 2037 Design Year Peak Hour Study Intersection Volumes

Roadway Capacity Analysis

Methodology

In order to evaluate the quality of traffic flow along the roadway, procedures and methodologies outlined in the Transportation Research Board's Highway Capacity Manual (HCM) were employed. The analyses for this study were completed using McTrans Highway Capacity Software (HCS), which automates the methodology outlined in the HCM 2000. The results output by HCS were compared to guidance published in the HCM 2010. HCS Reports for all the analyses are provided in APPENDIX D.

Two-Lane Highway Capacity

HCM 2010 identifies a capacity threshold of 1,700 passenger cars per hour (pc/h) for flow in one direction. A maximum capacity of 3,200 pc/h is listed for the total roadway volume in both directions. These limits are used under base conditions. Two-lane roadways with volumes greater than these thresholds are automatically considered failing without further analysis.

HCM identifies three classifications for use in analyzing two-lane highways, as follows:

- ***Class I two-lane highways*** are highways where motorists expect to travel at relatively high speeds. Typical examples include major intercity routes, primary connectors of major traffic generators, daily commuter routes, or major links in state or national highway networks. These facilities serve mostly long-distance trips or provide the connections between facilities that serve long-distance trips.

- ***Class II two-lane highways*** are highways where motorists do not necessarily expect to travel at high speeds. Examples include two-lane highways functioning as access routes to Class I facilities, serving as scenic or recreational routes, or passing through rugged terrain. Class II facilities most often serve relatively short trips, the beginning or ending portions of longer trips, or trips for which sightseeing plays a significant role.

- ***Class III two-lane highways*** are highways serving moderately developed areas. They may be portions of a Class I or Class II highway that pass through small towns or developed recreational areas. On such segments, local traffic often mixes with through traffic, and the density of unsignalized roadside access points is noticeably higher than in a purely rural area. Class III highways may also be longer segments passing through more spread-out recreational areas, also with increased roadside densities. Such segments are often accompanied by reduced speed limits that reflect the higher activity level.

HCM 2010 outlines three measures of effectiveness employed in the determination of automobile LOS on a two-lane highway:

1. ***Average Travel Speed (ATS)*** reflects mobility on a two-lane highway. It is defined as the highway segment length divided by the average travel time taken by vehicles to traverse it during a designated time interval.

2. ***Percent Time Spent Following (PTSF)*** represents the freedom to maneuver and the comfort and convenience of travel. It is the average percentage of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. Because this characteristic is difficult to measure in the field, a surrogate measure is the percentage of vehicles traveling at headways of less than 3.0 seconds at a representative location within the highway segment. PTSF also represents the approximate percentage of vehicles traveling in platoons.

3. ***Percent of Free-Flow Speed (PFFS)*** represents the ability of vehicles to travel at or near the posted speed limit.

Table 12 lists the thresholds for the measures of effectiveness as they relate to each class of two-lane highway.

Table 12 - Automobile LOS for Two-Lane Highways

LOS	Class I Highways		Class II Highways	Class III Highways
	ATS (mi/h)	PTSF (%)	PTSF (%)	PFFS (%)
A	> 55	≤ 35	≤ 40	> 91.7
B	> 50-55	> 35-50	> 40-55	> 83.3-91.7
C	> 45-50	> 50-65	>55-70	> 75.0-83.3
D	> 40-45	> 65-80	>70-85	>66.7-75.0
E	≤ 40	> 80	>85	≤ 66.7

Multilane Highway Capacity

Under base conditions, the capacity of a multilane highway depends on the free flow speed. For a free flow speed of 45 mph, HCM 2010 identifies a capacity of 1,900 passenger cars per hour per lane (pc/h/ln).

For the multilane highway segments, HCM 2010 defines the LOS based on the density of traffic, expressed as passenger cars per mile per lane (pc/mi/ln). Table 13 lists the density thresholds for each LOS as outlined in HCM 2010.

Table 13 - Automobile LOS for Multilane Highway

LOS	FFS (mph)	Density (pc/mi/ln)
A	All	> 0-11
B	All	> 11-18
C	All	> 18-26
D	All	> 26-35
E	60	>35-40
	55	> 35-41
	50	>35-43
	45	>35-45
F	Demand Exceeds Capacity	
	60	> 40
	55	> 41
	50	> 43
	45	> 45

2017 Base Year Traffic

For the 2017 Base Year condition, the Little Neck was considered to be a Class I two-lane highway. The PTSF was determined for both morning and evening peak hours using the 2017 Base Year volumes that would be expected just to the west of Al Henderson Boulevard (taken from the peak hour intersection volumes).

Table 14 - 2017 Two-Lane Highway LOS

Peak Hour	Volume in Peak Direction (pc/h)	PTSF (%)	LOS
AM	376	53.3	D
PM	347	52.4	D

The results of the two-lane highway analysis indicate that Little Neck Road exhibits LOS D during both morning and evening peak hours.

2037 Design Year Traffic

The addition of the New Hampstead and Keller development volumes significantly increases the ADT volumes within the study area between the base year and the design year. A two-lane highway analysis was performed using peak hour volumes just west of Al Henderson Boulevard. Table 15 lists the results of the two-lane analysis. The volumes expected in the peak direction do not exceed the 1,700 pc/h threshold, but are high enough to result in LOS E.

Table 15 - 2037 Two-Lane Highway LOS

Peak Hour	Volume in Peak Direction (pc/h)	PTSF (%)	LOS
AM	1444	89.3	E
PM	1615	91.5	E

A multilane highway analysis was also performed using the 2037 peak hour volumes expected on Little Neck Road. Table 16 summarizes the results.

Table 16 - 2037 Multilane Highway LOS

Peak Hour	Direction	Flow Rate (pc/h/ln)	Density (pc/mi/ln)	LOS
AM	Eastbound	731	14.8	B
	Westbound	501	10.0	A
PM	Eastbound	563	11.4	B
	Westbound	814	16.3	B

The results of the multilane highway analysis indicate that Little Neck Road would exhibit no worse than LOS B during both peak hours. A four-lane divided highway would be adequate to accommodate the additional traffic expected in the design year 2037.

Intersection Capacity Analysis

Methodology

In order to evaluate the quality of traffic flow at the study intersections, procedures and methodologies outlined in the Transportation Research Board's 2010 edition of the Highway Capacity Manual (HCM 2010) were employed. The analyses for this study were completed using Trafficware Ltd. Synchro Studio 9 which automates many of the methodologies detailed in the HCM 2010. Synchro Reports for all the analyses are provided in APPENDIX E.

One of the key evaluation parameters established in HCM 2010, as in all previous editions, is "level of service" (LOS). Level of service is used as a general qualitative measure of how adequate a particular roadway or intersection configuration performs in handling a given traffic load. The particular criterion used to measure LOS varies depending upon which aspect of traffic flow is being assessed. This study uses both signalized and unsignalized capacity analyses to determine intersection LOS.

Signalized Intersection LOS

Signalized intersection LOS is defined in terms of the control delay, which is measured in seconds and quantifies the increase in travel time as a result of the traffic signal control. A description of each LOS is provided below.

LOS A: Operations with very low control delay, occurring when progression is extremely favorable to a particular movement and most vehicles arrive during a green phase and do not stop at all.

LOS B: Operations with generally good progression with short cycle lengths and vehicles experiencing a higher likelihood of stopping briefly.

LOS C: Operations with fair progression, longer cycle lengths, and significant numbers of vehicles required to stop, though many others still pass through unimpeded. Individual cycle failures may begin to appear.

LOS D: Influence of congestion becomes more pronounced. Longer delays may result from some combination of unfavorable progression. The number of vehicles stopping is significant, though a few may occasionally pass through unimpeded.

LOS E: Many agencies consider this level the limit of acceptable delay. Typified by poor progression, long cycle lengths, and high volume-to-capacity (v/c) ratios. Individual cycle failures are frequent occurrences.

LOS F: Considered unacceptable to most drivers, these intersections experience frequent over-saturation with arrival flow rates exceeding the intersection capacity. Very poor progression, long cycle lengths, and frequently long delays.

Two-Way Stop-Controlled (TWSC) Intersection LOS

Unsignalized intersection level of service is defined in terms of the control delay measured in seconds. For Two-Way Stop Control (TWSC) intersections the control delay can be measured for any stop-controlled approach by summing the control delay for each approach movement. Each service level is uniquely considered for an unsignalized intersection as follows:

LOS A: Operations with very low control delay. Vehicles can readily find a suitable gap in the major street movements; usually first to arrive at stop sign.

LOS B: Operations with generally low control delay. Queues are very short, two cars or less and can readily cross the intersection.

LOS C: Operations with longer control delay. Vehicles cannot readily cross and must wait for sufficient gap. Queues start to form.

LOS D: Gaps in major street movements are becoming shorter and progression is slow. Lengthy queues are starting to from.

LOS E: Typified by long delays. Gaps in the major street are becoming increasingly short. Queues are lengthy.

LOS F: Considered unacceptable to most drivers, usually occurs when there are insufficient gaps in the major street to allow the minor street to safely enter. Long queues are highly likely.

Table 17 lists the control delay thresholds associated with each LOS rating for both unsignalized and signalized intersections.

Table 17 - LOS Criteria for Intersection Capacity Analysis

Level of Service (LOS)	UNSIGNALIZED Control Delay (sec/veh)	SIGNALIZED Control Delay (sec/veh)
A	0 to 10	0 to 10
B	>10 to 15	>10 to 20
C	>15 to 25	>20 to 35
D	>25 to 35	>35 to 55
E	>35 to 50	>55 to 80
F	>50	>80

2017 Base Year Traffic

A capacity analysis was performed for the study intersections under the 2017 Base Year conditions. Table 18 presents the average delay and LOS results of the analysis. The approach volumes for each peak hour are also included in the table. Results of LOS E or F are considered failing and are emphasized in bold, red type.

Table 18 - 2017 Base Year Peak Hour Average Delay and LOS at Study Intersections

ID	Intersection / Approach	Morning Peak Hour Approach Volume (veh/hr)	Morning Peak Hour Delay (sec/veh)	Morning Peak Hour LOS	Evening Peak Hour Approach Volume (veh/hr)	Evening Peak Hour Delay (sec/veh)	Evening Peak Hour LOS
1	**Little Neck Road & Al Henderson Boulevard**	*Unsignalized*					
	Westbound Little Neck Road Left-Turn	51	8	A	56	8	A
	Northbound Al Henderson Boulevard	140	12	B	54	11	B
2	**US 17/SR 25 & Little Neck Road**		**9**	**A**		**7**	**A**
	Eastbound Little Neck Road	411	27	C	214	34	C
	Northbound US 17	1095	5	A	1082	3	A
	Southbound US 17	1022	9	A	1446	8	A

The results indicate that the two study intersections will operate acceptably in the year 2017. The unsignalized intersection at Al Henderson Boulevard will exhibit LOS B or better for critical movements. The signalized intersection at US 17 will operate at an overall LOS A during both peak hours.

2037 Design Year Traffic

A capacity analysis was performed for the study intersections using the 2037 Design Year volumes and existing roadway geometries. For the Design Year, the intersection at Al Henderson Boulevard includes a fourth leg where an entrance to the Keller development is planned. The southbound Keller driveway approach was assumed to have a through/left-turn lane and an exclusive right-turn lane. Table 19 presents the approach volumes, average delay and LOS results of the analysis. Results of LOS E or F are considered failing and are emphasized in bold, red type.

Table 19 - 2037 Plus Development Volumes Peak Hour Average Delay & LOS at Study Intersections

ID	Intersection / Approach	Morning Peak Hour Approach Volume (veh/hr)	Morning Peak Hour Delay (sec/veh)	Morning Peak Hour LOS	Evening Peak Hour Approach Volume (veh/hr)	Evening Peak Hour Delay (sec/veh)	Evening Peak Hour LOS
1	**Little Neck Road & Al Henderson Boulevard**	*Unsignalized*					
	Eastbound Little Neck Left-Turn	18	9	A	20	14	B
	Westbound Little Neck Left-Turn	57	13	B	62	11	B
	Northbound Al Henderson	162	**815**	**F**	75	**4435**	**F**
	Southbound Al Henderson	29	**995**	**F**	154	**12735**	**F**
2	**US 17 & Little Neck Road**		**89**	**F**		**153**	**F**
	Eastbound Little Neck	1388	**141**	**F**	1127	**235**	**F**
	Northbound US 17	1664	**62**	**E**	2192	**99**	**F**
	Southbound US 17	1578	**112**	**F**	2247	**206**	**F**

The results indicate that both study intersections would exhibit failing operations by the year 2037 if no intersection improvements are made. The side street approaches at Al Henderson Boulevard and Little Neck Road would experience extreme delays during both peak hours. All three approaches at the US 17 intersection would exhibit failing operations with the additional design year traffic.

Mitigation

Mitigation strategies including stop control measures and geometric improvements to intersections were explored in an effort to achieve acceptable traffic operations at the study intersections. As part of the mitigation effort, a signal was considered at the intersection of Little Neck Road and Al Henderson Boulevard, as shown in Figure 11.

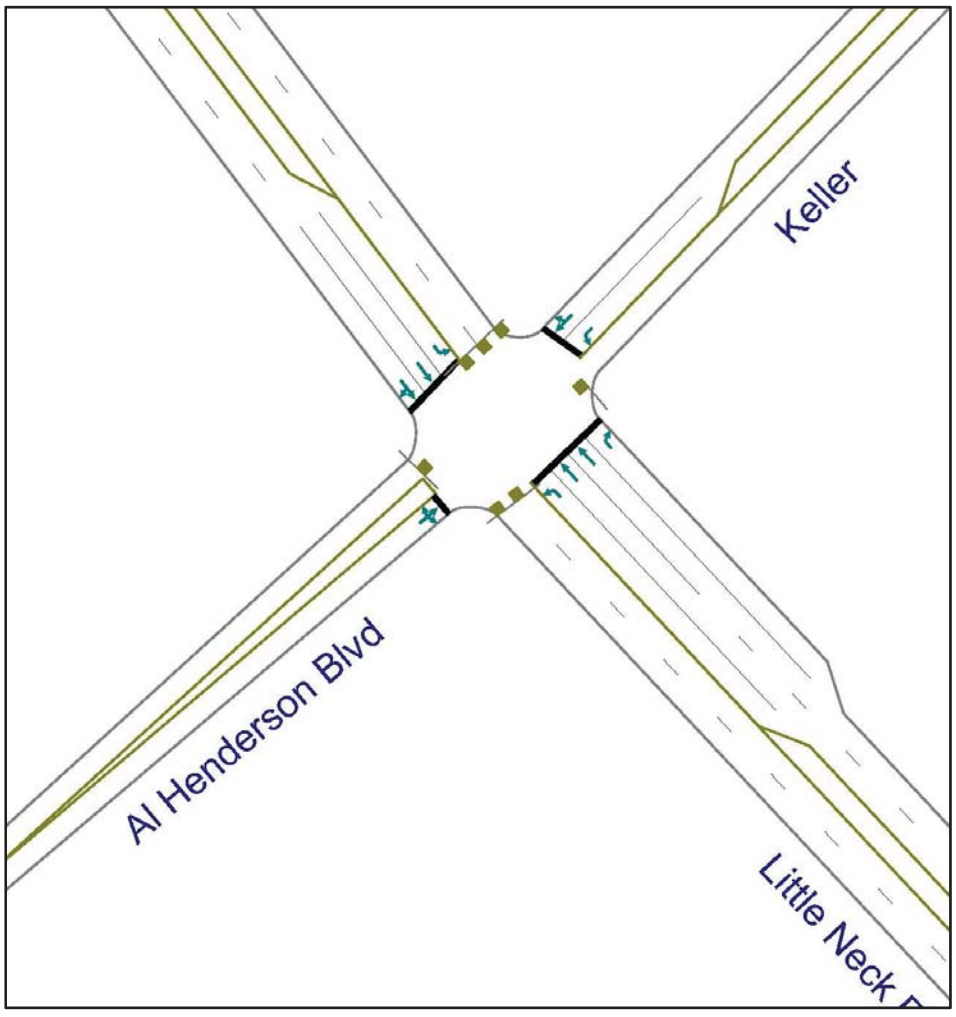


Figure 11 - Mitigated Study Intersection 1 - Little Neck Road and Al Henderson Blvd/Keller Entrance

The intersection of Little Neck Road and US 17 is already signalized in the existing condition, however the increase in traffic on Little Neck Road warranted the addition of exclusive turn lanes on the eastbound approach to the intersection. The eastbound approach was modified to include two exclusive left-turn lanes and 2-exclusive right-turn lanes. A second exclusive right-turn lane was added

to the southbound US 17 approach. A second left-turn lane was added to the northbound US 17 approach. Figure 12 depicts the modified intersection geometry at Little Neck Road and US 17.

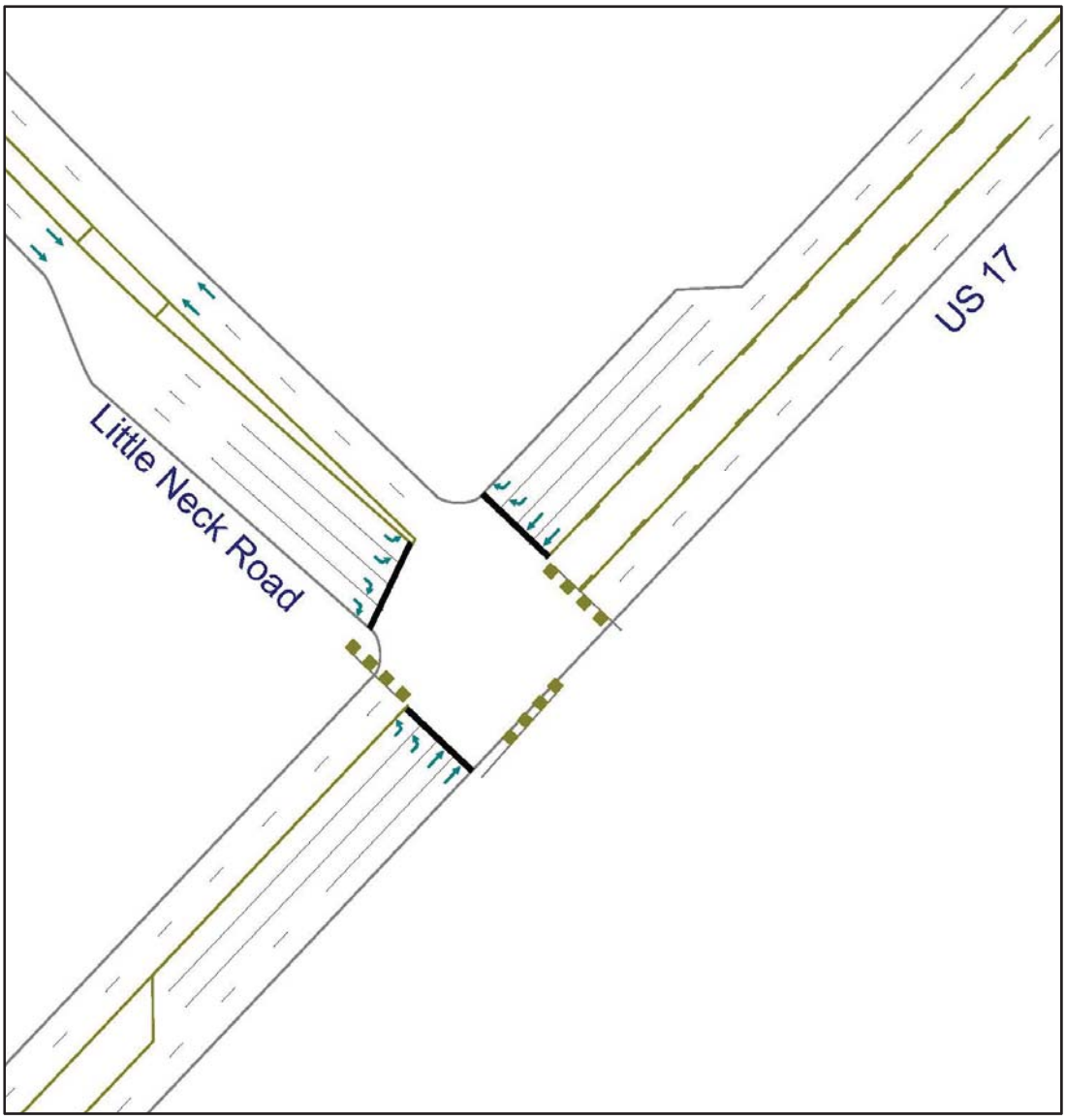


Figure 12 - Mitigated Study Intersection 2 - Little Neck Road and US 17

2037 Mitigated Design Year Traffic

A capacity analysis was performed for the study intersections under the 2037 Mitigated Design Year conditions. Table 20 presents the average delay and LOS results of the analysis. The approach volumes for each peak hour are also included in the table. Results of LOS E or F are considered failing and are emphasized in bold, red type.

Table 20 - 2037 Mitigated Design Year Peak Hour Average Delay and LOS at Study Intersections

ID	Intersection / Approach	Morning Peak Hour Approach Volume (veh/hr)	Morning Peak Hour Delay (sec/veh)	Morning Peak Hour LOS	Evening Peak Hour Approach Volume (veh/hr)	Evening Peak Hour Delay (sec/veh)	Evening Peak Hour LOS
1	**Little Neck Road & Al Henderson Boulevard**		**14**	**B**		**13**	**B**
	Eastbound Little Neck Road	18	14	B	20	9	A
	Westbound Little Neck Road	57	9	A	62	13	B
	Northbound Al Henderson Boulevard	162	33	C	75	33	C
	Southbound Al Henderson (Keller Entrance)	29	30	C	154	31	C
2	**US 17/SR 25 & Little Neck Road**		**25**	**C**		**44**	**D**
	Eastbound Little Neck	1388	30	C	1127	52	D
	Northbound US 17/SR 25	2162	21	C	2192	33	C
	Southbound US 17/SR 25	1578	26	C	2247	49	D

The results of the capacity analysis indicate that the mitigation measures applied at the study intersections would significantly reduce delay for traffic at both intersections. For both peak hours, the side street approaches at the Al Henderson Boulevard intersection would exhibit LOS C with average delays of between 30 and 33 seconds per vehicle. The US 17 intersection would operate at an overall LOS C during the morning peak hour and LOS D during the evening peak hour. The eastbound Little Neck Road approach would experience 30 seconds of delay per vehicle in the morning peak hour and 52 seconds of delay per vehicle during the evening peak hour.

Conclusions and Recommendations

The current roadway section on Little Neck Road is adequate to serve the existing and near-term traffic loads on the roadway; however, significant growth is expected to occur as new developments are completed along the Little Neck Road corridor.

Currently, development has begun on the New Hampstead community located on Little Neck Road north of the study area. The Keller Tracts development is in the planning stages and will be located on the north side of Little Neck Road between US 17 and I-95. By the year 2037, these two developments are expected to significantly increase the Average Daily Traffic on Little Neck Road such that improvements will be needed along the facility.

Based on the increased traffic loads expected over the next 20 years, and the impacts the additional traffic will have on the quality of service experienced by roadway users, the following improvements are recommended:

- Little Neck Road should be widened to provide a typical section with two lanes of travel in each direction between I-95 and US 17.
- A traffic signal should be installed at the intersection of Little Neck Road and Al Henderson Boulevard as development of the Keller Tracts reaches the appropriate volume threshold.
- A second, exclusive right-turn lane should be added to the eastbound Little Neck Road approach at US 17.
- A second, exclusive left-turn lane should be added to the eastbound Little Neck Road approach at US 17.

STORMWATER MANAGEMENT STRATEGY

HOPETON LANDING

SAVANNAH, GA

09.17.2021

Project# 17-431

COLEMAN COMPANY
ENGINEERS • SURVEYORS

PREPARED BY TRAVIS G. BURKE, P.E. | PREPARED FOR HOPETON LANDING

COLEMAN COMPANY
ENGINEERS • SURVEYORS

CONTENTS

EXHIBITS:

COLEMAN COMPANY
ENGINEERS • SURVEYORS

SITE OVERVIEW

The (+/-) 478-acre Hopeton Landing Development is located on the north side of Little Neck Road between Interstate 95 and U.S. Highway 17 in Savannah, Georgia. The property is proposed to be developed as a Planned Development (PD) with a mix of uses that include Single Family Residential, Multi-Family Residential, Institutional, and Commercial.

The post-developed site is expected to be developed as ten parcels with a mix of residential, commercial, and institutional and the infrastructure necessary to support it. Best management practices will be utilized to address water quality and increased runoff. It is the intent of Hopeton Landing to be good stewards of the Little Ogeechee River and other adjacent natural resources by meeting and exceeding the federal, state, and local stormwater standards that have been developed pursuant to the Clean Water Act. The City of Savannah Stormwater Ordinance and Local Design Manual was most recently updated in 2018 and includes development standards and design criteria as set forth in the Georgia Stormwater Management Manual and in the Georgia Coastal Stormwater Supplement. In addition to the adoption of the updated Stormwater Ordinance, the City of Savannah also included a Natural Resource Section to their code of ordinances which requires Protected River Corridor Buffers as well as Wetland Buffers. Hopeton Landing's strategy to stormwater management will be a multistage approach that includes best management practices, buffering, water quality, run-off reduction, extended detention, sedimentation and erosion control, and flood protection.

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STORMWATER MANAGEMENT CRITERIA

The City of Savannah Stormwater Ordinance and the Georgia Coastal Stormwater Supplement has five criteria for Post-Construction Stormwater Management that Hopeton Landing will require in all of its development:

1. Stormwater Runoff Reduction
2. Stormwater Quality Protection
3. Aquatic Resource Protection
4. Overbank Flood Protection
5. Extreme Flood Protection

Below are the approaches taken to meet or exceed these requirements:

STORMWATER RUNOFF REDUCTION

Post-Construction Stormwater Management for Hopeton Landing will meet the criteria, recommended by the GA Coastal Stormwater Supplement to the maximum extent practical. Stormwater runoff reduction is really the first line of defense when it comes to water quality and runoff reduction. This criterion requires that a development site must be designed with the use of green infrastructure practices to reduce the first 1.2 inches of any rainfall event.

Just as the proposed development is comprised of a mix of use types a mix of best management and green infrastructure practices will be implemented to achieve this requirement. Commercial, residential, and industrial uses are developed differently and shall use a combination of infiltration practices that includes bio-retention, dry swales, infiltration trenches, and pervious paving. In addition to infiltration practices vegetated filters will also be used in the form of disconnected downspouts, vegetated filter strips (grassed open space) in conjunction with outfalls into undisturbed pervious area. These practices provide runoff reduction "credits" to meet the runoff reduction criteria to the maximum extent practical.

The amount of Stormwater runoff reduction needed to satisfy the Stormwater runoff reduction criteria, known as the runoff reduction volume (RRV), can be calculated using the following equations:

$$RR_V = \frac{(P)(R_V)(A)}{12}$$

Where:

RR_V = runoff reduction volume (Ac-Ft)
P = target runoff reduction rainfall, 1.2 inches
R_V = volumetric runoff coefficient
A = site area (Ac)
12 = unit conversion factor (in./ft.)

A site's volumetric runoff coefficient, RV, is directly related to the amount of impervious cover found on the site:

$$RV = 0.05 + 0.009(I)$$

Where:

I = Site Imperviousness (%)

Reducing the stormwater runoff volume generated by the 1.2-inch storm event can be expected to reduce annual post-construction stormwater runoff volumes and pollutant load by more than 80% on development sites.

STORMWATER QUALITY PROTECTION

Per Section 4.4.1 of the GCSS, Stormwater generated from the 1.2-inch rain event that is not reduced on the developed site should be intercepted and treated in one or more stormwater management practices that provide at least an 80 percent reduction in the total suspended solids and that reduce nitrogen and bacteria loads to the maximum extent practical. The proposed wet stormwater ponds located throughout the individual pods will serve as the treatment method. This criterion will be met by intercepting the runoff from the project areas into these stormwater ponds prior to outfalls into undisturbed pervious areas that then drain through the freshwater wetlands before entering the Little Ogeechee River.

The proposed stormwater ponds will have permanent pools of water, meaning they will retain water all the time where stormwater is detained and treated over an extended period of time mainly through gravitational settling and biological uptake. These ponds can also provide stormwater storage for quantity control allowing the ponds to function as both treatment and manage stormwater runoff rates and volumes generated by larger less frequent rainfall events.

Wet ponds provide moderate to high removal rates of many of the pollutants contained in post-construction runoff and can be attractively integrated into the development sites and provide aquatic wildlife habitat. Expected annual pollutant removal rates are 80% total suspended solids, 50% total phosphorus, 30% total nitrogen, 50% metals, and 70% pathogens.

AQUATIC RESOURCE PROTECTION

This criterion requires protection to aquatic resources by identifying primary conservation areas and protecting them by direct impacts of land development by providing buffers adjacent to all freshwater wetlands and by providing 24 hours of extended detention for the stormwater runoff volume generated by a 1-year, 24-hour storm event. The purpose of this requirement is to protect stream channels from scour and enlargement from frequent high velocity discharges, control surface water temperatures, and protect against increased salinity fluctuations.

This criterion will be met by establishing 35ft upland buffers adjacent to all freshwater wetlands and the use of wet ponds and other stormwater storage practices within each developed pod to provide extended detention and release rates. The drainage outfall structures will be designed to allow a slow release of the volume of stormwater generated by the 1-years storm event to emulate the runoff from an undeveloped parcel. Additionally, the freshwater wetlands located in Hopeton Landing provide a natural buffer to the Little Ogeechee River. The City of Savannah Natural Resource Ordinance requires a 100ft buffer to river corridors and the existing freshwater wetlands that are being preserved provide a natural buffer ranging from 585ft to 1,285ft in addition to the 35ft upland buffer being provided.

OVERBANK FLOOD PROTECTION

This criterion requires that the peak discharge generated by the 25-year, 24-hour storm event under the post-development conditions does not exceed the peak discharge generated by the same storm event under pre-developed conditions. This prevents an increase in the duration, frequency, and magnitude of downstream overbank flooding. While this criterion is primarily in place to protect downstream properties from developments occurring up stream and the City of Savannah Stormwater Ordinance can waive this requirement if the property has direct discharge to open water bodies such as the Little Ogeechee River, Hopeton Landing will require this criterion be met on all the developed sites within the PD.

EXTREME FLOOD PROTECTION

This criterion requires that the peak discharge generated by the 100-year, 24-hour storm event under the post-development conditions does not exceed the peak discharge generated by the same storm event under pre-developed conditions. Like the Overbank Flood Protection, this criterion prevents an increase in the duration, frequency, and magnitude of downstream extreme flooding and can be waived by the City of Savannah if the property has direct discharge to an open water body. Hopeton Landing will require this criterion be met on all sites as it does provide a benefit to help maintain the boundaries of the 100-year flood plain and physical integrity of downstream conveyance features.

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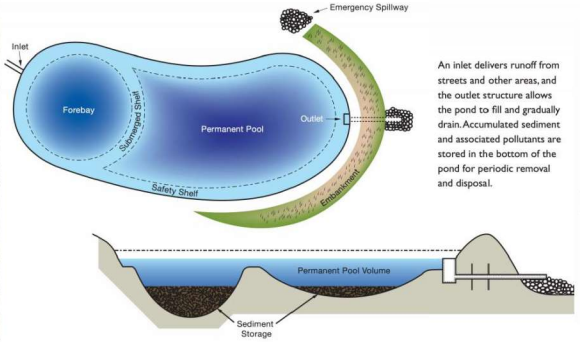
STORMWATER MANAGEMENT EXHIBIT

HOPETON LANDING STORMWATER MANAGEMENT PLAN

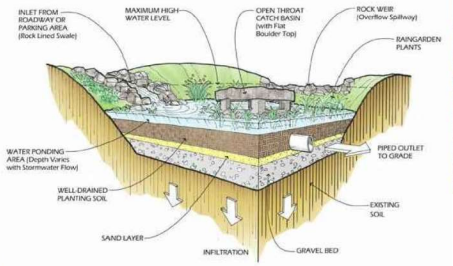
STORMWATER RUNOFF REDUCTION

STORMWATER QUALITY PROTECTION



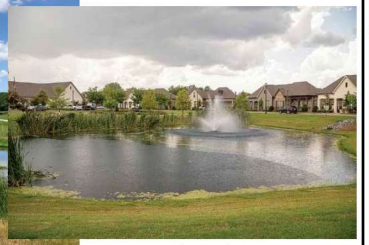
An inlet delivers runoff from streets and other areas, and the outlet structure allows the pond to fill and gradually drain. Accumulated sediment and associated pollutants are stored in the bottom of the pond for periodic removal and disposal.

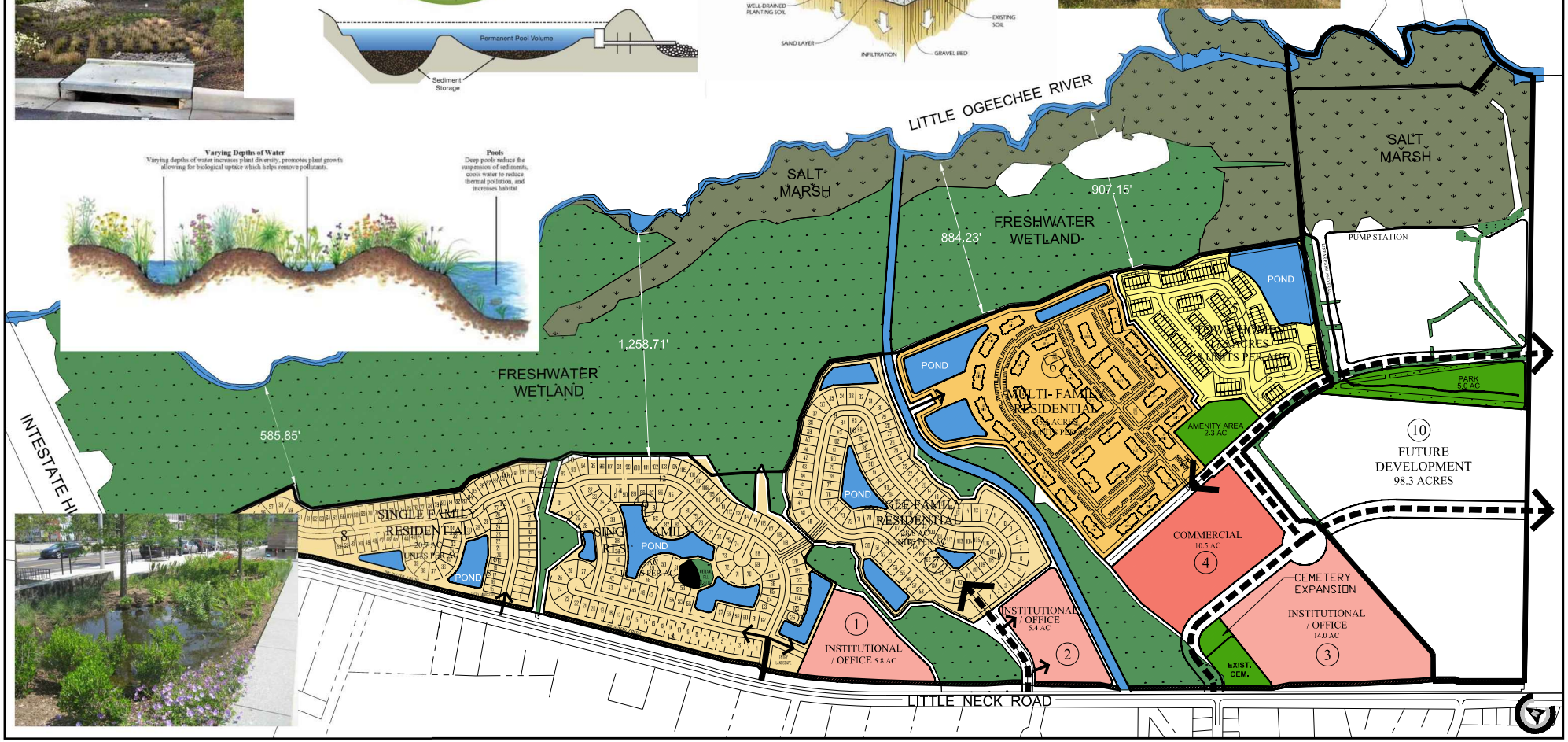
AQUATIC RESOURCE PROTECTION



OVERBANK FLOOD PROTECTION

EXTREME FLOOD PROTECTION





RENDER PLAN FOR
HOPETON LANDING STORMWATER MANAGEMENT
LOCATED IN SAVANNAH, GEORGIA

COLEMAN COMPANY ENGINEERS • SURVEYORS

JOB NUMBER: 14-391
DATE: 09/21/2021
DRAWN BY: FPGD
CHECKED BY: CJC
SCALE: AS NOTED

TRAFFIC IMPACT AND ACCESS STUDY

HOPETON LANDING MASTER PLAN
LITTLE NECK ROAD
CHATHAM COUNTY, GEORGIA

Prepared for:

Coleman Company, Inc
Savannah, GA

Submitted
August 2021

Prepared by:

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August 10, 2021

Mr. Travis Burke
Coleman Company, Inc.
17 Park of Commerce, Suite 201
Savannah, Georgia 31405

Phone: 912 200 3041
Email: tburke@cci-sav.com

RE: Traffic Impact and Access Study
Hopeton Landing Master Plan
Little Neck Road
Chatham County, GA

Dear Travis:

As requested, Encroachment Permit Clearinghouse (EPC) has completed an assessment of the traffic impacts associated with the development of a large-scale mixed-use project referred to as Hopeton Landing which is located on the northeast side of Little Neck Road generally between I 95 and Ogeechee Road (US 17) in Chatham County, GA. The following provides a summary of this study's findings.

PROJECT DESCRIPTION

The project site is bounded by Little Neck Road to the south, I 95 to the north and undeveloped land to the southeast (approximately 4,000-feet to US 17 (Ogeechee Road)). The project site is approximately 478-acres and is expected to be developed as nine parcels/PODs which plan a mix of residential, commercial and institutional uses as identified below:

- POD #1: Assisted Living Facility- 200 beds;
- POD #2: Medical Office – 54,000 square-feet (sf);
- POD #3: Medical Office – 70,000 sf & General Office-70,000 sf;
- POD #4: Shopping Center- 105,000 sf;
- POD #5: Townhomes- 140 units;
- POD #6: Apartment Complex- 594 units;
- POD #7: Single Family Detached- 112 units;
- POD #8: Single Family Detached- 94 units; and
- POD #9: Single Family Detached- 126 units.

Access for this over-all project is planned via four driveways along Little Neck Road which are orientated to service specific development PODs described below:

- Access #1: Located opposite Henderson Oaks Drive: servicing PODs #3, 4, 5 & 6;
- Access #2: Located opposite Henderson Lakes Apartments: servicing PODs #2 & 7;
- Access #3: Located opposite Holy Church of God: servicing PODs #1 & 9; and
- Access #4: Proposed: servicing POD #8.

Each of these access drives are located within the section of Little Neck Road that is the subject of a Chatham County widening project which extends from US 17 to I 95 widening this facility to a multi-lane cross-section with planned access management strategies. The expectation of Chatham County is this widening will be completed by 2037.

Due to wetland and canal issues, interconnectivity is limited within the project. Connectivity is planned between PODs #7 & 9 as well as PODs #8 & 9. Cross-access to the abutting parcel south of the project is also indicated via two roadway extensions which will be constructed to the project's southeastern border.

For or purposes of this report and as coordinated with County staff, build-out of the over-all development is expected by 2030. Initially, due to utility extensions to be completed, the project plans to construct three PODs located in the northern section of the site closest to I 95 (PODs #1, 8 & 9) which will provide a total of 222 single family residential units and the assisted living facility. Development schedule after this area is then dependent on the County's widening project of Little Neck Road.

Figure 1 depicts the site location in relation to the regional roadway system. **Figure 2** depicts the over-all proposed development plan (Figures located at end of report).

EXISTING CONDITIONS

A comprehensive field inventory of the project study area was conducted in May 2021. The field inventory included a collection of traffic volume data, geometric data and traffic control within the study area. The following sections detail the current traffic conditions and include a description of roadways/intersections serving the site and traffic flow in close proximity to the project.

Project Study Area

As identified during a scoping meeting, the following intersections have been required by Chatham County staff to be analyzed in order to determine project impact on the surrounding roadway network.

1. Ogeechee Parkway (US 17) at Little Neck Road;
2. Little Neck Road at Al Henderson Boulevard;
3. Little Neck Road at Zipperer Drive;
4. Little Neck Road at Henderson Oaks Drive; and
5. Little Neck Road at Henderson Lakes Apartment Access.

Figure 3 illustrates the existing geometrics and traffic control for the study area intersections and surrounding roadways.

Traffic Volumes

In order to determine the existing traffic volume flow patterns within the study area, manual turning movement counts were performed for each of the above intersections. Weekday morning (7:00-9:00 AM) and evening (4:00-6:00 PM) peak period turning movement specific counts were conducted. Additional

counts were conducted for Little Neck Road via automatic 24-hour recorders in order to compare daily volumes to GDOT's TADA counts in order to define if Covid-19 impacts are relevant.

Based on the GDOT data, Little Neck Road carries a daily volume of 6,600 vehicles (2019 station # 051-0447). Collected daily volumes in May 2021 indicated a daily volume of 6,750 vehicles. Based on this and approved by County staff, traffic volume data collected no longer require adjustments due to Covid-19 impacts.

Summarized count sheets for the study area intersections are included in the Appendix of this report. **Figures 4** and **5** graphically depict the respective Existing AM and PM peak-hour traffic volumes at the study area intersections to be used for analytical purposes.

FUTURE CONDITIONS

For purposes of this report, full build-out of the project has been assumed to occur in 2030. Traffic analyses for future conditions have been conducted for two separate scenarios: first, 2030 No-Build conditions, which includes an annual normal growth in traffic, all pertinent background development traffic, and any pertinent planned roadway/intersection improvements; and secondly, 2030 Build conditions, which account for all No-Build conditions PLUS traffic generated by the proposed development.

Future No-Build Traffic Conditions

Planned Roadway Improvements

The County has developed a plan to widen Little Neck Road to a multi-laned facility through the study area from US 17 extending to the I 95 over pass. As a four-lane divided/five-lane facility with planned access management strategies, signalization is identified for the Al Henderson Boulevard intersection as well as other area intersections of future development of both the Hopeton and Keller parcels. Included are also additional turning lanes for the US 17 at Little Neck Road intersection.

As indicated by the prepared Traffic study by HGB and County staff, the future design year for this improvement is 2037 which puts its plan beyond the build-out of this project. Based on this and as discussed with staff, these improvements have not been accommodated for in any of the future year analysis. Information/concept plan for the Little Neck Road widening project is included in the Appendix of this report.

It should be noted that based on recent conversations with Chatham County staff, right-of-way acquisition is expected to start next year in 2022 and that project construction will occur over many phases starting from the I 95 over-pass as the two-lane cross-section, expanding to a five-lane section and then a four-lane divided cross-section approximately 1,600-feet south of the over-pass and finishing at the Ogeechee Road (US 17) intersection.

Development by Others

As was discussed with County staff, for the purposes of this report, no specific background developments are to be included. Instead, a compounded growth rate will be utilized to project future traffic volumes which is discussed in the following section.

Annual Growth Rate

Traffic volumes along Little Neck Road have increased moderately over the last few years based on the GDOT TADA information (station #051-0447) which indicates a less than 1-percent growth per year. Per discussions with County staff and knowledge of development to the north of I 95 as well as undeveloped land in the area, it has been decided and approved to utilize a compounded 3-perecnt growth per year which is consistent with work completed along Little Neck Road towards I 16. This annual growth rate (1.30 multiplier) has been assigned to the intersections of Little Neck Road at US 17 and Al Henderson Boulevard and to the north/south through movements of Little Neck Road for Zipperer Drive, Henderson Oaks Drive and Henderson Lake Apartments intersections. Turning movements entering and exiting Zipperer Drive, Henderson Oaks Drive and Henderson Lake Apartments have been increased by a 1-percent per year rates (multiplier of 1.09).

The anticipated 2030 No-Build A and PM peak-hour traffic volumes, which reflect the compounded annual 3-percent growth for US 17, Little Neck Road and Al Henderson Boulevard and the 1-percent growth for the remaining side streets are shown in **Figures 6** & **7**.

SITE-GENERATED TRAFFIC

Traffic volumes expected to be generated by the proposed development were forecasted using the Tenth Edition of the ITE *Trip Generation* manual, as published by the Institute of Transportation Engineers. **Table 1** depicts the anticipated site-generated traffic. For purposes of this analyses, each component or POD of the project has been defined separately in order to correctly assign traffic to the study area intersections and individual site access drives. Additionally, each land-use specific to that access has also been broken out in order to reflect the total sum of the project's traffic generation. This methodology has been shared with staff and approved for use in this report.

Table 1
TRIP GENERATION SUMMARY[1]
Hopeton Landing
Chatham County, GA

Access	POD	Land Use	Size	Variable	LUC	Daily Two-Way	AM Peak-Hour Enter	AM Peak-Hour Exit	AM Peak-Hour Total	PM Peak-Hour Enter	PM Peak-Hour Exit	PM Peak-Hour Total
Henderson Oaks Drive/Access #1	3	**Medical Office**	70,000	sf	720	2,600	152	43	195	68	174	242
	3	**General Office**	70,000	sf	710	750	79	13	92	13	68	81
	4	**Shopping Center**	105,000	sf	820	6,220	61	38	99	270	293	563
				10% Int Capture[2]		620	6	4	10	27	29	56
				25% Pass-by[3]		1,400	9	9	18	60	60	120
	5	**Townhomes**	140	Unit	220	1,030	15	51	66	50	30	80
	6	**Apartments**	594	Unit	220	4,450	63	210	273	210	123	333
		TOTAL ACCESS (#3,4,5&6) *TRIPS*[4]				**14,430**	**364**	**351**	**715**	**584**	**659**	**1,243**
		TOTAL ACCESS PASS-BY *TRIPS*				1,400	9	9	18	60	60	120
		TOTAL ACCESS *NEW TRIPS*				**13,030**	**355**	**342**	**697**	**524**	**599**	**1,123**
Henderson Lakes Apt/ Access #2	2	**Medical Office**	54,000	sf	720	1,990	117	33	150	52	135	187
	7	**Single Family**	112	units	210	1,150	21	63	84	71	42	113
		TOTAL ACCESS (#2&7) *TRIPS*				**3,140**	**138**	**96**	**234**	**123**	**177**	**300**
Holy Church of God/ Access #3	1	**Assisted Living**	200	beds	254	520	24	14	38	20	32	52
	9	**Single Family**	126	unit	210	1,290	23	71	94	80	47	127
		TOTAL ACCESS (#1&9) *TRIPS*				**1,810**	**47**	**85**	**132**	**100**	**79**	**179**
Access #4	8	**Single Family**	94	Unit	210	980	18	54	72	60	36	96
		TOTAL ACCESS (#8) *TRIPS*				**980**	**18**	**54**	**72**	**60**	**36**	**96**
HOPETON LANDING TOTALS		**TOTAL PROJECT *TRIPS***				**20,360**	**567**	**586**	**1,153**	**867**	**951**	**1,818**
		TOTAL PROJECT PASS-BY *TRIPS*				1,400	9	9	18	60	60	120
		TOTAL PROJECT *NEW TRIPS*				**18,960**	**558**	**577**	**1,135**	**807**	**891**	**1,698**

[1] ITE *Trip Generation* manual, 10th Ed. 2017.

[2] Internal capture of 10-percent assumed for shopping use only.

[3] Twenty-five percent pass-by assumed for the shopping center.

[4] Total trips exclude internal capture trips as they will not appear at site access.

As shown by the above, each site access and respective PODs that will be served by that specific access has been presented. Individual access drives are the most southern access located opposite Henderson Oaks Drive (Access #1), access opposite Henderson Lakes Apartments (Access #2), access opposite Holy Church of God (Access #3) and Access #4 located farthest to the north.

In total, the Hopeton Landing project can be expected to generate 20,360 two-way daily trips of which a total of 1,153 trips (567 entering and 586 exiting) are expected during the AM peak-hour. During the PM peak-hour, a total of 1,818 trips (867 entering, 951 exiting) are expected. These volumes reflect the conservative 10-percent internal capture expected between the residential and commercial uses of the site (estimated at 620 daily trips, a total of 10 AM peak-hour trips and a total of 56 PM peak-hour trips) between PODs #3-6.

For the commercial component only a 25-percent pass-by percentage has been applied for the shopping center. No pass-by percentage has been assigned for any other proposed uses within the project.

Once the pass-by reduction was applied to the anticipated external trips, the Hopeton Landing project can be expected to generate 18,960 *new* external trips on a weekday daily basis, of which a total of 1,135 *new* trips (558 entering, 577 exiting) can be expected during the AM peak-hour. During the PM peak-hour, 1,698 *new* trips (807 entering, 891 exiting) can be expected.

Trip generation to be assigned to individual access drives summarized below:

- Access #1- Opposite Henderson Oaks Drive:
  - New trips: 13,030 daily
  - AM Peak: 697 veh (355 entering, 342 exiting)
  - PM Peak: 1,123 veh (524 entering, 599 exiting)
  - Retail Pass-by AM Peak: 19 (9 entering & exit), PM Peak 120 (60 enter and exit)

- Access #2- Opposite Henderson Lakes Apartments:
  - New trips: 3,140 daily
  - AM Peak: 234 veh (138 entering, 96 exiting)
  - PM Peak: 300 veh (123 entering, 177 exiting)
  - Retail Pass-by None

- Access #3- Opposite Holy Church of God:
  - New trips: 1,810 daily
  - AM Peak: 132 veh (47 entering, 85 exiting)
  - PM Peak: 179 veh (100 entering, 79 exiting)
  - Retail Pass-by None

- Access #4- Northern Access:
  - New trips: 980 daily
  - AM Peak: 72 veh (18 entering, 54 exiting)
  - PM Peak: 96 veh (60 entering, 36 exiting)
  - Retail Pass-by None

Distribution Pattern

The directional distribution of site-generated traffic on the study area roadways has been based on an evaluation of existing travel patterns within the defined study area. The anticipated patterns for each of the specific land-uses are shown in **Table 2**. This distribution pattern has been applied to the site-generated traffic volumes from Table 1 to develop the site-generated specific volumes for the study area intersections illustrated in **Figures 8** & **9**.

Table 2
TRIP DISTRIBUTION PATTERN
Hopeton Landing
Chatham County, GA

Roadways	Direction To/From	Residential Percent Enter/Exit	Institutional/ Office Percent Enter/Exit	Commercial/ Retail Percent Enter/Exit
US 17	North	25	35	30
	South	60	40	40
Little Neck Road	North	15	20	25
Henderson Oaks and Lakes	South	0	5	5
	Total	**100**	**100**	**100**

Note: Based on multiple factors including existing traffic patterns, proximity to interstate & arterials and densities of both commercial and residential areas.

Future Build Traffic Conditions

The site-generated traffic, as depicted in Figures 8 & 9, has been added to the respective 2030 No-Build traffic volumes shown in Figures 6 & 7. This results in the peak-hour Build traffic volumes, which are graphically depicted in **Figures 10 & 11**. These volumes were used as the basis to determine potential improvement measures necessary to mitigate traffic impacts caused by the project.

TRAFFIC OPERATIONS

Analysis Methodology

A primary result of capacity analysis is the assignment of Level-of-Service (LOS) to traffic facilities under various traffic flow conditions. The concept of Level-of-Service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A Level-of-Service designation provides an index to the quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels-of-Service are defined for each type of facility (signalized and unsignalized intersections). They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst.

Since the Level-of-Service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of Levels-of-Service depending on the time of day, day of week, or period of a year.

Analysis Results

As part of this TIAS, capacity analyses have been performed at the study area intersections under both Existing and Future (No-Build & Build) conditions. The results of these analyses are summarized in **Table 3**.

Table 3
LEVEL-OF-SERVICE SUMMARY
Hopeton Landing
Chatham County, GA

	Time	Existing		2030 No-Build		2030 Build	
Signalized Intersection	**Period**	**Delay[a]**	**LOS[b]**	**Delay**	**LOS**	**Delay**	**LOS**
US 17 at Little Neck Road	AM	11.8	B	15.9	B	47.9	D
	PM	13.6	B	36.4	D	**190.2**	**F**
Unsignalized Intersections							
Little Neck Road at Al Henderson Blvd	AM	10.4	B	11.7	B	24.6	C
	PM	9.0	A	11.3	B	**>300.0**	**F**
Little Neck Road at Zipperer Drive	AM	10.3	B	11.0	B	19.7	C
	PM	9.7	A	10.3	B	26.2	D
Little Neck Road at Henderson Oaks Drive/Access #1[3]	AM	9.9	A	10.5	B	**>300.0**	**F**
	PM	9.7	A	10.2	B	**>300.0**	**F**
Little Neck Road at Henderson Lakes Apartments/Access #2[4]	AM	9.8	A	10.3	B	32.5	D
	PM	9.3	A	9.6	A	**234.1**	**F**
Little Neck Road at Holy Church of God/Site Access PODs #1 & 9: Access #3	AM	**To be Developed by Project**				15.8	C
	PM					21.3	C
Little Neck Road at Site Access POD #8: Access #4	AM	**To be Developed by Project**				14.2	B
	PM					17.3	C

a. Delay in seconds-per-vehicle.
b. LOS = Level-of-Service.

GENERAL NOTES:

1. For unsignalized intersections, Delay is representative of critical movement/lane group/approach.
2. For signalized intersections, Delay is representative of the over-all average of each approach.
3. Future site access to align opposite Henderson Oaks serving PODs # 3,4, 5 & 6.
4. Future site access to align opposite Zipperer serving PODs # 2 & 7.

As shown in Table 3, under Existing conditions, the signalized study area intersection of US 17 at Little Neck Road currently operates at a LOS B during both the AM and PM peak hours. Each of the unsignalized intersections of Little Neck Road at Al Henderson Boulevard, Zipperer Drive, Henderson Oaks Drive and the Henderson Lakes Apartments also operate at acceptable service levels during both peak hours.

Under future 2030 No-Build conditions, which include the annual growth of 3-percent, each of the study area intersections is expected to continue to operate at acceptable service levels with an increase in delays. The signalized intersection of US 17 at Little Neck Road declines to a LOS D during the PM peak-hour. The main issue for this intersection is the eastbound left-turn from US 17 to Little Neck Road which is greater 300 vehicles during the PM peak-hour.

Build 2030 conditions reflect the operations of all land-uses and phases expected within Hopeton Landing (total build-out). Under these conditions, the signalized intersection of US 17 at Little Neck Road will degrade to a poor service level during the PM peak-hour and a LOS D during the AM peak-hour. As under the No-Build scenario, the left-turn from US 17 to Little Neck Road is the greatest capacity issue as now the volume exceeds 600 vehicles. Three unsignalized intersections will operate poorly during one or

more of the peak hours studied: Little Neck Road at Al Henderson Boulevard, Henderson Oaks Drive and Henderson Lakes Apartments. Both the Henderson Oaks Drive and Henderson Lakes Apartments intersections indicate capacity issues due to the addition of a fourth approach leg being site access drives servicing the project. The remaining two site access drives which serve PODS #1 & 9 and POD #8 are expected to operate at acceptable service levels.

Please note that as defined during the scoping session for this project, these presented service levels do not reflect the County's planned improvements along Little Neck Road or US 17 due to the build year of Hopeton being 2030 and the County's schedule of the widening being 2037.

MITIGATION

The final phase of the analysis process is to identify mitigating measures which may either minimize the impact of the project on the transportation system or tend to alleviate poor service levels not caused by the project. Due to the potential seven-year difference of the County project and Hopeton development, improvements have been identified in two parts:

1. Construction/occupancy of only the northern portion of the project located in PODs #1, 8 & 9 which would be accessed by drives #3 & 4. Development These project areas as shown do not depend on the completion of the County's widening project of Little Neck Road or US 17 to maintain acceptable service levels. Recommendations for development of these PODs include access requirements (cross-section turning lanes, etc.) and traffic control.

2. A longer-term development of the retail and higher density residential areas (PODs #2-7, access drives #1 & 2) which will be accessed by construction of a fourth approach leg opposite Henderson Oaks Drive and Henderson Lakes Apartments. These later development areas will require that the County widening project of Little Neck Road and US 17 to be implemented for build-out of the expected uses.

INITIAL DEVELOPMENT PHASE

The below recommendations are planned while Little Neck Road is still a two-lane facility prior to the completion of the 2037 County widening project:

Little Neck Road at Site Access #3 at Holy Church of God

This unsignalized intersection will service the institutional POD #1 and the residential POD #9 of the project site and is to be located opposite the Holy Church of God access. Based on the trip generation projections, this site access is expected to service a two-way total of 132 trips during the AM peak-hour and 179 two-way trips during the PM peak-hour.

- ***Northbound (Little Neck Road) Approach:*** Based on projected peak-hour volumes, a right-turn lane entering the site is recommended based on *Table 4-6 (ref. Regulations for Driveway & Encroachment Control).* Design of this lane must be in accordance with *Table 4-8* which calls out a 250-foot lane length and a 100-foot taper;

- ***Southbound (Little Neck Road) Approach:*** Based on projected peak-hour volumes, a left-turn lane entering the site is recommended based on *Table 4-7a.* Design of this lane must be in accordance with *Table 4-9* which calls out a 235-foot lane length. Based on the current widening concept for Little Neck Road, this turning lane and taper can be accomplished within the raised

median. It should be noted that by design, this added lane will also result in a northbound left-turn lane for traffic entering the Church;

- ***Westbound (Site Access #3 PODs 1 & 9) Approach:*** Access to be constructed opposite the existing access of the Holy Church of God. Construct site access as a three-lane cross-section with a single inbound lane and two lanes exiting the site designated as a separate left-turn lane and a separate right-turn; and

- ***Traffic Control:*** Place intersection under STOP sign control where traffic exiting the site will be required to stop.

Little Neck Road at Northern Site Access #4

This unsignalized intersection will service POD #8 of the project site and is located approximately 2,200-feet south of I 95 and approximately 1,650-feet north of site access #3 (described above). Based on the trip generation projections, this site access is expected to service a two-way total of 72 trips during the AM peak-hour and 96 two-way trips during the PM peak-hour.

- ***Northbound (Little Neck Road) Approach:*** Based on projected peak-hour volumes, a right-turn lane entering the site is recommended based on *Table 4-6 (ref. Regulations for Driveway & Encroachment Control).* Design of this lane must be in accordance with *Table 4-8* which calls out a 250-foot lane length and a 100-foot taper;

- ***Southbound (Little Neck Road) Approach:*** Based on projected peak-hour volumes, a left-turn lane entering the site is recommended based on *Table 4-7a.* Design of this lane must be in accordance with *Table 4-9* which calls out a 235-foot lane length, a 100-foot taper and an approach shift which varies depending on the method chosen to widen Little Neck Road whether it be symmetrical or a-symmetrical;

- ***Westbound (Site Access #4 POD 8) Approach:*** Construct site access as a three-lane cross-section with a single inbound lane and two lanes exiting the site designated as a separate left-turn lane and a separate right-turn; and

- ***Traffic Control:*** Place intersection under STOP sign control where traffic exiting the site will be required to stop.

The design of both above access drives must account for the eventual widening of Little Neck Road to a four-lane with a TWTL along the project frontage. This coordination with Chatham County's staff and design will be needed in order to not impact the ultimate widening of Little Neck Road and minimize "re-work" when the county's project is implemented.

Off-Site Intersections

With development in the time period prior to the County's widening project, the surrounding off-site intersections of Little Neck Road at US 17, Al Henderson Boulevard, Zipperer Drive, Henderson Oaks Drive and Henderson Lakes Apartments are each expected to operate at acceptable service levels.

BUILD-OUT OF DEVELOPMENT

Development of the remaining project area PODS and access drives #1 & 2 will require the County's Little Neck Road widening project to become the multi-laned facility which is anticipated in the year 2037. Below defines the site access geometries for the two additional access drives followed by off-site intersection recommendations:

Little Neck Road at Henderson Oaks Drive/Site Access #1

This intersection will service PODs #3-6 of the project site as it will align with Henderson Oaks Drive on the opposite side of Little Neck Road. With PODs #3 & 4 being commercial, institutional and higher density residential uses, this access at build-out will serve significant volumes of site-generated traffic during the AM peak-hour (697 two-way trips) and PM peak hour (1,123 two-way trips).

- ***Northbound (Little Neck Road) Approach:*** Based on projected peak-hour volumes, a right-turn lane entering the site is recommended based on *Table 4-6 (ref. Regulations for Driveway & Encroachment Control).* Design of this lane must be in accordance with *Table 4-8* which calls out a 250-foot lane length and a 100-foot taper. The design of this access should incorporate a delta median separating the outside through lane from right-turn lane;

- ***Southbound (Little Neck Road) Approach:*** Based on projected peak-hour volumes, a left-turn lane entering the site is recommended based on *Table 4-7a.* Design of this lane must be in accordance with *Table 4-9* which calls out a 235-foot lane length, a 100-foot taper. Based on the current widening concept for Little Neck Road, this turning lane and taper can be accomplished within the planned raised median;

- ***Westbound (Site Access #1 PODs 3-6) Approach:*** Construct site access as a five/six-lane cross-section with two inbound lanes and four lanes exiting the site designated as dual left-turns, a through lane and a separate right-turn lane; and

- ***Traffic Control:*** Based on the current anticipated land uses, associated trip generation and well as the suggested geometry; this intersection would operate under traffic signal control when warranted under *MUTCD* guidelines. Current location provides a separation from the nearest planned traffic signal at Al Henderson Boulevard of approximately 3,400-feet.

Little Neck Road at Henderson Lakes Apartments/Site Access #2

This unsignalized intersection will service PODs #2 & 7 which has a limited institutional use and 112 single family residential units (AM peak-hour: 230 two-way trips, PM peak hour 300 two-way trips). This access will align opposite the Henderson Lakes Apartment drive on the opposite side of Little Neck Road.

- ***Northbound (Little Neck Road) Approach:*** Based on projected peak-hour volumes, a right-turn lane entering the site is recommended based on *Table 4-6 (ref. Regulations for Driveway & Encroachment Control).* Design of this lane must be in accordance with *Table 4-8* which calls out a 250-foot lane length and a 100-foot taper;

- ***Southbound (Little Neck Road) Approach:*** Based on projected peak-hour volumes, a left-turn lane entering the site is recommended based on *Table 4-7a.* Design of this lane must be in accordance with *Table 4-9* which calls out a 235-foot lane length and a 100-foot taper. Based on the current widening concept for Little Neck Road, this turning lane and taper can be accomplished with extension of the planned U-turn-lane lane at this location;

- ***Westbound (Site Access #2 PODs 2 & 7) Approach:*** Construct site access opposite Henderson Lakes Apartments as a three cross-section with a single inbound lane and two lanes exiting the site designated as a left-turn lane and a shared through/right-turn lane; and

- ***Traffic Control:*** Place intersection under STOP sign control where traffic exiting the site will be required to stop.

It should be noted that both access drives identified in the initial phase; Little Neck Road at Site Access #3 at Holy Church of God and Site Access #4 do not require additional geometric or traffic control improvements.

Off-Site Intersections

Analyses conducted for the study area intersections have been completed assuming completion of the County's widening project of Little Neck Road and US 17. This includes the planned signalization of the Al Henderson Boulevard intersection as planned by the county and signalization of Henderson Oaks Drive/Site Access #2 by the project. **Table 4** illustrates the resultant service levels for the study area intersections:

Table 4
LEVEL-OF-SERVICE SUMMARY
US 17 WIDENING ASSUMED
Hopeton Landing
Chatham County, GA

	Time	2030 Build With County Improvements	
Signalized Intersection	**Period**	**Delay[a]**	**LOS[b]**
US 17 at Little Neck Road	AM	25.5	C
	PM	**122.1**	**F**
Little Neck Road at Al Henderson Blvd	AM	5.0	A
	PM	10.2	B
Little Neck Road at Henderson Oaks Drive/Access #1[3]	AM	14.5	B
	PM	22.1	C
Unsignalized Intersections			
Little Neck Road at Zipperer Drive	AM	14.2	B
	PM	16.0	C
Little Neck Road at Henderson Lakes Apartments/Access #2[4]	AM	20.5	C
	PM	**124.2**	**F**
Little Neck Road at Holy Church of God/Site Access PODs #1 & 9: Access #3	AM	14.2	A
	PM	21.2	C
Little Neck Road at Site Access POD #8: Access #4	AM	12.3	B
	PM	15.5	A

a. Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

GENERAL NOTES:

1. For unsignalized intersections, Delay is representative of critical movement/lane group/approach.
2. For signalized intersections, Delay is representative of the over-all average of each approach.
3. Future site access to align opposite Henderson Oaks serving PODs # 3,4, 5 & 6.
4. Future site access to align opposite Zipperer serving PODs # 2 & 7.

As shown by Table 4, under future conditions with the defined county's widening project of Little Neck Road and US 17 as well as improvements identified for the project access drives, service levels are poor at total build for the intersection of US 17 at Little Neck Road and Little Neck Road at Henderson Lakes Apartments/Access #2.

Detailed review of the US 17 and Henderson Lakes intersections indicate the following:

- *US 17 at Little Neck Road:* Eastbound left-turn movement and westbound right-turn movement from US 17 onto northbound Little Neck Road exceeds the capacity of the respective single turn lanes; and

- *Little Neck Road at Henderson Lakes Apartments/Site Access #2:* Minor-street left-turn movement from the site access operates with delays; must wait for gaps in mainline Little Neck Road north/south traffic flow. This is typical of unsignalized intersections located along a multi-lane arterial such as Little Neck Road.

As the Hopeton Landing project continues to develop consideration of the following intersection improvements to the US 17 at Little Neck Road intersection should be reviewed:

US 17 at Little Neck Road

- ***Eastbound (US 17) Approach:*** Widening of US 17 in the eastbound direction to create a second left-turn lane onto northbound Little Neck Road. This improvement will necessitate modifications to the traffic signal phasing to implement protected only phasing for this movement; and

- ***Westbound (US 17) Approach:*** Widening of US 17 in the westbound direction to create a second right-turn lane onto northbound Little Neck Road.

It should be noted that both of these improvements had been identified in the prior Hussy Gay Bell study (*Little Neck Road Traffic Study, August 10, 2016*) prepared for Chatham County.

SUMMARY

EPC has completed a Traffic Impact and Access Study relative to the development of Hopeton Landing which is located on the northeast side of Little Neck Road, south of I 95, north of US 17 in Chatham County, GA. As planned, this large-scale development will provide multiple types of residential units, institutional and commercial uses. This facility is expected to be constructed/occupied in 2030.

Project access is planned to/from Little Neck Road via four access drives, three of which will be located opposite existing roadways and/or drives (Henderson Oaks, Henderson Lakes Apartments and Holy Church of God) with the fourth access creating a new intersection.

Chatham County is planning a major widening project of Little Neck Road between US 17 and the I 95 over pass. With a future completion year of 2037, this project will widen Little Neck Road to a 4-lane divided or 5-lane cross-section. Providing planned access management along the corridor will result in spacing of full-movement intersections, U-turn locations, right-in/right-out access and signalization of the Al Henderson Boulevard intersection.

Since this project is beyond the design year of the project, phasing of the development is expected which will begin on the northerly section of the site closest to I 95 with 222 single family residential units and the assisted living facility. Completion of the remainder of the site, which has higher density commercial and residential uses, will be planned later when the County's project is implemented.

Analyses have been conducted for the surrounding roadway network which includes the adjacent intersections of US 17 at Little Neck Road, Little Neck Road at Al Henderson Boulevard, Zipperer Drive Henderson Oaks and Henderson Lakes Apartments. Build conditions, which does not include the Little Neck Road widening, results in each of the off-site intersections operating poorly during one or more of the peak hours studied with exception of the Zipperer Drive intersection. Two of these locations include site access drives (alignments opposite Henderson Oaks Drive and Henderson Lakes Apartments). The two northern site access drives (which serve the less dense residential) are expected to operate at

acceptable conditions. Suggestions for each of these access drives include both left and right-turn deceleration lanes on Little Neck Road as well as approach cross-sections and traffic control.

When the widening of Little Neck Road occurs, the remaining project build-out can be completed. Suggestions for the two site access drives opposite Henderson Oaks Drive and Henderson Lakes Apartments have been identified which include approach cross-sections, traffic control and turning lanes on Little Neck Road. This includes the potential of signalizing the site access drive opposite Henderson Oaks Drive due to a combination of intersection geometry and anticipated traffic demand.

If you have any questions or comments regarding any information contained within this memo, please contact me at (803) 361 3265.

Regards,

Todd E. Salvagin, Principal
EPC, LLC

Attachments

EPC, LLC
COA No. PEF007836
Expires 06-30-2022

N

NOT TO SCALE

Figure 1

SITE LOCATION MAP

Hopeton Master Plan
Chatham County, GA

EPC, LLC

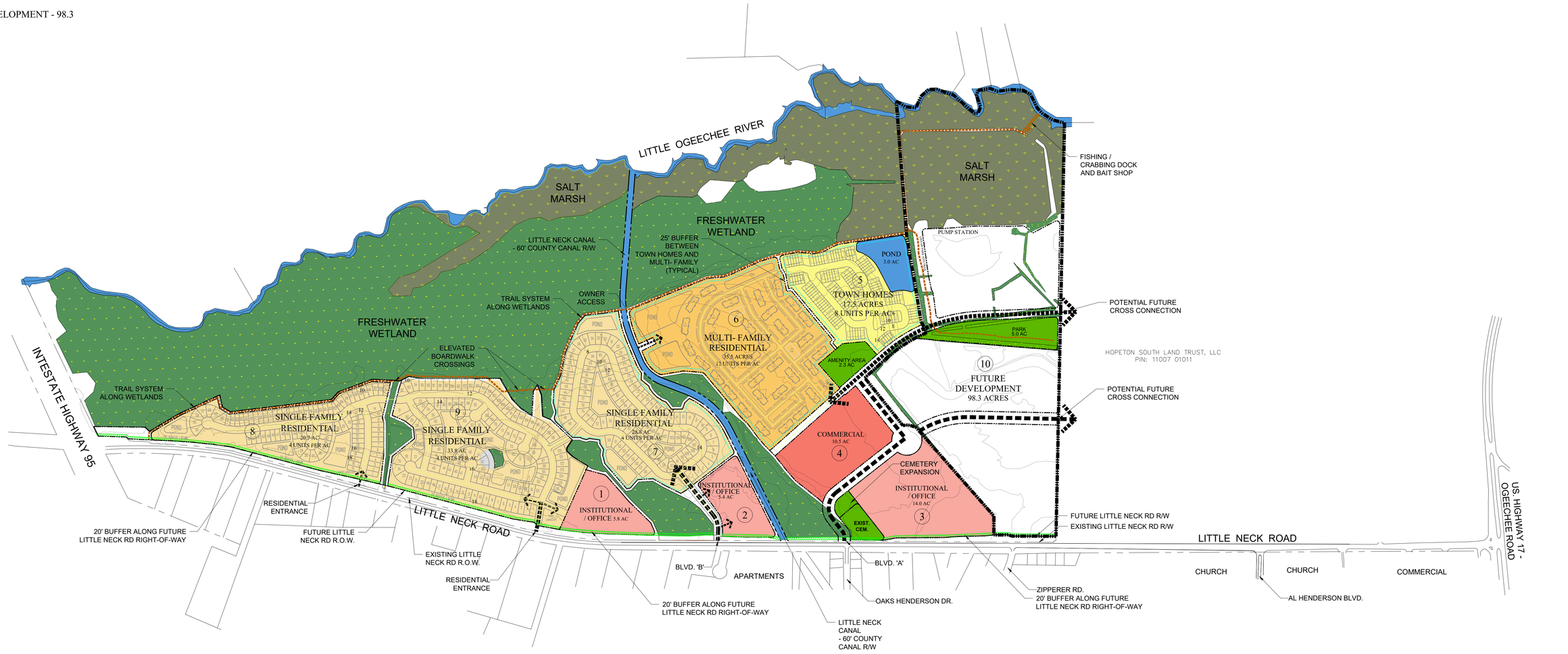
MASTER PLAN

HOPETON LANDING

SAVANNAH, GA

1. INSTITUTIONAL / OFFICE - 5.8 AC
2. INSTITUTIONAL / OFFICE - 5.4 AC
3. INSTITUTIONAL / OFFICE - 14.0 AC
4. COMMERCIAL - 10.5 AC
5. TOWN HOMES RESIDENTIAL - 17.5 AC, 8 UNITS PER AC
6. MULTI-FAMILY RESIDENTIAL - 35.5 AC, 12 UNITS PER AC
7. SINGLE FAMILY RESIDENTIAL - 28.8 AC, 4 UNITS PER AC
8. SINGLE FAMILY RESIDENTIAL - 20.7 AC, 4 UNITS PER AC
9. SINGLE FAMILY RESIDENTIAL - 33.8 AC, 4 UNITS PER AC
10. FUTURE DEVELOPMENT - 98.3

- WETLAND - SALT MARSH - (37.5 AC)
- WETLAND - FRESHWATER - (147.5 AC)
- AMENITY AREA AND PARK - (2.3 AC)
- GREENSPACE AND SPINE ROAD ROW - (10.3 AC)
- TRAILS



SUMMARY

LAND USE	AREA (acres)	UNITS
INSTITUTIONAL/ OFFICE COMMERCIAL	35.7	
FUTURE DEVELOPMENT	98.3	
MULTI-FAMILY RESIDENTIAL	64.3	594
SINGLE FAMILY RESIDENTIAL	54.5	332
TOWNHOMES	17.5	140
AMENITY AREA AND PARK	2.3	
WETLAND - SALT MARSH	37.5	
WETLAND - FRESHWATER	147.9	
GREEN SPACE and SPINE ROAD ROW	10.3	
EX CEMETERY & EXPANSION	2.0	
R.O.W. DEDICATION	7.7	
TOTAL	478.0	1,066

NOTE: For PD zoning, all land uses are accounted for in the Summary Table including the power line easement and lands below 6 ft. elevation.

NOTES

1. TOTAL UNITS BASED ON APPROXIMATE ACREAGE AND MAY VARY BASED ON SURVEY.
2. ACREAGES ARE APPROXIMATE AND NOT BASED ON A SURVEY. ACREAGE MAY VARY BASED ON SURVEY.
3. STORMWATER DETENTION IS REQUIRED FOR EACH DEVELOPMENT POD AS PER REGULATIONS.
4. WETLANDS MAY REQUIRE BUFFERS AS PER REGULATIONS.
5. AREAS UNDER POWER LINES MAY BE USED FOR PARKING, OPEN SPACE AND SOME STORM WATER DETENTION.
6. PASSIVE AND ACTIVE RECREATION AREAS TO BE INCLUDED WITH INDIVIDUAL SUBDIVISION AND MULTI-FAMILY RESIDENTIAL DEVELOPMENTS.
7. BUFFERS: TO BE IN ACCORDANCE WITH ARTICLE 9.5 OF THE CITY OF SAVANNAH ZONING ORDINANCE. BUFFERS MAY BE UNDISTURBED OR PLANTED.
8. TREE PRESERVATION (TREE QUALITY AND LANDSCAPE QUALITY POINT REQUIREMENTS) TO BE MET WITH PRESERVED WETLAND AREAS, AND SUPPLEMENTAL PLANTINGS AS NEEDED.

COLEMAN COMPANY
ENGINEERS • SURVEYORS

N

SCALE IN FEET
0 200 400 600 800 1000

JOB NO. 14-391
MAY 25, 2021

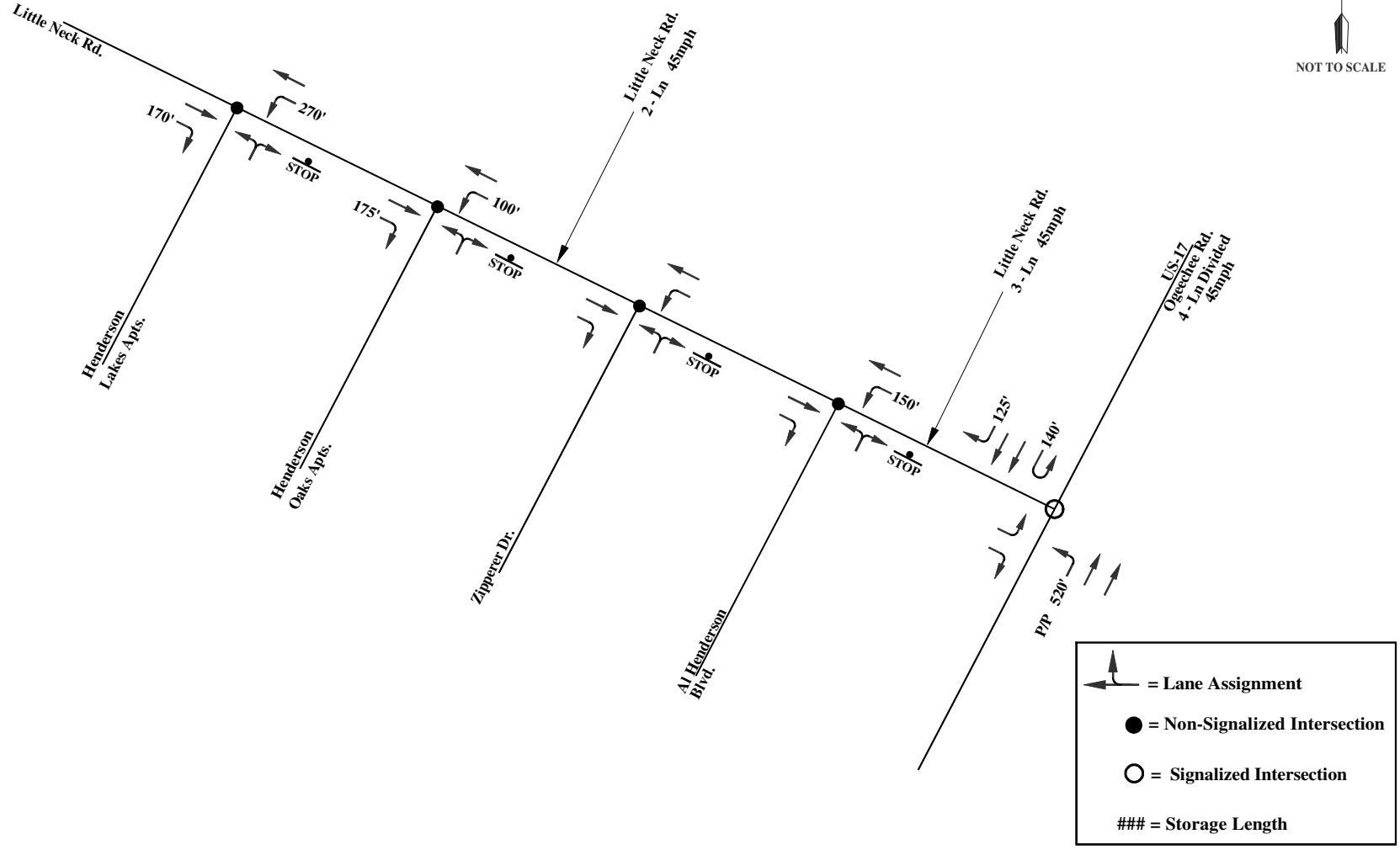


Figure 3

EXISTING GEOMETRICS & TRAFFIC CONTROL

Hopeton Master Plan, Chatham County, Georgia

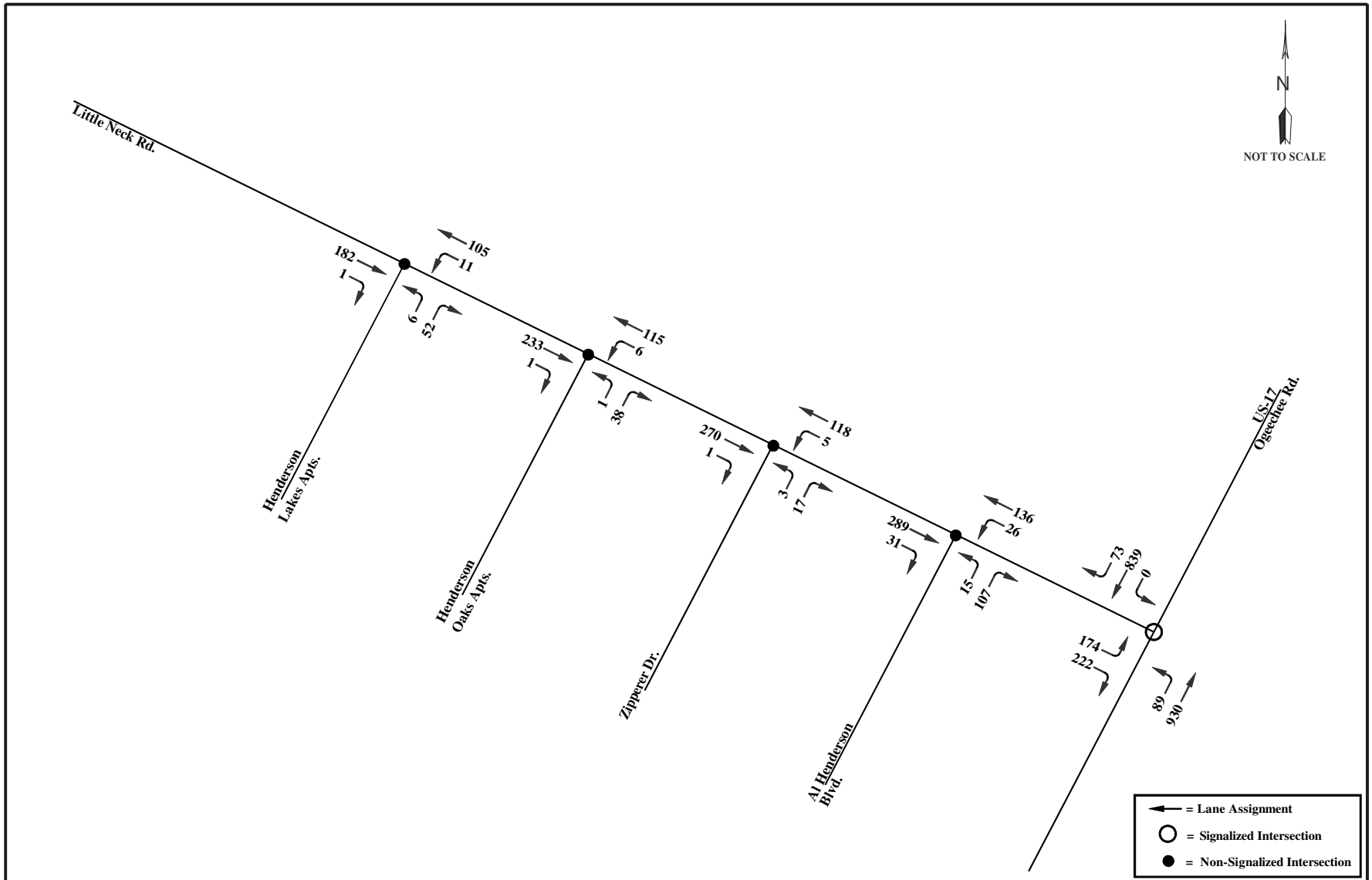


Figure 4

2021 EXISTING TRAFFIC VOLUMES
AM PEAK HOURS

Hopeton Master Plan, Chatham County, Georgia

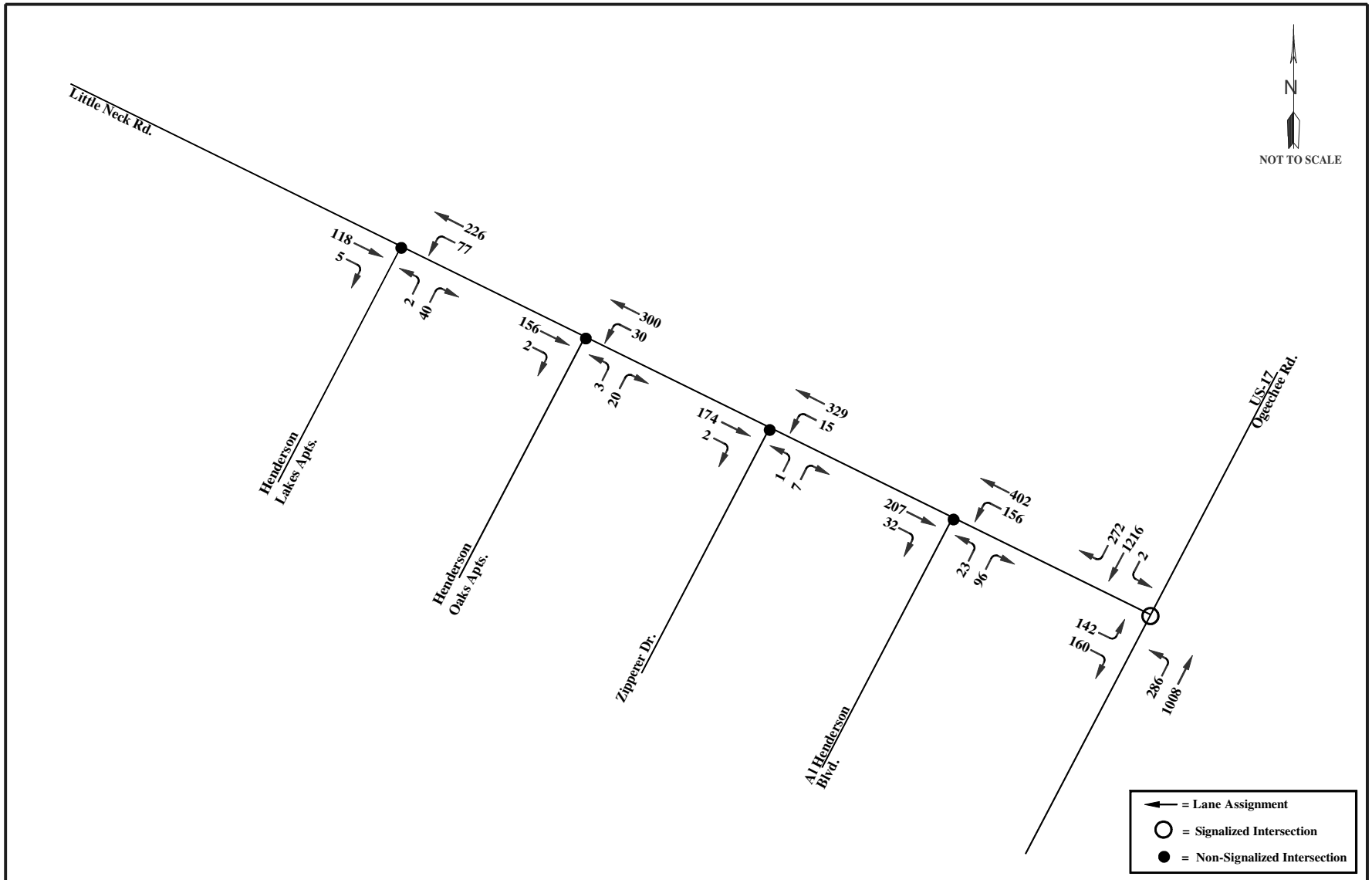


Figure 5

2021 EXISTING TRAFFIC VOLUMES
PM PEAK HOURS

Hopeton Master Plan, Chatham County, Georgia

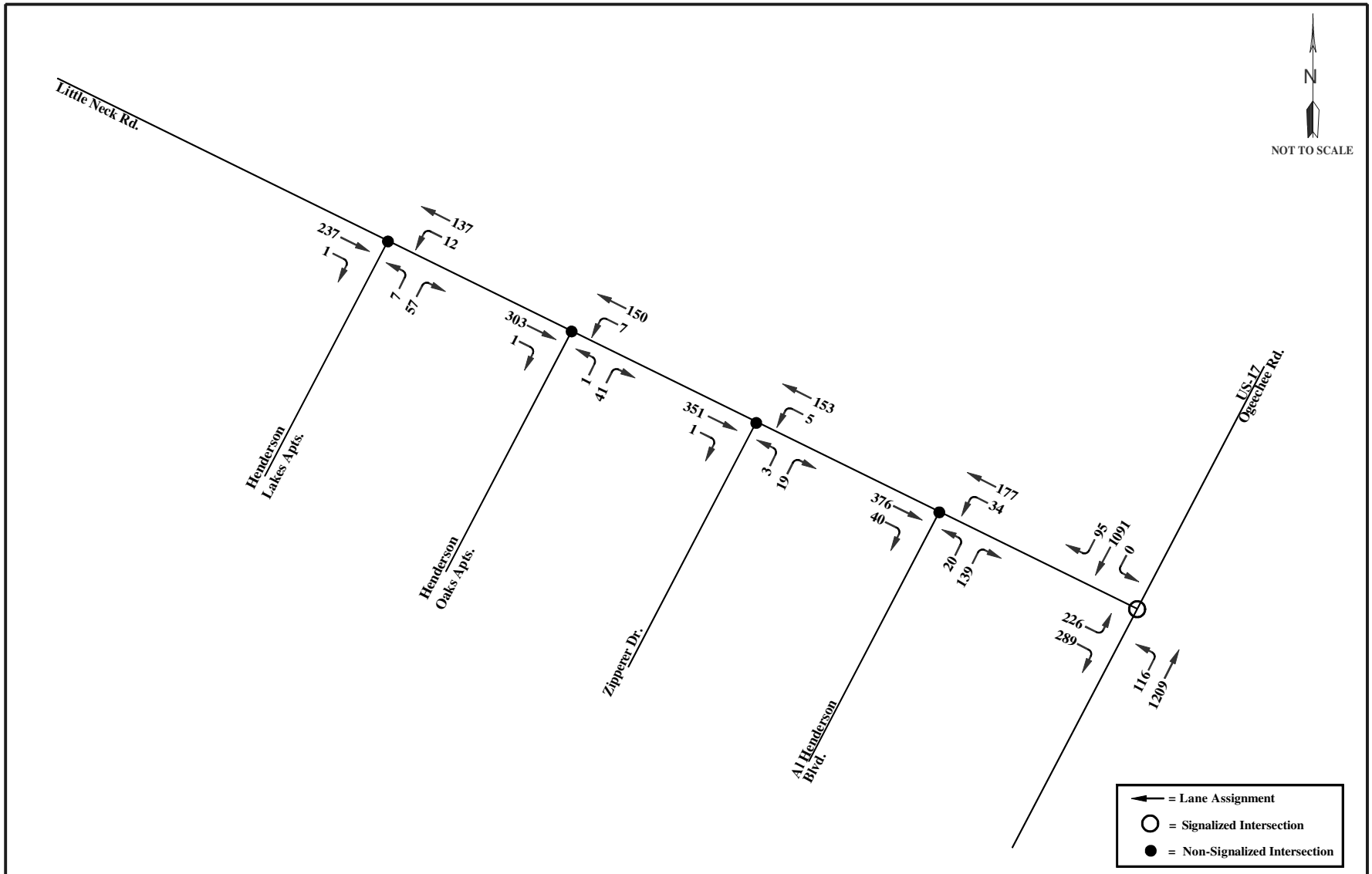


Figure 6

2030 NO-BUILD TRAFFIC VOLUMES
AM PEAK HOURS

Hopeton Master Plan, Chatham County, Georgia

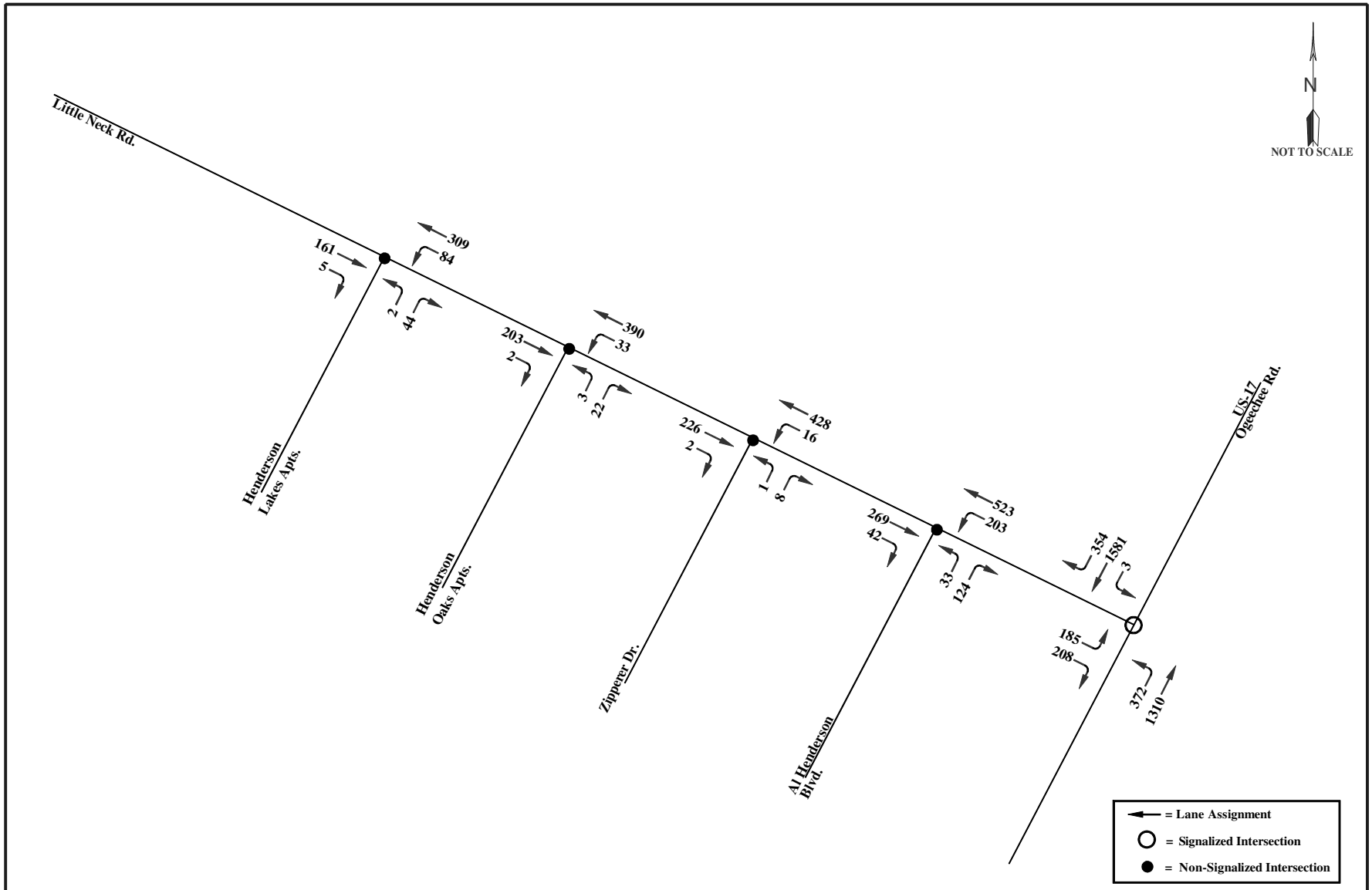


Figure 7

2030 NO-BUILD TRAFFIC VOLUMES
PM PEAK HOURS

Hopeton Master Plan, Chatham County, Georgia

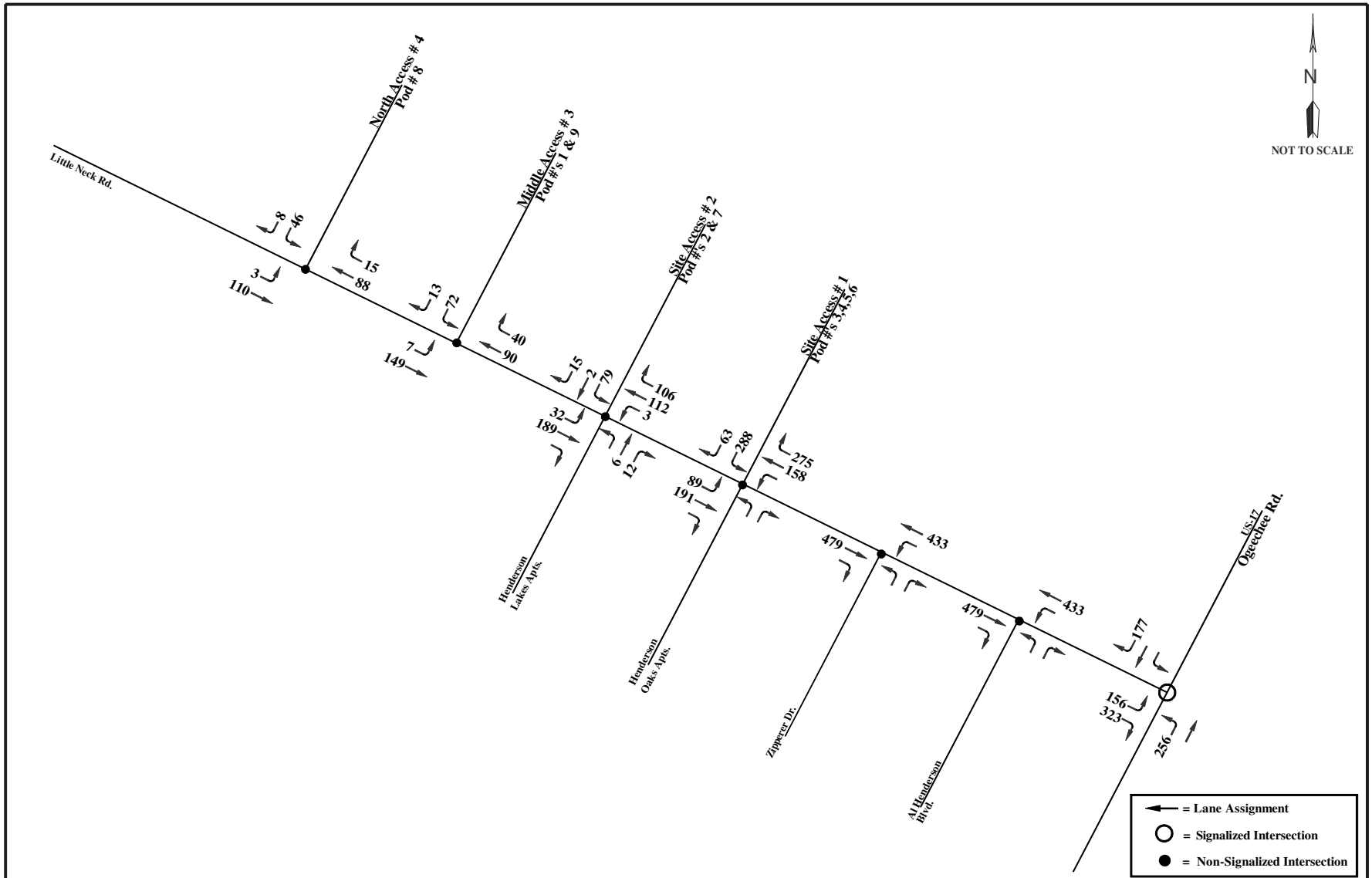


Figure 8

SITE-GENERATED TRAFFIC VOLUMES
AM PEAK HOURS

Hopeton Master Plan, Chatham County, Georgia

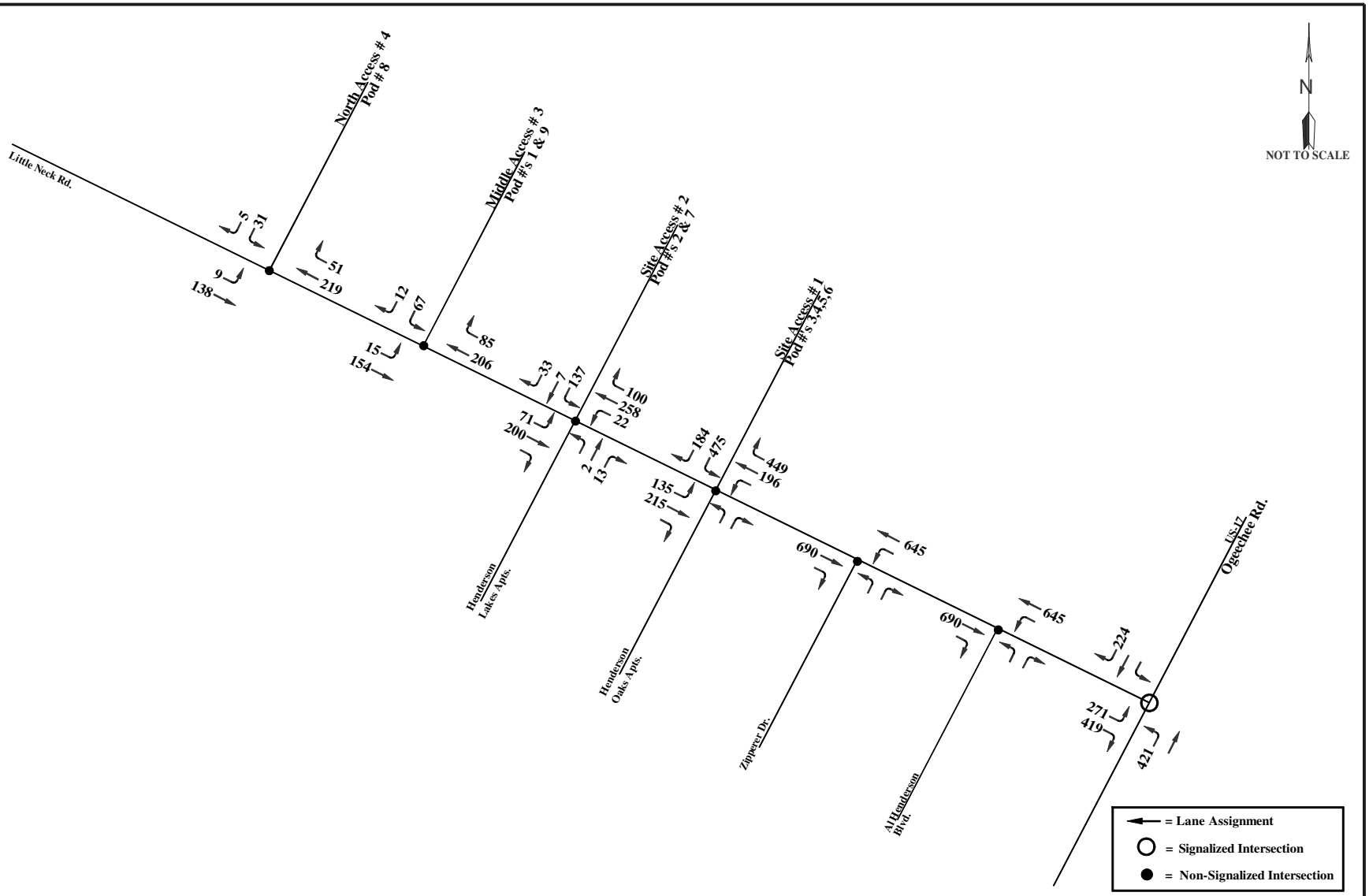


Figure 9

SITE-GENERATED TRAFFIC VOLUMES
PM PEAK HOURS

Hopeton Master Plan, Chatham County, Georgia

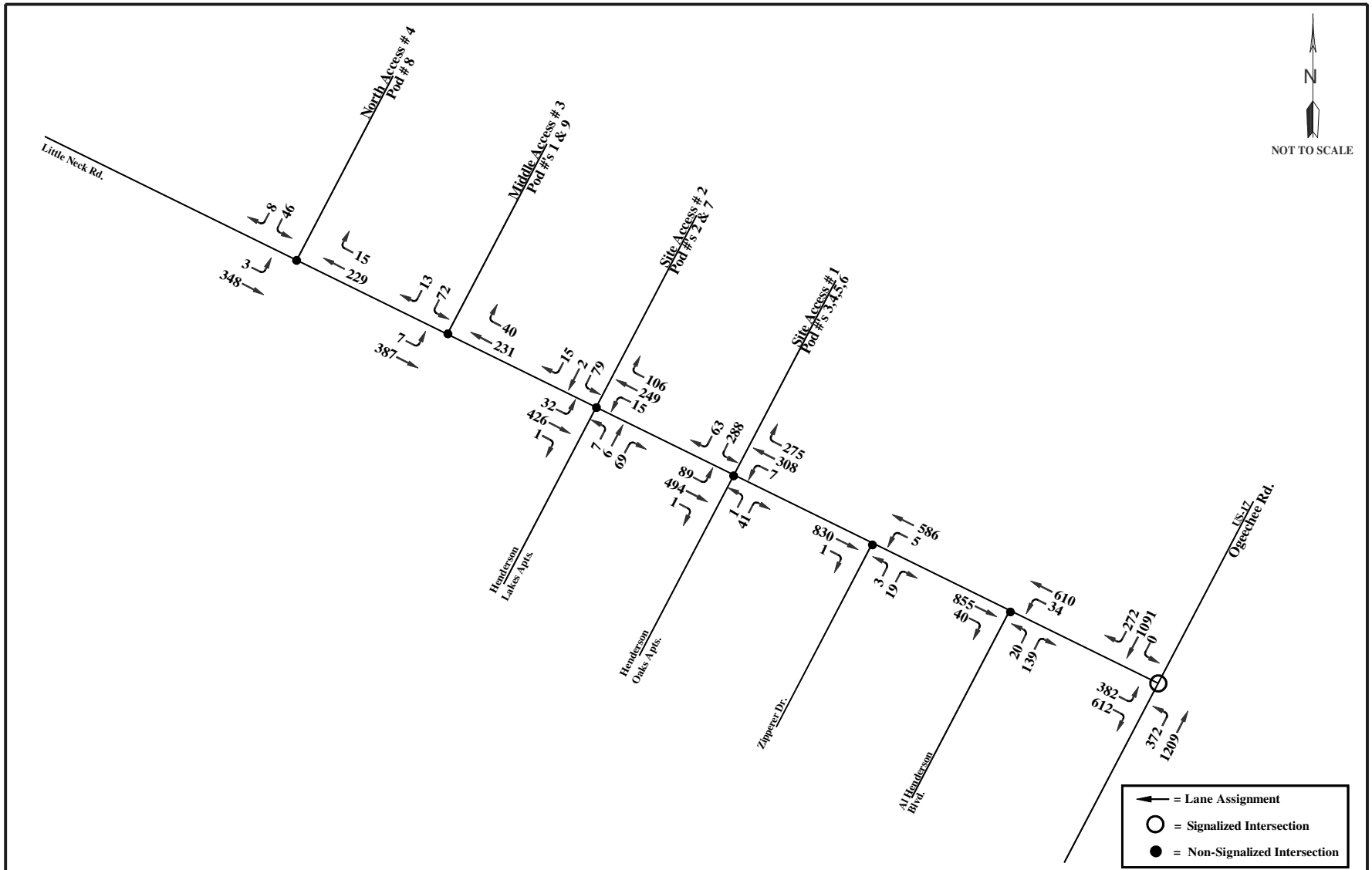


Figure 10

2030 BUILD TRAFFIC VOLUMES
AM PEAK HOURS

Hopeton Master Plan, Chatham County, Georgia

COUNT DATA

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Ogeechee Rd
Site Code :
Start Date : 05/27/2021
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Little Neck Rd Southbound				Ogeechee Rd Westbound				Northbound				Ogeechee Rd Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	31	0	41	0	0	182	22	0	0	0	0	0	19	207	0	0	502
07:15	41	0	63	0	0	230	24	0	0	0	0	0	16	258	0	0	632
07:30	51	0	66	0	0	231	14	0	0	0	0	0	25	222	0	0	609
07:45	51	0	52	0	0	196	13	0	0	0	0	0	29	243	0	0	584
Total	174	0	222	0	0	839	73	0	0	0	0	0	89	930	0	0	2327
08:00	29	0	40	0	0	196	19	0	0	0	0	0	22	188	0	0	494
08:15	30	0	60	0	0	247	25	0	0	0	0	0	32	166	0	0	560
08:30	36	0	45	0	0	201	28	0	0	0	0	0	28	191	0	0	529
08:45	24	0	50	0	2	214	17	0	0	0	0	0	33	190	0	0	530
Total	119	0	195	0	2	858	89	0	0	0	0	0	115	735	0	0	2113
16:00	38	0	37	0	1	266	31	0	0	0	0	0	55	296	2	0	726
16:15	33	0	34	0	1	297	68	0	0	0	0	0	55	243	1	0	732
16:30	27	0	37	1	0	310	47	0	0	0	0	0	69	234	0	0	725
16:45	31	1	48	0	1	296	51	0	0	0	0	0	79	223	0	0	730
Total	129	1	156	1	3	1169	197	0	0	0	0	0	258	996	3	0	2913
17:00	40	0	49	0	1	328	62	0	0	0	0	0	68	261	1	0	810
17:15	38	0	46	0	0	320	70	0	0	0	0	0	74	270	0	0	818
17:30	37	0	37	0	1	286	69	0	0	0	0	0	58	238	0	0	726
17:45	27	0	28	0	0	282	71	0	0	0	0	0	86	239	0	0	733
Total	142	0	160	0	2	1216	272	0	0	0	0	0	286	1008	1	0	3087
Grand Total	564	1	733	1	7	4082	631	0	0	0	0	0	748	3669	4	0	10440
Apprch %	43.4	0.1	56.4	0.1	0.1	86.5	13.4	0	0	0	0	0	16.9	83	0.1	0	
Total %	5.4	0	7	0	0.1	39.1	6	0	0	0	0	0	7.2	35.1	0	0	
Passenger Vehicles	487	1	688	1	7	3988	582	0	0	0	0	0	689	3558	4	0	10005
% Passenger Vehicles	86.3	100	93.9	100	100	97.7	92.2	0	0	0	0	0	92.1	97	100	0	95.8
Heavy Vehicles	74	0	45	0	0	87	49	0	0	0	0	0	59	109	0	0	423
% Heavy Vehicles	13.1	0	6.1	0	0	2.1	7.8	0	0	0	0	0	7.9	3	0	0	4.1
Buses	3	0	0	0	0	7	0	0	0	0	0	0	0	2	0	0	12
% Buses	0.5	0	0	0	0	0.2	0	0	0	0	0	0	0	0.1	0	0	0.1

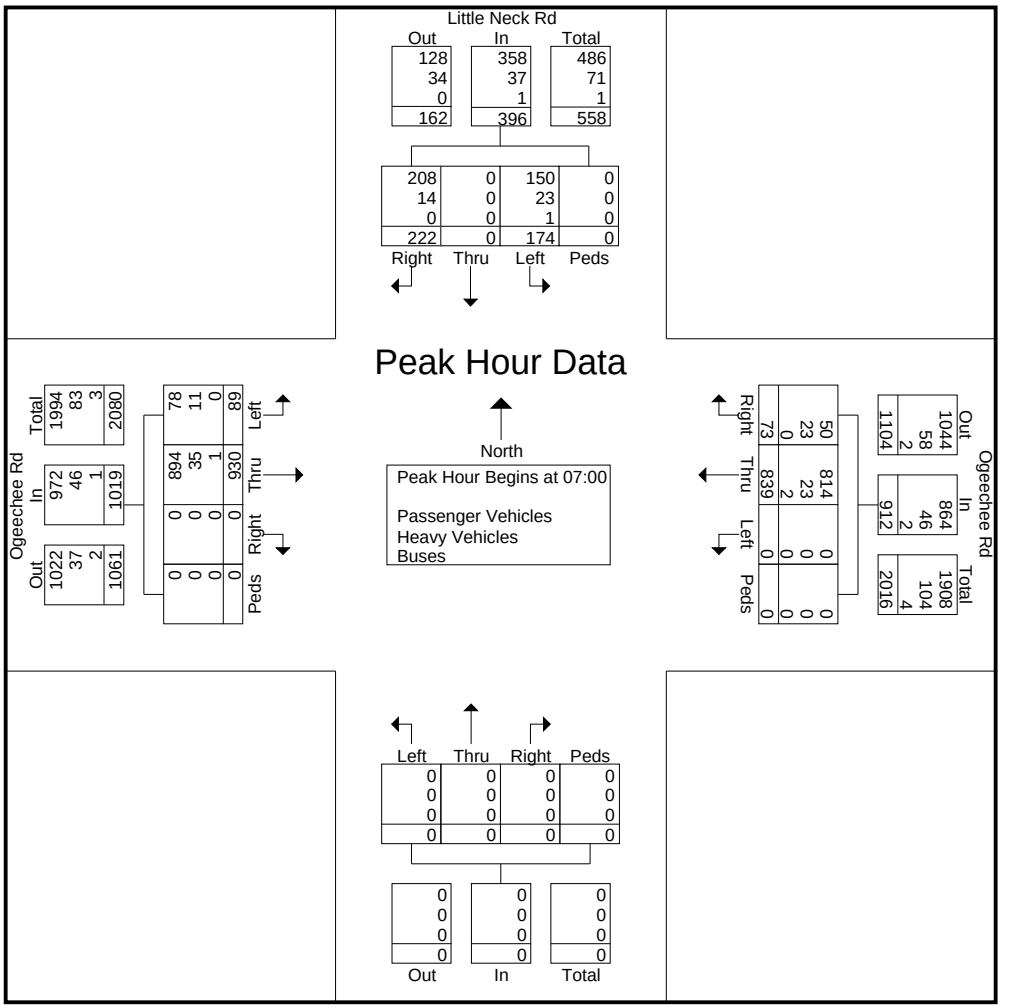
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Ogeechee Rd
Site Code :
Start Date : 05/27/2021
Page No : 3

	Little Neck Rd Southbound					Ogeechee Rd Westbound					Northbound					Ogeechee Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	31	0	41	0	72	0	182	22	0	204	0	0	0	0	0	19	207	0	0	226	502
07:15	41	0	63	0	104	0	230	**24**	0	**254**	0	0	0	0	0	16	**258**	0	0	**274**	**632**
07:30	**51**	0	**66**	0	**117**	0	**231**	14	0	245	0	0	0	0	0	25	222	0	0	247	609
07:45	51	0	52	0	103	0	196	13	0	209	0	0	0	0	0	**29**	243	0	0	272	584
Total Volume	174	0	222	0	396	0	839	73	0	912	0	0	0	0	0	89	930	0	0	1019	2327
% App. Total	43.9	0	56.1	0		0	92	8	0		0	0	0	0		8.7	91.3	0	0		
PHF	.853	.000	.841	.000	.846	.000	.908	.760	.000	.898	.000	.000	.000	.000	.000	.767	.901	.000	.000	.930	.920
Passenger Vehicles	150	0	208	0	358	0	814	50	0	864	0	0	0	0	0	78	894	0	0	972	2194
% Passenger Vehicles																					
Heavy Vehicles	23	0	14	0	37	0	23	23	0	46	0	0	0	0	0	11	35	0	0	46	129
% Heavy Vehicles	13.2	0	6.3	0	9.3	0	2.7	31.5	0	5.0	0	0	0	0	0	12.4	3.8	0	0	4.5	5.5
Buses	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	4
% Buses	0.6	0	0	0	0.3	0	0.2	0	0	0.2	0	0	0	0	0	0	0.1	0	0	0.1	0.2

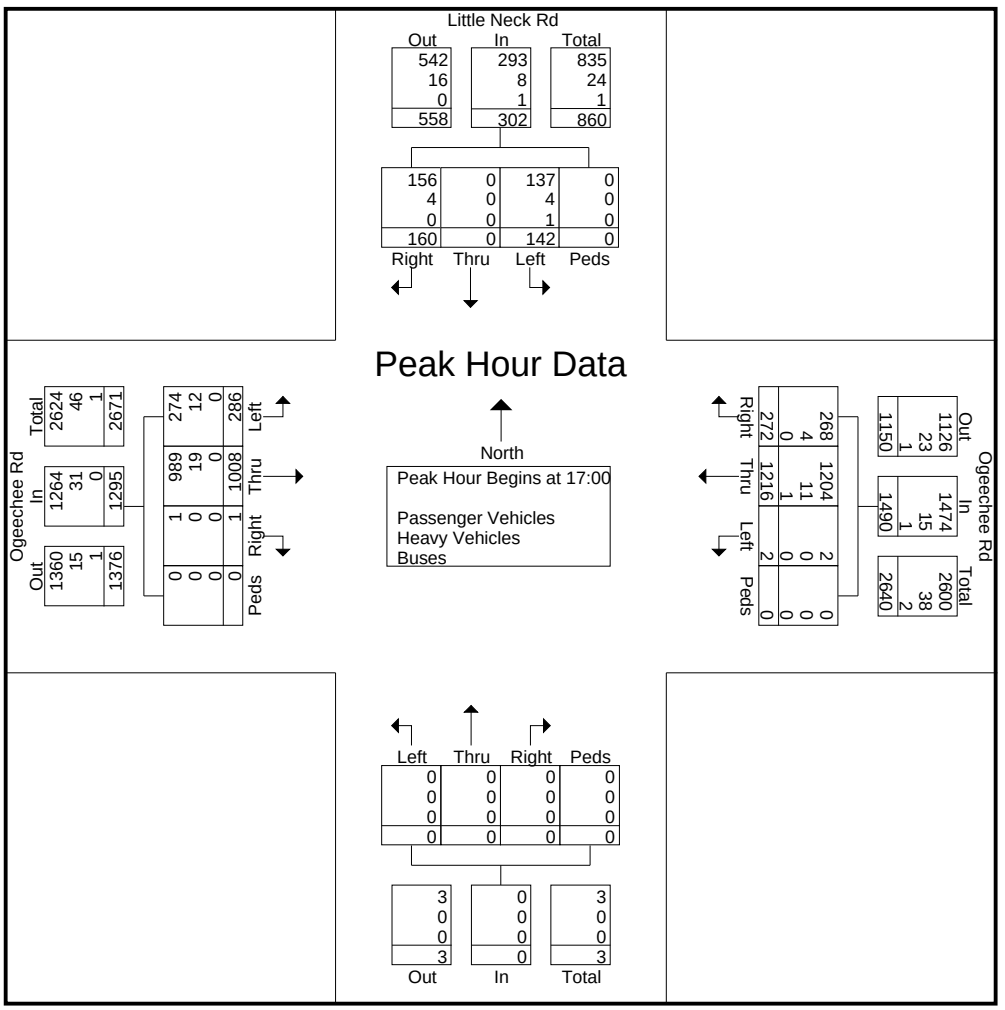


SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201
We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Ogeechee Rd
Site Code :
Start Date : 05/27/2021
Page No : 4

	Little Neck Rd Southbound					Ogeechee Rd Westbound					Northbound					Ogeechee Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	**40**	0	**49**	0	**89**	**1**	**328**	62	0	**391**	0	0	0	0	0	68	261	**1**	0	330	810
17:15	38	0	46	0	84	0	320	70	0	390	0	0	0	0	0	74	**270**	0	0	**344**	**818**
17:30	37	0	37	0	74	1	286	69	0	356	0	0	0	0	0	58	238	0	0	296	726
17:45	27	0	28	0	55	0	282	**71**	0	353	0	0	0	0	0	**86**	239	0	0	325	733
Total Volume	142	0	160	0	302	2	1216	272	0	1490	0	0	0	0	0	286	1008	1	0	1295	3087
% App. Total	47	0	53	0		0.1	81.6	18.3	0		0	0	0	0		22.1	77.8	0.1	0		
PHF	.888	.000	.816	.000	.848	.500	.927	.958	.000	.953	.000	.000	.000	.000	.000	.831	.933	.250	.000	.941	.943
Passenger Vehicles	137	0	156	0	293	2	1204														
% Passenger Vehicles	96.5	0	97.5	0	97.0	100	99.0	98.5	0	98.9	0	0	0	0	0	95.8	98.1	100	0	97.6	98.2
Heavy Vehicles	4	0	4	0	8	0	11	4	0	15	0	0	0	0	0	12	19	0	0	31	54
% Heavy Vehicles	2.8	0	2.5	0	2.6	0	0.9	1.5	0	1.0	0	0	0	0	0	4.2	1.9	0	0	2.4	1.7
Buses	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% Buses	0.7	0	0	0	0.3	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Al Henderson Blvd
Site Code :
Start Date : 05/27/2021
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Little Neck Rd Southbound				Westbound				Little Neck Rd Northbound				Al Henderson Blvd Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	53	10	0	0	0	0	0	7	28	0	0	5	0	20	0	123
07:15	0	77	10	0	0	0	0	0	3	30	0	0	4	0	32	0	156
07:30	0	85	7	0	0	0	0	0	10	21	0	0	2	0	26	1	152
07:45	0	67	4	0	0	0	0	0	6	28	0	0	4	0	29	0	138
Total	0	282	31	0	0	0	0	0	26	107	0	0	15	0	107	1	569
08:00	0	54	7	0	0	0	0	0	5	33	0	0	3	0	13	0	115
08:15	0	59	4	0	0	0	0	0	14	29	0	0	1	0	28	0	135
08:30	0	62	3	0	0	0	0	0	10	30	0	0	1	0	21	0	127
08:45	0	48	1	0	0	0	0	0	12	27	0	0	0	0	17	0	105
Total	0	223	15	0	0	0	0	0	41	119	0	0	5	0	79	0	482
16:00	0	40	1	0	0	0	0	0	29	48	0	0	4	0	25	0	147
16:15	0	34	2	0	0	0	0	0	27	86	0	0	7	0	19	0	175
16:30	0	37	5	0	0	0	0	0	31	74	0	0	3	0	19	0	169
16:45	0	55	4	0	0	0	0	0	41	82	0	0	4	0	17	0	203
Total	0	166	12	0	0	0	0	0	128	290	0	0	18	0	80	0	694
17:00	0	57	12	0	0	0	0	0	32	85	0	0	5	0	21	0	212
17:15	0	37	6	0	0	0	0	0	41	97	0	0	11	0	25	0	217
17:30	0	33	10	0	0	0	0	0	42	75	0	0	5	0	32	0	197
17:45	0	33	7	0	0	0	0	0	41	80	0	0	3	0	17	0	181
Total	0	160	35	0	0	0	0	0	156	337	0	0	24	0	95	0	807
Grand Total	0	831	93	0	0	0	0	0	351	853	0	0	62	0	361	1	2552
Apprch %	0	89.9	10.1	0	0	0	0	0	29.2	70.8	0	0	14.6	0	85.1	0.2	
Total %	0	32.6	3.6	0	0	0	0	0	13.8	33.4	0	0	2.4	0	14.1	0	
Passenger Vehicles	0	718	84	0	0	0	0	0	349	753	0	0	59	0	355	1	2319
% Passenger Vehicles	0	86.4	90.3	0	0	0	0	0	99.4	88.3	0	0	95.2	0	98.3	100	90.9
Heavy Vehicles	0	113	9	0	0	0	0	0	2	100	0	0	3	0	3	0	230
% Heavy Vehicles	0	13.6	9.7	0	0	0	0	0	0.6	11.7	0	0	4.8	0	0.8	0	9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0.1

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

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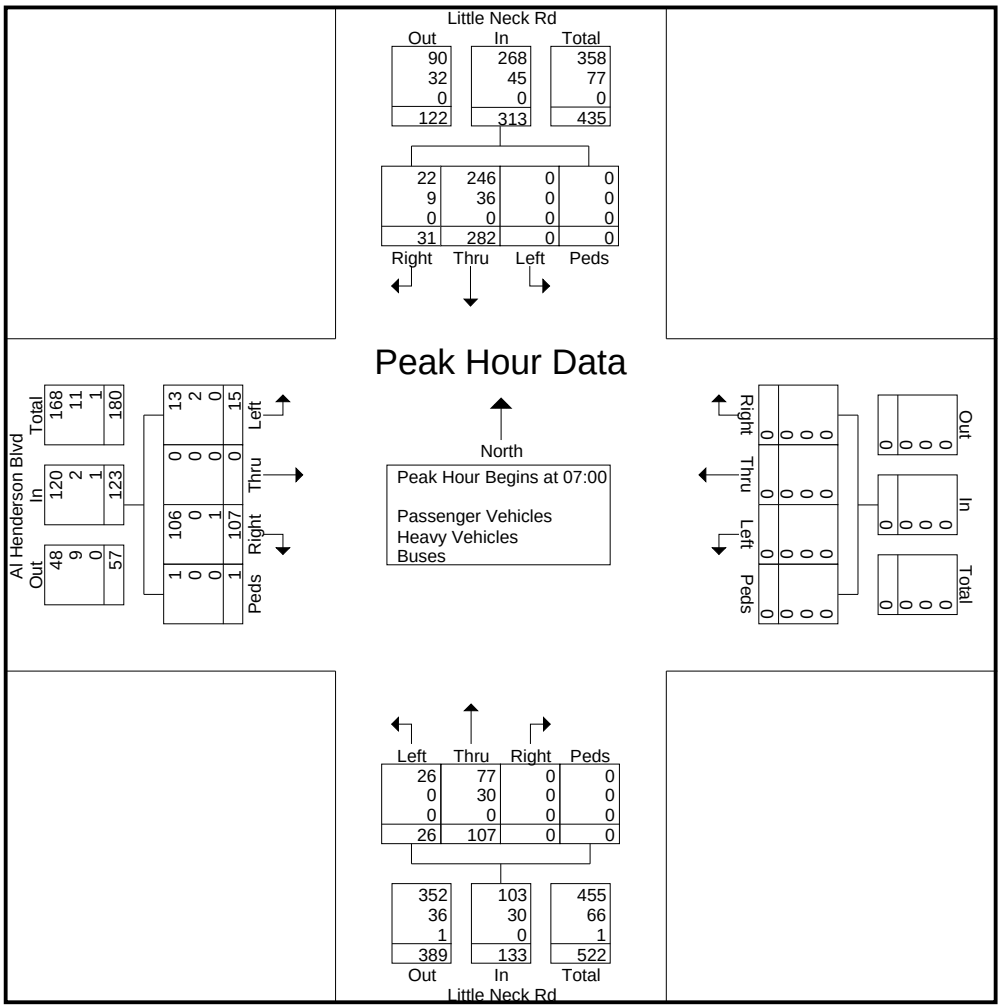
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	53	**10**	0	63	0	0	0	0	0	7	28	0	0	**35**	**5**	0	20	0	25	123
07:15	0	77	10	0	87	0	0	0	0	0	3	**30**	0	0	33	4	0	**32**	0	**36**	**156**
07:30	0	**85**	7	0	**92**	0	0	0	0	0	**10**	21	0	0	31	2	0	26	**1**	29	152
07:45	0	67	4	0	71	0	0	0	0	0	6	28	0	0	34	4	0	29	0	33	138
Total Volume	0	282	31	0	313	0	0	0	0	0	26	107	0	0	133	15	0	107	1	123	569
% App. Total	0	90.1	9.9	0		0	0	0	0		19.5	80.5	0	0		12.2	0	87	0.8		
PHF	.000	.829	.775	.000	.851	.000	.000	.000	.000	.000	.650	.892	.000	.000	.950	.750	.000	.836	.250	.854	.912
Passenger Vehicles	0	246	22	0	268	0	0	0	0	0	26	77	0	0	103	13	0	106	1	120	491
% Passenger Vehicles																					
Heavy Vehicles	0	36	9	0	45	0	0	0	0	0	0	30	0	0	30	2	0	0	0	2	77
% Heavy Vehicles	0	12.8	29.0	0	14.4	0	0	0	0	0	0	28.0	0	0	22.6	13.3	0	0	0	1.6	13.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	0	0.8	0.2



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Al Henderson Blvd
Site Code :
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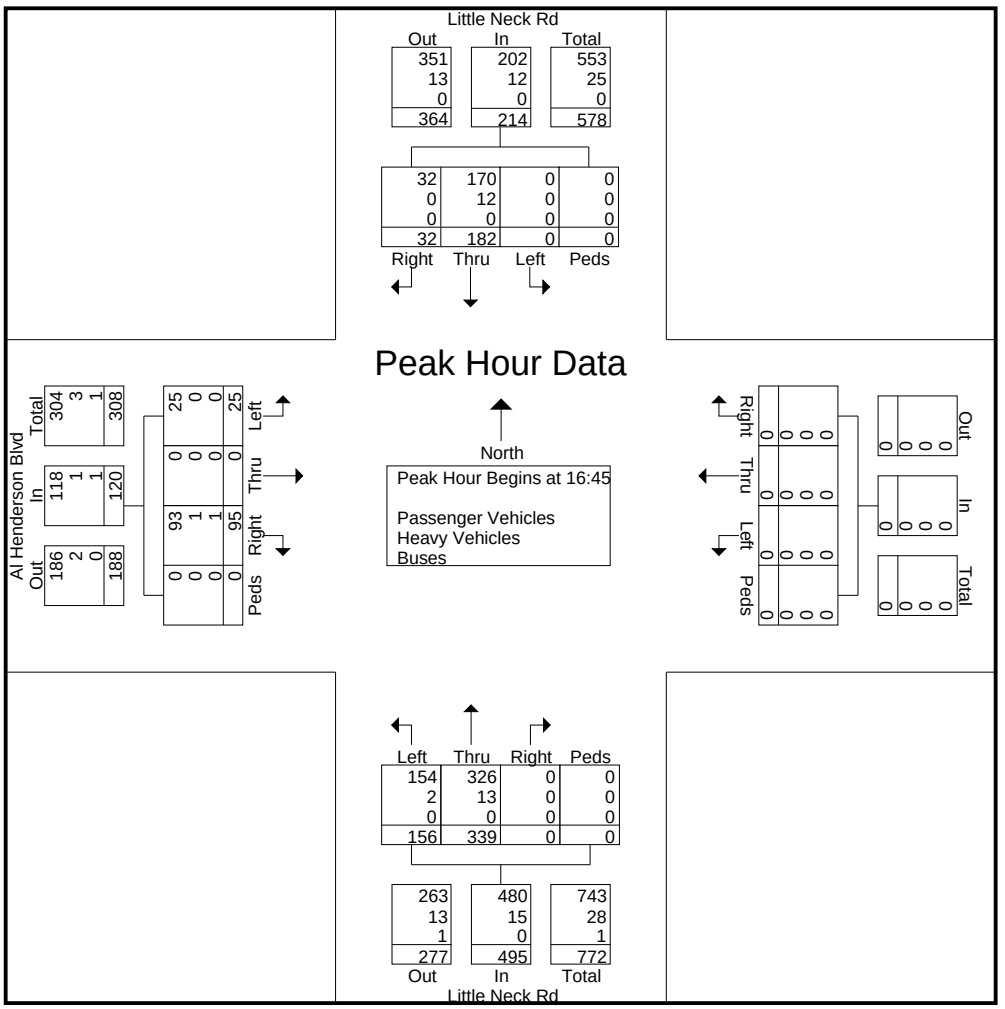
	Little Neck Rd Southbound					Westbound					Little Neck Rd Northbound					Al Henderson Blvd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	0	55	4	0	59	0	0	0	0	0	41	82	0	0	123	4	0	17	0	21	203
17:00	0	**57**	**12**	0	**69**	0	0	0	0	0	32	85	0	0	117	5	0	21	0	26	212
17:15	0	37	6	0	43	0	0	0	0	0	41	**97**	0	0	**138**	**11**	0	25	0	36	**217**
17:30	0	33	10	0	43	0	0	0	0	0	**42**	75	0	0	117	5	0	**32**	0	**37**	197
Total Volume	0	182	32	0	214	0	0	0	0	0	156	339	0	0	495	25	0	95	0	120	829
% App. Total	0	85	15	0		0	0	0	0		31.5	68.5	0	0		20.8	0	79.2	0		
PHF	.000	.798	.667	.000	.775	.000	.000	.000	.000	.000	.929	.874	.000	.000	.897	.568	.000	.742	.000	.811	.955
Passenger Vehicles	0	170	32	0	202	0	0	0	0	0	154	326	0	0	480	25	0	93	0	118	800
% Passenger Vehicles																					
Heavy Vehicles	0	12	0	0	12	0	0	0	0	0	2	13	0	0	15	0	0	1	0	1	28
% Heavy Vehicles	0	6.6	0	0	5.6	0	0	0	0	0	1.3	3.8	0	0	3.0	0	0	1.1	0	0.8	3.4
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	0	0.8	0.1



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Zipperer Dr
Site Code :
Start Date : 05/27/2021
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Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Little Neck Rd Southbound				Westbound				Little Neck Rd Northbound				Zipperer Dr Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	52	0	0	0	0	0	0	1	28	0	0	1	0	2	0	84
07:15	0	73	0	0	0	0	0	0	1	30	0	0	1	0	1	0	106
07:30	0	75	0	0	0	0	0	0	1	24	0	0	2	0	10	0	112
07:45	0	69	0	0	0	0	0	0	3	29	0	0	0	0	2	0	103
Total	0	269	0	0	0	0	0	0	6	111	0	0	4	0	15	0	405
08:00	0	53	0	0	0	0	0	0	0	35	0	0	0	0	4	0	92
08:15	0	56	0	0	0	0	0	0	1	27	0	0	0	0	4	0	88
08:30	0	62	0	0	0	0	0	0	1	32	0	0	1	0	2	0	98
08:45	0	53	1	0	0	0	0	0	0	27	0	0	0	0	0	0	81
Total	0	224	1	0	0	0	0	0	2	121	0	0	1	0	10	0	359
16:00	0	38	0	0	0	0	0	0	3	51	0	0	0	0	1	0	93
16:15	0	32	1	0	0	0	0	0	6	84	0	0	0	0	2	0	125
16:30	0	41	0	0	0	0	0	0	3	71	0	0	0	0	1	0	116
16:45	0	54	1	0	0	0	0	0	2	81	0	0	0	0	1	0	139
Total	0	165	2	0	0	0	0	0	14	287	0	0	0	0	5	0	473
17:00	0	51	1	0	0	0	0	0	3	72	0	0	0	0	2	0	129
17:15	0	36	0	0	0	0	0	0	6	101	0	0	0	0	2	0	145
17:30	0	33	0	0	0	0	0	0	4	78	0	0	0	0	2	0	117
17:45	0	40	0	0	0	0	0	0	4	76	0	0	0	0	0	0	120
Total	0	160	1	0	0	0	0	0	17	327	0	0	0	0	6	0	511
Grand Total	0	818	4	0	0	0	0	0	39	846	0	0	5	0	36	0	1748
Apprch %	0	99.5	0.5	0	0	0	0	0	4.4	95.6	0	0	12.2	0	87.8	0	
Total %	0	46.8	0.2	0	0	0	0	0	2.2	48.4	0	0	0.3	0	2.1	0	
Passenger Vehicles	0	710	4	0	0	0	0	0	38	756	0	0	5	0	35	0	1548
% Passenger Vehicles	0	86.8	100	0	0	0	0	0	97.4	89.4	0	0	100	0	97.2	0	88.6
Heavy Vehicles	0	108	0	0	0	0	0	0	1	90	0	0	0	0	1	0	200
% Heavy Vehicles	0	13.2	0	0	0	0	0	0	2.6	10.6	0	0	0	0	2.8	0	11.4
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SHORT COUNTS, LLC

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We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Zipperer Dr
Site Code :
Start Date : 05/27/2021
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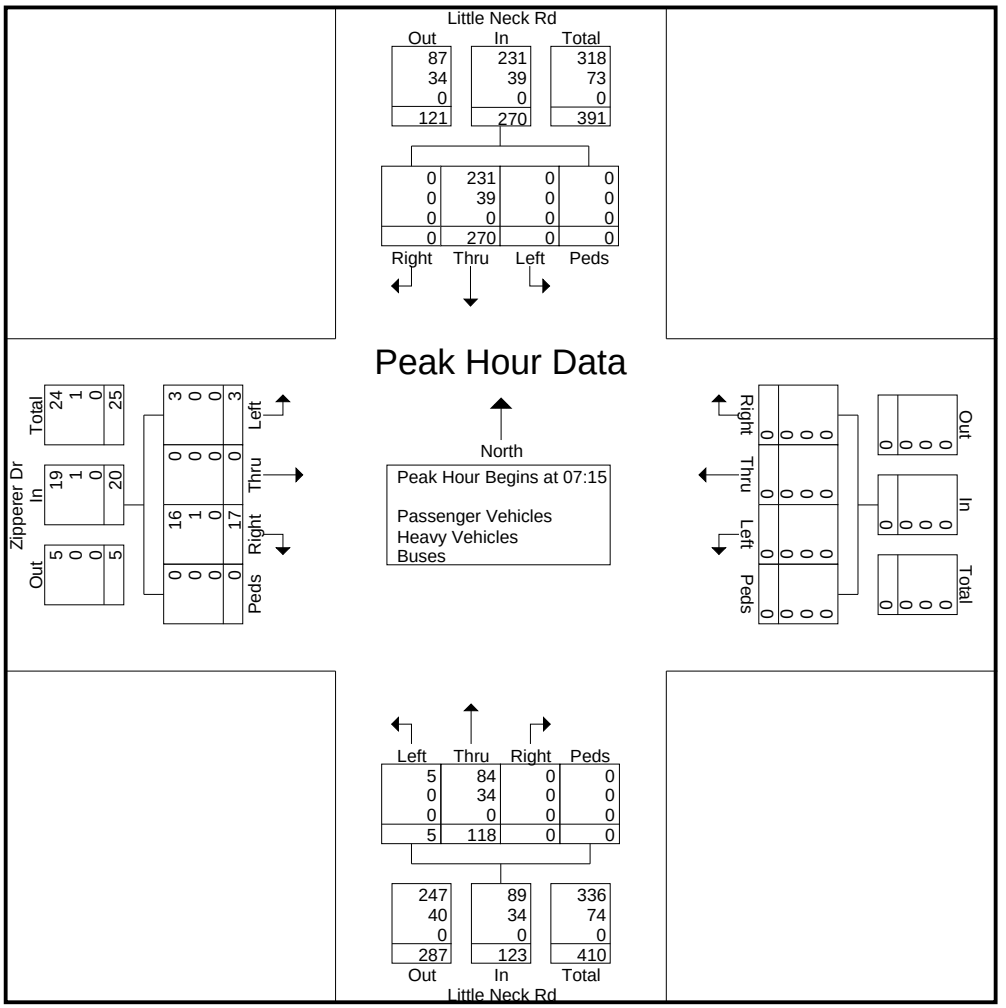
	Little Neck Rd Southbound					Westbound					Little Neck Rd Northbound					Zipperer Dr Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	73	0	0	73	0	0	0	0	0	1	30	0	0	31	1	0	1	0	2	106
07:30	0	**75**	0	0	**75**	0	0	0	0	0	1	24	0	0	25	**2**	0	**10**	0	**12**	**112**
07:45	0	69	0	0	69	0	0	0	0	0	**3**	29	0	0	32	0	0	2	0	2	103
08:00	0	53	0	0	53	0	0	0	0	0	0	**35**	0	0	**35**	0	0	4	0	4	92
Total Volume	0	270	0	0	270	0	0	0	0	0	5	118	0	0	123	3	0	17	0	20	413
% App. Total	0	100	0	0		0	0	0	0		4.1	95.9	0	0		15	0	85	0		
PHF	.000	.900	.000	.000	.900	.000	.000	.000	.000	.000	.417	.843	.000	.000	.879	.375	.000	.425	.000	.417	.922
Passenger Vehicles	0	231	0	0	231	0	0	0	0	0	5	84	0	0	89	3	0	16	0	19	339
% Passenger Vehicles																					
Heavy Vehicles	0	39	0	0	39	0	0	0	0	0	0	34	0	0	34	0	0	1	0	1	74
% Heavy Vehicles	0	14.4	0	0	14.4	0	0	0	0	0	0	28.8	0	0	27.6	0	0	5.9	0	5.0	17.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Zipperer Dr
Site Code :
Start Date : 05/27/2021
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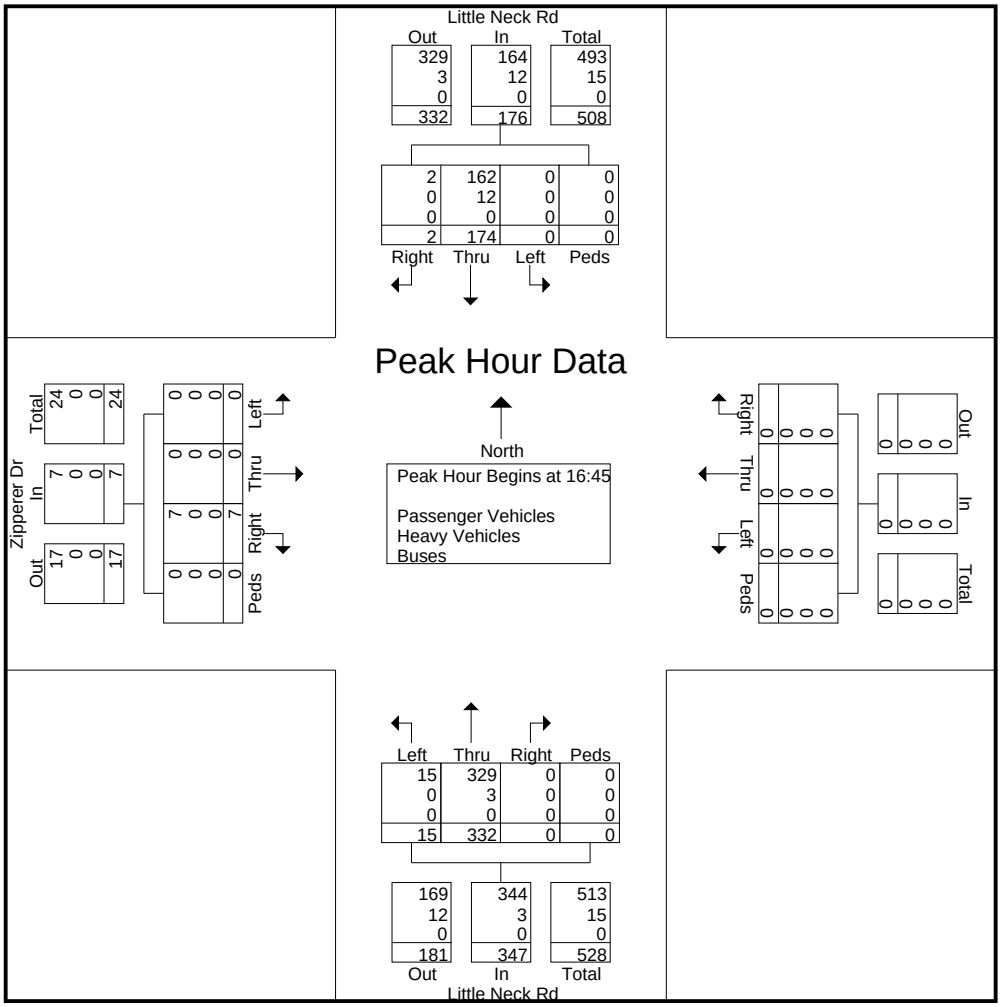
	Little Neck Rd Southbound					Westbound					Little Neck Rd Northbound					Zipperer Dr Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	0	**54**	**1**	0	**55**	0	0	0	0	0	2	81	0	0	83	0	0	1	0	1	139
17:00	0	51	1	0	52	0	0	0	0	0	3	72	0	0	75	0	0	**2**	0	**2**	129
17:15	0	36	0	0	36	0	0	0	0	0	**6**	**101**	0	0	**107**	0	0	2	0	2	**145**
17:30	0	33	0	0	33	0	0	0	0	0	4	78	0	0	82	0	0	2	0	2	117
Total Volume	0	174	2	0	176	0	0	0	0	0	15	332	0	0	347	0	0	7	0	7	530
% App. Total	0	98.9	1.1	0		0	0	0	0		4.3	95.7	0	0		0	0	100	0		
PHF	.000	.806	.500	.000	.800	.000	.000	.000	.000	.000	.625	.822	.000	.000	.811	.000	.000	.875	.000	.875	.914
Passenger Vehicles	0	162	2	0	164	0	0	0	0	0	15	329	0	0	344	0	0	7	0	7	515
% Passenger Vehicles																					
Heavy Vehicles	0	12	0	0	12	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	15
% Heavy Vehicles	0	6.9	0	0	6.8	0	0	0	0	0	0	0.9	0	0	0.9	0	0	0	0	0	2.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Henderson Oaks Dr
Site Code :
Start Date : 05/27/2021
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Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Little Neck Rd Southbound				Westbound				Little Neck Rd Northbound				Henderson Oaks Dr Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	42	0	0	0	0	0	0	2	33	0	0	1	0	5	0	83
07:15	0	60	0	0	0	0	0	0	2	31	0	0	0	0	13	0	106
07:30	0	65	0	0	0	0	0	0	0	28	0	0	1	0	9	0	103
07:45	0	55	0	0	0	0	0	0	1	25	0	0	0	0	9	0	90
Total	0	222	0	0	0	0	0	0	5	117	0	0	2	0	36	0	382
08:00	0	50	0	0	0	0	0	0	3	29	0	0	0	0	7	0	89
08:15	0	48	1	0	0	0	0	0	1	27	0	0	1	0	7	0	85
08:30	0	53	1	0	0	0	0	0	2	31	0	1	0	0	9	0	97
08:45	0	48	0	0	0	0	0	0	1	29	0	0	1	0	4	0	83
Total	0	199	2	0	0	0	0	0	7	116	0	1	2	0	27	0	354
16:00	0	41	0	0	0	0	0	0	4	53	0	0	1	0	3	0	102
16:15	0	29	1	0	0	0	0	0	8	67	0	0	2	0	3	0	110
16:30	0	41	1	0	0	0	0	0	9	64	0	0	0	0	1	0	116
16:45	0	45	0	0	0	0	0	0	5	69	0	0	1	0	7	0	127
Total	0	156	2	0	0	0	0	0	26	253	0	0	4	0	14	0	455
17:00	0	46	0	0	0	0	0	0	8	73	0	0	2	0	7	0	136
17:15	0	32	0	0	0	0	0	0	5	69	0	0	0	0	2	0	108
17:30	0	33	2	0	0	0	0	0	12	80	0	0	0	0	4	0	131
17:45	0	33	1	0	0	0	0	0	8	76	0	0	2	0	2	0	122
Total	0	144	3	0	0	0	0	0	33	298	0	0	4	0	15	0	497
Grand Total	0	721	7	0	0	0	0	0	71	784	0	1	12	0	92	0	1688
Apprch %	0	99	1	0	0	0	0	0	8.3	91.6	0	0.1	11.5	0	88.5	0	
Total %	0	42.7	0.4	0	0	0	0	0	4.2	46.4	0	0.1	0.7	0	5.5	0	
Passenger Vehicles	0	610	7	0	0	0	0	0	71	691	0	1	12	0	92	0	1484
% Passenger Vehicles	0	84.6	100	0	0	0	0	0	100	88.1	0	100	100	0	100	0	87.9
Heavy Vehicles	0	111	0	0	0	0	0	0	0	93	0	0	0	0	0	0	204
% Heavy Vehicles	0	15.4	0	0	0	0	0	0	0	11.9	0	0	0	0	0	0	12.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SHORT COUNTS, LLC

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We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Henderson Oaks Dr
Site Code :
Start Date : 05/27/2021
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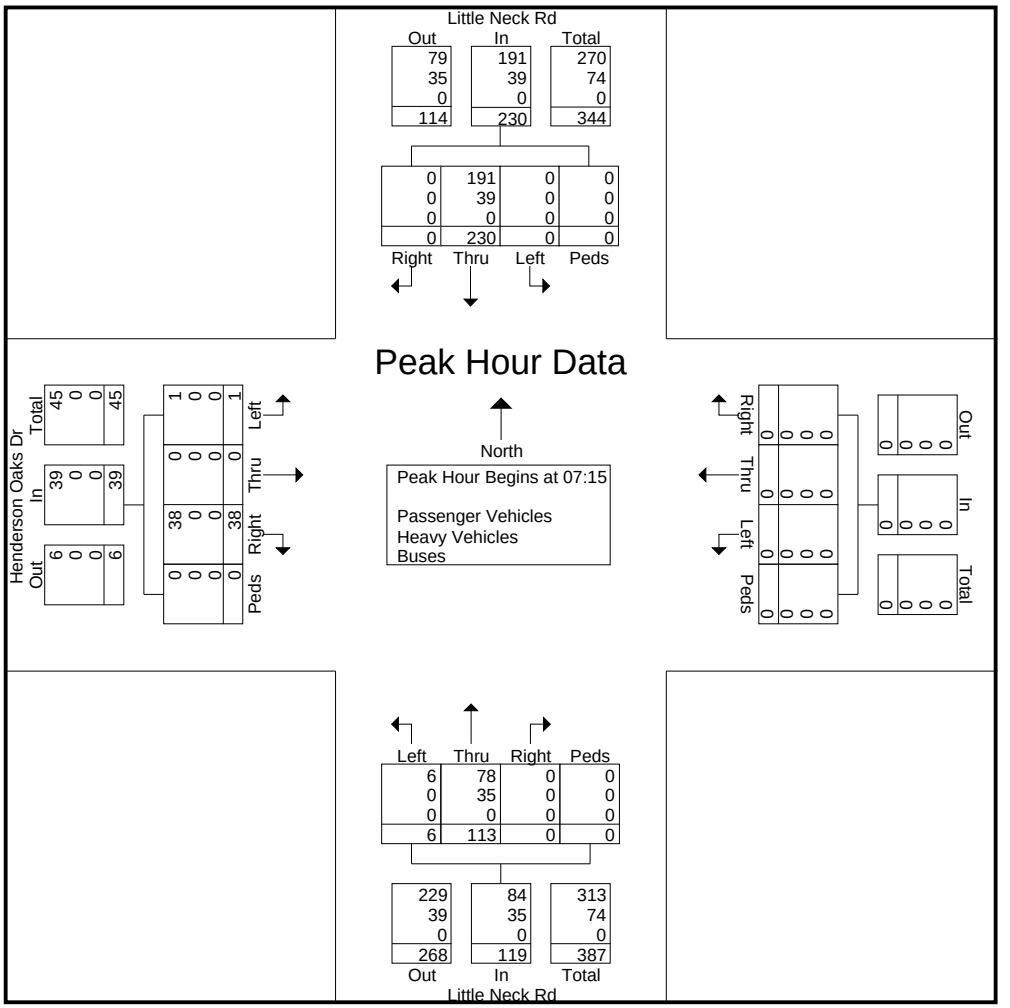
	Little Neck Rd Southbound					Westbound					Little Neck Rd Northbound					Henderson Oaks Dr Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	60	0	0	60	0	0	0	0	0	2	**31**	0	0	**33**	0	0	**13**	0	**13**	**106**
07:30	0	**65**	0	0	**65**	0	0	0	0	0	0	28	0	0	28	**1**	0	9	0	10	103
07:45	0	55	0	0	55	0	0	0	0	0	1	25	0	0	26	0	0	9	0	9	90
08:00	0	50	0	0	50	0	0	0	0	0	**3**	29	0	0	32	0	0	7	0	7	89
Total Volume	0	230	0	0	230	0	0	0	0	0	6	113	0	0	119	1	0	38	0	39	388
% App. Total	0	100	0	0		0	0	0	0		5	95	0	0		2.6	0	97.4	0		
PHF	.000	.885	.000	.000	.885	.000	.000	.000	.000	.000	.500	.911	.000	.000	.902	.250	.000	.731	.000	.750	.915
Passenger Vehicles	0	191	0	0	191	0	0	0	0	0	6	78	0	0	84	1	0	38	0	39	314
% Passenger Vehicles																					
Heavy Vehicles	0	39	0	0	39	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	74
% Heavy Vehicles	0	17.0	0	0	17.0	0	0	0	0	0	0	31.0	0	0	29.4	0	0	0	0	0	19.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Henderson Oaks Dr
Site Code :
Start Date : 05/27/2021
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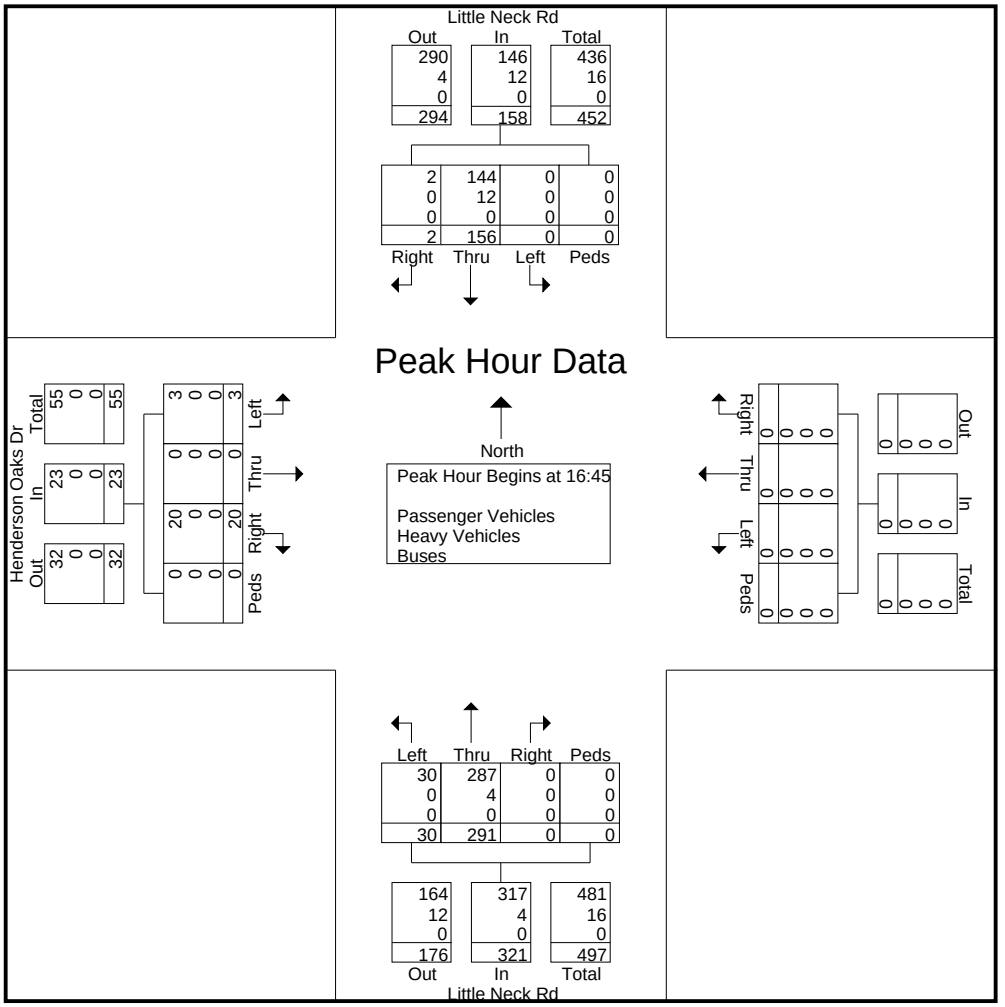
	Little Neck Rd Southbound					Westbound					Little Neck Rd Northbound					Henderson Oaks Dr Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	0	45	0	0	45	0	0	0	0	0	5	69	0	0	74	1	0	**7**	0	8	127
17:00	0	**46**	0	0	**46**	0	0	0	0	0	8	73	0	0	81	**2**	0	7	0	**9**	**136**
17:15	0	32	0	0	32	0	0	0	0	0	5	69	0	0	74	0	0	2	0	2	108
17:30	0	33	**2**	0	35	0	0	0	0	0	**12**	**80**	0	0	**92**	0	0	4	0	4	131
Total Volume	0	156	2	0	158	0	0	0	0	0	30	291	0	0	321	3	0	20	0	23	502
% App. Total	0	98.7	1.3	0		0	0	0	0		9.3	90.7	0	0		13	0	87	0		
PHF	.000	.848	.250	.000	.859	.000	.000	.000	.000	.000	.625	.909	.000	.000	.872	.375	.000	.714	.000	.639	.923
Passenger Vehicles	0	144	2	0	146	0	0	0	0	0	30	287	0	0	317	3	0	20	0	23	486
% Passenger Vehicles																					
Heavy Vehicles	0	12	0	0	12	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	16
% Heavy Vehicles	0	7.7	0	0	7.6	0	0	0	0	0	0	1.4	0	0	1.2	0	0	0	0	0	3.2
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Henderson Lakes Apts
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Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Little Neck Rd Southbound				Westbound				Little Neck Rd Northbound				Henderson Lakes Apts Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	29	0	0	0	0	0	0	3	25	0	0	1	0	12	0	70
07:15	0	47	1	0	0	0	0	0	3	29	0	0	4	0	14	0	98
07:30	0	49	0	0	0	0	0	0	5	21	0	0	0	0	19	0	94
07:45	0	41	0	0	0	0	0	0	0	26	0	0	2	0	14	0	83
Total	0	166	1	0	0	0	0	0	11	101	0	0	7	0	59	0	345
08:00	0	40	0	0	0	0	0	0	3	28	0	0	0	0	5	1	77
08:15	0	35	1	0	0	0	0	0	5	22	0	0	1	0	14	0	78
08:30	0	40	0	0	0	0	0	0	3	30	0	0	0	0	17	0	90
08:45	0	30	0	0	0	0	0	0	4	23	0	0	1	0	17	0	75
Total	0	145	1	0	0	0	0	0	15	103	0	0	2	0	53	1	320
16:00	0	28	0	0	0	0	0	0	15	37	0	0	1	0	6	0	87
16:15	0	24	0	0	0	0	0	0	11	59	0	0	0	0	6	0	100
16:30	0	31	0	0	0	0	0	0	20	45	0	0	3	0	12	0	111
16:45	0	44	0	0	0	0	0	0	17	58	0	0	0	0	5	0	124
Total	0	127	0	0	0	0	0	0	63	199	0	0	4	0	29	0	422
17:00	0	31	1	0	0	0	0	0	9	57	0	0	0	0	11	0	109
17:15	0	22	0	0	0	0	0	0	27	63	0	0	1	0	9	0	122
17:30	0	22	4	0	0	0	0	0	24	48	0	0	1	0	15	0	114
17:45	0	26	1	0	0	0	0	0	19	49	0	0	0	0	13	0	108
Total	0	101	6	0	0	0	0	0	79	217	0	0	2	0	48	0	453
Grand Total	0	539	8	0	0	0	0	0	168	620	0	0	15	0	189	1	1540
Apprch %	0	98.5	1.5	0	0	0	0	0	21.3	78.7	0	0	7.3	0	92.2	0.5	
Total %	0	35	0.5	0	0	0	0	0	10.9	40.3	0	0	1	0	12.3	0.1	
Passenger Vehicles	0	432	8	0	0	0	0	0	168	529	0	0	15	0	189	1	1342
% Passenger Vehicles	0	80.1	100	0	0	0	0	0	100	85.3	0	0	100	0	100	100	87.1
Heavy Vehicles	0	107	0	0	0	0	0	0	0	91	0	0	0	0	0	0	198
% Heavy Vehicles	0	19.9	0	0	0	0	0	0	0	14.7	0	0	0	0	0	0	12.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Henderson Lakes Apts
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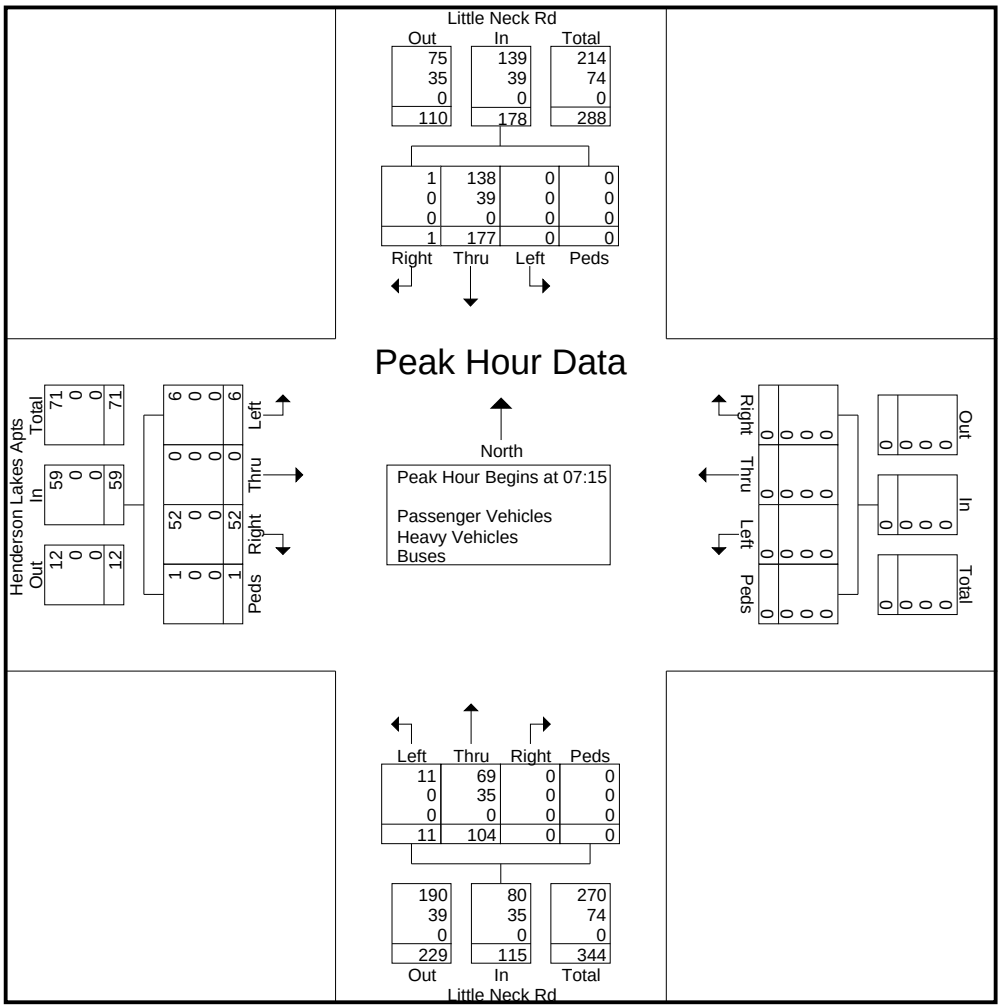
	Little Neck Rd Southbound					Westbound					Little Neck Rd Northbound					Henderson Lakes Apts Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	0	47	**1**	0	48	0	0	0	0	0	3	**29**	0	0	**32**	**4**	0	14	0	18	**98**
07:30	0	**49**	0	0	**49**	0	0	0	0	0	**5**	21	0	0	26	0	0	**19**	0	**19**	94
07:45	0	41	0	0	41	0	0	0	0	0	0	26	0	0	26	2	0	14	0	16	83
08:00	0	40	0	0	40	0	0	0	0	0	3	28	0	0	31	0	0	5	**1**	6	77
Total Volume	0	177	1	0	178	0	0	0	0	0	11	104	0	0	115	6	0	52	1	59	352
% App. Total	0	99.4	0.6	0		0	0	0	0		9.6	90.4	0	0		10.2	0	88.1	1.7		
PHF	.000	.903	.250	.000	.908	.000	.000	.000	.000	.000	.550	.897	.000	.000	.898	.375	.000	.684	.250	.776	.898
Passenger Vehicles	0	138	1	0	139	0	0	0	0	0	11	69	0	0	80	6	0	52	1	59	278
% Passenger Vehicles																					
Heavy Vehicles	0	39	0	0	39	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	74
% Heavy Vehicles	0	22.0	0	0	21.9	0	0	0	0	0	0	33.7	0	0	30.4	0	0	0	0	0	21.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201
We can't say we're the Best, but you Can!

File Name : Little Neck Rd @ Henderson Lakes Apts
Site Code :
Start Date : 05/27/2021
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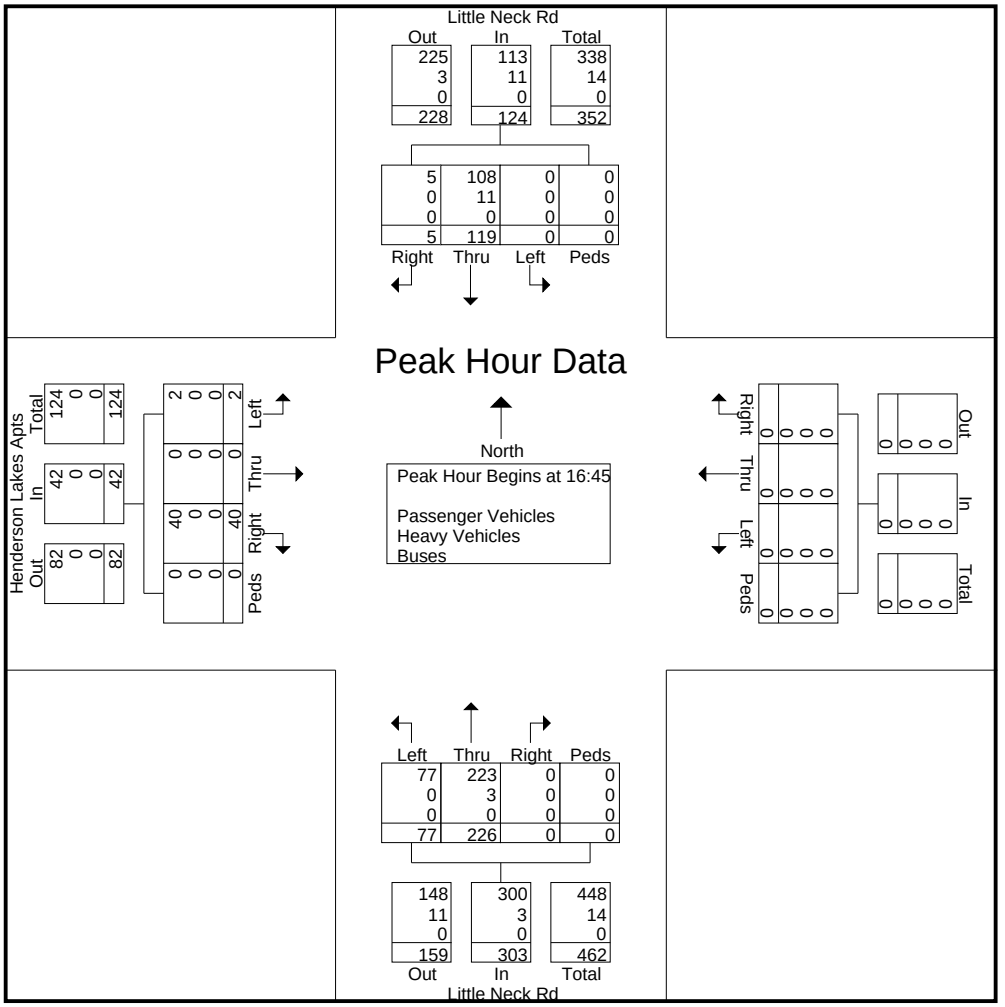
	Little Neck Rd Southbound					Westbound					Little Neck Rd Northbound					Henderson Lakes Apts Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	0	**44**	0	0	**44**	0	0	0	0	0	17	58	0	0	75	0	0	5	0	5	**124**
17:00	0	31	1	0	32	0	0	0	0	0	9	57	0	0	66	0	0	11	0	11	109
17:15	0	22	0	0	22	0	0	0	0	0	**27**	**63**	0	0	**90**	**1**	0	9	0	10	122
17:30	0	22	**4**	0	26	0	0	0	0	0	24	48	0	0	72	1	0	**15**	0	**16**	114
Total Volume	0	119	5	0	124	0	0	0	0	0	77	226	0	0	303	2	0	40	0	42	469
% App. Total	0	96	4	0		0	0	0	0		25.4	74.6	0	0		4.8	0	95.2	0		
PHF	.000	.676	.313	.000	.705	.000	.000	.000	.000	.000	.713	.897	.000	.000	.842	.500	.000	.667	.000	.656	.946
Passenger Vehicles	0	108	5	0	113	0	0	0	0	0	77	223	0	0	300	2	0	40	0	42	455
% Passenger Vehicles																					
Heavy Vehicles	0	11	0	0	11	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	14
% Heavy Vehicles	0	9.2	0	0	8.9	0	0	0	0	0	0	1.3	0	0	1.0	0	0	0	0	0	3.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



LITTLE NECK ROAD
WIDENING CONCEPT

LITTLE NECK ROAD WIDENING CONCEPT PLAN

SHEET 1 OF 2
JANUARY 2017

HUSSEY GAY BELL
Established 1958

SCALE: 1"=50'

LEGEND

- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- PROPOSED PAVED SHOULDER
- PROPOSED MULTI-USE TRAIL / SIDEWALK
- PROPOSED CURB AND GUTTER
- EXISTING RIGHT OF WAY / PROPERTY LINE
- REQUIRED RIGHT OF WAY LINE
- REQUIRED RIGHT OF WAY MARKER
- CEMETERY
- TRANSMISSION UTILITY POLE
- WETLANDS

MATCH LINE STA. 188+50 - SEE SHEET 1
Little Neck Road
Interstate 95
DIXIE SOUTH INVESTMENTS LLC
HOLY CHURCH OF GOD INC
GRIZZARD PAUL A
COLEMAN LINDA DIANE
WILSON ESTELLA HILL & LEROY JR
CHRISTIAN BRENDA SUE
SUPERIOR SANITATION SERVICE LA
KELLER & MARTHA ALICE WILCOX
TYPICAL SECTION
LEGEND
EXISTING PAVEMENT
PROPOSED PAVEMENT
PROPOSED PAVED SHOULDER
PROPOSED MULTI-USE TRAIL / SIDEWALK
PROPOSED CURB AND GUTTER
EXISTING RIGHT OF WAY / PROPERTY LINE
REQUIRED RIGHT OF WAY LINE
REQUIRED RIGHT OF WAY MARKER
CEMETERY
TRANSMISSION UTILITY POLE
WETLANDS

LITTLE NECK ROAD WIDENING CONCEPT PLAN

SHEET 2 OF 2
JANUARY 2017

HUSSEY GAY BELL
Established 1958

50' 25' 0 50' 100'
SCALE: 1"=50'

CHATHAM COUNTY GEORGIA 1777

CAPACITY ANALYSIS

- **Existing**
- **2030 No-Build**
- **2030 Build**
- **Mitigated**

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (veh/h)	0	0	174	0	222	89	930	0	0	839	73
Future Volume (veh/h)	0	0	174	0	222	89	930	0	0	839	73
Initial Q (Qb), veh			0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00	1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No	
Adj Sat Flow, veh/h/ln			1693	1693	1796	1707	1841	0	1870	1856	1426
Adj Flow Rate, veh/h			189	189	0	97	1011	0	0	912	0
Peak Hour Factor			0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %			14	14	7	13	4	0	2	3	32
Cap, veh/h			224	224		402	2467	0	80	2034	
Arrive On Green			0.14	0.14	0.00	0.05	0.71	0.00	0.00	0.58	0.00
Sat Flow, veh/h			1612	1612	1522	1626	3589	0	558	3526	1208
Grp Volume(v), veh/h			189	189	0	97	1011	0	0	912	0
Grp Sat Flow(s),veh/h/ln			1612	1612	1522	1626	1749	0	558	1763	1208
Q Serve(g_s), s			10.3	10.3	0.0	2.0	10.8	0.0	0.0	13.3	0.0
Cycle Q Clear(g_c), s			10.3	10.3	0.0	2.0	10.8	0.0	0.0	13.3	0.0
Prop In Lane			1.00	1.00	1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h			224	224		402	2467	0	80	2034	
V/C Ratio(X)			0.84	0.84		0.24	0.41	0.00	0.00	0.45	
Avail Cap(c_a), veh/h			394	394		464	2467	0	80	2034	
HCM Platoon Ratio			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh			37.8	37.8	0.0	7.4	5.5	0.0	0.0	10.9	0.0
Incr Delay (d2), s/veh			8.3	8.3	0.0	0.3	0.5	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			4.4	4.4	0.0	0.6	2.9	0.0	0.0	4.5	0.0
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh			46.1	46.1	0.0	7.7	6.0	0.0	0.0	11.6	0.0
LnGrp LOS			D	D		A	A	A	A	B	
Approach Vol, veh/h			189	189	A		1108			912	A
Approach Delay, s/veh			46.1	46.1			6.2			11.6	
Approach LOS			D	D			A			B	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	70.5	19.5	11.6	58.9
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0
Max Green Setting (Gmax), s	54.0	22.0	8.0	39.0
Max Q Clear Time (g_c+I1), s	12.8	12.3	4.0	15.3
Green Ext Time (p_c), s	8.0	0.3	0.1	6.2

Intersection Summary	
HCM 6th Ctrl Delay	11.8
HCM 6th LOS	B

Notes

Unsignalized Delay for [SER, SWR] is excluded from calculations of the approach delay and intersection delay.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	142	0	160	0	0	0	286	1008	0	2	1216	272
Future Volume (veh/h)	142	0	160	0	0	0	286	1008	0	2	1216	272
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856				1826	1870	0	1870	1870	1870
Adj Flow Rate, veh/h	151	0	0				304	1072	0	2	1294	0
Peak Hour Factor	0.94	0.92	0.94				0.94	0.94	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	3	0	3				5	2	0	2	2	2
Cap, veh/h	187	0					377	2625	0	378	2013	
Arrive On Green	0.11	0.00	0.00				0.09	0.74	0.00	0.57	0.57	0.00
Sat Flow, veh/h	1767	0	1572				1739	3647	0	526	3554	1585
Grp Volume(v), veh/h	151	0	0				304	1072	0	2	1294	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				1739	1777	0	526	1777	1585
Q Serve(g_s), s	7.5	0.0	0.0				6.0	10.2	0.0	0.1	22.3	0.0
Cycle Q Clear(g_c), s	7.5	0.0	0.0				6.0	10.2	0.0	0.1	22.3	0.0
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	187	0					377	2625	0	378	2013	
V/C Ratio(X)	0.81	0.00					0.81	0.41	0.00	0.01	0.64	
Avail Cap(c_a), veh/h	353	0					483	2625	0	378	2013	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.3	0.0	0.0				14.8	4.4	0.0	8.5	13.3	0.0
Incr Delay (d2), s/veh	8.0	0.0	0.0				7.7	0.5	0.0	0.0	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.0				4.2	2.5	0.0	0.0	7.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	0.0	0.0				22.5	4.9	0.0	8.5	14.9	0.0
LnGrp LOS	D	A					C	A	A	A	B	
Approach Vol, veh/h		151	A					1376			1296	A
Approach Delay, s/veh		47.4						8.8			14.9	
Approach LOS		D						A			B	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	73.5	16.5	15.5	58.0
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0
Max Green Setting (Gmax), s	58.0	18.0	14.0	37.0
Max Q Clear Time (g_c+I1), s	12.2	9.5	8.0	24.3
Green Ext Time (p_c), s	8.8	0.2	0.5	6.8

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

Unsignalized Delay for [SER, SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.4

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	289	31	26	136	15	107
Future Vol, veh/h	289	31	26	136	15	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	13	29	2	28	14	2
Mvmt Flow	318	34	29	149	16	118

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	352	0	542	335
Stage 1	-	-	-	-	335	-
Stage 2	-	-	-	-	207	-
Critical Hdwy	-	-	4.12	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	2.218	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	1207	-	481	707
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	800	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1207	-	469	707
Mov Cap-2 Maneuver	-	-	-	-	469	-
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	781	-

Approach	SE	NW	NE
HCM Control Delay, s	0	1.3	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	806	1207	-	-	-
HCM Lane V/C Ratio	0.166	0.024	-	-	-
HCM Control Delay (s)	10.4	8.1	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0.6	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	207	32	156	402	25	95
Future Vol, veh/h	207	32	156	402	25	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	7	2	2	4	2	2
Mvmt Flow	216	33	163	419	26	99

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	249	0	978	233
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	745	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1317	-	278	806
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	469	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1317	-	244	806
Mov Cap-2 Maneuver	-	-	-	-	244	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	411	-

Approach	SE	NW	NE
HCM Control Delay, s	0	2.3	9
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	1018	1317	-	-	-
HCM Lane V/C Ratio	0.123	0.123	-	-	-
HCM Control Delay (s)	9	8.1	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.4	0.4	-	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	3	17	270	1	5	118
Future Vol, veh/h	3	17	270	1	5	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	6	15	2	2	29
Mvmt Flow	3	18	293	1	5	128

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	432	294	0	0	294	0
Stage 1	294	-	-	-	-	-
Stage 2	138	-	-	-	-	-
Critical Hdwy	6.42	6.26	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.354	-	-	2.218	-
Pot Cap-1 Maneuver	581	736	-	-	1268	-
Stage 1	756	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	579	736	-	-	1268	-
Mov Cap-2 Maneuver	579	-	-	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	885	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	10.3	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	1268	-	707	-	-
HCM Lane V/C Ratio	0.004	-	0.031	-	-
HCM Control Delay (s)	7.9	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	1	7	174	2	15	329
Future Vol, veh/h	1	7	174	2	15	329
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	7	2	2	2
Mvmt Flow	1	8	191	2	16	362

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	586	192	0	0	193	0
Stage 1	192	-	-	-	-	-
Stage 2	394	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	473	850	-	-	1380	-
Stage 1	841	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	466	850	-	-	1380	-
Mov Cap-2 Maneuver	466	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	671	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	9.7	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	1380	-	771	-	-
HCM Lane V/C Ratio	0.012	-	0.011	-	-
HCM Control Delay (s)	7.6	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	233	1	6	115	1	38
Future Vol, veh/h	233	1	6	115	1	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	175	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	17	2	2	31	2	2
Mvmt Flow	253	1	7	125	1	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	254	0	392	253
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	139	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1311	-	612	786
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	888	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1311	-	609	786
Mov Cap-2 Maneuver	-	-	-	-	609	-
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	884	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.4	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	780	1311	-	-	-
HCM Lane V/C Ratio	0.054	0.005	-	-	-
HCM Control Delay (s)	9.9	7.8	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	156	2	30	300	3	20
Future Vol, veh/h	156	2	30	300	3	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	175	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	2	2	2	2	2
Mvmt Flow	170	2	33	326	3	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	172	0	562	170
Stage 1	-	-	-	-	170	-
Stage 2	-	-	-	-	392	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1405	-	488	874
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	683	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1405	-	477	874
Mov Cap-2 Maneuver	-	-	-	-	477	-
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	667	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.7	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	788	1405	-	-	-
HCM Lane V/C Ratio	0.032	0.023	-	-	-
HCM Control Delay (s)	9.7	7.6	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	182	1	11	105	6	52
Future Vol, veh/h	182	1	11	105	6	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	270	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	22	2	2	34	2	2
Mvmt Flow	202	1	12	117	7	58

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	203	0	343	202
Stage 1	-	-	-	-	202	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1369	-	653	839
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	886	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1369	-	647	839
Mov Cap-2 Maneuver	-	-	-	-	647	-
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	878	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.7	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	814	1369	-	-	-
HCM Lane V/C Ratio	0.079	0.009	-	-	-
HCM Control Delay (s)	9.8	7.7	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.3	0	-	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	118	5	77	226	2	40
Future Vol, veh/h	118	5	77	226	2	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	270	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	10	2	2	2	2	2
Mvmt Flow	124	5	81	238	2	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	129	0	524	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	400	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1457	-	514	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	677	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1457	-	485	927
Mov Cap-2 Maneuver	-	-	-	-	485	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	639	-

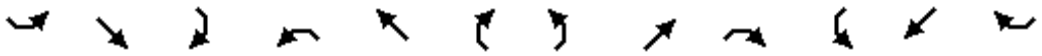
Approach	SE	NW	NE
HCM Control Delay, s	0	1.9	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	888	1457	-	-	-
HCM Lane V/C Ratio	0.05	0.056	-	-	-
HCM Control Delay (s)	9.3	7.6	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.2	0.2	-	-	-

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (veh/h)	0	0	174	0	222	89	930	0	0	839	73
Future Volume (veh/h)	0	0	174	0	222	89	930	0	0	839	73
Number			7	7	14	5	2	12	1	6	16
Initial Q (Qb), veh			0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00	1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln			1667	1667	1776	1681	1827	0	1863	1845	1439
Adj Flow Rate, veh/h			246	246	0	126	1314	0	0	1186	0
Adj No. of Lanes			1	1	1	1	2	0	1	2	1
Peak Hour Factor			0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %			14	14	7	13	4	0	2	3	32
Cap, veh/h			280	280	266	293	2319	0	80	1880	656
Arrive On Green			0.18	0.18	0.00	0.05	0.67	0.00	0.00	0.54	0.00
Sat Flow, veh/h			1587	1587	1509	1601	3563	0	417	3505	1223
Grp Volume(v), veh/h			246	246	0	126	1314	0	0	1186	0
Grp Sat Flow(s),veh/h/ln			1587	1587	1509	1601	1736	0	417	1752	1223
Q Serve(g_s), s			13.6	13.6	0.0	3.0	18.2	0.0	0.0	21.3	0.0
Cycle Q Clear(g_c), s			13.6	13.6	0.0	3.0	18.2	0.0	0.0	21.3	0.0
Prop In Lane			1.00	1.00	1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h			280	280	266	293	2319	0	80	1880	656
V/C Ratio(X)			0.88	0.88	0.00	0.43	0.57	0.00	0.00	0.63	0.00
Avail Cap(c_a), veh/h			370	370	352	349	2319	0	80	1880	656
HCM Platoon Ratio			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh			36.1	36.1	0.0	11.6	8.0	0.0	0.0	14.6	0.0
Incr Delay (d2), s/veh			16.8	16.8	0.0	1.0	1.0	0.0	0.0	1.6	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			7.3	7.3	0.0	1.4	8.9	0.0	0.0	10.6	0.0
LnGrp Delay(d),s/veh			52.9	52.9	0.0	12.6	9.0	0.0	0.0	16.2	0.0
LnGrp LOS			D	D		B	A			B	
Approach Vol, veh/h			246	246			1440			1186	
Approach Delay, s/veh			52.9	52.9			9.3			16.2	
Approach LOS			D	D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		67.1		22.9	11.8	55.3		
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0		
Max Green Setting (Gmax), s		55.0		21.0	8.0	40.0		
Max Q Clear Time (g_c+I1), s		20.2		15.6	5.0	23.3		
Green Ext Time (p_c), s		11.4		0.3	0.1	7.3		

Intersection Summary	
HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	142	0	160	0	0	0	286	1008	0	2	1216	272
Future Volume (veh/h)	142	0	160	0	0	0	286	1008	0	2	1216	272
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856				1826	1870	0	1870	1870	1870
Adj Flow Rate, veh/h	196	0	0				396	1394	0	3	1682	0
Peak Hour Factor	0.94	0.92	0.94				0.94	0.94	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	3	0	3				5	2	0	2	2	2
Cap, veh/h	234	0					327	2531	0	274	1780	
Arrive On Green	0.13	0.00	0.00				0.13	0.71	0.00	0.50	0.50	0.00
Sat Flow, veh/h	1767	0	1572				1739	3647	0	387	3554	1585
Grp Volume(v), veh/h	196	0	0				396	1394	0	3	1682	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				1739	1777	0	387	1777	1585
Q Serve(g_s), s	9.7	0.0	0.0				12.0	16.7	0.0	0.4	40.4	0.0
Cycle Q Clear(g_c), s	9.7	0.0	0.0				12.0	16.7	0.0	0.4	40.4	0.0
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	234	0					327	2531	0	274	1780	
V/C Ratio(X)	0.84	0.00					1.21	0.55	0.00	0.01	0.94	
Avail Cap(c_a), veh/h	353	0					327	2531	0	274	1780	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.1	0.0	0.0				28.2	6.1	0.0	11.3	21.3	0.0
Incr Delay (d2), s/veh	10.5	0.0	0.0				120.1	0.9	0.0	0.1	11.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0				17.6	4.5	0.0	0.0	17.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	0.0	0.0				148.2	7.0	0.0	11.4	33.0	0.0
LnGrp LOS	D	A					F	A	A	B	C	
Approach Vol, veh/h		196	A					1790			1685	A
Approach Delay, s/veh		48.6						38.2			33.0	
Approach LOS		D						D			C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		71.1		18.9	19.0	52.1						
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0						
Max Green Setting (Gmax), s		58.0		18.0	12.0	39.0						
Max Q Clear Time (g_c+I1), s		18.7		11.7	14.0	42.4						
Green Ext Time (p_c), s		12.9		0.3	0.0	0.0						

Intersection Summary												
HCM 6th Ctrl Delay			36.4									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [SER, SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.7

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	289	31	26	136	15	107
Future Vol, veh/h	289	31	26	136	15	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	13	29	2	28	14	2
Mvmt Flow	413	44	37	194	21	153

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	457	0	703	435
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	268	-
Critical Hdwy	-	-	4.12	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	2.218	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	1104	-	386	621
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	750	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1104	-	373	621
Mov Cap-2 Maneuver	-	-	-	-	373	-
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	725	-

Approach	SE	NW	NE
HCM Control Delay, s	0	1.3	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	708	1104	-	-	-
HCM Lane V/C Ratio	0.246	0.034	-	-	-
HCM Control Delay (s)	11.7	8.4	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	1	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	269	42	203	523	33	124
Future Vol, veh/h	269	42	203	523	33	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	7	2	2	4	2	2
Mvmt Flow	280	44	211	545	34	129

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	324	0	1269	302
Stage 1	-	-	-	-	302	-
Stage 2	-	-	-	-	967	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1236	-	186	738
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	369	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1236	-	154	738
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	306	-

Approach	SE	NW	NE
HCM Control Delay, s	0	2.4	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	733	1236	-	-	-
HCM Lane V/C Ratio	0.223	0.171	-	-	-
HCM Control Delay (s)	11.3	8.5	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0.9	0.6	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	3	17	270	1	5	118
Future Vol, veh/h	3	17	270	1	5	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	91	92	92	92	92
Heavy Vehicles, %	2	6	15	2	2	29
Mvmt Flow	4	20	382	1	6	167

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	562	383	0	0	383	0
Stage 1	383	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	6.42	6.26	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.354	-	-	2.218	-
Pot Cap-1 Maneuver	488	656	-	-	1175	-
Stage 1	689	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	485	656	-	-	1175	-
Mov Cap-2 Maneuver	485	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	11	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	1175	-	623	-	-
HCM Lane V/C Ratio	0.005	-	0.038	-	-
HCM Control Delay (s)	8.1	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	1	7	174	2	15	329
Future Vol, veh/h	1	7	174	2	15	329
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	7	2	2	2
Mvmt Flow	1	8	249	2	18	470

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	756	250	0	0	251	0
Stage 1	250	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	376	789	-	-	1314	-
Stage 1	792	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	369	789	-	-	1314	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	594	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	10.3	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	1314	-	691	-	-
HCM Lane V/C Ratio	0.014	-	0.014	-	-
HCM Control Delay (s)	7.8	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	233	1	6	115	1	38
Future Vol, veh/h	233	1	6	115	1	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	175	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	17	2	2	31	2	2
Mvmt Flow	329	1	7	163	1	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	330	0	506	329
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1229	-	526	712
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	854	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1229	-	523	712
Mov Cap-2 Maneuver	-	-	-	-	523	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	849	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.3	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	705	1229	-	-	-
HCM Lane V/C Ratio	0.066	0.006	-	-	-
HCM Control Delay (s)	10.5	7.9	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-	-

Intersection	
Int Delay, s/veh	3

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	269	42	203	523	33	124
Future Vol, veh/h	269	42	203	523	33	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	7	2	2	4	2	2
Mvmt Flow	280	44	211	545	34	129

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	324	0	1269	162
Stage 1	-	-	-	-	302	-
Stage 2	-	-	-	-	967	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1234	-	172	855
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	368	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1234	-	143	855
Mov Cap-2 Maneuver	-	-	-	-	143	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	305	-

Approach	SE	NW	NE
HCM Control Delay, s	0	2.4	12
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	680	1234	-	-	-
HCM Lane V/C Ratio	0.241	0.171	-	-	-
HCM Control Delay (s)	12	8.5	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0.9	0.6	-	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	182	1	11	105	6	52
Future Vol, veh/h	182	1	11	105	6	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	270	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	22	2	2	34	2	2
Mvmt Flow	263	1	13	152	7	63

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	264	0	441	263
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1300	-	574	776
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	853	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1300	-	568	776
Mov Cap-2 Maneuver	-	-	-	-	568	-
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	844	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.6	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	748	1300	-	-	-
HCM Lane V/C Ratio	0.094	0.01	-	-	-
HCM Control Delay (s)	10.3	7.8	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0.3	0	-	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	118	5	77	226	2	40
Future Vol, veh/h	118	5	77	226	2	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	170	270	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	10	2	2	2	2	2
Mvmt Flow	161	6	88	309	2	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	167	0	646	161
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	485	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1411	-	436	884
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1411	-	409	884
Mov Cap-2 Maneuver	-	-	-	-	409	-
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	581	-

Approach	SE	NW	NE
HCM Control Delay, s	0	1.7	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	838	1411	-	-	-
HCM Lane V/C Ratio	0.058	0.063	-	-	-
HCM Control Delay (s)	9.6	7.7	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0.2	0.2	-	-	-

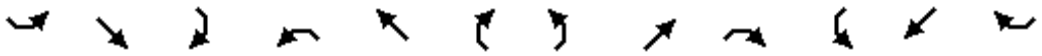
Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (veh/h)	0	0	382	0	612	372	1029	0	0	1091	272
Future Volume (veh/h)	0	0	382	0	612	372	1029	0	0	1091	272
Initial Q (Qb), veh			0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00	1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No	
Adj Sat Flow, veh/h/ln			1693	1693	1796	1707	1841	0	1870	1856	1426
Adj Flow Rate, veh/h			415	415	0	404	1118	0	0	1186	0
Peak Hour Factor			0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %			14	14	7	13	4	0	2	3	32
Cap, veh/h			394	394		374	2098	0	80	1214	
Arrive On Green			0.24	0.24	0.00	0.18	0.60	0.00	0.00	0.34	0.00
Sat Flow, veh/h			1612	1612	1522	1626	3589	0	504	3526	1208
Grp Volume(v), veh/h			415	415	0	404	1118	0	0	1186	0
Grp Sat Flow(s),veh/h/ln			1612	1612	1522	1626	1749	0	504	1763	1208
Q Serve(g_s), s			22.0	22.0	0.0	16.0	16.9	0.0	0.0	29.9	0.0
Cycle Q Clear(g_c), s			22.0	22.0	0.0	16.0	16.9	0.0	0.0	29.9	0.0
Prop In Lane			1.00	1.00	1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h			394	394		374	2098	0	80	1214	
V/C Ratio(X)			1.05	1.05		1.08	0.53	0.00	0.00	0.98	
Avail Cap(c_a), veh/h			394	394		374	2098	0	80	1214	
HCM Platoon Ratio			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh			34.0	34.0	0.0	25.8	10.6	0.0	0.0	29.1	0.0
Incr Delay (d2), s/veh			60.0	60.0	0.0	69.4	1.0	0.0	0.0	20.8	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			14.6	14.6	0.0	11.0	5.6	0.0	0.0	15.0	0.0
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh			94.0	94.0	0.0	95.2	11.6	0.0	0.0	49.9	0.0
LnGrp LOS			F	F		F	B	A	A	D	
Approach Vol, veh/h			415	415	A		1522			1186	A
Approach Delay, s/veh			94.0	94.0			33.8			49.9	
Approach LOS			F	F			C			D	

Timer - Assigned Phs	2		4	5	6						
Phs Duration (G+Y+Rc), s	61.0		29.0	23.0	38.0						
Change Period (Y+Rc), s	7.0		7.0	7.0	7.0						
Max Green Setting (Gmax), s	54.0		22.0	16.0	31.0						
Max Q Clear Time (g_c+I1), s	18.9		24.0	18.0	31.9						
Green Ext Time (p_c), s	9.0		0.0	0.0	0.0						

Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D

Notes

Unsignalized Delay for [SER, SWR] is excluded from calculations of the approach delay and intersection delay.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	456	0	627	0	0	0	793	1310	0	3	1581	578
Future Volume (veh/h)	456	0	627	0	0	0	793	1310	0	3	1581	578
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	0	1856				1826	1870	0	1870	1870	1870
Adj Flow Rate, veh/h	485	0	0				844	1394	0	3	1682	0
Peak Hour Factor	0.94	0.92	0.94				0.94	0.94	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	3	0	3				5	2	0	2	2	2
Cap, veh/h	393	0					447	2211	0	209	1185	
Arrive On Green	0.22	0.00	0.00				0.21	0.62	0.00	0.33	0.33	0.00
Sat Flow, veh/h	1767	0	1572				1739	3647	0	387	3554	1585
Grp Volume(v), veh/h	485	0	0				844	1394	0	3	1682	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				1739	1777	0	387	1777	1585
Q Serve(g_s), s	20.0	0.0	0.0				19.0	21.9	0.0	0.5	30.0	0.0
Cycle Q Clear(g_c), s	20.0	0.0	0.0				19.0	21.9	0.0	0.5	30.0	0.0
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	393	0					447	2211	0	209	1185	
V/C Ratio(X)	1.24	0.00					1.89	0.63	0.00	0.01	1.42	
Avail Cap(c_a), veh/h	393	0					447	2211	0	209	1185	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.0	0.0	0.0				26.8	10.6	0.0	20.2	30.0	0.0
Incr Delay (d2), s/veh	126.0	0.0	0.0				407.8	1.4	0.0	0.1	194.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.7	0.0	0.0				55.0	7.2	0.0	0.0	43.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	161.0	0.0	0.0				434.7	11.9	0.0	20.3	224.0	0.0
LnGrp LOS	F	A					F	B	A	C	F	
Approach Vol, veh/h		485	A					2238			1685	A
Approach Delay, s/veh		161.0						171.4			223.6	
Approach LOS		F						F			F	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		63.0		27.0	26.0	37.0						
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0						
Max Green Setting (Gmax), s		56.0		20.0	19.0	30.0						
Max Q Clear Time (g_c+I1), s		23.9		22.0	21.0	32.0						
Green Ext Time (p_c), s		12.1		0.0	0.0	0.0						

Intersection Summary												
HCM 6th Ctrl Delay			190.2									
HCM 6th LOS			F									

Notes

Unsignalized Delay for [SER, SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2.5

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	855	40	34	610	20	139
Future Vol, veh/h	855	40	34	610	20	139
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	13	29	2	28	14	2
Mvmt Flow	940	44	37	670	22	153

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	984	0	1706	962
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	744	-
Critical Hdwy	-	-	4.12	-	6.54	6.22
Critical Hdwy Stg 1	-	-	-	-	5.54	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	2.218	-	3.626	3.318
Pot Cap-1 Maneuver	-	-	702	-	94	310
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	702	-	89	310
Mov Cap-2 Maneuver	-	-	-	-	89	-
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	425	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.5	24.6
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	355	702	-	-	-
HCM Lane V/C Ratio	0.492	0.053	-	-	-
HCM Control Delay (s)	24.6	10.4	-	-	-
HCM Lane LOS	C	B	-	-	-
HCM 95th %tile Q(veh)	2.6	0.2	-	-	-

Intersection	
Int Delay, s/veh	47.8

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	959	42	203	1168	33	124
Future Vol, veh/h	959	42	203	1168	33	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	7	2	2	4	2	2
Mvmt Flow	999	44	211	1217	34	129

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1043	0	2660	1021
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1639	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	667	-	~ 25	287
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	174	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	667	-	~ 17	287
Mov Cap-2 Maneuver	-	-	-	-	~ 17	-
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	119	-

Approach	SE	NW	NE
HCM Control Delay, s	0	1.9	$ 753.6
HCM LOS			F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	69	667	-	-	-
HCM Lane V/C Ratio	2.37	0.317	-	-	-
HCM Control Delay (s)	$ 753.6	12.9	-	-	-
HCM Lane LOS	F	B	-	-	-
HCM 95th %tile Q(veh)	15.7	1.4	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	3	19	830	1	5	586
Future Vol, veh/h	3	19	830	1	5	586
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	6	15	2	2	29
Mvmt Flow	3	21	902	1	5	637

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1550	903	0	0	903	0
Stage 1	903	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Critical Hdwy	6.42	6.26	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.354	-	-	2.218	-
Pot Cap-1 Maneuver	125	330	-	-	753	-
Stage 1	396	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	124	330	-	-	753	-
Mov Cap-2 Maneuver	124	-	-	-	-	-
Stage 1	396	-	-	-	-	-
Stage 2	516	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	19.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	753	-	269	-	-
HCM Lane V/C Ratio	0.007	-	0.089	-	-
HCM Control Delay (s)	9.8	0	19.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	1	8	916	2	16	1073
Future Vol, veh/h	1	8	916	2	16	1073
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	7	2	2	2
Mvmt Flow	1	9	1007	2	18	1179

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2223	1008	0	0	1009	0
Stage 1	1008	-	-	-	-	-
Stage 2	1215	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	48	292	-	-	687	-
Stage 1	353	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	44	292	-	-	687	-
Mov Cap-2 Maneuver	44	-	-	-	-	-
Stage 1	353	-	-	-	-	-
Stage 2	260	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	26.2	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	687	-	180	-	-
HCM Lane V/C Ratio	0.026	-	0.055	-	-
HCM Control Delay (s)	10.4	0	26.2	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	95.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	89	494	1	7	308	275	1	0	41	288	0	63
Future Vol, veh/h	89	494	1	7	308	275	1	0	41	288	0	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	175	100	-	100	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	17	2	2	31	2	2	2	2	2	2	2
Mvmt Flow	97	537	1	8	335	299	1	0	45	313	0	68

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	634	0	0	538	0	0	1266	1381	537	1105	1083	335
Stage 1	-	-	-	-	-	-	731	731	-	351	351	-
Stage 2	-	-	-	-	-	-	535	650	-	754	732	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	949	-	-	1030	-	-	146	144	544	~ 188	217	707
Stage 1	-	-	-	-	-	-	413	427	-	666	632	-
Stage 2	-	-	-	-	-	-	529	465	-	401	427	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	949	-	-	1030	-	-	121	128	544	~ 158	193	707
Mov Cap-2 Maneuver	-	-	-	-	-	-	121	128	-	~ 158	193	-
Stage 1	-	-	-	-	-	-	371	383	-	598	627	-
Stage 2	-	-	-	-	-	-	474	461	-	331	383	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	1.4	0.1	12.7	$ 421.5
HCM LOS			B	F

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	121	544	1030	-	-	949	-	-	158	707
HCM Lane V/C Ratio	0.009	0.082	0.007	-	-	0.102	-	-	1.981	0.097
HCM Control Delay (s)	35	12.2	8.5	-	-	9.2	-	-	$ 511.4	10.6
HCM Lane LOS	E	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0	0.3	0	-	-	0.3	-	-	24.2	0.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	521.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	135	418	2	33	586	449	3	0	22	475	0	184
Future Vol, veh/h	135	418	2	33	586	449	3	0	22	475	0	184
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	175	100	-	100	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	8	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	147	454	2	36	637	488	3	0	24	516	0	200

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1125	0	0	456	0	0	1801	1945	454	1470	1459	637
Stage 1	-	-	-	-	-	-	748	748	-	709	709	-
Stage 2	-	-	-	-	-	-	1053	1197	-	761	750	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	621	-	-	1105	-	-	62	65	606	~ 105	129	477
Stage 1	-	-	-	-	-	-	404	420	-	~ 425	437	-
Stage 2	-	-	-	-	-	-	274	259	-	~ 398	419	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	621	-	-	1105	-	-	29	48	606	~ 81	95	477
Mov Cap-2 Maneuver	-	-	-	-	-	-	29	48	-	~ 81	95	-
Stage 1	-	-	-	-	-	-	308	320	-	~ 324	423	-
Stage 2	-	-	-	-	-	-	154	250	-	~ 292	320	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	3.1	0.3	27.2	$ 1821
HCM LOS			D	F

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	29	606	1105	-	-	621	-	-	81	477
HCM Lane V/C Ratio	0.112	0.039	0.032	-	-	0.236	-	-	6.374	0.419
HCM Control Delay (s)	144.3	11.2	8.4	-	-	12.6	-	-	$ 2519.4	17.9
HCM Lane LOS	F	B	A	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.3	0.1	0.1	-	-	0.9	-	-	57.8	2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	32	426	1	15	249	106	7	6	69	79	2	15
Future Vol, veh/h	32	426	1	15	249	106	7	6	69	79	2	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	170	270	-	100	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	90	90	90	90	92	90	92	90	92	92	92
Heavy Vehicles, %	2	22	2	2	34	2	2	2	2	2	2	2
Mvmt Flow	35	473	1	17	277	115	8	7	77	86	2	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	392	0	0	474	0	0	921	969	473	897	855	277
Stage 1	-	-	-	-	-	-	543	543	-	311	311	-
Stage 2	-	-	-	-	-	-	378	426	-	586	544	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1167	-	-	1088	-	-	251	254	591	261	296	762
Stage 1	-	-	-	-	-	-	524	520	-	699	658	-
Stage 2	-	-	-	-	-	-	644	586	-	496	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1167	-	-	1088	-	-	236	242	591	215	282	762
Mov Cap-2 Maneuver	-	-	-	-	-	-	236	242	-	215	282	-
Stage 1	-	-	-	-	-	-	508	504	-	678	647	-
Stage 2	-	-	-	-	-	-	618	577	-	413	503	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.6	0.3	13.7	28.7
HCM LOS			B	D

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	236	531	1088	-	-	1167	-	-	215	635
HCM Lane V/C Ratio	0.033	0.157	0.015	-	-	0.03	-	-	0.399	0.029
HCM Control Delay (s)	20.8	13	8.4	-	-	8.2	-	-	32.5	10.8
HCM Lane LOS	C	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.1	0.6	0	-	-	0.1	-	-	1.8	0.1

Intersection	
Int Delay, s/veh	25.6

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	21	361	5	106	552	100	2	2	57	137	7	33
Future Vol, veh/h	21	361	5	106	552	100	2	2	57	137	7	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	170	270	-	100	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	95	95	95	92	95	92	95	92	92	92
Heavy Vehicles, %	2	10	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	380	5	112	581	109	2	2	60	149	8	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	690	0	0	385	0	0	1308	1340	380	1265	1236	581
Stage 1	-	-	-	-	-	-	426	426	-	805	805	-
Stage 2	-	-	-	-	-	-	882	914	-	460	431	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	905	-	-	1173	-	-	136	153	667	~ 146	176	514
Stage 1	-	-	-	-	-	-	606	586	-	376	395	-
Stage 2	-	-	-	-	-	-	341	352	-	581	583	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	905	-	-	1173	-	-	111	135	667	~ 119	155	514
Mov Cap-2 Maneuver	-	-	-	-	-	-	111	135	-	~ 119	155	-
Stage 1	-	-	-	-	-	-	591	571	-	367	357	-
Stage 2	-	-	-	-	-	-	281	319	-	513	568	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.5	1.2	12.8	184.9
HCM LOS			B	F

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	111	586	1173	-	-	905	-	-	119	366
HCM Lane V/C Ratio	0.019	0.106	0.095	-	-	0.025	-	-	1.251	0.119
HCM Control Delay (s)	38.1	11.9	8.4	-	-	9.1	-	-	234.1	16.2
HCM Lane LOS	E	B	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	0.1	0.4	0.3	-	-	0.1	-	-	9.6	0.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.7

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	7	387	231	40	72	13
Future Vol, veh/h	7	387	231	40	72	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	421	251	43	78	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	294	0	-	0	688	251
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	437	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1268	-	-	-	412	788
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	651	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1268	-	-	-	410	788
Mov Cap-2 Maneuver	-	-	-	-	410	-
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	651	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	1268	-	410	788
HCM Lane V/C Ratio	-	-	0.006	-	0.191	0.018
HCM Control Delay (s)	-	-	7.9	-	15.8	9.7
HCM Lane LOS	-	-	A	-	C	A
HCM 95th %tile Q(veh)	-	-	0	-	0.7	0.1

Intersection	
Int Delay, s/veh	1.7

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	15	320	502	85	67	12
Future Vol, veh/h	15	320	502	85	67	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	348	546	92	73	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	638	0	-	0	926	546
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	380	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	946	-	-	-	298	538
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	946	-	-	-	293	538
Mov Cap-2 Maneuver	-	-	-	-	293	-
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	691	-

Approach	SE	NW	SW
HCM Control Delay, s	0.4	0	19.9
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	946	-	293	538
HCM Lane V/C Ratio	-	-	0.017	-	0.249	0.024
HCM Control Delay (s)	-	-	8.9	-	21.3	11.9
HCM Lane LOS	-	-	A	-	C	B
HCM 95th %tile Q(veh)	-	-	0.1	-	1	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	3	348	229	15	46	8
Future Vol, veh/h	3	348	229	15	46	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	378	249	16	50	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	265	0	-	0	633	249
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	384	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1299	-	-	-	444	790
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	688	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1299	-	-	-	443	790
Mov Cap-2 Maneuver	-	-	-	-	443	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	688	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	1299	-	443	790
HCM Lane V/C Ratio	-	-	0.003	-	0.113	0.011
HCM Control Delay (s)	-	-	7.8	-	14.2	9.6
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0	-	0.4	0

Intersection	
Int Delay, s/veh	0.8

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	9	304	463	51	31	5
Future Vol, veh/h	9	304	463	51	31	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	330	503	55	34	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	558	0	-	0	853	503
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	350	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1013	-	-	-	330	569
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	713	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1013	-	-	-	327	569
Mov Cap-2 Maneuver	-	-	-	-	327	-
Stage 1	-	-	-	-	601	-
Stage 2	-	-	-	-	713	-

Approach	SE	NW	SW
HCM Control Delay, s	0.2	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	1013	-	327	569
HCM Lane V/C Ratio	-	-	0.01	-	0.103	0.01
HCM Control Delay (s)	-	-	8.6	-	17.3	11.4
HCM Lane LOS	-	-	A	-	C	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3	0

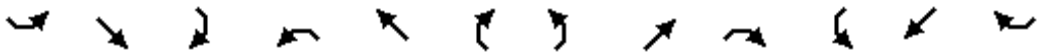
Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (veh/h)	0	0	382	0	612	372	1029	0	0	1091	272
Future Volume (veh/h)	0	0	382	0	612	372	1029	0	0	1091	272
Initial Q (Qb), veh			0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00	1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No	
Adj Sat Flow, veh/h/ln			1693	1693	1796	1707	1841	0	1870	1856	1426
Adj Flow Rate, veh/h			415	415	0	404	1118	0	0	1186	0
Peak Hour Factor			0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %			14	14	7	13	4	0	2	3	32
Cap, veh/h			466	466		435	2569	0	60	1827	
Arrive On Green			0.15	0.15	0.00	0.16	0.73	0.00	0.00	0.52	0.00
Sat Flow, veh/h			3127	3127	2679	1626	3589	0	504	3526	1208
Grp Volume(v), veh/h			415	415	0	404	1118	0	0	1186	0
Grp Sat Flow(s),veh/h/ln			1564	1564	1340	1626	1749	0	504	1763	1208
Q Serve(g_s), s			15.6	15.6	0.0	15.9	15.0	0.0	0.0	29.3	0.0
Cycle Q Clear(g_c), s			15.6	15.6	0.0	15.9	15.0	0.0	0.0	29.3	0.0
Prop In Lane			1.00	1.00	1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h			466	466		435	2569	0	60	1827	
V/C Ratio(X)			0.89	0.89		0.93	0.44	0.00	0.00	0.65	
Avail Cap(c_a), veh/h			495	495		598	2569	0	60	1827	
HCM Platoon Ratio			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh			50.1	50.1	0.0	24.7	6.2	0.0	0.0	21.0	0.0
Incr Delay (d2), s/veh			17.5	17.5	0.0	17.3	0.5	0.0	0.0	1.8	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			7.1	7.1	0.0	7.8	4.5	0.0	0.0	11.6	0.0
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh			67.6	67.6	0.0	41.9	6.8	0.0	0.0	22.8	0.0
LnGrp LOS			E	E		D	A	A	A	C	
Approach Vol, veh/h			415	415	A		1522			1186	A
Approach Delay, s/veh			67.6	67.6			16.1			22.8	
Approach LOS			E	E			B			C	

Timer - Assigned Phs	2		4	5	6						
Phs Duration (G+Y+Rc), s	95.1		24.9	25.9	69.2						
Change Period (Y+Rc), s	7.0		7.0	7.0	7.0						
Max Green Setting (Gmax), s	87.0		19.0	31.0	49.0						
Max Q Clear Time (g_c+I1), s	17.0		17.6	17.9	31.3						
Green Ext Time (p_c), s	9.8		0.2	1.0	7.6						

Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [SER, SWR] is excluded from calculations of the approach delay and intersection delay.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	456	0	627	0	0	0	793	1310	0	3	1581	578
Future Volume (veh/h)	456	0	627	0	0	0	793	1310	0	3	1581	578
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1856				1826	1870	0	1870	1870	1870
Adj Flow Rate, veh/h	485	0	0				844	1394	0	3	1682	0
Peak Hour Factor	0.94	0.92	0.94				0.94	0.94	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	3	2	3				5	2	0	2	2	2
Cap, veh/h	530	0					596	2459	0	209	1303	
Arrive On Green	0.15	0.00	0.00				0.31	0.69	0.00	0.00	0.37	0.00
Sat Flow, veh/h	3534	0	3145				1739	3647	0	1781	3554	1585
Grp Volume(v), veh/h	485	0	0				844	1394	0	3	1682	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				1739	1777	0	1781	1777	1585
Q Serve(g_s), s	16.2	0.0	0.0				37.0	23.9	0.0	0.1	44.0	0.0
Cycle Q Clear(g_c), s	16.2	0.0	0.0				37.0	23.9	0.0	0.1	44.0	0.0
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	530	0					596	2459	0	209	1303	
V/C Ratio(X)	0.91	0.00					1.42	0.57	0.00	0.01	1.29	
Avail Cap(c_a), veh/h	530	0					596	2459	0	276	1303	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.00				1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.2	0.0	0.0				35.9	9.4	0.0	23.8	38.0	0.0
Incr Delay (d2), s/veh	18.5	0.0	0.0				196.8	1.0	0.0	0.0	136.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.0	0.0				48.2	8.0	0.0	0.1	42.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.8	0.0	0.0				232.7	10.3	0.0	23.8	174.8	0.0
LnGrp LOS	E	A					F	B	A	C	F	
Approach Vol, veh/h		485	A					2238			1685	A
Approach Delay, s/veh		68.8						94.2			174.5	
Approach LOS		E						F			F	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	5.0	90.0		25.0	44.0	51.0
Change Period (Y+Rc), s	4.5	7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s	5.0	78.5		18.0	37.0	44.0
Max Q Clear Time (g_c+I1), s	2.1	25.9		18.2	39.0	46.0
Green Ext Time (p_c), s	0.0	13.8		0.0	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		122.1
HCM 6th LOS		F

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [SER, SWR] is excluded from calculations of the approach delay and intersection delay.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	855	40	34	610	0	20	0	139	0	0	0
Future Volume (veh/h)	0	855	40	34	610	0	20	0	139	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1707	1470	1870	1485	0	1760	1870	1870			
Adj Flow Rate, veh/h	0	940	44	37	670	0	22	0	0			
Peak Hour Factor	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91			
Percent Heavy Veh, %	2	13	29	2	28	0	14	2	2			
Cap, veh/h	80	2302	884	478	2316	0	42	0				
Arrive On Green	0.00	0.71	0.71	0.03	0.82	0.00	0.02	0.00	0.00			
Sat Flow, veh/h	767	3244	1246	1781	2896	0	1781	0	0			
Grp Volume(v), veh/h	0	940	44	37	670	0	22	0	0			
Grp Sat Flow(s),veh/h/ln	767	1622	1246	1781	1411	0	1781	0	0			
Q Serve(g_s), s	0.0	10.7	1.0	0.4	5.0	0.0	1.1	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	10.7	1.0	0.4	5.0	0.0	1.1	0.0	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00			
Lane Grp Cap(c), veh/h	80	2302	884	478	2316	0	42	0				
V/C Ratio(X)	0.00	0.41	0.05	0.08	0.29	0.00	0.53	0.00				
Avail Cap(c_a), veh/h	80	2302	884	517	2316	0	396	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	5.3	3.9	3.5	1.9	0.0	43.4	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.5	0.1	0.1	0.3	0.0	9.8	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.2	0.1	0.8	0.0	0.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.9	4.0	3.6	2.2	0.0	53.3	0.0	0.0			
LnGrp LOS	A	A	A	A	A	A	D	A				
Approach Vol, veh/h		984			707			22	A			
Approach Delay, s/veh		5.8			2.3			53.3				
Approach LOS		A			A			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		80.9		9.1	10.0	70.9						
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0						
Max Green Setting (Gmax), s		56.0		20.0	5.0	44.0						
Max Q Clear Time (g_c+I1), s		7.0		3.1	2.4	12.7						
Green Ext Time (p_c), s		5.7		0.0	0.0	8.3						

Intersection Summary												
HCM 6th Ctrl Delay			5.0									
HCM 6th LOS			A									

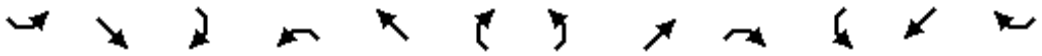
Notes

Unsignalized Delay for [NER] is excluded from calculations of the approach delay and intersection delay.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	959	42	203	1168	0	33	0	124	0	0	0
Future Volume (veh/h)	0	959	42	203	1168	0	33	0	124	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1841	0	1945	1870	1870			
Adj Flow Rate, veh/h	0	999	44	211	1217	0	34	0	129			
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96			
Percent Heavy Veh, %	2	7	2	2	4	0	2	2	2			
Cap, veh/h	80	2063	958	437	2522	0	42	0	158			
Arrive On Green	0.00	0.60	0.60	0.07	0.72	0.00	0.12	0.00	0.12			
Sat Flow, veh/h	459	3413	1585	1781	3589	0	338	0	1284			
Grp Volume(v), veh/h	0	999	44	211	1217	0	163	0	0			
Grp Sat Flow(s),veh/h/ln	459	1706	1585	1781	1749	0	1622	0	0			
Q Serve(g_s), s	0.0	14.7	1.0	3.7	13.4	0.0	8.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	14.7	1.0	3.7	13.4	0.0	8.8	0.0	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	0.21		0.79			
Lane Grp Cap(c), veh/h	80	2063	958	437	2522	0	200	0	0			
V/C Ratio(X)	0.00	0.48	0.05	0.48	0.48	0.00	0.82	0.00	0.00			
Avail Cap(c_a), veh/h	80	2063	958	570	2522	0	324	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	10.0	7.2	7.3	5.4	0.0	38.5	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.8	0.1	0.1	0.1	0.0	8.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	5.2	0.3	1.1	3.8	0.0	3.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.8	7.3	7.4	5.4	0.0	46.4	0.0	0.0			
LnGrp LOS	A	B	A	A	A	A	D	A	A			
Approach Vol, veh/h		1043			1428			163				
Approach Delay, s/veh		10.6			5.7			46.4				
Approach LOS		B			A			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		71.9		18.1	10.5	61.4						
Change Period (Y+Rc), s		7.0		7.0	4.5	7.0						
Max Green Setting (Gmax), s		58.0		18.0	12.7	40.8						
Max Q Clear Time (g_c+I1), s		15.4		10.8	5.7	16.7						
Green Ext Time (p_c), s		12.4		0.5	0.3	8.1						

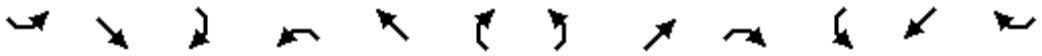
Intersection Summary												
HCM 6th Ctrl Delay			10.2									
HCM 6th LOS			B									



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	89	494	1	7	308	275	1	0	41	288	0	63
Future Volume (veh/h)	89	494	1	7	308	275	1	0	41	288	0	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1648	1870	1870	1441	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	537	1	8	335	299	1	0	45	313	0	68
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
Percent Heavy Veh, %	2	17	2	2	31	2	2	2	2	2	2	2
Cap, veh/h	347	1030	522	325	901	522	87	0	77	539	0	247
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.00	0.05	0.16	0.00	0.16
Sat Flow, veh/h	793	3131	1585	867	2737	1585	1781	0	1585	3456	0	1585
Grp Volume(v), veh/h	97	537	1	8	335	299	1	0	45	313	0	68
Grp Sat Flow(s),veh/h/ln	793	1566	1585	867	1369	1585	1781	0	1585	1728	0	1585
Q Serve(g_s), s	4.8	6.3	0.0	0.3	4.2	7.0	0.0	0.0	1.3	3.8	0.0	1.7
Cycle Q Clear(g_c), s	9.0	6.3	0.0	6.6	4.2	7.0	0.0	0.0	1.3	3.8	0.0	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	347	1030	522	325	901	522	87	0	77	539	0	247
V/C Ratio(X)	0.28	0.52	0.00	0.02	0.37	0.57	0.01	0.00	0.58	0.58	0.00	0.27
Avail Cap(c_a), veh/h	614	2086	1056	617	1823	1056	752	0	669	1535	0	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.0	12.2	10.1	14.9	11.6	12.5	20.4	0.0	21.0	17.6	0.0	16.8
Incr Delay (d2), s/veh	0.4	0.4	0.0	0.0	0.3	1.0	0.1	0.0	6.9	1.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.6	0.0	0.1	1.0	1.9	0.0	0.0	0.6	1.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	12.6	10.1	14.9	11.8	13.5	20.4	0.0	27.8	18.6	0.0	17.4
LnGrp LOS	B	B	B	B	B	B	C	A	C	B	A	B
Approach Vol, veh/h		635			642			46			381	
Approach Delay, s/veh		13.1			12.6			27.7			18.4	
Approach LOS		B			B			C			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.8		9.2		21.8		14.0				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		30.0		19.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		9.0		3.3		11.0		5.8				
Green Ext Time (p_c), s		3.0		0.1		3.8		1.3				

Intersection Summary												
HCM 6th Ctrl Delay			14.5									
HCM 6th LOS			B									



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	135	418	2	33	586	449	3	0	22	475	0	184
Future Volume (veh/h)	135	418	2	33	586	449	3	0	22	475	0	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1781	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	147	454	2	36	637	488	3	0	24	516	0	200
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
Percent Heavy Veh, %	2	8	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	314	1904	892	543	2000	892	49	0	43	611	331	280
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.03	0.00	0.03	0.18	0.00	0.18
Sat Flow, veh/h	501	3385	1585	935	3554	1585	1781	0	1585	3456	1870	1585
Grp Volume(v), veh/h	147	454	2	36	637	488	3	0	24	516	0	200
Grp Sat Flow(s),veh/h/ln	501	1692	1585	935	1777	1585	1781	0	1585	1728	1870	1585
Q Serve(g_s), s	19.9	6.1	0.0	1.8	8.6	17.5	0.1	0.0	1.3	13.0	0.0	10.7
Cycle Q Clear(g_c), s	28.5	6.1	0.0	7.9	8.6	17.5	0.1	0.0	1.3	13.0	0.0	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	314	1904	892	543	2000	892	49	0	43	611	331	280
V/C Ratio(X)	0.47	0.24	0.00	0.07	0.32	0.55	0.06	0.00	0.56	0.84	0.00	0.71
Avail Cap(c_a), veh/h	314	1904	892	543	2000	892	356	0	317	691	374	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.1	9.9	8.6	11.9	10.5	12.4	42.7	0.0	43.2	35.9	0.0	34.9
Incr Delay (d2), s/veh	5.0	0.3	0.0	0.2	0.4	2.4	0.5	0.0	10.7	8.6	0.0	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.0	0.0	0.4	3.0	5.8	0.1	0.0	0.7	6.1	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	10.2	8.6	12.2	10.9	14.8	43.2	0.0	53.9	44.5	0.0	41.3
LnGrp LOS	C	B	A	B	B	B	D	A	D	D	A	D
Approach Vol, veh/h		603			1161			27			716	
Approach Delay, s/veh		13.4			12.6			52.7			43.6	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.6		9.5		57.6		22.9				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		33.0		18.0		33.0		18.0				
Max Q Clear Time (g_c+I1), s		19.5		3.3		30.5		15.0				
Green Ext Time (p_c), s		5.0		0.1		1.0		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			22.1									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations										
Traffic Vol, veh/h	0	19	0	830	1	5	586	0	0	0
Future Vol, veh/h	0	19	0	830	1	5	586	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	0	-	200	-	-	200	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	16965	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	6	2	15	2	2	29	2	2	2
Mvmt Flow	0	21	0	902	1	5	637	0	0	0

Major/Minor	Minor1		Major1			Major2		
Conflicting Flow All	1232	452	637	0	0	903	0	0
Stage 1	903	-	-	-	-	-	-	-
Stage 2	329	-	-	-	-	-	-	-
Critical Hdwy	6.84	7.02	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	3.36	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	169	544	943	-	-	749	-	0
Stage 1	356	-	-	-	-	-	-	0
Stage 2	701	-	-	-	-	-	-	0
Platoon blocked, %				-	-		-	
Mov Cap-1 Maneuver	168	544	943	-	-	749	-	-
Mov Cap-2 Maneuver	168	-	-	-	-	-	-	-
Stage 1	356	-	-	-	-	-	-	-
Stage 2	696	-	-	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	14.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SEL	SET	SER
Capacity (veh/h)	749	-	417	943	-	-
HCM Lane V/C Ratio	0.007	-	0.057	-	-	-
HCM Control Delay (s)	9.8	-	14.2	0	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	1	0	8	0	0	0	0	916	2	16	1073	0
Future Vol, veh/h	1	0	8	0	0	0	0	916	2	16	1073	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	17747	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	92	91	92	92	92	92	91	91	91	91	92
Heavy Vehicles, %	2	2	2	2	2	2	2	7	2	2	2	2
Mvmt Flow	1	0	9	0	0	0	0	1007	2	18	1179	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1634	2223	505	1179	0	0	1009	0	0
Stage 1	1008	1008	-	-	-	-	-	-	-
Stage 2	626	1215	-	-	-	-	-	-	-
Critical Hdwy	6.84	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	5.84	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.84	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	92	43	512	588	-	-	683	-	0
Stage 1	313	316	-	-	-	-	-	-	0
Stage 2	495	252	-	-	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	90	0	512	588	-	-	683	-	-
Mov Cap-2 Maneuver	90	0	-	-	-	-	-	-	-
Stage 1	313	0	-	-	-	-	-	-	-
Stage 2	482	0	-	-	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	16	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SEL	SET	SER
Capacity (veh/h)	683	-	337	588	-	-
HCM Lane V/C Ratio	0.026	-	0.029	-	-	-
HCM Control Delay (s)	10.4	-	16	0	-	-
HCM Lane LOS	B	-	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	32	426	1	15	249	106	7	6	69	79	2	15
Future Vol, veh/h	32	426	1	15	249	106	7	6	69	79	2	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	270	-	200	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	90	90	90	90	92	90	92	90	92	92	92
Heavy Vehicles, %	2	22	2	2	34	2	2	2	2	2	2	2
Mvmt Flow	35	473	1	17	277	115	8	7	77	86	2	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	392	0	0	474	0	0	717	969	237	621	855	139
Stage 1	-	-	-	-	-	-	543	543	-	311	311	-
Stage 2	-	-	-	-	-	-	174	426	-	310	544	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1163	-	-	1084	-	-	317	252	764	372	294	884
Stage 1	-	-	-	-	-	-	492	518	-	674	657	-
Stage 2	-	-	-	-	-	-	811	584	-	675	517	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1163	-	-	1084	-	-	299	240	764	317	280	884
Mov Cap-2 Maneuver	-	-	-	-	-	-	299	240	-	317	280	-
Stage 1	-	-	-	-	-	-	477	502	-	654	646	-
Stage 2	-	-	-	-	-	-	781	575	-	581	501	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.6	0.3	11.8	18.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	299	652	1084	-	-	1163	-	-	317	705
HCM Lane V/C Ratio	0.026	0.128	0.015	-	-	0.03	-	-	0.271	0.026
HCM Control Delay (s)	17.4	11.3	8.4	-	-	8.2	-	-	20.5	10.2
HCM Lane LOS	C	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.4	0	-	-	0.1	-	-	1.1	0.1

Intersection	
Int Delay, s/veh	14.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	21	361	5	106	552	100	2	2	57	137	7	33
Future Vol, veh/h	21	361	5	106	552	100	2	2	57	137	7	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	200	270	-	100	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	95	95	95	95	92	95	92	95	92	92	92
Heavy Vehicles, %	2	10	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	380	5	112	581	109	2	2	60	149	8	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	690	0	0	385	0	0	945	1340	190	1042	1236	291
Stage 1	-	-	-	-	-	-	426	426	-	805	805	-
Stage 2	-	-	-	-	-	-	519	914	-	237	431	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	900	-	-	1170	-	-	217	151	820	184	175	706
Stage 1	-	-	-	-	-	-	577	584	-	342	393	-
Stage 2	-	-	-	-	-	-	508	350	-	745	581	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	900	-	-	1170	-	-	180	133	820	153	154	706
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	133	-	153	154	-
Stage 1	-	-	-	-	-	-	562	569	-	333	355	-
Stage 2	-	-	-	-	-	-	427	316	-	670	566	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.5	1.2	11.2	99.3
HCM LOS			B	F

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	180	695	1170	-	-	900	-	-	153	434
HCM Lane V/C Ratio	0.012	0.089	0.095	-	-	0.025	-	-	0.973	0.1
HCM Control Delay (s)	25.2	10.7	8.4	-	-	9.1	-	-	124.2	14.2
HCM Lane LOS	D	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0	0.3	0.3	-	-	0.1	-	-	7.2	0.3

Intersection	
Int Delay, s/veh	1.6

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	7	387	0	0	231	40	0	0	0	72	0	13
Future Vol, veh/h	7	387	0	0	231	40	0	0	0	72	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	200	-	100	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	421	0	0	251	43	0	0	0	78	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	294	0	-	421	0	0	563	731	211	478	-	126
Stage 1	-	-	-	-	-	-	437	437	-	251	-	-
Stage 2	-	-	-	-	-	-	126	294	-	227	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	1264	-	0	1135	-	-	409	347	794	470	0	901
Stage 1	-	-	0	-	-	-	568	578	-	731	0	-
Stage 2	-	-	0	-	-	-	865	668	-	755	0	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1264	-	-	1135	-	-	401	345	794	468	-	901
Mov Cap-2 Maneuver	-	-	-	-	-	-	401	345	-	468	-	-
Stage 1	-	-	-	-	-	-	565	575	-	727	-	-
Stage 2	-	-	-	-	-	-	851	668	-	750	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0	0	13.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	1135	-	-	1264	-	468	901
HCM Lane V/C Ratio	-	-	-	-	0.006	-	0.167	0.016
HCM Control Delay (s)	0	0	-	-	7.9	-	14.2	9.1
HCM Lane LOS	A	A	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	0.6	0

Intersection	
Int Delay, s/veh	1.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	15	320	0	0	502	85	0	0	0	67	0	12
Future Vol, veh/h	15	320	0	0	502	85	0	0	0	67	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	200	-	100	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	348	0	0	546	92	0	0	0	73	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	638	0	-	348	0	0	653	1018	174	752	-	273
Stage 1	-	-	-	-	-	-	380	380	-	546	-	-
Stage 2	-	-	-	-	-	-	273	638	-	206	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	942	-	0	1208	-	-	352	236	839	299	0	725
Stage 1	-	-	0	-	-	-	614	612	-	490	0	-
Stage 2	-	-	0	-	-	-	710	469	-	777	0	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	942	-	-	1208	-	-	341	232	839	295	-	725
Mov Cap-2 Maneuver	-	-	-	-	-	-	341	232	-	295	-	-
Stage 1	-	-	-	-	-	-	604	602	-	482	-	-
Stage 2	-	-	-	-	-	-	697	469	-	764	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.4	0	0	19.5
HCM LOS			A	C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	1208	-	-	942	-	295	725
HCM Lane V/C Ratio	-	-	-	-	0.017	-	0.247	0.018
HCM Control Delay (s)	0	0	-	-	8.9	-	21.2	10.1
HCM Lane LOS	A	A	-	-	A	-	C	B
HCM 95th %tile Q(veh)	-	0	-	-	0.1	-	1	0.1

Intersection	
Int Delay, s/veh	1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	3	348	229	15	46	8
Future Vol, veh/h	3	348	229	15	46	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	378	249	16	50	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	265	0	-	0	444	125
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1296	-	-	-	542	902
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	819	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1296	-	-	-	541	902
Mov Cap-2 Maneuver	-	-	-	-	541	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	819	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	1296	-	541	902
HCM Lane V/C Ratio	-	-	0.003	-	0.092	0.01
HCM Control Delay (s)	-	-	7.8	-	12.3	9
HCM Lane LOS	-	-	A	-	B	A
HCM 95th %tile Q(veh)	-	-	0	-	0.3	0

Intersection	
Int Delay, s/veh	0.7

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	9	304	463	51	31	5
Future Vol, veh/h	9	304	463	51	31	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	330	503	55	34	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	558	0	-	0	688	252
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	185	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1009	-	-	-	380	748
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	828	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1009	-	-	-	376	748
Mov Cap-2 Maneuver	-	-	-	-	376	-
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	828	-

Approach	SE	NW	SW
HCM Control Delay, s	0.2	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	-	1009	-	376	748
HCM Lane V/C Ratio	-	-	0.01	-	0.09	0.007
HCM Control Delay (s)	-	-	8.6	-	15.5	9.8
HCM Lane LOS	-	-	A	-	C	A
HCM 95th %tile Q(veh)	-	-	0	-	0.3	0

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savannahga.gov

City of Savannah
P.O. Box 1027, Savannah, GA, 31402-1027
TDD: 912.651.6702 / www.savannahga.gov

Planning & Urban Design
5515 Abercorn St, Savannah, GA, 31405
Phone: 912.525.2783 / Fax: 912.651.6543

Rezoning (Map Amendment) and Comprehensive Plan Future Land Use Map Amendment Application

110 E State St, Savannah, GA, 31401
P.O. Box 8246, Savannah, GA, 31412-8246
Phone: 912.651.1440 / Fax: 912.651.1480
www.thempc.org

Please type or print legibly. Attach additional sheets, if necessary, to fully answer any of the following sections. Incomplete applications will not be scheduled by the Metropolitan Planning Commission (MPC) until deficiencies are corrected. Additional instructions and information regarding the amendment process are attached. **SUBMIT AN ELECTRONIC COMPLETED APPLICATION TO PLANNING@SAVANNAHGA.GOV. Applicants are requested to contact the MPC staff at 912.651.1440 or City Planning and Urban Design staff at 912.525.2783 prior to submitting an application.**

Check 135258

I. Subject Property

Street Address(es): Little Neck Road

10/27/20 To Candra

Property Identification Number(s) (PINs) (Note: Attach a boundary survey, recorded or proposed plat, tax map or scaled plot plan to identify the property boundary lines.): 2-1007-01-001; - 002

Total acreage of the subject property: 484.90 acres

Existing land use(s) for the subject property (e.g., undeveloped, restaurant, auto repair shop, multi-family): Undeveloped

II. Action Requested

A. Type of Request. If more than one action is sought, submit a separate application and fee for each request.

2 Signs

- ■ Rezoning (Zoning Map Amendment)
- ☐ Comprehensive Plan's Future Land Use Map Amendment (If proposed rezoning does not fit the designated Future Land Use Map Category)

B. Application History. Have any previous applications been made to rezone the subject property (Certificate of Appropriateness (COA), Subdivision, Site Permit (General Development Plan), Business Location Approval, Text Amendment)?

☐ Yes ■ No If yes, please provide the Plan/Permit File Number(s): _____

C. Rezoning Information.

- Identify the existing zoning district(s) for the subject property: R-A-CO
- Proposed zoning district(s) for the subject property: PD
  (Only one district should be proposed unless there is an extenuating circumstance. If more than one district is desired, please provide supporting rationale as part of this application. A zoning district must be identified or the application will not be processed.)
- List all proposed land use(s) in accordance with the Zoning Ordinance. (Refer to Zoning Ordinance Article 5 Sec. 5.4 Principal Use Table. If your desired use is not listed, contact the Planning and Urban Design Department for a use determination. Planning and Urban Design by contacting 912.525.2783.) _____
  See Master Plan, attached.

The petitioner must obtain a Public Notice Sign(s) from the City's Planning and Urban Design Office at 5515 Abercorn Street and erect the sign(s) on the subject property at least 15 DAYS PRIOR TO THE PLANNING COMMISSION and CITY COUNCIL MEETINGS.

D. Comprehensive Plan Future Land Use Map Amendment.

Subsection 2 in Article 5 Sec. 5.5 through Sec. 5.17 entitled Comprehensive Plan Future Land Use Map (FLUM) Consistency lists the Future Land Use Category(ies) that each Zoning District is allowed within. The Future Land Use (FLU) Categories are listed and defined in Chapter 5 Land Use of the Comprehensive Plan. If the proposed Zoning District is not allowed within the current FLU Category designated for the property, a Comprehensive Plan Future Land Use Map Amendment is required. However, there may be FLU Categories that are not listed in Article 5. If the subject property is within one of those FLU Categories, the Planning Commission and the City will evaluate and determine if the proposed Zoning District requires a FLU Map Amendment.

- What is the present Future Land Use Category designated for the property? _____
- What is the Future Land Use Category that allows the proposed Zoning District? _____

III. Rezoning Review Criteria Form

Describe how the requested rezoning satisfies one or more of the following criteria:

A. Suitability and Community Need:

- Whether the range of uses permitted by the proposed zoning district is more suitable than the range of uses that is permitted by the current zoning district.
- Whether the proposed zoning district addresses a specific need in the county or city.

The range of uses permitted by the proposed zoning district (PD) are more suitable than the range of uses permitted in the County zoning ordinance, as the PD will provide for an orderly, phased, and carefully planned development.
The City is in need of additional housing units and well planned neighborhoods.

B. Compatibility:

- Whether the zoning proposal will adversely affect the existing use or usability of adjacent or nearby property.
- Whether the zoning proposal is compatible with the present zoning pattern and conforming uses of nearby property and the character of the surrounding area.
- Whether there are other existing or changing conditions affecting the use and development of the property which give supporting grounds for either approval or disapproval of the zoning proposal.

The zoning proposal will not adversely affect existing uses or the usability of nearby properties, is compatible with the present zoning pattern and conforming uses of nearby property and the character of the surrounding area. As a planned development, the rezoning will achieve a certain mix of uses, appearance, and land use compatibility, while preserving the surrounding wetlands and marshes.

c. Consistency:

Whether the zoning proposal is in conformity with the policy and intent of the Comprehensive Plan and other adopted plans, such as a redevelopment plan or small area plan.
The Comprehensive Plan Future Land Use Map indicates the properties are to be developed as Planned Development, as proposed by the rezoning and, therefore, the zoning proposal is in conformity with the Comprehensive Plan.

d. Reasonable Use:

Whether the property to be affected by the zoning proposal has a reasonable use as currently zoned.
The uses and development standard required by the County's Residential-Agriculture zoning district do not permit a reasonable use of the property.

e. **Adequate Public Services:**
Whether adequate school, public safety and emergency facilities, road, ingress and egress, parks, wastewater treatment, water supply and stormwater drainage facilities are available for the uses and densities that are permitted in the proposed zoning district.
Yes, adequate school, public safety and emergency facilities, road, ingress and egress, parks, waste water treatment, water supply and stormwater drainage facilities are available for the uses and densities that are permitted in the proposed zoning district or will be provided during the development of the property.

f. **Proximity to a Military Base, Installation or Airport:**
Is the subject parcel located within 3,000 feet of a military base, installation or airport, or within the 3,000 foot Clear Zone and Accident Prevention Zones Numbers I and II as prescribed in the definition of an Air Installation Compatible Use Zone that is affiliated with such base, installation or airport? ☐ Yes ■ No

IV. Neighborhood Meeting

A neighborhood meeting is required as shown in Table 3.2-1, Types of Required Public Notice for Applications, or indicated elsewhere in this Ordinance. If an applicant fails to provide neighborhood notification consistent with the requirements of the Ordinance, the public hearing shall be postponed until after such notification has been made. Please complete the following information.

- Neighborhood Association: N/A - City of Savannah Open Neighborhoods lists no active neighborhood
- Neighborhood President: association in the area.
- Method of Notification: _____
- Date Notification Sent: _____
- Date of Neighborhood Meeting: _____
- Time of the Meeting: _____
- Location of the Meeting: _____
- Date Notification Sent to Planning Director of the Scheduled Date, Time, Place: _____
- Date of Planning Commission Meeting: _____

V. Property Owner Information

Name(s): Alice Keller
Registered Agent: _____
(Or Officer or Authorized Signatory, if Property Owner is not an individual. Provide GA Annual Registration.)
Address: PO BOX 30697
City, State, Zip: Savannah, Georgia 31410
Telephone: _____ Fax: _____
E-mail address: _____

VI. Petitioner Information, if different from Property Owner

(If the property owner(s) will have an agent serve on his or her behalf, the owner(s) must complete the attached Letter of Authorization. If the agent changes after submitting the application and the agent is not the property owner, a new authorization form will be required.)
Name(s): _____
Registered Agent: _____
(Or Officer or Authorized Signatory, if Petitioner is not an individual)
Address: _____
City, State, Zip: _____
Telephone: _____ Fax: _____
E-mail address: _____

VII. Agent, if different from Petitioner or Property Owner

(A signed, notarized statement of authorization from the property owner is required and must be attached if this section applies. If the agent changes after submitting the application and the agent is not the property owner, a new authorization form will be required.)

Name(s): Harold B. Yellin

Firm or Agency: HunterMaclean

Address: 200 East Saint Julian Street

City, State, Zip: Savannah, Georgia 31410

Telephone: 912-236-0261 Fax: _____

E-mail address: hyellin@huntermaclean.com

VIII. Letter of Authorization

As fee simple owner of the subject property that is identified as Property Identification Number(s) (PIN) 2-1007-01-001; - 002, I (we) authorize Harold B. Yellin (Agent Name) of HunterMaclean (Firm or Agency, if applicable) to serve as agent on my (our) behalf for the purpose of making and executing this application for the proposed request. I (we) understand that any representations(s) made on my (our) behalf, by my (our) authorized representative, shall be legally binding upon the subject property.

Property Owner(s)

Name(s): Alice Keller

Registered Agent: _____
(Or Officer or Authorized Signatory, if Property owner is not an individual)

Alice W Keller
Signature(s)

10/27/2020
Date

Witness Signature Certificate

State of Georgia

County of CHATHAM

Signed or attested before me on 10/27/2020
Date

by ALICE W. KELLER,
(Printed name(s) of individual(s) signing document)

who proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

✓ Personally Known or ____ Produced Identification Type of ID _____

Denise Durel
Signature of notary public

Denise Durel
(Name of notary, typed, stamped or printed)
Notary Public State of Georgia
My commission expires: April 8, 2023

DENISE DUREL NOTARY EXPIRES GEORGIA April 8, 2023 PUBLIC CHATHAM COUNTY

IX. Disclosure of Campaign Contribution Form

To be filed within 10 days of filing this application. This is required to be filled out by the Petitioner, Property Owner, and/or Agent per the Conflict of Interest in Zoning Actions Act (O.C.G.A. § 36-67A).

(a) When any applicant for rezoning action has made, within two years immediately preceding the filing of that applicant's application for the rezoning action, campaign contributions aggregating $250.00 or more to a local government official who will consider the application, it shall be the duty of the applicant to file a disclosure report with the governing authority of the respective local government showing:
   (1) The name and official position of the local government official to whom the campaign contribution was made; and
   (2) The dollar amount and description of each campaign contribution made by the applicant to the local government official during the two years immediately preceding the filing of the application for the rezoning action and the date of each such contribution.

(b) The disclosures required by subsection (a) of this Code section shall be filed within ten days after the application for the rezoning action is first filed.

(c) When any opponent of a rezoning action has made, within two years immediately preceding the filing of the rezoning action being opposed, campaign contributions aggregating $250.00 or more to a local government official of the local government which will consider the application, it shall be the duty of the opponent to file a disclosure with the governing authority of the respective local government showing:
   (1) The name and official position of the local government official to whom the campaign contribution was made; and
   (2) The dollar amount and description of each campaign contribution made by the opponent to the local government official during the two years immediately preceding the filing of the application for the rezoning action and the date of each such contribution.

(d) The disclosure required by subsection (c) of this Code section shall be filed at least five calendar days prior to the first hearing by the local government or any of its agencies on the rezoning application.

Please answer the following questions:

A. Within two years immediately preceding the filing this application, have you and your agent (if applicable) made a campaign contribution in the amount of $250 or more to any of the local government officials listed below? ☐ Yes ☒ No If you answered "Yes", please complete Question 2.

The Mayor and Aldermen of the City of Savannah	
Van R. Johnson, II, Mayor	Linda Wilder-Bryan, District 3
Kesha Gibson-Carter, At-Large (Post 1)	Nick Palumbo, District 4
Alicia Miller Blakely, At-Large (Post 2)	Dr. Estella Edwards Shabazz, District 5
Bernetta B. Lanier, District 1	Kurtis Purtee, District 6
Detric Leggett, District 2	

Chatham County-Savannah Metropolitan Planning Commission		
Joseph Ervin, Chairman	Travis Coles	Eula Parker
Ellison Cook, Vice-Chairman	Karen Jarrett	Tom Woiwode
Linder Suthers, Secretary	Lacy Manigault	Lee Smith, Ex-Officio
Joseph Welch, Treasurer	Tanya Milton	Pat Monahan, Ex-Officio
Tommy Branch	Wayne Noha	

B. If you checked "Yes" to Question 1, complete the section below:

Contribution			
Name of Official to Whom Contribution was Made	**Official Position at Time of Contribution**	**Date of Contribution**	**Description & Dollar Amount of Contribution**

Harold B. Yellin 10/27/2020

Signature of Petitioner or Petitioner's Agent or Opponent | Printed Name | Date

X. Items Required to be Submitted with this Application

Filing Fee. The non-refundable filing fee is based on the type of use for which relief is requested. Make check payable to City of Savannah. Fee is subject to change.

- [X] Rezoning: $600.00
- [ ] Comprehensive Plan Amendment: $600.00

XI. Application Checklist

Pursuant to O.C.G.A. § 8-2-26, this checklist must be completed and submitted with each permit application. Please check every item as either "Y" for items that are included with the application or "N" for items that are not included with the application. Items without an "N" checkbox are minimum requirements initially due with the application if applicable.

Yes	No	
[X]		Part I. Subject Property (Street address, PIN, Total acreage, zoning district, existing land use(s))
[X]		Part II. Action Required (Type of Request, Application History, Rezoning Information, Comprehensive Plan Future Land Use Map Amendment)
[X]		Part III. Rezoning Review Criteria Form (Suitability and Community Need, Compatibility, Consistency, Reasonable Use, Adequate Public Services, Proximity to a Military Base, Installation or Airport)
N/A [X]	[ ]	Part IV. Neighborhood Meeting
[X]	[ ]	Part V. Property Owner Information (Property owner name and full contact information)
[X]	[ ]	Part VI. Petitioner Information (Petitioner name and full contact information)
[X]	[ ]	Part VII. Agent (Agent name and full contact information)
[X]	[ ]	Part VIII. Letter of Authorization
[X]		Part IX. Disclosure of Campaign Contribution Form
[X]		Part X. Items Required to be Submitted with this Application (Filing fee)
[X]		Part XI. Complete Application Checklist
[X]		Part XII. Certified Application (Signed application)
[X]		Survey. A scaled or dimensioned boundary survey, tax map, plot plan, or sketch showing the subject property (Original not scanned if produced electronically and not recorded).
[X]		Legal Description. A legal description of the land by lot, block, and subdivision designations, or if none, by metes and bounds (Electronic or digital Word document).
[X]	[ ]	Concept Plan of the proposed development if applicable

Please note: Supplemental information may be required during plan review to address deficiencies.

XII. Certified Application

By my signature below, I certify that the information contained in this application is true and correct to the best of my knowledge at the time of the application. I acknowledge that I understand and have complied with all of the submittal requirements and procedures, and that this application is a complete application submittal. I further understand that an incomplete application submittal may cause my application to be deferred to the next posted deadline date. I understand that the approval of an application for Special Use Permit by The Mayor and Aldermen does not constitute a waiver from any applicable local, state, or federal regulations.

Signature of Petitioner or Petitioner's Agent or Opponent	Harold B. Yellin Printed Name	Date

LEGAL DESCRIPTION

COMMENCING at a point at the northeast intersection of Interstate I-95 and Little Neck Road with a Georgia State Plane East Zone NAD(83) grid coordinate of

North:738,626.06 East:934,376.30, which is the point or **PLACE OF BEGINNING**; Thence along the eastern right-of-way of I-95 the following courses and distances; N22°41'41"E a distance of 594.23 feet to a point, N29°49'56"E a distance of 402.38 feet to a point, N22°39'26"E a distance of 387.91 feet to a point, thence meandering along the approximate centerline of the Little Ogeechee River the following courses and distances; S49°52'19"E a distance of 100.57 feet to a point, S86°12'49"E a distance of 101.97 feet to a point, S48°09'54"E a distance of 117.49 feet to a point, S11°33'51"W a distance of 166.04 feet to a point, S32°18'04"E a distance of 396.93 feet to a point, S02°39'29"E a distance of 427.42 feet to a point, S45°36'34"E a distance of 232.80 feet to a point, N70°10'46"E a distance of 117.33 feet to a point, S63°22'39"E a distance of 115.68 feet to a point, S31°23'29"E a distance of 249.45 feet to a point, N79°53'01"E a distance of 102.38 feet to a point, N70°08'06"E a distance of 152.28 feet to a point, S55°07'49"E a distance of 138.31 feet to a point, N52°56'41"E a distance of 167.60 feet to a point, S29°57'34"E a distance of 140.26 feet to a point, N76°22'41"E a distance of 194.26 feet to a point, S09°36'44"E a distance of 144.45 feet to a point, S58°07'09"E a distance of 239.50 feet to a point, N63°49'06"E a distance of 83.00 feet to a point, S76°37'59"E a distance of 152.53 feet to a point, S76°30'34"E a distance of 478.78 feet to a point, S10°14'39"E a distance of 182.77 feet to a point, S33°32'29"E a distance of 147.80 feet to a point, S47°45'49"E a distance of 267.45 feet to a point, S86°33'04"E a distance of 198.78 feet to a point, S53°51'04"E a distance of 325.83 feet to a point, N66°24'46"E a distance of 184.06 feet to a point, S39°12'49"E a distance of 304.92 feet to a point, S39°39'59"E a distance of 405.91 feet to a point, S07°54'53"W a distance of 69.16 feet to a point, S68°53'29"E a distance of 1,337.93 feet to a point, S40°45'07"E a distance of 1,204.32 feet to a point, S30°44'36"E a distance of 1,201.46 feet to a point, thence along the northwest property line of Lot X, the Hubert Keller Tract, now or formerly Hopeton South Land Trust LLC (deed book 399F, page 542) S48°54'24"W a distance of 3,301.04 feet to a point, thence along the eastern right-of-way of Little Neck Road the following courses and distances; with a non-tangent curve to the right having an arc length of 609.02', a radius of 16685.09', a delta angle of 2°05'29", a tangent of 304.54', a chord bearing of N42°43'52"W, and a cord length of 608.98' to a point, N43°39'39"W a distance of 1,159.62 feet to a point, with a curve to the right having an arc length of 429.37' a radius of 17138.73', a delta angle of 1°26'07", a tangent of 214.70', a chord bearing of N42°59'21"W, and a chord length of 429.36' to a point, with a curve to the left having an arc length of 60.00', a radius of 17138.74', a delta angle of 0°12'02", a tangent of 30.00', a chord bearing of N41°54'11"W, and a chord length of 60.00' to a point, with a curve to the left having an arc length of 156.04', a radius of 17138.74', a delta angle of 0°31'18", a tangent of 78.02', a chord bearing N41°44'34"W, and a chord length of 156.04' to a point, N41°28'54"W a distance of 1,099.51 feet to a point, with a curve to the right having an arc length of 1376.02', a radius of 5679.58', a delta angle of 13°52'53", a tangent of 691.40', a chord bearing N34°30'54"W, and a chord length of 1372.66' to a point, N27°35'24"W a distance of 1,779.11 feet to a point, with a curve to the left having an arc length of 436.73', a radius of 2914.79', a delta angle of 8°35'05", a tangent of 218.77', a chord bearing N31°52'59"W, and a chord length of 436.32' to a point, with a curve to the left having an arc length of 150.85', a radius of 2914.79', a delta angle

of 2°57'55", a tangent of 75.44', a chord bearing N37°39'29"W, and a chord length of 150.83' to a point, N39°08'29"W a distance of 351.80 feet to a point, N50°51'31"E a distance of 20.00 feet to a point, N39°08'29"W a distance of 200.00 feet to a point, N50°51'31"E a distance of 10.00 feet to a point, N39°08'29"W a distance of 217.01 feet to the **POINT OF BEGINNING**.

Less and except a 60' Chatham County canal right-of-way being more particularly described as follows:

COMMENCING at a point on the eastern right-of-way of Little Neck Road and the northern right-of-way of a 60' Chatham County canal right-of-way having a Georgia State Plane East zone grid coordinate of North:733872.95 East:937594.87 thence along the northern right-of-way of said 60' canal the following courses and distances; N20°33'01"E a distance of 1,000.06 feet to a point, with a curve to the left having an arc length of 480.70', a radius of 646.57', a delta angle of 42°35'52", a tangent of 252.07', a chord bearing N00°44'54"W and a chord length of 469.71' to a point, N22°02'49"W a distance of 214.91 feet to a point, with a curve to the right having an arc length of 273.86', a radius of 340.00', a delta angle of 46°09'02", a tangent of 144.85', a chord bearing N01°01'41"E, and a chord length of 266.52' to a point, N24°06'16"E a distance of 199.16 feet to a point, with a curve to the right having an arc length of 443.28', a radius of 930.00', a delta angle of 27°18'36", a tangent length of 225.94', a chord bearing N37°45'31"E, and a chord length of 439.10' to a point, N51°24'51"E a distance of 993.04 feet to a point, thence along the approximate centerline of the Little Ogeechee River S07°54'53"W a distance of 69.16 feet to a point, thence along the southern right-of-way of said 60' canal right-of-way S51°23'48"W a distance of 950.76 feet to a point, with a curve to the left having an arc length of 414.49', a radius of 870.00', a delta angle of 27°17'50", a tangent of 211.26', a chord bearing S37°44'18"W, and a chord length of 410.58' to a point, S24°07'36"W a distance of 199.19 feet to a point, with a curve to the left having an arc length of 225.46', a radius of 280.00', a delta angle of 46°08'09", a tangent of 211.26', a chord bearing S01°02'16"E, and a chord length of 219.42' to a point, S22°02'49"E a distance of 214.85 feet to a point, with a curve to the right having an arc length of 525.32', a radius of 706.57', a delta angle of 42°35'52", a tangent of 275.46', a chord bearing OF S00°48'24"E, and an arc length of 513.30' to a point. S20°34'04"W a distance of 1,030.43 feet to the **POINT OF BEGINNING**.
All lands having a net total of approximately 491.4 acres.

I. PLANNED DEVELOPMENT

The Hopeton Landing Planned Development (Hopeton Landing PD) is hereby established to master-plan and develop property for commercial, residential and mixed use purposes. The Development Guidelines contained herein have been prepared by Little Ogeechee Partners, LLC ("Declarant").

II. THE MASTER PLAN

The Master Plan for Hopeton Landing ("Master Plan") is attached as the last page of this section. Any change to the approved master plan, except for matters described below, shall require approval by the Mayor and Aldermen of the City of Savannah.

i. ***Major Modifications.***
Major modifications to the Master Plan that would otherwise be treated as variances under the City of Savannah Zoning Ordinance shall require review and approval by the Metropolitan Planning Commission ("MPC").

ii. ***Minor Modifications Permitted.***
Minor modifications to the Master Plan shall require review and approval by Metropolitan Planning Commission Staff. MPC Staff may forward a minor modification to the Metropolitan Planning Commission when MPC Staff deems that a public meeting is appropriate due to the nature of the modification requested. A denial by the Metropolitan Planning Commission staff may be appealed to the Metropolitan Planning Commission

iii. ***Variances.***
A denial of a decision by the Metropolitan Planning Commission with respect to matters described in Article II may be appealed to the Board of Appeals and the variance process shall follow the procedure established in Article H (Board of Appeals).

iv. ***Subdivision.***
Any subdivision or recombination of lots shall be submitted to the Metropolitan Planning Commission as a Site Development Plan.

v. ***Site Development Plan.***
A Site Development Plan shall be required for each proposed development within the PD which shall be consistent with the Master Plan. The criteria for submittal shall be the same criteria as set forth in the Planned Development pursuant to Section 6.1 of the City of Savannah Zoning Ordinance. Any Site Development Plan submitted to the Metropolitan Planning Commission must be accompanied with a written approval from the Declarant or Declarant's successors and assigns.

vi. ***Administration and Enforcement.***
Administration and enforcement of this Section shall follow the process described in Article 12.0 (Violations, Penalties and Enforcement) of the City of Savannah Zoning Ordinance. After the adoption of the PD, the Declarant shall execute and record a Declaration of Covenants and Restrictions ("Declaration") in the land records of

Chatham County, Georgia which shall: (i) create a governing authority for the approval of design guidelines created under the Declaration; and (ii) provide for the enforcement of such design guidelines.

III. DISTRICTS AND USES

A. Establishment of Districts.

The following districts are hereby established. Each district corresponds to a land use, which encompasses specific tracts of land as shown on the approved Master Plan.

Master Plan Land Classification	**District – Tracts Encompassed**
Commercial	Commercial – Tract 4
Assisted Living/Office	Assisted Living/Office – Tract 1 Assisted Living/Office – Tract 2 Assisted Living/Office – Tract 3
Mixed-Use Residential	Mixed Use Residential – Tract 5
Residential	Multifamily Residential – Tract 6 Multifamily Residential – Tract 7 Single family Residential – Tract 8 Single family Residential – Tract 9 Single family Residential – Tract 10 Single family Residential – Tract 11 Single family Residential – Tract 12
Wetland/Marsh	Wetland/Marsh

B. Uses.

Uses permitted within each zoning district are located in the Table IV.1. A used permitted as a matter of right is identified by an "X."

Hopeton Landing USE (X) = Permitted (--) = Not Permitted or No Condition	Block Designation (Tract)							
	Residential (12)	Residential (9, 10)	Residential (8, 11)	Residential (5)	Residential (6, 7)	Commercial (3)	Assisted Living / Office (4)	Assisted Living / Office (1, 2)
RESIDENTIAL								
Dwelling								
Single-family dwelling a. Attached b. Semi-detached c. Detached	X	X	X	X X X	X X X			
Two-family dwelling				X	X			
Multi-family dwelling a. Townhouse b. Stacked townhouse c. Two-family d. Apartment				X X X	X X X			
Accessory dwelling units (Garage Apartments)				X	X			
INSTITUTIONAL								
Assisted living facility						X	X	X
Nursing Home						X	X	X
Personal Care Home						X	X	X
Continuing Care Retirement Community						X	X	X
CIVIC								
Park / Open Area								
Park, general	X	X	X	X	X	X	X	X
Community garden	X	X	X	X	X	X	X	X
Places of Worship								
All places of worship		X	X	X	X	X	X	X
Community Services								
Cultural Facilities (art/photo studio, gallery; museum; theater/cinema/performing arts; event venue; hall, banquet or reception)						X	X	X
Day Care Services								
Adult care center						X	X	X
Child care center						X	X	X
Educational								
College,University, Seminary							X	X
Educational building used							X	X

Hopeton Landing USE (X) = Permitted (--) = Not Permitted or No Condition	Block Designation (Tract)							
	Residential (12)	Residential (9, 10)	Residential (8, 11)	Residential (5)	Residential (6, 7)	Commercial (3)	Assisted Living / Office (4)	Assisted Living / Office (1, 2)
by a college, university or seminary								
Instructional studio or classroom						X	X	X
Club or Lodge								
Private club or lodge						X	X	X
Health Care								
Hospitals and Medical Centers						X		
Pharmacy, Drug Stores						X		
COMMERCIAL								
Utilities								
Utilities, minor	X	X	X	X	X	X	X	X
Utilities, major	X	X	X	X	X	X	X	X
Telephone exchange, gas, and electrical regulator stations				X		X	X	X
Office								
Office, general						X	X	X
Office, medical						X	X	X
Research, testing, and development laboratory						X	X	X
Studio/multimedia production facilities						X	X	X
Services								
Animal services, indoor						X	X	X
Animal services, outdoor								
Bank						X	X	X
Interior Decorating						X	X	X
Personal service shops						X	X	
Restaurants								
Restaurants (on premises retail consumption dealer shall not require special use approval)						X	X	
Indoor Recreation								

Hopeton Landing USE (X) = Permitted (--) = Not Permitted or No Condition	Block Designation (Tract)							
	Residential (12)	Residential (9, 10)	Residential (8, 11)	Residential (5)	Residential (6, 7)	Commercial (3)	Assisted Living / Office (4)	Assisted Living / Office (1, 2)
Indoor amusement						X	X	
Retail Sales								
Agricultural produce stand/Seafood stand						X	X	X
Mobile Farmers' Market								
Fuel/gas station, including automobile wash						X		
Dry cleaning drop-off facility						X		
Food-oriented retail						X		
Convenience stores						X		
Garden center						X	X	X
Plant nursery						X	X	X
Business support services						X	X	X
Retail, general						X		
Vehicle service, minor						X		
Watercraft sales, repair, and services (excluding outdoor boat yards)						X	X	X
Ancillary retail dealer (off-premises consumption of alcohol)						X		
Services, general						X	X	X
Lodging								
Bed and Breakfast						X	X	X
Inn						X	X	X
Hotel (16-74 rooms, 75 or more rooms)						X		
OTHER								
Water-Oriented								
Dock (Private or Residential Community)	X	X	X	X	X	X	X	X
Marina (Private Membership, Residential)	X	X	X	X	X	X	X	X
Accessory Uses								
Accessory Uses and Structures	X	X	X	X	X	X	X	X

Hopeton Landing USE (X) = Permitted (--) = Not Permitted or No Condition	Block Designation (Tract)							
	Residential (12)	Residential (9, 10)	Residential (8, 11)	Residential (5)	Residential (6, 7)	Commercial (3)	Assisted Living / Office (4)	Assisted Living / Office (1, 2)
Signs								
Incidental or Temporary	X	X	X	X	X	X	X	X
Announcement				X		X	X	X
Directional				X		X	X	X
Fascia				X		X	X	
Principal Use				X		X	X	X
Temporary Uses								
The use of public facilities or public parks for carnivals, community fairs, or other events of public interest	X	X	X	X	X	X	X	X

C. Prohibited Uses. The following uses and activities are not permitted: (i) the sale of firearms and adult-oriented material; and (ii) adult-oriented entertainment. Any use or activity not specifically identified as a permitted use in subsection (g) shall be deemed to be a prohibited use, unless the City Manager or her designee determines that a proposed use is similar to a permitted use in the PD.

D. Temporary Uses. The following uses may be permitted by Declarant, or Declarant's successors or assigns, on a temporary basis: construction offices and construction storage units during the time of active construction; outdoor weddings, receptions and meetings; recreational activities; outdoor events; religious services; and the sale of seasonal plants and produce; provided, however, such temporary uses shall not be permitted in residential blocks 5, 6, 7, 8, 9, 10, 11 and 12.

IV. GENERAL DEVELOPMENT STANDARDS

The following general development standards are specific to the Hopeton Landing PD and are in addition to the standards provided in this Chapter and elsewhere in this Code. In the event of a conflict between this section and any other section contained herein, the standards in this section shall apply.

A. Open Space.

At least twenty percent (20%) of the PD shall be designated as open space; provided, however, not more than fifty percent (50%) of wetlands may be used to calculate the open space requirement under this section. Each tract, but not individual lots, shall meet the open space requirement of this section. Open Space shall include areas identified as open space on the Master Plan, which shall include but not be limited to, parks, plazas, playgrounds, courtyards, and other similar hardscaped and greenspace areas.

B. Screening and Buffers.

Buffer zones or strips will be established on Site Development Plans submitted pursuant to Article II. Buffer zones or strips are intended to remain undisturbed, except for drainage and/or utilities, clearing dead or dying wood, scrub growth removal or opening for roads. Minimum buffer dimensions will include:

Little Neck Road – 20 feet

Boulevard A, B, and C – 20 feet

Commercial/Residential Separation – 20 feet

Hopeton Landing Perimeter – 20 feet

Between Residential Neighborhoods – 25 feet

Between Multi-family and Single-family Neighborhoods – 25 feet

Buffer requirements may be waived if lakes, wetlands, or some other feature satisfies separations and adequately screens areas. Development activity permitted in the buffers may include driveways/road cuts, sidewalks, fencing, landscaping, irrigation, signage, lighting, earthwork, and utilities.

C. Residential Development Standards.

DISTRICT TYPE (TRACT)	MIN. LOT AREA (SQ. FT)	MIN. FRONT YARD*	MIN. LOT WIDTH (FT.)	MIN. SIDE (INTERIOR) YARD	MIN. SIDE (STREET) YARD	MIN. REAR YARD	FROM ACCESS EASEMENT	MAX. BUILDING HEIGHT	MAX. DWELLING UNITS PERMITTED PER ACRE OF LAND AREA (DWELLING UNIT DENSITY)	MIN. PERCENTAGE OF GROSS LAND AREA TO BE RESERVED FOR OPEN SPACE
Residential - Single Family (12)	6,000	20	60	5	10	20	5	45	Max. dwelling density shall not exceed max. density permitted in the Tract in which project is located as shown on the Master Plan.	60
Residential - Single Family (9, 10)	10,000	70	60	7	15	25	5	45		60
Residential - Single Family (8, 11)	10,000	80	60	10	15	30	5	45		60
Residential - Multifamily Townhouse (6, 7)	3,600	20	20	5	10	25	5	50	The density to be established will be recommended by the MPC, but shall not be more than 40 units per acre.	50
Residential - Two-Family (6, 7)	3,600	36	20	5	10	25	5	50		50
Residential - Apartment (6, 7)	3,600	--	--	--	--	25	5	50		50
Residential - Townhouse (5)	1,450	18	5	10	5	10	5	45		25
Residential - Two-Family (5)	1,500	30	5	10	5	10	5	45		25
Residential - Apartment (5)	1,450	30	--	--	--	25	5	45		25

*Front yard setback measured from edge of street right-of-way.

(1) Streets

All streets within the individual neighborhoods are to be paved to applicable standards. (2

(2) Rights-of-Way

All neighborhood streets shall have a minimum 60-foot right-of-way. All cul-de-sacs (with 20 single-family units or less) may have 50-foot rights-of-way, subject to approval by the applicable governing authority.

D. Non-Residential Development Standards.

(1) Commercial

All businesses within the designated commercial part of the Master Plan shall conform to the following design standards:

a. No building footprint may contain more than 45,000 square feet of leasable floor area;

b. Where a business directly abuts a residential district, without being separated by greenspace, wetlands, or spine road rights-of-way, side and/or rear yards shall be provided as follows:

(i) Buildings: 25 feet;

(ii) Parking areas: 25 feet.

c. Maximum building height shall be three (3) stories, not to exceed fifty (50) feet.

(2) Office/Institutional

The Hopeton Landing PD allows for office and institutional uses as shown in the Use Chart and as designated in Tracts 1, 2, 3. No commercial use will occur in Tract 1 and Tract 2. In Tract 4, commercial activity may be permitted as indicated in the Use Chart.

E. Parking.

All single family dwellings will require two (2) parking spaces per dwelling. The number of parking spaces for multifamily, office and institutional uses shall be as required by the City of Savannah Zoning Ordinance. For non-apartment multi-family units, common area parking "lots" may be provided, if desirable. For assisted living facilities, nursing homes, personal care homes, and continuing care retirement communities, parking shall be 0.5 parking spaces per dwelling unit. Parking lots will be paved and striped. Large parking lots may be divided into bays by medians in every bay or in alternating bays. Medians shall be a minimum of twelve (12) feet wide and shall have at least a ten (10) foot wide tree "island" at each end. Long runs exceeding twelve (12) parking spaces will be broken with landscaped planting "islands." The addition of larger landscaped buffers or other creative methods of reducing the parking impact may be acceptable instead of standard median and island designs. Shade trees in parking areas are required. Except as indicated above, all off-street parking shall comply with the requirements of the City of Savannah's Zoning Ordinance.

F. Signage.

(1) Residential, Mixed-Use Residential; Institutional.

One monument sign per entrance may be erected for neighborhood identification at the entrances (*See* G. ENTRANCES, *below*). The signs shall be integrated into any wall, fence, or landscape feature forming party of the total entrance design. The text area or plaque where words/logos are placed shall not exceed thirty (30) square feet nor be more than five (5) feet above ground level. The sign may be any material and with any font style, but the overall sign panel must conform to the Hopeton Landing Declaration.

Temporary signs may be permissible for at a maximum of sixty (60) days (unless "for sale" signs). They shall be a maximum of six (6) square feet and conform to residential temporary sign prototypes.

(2) Commercial; Civic.

Each principal use sign shall be no more than sixty (60) square feet nor be more than twenty feet (20') above ground level. The sign may be any material and with any font style, but the overall sign panel must conform to the Hopeton Landing Declaration.

Each parcel with freestanding buildings may have one directional sign along the interior road on which the building faces. The frontage sign may be single or double-faced and shall be not more than twenty (20) square feet in text area. The frontage signs will be mounted on the frontage sign prototype.

Each building may also have fascia signage attached to it so long as it fits proportionally into the façade and is planned for as part of the architectural design. No signage may be mounted incidentally on any roof. If there is more than one tenant in any building, each tenant's name may be displayed once on the building. If multiple tenants share common entrances into one building, a small directory sign may be added to the face of the building, or free standing by the entrance, or as separate plaques on the frontage sign.

Announcement signage shall be permitted for each entrance or exit of a business, and shall be restricted to emergency information, business hours, credit card information or incidental information related to the business. The announcement sign shall not be more than four (4) square feet in the aggregate.

(3) Office.

Each principal use sign shall be no more than 40 square feet nor be more than 10' above ground level. The sign may be any material and with any font style, but the overall sign panel must conform to the Hopeton Landing Declaration.

Each parcel with freestanding buildings may have one directional sign along the interior road on which the building faces. The frontage sign may be single or double-faced and shall be not more than 20 square feet in text area. The frontage signs will be mounted on the frontage sign prototype.

Each building may also have fascia signage attached to it so long as it fits proportionally into the façade and is planned for as part of the architectural design. No signage may be mounted incidentally on any roof. If there is more than one tenant in any building, each tenant's name may be displayed once on the building. If multiple tenants share common entrances into one building, a small directory sign may be added to the face of the building, or free standing by the entrance, or as separate plaques on the frontage sign.

Announcement signage shall be permitted for each entrance or exit of a business, and shall be restricted to emergency information, business hours, credit card information or incidental information related to the business. The announcement sign shall not be more than 4 square feet in the aggregate

G. Entrances.

The vehicular entries into the commercial and residential areas shall have ingress and egress from either Little Neck Road or Boulevards A, B, or C. Each may display a unique name, but common elements will bind the Hopeton Landing PD entrances.

Each entrance road shall be divided by a landscaped median. Neighborhood, commercial, and office/institutional identity signage must be located on private property on one or both sides of the entry, and not in the landscaped median for such entrance roads.

H. Pedestrian Systems.

A main spine pedestrian walk will be installed as part of the construction of Boulevards A, B, and C. This walk will serve as a "collector" for all feeder walks that emerge from each neighborhood as well as between neighborhoods and the commercial area. All neighborhoods will have internal pedestrian walk systems. The entry area to residential neighborhoods shall include paved pedestrian walkways, a minimum of five (5) feet in width, which shall tie into the pedestrian walkways along Boulevard A, B, or C.

V. ARCHITECTURAL GUIDELINES

Contemporaneously with the adoption of the Hopeton Landing PD, Declarant shall execute and record a Declaration of Covenants and restrictions ("Declaration") in the land records of Chatham County, Georgia which shall: (i) establish design standards for all block designations created herein; (ii) identify additional uses that may be prohibited; (iii) create a governing authority for the approval of design guidelines created under the Declaration; and (iv) provide for the enforcement of such design guidelines. Each approval by the Declarant, or Declarant's successors or assigns, or architectural review board appointed under the Declaration shall be noted on the Master Plan or applicable Site Development Plan.

VI. DEFINITIONS

The following definitions are specific to the Hopeton Landing Master Plan. Definitions not listed herein shall be referenced in the Zoning Ordinance.

Assisted Living Facility. A facility that provides or arranges for the provision of housing, food service, custodial care and activities for ambulatory adults who may or may not require some degree of medical assistance but who do not require full-time nursing care. Individual living spaces within the facility are self-contained and include, at minimum, a living area, kitchenette, bathroom and sleeping area that may be shared by no more than two (2) persons. Common areas for socializing and a central kitchen and dining room are required. Each unit shall count as one-half (0.5) unit for the purposes of calculating density and parking requirements.

Dwelling. One or more rooms designed as a unit, including a kitchen, bathroom and sleeping area, to provide complete housekeeping facilities for one (1) or more persons living as a household. Dwelling, shall only apply to residential uses identified in Section III as one-family, two family, three and four-family, multifamily and upper story residential dwellings.

Food-oriented Retail. An establishment primarily engaged in the sale of food products for off-premise consumption. This term includes grocery stores, butcher shops, fish and seafood markets, bakeries, produce and fruit markets and similar establishments. This term does not include restaurants, convenience stores, catering establishments, farmer's markets, or package stores.

Mixed Use Residential. Any development or building that includes multiple types of residential uses, including: multi-family residential and single-family residential. Permitted uses for mixed-use residential are shown, above, for Tract 5.

Multi-family Residential. A residential building containing five (5) or more dwelling units.

Signs. Any structure, part thereof, or device attached thereto or painted or represented thereon or any material or thing, illuminated or otherwise, which displays or includes any numeral, letter, word, model, banner, emblem, insignia, device, trademark or other representation used as or in the nature of an announcement, advertisement, direction or designation of any person, group, organization, place, commodity, product, service, business, profession, enterprise or industry which is located upon any land or any building or upon a window. The flag, emblem or other insignia of a nation; governmental unit; educational, charitable or religious group shall not be included within the meaning of this definition. For the purposes of this chapter, sign types shall be identified as follows:

(i) Announcement sign. A single-faced nonilluminated professional or announcement sign attached wholly to a building, window or door unless otherwise permitted within this Code as a freestanding illuminated sign. Where such sign only includes emergency information, business hours, credit cards honored, and other accessory information it shall be known as an incidental use sign.

(ii) Directional sign. A sign containing information relative to the location, distance to, entrance to, and exit from structures or land use activities.

(iii) Facia sign. A single-faced sign which is in any manner attached or fixed flat to an exterior wall of a building or structure. Individual letters in addition to the "box type" (i.e., letters and symbols on an attached backing) sign may also be installed.

(iv) Principal use sign. A sign which identifies or advertises a profession, principal land use activity, or service occupying or available on the premises upon which such sign is located.

(v) Separate use sign. An off-premises sign which advertises or directs attention to businesses, products, services or establishments not usually conducted on the premises on which the sign is located.

Story. That portion of a building, other than the basement, included between the surface of any floor and the surface of the next floor above it, or if there is no floor above it, then the space between the floor and the ceiling above the floor of such story. Provided, however, a basement that is entirely underground; a crawl space or partial basement that is four (4) feet or less above grade; and rooftop structures such as church spires, cupolas, chimneys, tanks and supports, penthouses used solely to enclose stairways or elevator

machinery, HVAC equipment shall not count as a story. An enclosed roofed structure above the roof of a building, containing habitable space for occupancy, is a story.

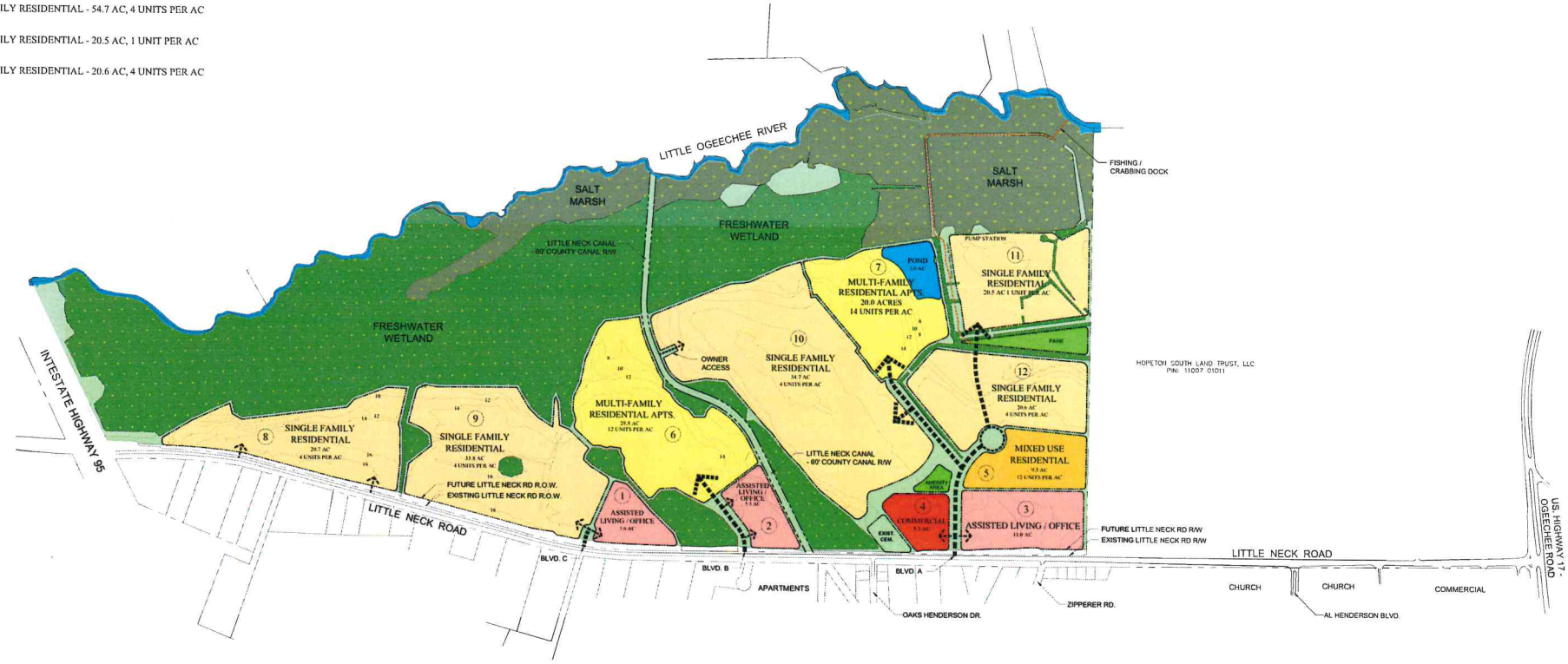
MASTER PLAN

HOPETON LANDING

SAVANNAH, GA

1. ASSISTED LIVING / OFFICE - 5.6 AC
2. ASSISTED LIVING / OFFICE - 5.5 AC
3. ASSISTED LIVING / OFFICE - 11.0 AC
4. COMMERCIAL - 5.3 AC
5. MIXED USE RESIDENTIAL - 9.5 AC, 12 UNITS PER AC
6. MULTI-FAMILY RESIDENTIAL - 28.8 AC, 12 UNITS PER AC
7. MULTI-FAMILY RESIDENTIAL - 20.0 AC, 14 UNITS PER AC
8. SINGLE FAMILY RESIDENTIAL - 20.7 AC, 4 UNITS PER AC
9. SINGLE FAMILY RESIDENTIAL - 33.8 AC, 4 UNITS PER AC
10. SINGLE FAMILY RESIDENTIAL - 54.7 AC, 4 UNITS PER AC
11. SINGLE FAMILY RESIDENTIAL - 20.5 AC, 1 UNIT PER AC
12. SINGLE FAMILY RESIDENTIAL - 20.6 AC, 4 UNITS PER AC

- WETLAND - SALT MARSH - (66.5 AC)
- WETLAND - FRESHWATER - (151.3 AC)
- AMENITY AREA AND PARK - (3.8 AC)
- GREENSPACE AND SPINE ROAD ROW - (27.3 AC)
- TRAILS



SUMMARY

LAND USE	AREA (acres)	UNITS
ASSISTED LIVING / OFFICE	22.1	
COMMERCIAL OUT PARCELS	5.3	
MIXED USE RESIDENTIAL	9.5	114
MULTI-FAMILY RESIDENTIAL	48.8	626
SINGLE FAMILY RESIDENTIAL	150.3	463
AMENITY AREA AND PARK	3.8	
WETLAND - SALT MARSH	66.5	
WETLAND - FRESHWATER	151.3	
GREEN SPACE and SPINE ROAD ROW	27.3	
TOTAL	484.9	1,203

NOTE: For PD zoning, all land uses are accounted for in the Summary Table including the power line easement and lands below 6 ft. elevation.

NOTES

1. TOTAL UNITS BASED ON APPROXIMATE ACREAGE AND MAY VARY BASED ON SURVEY.
2. ACREAGES ARE APPROXIMATE AND NOT BASED ON A SURVEY. ACREAGES MAY VARY BASED ON SURVEY.
3. STORMWATER DETENTION IS REQUIRED FOR EACH DEVELOPMENT POD AS PER REGULATIONS.
4. WETLANDS MAY REQUIRE BUFFERS AS PER REGULATIONS.
5. AREAS UNDER POWER LINES MAY BE USED FOR PARKING, OPEN SPACE AND SOME STORM WATER DETENTION.

SCALE IN FEET
0 200 400 600 800 1000

JOB NO. 14-391
OCTOBER 27, 2020