A G E N D A JAMES CITY COUNTY PLANNING COMMISSION REGULAR MEETING

County Government Center Board Room 101 Mounts Bay Road, Williamsburg VA 23185 April 1, 2020 6:00 PM

- A. CALL TO ORDER
- B. ROLL CALL
- C. PUBLIC COMMENT
- D. REPORTS OF THE COMMISSION
- E. CONSENT AGENDA
 - 1. Minutes of the March 4, 2020 Regular Meeting
 - 2. Proposed Calendar for 2020-2021
 - 3. Development Review Committee Action Item: SP-0020-0012. Axe Throwing Facility at Freedom Park

F. PUBLIC HEARINGS

- 1. Fiscal Year 2021-2025 Capital Improvements Program
- 2. Z-19-0003. Fords Colony Proffer Amendment
- 3. Z-20-0001. Norge Center Proffer Amendment
- G. PLANNING COMMISSION CONSIDERATIONS
- H. PLANNING DIRECTOR'S REPORT
 - 1. Planning Director's Report April 2020
- I. PLANNING COMMISSION DISCUSSION AND REQUESTS
- J. ADJOURNMENT

AGENDA ITEM NO. E.1.

ITEM SUMMARY

DATE: 4/1/2020

TO: The Planning Commission

Paul D. Holt, III, Secretary FROM:

Minutes of the March 4, 2020 Regular Meeting SUBJECT:

ATTACHMENTS:

Description Type

Minutes of the March 4, 2020 Regular Minutes Meeting

REVIEWERS:

D

Department	Reviewer	Action	Date
Planning Commission	Holt, Paul	Approved	3/24/2020 - 5:03 PM
Planning Commission	Holt, Paul	Approved	3/24/2020 - 5:03 PM
Publication Management	Burcham, Nan	Approved	3/25/2020 - 7:35 AM
Planning Commission	Holt, Paul	Approved	3/25/2020 - 12:16 PM

M I N U T E S JAMES CITY COUNTY PLANNING COMMISSION REGULAR MEETING

County Government Center Board Room 101 Mounts Bay Road, Williamsburg VA 23185 March 4, 2020 6:00 PM

A. CALL TO ORDER

Mr. Jack Haldeman called the meeting to order at 6:00 p.m.

B. ROLL CALL

Planning Commissioners Present:

Jack Haldeman

Rich Krapf

Tim O'Connor

Frank Polster

Julia Leverenz

Rob Rose

Barbara Null

Staff Present:

Paul Holt, Director of Community Development and Planning Max Hlavin, Deputy County Attorney José Ribeiro, Senior Planner, II Thomas Wysong, Senior Planner Tom Leininger, Planner Brett Meadows, Planner Carla Brittle, Recreation Centers Administrator

C. PUBLIC COMMENT

Mr. Haldeman opened Public Comment.

As no one wished to speak, Mr. Haldeman closed Public Comment.

D. REPORTS OF THE COMMISSION

Ms. Julia Leverenz stated that the Policy Committee met on February 13, 2020 to consider Stage III Ordinance language to address Code of Virginia changes regarding Wireless Communication Facilities. Ms. Leverenz noted that changes to the state code as well as Federal Communications Commission regulations have made it necessary to update the ordinance to be consistent with these changes. Ms. Leverenz stated that the new text better aligns the Ordinance language with State Code. Ms. Leverenz stated that Mr. Max Hlavin, Deputy County Attorney, asked the Committee to consider adding language to the motion to incorporate another change in the State Code that is pending Senate approval. The Committee moved to recommend approval of the proposed Ordinance changes, as amended, pending House Bill 554's consideration in the Senate. Ms. Leverenz stated that staff will check in with the Board of Supervisors on this revision before it comes to the Planning Commission.

Ms. Leverenz stated that staff introduced the FY 2021-2025 Capital Improvements Program

(CIP) review process. Ms. Leverenz stated that twenty-eight applications were submitted, totaling almost \$155,000,000. Ms. Leverenz stated that two more meetings will be held with representatives of the departments proposing these projects.

Ms. Leverenz noted that in public comment, Mr. Jay Everson noted flat enrollment on the school's Future Think projections, and asked the Committee not to recommend any classroom expansion in the school system.

Ms. Leverenz stated that the Policy Committee met again on February 20, 2020, the first of two meetings to review CIP applications.

Ms. Leverenz stated that staff from the Office of Economic Development addressed questions regarding utility improvements at Amblers House. Ms. Leverenz stated that staff indicated that this is the last project phase needed to enable the facility to begin meeting the recommendations in the Shaping Our Shores Master Plan. Ms. Leverenz noted that once completed, the Amblers House will function as a public-private partnership, and the tenant will be responsible for interior renovations.

Ms. Leverenz stated that Parks & Recreation staff indicated that no location has yet been found for the proposed Lower County Park, although negotiations are expected to begin soon for sites on Powhatan Trail. Ms. Leverenz stated that staff believes that having the resources available would facilitate the property acquisition.

Ms. Leverenz stated that Parks & Recreation staff indicated that the \$500 per sq. ft. estimate for restroom/concession facilities on multiple projects is based on actual costs of the Jamestown Beach restroom and concession building.

Ms. Leverenz stated that Stormwater Division staff clarified that the budgeted funds for stormwater improvements do not necessarily include state and federal funding, but the County pursues grant funding on an annual basis. Ms. Leverenz stated that Stormwater Division staff reported that the Diascund Creek the water quality was tested in 2010 and 2012 and mercury was found in fish tissue. Ms. Leverenz stated that a watershed study for Diascund Creek has never been done, and is proposed for this 5-year CIP cycle.

Ms. Leverenz stated that Williamsburg Regional Library staff discussed the proposal for building a third library in James City County, or expanding/building a new library at the current City of Williamsburg site. Ms. Leverenz stated that Williamsburg Regional Library staff noted that adequate parking and access are significant issues at the current site. Ms. Leverenz stated that staff further indicated that it would be more cost-effective for the County to have two buildings rather than three. Ms. Leverenz stated that Williamsburg Regional Library staff noted that the proposed natural playground at the Croaker library would be a Phase II to the recently-completed renovation of the children's area inside the library.

Ms. Leverenz stated that Community Development staff presented the Transportation Match proposal. Ms. Leverenz stated that staff clarified that the \$12M, five-year CIP proposal is primarily to fund the Pocahontas Trail corridor plan. Ms. Leverenz stated that staff noted that VDOT will not start any work until a project is shown as fully funded.

Ms. Leverenz stated that Community Development staff also discussed Site Preparation for the Stonehouse school site. Ms. Leverenz stated that staff noted that this is a time-restricted project. Ms. Leverenz stated staff noted that the developer has proffered to deliver a school-ready pad site on what was formerly a fill site and the budgeted \$125K is for the county to provide independent technical verification during and at the completion of the project.

Ms. Leverenz stated that the Policy Committee met again at 4:00 p.m. on February 27, 2020.

Ms. Leverenz stated that General Services staff indicated that a site for the Grove Convenience Center has been found near Fire Station 2. Ms. Leverenz further stated that staff noted that credit card payments are being accepted at all county convenience centers.

Ms. Leverenz stated that Capital Projects staff addressed questions regarding the turnarounds on Jolly Pond Road. Ms. Leverenz stated that staff noted that the turn-arounds at the Dam have not yet been designed because access has only recently been granted by the property owner. Ms. Leverenz stated that proposals will be sought for both T-turn and circular termini, which will be constructed in safe locations that discourage dumping and other undesirable activities.

Ms. Leverenz stated that Williamsburg-James City County Schools (WJCC Schools) staff addressed the proposed school projects. Ms. Leverenz stated that staff clarified that the school systems' enrollment program, Future Think, looks at the historical issuance of building permits, not planned development.

Ms. Leverenz stated that WJCC Schools staff noted that there currently are five Bright Beginnings locations. Bright Beginnings also takes in special needs children and is required to reserve space for them. Ms. Leverenz stated that WJCC Schools staff stated that the program has had a wait list of about 100 children every year since its inception in 1976. Ms. Leverenz stated that WJCC Schools staff explained that building a separate center for Bright Beginnings would subject very young children to unreasonably long bus rides, and a standalone center would require its own cafeteria, educators, and administrators.

Ms. Leverenz stated that in response to a question about why high school expansions are proposed, but not elementary school expansions, WJCC Schools staff stated that elementary schools are subject to a certain recommended optimal size but there are no such restrictions on high schools.

Ms. Leverenz stated that the Committee agreed to meet on March 5 to finalize its CIP rankings.

Mr. Frank Polster stated that the Development Review Committee (DRC) met on February 19 2020 to review Case No. C-19-0100. Shaping Our Shores Update.

Mr. Polster stated that the Shaping our Shore Master Plans for Chickahominy Riverfront Park, Jamestown Beach Event Park, and the Jamestown Marina have been updated and will be considered for adoption by the Planning Commission and the Board of Supervisors. Mr. Polster further stated that before consideration by the full Planning Commission, the Parks and Recreation Department staff requested that this item be placed on the DRC agenda to discuss the update and obtain input from the Committee. Mr. Polster noted that no action by the DRC was required.

Mr. Polster stated that Parks and Recreation staff presented an overview of the updated Shaping our Shores using the updated master plan maps for Chickahominy Riverfront Park, Jamestown Beach Event Park, and the Jamestown Marina and at the same time answering questions. Mr. Polster stated that there was some discussion on the future impact of sea-level rise on sections of the Chickahominy Riverfront Park and Jamestown Beach, which would be revisited at the project design timeframe.

Mr. Polster stated that staff also provided an update on the first phase of dredging and bulkhead replacement for the Jamestown Marina. Mr. Polster stated that the Committee was supportive of the updated master plans, complimentary of their two-year effort, the level of coordination across the county staff agencies and their extensive outreach efforts with the

community.

Mr. Haldeman presented a Resolution of Appreciation to Mr. Danny Schmidt in thanks for his service on the Planning Commission.

Mr. Schmidt expressed appreciation for his fellow Commissioners and Planning staff. Mr. Schmidt also encouraged citizens to participate in the Comprehensive Plan Review Process and to serve the community by volunteering to serve on a board, commission, or committee.

Mr. Haldeman presented a Resolution of Appreciation thanking Ms. Odessa Dowdy, who was not able to attend the meeting, for her service on the Planning Commission.

E. CONSENT AGENDA

- 1. Minutes of the February 5, 2020 Regular Meeting
- 2. Resolution of Appreciation Mr. Danny Schmidt
- 3. Resolution of Appreciation Ms. Odessa Dowdy

Ms. Leverenz made a motion to approve the Consent Agenda.

On a voice vote the Commission voted to approve the Consent Agenda. (7-0)

F. PUBLIC HEARINGS

1. AFD-19-0003. Barnes Swamp AFD Addition, 811 & 917 Stewarts Road

A motion to Approve was made by Frank Polster, the motion result was Passed.

AYES: 7 NAYS: 0 ABSTAIN: 0 ABSENT: 0

Ayes: Haldeman, Krapf, Leverenz, Null, O'Connor, Polster, Rose

Mr. Thomas Wysong, Senior Planner, stated that Mr. Stephen Bowmer has applied to enroll 44.74 acres of land located at 811 and 917 Stewarts Road into the Barnes Swamp Agricultural and Forestal District (AFD). Mr. Wysong stated that the subject parcels are currently undeveloped and forested, and are located within one mile of the core of this district. Mr. Wysong further stated that the parcels are zoned A-1, General Agricultural, are located outside of the Primary Service Area (PSA) and are designated for Rural Lands on the 2035 Comprehensive Plan Land Use Map.

Mr. Wysong stated that at its January 23 meeting, the AFD Advisory Committee recommended unanimous approval of this application. Mr. Wysong stated that, accordingly, staff recommends that the Planning Commission recommend approval of this application to the Board of Supervisors, subject to the proposed conditions.

Mr. Haldeman called for disclosures from the Commission.

There were no disclosures.

Mr. Haldeman opened the Public Hearing.

As no one wished to speak, Mr. Haldeman closed the Public Hearing.

Mr. Polster made a motion to recommend approval of the application.

On a roll call vote the Commission voted to approve AFD-19-0003. Barnes Swamp AFD Addition, 811 & 917 Stewarts Road. (7-0)

2. SUP-19-0012. Tiki Tree and Landscape

A motion to Approve was made by Frank Polster, the motion result was .

AYES: 5 NAYS: 2 ABSTAIN: 0 ABSENT: 0 Ayes: Haldeman, Krapf, Leverenz, Polster, Rose

Nays: Null, O'Connor

Mr. Brett Meadows, Planner, stated that Hayden's Place, LLC, doing business as Tiki Tree and Landscape, has applied to allow a contractor's storage yard at 6283, 6293, and 6289 Centerville Road. Mr. Meadows stated that the parcels are zoned A-1, General Agricultural and are located within the PSA. Mr. Meadows noted a contractor's storage yard is a specially permitted use in the A-1 Zoning District.

Mr. Meadows stated that only the parcel at 6283 will be used for the storage area. Mr. Meadows further stated that the parcel belonging to Mr. Timothy Soderholm and Ms. Ashley Marie Campbell will be used for an office and restroom facilities, while the parcel belonging to Mr. Bruce Gilliam will contain an access easement to the storage yard from Centerville Road.

Mr. Meadows stated that staff is recommending conditions which are intended to mitigate the impacts of the use and preserve the residential character of the home. Mr. Meadows stated that conditions include screening from adjoining parcels and Centerville Road, limiting vehicle access to Centerville Road, and requiring a revegetation plan.

Mr. Meadows stated that staff finds the proposal compatible with the 2035 Comprehensive Plan as a use of very limited commercial nature which is located on a collector or arterial road. Mr. Meadows stated that with the proposed conditions, staff finds the proposal compatible with surrounding zoning and development. Mr. Meadows stated that staff recommends that the Planning Commission recommend approval of this application to the Board of Supervisors, subject to the proposed conditions.

Mr. Krapf inquired about the history of the application.

Mr. Meadows stated that the applicant had conducted a similar use on Parcel No. 3 and was found to be in violation of the Zoning Ordinance. Mr. Meadows stated that the applicant abated the violation. Mr. Meadows stated that the applicant has since been found in violation of the Zoning Ordinance for uses conducted on Parcel No. 1. Mr. Meadows stated that the applicant chose to go through the SUP process to achieve compliance with the Zoning Ordinance.

Mr. Krapf inquired about next steps should the SUP not be approved.

Mr. Meadows stated that the applicant could continue the appeal process for the Board of Zoning Appeals decision through the Circuit Court. Mr. Meadows further stated that the applicant could appeal the Board of Supervisors decision through the Circuit Court or could come into compliance by removing contractor's equipment and materials from the property.

Mr. Polster inquired if there were any comments from adjacent property owners.

Mr. Meadows stated that he received one response when the case was first advertised in February. Mr. Meadows further stated that the neighbor expressed some concerns about the location of the fencing; however, there was no further contact from the neighbor.

Mr. O'Connor inquired if the residences on Parcels No. 1 and No. 2 will be used as residences under the SUP.

Mr. Meadows stated that the SUP limits the storage yard to the middle part of the property and should not preclude residential use at the front of the parcel. Mr. Meadows noted that he was not certain if the residence is currently occupied.

Mr. O'Connor noted that the SUP conditions limited the opening in the fence to six feet; however, the Master Plan shows a 16-foot gate. Mr. O'Connor requested clarification on the size of the gate.

Mr. Meadows stated that the Master Plan shows the existing gate. Mr. Meadows stated that the SUP requires screening that will be approved during the Site Plan process and the gate will be part of the Site Plan approval.

Mr. Polster inquired about the area on Parcel No. 1 behind the designated storage area.

Mr. Meadows stated that it was not included in the SUP and would require an SUP amendment if it were to be used for commercial purposes at a later time.

Mr. Polster inquired if the fencing would extend along the entire parcel.

Mr. Meadows stated that the extent of the fence would be determined at the Site Plan stage, but would most likely screen only the storage area.

Mr. Polster inquired if the adjacent property owner was aware of that possibility.

Mr. Meadows stated that he had not received any comments from that neighbor.

Mr. O'Connor inquired if the limitations on mulching and stump grinding applied to the entirety of the three parcels or just to the commercial/storage area.

Mr. Meadows stated that the conditions would cover all three parcels.

Mr. Haldeman called for disclosures from the Commission.

Mr. O'Connor stated that he spoke with the applicant's attorney.

Mr. Haldeman opened the Public Hearing.

Ms. Virginia Major, attorney for Hayden's Place, LLC, introduced Ryan Stephenson with AES Consulting Engineers, Mr. Timothy J. (TJ) Soderholm, owner of Tiki Tree Service and Hayden's Place, and Mr. Michael Heikes, attorney for Tiki Tree Service.

Ms. Major addressed the Commission on the history of the application.

Ms. Majors provided the Commission with letters from neighbors who are not opposed to the SUP.

Mr. Polster inquired about the length of the eight-foot fence already in place on the property.

Mr. TJ Soderholm stated that the fence extends behind the first four properties along Settlers Lane and part-way behind the fifth parcel.

Mr. Soderholm stated that there is also a fence along the west side of Parcel No. 1.

Mr. Polster inquired if there is any screening extending north from the pole barn.

Mr. Soderholm stated that there is no screening past the storage area.

Mr. Krapf inquired about the ownership of Parcel No. 1.

Mr. Soderholm stated that he owns the property and rents the two dwellings.

Mr. Krapf inquired if the tenants have expressed concerns over the commercial activity.

Mr. Soderholm stated that the letters provided to the Commission are from surrounding residents who support the application.

Mr. O'Connor inquired if the applicant plans to expand the business operations.

Mr. Soderholm stated that he has no plans for expansion.

Mr. O'Connor inquired if the applicant agrees with the SUP conditions.

Mr. Soderholm confirmed.

Mr. Rob Rose inquired if there was any correspondence from the adjacent property owner at 6273 Centerville Road.

Mr. Soderholm stated that the owner did not wish to provide one. Mr. Soderholm stated that the owner encouraged him to pursue the SUP through the proper channels.

Ms. Majors stated that another neighbor had also encouraged the applicant to pursue the SUP through the County.

Mr. John Holland, 6273 Centerville Road addressed the Commission in opposition to the application.

Mr. Krapf inquired if there is any processing of materials from job sites that would make undue noise.

Mr. Michael Heikes stated that there is no tree work or stump grinding on the property.

Mr. Heikes stated that the property is used for parking or storage of equipment only.

Mr. Krapf inquired if the equipment might be tested on the property to ensure maintenance of the equipment is satisfactory.

Mr. Heikes stated that this could be possible from time to time.

Mr. Soderholm noted that he does have a chipper and a grinder as part of his equipment. Mr. Soderholm further stated he has done work on the property to clean it up which required the use of those machines on a personal basis. Mr. Soderholm further stated that any future use of equipment on the property would be for necessary maintenance.

Mr. O'Connor inquired about deferral of the case from the previous meeting due to the requirement for the restroom.

Mr. Meadows stated that Building Safety and Permits stipulates that the restroom is required because this is a commercial operation.

Mr. Meadows stated that port-a-johns would not be permitted and that this is a way to satisfy the requirement short of building another structure on the property.

Mr. O'Connor inquired if one of the residences on Parcel No. 1 were used for the office and restroom, would the residence fall under the SUP. Mr. Holt confirmed that it would be part of the SUP.

Mr. Haldeman inquired about the effect of selling Parcel No. 3 separately.

Mr. Meadows stated that Parcel No. 1 would, then, require construction of or designation of restroom facilities.

As no one further wished to speak, Mr. Haldeman closed the Public Hearing.

Mr. Krapf stated that he will reluctantly support the application; however, he has concerns about the effects of the commercial activities on neighbors.

Mr. Rose stated that he has concerns about being able to ensure that any use of the equipment on the property is purely personal.

Ms. Leverenz stated that she understands the need to maintain a property and that such maintenance can create temporary impacts. Ms. Leverenz stated that she believes the application should be taken at face value and the applicant should be trusted to comply with the terms of the SUP. Ms. Leverenz stated that she will support the application.

Mr. Polster stated that he appreciates the efforts of the applicant to improve the appearance of the property and the residences on Parcel No. 1. Mr. Polster noted that he does have concerns about the impacts on the neighbors. Mr. Polster stated that the required fencing and screening should mitigate the impacts. Mr. Polster stated that he will support the application.

Mr. O'Connor stated that he appreciated that the applicant is trying to come into compliance. Mr. O'Connor noted that he is concerned about including Parcel No. 3 in the application. Mr. O'Connor further stated that he does not find the use to be a limited commercial facility and that it does not meet the criteria of supporting the residential area where it is located. Mr. O'Connor stated that he does not intend to support the application.

Ms. Leverenz stated that the commercial use is supportive of the surrounding community. Ms. Leverenz noted that the applicant often uses his equipment to assist neighbors during snow storms or wind storms.

Mr. Haldeman stated that he intends to support the application.

Mr. Polster made a motion to recommend approval of the application.

On a roll call vote, the Commission voted to recommend approval of SUP-19-0012. Tiki Tree and Landscape. (5-2)

3. SUP-20-0001. 2898 Lake Powell Road Tourist Home

Mr. Thomas Leininger, Planner, stated that Mr. Frank Berggren has applied for an SUP to allow for the short-term rental of an entire 3-bedroom home located a 2898 Lake Powell Road. Mr. Leininger stated that this use is considered a Tourist Home because the owner will live offsite during the time of rentals. Mr. Leininger stated that the property is zoned R-2, General Residential, is designated Low Density Residential on the 2035 Comprehensive Plan land Use Map, and is located inside the PSA.

Mr. Leininger stated that if granted, the SUP would allow short-term rentals throughout the year. Mr. Leininger further stated that the home is currently occupied by the applicant as a vacation home and would rented short-term when they are not there. Mr. Leininger stated that no changes to the footprint of the home are proposed.

Mr. Leininger stated that staff considered the home's location, parking provisions, and appearance to be favorable factors in the evaluation of this application. Mr. Leininger further stated that staff is recommending conditions intended to mitigate the impacts of the use and preserve the residential character of the home. Mr. Leininger stated that the conditions include restrictions on commercial signage and lighting. Mr. Leininger stated that any future expansions of the use would require an SUP amendment.

Mr. Leininger stated that staff finds the proposal to be compatible with the Comprehensive Plan, Zoning Ordinance, and surrounding development, and recommends that the Planning Commission recommend approval of this application to the Board of Supervisors subject to the proposed conditions.

Mr. O'Connor inquired how staff determines if a buffer or screening should be added to the SUP conditions.

Mr. Paul Holt, Director of Community Development and Planning, stated that from all external appearances, a tourist home should retain the appearance of a single family residence. Mr. Holt further stated that in the instances where screening is required, the property is in close proximity to another dwelling.

Mr. Haldeman called for disclosures from the Commission.

There were no disclosures.

Mr. Haldeman opened the Public Hearing.

Mr. Franklin Berggren, Applicant, 5821 Painted Leaf Lane, Naples, Florida stated that his family intends to use the property as a vacation home, with the goal of moving to James City County in the future. Mr. Berggren stated that he would like to rent the property short-term when he is not there.

Mr. Krapf inquired if the applicant would have a property management company checking on the house regularly.

Mr. Berggren stated that he would be in town several times a month to check on the property.

As no one further wished to speak, Mr. Haldeman closed the Public Hearing.

Mr. O'Connor stated that he researched the sale price history of the property, which fell well

within the affordable housing range. Mr. O'Connor stated that allowing short-term rental properties does not support the Comprehensive Plan goals and, further, removes affordable homes from the housing stock. Mr. O'Connor stated that he will not support the application.

Ms. Leverenz made a motion to recommend approval of the application.

On a roll call vote the Commission voted to recommend approval of SUP-20-0001. 2898 Lake Powell Road Tourist Home. (5-2)

4. SUP-20-0002. 3374 Ironbound Road Tourist Home

A motion to Approve was made by Rich Krapf, the motion result was Passed.

AYES: 5 NAYS: 2 ABSTAIN: 0 ABSENT: 0 Ayes: Haldeman, Krapf, Leverenz, Null, Polster

Nays: O'Connor, Rose

Mr. Thomas Wysong, Senior Planner, stated that Ms. Jeanette Brady has applied for an SUP to allow for the short-term rental of an entire four-bedroom home as a tourist home. The property at located at 3374 Ironbound Road, is zoned R-8, Rural Residential, is designated Mixed Use Five Forks on the 2035 Comprehensive Plan Land Use Map, and is located inside the PSA.

Mr. Wysong stated that if granted, the SUP, would allow short-term rentals throughout the year. Mr. Wysong stated that no changes to the footprint of the home are proposed. Mr. Wysong stated that the owner will live off-site.

Mr. Wysong stated that staff considered the home's location, parking provisions, and appearance to be favorable factors in the evaluation of this application. Mr. Wysong further stated that staff is recommending conditions intended to mitigate the impacts of the use and preserve the residential character of the home. Mr. Wysong stated that conditions include restrictions on commercial signage and lighting. Mr. Wysong stated that any future expansions of the use would require an SUP amendment.

Mr. Wysong stated that staff finds the proposal to be compatible with the Comprehensive Plan, the Zoning Ordinance, and surrounding development, and recommends that the Planning Commission recommend approval of this application to the Board of Supervisors, subject to the proposed conditions.

Ms. Leverenz inquired if it is a single-family residence.

Mr. Wysong stated that the structure was built in 2003 and that, to his understanding, it has always been a single-family residence.

Mr. O'Connor inquired if the applicant intended to employ anyone to care for the property.

Mr. Wysong stated that he would defer to the applicant.

Mr. Haldeman called for disclosures from the Commission.

There were no disclosures.

Mr. Haldeman opened the Public Hearing.

Ms. Jeanette Brady, Applicant, 2501 Manion Drive, stated that she owns all of the surrounding property. Ms. Brady noted that the property should be commercial since it is surrounded by other commercial activity. Ms. Brady stated that family members use the property when in town. Ms. Brady stated that she is on site ever day because of her business interests. Ms. Brady further stated that there are numerous security cameras monitoring the property.

Mr. Rose inquired about the number of bedrooms.

Ms. Brady stated that it is a four bedroom house; however, there is a large game room that could be used as a bedroom.

Mr. Rose inquired if it would be rented as a four bedroom.

Ms. Brady stated that she considered it a four bedroom home but there is always the potential to use the game room as a bedroom.

As no one further wished to speak, Mr. Haldeman closed the Public Hearing.

Mr. Krapf made a motion to recommend approval of the application.

On a roll call vote the Commission voted to recommend approval of SUP-20-0002. 3374 Ironbound Road Tourist Home. (5-2)

G. PLANNING COMMISSION CONSIDERATIONS

1. C-19-0100. Shaping Our Shores Update

A motion to Approve was made by Rich Krapf, the motion result was Passed.

AYES: 7 NAYS: 0 ABSTAIN: 0 ABSENT: 0

Ayes: Haldeman, Krapf, Leverenz, Null, O'Connor, Polster, Rose

Mr. José Ribeiro, Senior Planner, II introduced Ms. Carla Brittle, Recreation Centers Administrator for Parks and Recreation.

Ms. Brittle provided the Commission with an overview of the updates to the Shaping Our Shores Master Plan, detailing the changes for Chickahominy Riverfront Park, the James City County Marina, and Jamestown Beach Event Park.

Mr. Holt stated that the Commission would need to approve the Shaping Our Shores Update by roll call vote.

Mr. Krapf noted appreciation for the presentation and complemented Mr. John Carnifax, Director of Parks and Recreation on his proactive leadership.

Mr. Krapf made a motion to approve the Shaping Our Shores Master Plan.

On a roll call vote, the Commission voted to approve the Shaping Our Shores Master Plan. (7-0)

Mr. O'Connor also noted appreciation for the Parks and Recreation team.

2. Planning Commission and Board of Zoning Appeals 2019 Annual Report

Mr. Paul Holt noted that the Annual Report highlights the Planning Commission and Board of Zoning Appeals activities over the preceding year. Mr. Holt stated that the Appendix provides an update on the County's progress with the Comprehensive Plan Goals, Strategies and Actions.

Mr. Haldeman complemented staff on the effort involved in preparing the report.

Mr. Polster made a motion to approve the Planning Commission and Board of Zoning Appeals 2019 Annual Report.

On a voice vote, the Commission voted to approve the Planning Commission and Board of Zoning Appeals 2019 Annual Report. (7-0)

H. PLANNING DIRECTOR'S REPORT

1. Planning Director's Report - March 2020

Mr. Holt stated that he did not have anything in addition to what was provided in the Agenda Packet.

Mr. Holt noted that the Commission should review the draft Calendar which follow the traditional schedule and let staff know if there were any concerns.

I. PLANNING COMMISSION DISCUSSION AND REQUESTS

Mr. Haldeman noted that Ms. Leverenz has Board of Supervisors coverage for March.

Mr. Polster stated that he would like to staff review regulations regarding short-term rentals and provide suggestions for improving the process to address owner occupancy requirements, buffering, and where this type of use should take place. Mr. Polster recommended that this discussion should take place for the Comprehensive Plan review to allow the public to provide input on the matter.

Mr. Krapf stated that he concurs with the suggestion.

Ms. Leverenz stated that it would be very beneficial to obtain the public input on the matter.

Ms. Barbara Null stated that she had been through a similar process in Charlottesville. Ms. Null noted that she would be happy to provide information on the Charlottesville process.

Mr. Haldeman stated that he concurs with bringing this forward as part of the Comprehensive Plan process.

Mr. O'Connor stated that his challenge is that short-term rentals is not entirely in accord with the goals, strategies, and actions of the Comprehensive Plan in regard to creating jobs and in maintaining housing stock.

Mr. O'Connor stated that he appreciated staff's efforts to bring the Tiki Tree Service matter to a workable resolution.

J. ADJOURNMENT

Paul D. Holt, III, Secretary	John Haldeman, Chair
The meeting was adjourned at approximately 7:50 p.m.	
Mr. Polster made a motion to adjourn.	

AGENDA ITEM NO. E.2.

ITEM SUMMARY

DATE: 4/1/2020

TO: The Planning Commission

FROM: Paul D. Holt, III, Secretary

SUBJECT: Proposed Calendar for 2020-2021

The proposed meeting calendar for 2020-2021 is attached.

Staff recommends adoption of the Planning Commission, Development Review Committee (DRC), and Policy Committee meeting dates and times through March 15, 2021, as shown.

Meeting dates and times shown after March 15, 2021 are placeholder dates.

ATTACHMENTS:

	Description	Type
D	Proposed Calendar for 2020-2021	Exhibit

REVIEWERS:

Department	Reviewer	Action	Date
Planning Commission	Holt, Paul	Approved	3/6/2020 - 1:23 PM
Planning Commission	Holt, Paul	Approved	3/6/2020 - 1:23 PM
Publication Management	Daniel, Martha	Approved	3/6/2020 - 1:26 PM
Planning Commission	Holt, Paul	Approved	3/6/2020 - 1:29 PM

Planning Commission 2020/21 (6PM)

- April 1 - May 6

- May 26 Joint Work Session w/BOS (4pm)

June 3July 1August 5September 2October 7

- November 4 - December 2 - January 6 (2021) - February 3 (2021) - March 3 (2021)

- March 15 (2021)*

*Special Meeting (Organizational and CIP)

Policy Committee 2020/21 (4PM)

- April 16
- May 14
- June 11
- July 9
- August 13
- September 10
- October 15
- November 12
- December 10
- January 14 (2021)
- February 11 (2021)**
- February 25 (2021)**
- March 4 (2021)

DRC 2020/21 (4PM)

- March 25 - April 22 - May 20 - June 17 - July 22 - August 19 - September 23 - October 21

November 18December 16

- January 20 (2021)***

- February 17 (2021)

***Meeting would begin at 3PM

PCWG 2020/21 (4PM)

- April 6

- April 13

September 14September 28

o i i i

- October 5

October 19

November 9

November 23

- December 7

December 21

Planning Commission 2021/22 (6PM)

April 7May 5

- April 27 Joint Work Session w/ BOS (4pm)

- June 2 - July 7 - August 4 - September 1 - October 6 - November 3 - December 1 - January 5 (2022)

February 2 (2022)March 2 (2022)March 14 (2022)*

*Special Meeting (Organizational and CIP)

Policy Committee 2021/22 (4PM) - April 15

- May 13
- June 10
- July 15
- August 12
- September 9
- October 14
- November 10
- December 9
- January 13 (2022)
- February 10 (2022)**
- February 17 (2022)**

**CIP Meetings

March 3 (2022)**March 10 (2022)

**CIP Meetings

- February 24 (2022)**

DRC 2021/22 (4PM)

- March 31

April 21May 19

- June 23

- July 21

August 18September 22

- October 20

- November 17

- December 15

- January 19 (2022)

- February 16 (2022)

PCWG 2021/22 (4PM)

- January 5

January 20

February 8

February 22

- March 8

March 22

- April 5

April 19

^{2020/21} Calendar Year: March 17, 2020 - March 15, 2021

AGENDA ITEM NO. E.3.

ITEM SUMMARY

DATE: 4/1/2020

TO: The Planning Commission

FROM: Jose Ribeiro, Senior Planner II

SUBJECT: Development Review Committee Action Item: SP-0020-0012. Axe Throwing Facility

at Freedom Park

A site plan has been submitted to allow for the construction of a +/- 384 square foot structure at Freedom Park that would accommodate an Axe Throwing Facility.

Reason for DRC Review: The adopted Special Use Permit (SUP) conditions for this development (SUP-0011-2004) require Development Review Committee (DRC) review of any proposed changes to the Master Plan for Freedom Park for general consistency.

Link to the Agenda and Staff Report: https://jamescitycountyva.gov/129/Agendas-Minutes

The DRC vote will be reported out at the April 1 Commission meeting.

REVIEWERS:

Department Reviewer Action Date

Planning Commission ComSecretary, Planning Approved 3/25/2020 - 4:30 PM

AGENDA ITEM NO. F.1.

ITEM SUMMARY

DATE: 4/1/2020

TO: The Planning Commission

FROM: Tori Haynes, Planner and Terry Costello, Deputy Zoning Administrator/Senior Planner

SUBJECT: Fiscal Year 2021-2025 Capital Improvements Program

ATTACHMENTS:

	Description	Type
ם	Memorandum	Cover Memo
۵	Attachment 1. FY 2021-2025 CIP Summary Spreadsheet	Backup Material
ם	Attachment 2. CIP Ranking Criteria	Backup Material
ם	Attachment 3. Approved Policy Committee Minutes from Feb. 13, 2020	Backup Material
ם	Attachment 4. Unapproved Policy Committee Minutes from Feb. 20, 2020	Backup Material
ם	Attachment 5. Unapproved Policy Committee Minutes from Feb. 27, 2020	Backup Material
D	Attachment 6. Unapproved Policy Comittee Minutes from March 5, 2020	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning Commission	Holt, Paul	Approved	3/16/2020 - 10:26 AM
Planning Commission	Holt, Paul	Approved	3/16/2020 - 10:26 AM
Publication Management	Daniel, Martha	Approved	3/16/2020 - 10:29 AM
Planning Commission	Holt, Paul	Approved	3/16/2020 - 10:30 AM

MEMORANDUM

DATE: April 1, 2020

TO: The Planning Commission

FROM: Tori Haynes, Planner

Terry Costello, Deputy Zoning Administrator/Senior Planner

SUBJECT: Fiscal Year 2021-2025 Capital Improvements Program

The Policy Committee annually reviews Capital Improvements Program (CIP) requests submitted by various County agencies and Williamsburg-James City County (WJCC) Schools. The purpose of this review is to provide guidance and a list of prioritized projects to the Board of Supervisors for its consideration during the budget process. After a series of meetings to discuss and rank the CIP requests and to evaluate the projects for consistency with the Comprehensive Plan, "Toward 2035: Leading the Way," the Committee is forwarding its recommendations to the Planning Commission for consideration.

As described in the Code of Virginia, the CIP is one of the methods of implementing the Comprehensive Plan and is of equal importance to methods like the Zoning and Subdivision Ordinances, official maps, and transportation plans. The Policy Committee uses a standardized set of ranking criteria to prioritize projects. Committee members evaluated each request for funding and produced a numerical score between 10 and 100. The scores generated by individual Committee members were then averaged to produce the Committee's final score and priority. The Committee's ranking criteria is attached for reference (Attachment No. 2).

All CIP project requests for Fiscal Year (FY) 2021-2025 are summarized in Attachment No. 1. Of the 28 submitted applications (20 County, two library, and six WJCC Schools applications), 12 County and four Schools projects were included in the previous five-year CIP adopted by the Board of Supervisors; however, estimates and completion timelines may have been amended. These previous applications include:

- Transportation Match
- Jamestown Corridor Amblers House Utilities
- Fire Station 6
- Grove Convenience Center
- Stormwater Capital Improvements Program
- Lower County Park
- Chickahominy Riverfront Park New Restroom and Concession Building
- Chickahominy Riverfront Park Phase III
- James City County Marina Phase II
- Jamestown Beach Event Park Improvements
- Veterans Park Phase II Improvements
- Warhill Sports Complex Baseball Field Expansion
- New Elementary School
- Lafayette High School Renovation
- Jamestown High School Expansion
- Warhill High School Expansion

Fiscal Year 2021-2025 Capital Improvements Program April 1, 2020 Page 2

Attachment No. 1 also identifies the Committee's ranked priorities from highest to lowest and includes a brief summary of each project. The full set CIP project applications and supporting documents can be found in the packet materials <u>posted online</u> for the February 13, 2020 Policy Committee meeting.

Recommendation:

At its March 5, 2020 meeting, the Policy Committee unanimously voted to recommend the following CIP projects for FY 2021-2025, ranked below in order of priority:

- 1. Stormwater Capital Improvements Program
- 2. Transportation Match
- 3. Lower County Park
- 4. Fire Station 6
- 5. Grove Convenience Center
- 6. Police Firing Range Expansion
- 7. Warhill High School Auxiliary Gym/Emergency Shelter
- 8. Covered Parking for Specialty Police Vehicles and Trailers
- 9. Jamestown Corridor Amblers House Utilities
- 10. Jamestown Beach Event Park Improvements
- 11. Chickahominy Riverfront Park Phase III Improvements
- 12. Chickahominy Riverfront Park New Restroom and Concession Building
- 13. Jamestown Corridor Marina New Building
- 14. James City County Marina Land Improvements
- 15. James City County Marina Phase 2
- 16. Lafayette High School Renovation
- 17. New School Site in Stonehouse: Site Preparation and Environmental Remediation
- 18. Jolly Pond Road at the Dam Termini Construction
- 19. New James City County Library Branch
- 20. Jamestown High School Expansion ^a
- 20. Warhill High School Expansion ^a
- 21. Warhill Sports Complex Baseball Field Expansion
- 22. Upper County Park Improvements
- 23. Freedom Park Phase IV Active Recreation Facilities
- 24. Veterans Park Phase 2 Improvements
- 25. New Elementary School
- 26. James City County Library Playground
- 27. Buses for New 10th Elementary School
- (a) These projects received equal scores.

Staff recommends that the Planning Commission forward these priorities to the Board of Supervisors for consideration during the budget process.

Fiscal Year 2021-2025 Capital Improvements Program April 1, 2020 Page 3

TH/TC/nb FY21-25CIP-mem

Attachments:

- 1. Policy Committee FY 2021-2025 CIP Summary Spreadsheet
- Policy Committee CIP Ranking Criteria
 Approved Policy Committee Minutes from February 13, 2020
- 4. Unapproved Policy Committee Minutes from February 20, 2020
- 5. Unapproved Policy Committee Minutes from February 27, 2020

FY 2021 - 2025 CAPITAL IMPROVEMENTS PROGRAM RANKING SPREADSHEET

ID	Agency	Project Title	Brief Project Description (see application narratives for more detail)	FY 2021 Requested	FY 2022 Requested	FY 2023 Requested	FY 2024 Requested	FY 2025 Requested		Agency Priority		Special Considerations	PC Score	PC Rank	Other Notes
н	General Services	Stormwater Capital Improvement Program	Stormwater projects to address undersized and failing drainage systems, restore eroded channels, and install new facilities to treat runoff pollution.	\$2,204,000.00	\$2,600,000.00	\$2,634,000.00	\$2,493,000.00	\$2,613,000.00	\$12,544,000.00	3	3	Yes	85.6	1	
A	Community Dev.	Transportation Match	Matches for various transportation projects (e.g. Longhill Rd., Croaker Rd., Pocahontas Tr., Skiffes Creek Connector, and Clara Byrd Baker E.S.)	\$1,500,000.00	\$1,500,000.00	\$3,000,000.00	\$3,000,000.00	\$3,000,000.00	\$12,000,000.00	1	2	Yes	82.0	2	
I	Parks & Rec.	Lower County Park	Acquire property, design, and construct a park in the Lower County area that includes a walking trail, picnic shelter, swimming pool with water features, restrooms, and all related infrastructure.	\$250,000.00	\$732,000.00	\$0.00	\$5,364,000.00	\$0.00	\$6,346,000.00	1	10		66.8	3	
E	Fire	Fire Station 6	Construction of new fire station to increase sixminute coverage within the PSA.	\$0.00	\$8,230,000.00	\$0.00	\$0.00	\$0.00	\$8,230,000.00	1	1		61.4	4	
G	General Services	Grove Convenience Center	Construction of new convenience center in the Grove area. Exact location will be determined based on additional data analysis and opportunities for suitable building sites.	\$596,600.00	\$0.00	\$0.00	\$0.00	\$0.00	\$596,600.00	2	3		59.5	5	
s	Police	Firing Range Expansion	Extend the existing 25-yard firing range to accommodate training needs at 100 yards. Includes clearing/grading of approx. 15,000 SF, relocating existing range control house and storage trailer, demolishing existing range shelter and rebuilding a range shelter on a new concrete pad to be used for students during training, and associated utility extensions.	\$70,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$70,000.00	1	2		56.1	6	
Υ	WJCC Schools		Add auxiliary gym to Warhill HS that can also be used as an emergency shelter.	\$3,384,271.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,384,271.00	3	6		53.3	7	
Т	Police		Construction of covered parking structure that will provide overhead, side, and rear protection for a number of specialty vehicles and trailers.	\$0.00	\$0.00	\$0.00	\$217,000.00	\$0.00	\$217,000.00	2	2		51.9	8	
С	Economic Dev.	Jamestown Corridor - Amblers House Utilities	Utility improvements that would begin to implement some of the recommendations from the Shaping our Shores Master Plan.	\$739,286.75	\$0.00	\$0.00	\$0.00	\$0.00	\$739,286.75	1	2		51.5	9	
N	Parks & Rec.	Jamestown Beach Event Park Improvements	Construction of additional restroom facility to support beach, event venue with stage/performance area and restroom facilities, boat storage facility to support marina operations, and park maintenance building, plus conversion of grass parking area to permanent permeable parking area for 200 spaces.	\$0.00	\$0.00	\$1,349,000.00	\$0.00	\$8,993,000.00	\$10,342,000.00	6	10		49.3	10	
К	Parks & Rec.		Improvements to the park per the Shaping Our Shores Master Plan, to include design and construction of ADA-accessible paddlecraft area, additional parking/road improvements, relocation of dry storage area, public access trail on shoreline, and boat ramp repairs. Also includes development of Stormwater Master Plan per the SUP conditions.	\$300,000.00	\$1,800,000.00	\$0.00	\$0.00	\$0.00	\$2,100,000.00	3	10		48.8	11	
J	Parks & Rec.		New building of approx. 900 SF with additional urinals, stalls, changing room, and larger concession area to meet existing health department and building code requirements.	\$563,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$563,000.00	2	10		48.6	12	

FY 2021 - 2025 CAPITAL IMPROVEMENTS PROGRAM RANKING SPREADSHEET

ID	Agency	Project Title	Brief Project Description (see application narratives for more detail)	FY 2021 Requested	FY 2022 Requested	FY 2023 Requested	FY 2024 Requested	FY 2025 Requested	Total Requested	Agency Priority	Out of	Special Considerations	PC Score	PC Rank	Other Notes
D	Economic Dev.	Jamestown Corridor - Marina New Building	Construction of new building that would relocate the brewery tenant's taproom so that the existing building can be demolished. The existing building is located in the floodplain and the cost of repairs exceeds the value of the building.	\$500,000.00	\$3,500,000.00	\$0.00	\$0.00	\$0.00	\$4,000,000.00	2	2		52.1	13	
М	Parks & Rec.	James City County Marina Land Improvements	New marina facility to support park operations and marine repair services, including restroom/shower facilities, office/meeting space, 200 space parking lot, and overflow parking area for boat trailers.	\$415,000.00	\$0.00	\$3,043,000.00	\$0.00	\$0.00	\$3,458,000.00	5	10		51.3	14	
L	Parks & Rec.	James City County Marina Phase 2	Relocate existing boat ramp, provide additional parking for marina and ramp visitors, replace both covered boat houses, and add third section of open slips.	\$0.00	\$0.00	\$3,300,000.00	\$0.00	\$0.00	\$3,300,000.00	4	10		49.4	15	
X	WJCC Schools	Lafayette HS Renovation	Add instructional space to Lafayette HS.	\$246,825.00	\$0.00	\$2,945,881.00	\$0.00	\$0.00	\$3,192,706.00	2	6		43.3	16	
В	Community Dev.	New School Site in Stonehouse: Site Preparation and Environmental Remediation	As part of the recent proffer and master plan amendments for Stonehouse, a new school site was proffered. The developer will prepare and remediate the site, but the County will need to rely on outside consultants for this highly specialized and technical work, including licensed geotechnical engineers and licensed environmental engineers.	\$125,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$125,000.00	2	2		47.9	17	
F	General Services	Jolly Pond Road at the Dam Termini Construction	Following the BOS's abandonment of the R/W over Jolly Pond Dam, construction of termini on either side of the dam is required to make a safe area for vehicles to turn around.	\$145,800.00	\$0.00	\$0.00	\$0.00	\$0.00	\$145,800.00	1	3	Yes	41.1	18	
U	Williamsburg Regional Library	New James City County Library Branch	Construction of new 40,000 SF public library facility.	\$0.00	\$0.00	\$1,125,000.00	\$8,187,500.00	\$11,187,500.00	\$20,500,000.00	1	2		40.6	19	
Z	WJCC Schools	Jamestown HS Expansion	Add instructional space to Jamestown HS.	\$0.00	\$0.00	\$1,015,000.00	\$9,291,700.00	\$0.00	\$10,306,700.00	4	6		38.8	20	Projects Z and AA received equal scores/rankings.
AA	WJCC Schools	Warhill HS Expansion	Add instruction space to Warhill HS.	\$0.00	\$0.00	\$9,343,680.00	\$0.00	\$0.00	\$9,343,680.00	5	6		38.8	20	Projects Z and AA received equal scores/rankings.
Q	Parks & Rec.	Warhill Sports Complex Baseball Field Expansion	Construction of two lighted turf baseball fields, 200 new parking spaces, restrooms, and field fencing.	\$0.00	\$0.00	\$0.00	\$584,000.00	\$4,283,000.00	\$4,867,000.00	9	10		35.9	21	
Р	Parks & Rec.	Upper County Park Improvements	Improvements to Upper County Park including demo of existing baby pool, construction of splash pad, and paving of gravel parking lot and multiuse trail.	\$0.00	\$0.00	\$105,000.00	\$0.00	\$765,000.00	\$870,000.00	8	10		33.1	22	
R	Parks & Rec.	Freedom Park Phase IV - Active Recreation Facilities	Develop active recreation amenities at Freedom Park according to the approved Master Plan, including basketball, tennis, swimming pool/splash pad, picnic shelter, and playground.	\$0.00	\$0.00	\$0.00	\$804,000.00	\$5,358,000.00	\$6,162,000.00	10	10		35.1	23	
0	Parks & Rec.	Veterans Park Phase 2 Improvements	Construction of splash pad, pump room, eastern parking lot addition, bus parking adddition, sidewalk connections, and outdoor workout equipment.	\$0.00	\$190,000.00	\$1,391,000.00	\$0.00	\$0.00	\$1,581,000.00	7	10		35.0	24	
w	WJCC Schools	New Elementary School	Construction of new elementary school of approx. 106,000 SF to house 700 students.	\$2,900,000.00	\$26,100,000.00	\$0.00	\$0.00	\$0.00	\$29,000,000.00	1	6		34.0	25	
V	Williamsburg Regional Library	James City County Library Playground	Construction of natural playground at the James City County Library on Croaker Road.	\$0.00	\$100,000.00	\$0.00	\$0.00	\$0.00	\$100,000.00	2	2		27.0	26	
вв	WJCC Schools	Buses for New 11th Elem. School	Purchase of six additional buses to transport students.	\$0.00	\$0.00	\$0.00	\$0.00	\$620,000.00	\$620,000.00	6	6		30.8	27	
	+		TOTAL	\$13,939,783	\$44,752,000	\$29,251,561	\$29,941,200	\$36,819,500	\$154,704,044		+	+			

CAPITAL IMPROVEMENT PROGRAM RANKING CRITERIA James City County Planning Commission

SUMMARY

The Capital Improvement Program ("CIP") is the process for evaluating, planning, scheduling, and implementing capital projects. The CIP supports the objectives of the Comprehensive Plan through the sizing, timing, and location of public facilities such as buildings, roads, schools, park and recreation facilities, water, and sewer facilities. While each capital project may meet a specific need identified in the Comprehensive Plan or other department or agency plan, all capital plans must compete with other projects for limited resources, receive funding in accordance with a priority rating system and be formally adopted as an integral part of the biannual budget. Set forth below are the steps related to the evaluation, ranking, and prioritization of capital projects.

A. DEFINITION

The CIP is a multi-year flexible plan outlining the goals and objectives regarding public capital improvements for James City County ("JCC" or the "County"). This plan includes the development, modernization, or replacement of physical infrastructure facilities, including those related to new technology. Generally a capital project such as roads, utilities, technology improvements, and county facilities is nonrecurring (though it may be paid for or implemented in stages over a period of years), provides long term benefit and is an addition to the County's fixed assets. Only those capital projects with a total project cost of \$50,000 or more will be ranked. Capital maintenance and repair projects will be evaluated by departments and will not be ranked by the Policy Committee.

B. PURPOSE

The purpose of the CIP ranking system is to establish priorities for the 5-year CIP plan ("CIP plan"), which outlines the projected capital project needs. This CIP plan will include a summary of the projects, estimated costs, schedule and recommended source of funding for each project where appropriate. The CIP plan will prioritize the ranked projects in each year of the CIP plan. However, because the County's goals and resources are constantly changing, this CIP plan is designed to be re-assessed in full bi-annually, with only new projects evaluated in exception years, and to reprioritize the CIP plan annually.

C. RANKINGS

Capital projects, as defined in paragraph A, will be evaluated according to the CIP Ranking Criteria. A project's overall score will be determined by calculating its score against each criterion. The scores of all projects will then be compared in order to provide recommendations to the Board of Supervisors. The components of the criteria and scoring scale will be included with the recommendation.

D. FUNDING LIMITS

On an annual basis, funds for capital projects will be limited based on the County's financial resources including tax and other revenues, grants and debt limitations, and other principles set forth in the Board of Supervisors' Statement of Fiscal Goals:

- general obligation debt and lease revenue debt may not exceed 3% of the assessed valuation of property,

- debt service costs are not to exceed 10-12% of total operation revenues, including school revenue, and
- debt per capita income is not to exceed \$2,000 and debt as a percentage of income is not to exceed 7.5%.

Such limits are subject to restatement by the Board of Supervisors at their discretion. Projects identified in the CIP plan will be evaluated for the source or sources of funding available, and to protect the County's credit rating to minimize the cost of borrowing.

E. SCHEDULING OF PROJECTS

The CIP plan schedules will be developed based on the available funding and project ranking and will determine where each project fits in the 5 year plan.

CIP RANKING CRITERIA Project Ranking By Areas of Emphasis

- 1. Quality of Life (20%) Quality of life is a characteristic that makes the County a desirable place to live and work. For example, public parks, water amenities, multi-use trails, open space, and preservation of community character enhance the quality of life for citizens. A County maintenance building is an example of a project that may not directly affect the citizen's quality of life. The score will be based on the considerations, such as:
 - A. Is the project in conformance with and supportive of the goals, strategies and actions set forth in the Comprehensive Plan?
 - B. Does the project support objectives addressed in a County sponsored service plans, master plans, or studies?
 - C. Does the project relate to the results of the citizen survey, Board of Supervisors policy, or appointed committee or board?
 - D. Does the project increase or enhance educational opportunities?
 - E. Does the project increase or enhance recreational opportunities and/or green space?
 - F. Will the project mitigate blight?
 - G. Does the project target the quality of life of all citizens or does it target one demographic? Is one population affected positively and another negatively?
 - H. Does the project preserve or improve the historical, archeological and/or natural heritage of the County? Is it consistent with established Community Character?
 - I. Does the project affect traffic positively or negatively?
 - J. Does the project improve, mitigate, and / or prevent degradation of environmental quality (e.g. water quality, protect endangered species, improve or reduce pollution including noise and/or light pollution)?

1	2	3	4	5	6	7	8	9	10
The project does not				The project will have					The project will have
affect or has a				some positive impact					a large positive
negative affect on the				on quality of life.					impact on the quality
quality of life in JCC.									of life in JCC.

- **2. Infrastructure** (20%) This element relates to infrastructure needs such as schools, waterlines, sewer lines, waste water or storm water treatment, street and other transportation facilities, and County service facilities. High speed, broadband or wireless communication capabilities would also be included in this element. Constructing a facility in excess of facility or service standards would score low in this category. The score will be based on considerations such as:
 - A. Is the project in conformance with and supportive of the goals, strategies and actions set forth in the Comprehensive Plan?
 - B. Does the project support objectives addressed in a County sponsored service plan, master plan, or study?
 - C. Does the project relate to the results of a citizen survey, Board of Supervisors policy, or appointed committee or board?
 - D. Is there a facility being replaced that has exceeded its useful life and to what extent?
 - E. Do resources spent on maintenance of an existing facility justify replacement?
 - F. Does this replace an outdated system?

- G. Does the facility/system represent new technology that will provide enhance service?
- H. Does the project extend service for desired economic growth?

Scoring Scale:

1	2	3	4	5	6	7	8	9	10
The level of need is low				There is a moderate level of need					The level of need is high, existing facility is no longer functional, or there is no facility to serve the need

- **3. Economic Development (15%)** Economic development considerations relate to projects that foster the development, re-development, or expansion of a diversified business/industrial base that will provide quality jobs and generate a positive financial contribution to the County. Providing the needed infrastructure to encourage redevelopment of a shopping center would score high in this category. Reconstructing a storm drain line through a residential neighborhood would likely score low in the economic development category. The score will be based on considerations such as:
 - A. Is the project in conformance with and supportive of the goals, strategies and actions set forth in the Comprehensive Plan?
 - B. Does the project support objectives addressed in a County sponsored service plan, master plan, or study?
 - C. Does the project relate to the results of a citizen survey, Board of Supervisors policy, or appointed committee or board?
 - D. Does the project have the potential to promote economic development in areas where growth is desired?
 - E. Will the project continue to promote economic development in an already developed area?
 - F. Is the net impact of the project positive? (total projected tax revenues of economic development less costs of providing services)
 - G. Will the project produce desirable jobs in the County?
 - H. Will the project rejuvenate an area that needs assistance?

1	2	3	4	5	6	7	8	9	10
Project wil				Neutral or will					Project will have a positive
not aid				have some aid					impact on economic
economic				to economic					development
developme	nt			development					

- **4. Health/Public Safety (15%) -** Health/public safety includes fire service, police service, safe roads, safe drinking water, fire flow demand, sanitary sewer systems and flood control. A health clinic, fire station or police station would directly impact the health and safety of citizens, scoring high in this category. Adding concession stands to an existing facility would score low in this category. The score will be based on considerations such as:
 - A. Is the project in conformance with and supportive of the goals, strategies and actions set forth in the Comprehensive Plan?
 - B. Does the project support objectives addressed in a County sponsored service plan, master plan, or study?

- C. Does the project relate to the results of a citizen survey, Board of Supervisors policy, or appointed committee or board?
- D. Does the project directly reduce risks to people or property (i.e. flood control)?
- E. Does the project directly promote improved health or safety?
- F. Does the project mitigate an immediate risk?

Scoring Scale:

1	2	3	4	5	6	7	8	9	10
Project has no or minimal impact on health/safety				Project has some positive impact on health/safety					Project has a significant positive impact on health/safety

- **5. Impact on Operational Budget (10%) –** Some projects may affect the operating budget for the next few years or for the life of the facility. A fire station must be staffed and supplied; therefore it has an impact on the operational budget for the life of the facility. Replacing a waterline will not require any additional resources from the operational budget. The score will be based on considerations such as:
 - A. Is the project in conformance with and supportive of the goals, strategies and actions set forth in the Comprehensive Plan?
 - B. Does the project support objectives addressed in a County sponsored service plan, master plan, or study?
 - C. Does the project relate to the results of a citizen survey, Board of Supervisors policy, or appointed committee or board?
 - D. Will the new facility require additional personnel to operate?
 - E. Will the project lead to a reduction in personnel or maintenance costs or increased productivity?
 - F. Will the new facility require significant annual maintenance?
 - G. Will the new facility require additional equipment not included in the project budget?
 - H. Will the new facility reduce time and resources of city staff maintaining current outdated systems? This would free up staff and resources, having a positive effect on the operational budget.
 - I. Will the efficiency of the project save money?
 - J. Is there a revenue generating opportunity (e.g. user fees)?
 - K. Does the project minimize life-cycle costs?

1	2	3	4	5	6	7	8	9	10
Project will have a negative				Project will have neutral impact on					Project will have positive impact on budget or life-
impact on budget				budget					cycle costs minimized

- **6. Regulatory Compliance (10%) –** This criterion includes regulatory mandates such as sewer line capacity, fire flow/pressure demands, storm water/creek flooding problems, schools or prisons. The score will be based on considerations such as:
 - A. Does the project addresses a legislative, regulatory or court-ordered mandate? (0- 5 years)
 - B. Will the future project impact foreseeable regulatory issues? (5-10years)

- C. Does the project promote long-term regulatory compliance (>10 years)
- D. Will there be a serious negative impact on the county if compliance is not achieved?
- E. Are there other ways to mitigate the regulatory concern?

Scoring Scale:

1	2	3	4	5	6	7	8	9	10
Project serves no regulatory need				Project serves some regulatory need or serves a long-term need					Project serves an immediate regulatory need

- **7. Timing/Location (10%) -** Timing and location are important aspects of a project. If the project is not needed for many years it would score low in this category. If the project is close in proximity to many other projects and/or if a project may need to be completed before another one can be started it would score high in this category. The score will should be based on considerations such as:
 - A. Is the project in conformance with and supportive of the goals, strategies and actions set forth in the Comprehensive Plan?
 - B. Does the project support objectives addressed in a County sponsored service plan, master plan, or study?
 - C. Does the project relate to the results of a citizen survey, Board of Supervisors policy, or appointed committee or board?
 - D. When is the project needed?
 - E. Do other projects require this one to be completed first?
 - F. Does this project require others to be completed first? If so, what is magnitude of potential delays (acquisition of land, funding, and regulatory approvals)?
 - G. Can this project be done in conjunction with other projects? (E.g. waterline/sanitary sewer/paving improvements all within one street)
 - H. Will it be more economical to build multiple projects together (reduced construction costs)?
 - I. Will it help in reducing repeated neighborhood disruptions?
 - J. Will there be a negative impact of the construction and if so, can this be mitigated?
 - K. Will any populations be positively/negatively impacted, either by construction or the location (e.g. placement of garbage dump, jail)?
 - L. Are there inter-jurisdictional considerations?
 - M. Does the project conform to Primary Service Area policies?
 - N. Does the project use an existing County-owned or controlled site or facility?
 - O. Does the project preserve the only potentially available/most appropriate, non-County owned site or facility for project's future use?
 - P. Does the project use external funding or is a partnership where funds will be lost if not constructed.

1	2	3	4	5	6	7	8	9	10
No critical timing or location				Project timing OR location is					Both project timing AND location are important
issues				important					

8. Special Consideration (no weighting- if one of the below categories applies, project should be given special funding priority) – Some projects will have features that may require that the County undertake the project immediately or in the very near future. Special considerations may include the following (check all applicable statement(s)):

A.	Is there an immediate legislative, regulatory, or judicial mandate which, if unmet, will result in serious detriment to the County, and there is no alternative to the project?	
B.	Is the project required to protect against an immediate health, safety, or general welfare hazard/threat to the County?	
C.	Is there a significant external source of funding that can only be used for this project and/or which will be lost if not used immediately (examples are developer funding, grants through various federal or state initiatives, and private donations)?	

M I N U T E S JAMES CITY COUNTY POLICY COMMITTEE REGULAR MEETING

Building A Large Conference Room 101 Mounts Bay Road, Williamsburg, VA 23185 February 13, 2020 4:00 PM

A. CALL TO ORDER

Ms. Julia Leverenz called the meeting to order at approximately 4:00 p.m.

B. ROLL CALL

Present: Julia Leverenz, Chair Jack Haldeman

Tim O'Connor

Absent: Rich Krapf

Staff:

Paul Holt, Director of Community Development
Tammy Rosario, Principal Planner
Ellen Cook, Principal Planner
Terry Costello, Deputy Zoning Administrator
Tori Haynes, Planner
Tom Leininger, Planner
John Risinger, Community Development Assistant
Max Hlavin, Deputy County Attorney
Jeff Wiggins, Senior Budget and Accounting Analyst
Margo Zechman, Senior Budget and Accounting Analyst

C. MINUTES

There were no minutes.

D. OLD BUSINESS

 ZO-0011-2016. Proposed Ordinance Amendments to Address Code of Virginia Changes Regarding Wireless Communication Facilities, Stage III

Mr. Tom Leininger stated that in 2017 and 2018, the General Assembly passed legislation requiring changes to how local Zoning Ordinances may treat applications for wireless communications facilities. He stated that staff drafted Ordinance language for Section 24-2, Division 6, and the use lists within Zoning Districts. He stated that the Ordinance amendments included two new application types, small cell facilities, and Administrative review eligible projects (AREPs), for wireless communication facilities. He stated that the use lists of the Zoning Districts would indicate if an application type was permitted or specially permitted in that Zoning District. He stated that staff recommends that the Policy Committee recommend approval of the proposed Ordinance amendments to the Planning Commission. He asked if there were any questions or comments from the Policy Committee.

Ms. Leverenz asked if AREPs should be defined in Section 24-2.

Mr. Leininger stated that a definition for AREPs was included in the proposed Ordinance amendments. He stated that staff received questions and suggestions from the Policy Committee. He stated that staff received a question about having a definition for Communication Facilities, Antennas, Towers, and Support Structures (CATS). He stated that each item covered within CATS was defined individually. He asked if the Policy Committee would like to have a definition for CATS that explicitly listed the included items.

Ms. Leverenz confirmed.

Mr. Leininger stated that staff received a question about the language of the definition for micro-wireless facilities. He stated that the definition was consistent with the Code of Virginia and that staff did not recommend making any edits. He stated that staff received a suggestion to change the word "person" to "entity" in the definitions of wireless infrastructure providers and wireless service providers. He stated that Section 1-2 of the County Code defined person to include entities. He stated that staff received a suggestion to the proposed amendments for Section 24-122 where the language says, "as defined".

Ms. Leverenz stated that the language should state "as defined in Support Structure". She stated that this would provide additional clarity.

Mr. Max Hlavin stated that, if a definition was created for CATS, the language could reference CATS which would then reference Support Structures.

Ms. Leverenz stated that the definitions should be consistent between Section 24-2 and Division 6

Mr. Leininger stated that staff received a suggestion to edit the proposed language for Section 24-128 (a) (1) a) to state "within a six-foot perimeter of communication facilities" instead of "within a six-foot perimeter with communication facilities".

Mr. Hlavin stated that the language was intentionally crafted to qualify the distance and the type of facilities.

Mr. Leininger stated that staff agreed with many of the suggested minor edits.

Ms. Leverenz asked if there was a motion to approve the draft amendments.

Mr. Hlavin stated that House Bill (HB) 554 was passed in the Virginia House of Delegates which allows localities to deny applications AREPs if the applicant did not notify adjacent property owners within 15 days. He stated that the bill would have to be passed by the Senate of Virginia before it could be incorporated into the County Code. He stated that the Policy Committee could choose to make a motion that would allow staff to make the necessary changes if the Senate passes the bill. He stated that, if passed, the bill would not go into effect until July 1, 2020, or later.

Ms. Ellen Cook stated that the proposed Ordinance amendments would likely be presented during a Planning Commission meeting before July 1, 2020. She stated that proposed Ordinance amendments would then be presented during a Board of Supervisors (BOS) meeting which could possibly be after July 1, 2020.

Mr. Tim O'Connor made a motion to Approve the proposed Ordinance amendments pending the approval of HB554.

The motion passed 3-0.

E. NEW BUSINESS

1. FY 2021-2025 Capital Improvements Program Review

Ms. Tammy Rosario asked if the Policy Committee would allow Ms. Tori Haynes to participate in the meeting remotely.

Ms. Leverenz confirmed.

Ms. Haynes joined the meeting remotely.

Ms. Terry Costello stated that it was the first meeting for the Policy Committee's review of the Fiscal Year (FY) 2021-2025 Capital Improvements Program (CIP) requests. She stated that the Policy Committee would each request in accordance with the Comprehensive Plan and provide a list of its priorities to the BOS. She stated that 22 requests were received from County departments and agencies and six requests were received from the Williamsburg-James City County Public Schools (WJCC Schools). She stated that the Policy Committee could ask broad questions and identify questions for departments regarding their CIP requests. She stated that departments would be invited to the February 20, 2020, and the February 27, 2020, meetings of the Policy Committee to answer questions. She stated that an additional meeting could be held on March 5, 2020 for the Policy Committee to finalize its ranking of CIP requests. She stated that staff would compile the finalized ranking to present at the March 16, 2020, meeting of the Planning Commission.

Ms. Leverenz invited members of the public to address the Policy Committee.

Mr. Jay Everson, 103 Branscome Boulevard, stated that the Future Think Enrollment Projections for WJCC Schools do not show a large increase in enrollment. He stated that WJCC Schools should invest in facilities for the Bright Beginnings program instead of adding classrooms at existing schools.

Ms. Leverenz stated that WJCC Schools should be invited to attend one of the next meetings to discuss its requests.

Ms. Costello stated that members of the Policy Committee had submitted questions for Community Development, Economic Development, General Services, Parks and Recreation, and the Williamsburg Regional Library. She stated that WJCC Schools would be invited to attend the February 27, 2020, meeting of the Policy Committee.

Ms. Leverenz asked if questions were received regarding the requests for the James City County Marina and the Amblers House.

Ms. Costello confirmed.

Mr. Haldeman stated that nine requests were received for restroom facilities. He stated that the requests had a wide range of projected costs. He asked to have the difference in projected costs explained at one of the next Policy Committee meetings. He stated that multiple requests were received for projects at the James City County Marina. He stated that it might be more efficient to construct the projects at the same time. He stated that the Transportation Match request included widening Croaker Road, widening Pocahontas Trail, and constructing the Skiffes Creek Connector. He asked if widening Croaker Road addressed a goal of the Strategic Plan. He asked how much of the projected costs for the Transportation Match request would go to the Pocahontas Trail widening and the Skiffes Creek Connector.

Mr. Tim O'Connor stated that many projects have been divided into smaller scale requests

that are submitted over time. He stated that having more small-scale requests might result in increased overall costs when the project is completed. He stated that he would like to understand the overall timeline for completion for requests. He stated that departments should consider completing multiple projects in the same CIP requests when possible. He asked if General Services would be attending a meeting in the future.

Ms. Costello confirmed.

Ms. Rosario asked if any departments had not been identified to attend one of the coming meetings.

Ms. Costello stated that staff did not receive any questions for the Fire Department or the Police Department.

Mr. Haldeman suggested that the Police Department consider installing solar panels on the roof of the proposed covered parking structure.

Ms. Rosario stated that staff would forward the suggestion to the Police Department.

Ms. Leverenz asked if Mr. Rich Krapf had submitted any questions.

Ms. Costello confirmed.

Ms. Leverenz asked if there were any further questions.

There were none.

F. ADJOURNMENT

Mr. O'Connor made a motion to Adjourn. The motion passed 3-0.

Ms. Leverenz adjourned the meeting at approximately 4:30 p.m.

Ms. Julia Leverenz, Chair	Mr. Paul Holt, Secretary

DRAFT MINUTES JAMES CITY COUNTY POLICY COMMITTEE REGULAR MEETING

Building A Large Conference Room 101 Mounts Bay Road, Williamsburg, VA 23185 February 20, 2020 4:00 p.m.

A. CALL TO ORDER

Ms. Julia Leverenz called the meeting to order at approximately 4:00 p.m.

B. ROLL CALL

Present:

Julia Leverenz, Chair Jack Haldeman Tim O'Connor

Absent: Rich Krapf

Staff:

Paul Holt, Director of Community Development

Tammy Rosario, Principal Planner

Terry Costello, Deputy Zoning Administrator

Tori Haynes, Planner

John Risinger, Community Development Assistant

Sharon Day, Director of Financial and Management Services

Cheryl Cochet, Assistant Director of Financial and Management Services

Jeff Wiggins, Senior Budget and Accounting Analyst

Margo Zechman, Senior Budget and Accounting Analyst

Alister Perkinson, Parks Administrator

Grace Boone, Director of General Services

Shawn Gordon, Capital Project Management Chief Engineer

Chris Johnson, Director of Economic Development

Kate Sipes, Assistant Director of Economic Development

Laura Messer, Tourism and Marketing Coordinator

Toni Small, Director of Stormwater and Resource Protection

Darryl Cook, Assistant Director of Stormwater and Resource Protection

C. MINUTES

There were no minutes.

D. OLD BUSINESS

1. FY 2021-2025 Capital Improvements Program Review

Ms. Tori Haynes stated that representatives from the Office of Economic Development (OED), the Stormwater and Resource Protection Division, the Department of Parks and Recreation, the Department of General Services, and the Williamsburg Regional Library were present to answer questions about their CIP requests.

Ms. Leverenz invited representatives from OED to discuss their CIP requests.

Ms. Laura Messer stated that staff from OED had provided answers by email to questions received from the Policy Committee. She asked if the Committee had any additional questions.

Mr. Jack Haldeman stated that the CIP request for the Ambler's House referenced cabins. He asked what the idea for the cabins was.

Ms. Messer stated that the cabins were part of the proposed revisions to the Shaping Our Shores master plan.

Mr. Haldeman asked what the cost would be for construction and operation of the cabins.

Mr. Alister Perkinson stated that the County received a proposal from a vendor to operate cabins at the Jamestown Beach Event Park as a public-private partnership.

Mr. Tim O'Connor asked if the Ambler's House had additional projects that needed to be completed before it would be operational.

Ms. Messer stated that the CIP request was to provide utilities to the Ambler's House. She stated that it was the last County-led project that needed to be completed before the Ambler's House could be operated as a public-private partnership. She stated that the County had completed all of the necessary projects for the exterior of the Ambler's House as well as removing asbestos from the interior. She stated that the tenant would complete any interior renovations that were desired.

Ms. Leverenz asked if staff from OED had a sense for how much demand from the public there was for the Ambler's House.

Ms. Messer stated that the Ambler's House had historical significance and that the James City County Historical Commission would like the building to be open to the public. She stated that public-private partnership would operate the Ambler's House as a wedding facility. She stated that a private vendor has indicated that there is a demand for wedding facilities in the region.

Ms. Leverenz asked if the vendor would be responsible for marketing the Ambler's House as a wedding facility.

Ms. Messer confirmed. She asked if the Committee had any questions about the CIP request for the new building at the James City County Marina.

There were none.

Ms. Leverenz invited representatives from the Department of Parks and Recreation to discuss its CIP requests.

Mr. Perkinson stated that the County has not determined a location for the proposed Lower County Park. He stated that the County is in discussion with the owner of the Carter's Grove property regarding acquiring property for the park.

Mr. Haldeman asked if the Policy Committee could recommend funding the CIP request for Lower County Park contingent on acquiring property or if the request should be entered in the future after a location has been determined.

Mr. Perkinson stated that if the County could not acquire property from the Carter's Grove parcel, the other option would be utilizing a portion of the property at James River Elementary School. He stated that staff would have to coordinate with Williamsburg-James City County Public Schools to ensure that the park would be available to the public at all times.

Ms. Tammy Rosario stated that having the CIP request approved would facilitate the acquisition of property if a deal were reached with the property owner.

Mr. Perkinson stated that the CIP request to replace the restroom at Chickahominy Riverfront Park would meet the current demand for the facility. He stated that the building would also house concessions.

Ms. Leverenz asked how old the current restroom building was.

Mr. Perkinson stated that the building existed when the County purchased the property.

Mr. Haldeman asked why the different requests for restroom facilities had high costs.

Mr. Perkinson stated that the costs of proposed restrooms varied depending on the sites and if the restroom building would also house showers or concessions. He stated that the costs of restrooms assumed that the cost would be a minimum of \$500 per square foot. He stated that the cost was based on the costs of the Jamestown Beach Event Park concession building.

Mr. O'Connor asked if the proposed concession area at Chickahominy Riverfront Park would include a cooking area.

Mr. Perkinson confirmed. He stated that the current concessions area only had enough room for an ice cream freezer. He stated that the proposed concessions area would allow hot foods to be served such as hot dogs and pizza. He stated that the next set of questions was for the CIP request for Chickahominy Riverfront Park Phase III. He stated that the shoreline stabilization project was separate from the CIP request and was already underway. He stated that the projects included in Phase III were chosen to increase the efficiency of construction. He stated that a large part of Phase III was to construct a second boathouse for the Williamsburg Boat Club. He stated that the boathouse would also house rental equipment such as paddleboards. He stated that the Williamsburg Boat Club would fund the construction of the boathouse. He stated that the County would construct the parking area regardless of if the boathouse were constructed.

Mr. Haldeman asked if Phase III was the final phase of improvements to Chickahominy Riverfront Park.

Mr. Perkinson stated that it was not the last phase. He stated that the revisions to the Shaping Our Shores master plan would result in projects in addition to the other projects after Phase III.

Ms. Leverenz asked why the requests for the James City County Marina were separated.

Mr. Perkinson stated that the request for James City County Marina Phase II improvements included new boat slips. He stated that the second request would be constructing a new building to house the Parks and Recreation office. He stated that the

building that currently holds the office is in the floodplain. He stated that the second project would also include constructing a new parking lot. He stated that there would be cost efficiencies and less downtime for the Marina if both projects were completed at the same time. He stated that the CIP requests for the Marina had high costs that would be difficult to fund in the same fiscal year.

Ms. Leverenz stated that the CIP requests indicated that the proposed restroom facility at the Marina had to be constructed before parts of Phase II were completed.

Mr. Perkinson confirmed. He stated that the Virginia Department of Health had restroom requirements for marinas that were based on the number of boat slips. He stated that the restrooms would need to be constructed before Phase II or parts of the Phase II improvements would have to be halted until the restrooms were built.

Ms. Leverenz asked why the restrooms were not included in the CIP request for Phase II.

Mr. Perkinson stated that the Shaping Our Shores master plan revisions were not finalized when the Phase II improvements were developed. He stated that the location of the new restroom facility was shown on the revisions to the Shaping Our Shores master plan. He stated that the CIP request for the Jamestown Beach Event Park included a parking area made with pervious pavers. He stated that 54,000 vehicles visited the park which resulted in poor conditions in the grass parking area. He stated that staff would apply for available grants to assist with funding. He stated that he received a question regarding the operation costs of the pool at Upper County Park. He stated that Upper County Park had \$40,000 in operational costs, and \$77,000 for part time staff. He stated that Upper County Park generated about \$70,000 in revenue. He stated that other maintenance costs were incurred by the Department of General Services. He stated that the CIP request included replacing the baby pool with a splash pad. He stated that the CIP request for Veterans Park Phase II included a splash pad.

Mr. Haldeman asked if the CIP request for Veterans Park would be the last project for the park.

Mr. Perkinson stated that he would check and forward the answer to the Policy Committee.

Ms. Leverenz asked why Upper County Park would have a paved parking lot instead of pervious pavers.

Mr. Perkinson stated that Upper County Park already had a gravel parking lot. He stated that gravel parking lots are considered to be impervious area. He stated that the last question he received was regarding the size of the proposed restroom facility at the Warhill Sports Complex. He stated that the restroom facility would be across from the baseball fields and would also house a concessions area.

Mr. O'Connor asked if the Department of Parks and Recreation had any news regarding the proposed running center.

Mr. Perkinson stated that the revisions to the Shaping Our Shores master plan show the running facility being located at Jamestown Beach Event Park.

Ms. Leverenz asked if there were any other questions.

There were none.

Ms. Leverenz invited representatives from the Stormwater and Resource Protection Division to discuss its CIP request.

Ms. Toni Small stated that she received three questions from the Policy Committee regarding the CIP request for the Stormwater Capital Improvement Program. She stated that the costs did not include state or federal funding. She stated that staff would apply for grants.

Mr. Haldeman asked if grants could reduce the actual costs listed in the CIP request.

Ms. Small confirmed. She stated that the grants have a competitive application process so it would be difficult to estimate the funding that would be generated by grants.

Ms. Leverenz asked if staff had been successful at applying for grants in the past.

Mr. Darryl Cook confirmed. He stated that staff has received 15 grants from the Virginia Department of Environmental Quality's Stormwater Local Assistance Fund.

Mr. Haldeman asked if any excess funding would be returned to the general fund.

Ms. Sharon Day stated that grants have been appropriated by the Board of Supervisors (BOS) in the past.

Ms. Small stated that the pattern of funding for the Stormwater Capital Improvement Program was that 5 years of funding would add up to \$12,544,000. She stated that she received a question regarding the level of mercury in Diascund Creek. She stated that DEQ confirmed that tests in 2010 and 2012 showed that fish in Diascund Creek had mercury in their tissue. She stated that part of the CIP request would go to studying the Diascund Creek Watershed which might determine a source for the mercury contamination.

Mr. Cook stated that part of the watershed was in New Kent County.

Ms. Small asked if there were any other questions.

There were none.

Ms. Leverenz invited representatives from the Williamsburg Regional Library to discuss its CIP requests.

Ms. Betsy Fowler, Library Director, Williamsburg Regional Library (WRL), stated that the existing contract between the County and the City of Williamsburg stated that each locality is responsible for its own capital improvement projects. She stated that the contract would have to be renegotiated in order for a new library to be a joint facility. She stated that the operational costs are split between the counties based on the residences of users. She stated that a new library facility would require about 10 acres of land.

Mr. Haldeman asked if the library in the City of Williamsburg could be expanded with the limited amount of land it has. He asked if a third library would need to be constructed if it was expanded.

Ms. Fowler stated that the library would likely need to be replaced entirely. She stated that a third library would not be needed if that were the case. She stated that a consultant

had conducted a survey of library users that indicated that the downtown Williamsburg library was very popular. She stated that the current downtown library did not have enough area to increase the size of the parking lot.

Ms. Leverenz asked if building a new joint library would result in having the library closed for the length of construction.

Ms. Fowler stated that a temporary location could be opened while the new facility was constructed.

Mr. O'Connor asked if Ms. Fowler had any recommendation regarding having a third library or a new joint facility with the City of Williamsburg. He asked if the City of Williamsburg would be responsible for operating costs of the downtown library if the County built a third library.

Ms. Fowler stated that the majority of the users at the downtown library live in the County. She stated that the County would continue to share operating costs unless the contract was renegotiated. She stated that having two libraries would be more sustainable than three libraries. She stated that the current location in downtown Williamsburg was preferred by the City of Williamsburg. She stated that a new library at the downtown Williamsburg location could be up to three stories tall. She stated that a solution for the parking would have to be determined.

Mr. Haldeman stated that the downtown Williamsburg library would still need to be renovated if a third library was built in the County.

Ms. Fowler confirmed.

Mr. O'Connor asked what the floor area was for the downtown Williamsburg.

Ms. Fowler stated that the library had about 30,000 square feet of usable space.

Ms. Leverenz asked if the costs of the CIP request would be lower for building a joint library with the City of Williamsburg.

Ms. Fowler confirmed.

Mr. O'Connor stated that Freedom Park had been intended as an educational park. He asked if the WRL considered locating the proposed playground at Freedom Park.

Ms. Fowler stated that a children's playroom had been built at the Croaker Road library. She stated that the proposed playground would be an extension of that playroom. She stated that the playground would focus on natural landscapes instead of playground equipment. She stated that the Friends of Williamsburg Regional Library would fundraise some of the costs of the playground. She stated that the Department of Parks and Recreation would take over the maintenance and safety inspections of the playground after it was constructed. She asked if there were any other questions.

There were none.

Ms. Leverenz invited representatives from the Department of Community Development to discuss its CIP requests.

Mr. Paul Holt stated that the Transportation Match CIP request had started in FY17. He

stated that transportation projects in the County that are currently in process account for \$146 million in funding. He stated that the Skiffes Creek Connector did not require any local sources of funding or funding from the Transportation Match CIP. He stated that the BOS committed to fund the undergrounding of utilities along Pocahontas Trail. He stated that the next large transportation project to be funded was the Pocahontas Trail Multimodal Corridor project. He stated that the project needed to be fully funded before the Virginia Department of Transportation would begin any work. He stated that holding off on funding the project would result in additional inflation costs. He stated that staff would continue to seek additional funding from the State of Virginia. He stated that the Skiffes Creek Connector and the Croaker Road Widening would be the next projects to start construction.

Mr. Haldeman stated that the Skiffes Creek Connector would be a substantial benefit to the County.

Mr. Holt stated that a portion of the Transportation Match funding from FY20 was directed to an extension of the Green Mount Parkway. He stated that having Green Mount Parkway cross Skiffes Creek was cost prohibitive. He stated that the extending the road would create vehicular access for a large area of land that had economic development potential. He stated that the CIP request for the site preparation of the Stonehouse school site. He stated that having the soil remediation completed would not require funding the CIP for the new elementary school.

Mr. O'Connor asked why the burden was not on the developer to complete. He stated that the proffers required the developer to have the site ready. He asked if the required geotechnical approval would suffice.

Mr. Holt stated that it is important for the County to independently verify the work that the developer completed. He stated that ensuring the soil remediation and compaction was completed correctly could save time and reduce costs when the school was constructed. He stated that the County does not have staff with the technical expertise to review the geotechnical reports for the site.

Ms. Leverenz asked what types of contaminants were present at the school site.

Mr. Holt stated that it was unknown if any contaminants were at the site.

Ms. Leverenz asked if it was the developer's responsibility to test the soil for contaminants.

Mr. Holt confirmed. He stated that the CIP request was to have a consultant independently verify the developers study.

Ms. Leverenz asked if there were any other questions.

There were none.

E. NEW BUSINESS

There was no new business.

F. ADJOURNMENT

Mr. O'Connor made a motion to Adjourn. The motion passed 3-0.

Ms. Leverenz adjourned the meeting at approximately 5:00 p.m.

DRAFT MINUTES JAMES CITY COUNTY POLICY COMMITTEE REGULAR MEETING

Building A Large Conference Room 101 Mounts Bay Road, Williamsburg, VA 23185 February 27, 2020 4:00 p.m.

A. CALL TO ORDER

Ms. Julia Leverenz called the meeting to order at approximately 4:00 p.m.

B. ROLL CALL

Present:

Julia Leverenz, Chair Jack Haldeman

Absent:

Rich Krapf

Tim O'Connor

Staff:

Tammy Rosario, Principal Planner

Terry Costello, Deputy Zoning Administrator

Tori Haynes, Planner

John Risinger, Community Development Assistant

Sharon Day, Director of Financial and Management Services

Cheryl Cochet, Assistant Director of Financial and Management Services

Jeff Wiggins, Senior Budget and Accounting Analyst

Margo Zechman, Senior Budget and Accounting Analyst

Grace Boone, Director of General Services

Shawn Gordon, Capital Project Management Chief Engineer

Rick Koehl, Capital Projects Coordinator

C. MINUTES

There were no minutes.

D. OLD BUSINESS

1. FY 2021-2025 Capital Improvements Program Review

Ms. Tori Haynes stated that staff members from the Department of General Services and the Williamsburg-James City County Public Schools (WJCC Schools) were present at the meeting to answer questions related to Capital Improvement Program (CIP) requests. She stated that the March 5, 2020, meeting of the Policy Committee could be used to finalize the Committee's ranking of CIP requests.

Ms. Leverenz invited staff from the Department of General Services to discuss their CIP requests.

Ms. Grace Boone stated that the Committee had submitted a question about revenue that would be generated from the Grove Convenience Center. She stated that revenue from the

Toano Convenience Center was about \$68,400. She stated that the County is working on acquiring property for the Grove Convenience Center. She stated that the Board of Supervisors (BOS) has supported establishing the Grove Convenience Center. She stated that all of the County's convenience centers allow credit card payments.

Ms. Leverenz asked if the credit card readers were used more often than coupons.

Ms. Boone stated that the credit card payments were very popular with citizens. She stated that she could forward statistics to the Committee. She stated that the cost of the credit card reader was included within the furniture and equipment costs.

Ms. Leverenz asked if the furniture and equipment cost included the necessary utilities such as electrical connections.

Ms. Boone stated that the furniture and equipment costs included internet infrastructure but not electrical connections.

Mr. Shawn Gordon stated that the cost of furniture and equipment includes items for the pollution prevention plan.

Ms. Leverenz asked if there were any other questions related to the Grove Convenience Center.

There were none.

Mr. Rick Koehl stated that General Services received questions related to the CIP request to construct termini on Jolly Pond Road near the dam. He stated that the County has gained access rights near Jolly Pond Dam. He stated that County staff would meet with engineers to determine how to construct the termini. He stated that the proposed design would be reviewed by the Virginia Department of Transportation (VDOT) and the property owners.

Ms. Leverenz asked if General Services knew how many vehicles were driven the entire way to Jolly Pond Dam where Jolly Pond Road was abandoned.

Mr. Koehl stated that there were about 240 vehicles passing the dam every day before that section of the road was abandoned. He stated that signage was posted along Jolly Pond Road to inform drivers that Jolly Pond Road had dead ends near the dam.

Ms. Boone stated that the signs were posted in sports to give drivers enough time to find a safe place to turn around.

Ms. Leverenz asked if General Services had noticed any signs of vehicles trying to turn around at the ends of Jolly Pond Road near the dam.

Mr. Koehl stated that there were no visible signs of vehicles turning around. He stated that one side of the dam had a small gravel turn around area. He stated that the other side of the dam had the road blocked near a driveway for vehicles to turn around. He stated that the property owner had agreed to allow vehicles to turn around in their driveway while a more permanent solution was developed. He stated that discussions with VDOT and the property owner led to the proposed location of the terminus on the southern end of the dam being moved to a steeper area which resulted in an increase in project costs. He stated that the property owner had concerns about unauthorized access to the dam.

Mr. Jack Haldeman asked if the southern terminus would be close to the dam.

Mr. Koehl stated that the terminus would be a distance away from the dam. He stated that a portion of the road leading to the dam would remain so that construction vehicles could access the dam for repairs. He stated that a gate would be installed where the remaining road connects to the terminus.

Ms. Leverenz asked if there would be gates on both sides of the dam.

Mr. Koehl confirmed. He stated that the construction costs would be finalized after the engineers determined the amount and method of grading that was necessary for the termini.

Ms. Leverenz asked if there were any other questions.

There were none.

Ms. Leverenz invited staff from WJCC Schools to discuss their CIP requests.

Mr. Marcellus Snipes, Senior Director for Operations, WJCC Schools, stated that staff from WJCC Schools provided answers to the Committees questions by email. He asked if the Committee had any additional questions.

Mr. Haldeman asked if the recent Stonehouse rezoning was accounted for in the enrollment projections. He stated that the Stonehouse subdivision would have 1,100 less single-family homes because of the rezoning.

Ms. Rene Ewing, Chief Financial Officer, WJCC Schools, stated that the Future Think projections consider the number of issued building permits and not planned developments.

Mr. Haldeman stated that WJCC Schools had stated that there were 395 students in 31 classrooms for the Bright Beginnings program. He stated that there was an average class size of 13 students.

Mr. Snipes stated that Bright Beginnings included students with special needs. He stated that class sizes had to be smaller when they included special needs students.

Mr. Haldeman asked why WJCC Schools submitted a request for a new elementary school instead of expanding existing elementary schools.

Mr. Snipes stated that elementary schools have a recommended optimal size of about 700 students.

Mr. Haldeman stated that two elementary schools had enrollment capacities that were less than 700 students. He asked if those schools could be expanded.

Mr. Snipes stated that an architect reviewed the school sites to determine where classroom space could be added. He stated that the elementary schools with less than 700 students did not have enough space for additions.

Mr. Haldeman asked why the CIP request for Lafayette High School was described as a renovation instead of an expansion.

Mr. Snipes stated that the proposal for Lafayette High School was to repurpose space from a former auto shop and a kiln to add about eight classrooms. He stated that no new space would be added. He stated that multiple presentations at School Board meetings had discussed the various factors for expanding the high schools and building a new elementary school. He stated that the presentations from the School Board meetings were available on the WJCC Schools website.

Ms. Ewing stated that the current Future Think enrollment projections were available on the WJCC Schools website.

Mr. Haldeman asked if there was a demand for additional classrooms for the Bright Beginnings program.

Mr. Snipes stated that there is a waiting list of 100 to 200 students each year for Bright Beginnings.

Mr. Haldeman asked how long the Bright Beginnings program has been operating.

Mr. Snipes stated that the program started as the Needs Center at Norge Elementary School in the 1976.

Ms. Leverenz asked how many elementary schools have classrooms for Bright Beginnings.

Mr. Snipes stated that five elementary schools had Bright Beginnings classrooms in the current school year.

Ms. Leverenz asked if the new elementary school would include classrooms for Bright Beginnings.

Mr. Snipes stated that it depends on where there is a demand for classrooms. He stated that the design of classrooms for Bright Beginnings was mostly the same as elementary school classrooms.

Ms. Leverenz stated that the WJCC School Board had determined that there were compelling reasons to not consolidate the Bright Beginnings program at one location.

Mr. Snipes stating that having a separate facility would increase the length of bus routes. He stated that building a separate facility would result in administrative costs for staff and a cafeteria.

Ms. Leverenz asked if there were any other questions.

There were none.

Ms. Leverenz stated that the Committee could finalize its' ranking at the March 5, 2020, meeting.

Ms. Tammy Rosario stated that the Committee members could forward their individual rankings to staff in advance of the March 5, 2020, meeting.

Ms. Tori Haynes stated that after the March 5, 2020 Policy Committee Meeting, the finalized CIP ranking would be included in the packet for the March 16, 2020, Planning Commission Organizational Meeting.

Ms. Leverenz asked if there were any other questions.

There were none.

E. NEW BUSINESS

There was no new business.

F. ADJOURNMENT

Mr. Haldeman made a motion to Adjourn. The motion passed 2-0.

Ms. Leverenz adjourned the meeting at approximately 4:30 p.m.

DRAFT MINUTES JAMES CITY COUNTY POLICY COMMITTEE REGULAR MEETING

Building A Large Conference Room 101 Mounts Bay Road, Williamsburg, VA 23185 March 5, 2020 4:00 p.m.

A. CALL TO ORDER

Ms. Julia Leverenz called the meeting to order at approximately 4:00 p.m.

B. ROLL CALL

Present:

Julia Leverenz, Chair Jack Haldeman Rich Krapf Tim O'Connor

Absent:

None

Staff:

Tammy Rosario, Principal Planner
Terry Costello, Deputy Zoning Administrator
Tori Haynes, Planner
John Risinger, Community Development Assistant
Cheryl Cochet, Assistant Director of Financial and Management Services
Jeff Wiggins, Senior Budget and Accounting Analyst
Margo Zechman, Senior Budget and Accounting Analyst

C. MINUTES

1. February 13, 2020 Meeting Minutes

Mr. Jack Haldeman made a motion to Approve the February 13, 2020, meeting minutes.

The motion passed 4-0.

D. OLD BUSINESS

1. FY 2021-2025 Capital Improvements Program Review

Ms. Tori Haynes stated that this is the fourth and final meeting prior to the special meeting on March 16, 2020. She stated that this meeting is to confirm the final scoring and ranking recommendations of the Committee. She stated that these would be forwarded to the Planning Commission and Board of Supervisors (BOS) as part of their budget discussions. Ms. Haynes asked if there were any questions.

There were no questions from the Committee.

Ms. Haynes asked Ms. Julia Leverenz if she would like to go through each project one by one.

Ms. Leverenz asked if there was a spreadsheet that shows how the Committee collectively ranked the projects.

Ms. Haynes confirmed and presented the spreadsheet on the screen.

Ms. Leverenz asked if the spreadsheet can be ranked by average score.

Ms. Haynes confirmed.

Mr. Rich Krapf stated that there could be some scoring bias and that the numerical score may have less importance than the overall rank.

Mr. Krapf stated that there are 28 projects and it would be difficult to get full consensus on all 28.

Ms. Haynes read the top ten projects listed on the spreadsheet.

The Committee compared their individual list to the overall top ten list.

Ms. Leverenz asked the Committee if they are comfortable with the rankings of the first four.

The Committee members agreed.

Ms. Leverenz asked if the Grove Convenience Center was appropriately ranked.

Mr. Haldeman and Mr. Krapf agreed with that ranking.

Mr. Tim O'Connor stated that he ranked the project in the middle. He stated that he had no issues with the project being in the top ten.

Ms. Tammy Rosario asked if there were any of the top ten projects that seemed out of place.

Ms. Leverenz stated that she did not have the Warhill Auxiliary Gym and Policy Covered Parking in her top ten.

Mr. Krapf stated that the gym was also ranked lower.

Mr. O'Connor stated that the gym was the highest ranked of the school projects because there is no space for practice for the students. He stated that there is the benefit of an emergency shelter for the County.

Mr. Haldeman stated that he has his ranked seventh.

Mr. O'Connor stated that the other high schools have an auxiliary gym.

Mr. Haldeman stated that the gym can be used for the public at-large.

Mr. Krapf stated that he ranked the Jolly Pond Dam Road item high due to the safety hazard. He stated that it had a relative low cost.

Ms. Leverenz stated that 240 vehicles per day were using the dam crossing. She stated that the current work-around is temporary.

Ms. Haynes stated that the Committee may find that some applications have a special consideration and Ms. Grace Boone stated that this project may be a BOS consideration.

Ms. Leverenz stated that she ranked the library/library expansion within the top ten.

Mr. O'Connor stated that he felt it was an incomplete application because all of the details are not determined regarding location.

Mr. Krapf stated that he did not rank the new school site very high, but within the top ten.

Ms. Rosario asked if there were any adjustments to the ranking proposed.

Mr. Haldeman stated that he would recommend increasing the rank of the Lafayette High School Expansion because other schools are over capacity and the cost is relatively low.

Mr. Krapf asked which project he would remove from the top ten.

Mr. Haldeman stated that the Police firing range would be removed from his list.

Mr. O'Connor stated that the focus should be on Warhill High School to take on the expanded growth.

Mr. Haldeman stated that the enrollment at Warhill is projected to decline.

Ms. Rosario stated that Williamsburg-James City County (WJCC) Schools prioritized their applications.

Mr. Haldeman read how the WJCC Schools ranked their applications.

Mr. Haldeman stated that the Ambler's House utility project and the Jamestown Beach Event Park project should be constructed together to have a cost savings.

Ms. Leverenz stated that the Jamestown Beach project should be listed at number eleven behind the Ambler's House at number ten.

Mr. Krapf stated that the firing range was a higher priority in his list.

Mr. O'Connor stated that he ranked it high.

Ms. Leverenz stated that three of the four members have it ranked high.

Mr. O'Connor stated that the cars need to be moved from the parking lot whenever the range is in use.

Mr. Haldeman stated that he is comfortable with where the project is ranked.

Ms. Leverenz asked if there were concerns on the ranking of the Warhill High School Auxiliary Gym.

Mr. Krapf stated that it was originally ranked lower, but he is comfortable with moving it up. He stated that it was a plus that the gym could be used as an emergency shelter.

Ms. Leverenz asked if the Committee agreed on the ranking of the Warhill Auxiliary Gym Expansion.

The Committee agreed.

Mr. Haldeman stated that both Lafayette High School Expansion and Warhill Auxiliary Gym would be in his top ten to complete the school projects.

Ms. Leverenz stated that the covered parking for the Police and the added building at the marina could be replaced by the Lafayette High School Project. She stated that the

Ambler's House could be pushed to eleven in the ranking.

Mr. Krapf stated that he supports the Ambler's House because it was a proffer and linked to other improvements in the area. He stated that this is a potential revenue generated once the utilities are completed.

Mr. Haldeman stated that he supported the Ambler's House project in the past to stabilize the house.

Ms. Leverenz stated that the added marina building could be moved down to the other marina improvements.

Mr. Haldeman stated that grouping the projects reduces the number of closures at the marina.

Ms. Leverenz asked if anyone objected to moving the marina building project to twelve.

Mr. Krapf stated that he agreed with those changes.

Ms. Haynes asked if there was consensus on the top fourteen projects.

Ms. Leverenz stated that there hasn't been discussion on the Police covered parking.

Ms. Leverenz stated that she would not rank the project as high as shown in the spreadsheet.

Mr. O'Connor stated that this project came forward shortly after the police station was built. He stated it didn't make the rankings in the past, but after hearing from the Police and the challenges they are having protecting the equipment, he understands the need better.

Ms. Leverenz is comfortable with the project being ranked eight. She stated that she likes the number of the Parks and Recreation projects.

Mr. O'Connor stated that he scored his Parks and Recreation projects based on their ranking.

Ms. Leverenz stated that the Committee is looking at the cost efficiencies by grouping projects together such as the Jamestown Beach, Ambler's House and marina.

Mr. Krapf agreed.

Ms. Leverenz stated that the Chickahominy Riverfront Park project could be ranked above the other Parks and Recreation projects.

Mr. Krapf stated that he had Chickahominy project ranked thirteen in his list.

Ms. Leverenz asked if Mr. O'Connor agreed with the proposed change to add the Chickahominy project above Ambler's House.

Mr. O'Connor stated that his ranking matched the Parks and Recreation suggested order for their projects.

Ms. Leverenz stated that the Chickahominy Riverfront Park project could go between the projects at the marina and the projects at Jamestown Beach.

Mr. Krapf stated that one of his concerns was that the Ambler's House continues to get moved down when it is a top priority of the Office of Economic Development. He stated

that he would keep Ambler's House in the top ten.

Ms. Leverenz stated that the ranking would be in the following order: Jamestown Beach improvements, Chickahominy Riverfront Park and Chickahominy Riverfront Park Restroom and Concession improvements, and then the additional building at the marina.

Mr. Haldeman agreed to those changes.

Ms. Haynes asked if any of the projects have any special considerations.

Mr. O'Connor stated that transportation match and stormwater projects typically had the special considerations. He stated that the Jolly Pond Dam turnaround should be a special consideration.

Ms. Haynes asked if there was consensus on the top fifteen.

Ms. Leverenz stated that the committee did not look past the top fifteen.

Mr. O'Connor stated that he would continue to rank the new school site lower because it was proffered and should be for the developer.

Ms. Leverenz stated that the money would be to hire a consultant to inspect the work of the developer.

Mr. O'Connor stated that proffer states that the developer should provide a school ready site.

Ms. Rosario asked if Mr. O'Connor felt the consultant fees should be paid for by the developer.

Mr. O'Connor agreed and stated that it could also be a bond and that at time of construction the money would be available for them.

Ms. Leverenz stated that this would allow the County to know that the project was done correctly.

Mr. O'Connor stated that the project is just for excavating the site for a school. He stated that a geo-tech firm can inspect the project to show that it was done correctly.

Mr. Krapf asked if he would like the project moved outside of the top fifteen.

Mr. O'Connor stated that this project should not be above the Lafayette High School project.

Ms. Leverenz asked if there was support for all of the school expansions including the baseball field.

Mr. O'Connor stated that the baseball field project is a Parks and Recreation project.

Ms. Leverenz stated that the new school site can be moved below the Warhill High School Expansion.

Mr. O'Connor stated that he would like to see the Lafayette project above the new school site.

Mr. Krapf and Mr. Haldeman agreed.

Mr. O'Connor asked why Mr. Krapf ranked the Lafayette project low.

Mr. Krapf stated that he ranked most of the school project low until he had a good idea of the sense of urgency for the projects. He is comfortable with the proposed ranking changes.

Ms. Leverenz asked if the school site is time dependent.

Ms. Rosario stated that she can double-check.

Mr. Krapf stated that he had the school site as a special consideration but does not know if there is a time requirement.

Ms. Leverenz asked if everyone is comfortable going with the average for the remaining items on the list.

The Committee agreed.

Ms. Haynes stated that remaining school projects had tied and would receive an equal ranking.

Mr. Krapf stated that he is comfortable with that decision.

Mr. O'Connor stated that the Upper County Park project could be ranked higher to allow for more projects throughout the County.

Mr. Haldeman stated that he had the Lower County Park project heavily weighted.

Ms. Leverenz asked if the Upper County Park project can be moved ahead of the new elementary school project.

Mr. Haldeman stated that he would even move the project above the Freedom Park project.

Ms. Leverenz agreed.

Ms. Leverenz stated that she would recommend listing the buses for the new elementary school last and move the library playground project up one.

Mr. Krapf agreed.

Ms. Leverenz asked if there were and further comments.

Mr. Krapf asked that the revised ranking sheet be sent out to the Committee.

Ms. Haynes confirmed that it will be sent out.

E. NEW BUSINESS

There was no new business.

F. ADJOURNMENT

Mr. Haldeman made a motion to Adjourn. The motion passed 4-0.

Ms. Leverenz adjourned the meeting at approximately 5:00 p.m.

AGENDA ITEM NO. F.2.

ITEM SUMMARY

DATE: 4/1/2020

TO: The Planning Commission

FROM: Alex Baruch, Senior Planner

SUBJECT: Z-19-0003. Fords Colony Proffer Amendment

ATTACHMENTS:

	Description	Type
ם	Staff Report	Staff Report
ם	Location Map	Backup Material
ם	Location Map with Unit Distribution	Backup Material
D	Proposed Proffers	Backup Material
D	Fords Colony Traffic Impact Study	Backup Material
D	Fords Colony Traffic Agreement Exhibit A (October 1987)	Backup Material
ם	Z-0004-1998 Proffers	Backup Material
D	1998 Master Plan	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning Commission	Holt, Paul	Approved	3/24/2020 - 10:23 AM
Planning Commission	Holt, Paul	Approved	3/24/2020 - 10:23 AM
Publication Management	Daniel, Martha	Approved	3/24/2020 - 11:21 AM
Planning Commission	Holt, Paul	Approved	3/24/2020 - 5:07 PM

SUMMARY FACTS

Applicants: Susan Tarley, Tarley Robinson, PLC

Drew Mulhare, Ford's Colony Homeowners

Association (HOA) William Apollony, Windsor

Brian Ford, Dorothea Ford, Trustee

Ryan Sansavera, c/o Wells Fargo and Redus

Land Owners: Ford's Colony HOA, Windsor, Ford, and

Redus

Proposal: A request to amend previously approved

proffers for Ford's Colony to address traffic

improvements and outstanding proffers.

Locations: 100 Manchester

245 Ford's Colony Drive

1000 Eaglescliffe

185 Ford's Colony Drive 1051 St. Andrews Drive

Tax Map/Parcel Nos.: 3620300291

3130100053A 3131700001 3130100058 3130100053B

Project Acreage: +/- 20.18 acres (only acreage of parcels listed

above, Ford's Colony totals 2,962 acres)

Zoning: R-4, Residential Planned Community

Comprehensive Plan: Low Density Residential

Primary Service Area: Inside

Staff Contact: Alex Baruch, Senior Planner

PUBLIC HEARING DATES

Planning Commission: April 1, 2020, 6:00 p.m.

Board of Supervisors: May 12, 2020, 5:00 p.m. (Tentative)

FACTORS FAVORABLE

1. There are no proposed changes to gross density.

2. The proposed Proffer amendment addresses the outstanding unbuilt improvements accounted for at full build-out of Ford's Colony.

3. The proposal is consistent with the recommendations of the adopted Comprehensive Plan.

4. See Impact Analysis on Pages 4 and 5.

FACTORS UNFAVORABLE

1. Staff finds no unfavorable factors.

2. See Impact Analysis on Pages 4 and 5.

SUMMARY STAFF RECOMMENDATION

Approval and acceptance of the amended Proffers.

PROJECT DESCRIPTION

Ms. Susan Tarley of Tarley Robinson, PLC has submitted a request on behalf of Ford's Colony HOA, Windsor, Ford, and Redus to amend Condition Nos. 1 and 3 of the adopted Proffers, dated March 11, 1987

and attached as Exhibit A to the restated proffers dated October 1, 1987 along with Condition No. 5 of the amended and restated proffers dated January 24, 1999, related to traffic, road improvements, and bike lanes associated with the build-out of Ford's Colony.

The Ford's Colony development is nearing build-out. The Master Plan (not including the Continuing Care Retirement Communities on the south side of News Road) allows for up to 3,250 dwelling units. Approximately 2,857 units have been constructed to date and other lots have been platted but are not yet improved. The subject properties listed on the application include those properties where new development is still planned.

Specifically, staff and the applicant are in agreement there are 104 dwelling units that remain to be constructed on four parcels that have a residential designation on the Master Plan. The overall purpose and intent of this proffer amendment is as follows:

- Clarify that up to 30 of the remaining residential units will be constructed on the Windsor parcel;
- Clarify that up to 60 of the remaining residential units will be constructed on the two Redus parcels;
- Clarify that up to 14 of the remaining residential units will be constructed on the Ford parcel; and
- The proffer amendment will also clarify and specify remaining traffic improvements that need to be constructed as part of the buildout of Ford's Colony with the remaining 104 units and eliminate traffic related improvements which were listed in the original proffers, but which are no longer necessary.

The proffer amendment to clarify and specify remaining traffic improvements that are needed for build-out and the elimination of

originally envisioned improvements, but which are no longer necessary is more fully described as follows:

Currently, Condition No. 1, executed through Exhibit A, lists various traffic improvements that were required to be assessed at different stages of development (Attachment No. 5). Table 10 in the attached Traffic Impact Study (TIS) (Attachment No. 4, Page 37) shows a breakdown of these improvements and whether they have already been constructed or are required at full build-out of Ford's Colony. New Proffer B-1 requires improvements related to the full build-out of Ford's Colony as stated in the TIS: these remaining improvements are a turn lane and re-striping at the intersection of Ford's Colony Drive/Longhill Road, as further detailed in the Impact Analysis table on Page 4.

Condition No. 3 and Exhibit A state that a traffic study is required every five years. The last traffic study was conducted in 2008 and only consisted of the improvements related to the Continuing Care Retirement Community, not the entirety of Ford's Colony. New Proffer B-2 requests that the attached TIS be the last traffic study that Ford's Colony would need to complete as they relate to the original agreement. As such the traffic study put forth by Kimley-Horn and Associates analyzes all of the required traffic improvements as required by Exhibit A. The Virginia Department of Transportation (VDOT) has also reviewed the TIS and concurred with the findings generally, but believe a signal is warranted at the intersection of Ford's Colony Drive and Longhill Road. Staff does not find that this improvement is needed due to the Longhill Road Corridor Study which did not identify a signal as necessary at that intersection and looked beyond the build-out of Ford's Colony to make that assessment.

Lastly, Condition No. 5 (Attachment No. 6) states that a bike lane would need to be installed and 10 feet of property dedicated along Longhill Road using property associated with Case No. Z-0004-1998/MP-0003-1998. In the Longhill Road Corridor Study concept

design, a multiuse path is proposed for the north side of Longhill Road, not a bike lane adjacent to Ford's Colony as originally anticipated with Case No. Z-0004-1998/MP-0003-1998. This proffer amendment would eliminate the requirements in Condition No. 5.

PLANNING AND ZONING HISTORY

Ford's Colony: The existing Ford's Colony subdivision was originally rezoned with proffers to R-4, Residential Planned Community in the late 1980s. Its Master Plan currently allows for 3,250 units with a mix of single-family units and multifamily units. The Ford's Colony development currently has an outstanding proffer obligation, which requires a traffic study to be completed every five years in order to assess the need for several traffic improvements along Centerville Road, Longhill Road, and News Road. If warranted, the proffers commit the development to construct the improvements. Traffic studies were most recently completed and provided to the County in 2004 and 2008; however, the 2008 traffic study was not a complete traffic study of the entire development. Between 2008 and 2020, staff performed the Longhill Road Corridor Study with VDOT and successfully received funding for Phase I of the Longhill Road Corridor improvements. Many of these improvements were originally proffered as improvements that Ford's Colony was responsible for in Exhibit A (Attachment No. 5) and detailed in the TIS in table 10 (Attachment No. 4, Page 37). The TIS associated with this proffer amendment includes a complete analysis of the development at full build-out and fulfills the traffic study requirement for a five year period.

SURROUNDING ZONING AND DEVELOPMENT

The subject properties are internal to the Ford's Colony subdivision which is zoned R-4, Residential Planned Community. Ford's Colony is bound by Longhill Road to the north, Centerville Road to the west, News Road to the south, and Route 199 to the east.

Impacts/Potentially Unfavorable Conditions	Status (No Mitigation Required/Mitigated/Not Fully Mitigated)	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Groundwater and Drinking Water Resources	No Mitigation Required	 Project Receives Public Water and Sewer Staff finds this project does not generate impacts that require mitigation.
Watersheds, Streams, and Reservoirs	No Mitigation Required	 The project is located predominantly within the Powhatan Creek watershed. The property currently has an existing stormwater management facilities in place.
Nearby and Surrounding Properties	No Mitigation Required	- The parcel is surrounded by residential subdivisions, commercial, and undeveloped parcels.
Community Character	No Mitigation Required	 Ford's Colony fronts on the Longhill Road, Centerville Road, and News Road Community Character Corridors. Previously adopted Proffers require a various buffering around the perimeter of Ford's Colony.
<u>Cultural/Historic</u>	No Mitigation Required	- Any new land disturbance associated with proposed development will be reviewed by the appropriate agencies at the development stage.
Public Transportation: Vehicular	<u>Mitigated</u>	 Due to traffic movement concerns leaving Ford's Colony Drive to Longhill Road identified in the TIS, Proffer B-1-a states that the Association will update the striping including the stop bar and striping for the left and right-turn lanes on the earlier of: three years from Proffer Amendment approval or first Certificate of Occupancy for the New Condominium Units. The installation of a right-turn lane on Longhill Road onto Ford's Colony Drive is required at full build-out of Ford's Colony. Proffer B-1-b requires this improvement on the earlier of: three years from Proffer Amendment approval or first Certificate of Occupancy for the New Condominium Units. Instead of providing a bike lane along Longhill Road in a location that is not in line with the recommendations of the Longhill Road Corridor Study, the Association will dedicate Association owned property, upon request, to implement the Phase III, Longhill Road Corridor Plan (Proffer B-1-c). All traffic improvements previously constructed as a result of proffers shall remain in place as a part of Proffer B-1-d. The applicant is proposing in Proffer B-2 that a traffic study would no longer be required every five years since full build-out has been assessed with this application and all improvements required at full build-out are addressed.

Impacts/Potentially Unfavorable Conditions	Status (No Mitigation Required/Mitigated/Not Fully Mitigated)	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Public Transportation: Bicycle/ Pedestrian	No Mitigation Required	- Requirement for a bike facility along Longhill Road would no longer be required due to a different alignment shown in the Longhill Road Corridor Study.
Public Safety	No Mitigation Required	- Staff finds this project does not generate impacts that require mitigation to the County's Fire Department facilities or services.
Public Schools	No Mitigation Required	- N/A since no new residential dwelling units are proposed.
Public Parks and Recreation	No Mitigation Required	- N/A since no new residential dwelling units are proposed.
Public Libraries and Cultural Centers	No Mitigation Required	- Staff finds this project does not generate impacts that require mitigation.

COMPREHENSIVE PLAN

The property is designated Low Density Residential on the Comprehensive Plan Land Use Map. Recommended uses include single-family homes, multifamily units, accessory units, cluster housing, and recreation areas. Staff finds the proposed Proffer amendment to be consistent with the adopted Comprehensive Plan.

The Comprehensive Plan encourages development to mitigate its impacts, including traffic. As detailed above, the analysis provided indicates that with the improvements to the Ford's Colony Drive/Longhill Road intersection and right-of-way dedication commitment included in the proposed proffers, the road improvements previously completed by Ford's Colony during the course of its development, and the Phase I Longhill Road improvements, full build-out of Ford's Colony can be achieved while maintaining adequate levels of service.

STAFF RECOMMENDATION

Staff finds the proposal to be compatible with surrounding development and consistent with the adopted Comprehensive Plan and Zoning Ordinance. Staff recommends that the Planning Commission recommend approval of this application and acceptance of the amended Proffers to the Board of Supervisors.

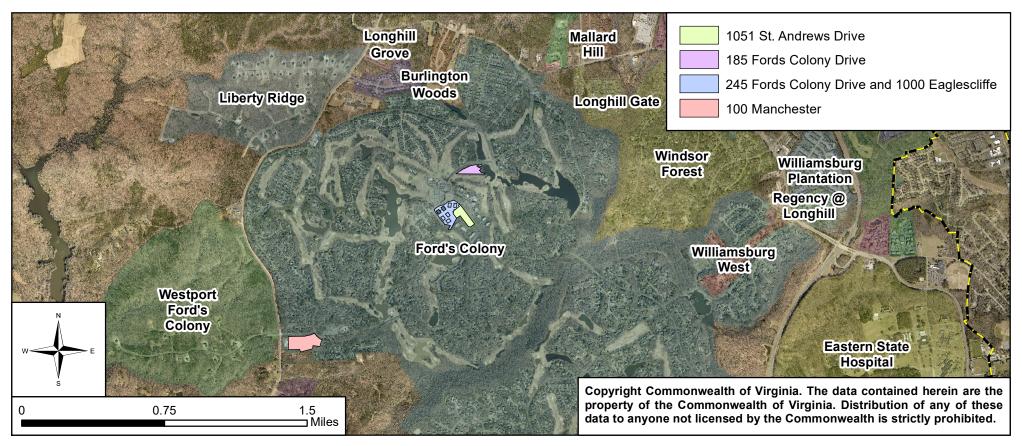
TH/nb RZ19-3FordsProffer

Attachments:

- 1. Location Map
- 2. Location Map with Unit Distribution
- 3. Proposed Proffers
- 4. Traffic Impact Study
- 5. Traffic Phasing Agreement, Exhibit A, and October 1, 1987 Proffers
- 6. Z-0004-1998/MP-0003-1998 Proffers
- 7. Z-0004-1998/MP-0003-1998 Master Plan

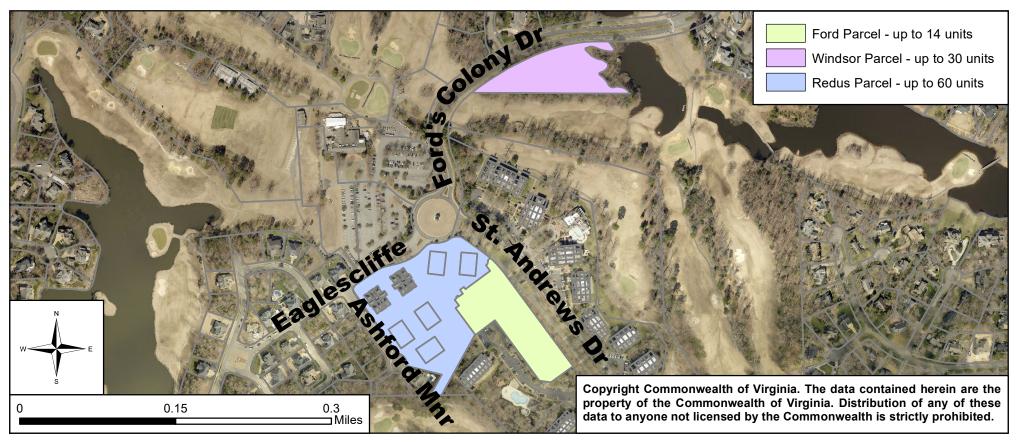
JCC Z-19-003 Fords Colony Proffer Amendment





JCC Z-19-003 Fords Colony Proffer Amendment





Tax Map Nos. 3130100053A, 3131700001, 3130100058, 3130100053B

Prepared by: Susan B. Tarley, Esquire VSB 28896 Tarley Robinson, PLC 4808 Courthouse Street, Suite 102 Williamsburg, VA 23188

AMENDMENT TO FORD'S COLONY PROFFERS

THIS AMENDMENT TO FORD'S COLONY PROFFERS is made this day of March , 2020 by FORD'S COLONY AT WILLIAMSBURG HOMEOWNERS ASSOCIATION, a Virginia nonstock corporation (the "Association"), REDUS VA HOUSING, LLC, a Delaware limited liability company ("Redus"), WINDSOR HEALTHCARE EQUITIES, LLC, a Maryland limited liability company ("Windsor"), and the DOROTHEA M. FORD REVOCABLE DECLARATION OF TRUST, ("Ford"), collectively referred to as the "Parties" and to be indexed as "Grantors" and JAMES CITY COUNTY, VIRGINIA, a political subdivision of the Commonwealth of Virginia, to be indexed as "Grantee."

RECITALS:

- A. Realtec, Incorporated, a North Carolina corporation ("Realtec") was the owner and developer of the Ford's Colony at Williamsburg development which contains approximately 2,962 acres and which is zoned R-4, Residential Planned Community, with proffers, and subject to a Master Plan previously approved by James City County.
- B. Realtec developed Ford's Colony in phases over a period of 30 years, with each phase subjected to the Ford's Colony Declaration of Protective Covenants, and each lot owner required to be a member in the Association.
- C. Realtec's authorization to do business in the Commonwealth of Virginia was revoked by the Virginia State Corporation Commission on or about April 30, 2015, and Realtec is no longer involved in the development of Ford's Colony at Williamsburg.
- D. The original proffers for Ford's Colony were made on March 11, 1987 and have been amended and restated many times over the years, including by Amended and Restated Ford's Colony Proffers (1) dated October 1, 1987 and recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City (the "Clerk's Office") in Deed

Return to: James City County Attorney 101-C Mounts Bay Road Williamsburg, VA 23185 Book 366 at page 512; (2) dated August 26, 1993 and recorded in the Clerk's Office in Deed Book 678 at page; (3) made by Richard J. Ford and dated as of September 29, 1995 and recorded in the Clerk's Office in Deed Book 757 at page 529 (the property subjected to these proffers became owned by Realtec); (4) dated September 29, 1995 and recorded in the Clerk's Office in Deed Book 757 at page 526; (5) dated January 24, 1999 and recorded in the Clerk's Office as Instrument No. 990002925; (6) dated September 20, 2002 and recorded in the Clerk's Office as Instrument No. 020024840; (7) dated as of January 6, 2005 and recorded in the Clerk's Office as Instrument No. 050001465; all of which incorporated the previously adopted proffers (together, the "Existing Proffers").

- E. Certain Existing Proffers made by Realtec for Ford's Colony at Williamsburg have not been completed and are considered not warranted or necessary by development build-out.
- F. The Existing Proffers run with the land and are binding on Realtec's successors.
- G. The Association is the homeowners association for Ford's Colony representing the residential owners.
- H. Redus is the owner of certain property located at 245 Ford's Colony Drive, Williamsburg, Virginia 23188, further identified as Parcel ID 3130100053A, and 1000 Eaglescliffe, Williamsburg, Virginia 23188, further identified as Parcel ID 3131700001, upon which a multifamily housing project consisting of sixty (60) residential condominium units is planned.
- I. Windsor is the owner of that certain property located at 185 Ford's Colony Drive, Williamsburg, Virginia 23188, further identified as Parcel ID 3130100058, upon which a multifamily housing project consisting of thirty (30) residential condominium units is planned.
- J. Ford is the owner of a certain property located at 1051 St. Andrews Drive, Williamsburg, Virginia 23188, further identified as Parcel ID 3130100053B, upon which up to fourteen (14) residential condominium units are planned.
- K. The Redus, Windsor, and Ford condominium units referenced above shall be cumulatively referred to, for the purposes of these Amended Proffers only, as the New Condominium Units.
- L. The Association and the governing documents for Ford's Colony provide consistency for the continued development of Ford's Colony as originally intended.

- M. Ford's Colony has grown from its original proposal as a 1410 acre neighborhood with 1976 residential dwellings and golf courses offering 45 holes of golf to 2962 acres with 3250 residential units, golf courses offering 54 holes of golf with an additional 660 residential units on 140 acres.
- N. The Parties propose amending the existing proffers that have not been completed by Realtec. This amendment request does not include any modification or amendment to the Master Plan layout, density, open space or unit count.
- O. There are three remaining areas shown as residential on the Master Plan along Ford's Colony Drive which have been made subject to the Ford's Colony Declaration. Mandatory membership in the Association will ensure that those residents on the remaining residential parcels have access to the Association's amenities as well as the rights, privileges, and responsibilities of ownership in Ford's Colony. Mandatory membership in the Association is consistent with the development intent and Master Plan.
- P. The Association owns and maintains all the roads and common areas in Ford's Colony, and all residential properties contribute to annual and long-term maintenance through assessments billed equally to all members.
- Q. The commercial properties within Ford's Colony include properties owned by ClubCorp NV XV, LLC, Manor Club at Ford's Colony and FRH, LLC. These owners are not members of the Association and their properties are not subject to the Ford's Colony Declaration, however, they are parties to a Shared Maintenance Agreement with the Association in which they contribute to the maintenance of Ford's Colony Drive, and any further commercial development on Ford's Colony Drive will have a responsibility to contribute to the road maintenance.

NOW, THEREFORE, for and in consideration of the approval by the Board of Supervisors of the County of James City, Virginia (the "Board"), of the applied for rezoning and acceptance of these Amended Proffers and pursuant to Section 15.2-2302 and Section 15.2-2303 of the Code of Virginia, 1950, as amended, the Parties agree that they shall meet and comply with all of the following conditions in developing Property:

- **A.** Existing Proffers Retained. Except as amended herein, the Existing Proffers shall remain in full force and effect and are incorporated into these Amended Proffers by reference.
- **B.** Amendments. The Existing Proffers are amended as follows:

- 1. TERMINATION OF CERTAIN ROAD IMPROVEMENT PROFFERS. Condition 1 of the Ford's Colony Proffers dated March 11, 1987 and attached as Exhibit A to the Restated Ford's Colony Proffers dated October 1, 1987 in James City County Case MP-2-97 and recorded in Deed Book 366, page 512, et. seq. shall be replaced and superseded by the following:
- (a) The Association will upgrade the main entrance to Ford's Colony at Ford's Colony Drive by extending the stop bar, and striping for a left and right turn lane on the outbound side of Ford's Colony Drive as required by the Traffic Impact Study Update, Ford's Colony Master Plan Phased Development, James City County, Virginia, prepared by Kimley-Horn and Associates, Inc. dated January 2020 (the "2020 Traffic Impact Study") on the earlier of three (3) years from the approval of these Amended Proffers, or the award of the first certificate of occupancy for the New Condominium Units.
- (b) The Association will install a right turn lane from Longhill Road onto Ford's Colony Drive as required by the 2020 Traffic Impact Study on the earlier of three (3) years from the approval of these Amended Proffers, or the award of the first certificate of occupancy for the New Condominium Units.
- (c) The Association will dedicate right-of-way as necessary, upon request, to implement the Phase III, Longhill Road Corridor Plan, to the extent the Association is the owner of any property necessary for the right-of-way. The Association shall not be required to purchase any land or acquire any right-of-way across private property nor shall it be required to construct new or remove existing improvements.
- (d) All road improvements proffered in the Existing Proffers and constructed as of the date of these Amended Proffers shall remain in place.
- 2. TRAFFIC IMPACT STUDY. Condition Number 3 of the Ford's Colony Proffers dated March 11, 1987 and attached as Exhibit A to the Restated Ford's Colony Proffers dated October 1, 1987 in James City County Case MP-2-97 and recorded in Deed Book 366, page 512, et. seq.in the Clerk's Office of the Circuit Court of James City County, is deleted in its entirety.
- 3. BIKE LANE. Condition Number 5 of the Amended and Restated Ford's Colony Proffers dated January 24, 1999 and recorded as Instrument No. 990002925 in the Clerks Office of the Circuit Court of James City County is deleted in its entirety.
- **C.** <u>Supplemental Conditions.</u> In addition to the Existing Proffers, as amended above, the Parties proffer the following conditions:

- 1. MEMBERSHIP IN HOMEOWNERS ASSOCIATION. Contingent on plan approval by James City County, all new residential development on the Property shall be subject to mandatory membership in the Association by a Supplemental Declaration of Protective Covenants approved by the Association.
- 2. UNIT DENSITY; TYPES OF UNITS. The parcel owned by Windsor, Parcel No. 3130100058 is to have up to thirty (30) residential condominium units. The two parcels owned by REDUS VA HOUSING LLC, Parcel Nos. 3130100053A and 3131700001 are to have up to sixty (60) residential condominium units. The parcel owned by Ford, Parcel Number 3130100053B is to have up to fourteen (14) residential condominium units.

SIGNATURE PAGES FOLLOW

of, 2020.
By: WINDSOR HEALTHCARE EQUITIES, LLC William Apollony, Authorized Member
STATE OF MARYLAND CITY/COUNTY OF ANNE ARUNDEL, to-wit:
I, <u>TAMMY BETWEN</u> , a Notary Public in and for the jurisdiction aforesaid, certify that the foregoing Amended Proffers were executed and acknowledged before me on the day of <u>MARC</u> 2020 by William N. Apollony authorized signatory for Windsor Healthca Equities, LLC, a Maryland limited liability company on behalf of the company.
Notary Public
My Commission Expires: August 13, 2021 Registration No.
TAMMY R. BENNETT Notary Public-Maryland Anne Arundel County My Commission Expires August 13, 2021

The undersigned has executed this Amendment to Ford's Colony Proffers this $\frac{1}{2}$ day of $\frac{1}{2}$, 2020.
REDUS VA HOUSING, LLC BY: REDUS PROPERTIES, INC, ITS SOLE MEMBER By: Typin favorized Member VICE PRESIDENT
STATE OF NORTH CAROLINA CITY/COUNTY OF MECKLENBURG, to-wit:
I, Astghik Lordonyon, a Notary Public in and for the jurisdiction aforesaid, so certify that the foregoing Amended Proffers were executed and acknowledged before me on this day of 3, 2020 by Ryan Sansavera, authorized signatory for Redus Va Housing, LLC, a Delaware limited liability company on behalf of the company.
Notary Public
My Commission Expires: $04-03-2022$ Registration No. $0(8/5030005$

The undersigned has executed this Amendment to Ford's Colony Proffers this _//_ day of _MARCH, 2020.
FORD'S COLONY AT WILLIAMSBURG HOMEOWNERS ASSOCIATION
By: Ellwill, President
STATE OF VIRGINIA COUNTY OF JAMES CITY, to-wit:
I, MCCA BYCYLLY, a Notary Public in and for the jurisdiction aforesaid, so certify that the foregoing Amended Proffers were executed and acknowledged before me on this day of MCCA 2020 by RODGE MOULLY, Authorized signatory for
Ford's Colony at Williamsburg Homeowners Association, a Virginia nonstock corporation on behalf of the Corporation.
My Commission Expires:
Registration No. 722 7942
AMANDA

The undersigned has executed this Amendment to Ford's Colony Proffers this day of, 2020.		
	By: Brian Ford, Attorney-in-fact for Dorothea M. Ford, Trustee	
STATE OF VIRGINIA COUNTY OF JAMES CIT	Y, to-wit:	
certify that the foregoing A 11 day of Man 2020 by Dorothea M. Ford Revocab	, a Notary Public in and for the jurisdiction aforesaid, so mended Proffers were executed and acknowledged before me on this y Brian Ford, Attorney-in-fact for Dorothea M. Ford, Trustee of the le Declaration of Trust, on behalf of the Trust. Notary Public	
My Commission Expires: Registration No.	A. B. Miller Notary Public Commonwealth of Virginia 183383 My Commission Expires Nov 30, 2021	

TRAFFIC IMPACT STUDY (TIS) UPDATE

Ford's Colony Master Plan - Phased Development

James City County, Virginia

Prepared for:

Ford's Colony Home Owners Association (FCHOA)

Prepared by:

Kimley » Horn

January 2020

Traffic Impact Study (TIS) Update for Ford's Colony Master Plan – Phased Development James City County, Virginia

Prepared for:

Ford's Colony Home Owners Association (FCHOA)

Prepared by:

Kimley-Horn and Associates, Inc.
Suite 100
11818 Rock Landing Dr
Newport News, VA 23606
P: 757.273.7016

117079000 January 2020

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1 EXECUTIVE SUMMARY

Ford's Colony Homeowners Association (FCHOA), with support of REDUS VA Housing, LLC (REDUS) is pursuing a Master Plan and Proffer Amendment which includes proposing the construction of 60 residential condominium/townhouse units (Eaglescliff) within the Ford's Colony development (i.e., Ford's Colony) in James City County, Virginia. Ford's Colony is a master planned community bounded by Longhill Road (State Route 612) to the north, Centerville Road (State Route 614) to the west, News Road (State Route 613) to the south, and a combination of retail/commercial land uses, residential areas, and Humelsine Parkway (State Route 199) to the east.

Through conversations with FCHOA, REDUS, and James City County staff as well as our review of the Ford's Colony Proffers (MP-2-87) dated June 20, 1988 and the Amended and Restated Ford's Colony Proffers (Z-04-98/MP-3-98) dated January 24, 1999, it was determined that a traffic impact study (TIS) must be prepared every five (5) years and/or prior to any proposed expansion or development within the Ford's Colony Master Planned residential development. The previous update was the *Ford's Colony Traffic Impact Study 2003-2004 Update*, completed in February 2004.

The purpose of this report is to satisfy the TIS requirement of the aforementioned proffers by summarizing existing and projected future traffic volumes as well as the associated operational conditions to determine if any of the identified off-site roadway, intersection, or traffic control (i.e., intersection signalization) improvements have been triggered for construction and/or may require accelerated implementation. In addition to the 60 residential condominium/townhouse units, the following units were included in this TIS as part of the background traffic to represent the totality of the Ford's Colony Master Plan.

- 295 platted, unbuilt lots
- 30 un-platted Windsor development lots
- 14 un-platted Brian Ford's property lots

This study will identify the potential impacts to the intersections and roadway network as a result of the proposed development.

Based on the analysis of the existing traffic volumes and operation findings provided in this traffic study, the following recommendations were identified and are summarized below for the Existing conditions:

Longhill Road at Williamsburg W. Drive/Lane Place Drive

- Maintain the existing geometric configuration and traffic control measures
- Continue to monitor and implement new timing and coordination plans as part of regular VDOT operations and maintenance
- It is noted that the Longhill Road Phase 1 Widening Project (VDOT UPC 100921) includes improvements that will enhance the capacity at this intersection, is fully funded, and currently under construction

Longhill Road at Fords Colony Drive

- Relocate and restripe the northbound approach STOP bar so driver sight distance is not impeded by the Ford's Colony monument sign and/or vegetation located in the median
- Restripe the 24-foot wide northbound approach to consist of a 12-foot shared through/left-turn lane and a 12-foot exclusive right-turn lane with 150 feet of storage

- Continue to monitor traffic volumes to identify when/if the full turn-lane warrant for the eastbound right-turn movement is satisfied
- Existing traffic volumes and the associated operational conditions (i.e., level of service (LOS)/side street delay) do not warrant or justify the installation of the traffic signal at this time.
- Although the installation of a traffic signal is specifically referenced in the Ford's Colony proffers, per VDOT policy and roadway design manual guidelines, should volumes warrant the consideration of a traffic signal the intersection will also need to be analyzed for the consideration of a roundabout.

Centerville Road at Manchester Drive

Maintain the existing geometric configuration and traffic control measures

News Road at Firestone Drive

Maintain the existing geometric configuration and traffic control measures

From the analysis of the Build conditions which included the background traffic growth and approved developments, the following recommendations were identified and are summarized below for the Build conditions:

Longhill Road at Williamsburg W. Drive/Lane Place Drive

- Continue to monitor and implement new timing and coordination plans as part of regular VDOT operations and maintenance
- The Longhill Road Phase 1 Widening Project (UPC 100921) is currently under construction. The widening project includes the following improvements to this intersection:
 - Widen Longhill Road to a four-lane divided typical section
 - Upgrade the traffic signal equipment to accommodate the additional through lanes
 - Pedestrian accommodations such as crosswalks, ADA ramps, and pedestrian signal displays for the crossing of select legs of the intersection

Eastbound Longhill Road

Widen and construct an additional approach and receiving through lane
 Westbound Longhill Road

- Widen and construct an additional approach and receiving through lane
- Improvements associated with Longhill Road Phase 1 Widening Project (UPC 100921) address several of the proffered improvements associated with the Ford's Colony Master Plan. Proffers should be updated/modified to account for/recognize these changes in responsibility.

Longhill Road at Fords Colony Drive

 Based on future traffic volume projections, construct a full width right-turn lane consisting of 200-feet of storage and a 200-foot taper for the eastbound approach.

- Future traffic volumes and the associated future operational conditions (i.e., level of service (LOS)/side street delay) continue to reflect that a traffic signal is not warranted and do not justify the installation of a traffic signal at this intersection.
- It is noted that the installation of a traffic signal is specifically referenced in the Ford's Colony proffers. However, per VDOT policy and roadway design manual guidelines, if volumes warrant the consideration of a traffic signal then the intersection will also need to be analyzed for the consideration of a roundabout.
- Additionally, it is noted that the Longhill Road Corridor Study, completed in October 2014, did not recommended the installation of a traffic signal at this intersection as part of the long term (horizon year 2034) improvements. Therefore, it is recommended that a traffic signal should no longer be proffered as a means of traffic control for this intersection.

Centerville Road at Manchester Drive

Maintain the existing geometric configuration and traffic control measures.

News Road at Firestone Drive

Maintain the existing geometric configuration and traffic control measures.

Given the minimal residual development potential in Ford's Colony, no additional or proffered improvements are triggered beyond those that were identified under the Existing or Build operational conditions.

2 INTRODUCTION

Ford's Colony Homeowners Association (FCHOA), with support of REDUS VA Housing, LLC (REDUS) is pursuing a Master Plan and Proffer Amendment which includes proposing the construction of 60 residential condominium/townhouse units within the Ford's Colony development (i.e., Ford's Colony) in James City County, Virginia. Ford's Colony is a master planned community bounded by Longhill Road (State Route 612) to the north, Centerville Road (State Route 614) to the west, News Road (State Route 613) to the south, and a combination of retail/commercial land uses, residential areas, and Humelsine Parkway (State Route 199) to the east.

Through conversations with FCHOA, REDUS, and James City County staff as well as our review of the Ford's Colony Proffers (MP-2-87) dated June 20, 1988 and the Amended and Restated Ford's Colony Proffers (Z-04-98/MP-3-98) dated January 24, 1999, it was determined that a traffic impact study (TIS) must be prepared every five (5) years and/or prior to any proposed expansion or development within the Ford's Colony Master Planned residential development. The previous update was the *Ford's Colony Traffic Impact Study 2003-2004 Update*, completed in February 2004.

The purpose of this report is to satisfy the TIS requirement of the aforementioned proffers by summarizing existing and projected future traffic volumes as well as the associated operational conditions to determine if any of the identified off-site roadway, intersection, or traffic control (i.e., intersection signalization) improvements have been triggered for construction and/or may require acceleration. In addition, this study will identify the impacts to the intersections and roadway network due to the proposed development.

The proposed development will be located south of the roundabout intersection of Fords Colony Drive at St. Andrews Drive and is bounded by Eaglescliffe Condominiums to the west, single family units to the south, and the Marriott Manor Club at Ford's Colony to the east. **Figure 1** illustrates the proposed development's location. It is anticipated that the construction of the 60 residential condominium/townhouse units will be completed and operational for business by 2021. In addition to the 60 residential condominium/townhouse units, the following units were included in this TIS as part of the background traffic to represent the totality of the Ford's Colony Master Plan.

- 295 platted, unbuilt lots
- 30 un-platted Windsor development lots
- 14 un-platted Ford's property lots

Kimley-Horn has been retained to prepare a report that meets the requirements of updating the Ford's Colony TIS per the proffers as well as provides an assessment of the traffic impacts associated with the proposed development of the site. This report has been prepared for submittal to James City County and the Virginia Department of Transportation (VDOT) to evaluate existing conditions as well as future traffic conditions that include development related traffic volumes. Assumptions regarding the study area, access, and trip distribution were discussed with and approved by James City County staff prior to the completion of this analysis. The assumptions document is provided in **Appendix A**.

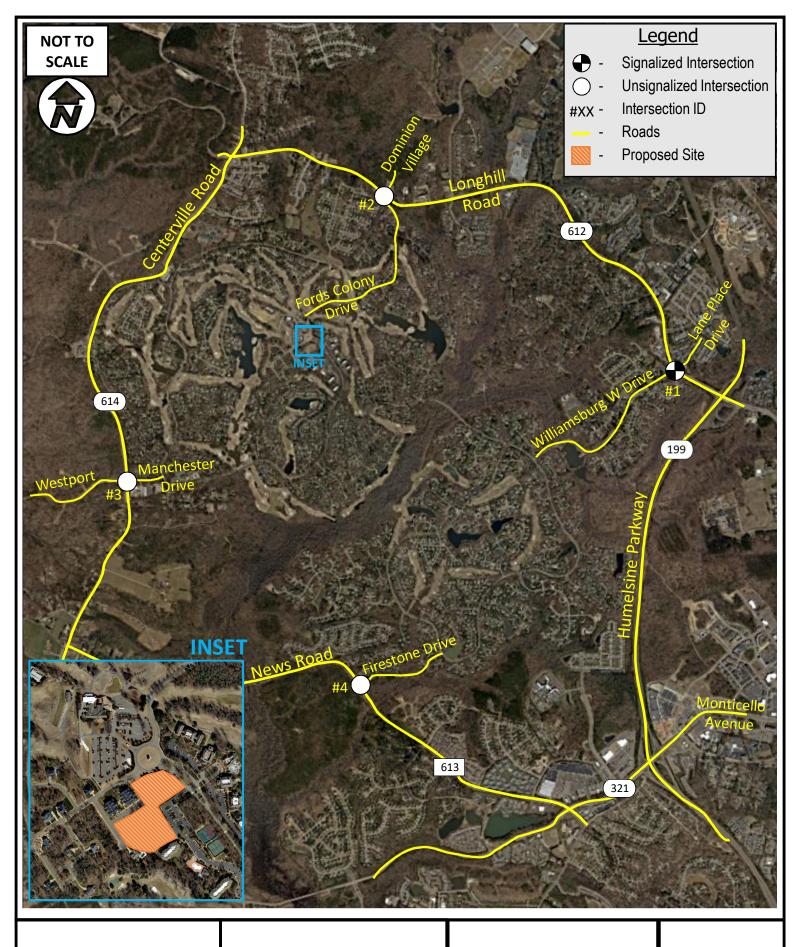
3 PROJECT BACKGROUND

3.1 STUDY AREA

Consistent with the previously completed TIS, the study area for this analysis, as illustrated in **Figure 1**, includes the following intersections:

Intersections

- Longhill Road at Williamsburg W. Drive/Lane Place Drive (signalized)
- Longhill Road at Fords Colony Drive (unsignalized)
- Centerville Road at Manchester Drive (unsignalized)
- News Road at Firestone Drive (unsignalized)



Kimley » Horn

Ford's Colony TIS Update James City County, VA

Study Area

FIGURE 1

3.2 PREVIOUS STUDIES

As mentioned in **Chapter 2**, the previous *Ford's Colony Traffic Impact Study 2003-2004 Update*, was completed in February 2004. This study was conducted pursuant to the proffer requirements and included a schedule of roadway improvements at the four (4) intersections that provide access to/from the Ford's Colony development, as shown in **Table 1**.

Table 1: Ford's Colony Traffic Impact Study 2003-2004 Update Recommendations

	Proffered Improvement Description	Recommended Action
(a)	Installation of Traffic Signals	
(i)	Longhill Road at Williamsburg W. Drive	Monitor traffic volumes in future to determine signal warrant justification
(ii)	News Road at Firestone Drive	Not warranted
(iii)	Longhill Road at Fords Colony Drive	Not warranted
(d)	Construction of Longhill Road at Williamsburg W. Drive Intersection	ion
(ii)	Add two through lanes on Longhill Road	Operational analysis determined improvement was not required
(iii)	Add second westbound left-turn lane on Longhill Road	Operational analysis determined improvement was not required
(iv)	Add second northbound right-turn lane on Williamsburg W. Drive	Operational analysis determined improvement was not required
(e)	Construct eastbound right-turn lane on Longhill road at Fords Colony Drive	Continue to monitor traffic volumes in future to determine turn lane warrant justification.
(f)	Dedication of a 15-foot strip of land and construction of four lanes on Longhill Road from Williamsburg W. to Route 199	Operational analysis determined improvement was not required

3.3 EXISTING ZONING

The project site for the proposed development is located within the Ford's Colony Master Planned development. This parcel is currently unoccupied and is zoned as Residential Planned Community (R4). **Figure 2** illustrates the existing zoning adjacent to the site.

Zoning in this area primarily consists of the following districts: General Residential (R2), Residential Planned Community (R4), Rural Residential (R8), and General Agriculture (A1). The Marriott's Manor Club at Ford's Colony is located to the east of the proposed site and the Ford's Colony Country Club is located to the north of the proposed site, which contains hotel accommodations, restaurants, services, and various recreational golf uses. To the south and west of the proposed residential condominium/townhouse site are additional residential areas.

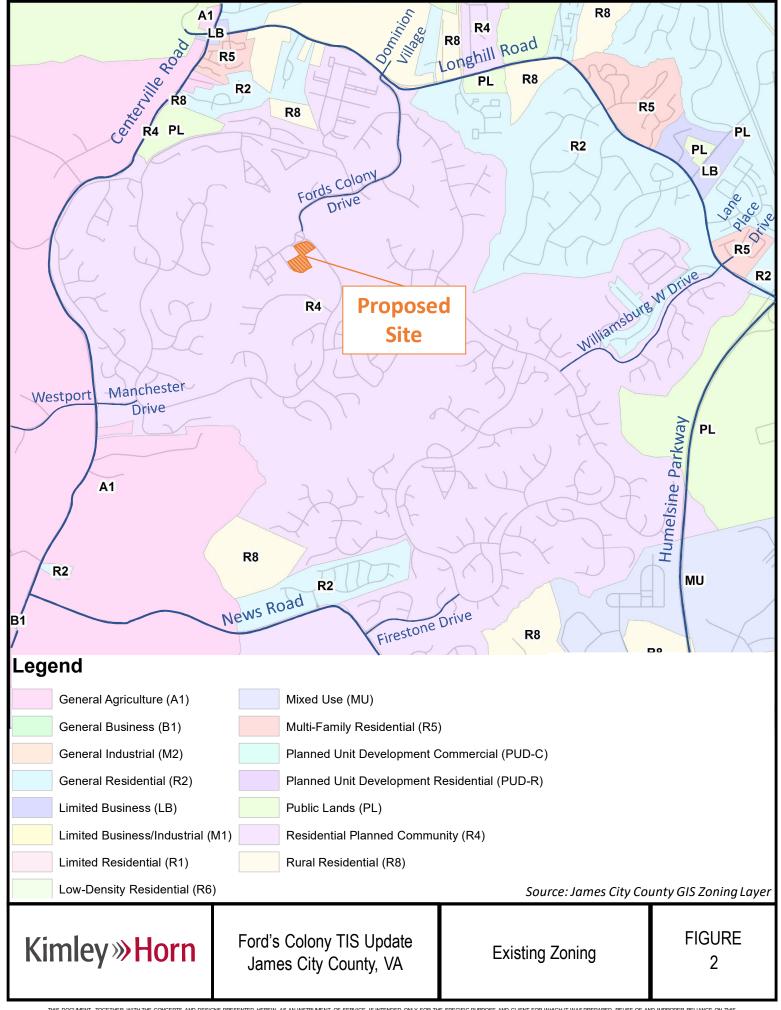
3.4 EXISTING CONDITIONS

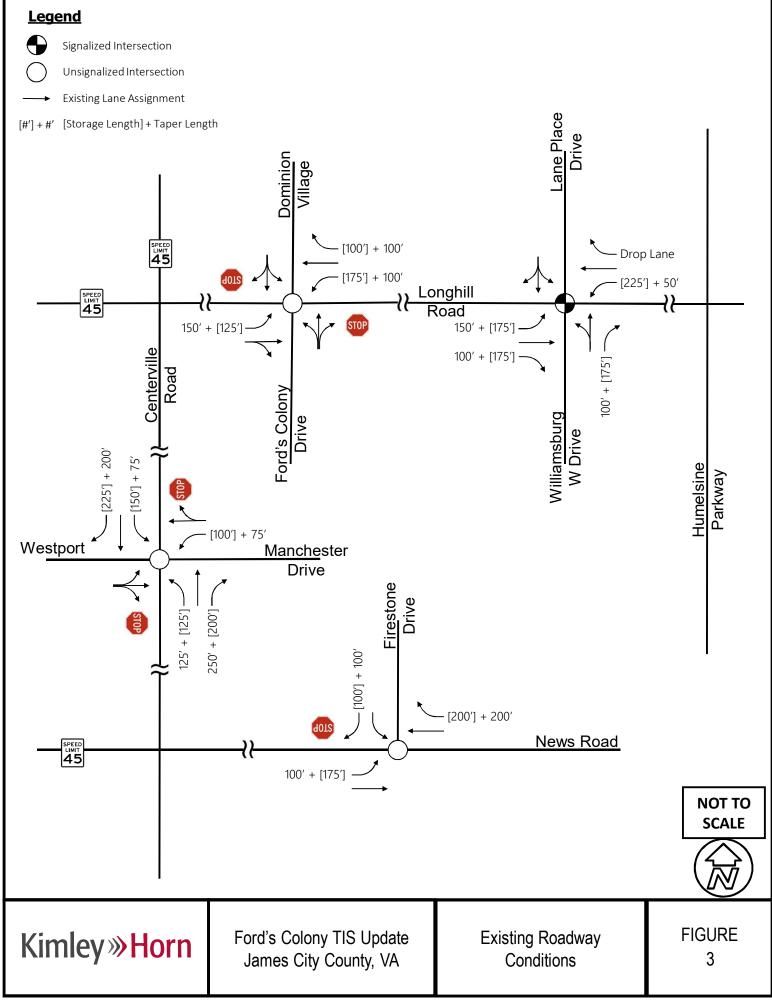
Longhill Road, Centerville Road, and News Road are the primary thoroughfares within the study area that provide connections to Williamsburg W. Drive, Ford's Colony Drive, Manchester Drive, and Firestone Drive, which provide access to/from the Ford's Colony community. **Figure 3** depicts existing roadway geometry, lane assignments, and conditions for study area roadways and intersections. The following provides a brief description of existing roadway characteristics for each facility:

Longhill Road (State Route 612) is a two-lane, undivided minor arterial that runs in an approximate east/west direction between Centerville Road to the west and the Humelsine Parkway (Route 199) interchange to the east. Traffic counts collected by VDOT in 2018 indicate that Longhill Road carried approximately 7,600 vehicles per day (vpd) between Centerville Road and Season's Trace and approximately 16,000 vpd between Season's Trace and Humelsine Parkway. The posted speed limit along this segment of roadway within the study area is 45 miles per hour (mph).

Centerville Road (State Route 614) is a two-lane, undivided minor arterial in James City County. Centerville Road runs in an approximate north/south direction in the study area between Longhill Road to the north and News Road to the south. Traffic counts collected by VDOT in 2018 indicate that Centerville Road carried approximately 4,900 vpd between News Road and Jolly Pond Road. The posted speed limit along this segment of Centerville Road is 45 mph.

News Road (State Route 613) is a two-lane, undivided major collector road that runs in an approximate east/west direction that extends from Centerville Road in the west to Ironbound Road in the east. Traffic counts collected by VDOT in 2018 indicate that News Road carried approximately 3,900 vpd within the study area. The posted speed limit is 45 mph.





3.5 EXISTING PEDESTRIAN AND BICYCLE ACCOMMODATIONS

Pedestrian accommodations (i.e., crosswalks, pedestrian signal heads) are not provided at any of the study intersections. However, sidewalk is provided on the north side of Longhill Road from Williamsburg W. Drive/Lane Place Drive to Warhill Trail. Portions of sidewalk are located along Centerville Road but lack connectivity throughout the study area.

In addition, paved shoulders allow for bicycle traffic on Longhill Road from Williamsburg W. Drive to Old Towne Road. Dedicated bike lane pavement markings traversing through the intersections are provided at major intersections along Longhill Road to enhance the visibility and safety of the bicyclists. A dedicated bike lane is provided along southbound Centerville Road from Longhill Road to just north of Mallory Place. Paved shoulders allow for bicyclist traffic on Centerville Road, south of Mallory Place. Pedestrian and bicycle accommodations are not provided along either side of News Road.

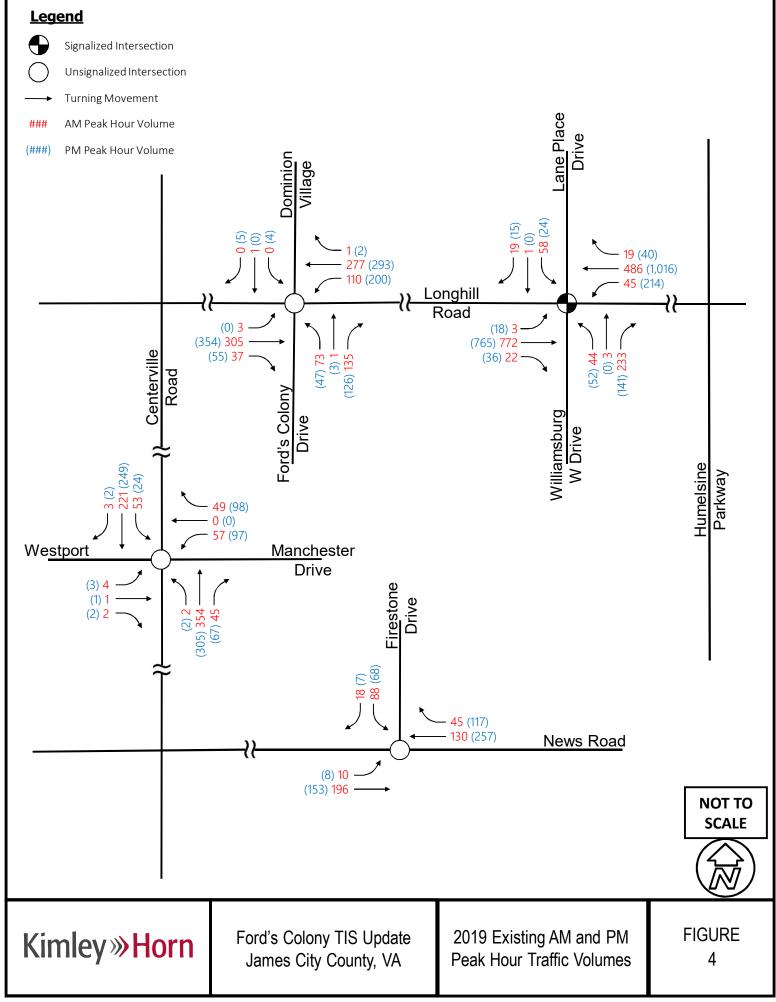
3.6 EXISTING TRAFFIC

Consistent with the previously completed TIS, AM and PM peak conditions were analyzed to evaluate potential impacts of the proposed development. To coincide with these times, turning movement counts (TMC) which included vehicular, truck, and pedestrian traffic were collected at the following study area intersections on June 8, 2017:

- Longhill Road at Williamsburg W. Drive/Lane Place Drive
- Longhill Road at Fords Colony Drive
- Centerville Road at Manchester Drive
- News Road at Firestone Drive

The uniform peak hours for these intersections were found to be 7:30 AM to 8:30 AM and 4:45 PM to 5:45 PM for the AM and PM peak hours, respectively. It should be noted that peak hour volumes were not adjusted and/or balanced, due to the location and number of access driveways between study area intersections.

Each movement of the 2017 TMCs were grown using annualized growth rates detailed in **Section 6.1** to calculate the 2019 volumes for each intersection. The AM and PM peak hour turning movement volumes from the abovementioned data sources are shown in **Figure 4**. Detailed count data is also provided in **Appendix B**.



4 TRIP GENERATION

To determine the anticipated number of trips generated by the proposed residential condominium/townhouse development, the *Trip Generation Manual*, published by the Institute of Transportation Engineers [ITE], 10th Edition, 2017 was used to estimate the new traffic on the adjacent roadway network.

The proposed development will consist of 60 residential condominium/townhouse units. Based on this land use type and intensity, trip generation estimates were calculated as shown in **Table 2**.

Table 2: ITE Trip Generation Summary (10th Edition)

ITE Code		Density		AM	Peak H	our	PM Peak Hour		
	ITE Description			Enter (23%)		Total	Enter (63%)	Exit (37%)	Total
220	Multifamily Housing (Low-Rise)	60 Dwelling Units	413	7	22	29	23	14	37

Source: ITE Trip Generation Manual, 10th Edition

The total amount of traffic generated by the proposed development is anticipated to consisted of 413 daily trips, of which 29 trips will occur during the AM peak and 37 trips will occur during the PM peak hour, respectively. No pass-by or internal capture rate reductions were included as part of this analysis.

5 TRAFFIC DISTRIBUTION AND ASSIGNMENT

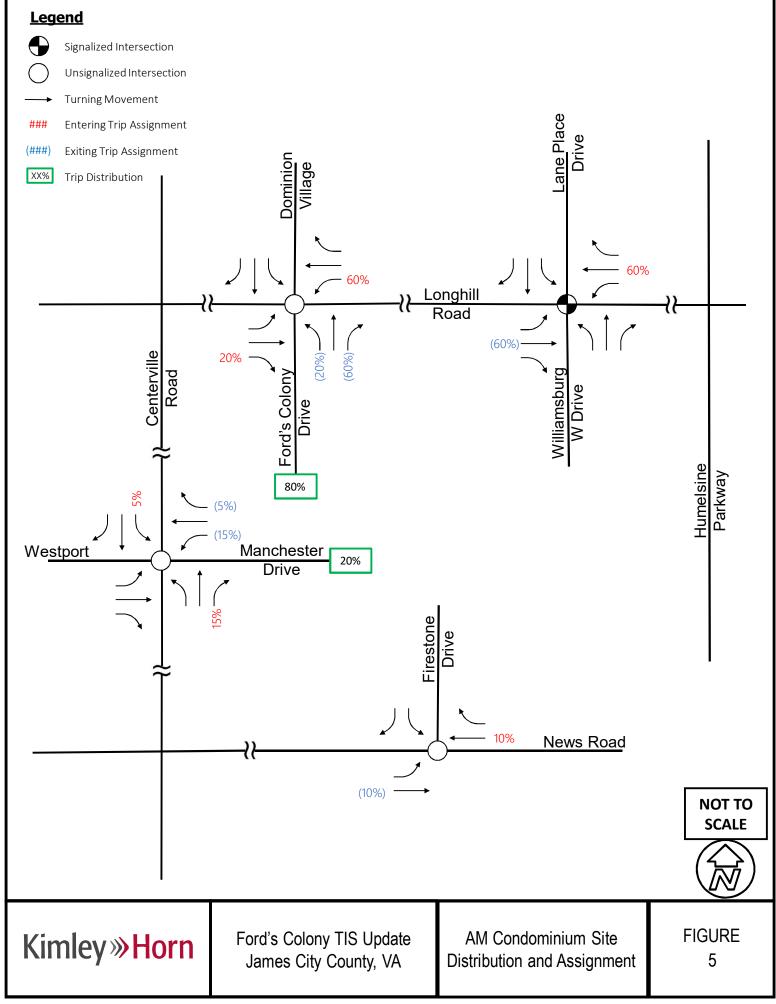
The directional distribution and assignment of trips generated by the proposed redevelopment was based on a review of existing traffic volumes, site access, the *Ford's Colony Traffic Impact Study 2003-2004 Update*, and an understanding of travel patterns within the study area. From this review and conversations with VDOT, the following traffic distributions were derived for the analysis of the study area:

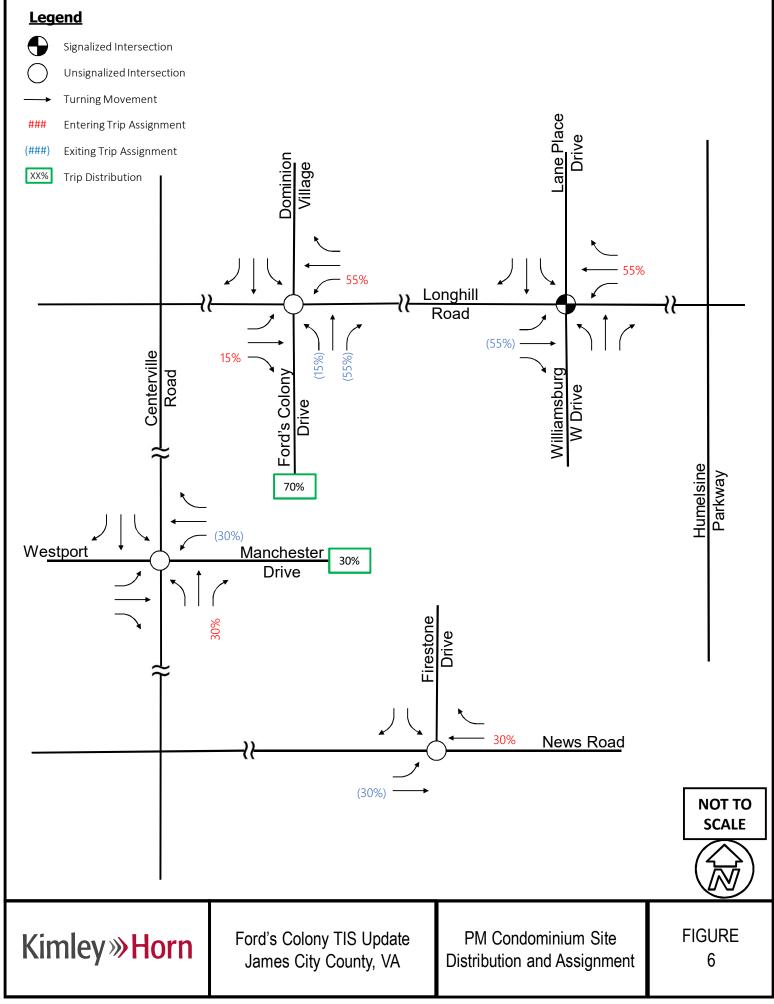
- AM Peak Hour
 - 80% of the trips generated will travel to/from the north on Ford's Colony Drive
 - 60% to/from the east on Longhill Road
 - 20% to/from the west on Longhill Road
 - o 20% of the trips generated will travel to/from the west on Manchester Drive
- PM Peak Hour
 - o 70% of the trips generated will travel to/from the north on Ford's Colony Drive
 - 55% to/from the east on Longhill Road
 - 15% to/from the west on Longhill Road
 - 30% of the trips generated will travel to/from the west on Manchester Drive

Based on conversations with VDOT, this TIS assumes site trips will not utilize the Williamsburg W. Drive or Firestone Drive access points due to the distance to/from the proposed development site.

As shown previously in and consistent with the previous TIS, the proposed development site will not introduce any new access points to existing/adjacent study area roadways.

Detailed AM and PM peak hour trip distribution and trip assignment is shown in **Figure 5** and **Figure 6**, respectively.





6 PROJECTED TRAFFIC VOLUMES

Based on discussions with James City County, the following existing and horizon year scenarios were agreed to and analyzed to determine future impacts of the proposed development based on the anticipated schedule for construction and opening:

- Scenario 1 2019 Existing traffic conditions
- Scenario 2 2021 Opening Year No-Build conditions Build-out year traffic conditions <u>with</u> only background development trips applied (i.e., approved adjacent development traffic)
- Scenario 3 2021 Opening Year Build conditions Build-out year traffic conditions <u>with</u> background development trips applied <u>plus</u> traffic volumes generated by the proposed development
- Scenario 4 2027 Opening Year +6 years No-Build conditions Build-out year traffic conditions with only background development trips applied (i.e., approved adjacent development traffic)
- Scenario 5 2027 Opening Year +6 years Build conditions Build-out year traffic conditions <u>with</u> background development trips applied <u>plus</u> traffic volumes generated by the proposed development

6.1 BACKGROUND TRAFFIC GROWTH

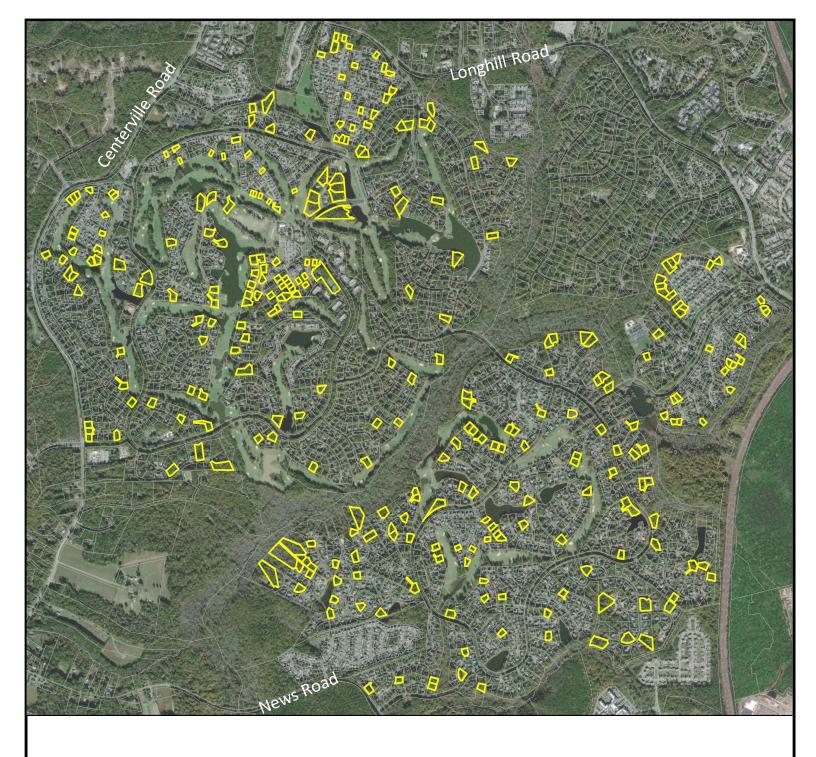
Background traffic growth rates were determined by using rates developed as part of the *Longhill Road Corridor Study*, completed and adopted in October 2014, and historical traffic volume trends over the previous six (6) years (i.e., 2011 to 2016) from VDOT data.

- Longhill Road 2.0% per year (consistent with *Longhill Road Corridor Study*)
- Centerville Road 2.5% per year
- News Road 2.0% per year

Since November 2019, approximately 2,851 of 3,250 total units have been built within Ford's Colony with a remainder of 399 unbuilt units, as shown in **Figure 7**. The 399 unbuilt units are as follows:

- 295 platted, unbuilt lots
- 60 un-platted Eaglescliff development lots
- 30 un-platted Windsor development lots
- 14 un-platted Ford's property lots

With the addition of 90 units, Ford's Colony has a remainder of 309 units available. The additional 90 units consist of 60 units in the Eaglescliff development (described in Chapter 4) and 30 units in the Windsor development (described in Section 6.1.1.). The aforementioned traffic growth rates were applied to all intersection movements to account for the trip generation potential of the remaining 309 units; thus, accounting for the full build-out of Ford's Colony.





Kimley»Horn

Ford's Colony TIS Update James City County, VA

Ford's Colony Unbuilt Lots

FIGURE 7

6.1.1 OTHER DEVELOPMENT TRAFFIC

Since the 2004 study was completed, there has been minimal to no residential development/expansion occurring within the Ford's Colony Master Plan development. However, three additional developments adjacent to Ford's Colony were provided by James City County for inclusion in the analysis of future traffic operational conditions: The Villages at Ford's Colony (The Villages), Westport Subdivision at Ford's Colony (Westport), and Windsor Property (Windsor).

Per the *News Road Corridor Traffic Forecast and Analysis*, completed in April 2008, the Villages at Ford's Colony has a proposed entrance on the northbound approach of the News Road at Firestone Drive intersection. The Westport development's entrance is currently located on the eastbound approach (west leg) of the Manchester Drive at Centerville Road intersection.

In addition, the Windsor development is anticipated to be located along Ford's Colony Drive across from N. Knob Hill. Future traffic volumes associated with these other approved developments were accounted for and calculated using the most recent version of the *ITE Trip Generation Manual*.

Trip generation densities as well as the trip distribution and assignment percentages for The Villages and Westport developments will remain consistent with the *News Road Corridor Traffic Forecast and Analysis*. The trip distribution and assignment for the Windsor property will be consistent with the proposed redevelopment as detailed in **Chapter 5**.

The Villages development will consist of attached and detached senior adult housing, congregate care housing, assisted living, and a nursing home, for a total of 739 units. The trip generation was calculated, and the results are shown in **Table 3.** The total amount of traffic generated by The Villages development consisted of 2,078 daily trips, of which 101 and 161 trips will occur during the AM and PM peak hours, respectively.

Table 3: ITE Trip Generation Summary for The Villages at Ford's Colony Development

ITE	ITE Description	Density	Unit	Daily	AM	l Peak H	our	PM Peak Hour		
Code	THE Description	Defisity		Daily	Enter	Exit	Total	Enter	Exit	Total
251	Senior Adult Housing - Detached	38	Dwelling Units	240	7	13	20	14	9	23
252	Senior Adult Housing - Attached	168	Dwelling Units	650	12	21	33	24	19	43
253	Congregate Care Housing	390	Dwelling Units	788	13	9	22	32	28	60
254	Assisted Living	83	Beds/Rooms	216	10	6	16	8	14	22
620	Nursing Home	60	Beds/Rooms	184	7	3	10	4	9	13
Total 739				2,078	49	52	101	82	79	161

Note: It is assumed that there is one bed per room, and therefore each bed is considered one dwelling unit.

The Westport development will consist of 43 units of single-family detached housing. The trip generation estimates for the proposed Westport development are shown in **Table 4**. The total amount of traffic generated by the Westport development consisted of 478 daily trips, of which 35 will occur during the AM peak hour and 45 will occur during the PM peak hour, respectively.

Table 4: ITE Trip Generation Summary for Westport Subdivision at Ford's Colony Development

ITE	ITE Description	ITE Description Density Unit			AM Peak Hour			PM Peak Hour			
Code	ITE Description	Density Unit	y Unit	ly Offic	Daily	Enter	Exit	Total	Enter	Exit	Total
210	Single-Family Detached Housing	43	Dwelling Units	478	9	26	35	28	17	45	

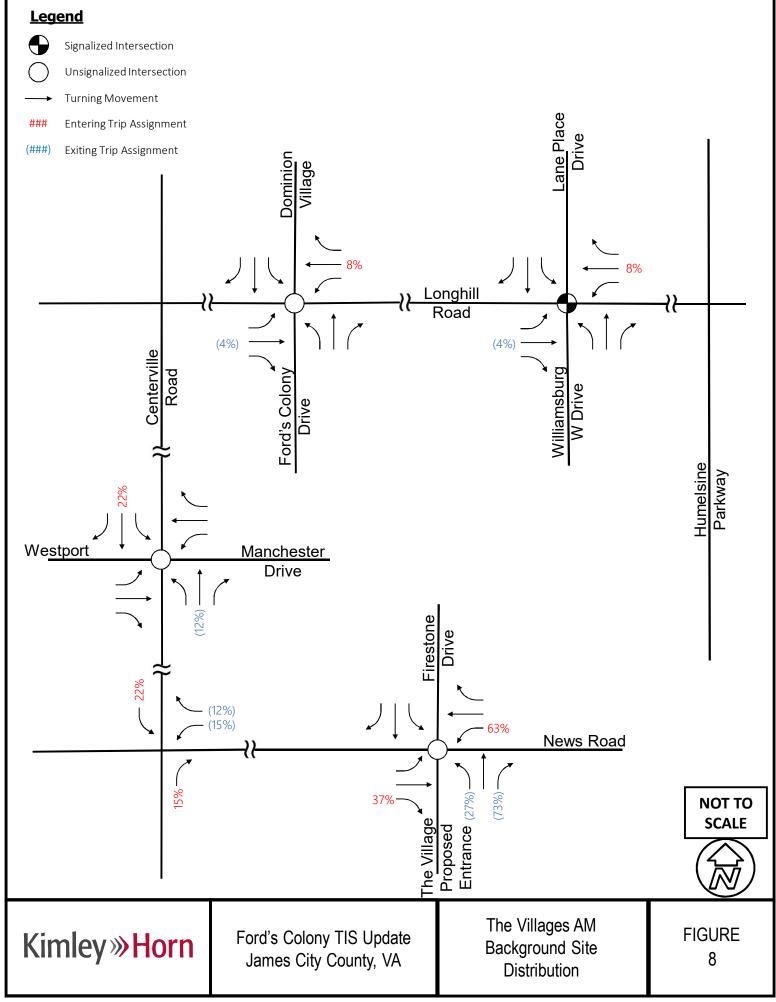
The Windsor development will consist of 30 units of multifamily attached housing. The trip generation estimates for the proposed Windsor development are shown in **Table 5.** The total amount of traffic generated by the Windsor development consisted of 186 daily trips, of which 15 will occur during the AM peak hour and 20 will occur during the PM peak hour, respectively. **Figure 8** through **Figure 13** illustrate the approved development site trip distributions and assignments.

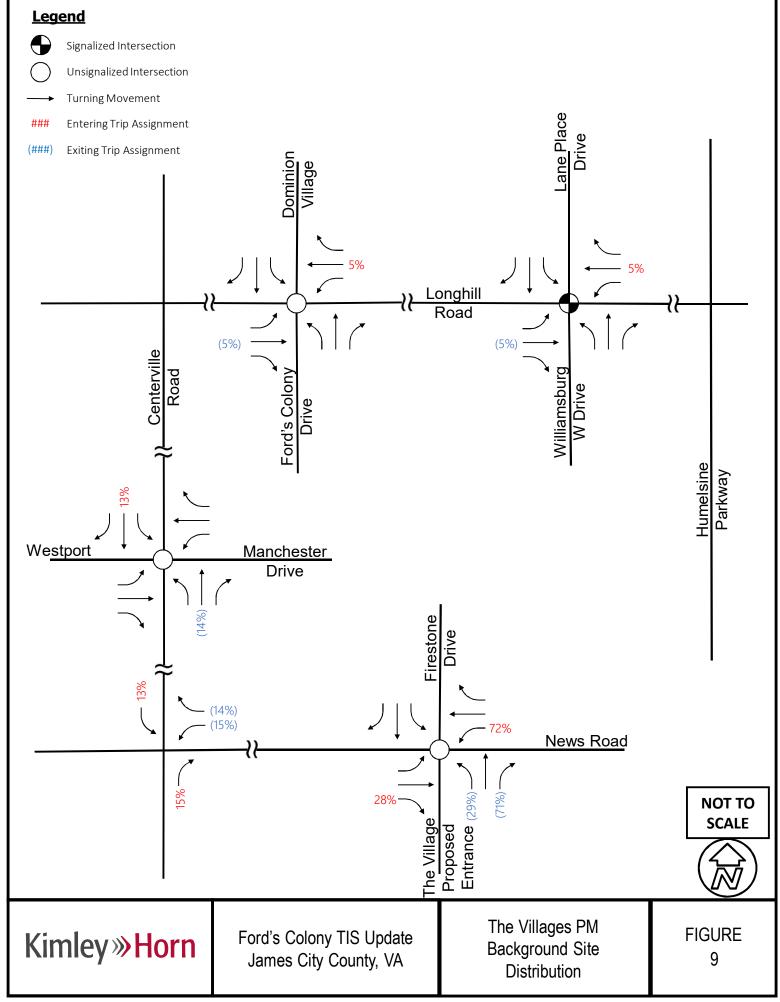
Table 5: ITE Trip Generation Summary for Windsor Development

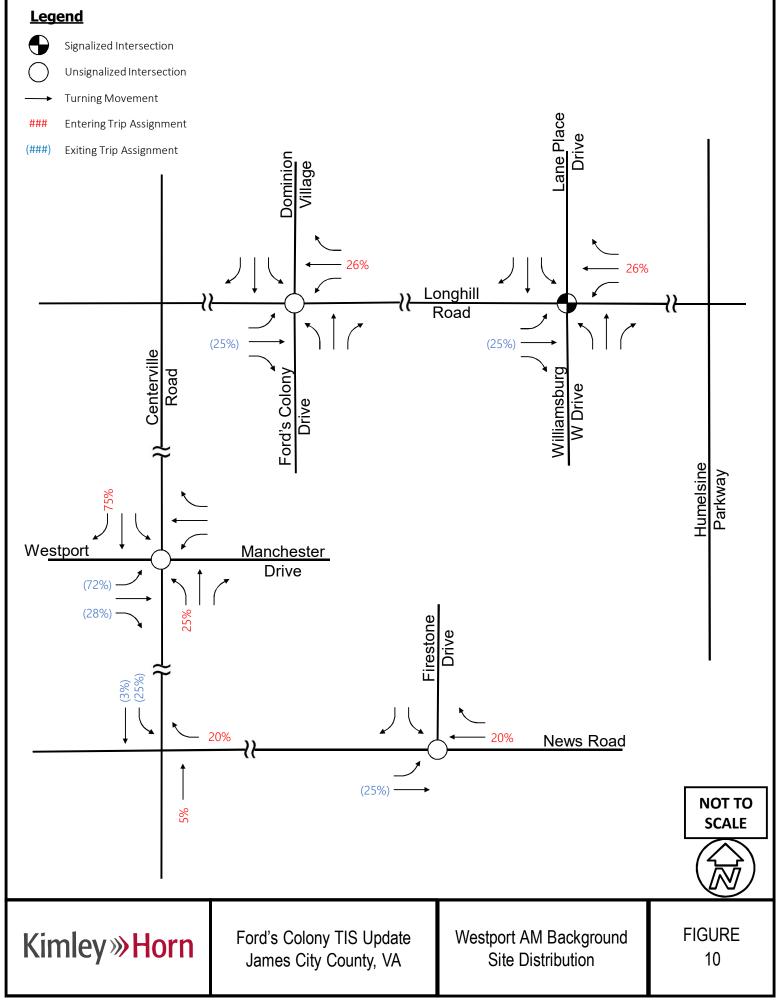
ITE	ITE Description	Density	nsity Unit	Doily	AM Peak Hour			PM Peak Hour		
Code	ITE Description			Daily	Enter	Exit	Total	Enter	Exit	Total
220	Multifamily Housing (Low-Rise)	30	Dwelling Units	186	3	12	15	13	7	20

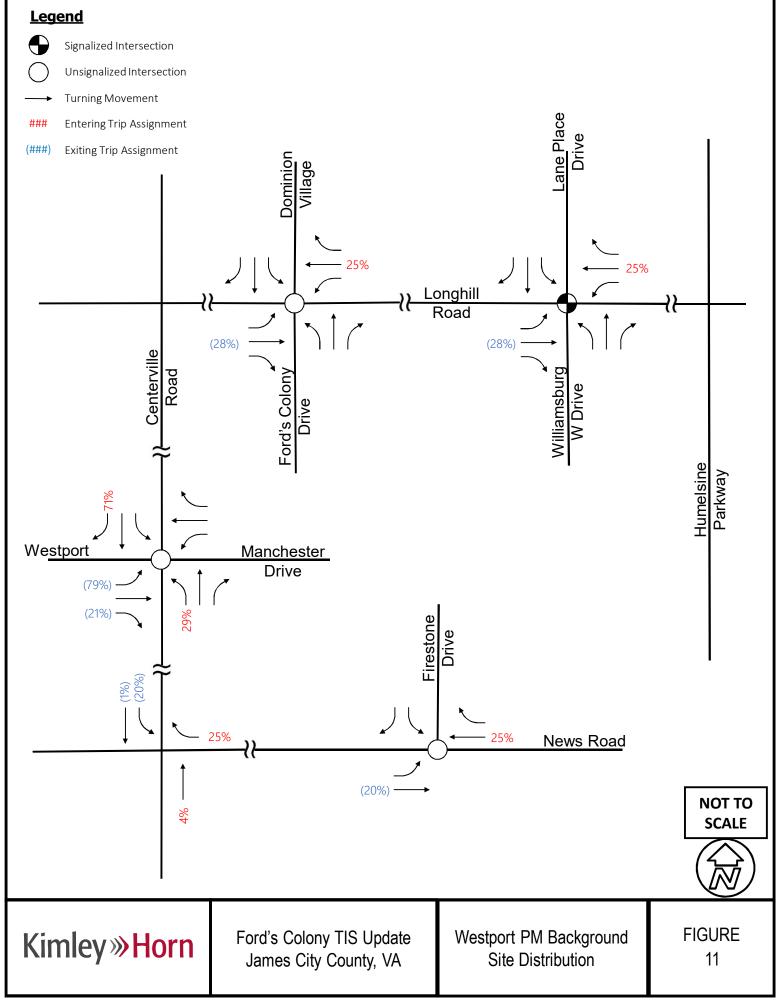
6.2 TOTAL TRAFFIC

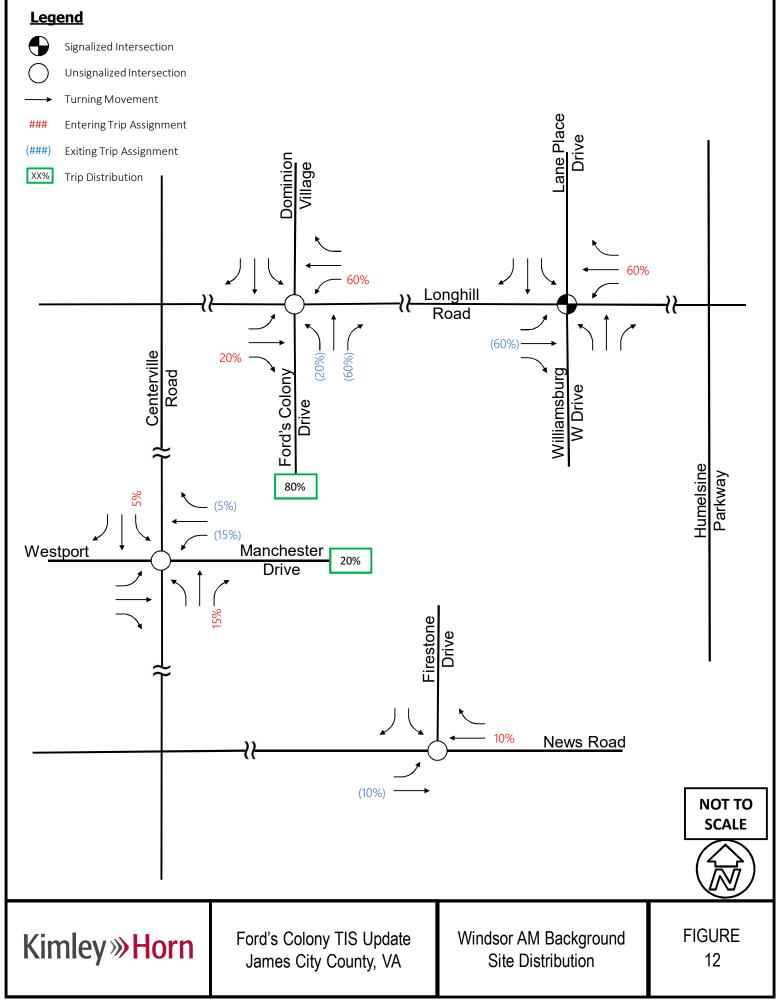
Traffic associated with the proposed residential condominium/townhouse development was added to the future background traffic volumes as well as the approved development traffic volumes to develop the total traffic volumes for 2021 and 2027 future Build conditions. **Figure 14** through **Figure 17** illustrate the peak hour traffic volumes used in the analysis of future conditions (i.e., No-Build and Build). Worksheets detailing the volumes for the study area intersections are provided in **Appendix C**.

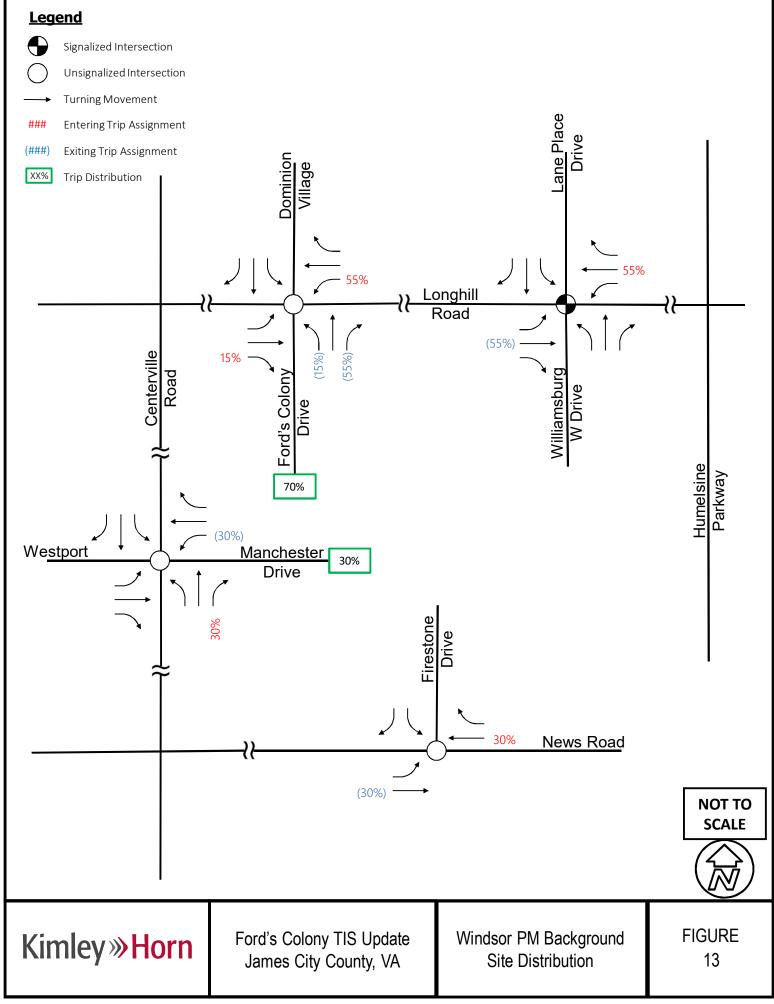


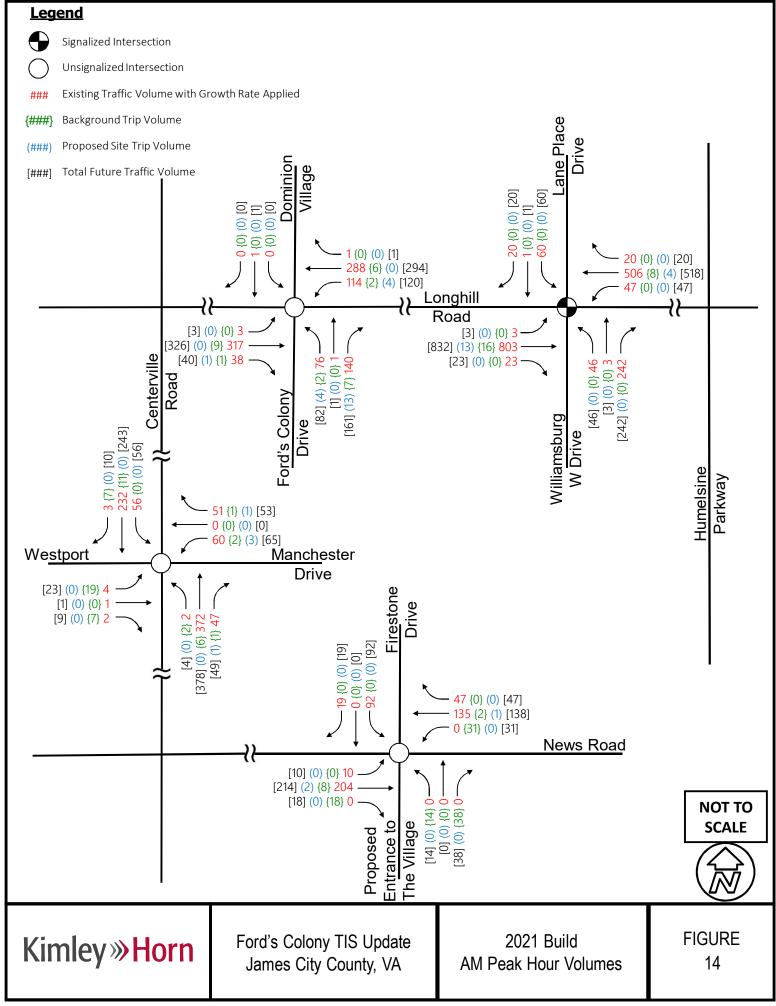


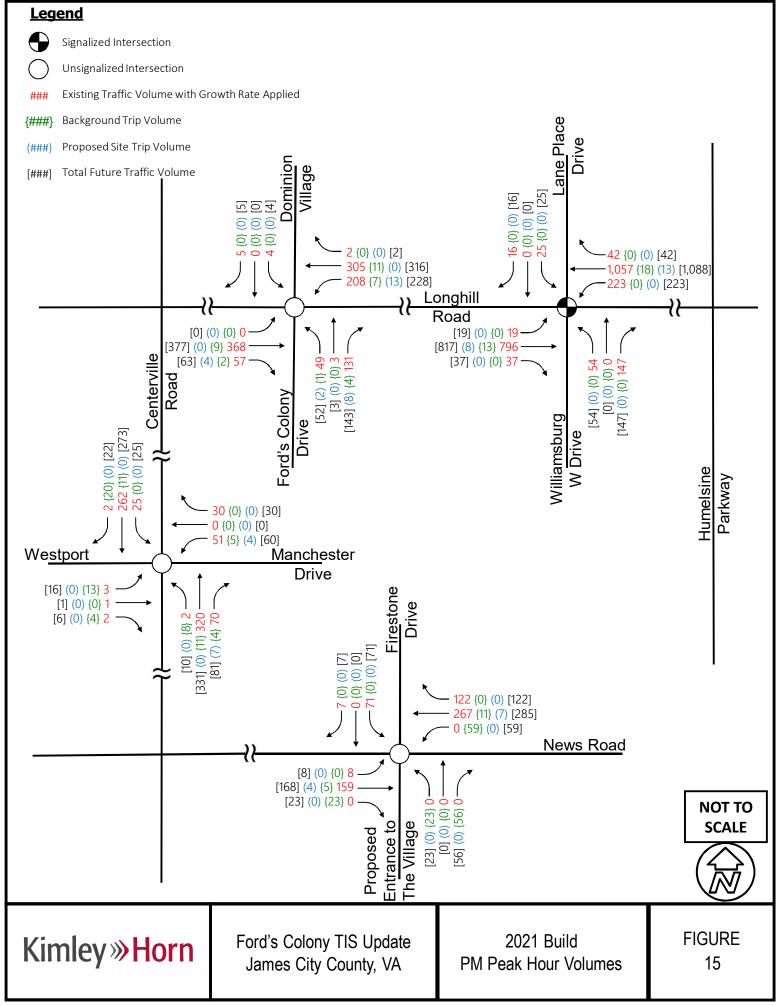


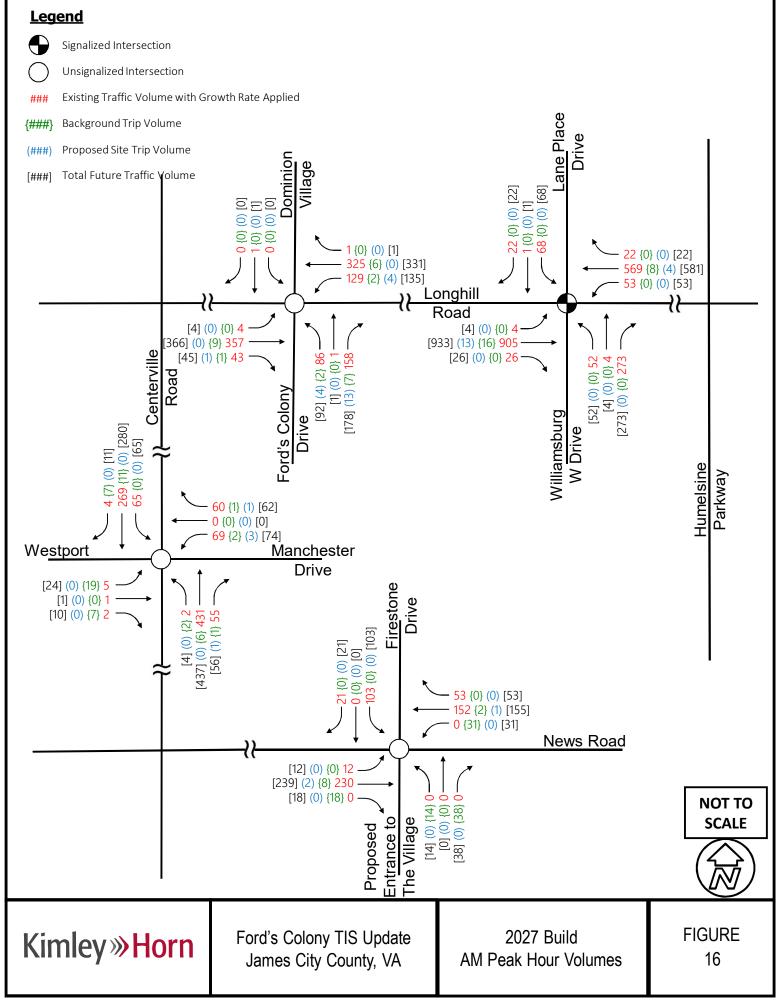


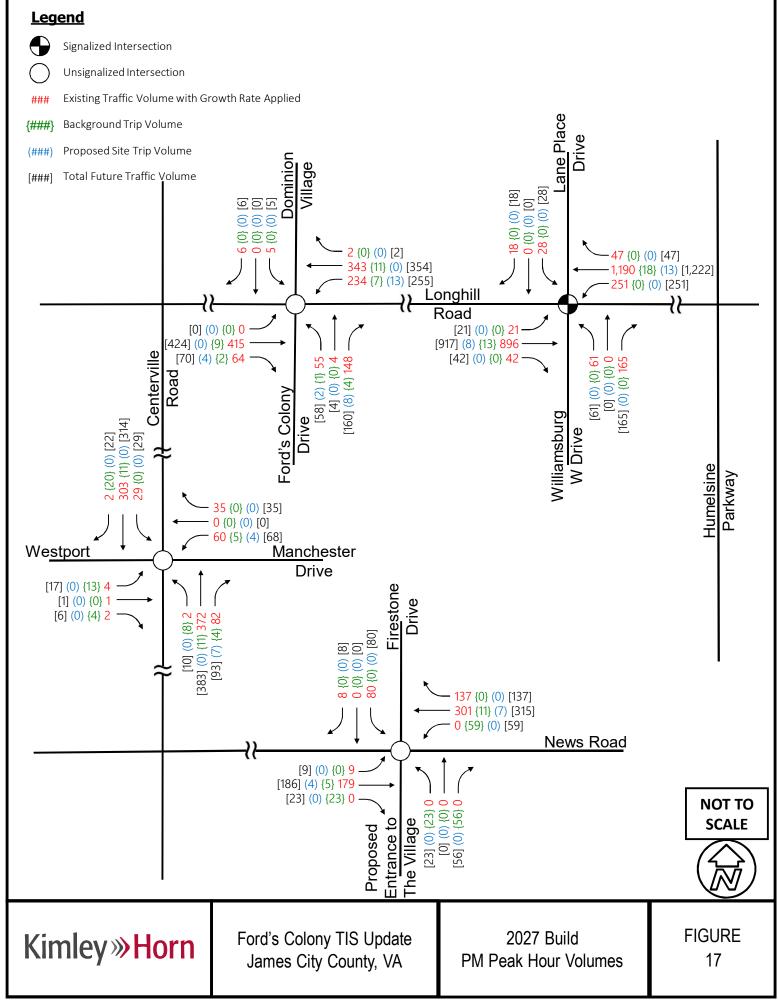












7 TRAFFIC ANALYSIS

The traffic analysis for the proposed condominium/townhouse development as well as the improvements outlined in the proffers consisted of right-turn lane warrants, traffic signal warrants, and intersection operations. Analyses of study area intersections for AM and PM peak hours were performed for the following scenarios:

- 2019 Existing
- 2021 No-Build (background traffic only)
- 2021 Build (background traffic <u>with</u> proposed development trips)
- 2027 No-Build (background traffic only) Includes planned Longhill Road widening and intersection improvements currently under construction
- 2027 Build (background traffic <u>with</u> proposed development trips) *Includes planned Longhill* Road widening and intersection improvements currently under construction

The planned Longhill Road widening and intersection improvements currently under construction included in the study area are shown in **Figure 18**.



Figure 18: Longhill Road Widening and Intersection Improvements

7.1 RIGHT-TURN LANE WARRANT

A right-turn lane warrant analysis was performed for the eastbound approach of Longhill Road at the Fords Colony Drive intersection to assess the need for a full-width exclusive right-turn treatment, as outlined by the proffers. This was conducted in accordance with VDOT right turn-lane warrant analysis guidelines per *Appendix F Access Management Design Standards for Entrances and Intersections*. Detailed data sheets for the turn lane warrant under each scenario are provided in **Appendix D**. Based on these guidelines, **Table 6** illustrates that a full-width, right-turn lane and taper is warranted for the PM peak hour under 2021 Build, 2027 No Build, and 2027 Build scenarios.. Based on these turn-lane warrant analysis findings, it is recommended that a full width right-turn lane be constructed for the eastbound approach Longhill Road at Fords Colony Drive.

Table 6: Summary of Right-Turn Lane Warrant Analysis for Fords Colony Drive at Longhill Road

	Warrant	ts Analysis
Scenario	Right-Turn	Lane Warrant
	AM	PM
Existing (2019)	√ (taper required)	✓ (taper required)
No Build (2021)	✓ (taper required)	✓ (taper required)
Build (2021)	(taper required)	(full-width turn lane and taper required)
No Build (2027)	(taper required)	(full-width turn lane and taper required)
Build (2027)	(taper required)	(full-width turn lane and taper required)

Notes: × - Warrant not met

✓ - Warrant met

7.2 TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic signal warrant analyses were performed for the unsignalized intersection of Longhill Road at Fords Colony Drive and the unsignalized intersection of News Road at Firestone Drive, consistent with the methodologies provided in the *Manual on Uniform Traffic Control Devices* (MUTCD), to evaluate the need for traffic signalization under existing and future traffic conditions. These warrants are based on mainline and minor street traffic volumes, the number of travel lanes, approach turn-lanes, and mainline posted speed limit. According to the MUTCD, a traffic control signal should not be installed unless one or more of the signal warrants are met. The warrants used in this analysis are as follows:

- Warrant 1 (Eight-Hour Vehicular Volume) is satisfied if ONE of the following conditions exists for any eight hours of an average day:
 - Condition A (Minimum Vehicular Volume) volumes meet or exceed the necessary hourly thresholds for any eight hours of an average day. Thresholds may be modified based on vehicle speeds and population of the local community.

- Condition B (Interruption of Continuous Traffic) volumes meet or exceed the necessary hourly thresholds for any eight hours of an average day. Thresholds may be modified based on vehicle speeds and population of the local community.
- Combination of Condition A and B intended to be used where Conditions A and B are not individually met and where volume thresholds may be reduced based on anticipated traffic delay at the intersection.
- Warrant 2 (Four-Hour Vehicular Volume) volumes meet or exceed the necessary hourly thresholds for any four hours of an average day. Thresholds are typically higher than those for Warrant 1 and may be applicable when high traffic volumes are concentrated over a shorter time period (less than eight hours). The thresholds may also be modified based on vehicle speeds and population of the local community
- Warrant 3 (Peak Hour Volume) volumes meet or exceed the necessary hourly thresholds for any one hour of an average day. This warrant should only be applied in unusual cases where an area is expected to discharge a large volume of traffic over a short period of time. Thresholds may be modified based on vehicle speeds and population of the local community.

Under each warrant analysis, existing turning movement volumes were used to determine if the volume thresholds provided in the MUTCD were met. This provides a baseline to establish the potential for needing a signal under current traffic loads. For future No-Build and Build conditions, the signal warrant analysis was performed accounting for future growth in traffic associated with and without the proposed development traffic. For the Longhill Road at Fords Colony Drive intersection, the westbound right-turn volumes were not accounted for as part of this analysis under the existing and future conditions since an exclusive right-turn lane is provided to accommodate this movement. In addition, the northbound right-turn lane volumes on Fords Colony Drive were not included in the signal warrant analysis as drivers are utilizing the 24-foot pavement width to turn right as other vehicles are stopped for the through or left-turn movements. For the News Road at Firestone Drive intersection, the southbound and westbound right-turn vehicles were not accounted for as part of this analysis under the existing conditions. In addition, the northbound right-turn vehicles were not included as part of this analysis for the Villages driveway under the future conditions.

To assign the hourly site traffic for the future warrant analysis, all assumptions and methods (i.e., trip generation, pass-by reduction, distribution, background traffic growth, other development traffic) were followed, with an additional step of applying hourly variations to the daily trip generation total. The hourly variation breakdown for Multifamily Housing (Low-Rise) (220), as provided in the ITE Trip Generation Manual, were used for this purpose, as shown in **Table 7**.

Table 7: Hourly Variations in Residential Traffic

	Average '	Weekday
-	Percent of 24-Hour	Percent of 24-Hour
Time	Entering Traffic	Exiting Traffic
6 am – 7 am	1.6%	5.7%
7 am – 8 am	2.5%	9.0%
8 am – 9 am	3.7%	9.1%
9 am – 10 am	3.7%	6.5%
10 am – 11 am	4.1%	5.5%
11 am – 12 pm	4.5%	5.7%
12 pm – 1 pm	5.3%	5.3%
1 pm – 2 pm	5.4%	5.7%
2 pm – 3 pm	6.5%	5.9%
3 pm – 4 pm	8.1%	6.3%
4 pm – 5 pm	9.8%	6.3%
5 pm – 6 pm	10.8%	6.5%

Source: ITE Trip Generation Manual, 10th Edition

The results of the signal warrant analyses are provided in **Table 8** and **Table 9**, with complete tables outlining the traffic volumes used, in **Appendix D**.

Table 8: Summary of Warrant Analysis for Longhill Road at Fords Colony Drive

		Wa	arrants Analysis		
Scenario	W	arrant 1 (8 Hou	ır)	Warrant 2	Warrant 3
	Condition A	Condition B	Combination (A & B)	(4 Hour)	(1 Hour)
Existing (2019)	×	×	×	×	×
	(0 out of 8)	(4 out of 8)	(0 out of 8)	•	
No Build (2021)	×	×	×	×	×
110 24114 (2021)	(0 out of 8)	(6 out of 8)	(0 out of 8)	•	•
Build (2021)	×	×		×	×
	(0 out of 8)	,	(1 out of 8)	•	•
No Build (2027)	×	/	×	✓	×
(2021)	(0 out of 8)	,	(1 out of 8)	•	•
Build (2027)	×	✓	×	✓	×
244 (2021)	(0 out of 8)		(3 out of 8)		

Notes: ➤ - Warrant not met

✓ - Warrant met

(# out of 8) – Number of hours that could meet the 8-hour warrant requirement

The warrant analysis for the Longhill Road at Fords Colony Drive intersection indicate that under the Existing and No Build future scenarios, Condition A, Condition B, and the Combination (A & B) Condition were not met except for the 2021 Build, 2027 No Build, and Build models, where Condition B was met.

Warrant 2 (4-hour volume) was not met under Existing and 2021 future scenarios for the Longhill Road at Fords Colony Drive intersection but was met for 2027 No Build and Build scenarios. From the warrant analysis, the traffic volumes on Longhill Road did not meet the minimum thresholds under Condition A and a maximum of 3 out of 8 volumes were met for the Combination Warrant. Since the intersection does not meet both Warrant 1 Condition A and Condition B or the Combination as well as low demand on Longhill Road, the traffic signal is not warranted and not recommended for further consideration as a part of the Fords Colony Master Plan.

Table 9: Summary of Warrant Analysis for News Road at Firestone Drive

		Wa	rrants Analysis		
Scenario	W	arrant 1 (8 Hou	r)	Warrant 2	Warrant 3
	Condition A	Condition B	Combination (A & B)*	(4 Hour)	(1 Hour)
Existing (2019)	(0 out of 8)	(0 out of 8)	≭ (0 out of 8)	×	×
No Build (2021)	× (1 out of 8)	(0 out of 8)	× (3 out of 8)	×	×
Build (2021)	(1 out of 8)	(0 out of 8)	× (3 out of 8)	×	×
No Build (2027)	(6 out of 8)	(3 out of 8)	× (6 out of 8)	×	×
Build (2027)	(6 out of 8)	(3 out of 8)	× (7 out of 8)	×	×

Notes: × - Warrant not met

✓ - Warrant met

(# out of 8) - Number of hours that could meet the 8-hour warrant requirements

The warrant analysis for the News Road at Firestone Drive indicated that under existing, No Build future, and Build future scenarios, conditions for Warrant 1 were not met. Under these scenarios, traffic generated by the current developments in Ford's Colony and approved developments were not high enough to meet the volume thresholds. Additionally, the 4-hour volume warrant was not met under existing conditions the News Road at Firestone Drive intersection. When taking into consideration the future site traffic generated by the background development and proposed residential condominium/townhouse development, a traffic signal is not warranted at the intersection for News Road at Firestone Drive.

7.3 PROFFER SCHEDULE OF IMPROVEMENTS

In addition to the turn lane and signal warrant analyses, the proffers identified the schedule of improvements based on the number of residential building permits when the hotel was or was not built. Since the hotel has not been constructed, the number of remaining undeveloped parcels was identified as 399 undeveloped within Ford's Colony out of the total 3,250 parcels identified from the previously completed TIS. The 399 undeveloped units consist of the following:

- 295 platted, unbuilt lots
- 60 un-platted Eaglescliff development lots
- 30 un-platted Windsor development lots

14 un-platted Brian Ford's property lots

Therefore, 2,841 parcels have been developed to date. **Table 10** illustrates the schedule of improvements, satisfaction of schedule, and construction of improvements.

Under Proffer Item A, the Longhill Road at Fords Colony Drive intersection satisfies the number of units, but the intersection of News Road at Firestone Drive does not satisfy the number of units. The Proffer Item E improvement is satisfied by the number of units constructed. Although several of the schedule of improvements are satisfied by the number of units, traffic operations and warrant analyses results proceed this schedule of improvements as the traffic operations are acceptable and warrants are not met for signalization.

Table 10: Proffered Improvements Triggered by Ford's Colony Permits

Proffer Item	Proffer Improvement	Residential Building Permits if Hotel Not Built	Number of Units Constructed	Number of Units Satisfied	Improvement Constructed	Improvement for Full Build Out (3,250 Units)
A. Installation	of Traffic Signals			•		
i	Longhill Road at Williamsburg W. Drive	2,236	2,851	✓	✓	-
ii	News Road at Firestone Drive	3,250	2,851	Х	X	Х
iii	Longhill Road at Fords Colony Drive	947	2,851	✓	X	Х
B. Installation	of Left and Right-Turn Lanes					
	News Road at Firestone Drive (Left-Turn)	0.000	2,851	✓	✓	-
ı	News Road at Firestone Drive (Right-Turn)	2,603	2,851	✓	✓	-
	Centerville Road at Manchester Drive (Left-Turn)	0.4=	2,851	✓	✓	-
ii	Centerville Road at Manchester Drive (Right-Turn)	947	2,851	✓	✓	-
C. Construct	Williamsburg W. Drive	!		l	!	I
i.	Establish right-of-way for four-lane road to Longhill Road	1,545	2,851	✓	✓	-
ii.	Construct two-lane private road Williamsburg W. Drive to Longhill Road	1,545	2,851	✓	✓	-
iii.	If VDOT does not permit construction of an intersection with Route 199 as set forth in paragraph below, widen the initial two-lane road to a four-lane road	2,928	2,851	×	X	х
D. Longhill Re	oad at Williamsburg W. Drive Intersection Improvements					
i.	Construct intersection of Williamsburg W. Drive and Longhill Road with: Right-turn lane on Williamsburg W. Drive onto Longhill Road; Right turn-lane on Longhill Road onto Williamsburg W. Drive; and left-turn lane on Longhill Road onto Williamsburg W. Drive	1,545	2,851	~	1	-
ii.	Add two through lanes on Longhill Road	2,603	2,851	✓	Under construction	-
iii.	Add lane for dual left-turn lanes on westbound Longhill Road onto Williamsburg W. Drive	2,928	2,851	✓	X	Х
iv.	Add lane for dual right-turn on Williamsburg W. Drive onto Longhill Road	3,250	2,851	Х	X	Х
E. Installation Drive	of right-turn lane on Longhill Road onto Ford's Colony	947	2,851	✓	Х	✓

7.4 INTERSECTION OPERATIONAL ANALYSIS

Operational analyses were conducted for the study area intersections for the AM and PM peak hours under the existing and future scenarios. The existing signal timings, including cycle lengths, clearance intervals, and splits, were provided by VDOT. Under 2019 No Build and Build conditions, all signal timings, coordination offsets, and phasing were optimized. Additionally, splits were generally kept similar between scenario as well, with only minor changes made to compensate for additional site traffic.

In addition, the peak hour factor (PHF) used for the existing (2019) conditions represents the actual PHF based on recent traffic count data. Per VDOT's Traffic Operations and Safety Analysis Manual (TOSAM) guidance, PHFs less than 0.92 should be adjusted up to 0.92 for all future analyses. Therefore, under future conditions, the intersections with PHFs less than 0.92 were adjusted up to 0.92 for this purpose of this study.

Analyses were completed to determine the operating characteristics of the study area intersections using *Synchro Professional 10.0* modeling software, which uses methodologies contained in the 2010 Highway Capacity Manual (HCM) [TRB Special Report 209, 2000]. The intersection operational analysis inputs and analysis methodologies were consistent with VDOT's TOSAM. Intersection turning movement counts were used with information about the number of lanes, current traffic control, and signal timings to determine the operational conditions of each study area intersection. Level of service (LOS) is reported for each of the study area intersections.

LOS describes the amount of traffic congestion at an intersection or on a roadway and ranges from A to F (A indicating a condition of little to no congestion and F a condition with severe congestion, unstable traffic flow, and stop-and-go conditions). LOS is based on the average delay experienced by all traffic using the intersection during the busiest (peak) 15-minute period. Generally, LOS A through LOS D are considered acceptable. Delay and associated LOS for both signalized and unsignalized intersections are reported from the Synchro analysis. In the LOS/delay tables for each of the study area intersections, values highlighted in "bold" represent movements operating at LOS E or worse. **Table 11** shows the corresponding thresholds in delay for unsignalized and signalized intersections.

The queuing results represent the maximum simulated queues for each movement as they compare to the effective storage lengths. Effective storage lengths represent the amount of distance available to vehicles to queue without generally impacting the adjacent lanes and consist of the full width storage, plus half of the taper distance. By using the effective storage, vehicles that can use a portion of the taper length as additional room for storage can be accounted for. All traffic models were developed and analyzed with the effective storage lengths coded into the network. Values highlighted as "bold" represent queue lengths that exceed the available storage lengths/spill back to an upstream intersection. As part of the queuing analysis, "percent blocking" was noted in instances where queues impact adjacent turnand/or through-lanes. This percentage represents the approximate amount of time during the peak hour when a lane was observed to be blocked (e.g., "10% blocking" indicates that during the peak hour, the turn-lane storage was exceeded and impacted 10 percent of the adjacent lane volume). The results are presented in the following summaries and supporting calculations are presented in **Appendix E**.

Table 11: LOS Control Delay Thresholds

LOS	Signalized Intersections Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections Average Control Delay [sec/veh]	Relative Delay			
	≤ 10	≤ 10				
А	Free-flow traffic operations at Vehicles completely unimpede Minimal delay at signalized in	ed in ability to maneuver.				
	> 10 – 20	> 10 – 15				
В	Reasonably unimpeded traffic speeds. Vehicle maneuverab traffic delays.		Short Delays			
	> 20 – 35	> 15 – 25				
С	Stable traffic operations. Land restricted. Travel speeds redufflow travel speeds. Longer in	uced to half of average free				
	>35 – 55	> 25 – 35				
D	Small increases in traffic flow Delays likely attributable to inc progression and adverse timir	crease traffic, reduced signal	Moderate Delays			
	>55 – 80	> 35 – 50	-			
E	Significant delays. Travel specaverage free flow travel speca					
	> 80	> 50				
F	Extremely low speeds. Intersidelays. Extensive traffic queu		Long Delays			

Source: Highway Capacity Manual, Transportation Research Board, Washington, D.C., 2010

The following sections summarizes each study area intersection's operations as it relates to vehicle traffic demand for the analysis scenarios. Results are presented in **Table 12** through **Table 19** and **Figure 19** through **Figure 28**.

7.4.1 LONGHILL ROAD AT WILLIAMSBURG W. DRIVE/LANE PLACE DRIVE

Results of the capacity and queuing analysis for this signalized intersection are shown in **Table 12** and **Table 13**. Under existing and future conditions, the AM and PM peak hours are anticipated to experience an overall intersection LOS D or better with individual movements also expected to operate at LOS D or better. The overall intersection LOS improves to LOS C or better under 2027 No-Build and Build conditions due to the Longhill Road widening improvements.

Queuing results indicate that the intersection does not currently, nor is it projected to experience significant queuing or blocking. **Table 13** does show that the westbound left-turn and right-turn lanes have the potential to periodically meet or exceed its available storage length during the PM peak hour under 2019 Existing, 2021 No Build, and 2021 Build conditions. However, this is attributed to the adjacent through-lane stacking up and blocking access to this turn lane, and not due to the capacity of the turn lane. It has been observed with the SimTraffic software, that maximum queues can be recorded when vehicles are blocked from being able to enter a turn lane, because as soon as a vehicle is able to enter the turn lane, it meets the speed thresholds that the software uses to record maximum queue, which always happens at the back of the turn lane (i.e., 250 feet in this case).

Table 12: Longhill Road at Williamsburg W. Drive/Lane Place Drive Intersection Level of Service

					Level of Se	rvice per N	Movement	by Approa	ch (Delay	in sec/veh)				
Scenario	Overall LOS		Eastbound		·	Westbound	d	1	Northboun	d	Southbound			
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
						AM Pea	k Hour							
2019	C (28.5)	A (9.8)	C (33.7)	B (10.9)	B (17.9)	B (14.5)	A (9.4)) 9.7)	D (38.5)		D (44.0)		
Existing	(28.5)		C (33.0)			B (14.6)			D (38.7)			D (44.0)		
2021 No Build	C (27.8)	A (9.3)	C (33.0)	B (10.1)	B (17.2)	B (14.1)	A (9.0)		O 3.0)	D (37.5)		D (44.8)		
No bana	(27.0)		C (32.3)			B (14.1)			D (37.6)			D (44.8)		
2021 Build	C (28.9)	A (9.4)	D (35.2)	B (10.1)	B (17.7)	B (14.1)	A (9.0)		O 3.0)	D (37.6)		D (44.8)		
Bullu	(20.5)		C (34.5)			B (14.2)		D (37.7)				D (44.8)		
2027	C (24.0)	B (10.8)	B (19.1)	B (13.0)	B (12.7)	B (13.8)	B (11.2)		C 2.5)	D (35.2)		D (47.2)		
No Build	(21.0)		B (18.9)			B (13.6)		D (34.7)			D (47.2)			
2027 Build	C (21.1)	B (10.8)	B (19.2) B (19.0)	B (12.9)	B (12.8)	B (13.8) B (13.6)	B (11.2)		2.6) D (35.0)	D (35.5)		D (47.5) D (47.5)		
			В (19.0)		PM Peak Hour			D (35:0)				D (47.3)		
1		С	С	В	С	D PM Pea	A A	D D				D		
2019 Existing	C (31.2)	(20.46)	(26.0)	(10.8)	(25.7)	(36.1)	(7.9)).9)	(39.0)		(42.9)		
		С	C (25.2)	В	<u> </u>	C (33.5)	Α		D (39.5)	D		D (42.9)		
2021 No Build	D (41.2)	(22.3)	(29.2)	(10.9)	(48.6)	D D (48.6) (51.4)			2.4)	(40.1)		(44.4)		
	, ,		C (28.3)	1		D (49.5)			D (40.7)			D (44.4)		
2021 Build	D (43.0)	C (22.4)	C (29.6)	B (10.9)	D (52.4)	D (54.2)	A (7.5)) 2.6)	D (40.2)		D (44.6)		
build	(43.0)		C (28.7)			D (52.4)			D (40.9)			D (44.6)		
2027 No Build	B (17.3)	A (9.0)	B (17.7)	B (12.6)	B (14.4)	B (13.3)	A (8.1)) 9.3)	D (37.3)		D (42.7)		
INO BUILU	(17.3)	B (17.3)			B (13.4)			D (37.8)			D (42.7)			
2027	B (17.2)	A (9.1)	B (17.7)	B (12.6)	B (14.6)	B (13.4)	A (8.1)).4)	D (37.4)		D (42.8)		
Build	(17.3)		B (17.3)			B (13.5)			D (38.0)			D (42.8)		

Table 13: Longhill Road at Williamsburg W. Drive/Lane Place Drive Maximum Queuing

				Maxi	mum Qu	eue Lengt	th by Movem	ent (f	eet)							
Scenario	E	astboun	d	٧	Vestboun	d	North	boun	d	So	uthbour	nd				
	LT	TH	RT	LT	TH	RT LT TH		ГН	RT	LT	TH	RT				
Effective Storage Length	250	Cont.	225	250	Cont.	250*	Cont.		225		Cont.					
				Al	M Peak H	lour										
2019 Existing	69	479	164	81	230	41	92		120		112					
2021 No Build	46	563	205	67	206	51	93 13		133 11		115					
2021 Build	66	561	187	65	217	49	92	92 141			124					
2027 No Build	27	233	67	78	157	55	94		168	3 132						
2027 Build	49	264	29	67	166	44	98	98 167			124					
				PI	M Peak H	lour		,								
2019 Existing	148	519	206	250	763	690	97		109		81					
2021 No Build	167	562	224	250	772	777	115		115 83		115		83		88	
2021 Build	209	553	204	250	784	777	140		87		83					
2027 No Build	59	238	33	211	251	73	109		109 1:		110	110 90				
2027 Build	69	262	53	215	244	115	128		103 8		88					

Notes: Results displayed are the average results across 10 microsimulation runs

^{*}denotes the No Build and Build effective storage length associated with the Longhill Road widening

7.4.2 LONGHILL ROAD AT FORDS COLONY DRIVE

Results of the capacity and queuing analysis for this unsignalized intersection are shown in **Table 14** and **Table 15**. Under existing and future conditions, the AM and PM peak hours are anticipated to experience an overall intersection LOS B or better with all movements at LOS D or better with the exception of the following movements/approaches:

- AM Peak Hour
 - o 2019 Existing Northbound Approach (LOS E)
 - o 2027 No Build Northbound Approach (LOS F)
- PM Peak Hour
 - 2021 No Build Northbound Approach (LOS E)
 - o 2027 No Build Northbound Approach (LOS F)/Southbound Approach (LOS E)
 - o 2027 Build Northbound Approach (LOS E)/Southbound Approach (LOS E)

Restriping the northbound approach noticeably improves operations under the future 2027 No Build conditions from LOS F during the AM and PM peak hours to LOS D and LOS E respectively, under the 2027 Build conditions. Queuing results also indicate that the intersection is not projected to experience significant queuing or blocking issues. Based on these operational conditions (i.e., existing and future) the existing two-way STOP configuration provides sufficient traffic control for this intersection.

Table 14: Longhill Road at Fords Colony Drive Intersection Level of Service

					Level of Se	rvice per N	Movement	by Approa	ch (Delay i	n sec/veh)				
Scenario	Overall LOS		Eastbound			Westbound	i	ı	Northboun	d	:	Southboun	d	
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
·						AM Pea	ak Hour							
2019	А	Α		A	Α	Α	Α		E			С		
Existing	(8.9)	(7.9)	, ,	.0)	(8.6)	(0.0)	(0.0)	(35.5)				(22.2)		
LAISUIIG	(0.5)		A (0.1)			A (2.4)			E (35.5)			C (22.2)		
2021	Α	Α		Ą	Α	Α	Α		D			С		
No Build	(7.8)	(7.9)		.0)	(8.5)	(0.0)	(0.0)		(30.1)			(21.0)		
	(- ,		A (0.1)	1		A (2.4)			D (30.1)			C (21.0)		
2021	Α	A	Α	Α	Α	Α	Α		C	Α		C		
Build	(5.6)	(7.9)	(0.0)	(0.0)	(8.5)	(0.0)	(0.0)	(19	9.2)	(0.0)		(21.3)		
	` '		A (0.1)	_		A (2.5)			C (19.2)			C (21.3)		
2027	В	A (0.0)		Α	A (8.7)	A (0.0)	A (0.0)		F (55.5)			-		
No Build	(13.5)	(8.0) (0.0)		.0)	(8.7)		(0.0)	F (55.5)				(24.4) C (24.4)		
		А	A (0.1)	Α	Α	A (2.5)	А	D A						
2027	Α	(8.0)	(0.0)	(0.0)	(8.7) (0.0) (0.0) (25.9) (0.0)			C (24.8)						
Build	(7.1)	(0.0)	A (0.1)	(0.0)	(0.7)	A (2.5)	(0.0)	D (25.9)			C (24.8)			
			71(012)				ak Hour	l	B (23.3)			0 (2 1.0)		
		Α		Α	А	A	A		D			С		
2019	Α	(0.0)		.0)	(8.9)	(0.0)	(0.0)		(28.8)			(24.5)		
Existing	(6.5)		A (0.0)		, , ,	A (3.6)			D (28.8)			C (24.5)		
		Α	,	Ą	Α	Α	Α		E			D		
2021	B (0.2)	(0.0)	(0	.0)	(9.2)	(0.0)	(0.0)		(39.7)			(28.3)		
No Build	(8.3)		A (0.0)			A (3.7)			E (39.7)			D (28.3)		
2021	А	Α	Α	Α	Α	Α	Α		С	A (0.0)		D		
Build	(6.1)	(0.0)	(0.0)	(0.0)	(9.3)	(0.0)	(0.0)	(24	(24.7)			(27.3)		
build	(0.1)		A (0.0)			A (3.9)			C (24.7)			D (27.3)		
2027	В	Α		A	Α	Α	Α		F		E (39.8)			
No Build	(17.0)	(0.0)		.0)	(9.6)	(0.0)	(0.0)		(92.0)					
	(,		A (0.0)			A (3.9)			F (92.0)					
2027	Α	A	Α	Α	Α	Α	Α					E		
Build	(8.6)	(0.0)	(0.0)	(0.0)	(9.7)	(0.0)	(0.0)	(38.8) (0.0) (37.7)						
			A (0.0)			A (4.0)			E (38.8)			E (37.7)		

Table 15: Longhill Road at Fords Colony Drive Maximum Queuing

				Maxi	mum Qu	eue Lengt	th by Mo	vement (feet)				
Scenario		astboun	d	٧	Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT LT		TH	RT	
Effective Storage Length	200	Со	nt.	225	Cont.	150	Со	nt.	175*		Cont.		
				Al	M Peak H	our							
2019 Existing	14	1	0	70	0	0		192			6		
2021 No Build	5	2	2	77	0	0		209			14		
2021 Build	9	8	0	103	0	0	13	15	93		14		
2027 No Build	7	1	9	84	0	0		291		5			
2027 Build	16	4	8	87	0	0	19	96	132		9		
				PI	M Peak H	our							
2019 Existing	0	2	1	88	4	0		156			17		
2021 No Build	0	3	3	105	0	0		246			22		
2021 Build	0	2	17	125	0	0	15	55	106	26			
2027 No Build	0	3	2	138	0	0	500			26			
2027 Build	0	5	19	134	0	0	35	57	156		24		

Notes: Results displayed are the average results across 10 microsimulation runs
*denotes the Build effective storage length associated with the Fords Colony Drive widening

7.4.3 CENTERVILLE ROAD AT MANCHESTER DRIVE

Results of the capacity and queuing analysis for this unsignalized intersection are shown in **Table 16** and **Table 17**. Under existing and future conditions, the AM and PM peak hours are anticipated to experience movements with LOS C or better. Queuing results also indicate that the intersection is not projected to experience significant queuing or blocking issues.

Table 16: Centerville Road at Manchester Drive Intersection Level of Service

					Level of Se	rvice per l	Movement	by Approa	ch (Delay i	in sec/veh))		
Scenario	Overall LOS		Eastbound			Westboun	d	,	Northboun	d	5	Southboun	d
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
						AM Pe	ak Hour						
2019	А		C (16.0)		C (19.7)		B I 0)	A (7.7)	A (0.0)	A (0.0)	A (8.6)	A (0.0)	A (0.0)
Existing	(2.8)		C (16.0)		(19.7) (11.0) (7.7) C (15.7)		(7.7)	A (0.0)	(0.0)	(8.0)	A (1.6)	(0.0)	
			C		С		В	А	Α	А	А	A	А
2021	A (3.5)		(18.7)			(11	1.2)	(7.8)	(0.0)	(0.0)	(8.7)	(0.0)	(0.0)
No Build	(3.5)		C (18.7)			C (17.2)			A (0.1)			A (1.6)	
2021	А		С		С		В	Α	Α	Α	Α	А	Α
Build	d (3.6) (18.7)			(22.6)	(11	1.2)	(7.8)	(0.0)	(0.0)	(8.7)	(0.0)	(0.0)	
54.14	(0.0)	C (18.7)			C (17.5)				A (0.1)			A (1.6)	
2027	C (22.6)			D		B	Α	Α	Α	Α	A	Α	
No Build	(4.1)		(22.6)		(29.4)		1.9)	(7.9)	(0.0)	(0.0)	(9.0)	(0.0)	(0.0)
			C (22.6)			C (21.3)	В		A (0.1)			A (1.7)	
2027	Α	(22.7)			D (29.9)		в 1.9)	A (7.9)	A (0.0)	A (0.0)	A (9.0)	A (0.0)	A (0.0)
Build	(4.2)		C (22.7)		(23.3)	C (21.7)		(7.5)	A (0.1)	(0.0)	(3.0)	(0.0)	
			J (==:: /				ak Hour		(3.12)			A (1.7)	
			В		С		В	А	Α	А	А	А	А
2019	A (1.0)		(13.5)		(15.9)	(10	0.3)	(7.7)	(0.0)	(0.0)	(8.1)	(0.0)	(0.0)
Existing	(1.9)		B (13.5)			B (13.8)			A (0.0)			A (0.7)	
2021	А		С		С		В	Α	Α	Α	Α	А	Α
No Build	(2.4)		(15.6)		(18.2)	(10	0.5)	(7.9)	(0.0)	(0.0)	(8.5)	(0.0)	(0.0)
110 54.114	(2)		C (15.6)			C (15.5)			A (0.2)			A (0.7)	
2021	Α		С		С		В	Α	Α	Α	Α	Α	Α
Build	(2.4)		(15.6)		(18.4)		0.5)	(7.9)	(0.0)	(0.0)	(8.5)	(0.0)	(0.0)
			C (15.6)			C (15.7)		ļ	A (0.2)			A (0.7)	
2027	Α		C (17.0)		C (22.0)		B	A (0.0)	A (0.0)	A (0.0)	A (0.7)	A (0.0)	A (0.0)
No Build	(2.6)		(17.9)		(22.0)		0.9)	(8.0)	(0.0)	(0.0)	(8.7)	(0.0)	(0.0)
			C (17.9)		-	C (18.1)	<u> </u>		A (0.2)			A (0.7)	
2027	Α		C (17.9)		C (22.5)		B).9)	A (8.0)	A (0.0)	A (0.0)	A (8.7)	A (0.0)	A (0.0)
Build	(2.7)		C (17.9)		(22.3)	C (18.5)	J.J _j	(6.0)	A (0.2)	(0.0)	(0.7)	A (0.7)	(0.0)
	C (17.9) C (18.5) A (0.2) A (0.7)			,,,,,,									

Table 17: Centerville Road at Manchester Drive Maximum Queuing

				Maxi	mum Qu	eue Leng	th by Mo	vement (feet)				
Scenario		Eastbound	d	٧	Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Effective Storage Length		Cont.		Cont.	14	40	190	Cont.	325	190	Cont.	325	
				A	M Peak H	our							
2019 Existing		30		60	5	4	8	0	0	64	0	0	
2021 No Build		45		72	5	2	9	0	0	60	0	0	
2021 Build		47		68	5	5	7	2	0	64	0	0	
2027 No Build		47		69	5	8	10	2	5	72	0	0	
2027 Build		51		77	5	6	8	2	4	69	0	0	
		PM Peak Hour											
2019 Existing		28		42	4	6	4	0	0	30	0	0	
2021 No Build		40		56	4	6	16	0	0	50	0	0	
2021 Build	39		58	4	7	16	0	0	53	0	0		
2027 No Build	38		70	4	6	14	0	0	54	0	0		
2027 Build		42		63	4	9	19	0	0	49	0	2	

Notes: Results displayed are the average results across 10 microsimulation runs

7.4.4 NEWS ROAD AT FIRESTONE DRIVE

Results of the capacity and queuing analysis for this unsignalized intersection are shown in **Table 18** and **Table 19**. Under existing and future conditions, the AM and PM peak hours are anticipated to experience movements with LOS C or better. Queuing results also indicate that the intersection is not projected to experience significant queuing or blocking issues.

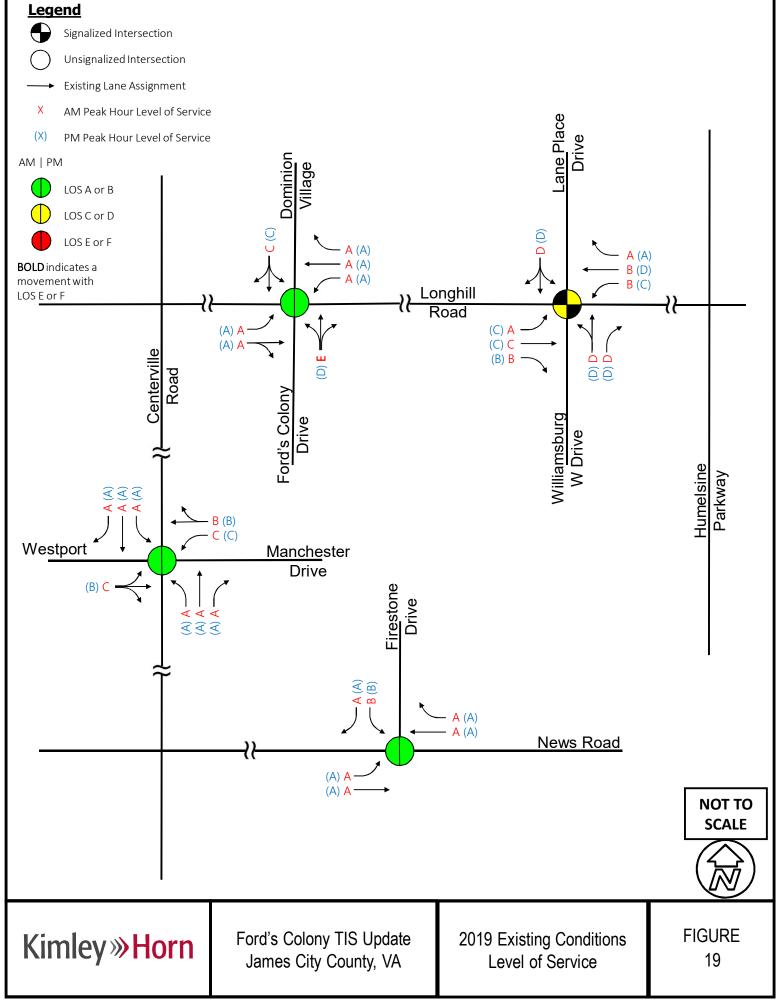
Table 18: News Road at Firestone Drive Intersection Level of Service

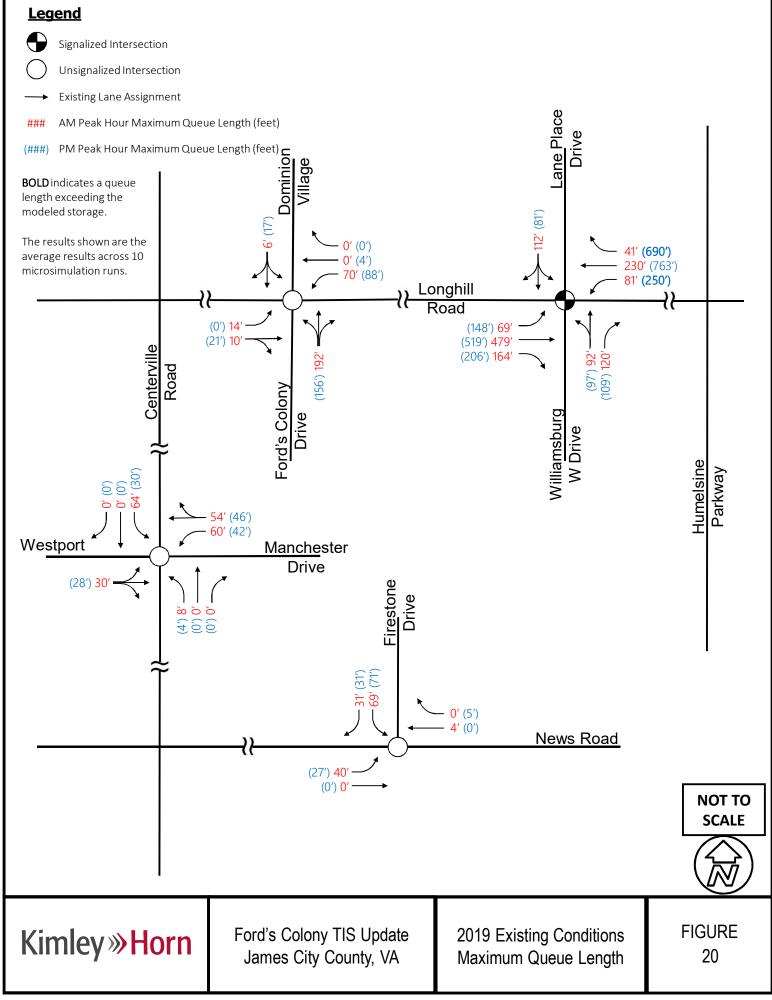
				Level o	f Service pe	er Moveme	nt by App	roach (Dela	ay in sec/v	eh) AM Pe	ak Hour		
Scenario	Overall LOS	Eastbound Westbound			ı	North boun	d	Southbound					
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
AM Peak Hour													
2019 Existing	A (2.6)	A (7.8)	A (0.0)	=	-	A (0.0)	A (0.0)	-	=	-	B (11.2)	-	A (0.0)
LXISTING	(2.0)		A (0.4)			A (0.0)			-			B (11.2)	
2021 No Build	A (4.0)	A (7.8)	<i>A</i> (0.		A (7.8)		A (0.0)		B (10.5) ((B (14.2)		A (0.0)
NO BUITO	(4.0)		A (0.3)			A (1.1)			B (10.5)			B (14.2)	
2021	Α (1.0)	A A (7.8) (0.0)		A (7.8)	(O.	A .0)		B (10.6)			B 4.2)	A (0.0)	
Build	(4.0)		A (0.3)			A (1.1)			B (10.6)		B (14.2)		
2027	Α	A (7.9)			B (10.8)		A (0.0)	C (15.5)		A (0.0)			
No Build	(4.1)	(1.15)	A (0.4)		(1.12)	A (1.0)		,-,	B (10.8)	(0.0)	,_,	C (15.5)	(3.5)
2027		A A		A A		1	B A		С		Α		
2027 Build	A (4.1)	(7.9)	(0.	0)	(7.9)	(0.0)		(10.9)		(0.0)	(15.6)		(0.0)
build	(4.1)		A (0.4)			A (1.0)		B (10.9)			C (15.6)		
						PM Pea	k Hour						
2019 Existing	A (1.6)	A (8.1)	A (0.0)	-	-	A (0.0)	A (0.0)	-	-	-	B (12.0)	-	A (0.0)
LAISUIIG	(1.0)		A (0.4)			A (0.0)		-			B (12.0)		
2021 No Build	A (3.5)	A (8.4)	<i>A</i> (0.		A (7.7)	(0.			3 1)	A (0.0)	C (18.6)		A (0.0)
NO BUITU	(5.5)	A (0.3)		A (1.0)			B (11.1)		C (18.6)				
2021	Α	A (8.5)	(0.		A (7.7)	(O.			B (11.2)		C (18.9)		A (0.0)
Build	(3.5)	, ,	A (0.3)	•	, ,	A (1.0)	•	,	B (11.2)		C (18.9)		, , ,
2027	Α	A (8.6)	(0.		A (7.8)	A (0.0)		B (11.5)		A (0.0)	C (21.0)		A (0.0)
No Build	(3.7)	, ,	A (0.3)		, ,	A (0.9)		B (11.5)			C (21.0)		
2027	Α	A (8.6)	, A		A (7.8)		A (0.0)		3 1.5)	A (0.0)		C 1.4)	A (0.0)
Build	(3.7)	A (0.3)		(7.0)	A (0.9)		B (11.5)		C (21.4)				

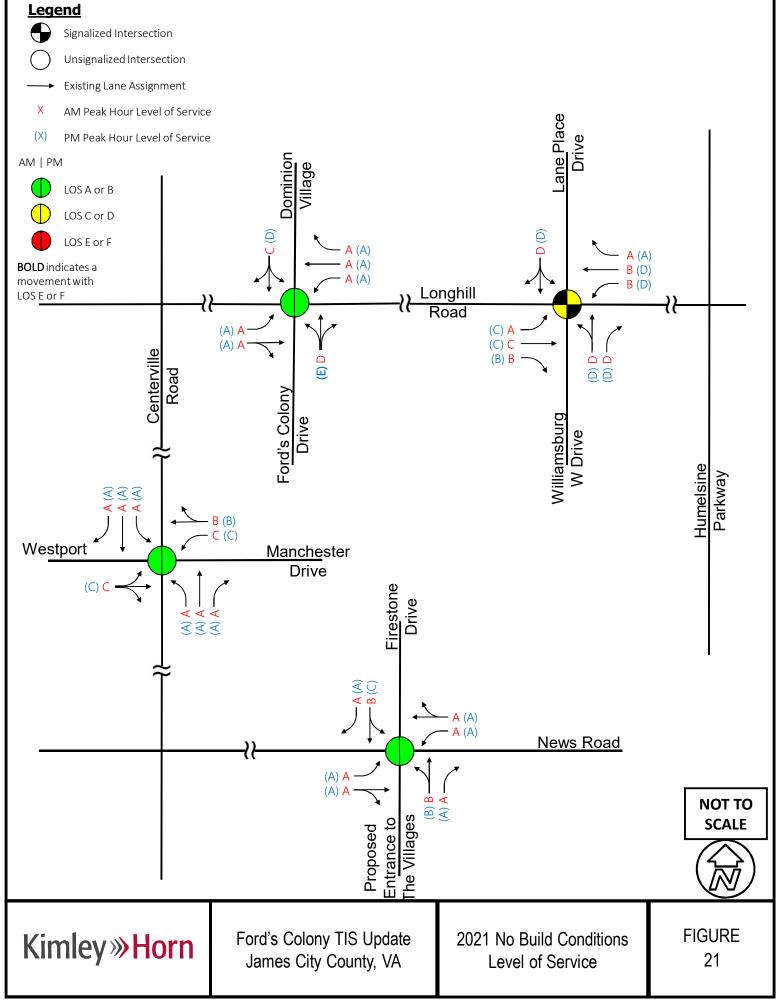
Table 19: News Road at Firestone Drive Maximum Queuing

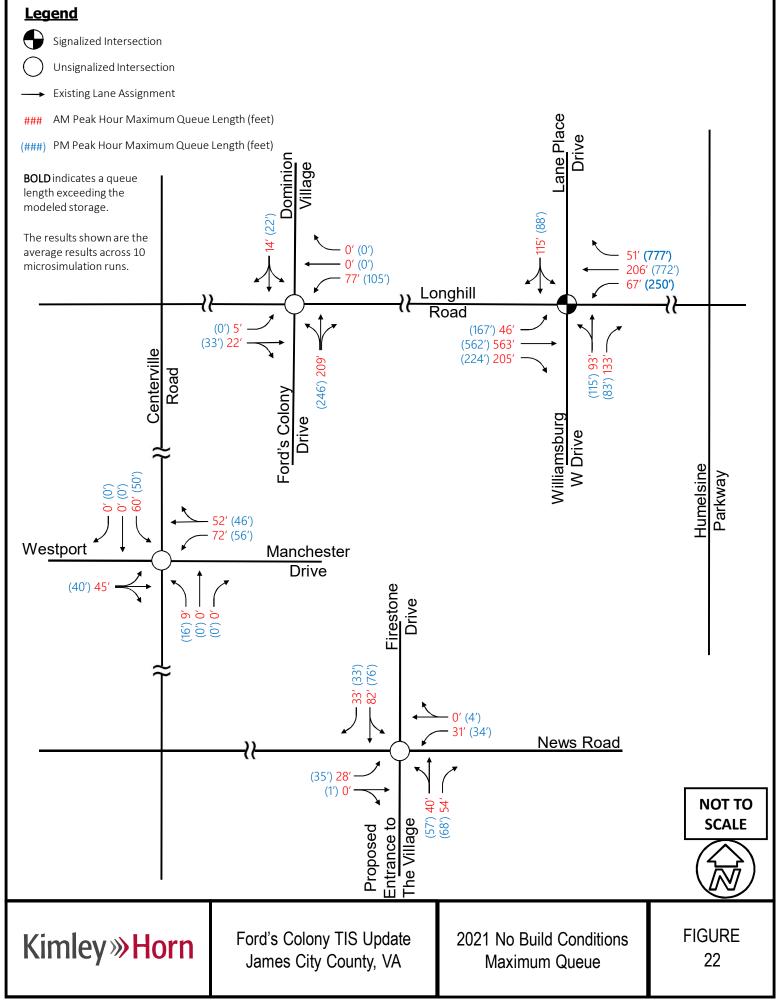
	Maximum Queue Length by Movement (feet)											
Scenario	Eastbound			Westbound			Northbound			Southbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Effective Storage Length	225	Co	nt.	225	Cont.	300	Co	nt.	150	Cont.		150
				Al	M Peak H	lour						
2019 Existing	40	0	-	-	4	0	-		-	69	-	31
2021 No Build	28	0)	31	(0	4	0	54	8	2	33
2021 Build	30	0)	28	(0	4	0	54	7	1	33
2027 No Build	28	0)	26	(0	3	8	54	7	'9	33
2027 Build	37	0)	26	(0	36		52	8	2	37
				PI	M Peak H	lour						
2019 Existing	27	0	-	-	0	5	-		-	71	-	31
2021 No Build	35	1		34	4	4	5	7	68	7	6	33
2021 Build	33	1	1		0		49		59	8	7	32
2027 No Build	37	0		32	0		52		67	9	19	33
2027 Build	44	0)	37	6		54		54	9	4	33

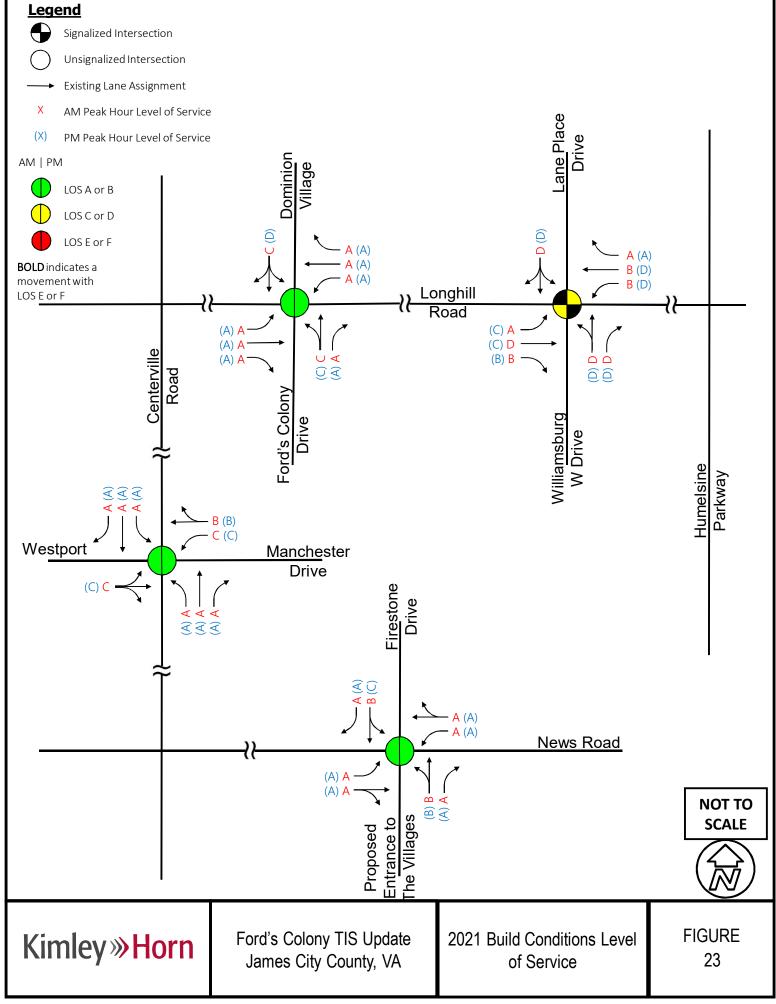
Notes: Results displayed are the average results across 10 microsimulation runs

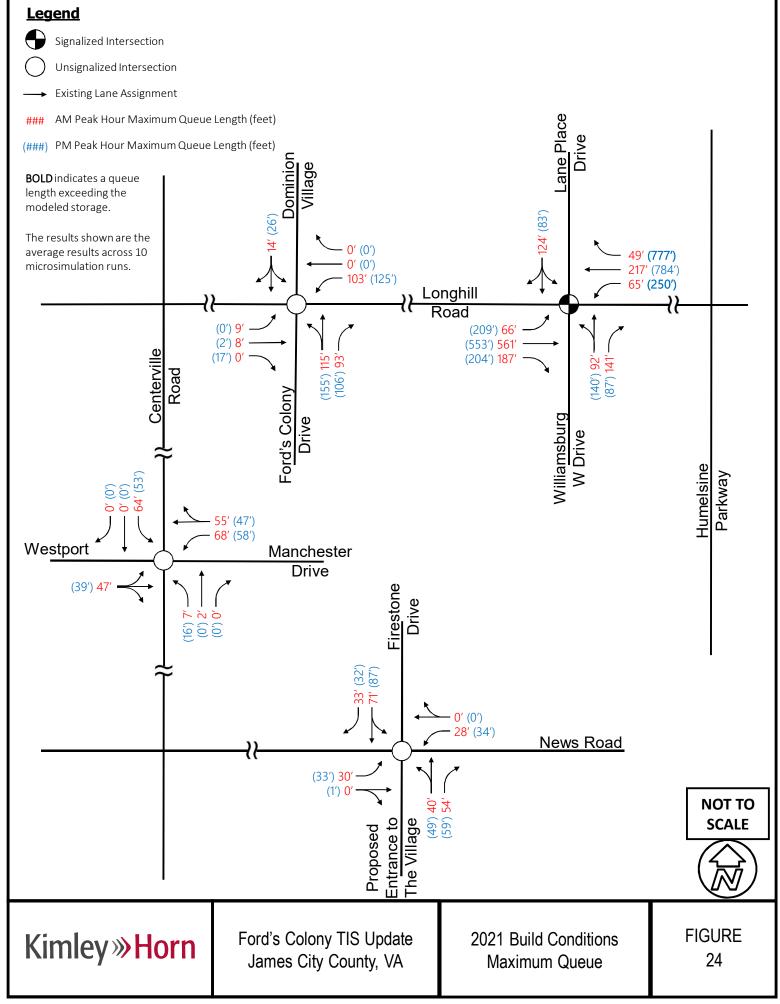


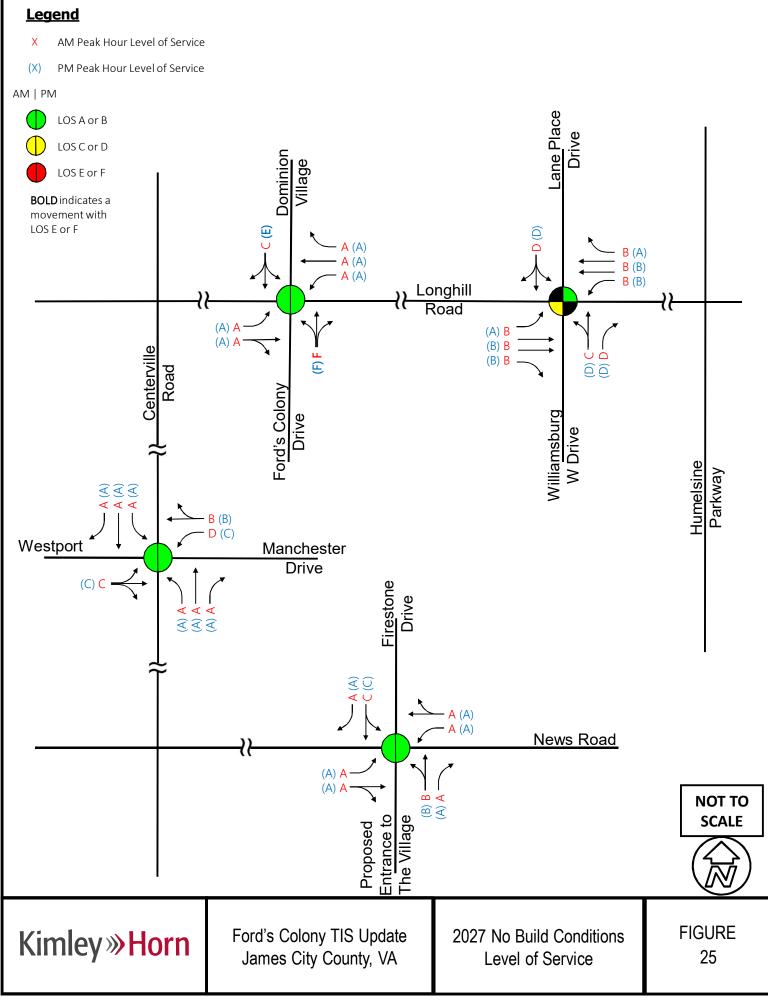


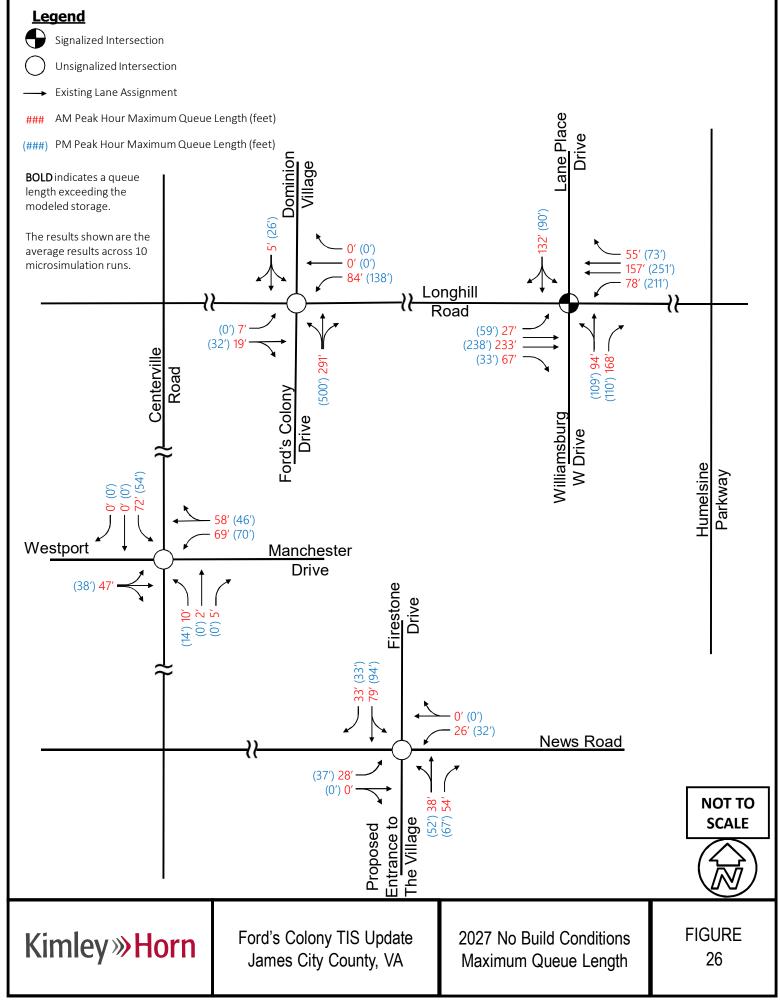


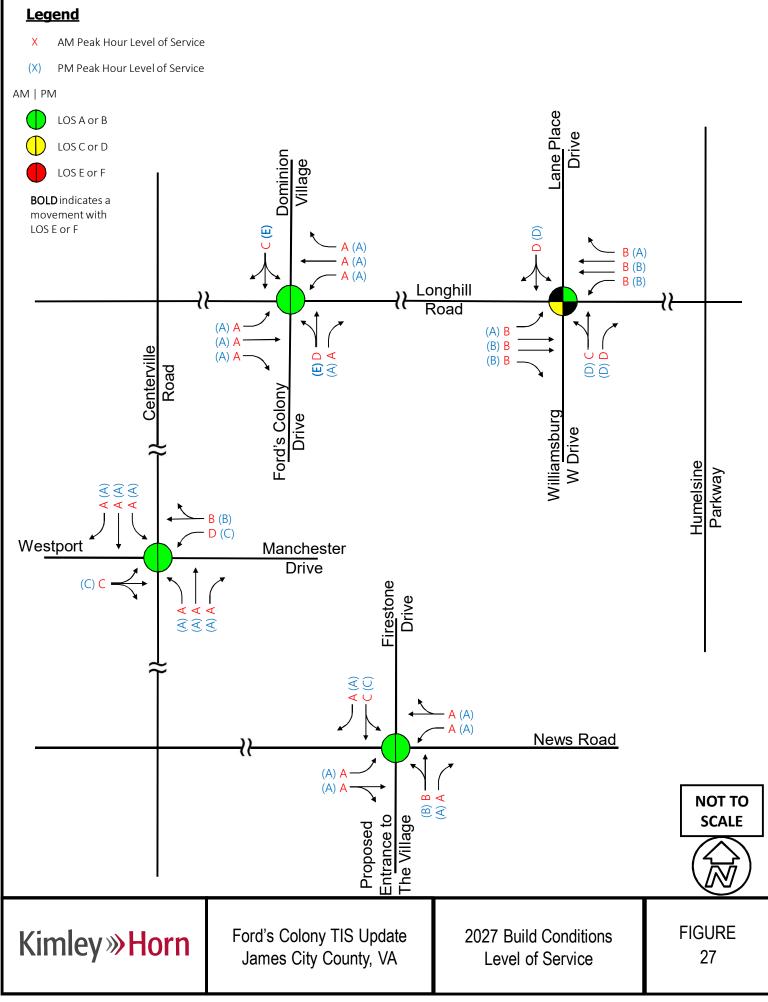


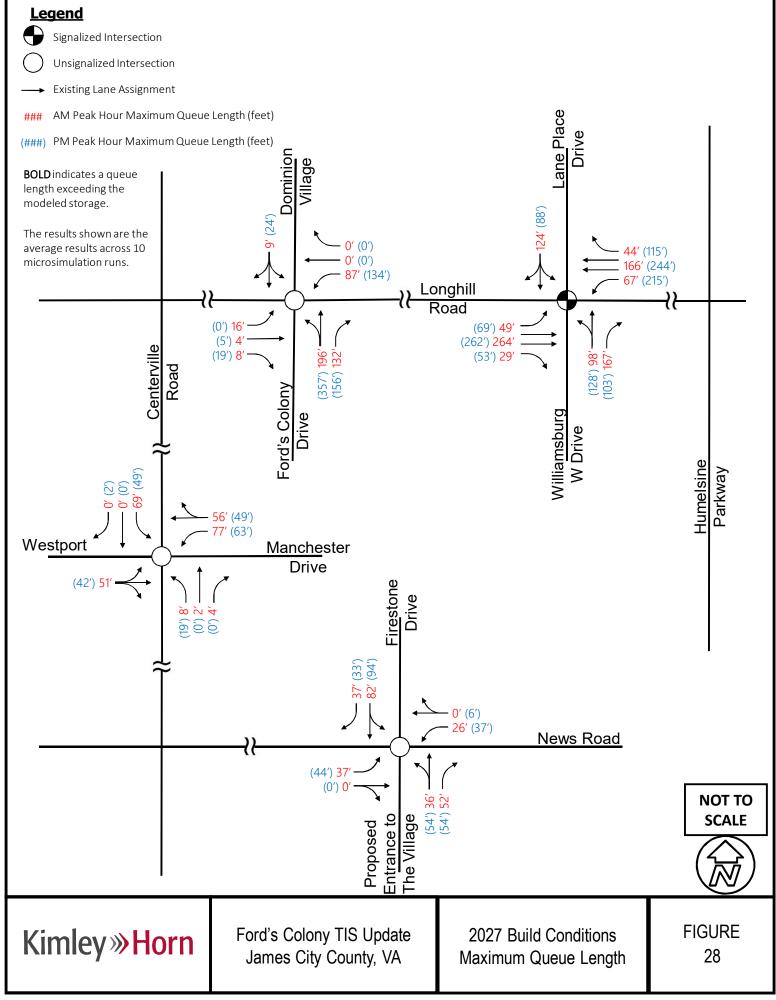












8 CONCLUSIONS AND RECOMMENDATIONS

This traffic study examined the existing operational characteristics of the Ford's Colony study area intersections as well as the anticipated impacts associated with the proposed residential condominium/townhouse development located in Ford's Colony in James City County, Virginia. Additionally, this study was completed to meet the requirements of the original proffers (i.e., FCHOA to prepare and submit an updated Traffic Impact Study every five (5)), as well as determine if any of the identified proffered off-site roadway, intersection, or traffic control improvements have been triggered for construction and/or may require accelerated implementation. Based on the results of the No Build and Build traffic analysis, the future impacts of vehicular traffic associated with the background traffic and the proposed development are anticipated to be minimal, with conditions at the study area intersections expected to be maintained at levels comparable to that under existing conditions. Based on the analysis of the existing traffic volumes and operation findings provided in this traffic study, the following recommendations were identified and are summarized below for the Existing conditions:

Longhill Road at Williamsburg W. Drive/Lane Place Drive

- Maintain the existing geometric configuration and traffic control measures
- Continue to monitor and implement new timing and coordination plans as part of regular VDOT operations and maintenance
- It is noted that the Longhill Road Phase 1 Widening Project (VDOT UPC 100921) includes improvements that will enhance the capacity at this intersection, is fully funded, and currently under construction

Longhill Road at Fords Colony Drive

- Relocate and restripe the northbound approach STOP bar so driver sight distance is not impeded by the Ford's Colony monument sign and/or vegetation located in the median
- Restripe the 24-foot wide northbound approach to consist of a 12-foot shared through/left-turn lane and a 12-foot exclusive right-turn lane with 150 feet of storage
- Continue to monitor traffic volumes to identify when/if the full turn-lane warrant for the eastbound right-turn movement is satisfied
- Existing traffic volumes and the associated operational conditions (i.e., level of service (LOS)/side street delay) do not warrant or justify the installation of the traffic signal at this time.
- Although the installation of a traffic signal is specifically referenced in the Ford's Colony proffers, per VDOT policy and roadway design manual guidelines, should volumes warrant the consideration of a traffic signal the intersection will also need to be analyzed for the consideration of a roundabout.

Centerville Road at Manchester Drive

Maintain the existing geometric configuration and traffic control measures

News Road at Firestone Drive

o Maintain the existing geometric configuration and traffic control measures

From the analysis of the Build conditions which included the background traffic growth and approved developments, the following recommendations were identified and are summarized below for the Build conditions:

Longhill Road at Williamsburg W. Drive/Lane Place Drive

- Continue to monitor and implement new timing and coordination plans as part of regular VDOT operations and maintenance
- The Longhill Road Phase 1 Widening Project (UPC 100921) is currently construction.
 The widening project includes the following improvements to this intersection:
 - Widen Longhill Road to a four-lane divided typical section
 - Upgrade the traffic signal equipment to accommodate the additional through lanes
 - Pedestrian accommodations such as crosswalks, ADA ramps, and pedestrian signal displays for the crossing of select legs of the intersection

Eastbound Longhill Road

• Widen and construct an additional approach and receiving through lane

Westbound Longhill Road

- Widen and construct an additional approach and receiving through lane
- Improvements associated with Longhill Road Phase 1 Widening Project (UPC 100921) address several of the proffered improvements associated with the Ford's Colony Master Plan. Proffers should be updated/modified to account for/recognize these changes in responsibility.

Longhill Road at Fords Colony Drive

- Based on future traffic volume projections, construct a full width right-turn lane consisting of 200-feet of storage and 200-foot taper for the eastbound approach.
- Future traffic volumes and the associated future operational conditions (i.e., level of service (LOS)/side street delay) continue to reflect that a traffic signal is not warranted and do not justify the installation of a traffic signal at this intersection.
- It is noted that the installation of a traffic signal is specifically referenced in the Ford's Colony proffers. However, per VDOT policy and roadway design manual guidelines, if volumes warrant the consideration of a traffic signal then the intersection will also need to be analyzed for the consideration of a roundabout.
- Additionally, it is noted that the Longhill Road Corridor Study, completed in October 2014, did not recommended the installation of a traffic signal at this intersection as part of the long term (horizon year 2034) improvements. Therefore, it is recommended that a traffic signal should no longer be proffered as a means of traffic control for this intersection.

Centerville Road at Manchester Drive

Maintain the existing geometric configuration and traffic control measures

News Road at Firestone Drive

Maintain the existing geometric configuration and traffic control measures

Given the minimal residual de improvements are triggered be conditions.			
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TRAFFIC IMPACT STUDY (TIS) UPDATE

Ford's Colony Master Plan - Phased Development

James City County, Virginia

Technical Appendices

Prepared for:

Ford's Colony Home Owners Association (FCHOA)

Prepared by:

Kimley»Horn

January 2020

Appendix A: Assumptions Document

The following documentation outlines our proposed traffic impact study (TIS) assumptions for the Ford's Colony Master Plan development, located in James City County and bounded by Longhill Road (State Route 612) to the north, Centerville Road (State Route 614) to the west, News Road (State Route 613) to the south, and a combination of retail/commercial land uses, residential land uses, and Route 199 to the east. As part of this analysis, existing traffic data will be collected and future traffic volumes developed to identify if any of the proffered but unbuilt roadway, intersection, or traffic control improvements at the four (4) access points/study area intersections are experiencing or will experience traffic conditions that are or will trigger the need for construction. Proffered improvements are those described in the Ford's Colony original proffers dated March 11, 1987 and the associated Ford's Colony Phasing Plan for Roadway Improvements agreement approved by the County on June 20, 1988. This includes traffic signal and turn-lane warrant analyses that will be conducted at the defined study area intersections. Recommendations and opinions of probable cost for relevant improvements associated with the potential development will be described in the DRAFT and FINAL report.

Study Area

The study area for the TIS update and the associated proposed development site includes the following signalized and unsignalized intersections:

- County Club Drive/Williamsburg W. Drive at Longhill Road (signalized)
- Ford's Colony Drive at Longhill Road (unsignalized)
- Manchester Drive at Centerville Road (unsignalized)
- Firestone Drive at News Road (unsignalized)

Data Collection

Turning movement counts (TMC) were collected at the study area intersections on Thursday, June 8, 2017 which included vehicular, truck, and pedestrian volumes. Four-hour TMCs were conducted during the AM and PM peak periods (6:30 AM to 8:30 AM and 4:00 PM to 6:00 PM) at the following intersections:

- Manchester Drive at Centerville Road
- Country Club Drive/Williamsburg W. Drive at Longhill Road

In preparation for potential signal warrant analysis, 12-hour TMCs (i.e., 6:00 AM to 6:00 PM) were performed at the following intersections:

- Ford's Colony Drive at Longhill Road
- Firestone Drive at News Road

Future Traffic

The proposed development will have an opening year of 2019. Future analyses will coincide with this year. Growth rates will be determined by using rates developed as part of the *Longhill Road Corridor Study*, completed and adopted in October 2014, and historical traffic volume trends over the previous six (6) years (i.e., 2011 to 2016) from the Virginia Department of Transportation (VDOT) data.

- Longhill Road 2.0% per year (consistent with Longhill Road Corridor Study)
- Centerville Road 2.5% per year
- News Road 2.0% per year

Two additional developments adjacent to Ford's Colony have been approved for development and were provided by James City County: The Village's at Ford's Colony and Westport Subdivision at Ford's Colony. These two developments will be included in the background traffic projections in addition to the general traffic growth. For the Villages at Ford's Colony, Kimley-Horn will use *ITE Trip Generation 9th Edition* (2012) Trip Generation Rates and Land Use Code 251: Senior Adult Housing-Detached, Code 252: Senior Adult Housing-Attached, Code 253: Congregate Care Housing, Code 254: Assisted Living, and Code 620: Nursing Home. For the Westport Subdivision at Ford's Colony, Kimley-Horn will use Code 210: Single-Family Detached-Housing. This is consistent with the land use provided in the *Ford's Colony Traffic Impact Study 2003-2004 Update*. The trip distribution and assignment for these approved developments will be based on the previous study's trip distribution percentages. Trip generation calculations for the approved developments are shown in **Table 1 and Table 2**.

Table 1: Trip Generation for The Villages at Ford's Colony Development

ITE	ITE Description	Density	Unit	Daily	AM Peak Hour			PM Peak Hour		
Code	TIE Description	Delisity	Onit	Daily	ln	Out	Total	ln	Out	Total
251	Senior Adult Housing - Detached	38	Dwelling Units	200	13	23	36	13	9	22
252	Senior Adult Housing - Attached	168	Dwelling Units	522	11	22	33	23	19	42
253	Congregate Care Housing	390	Dwelling Units	788	14	9	23	36	30	66
254	Assisted Living	83	Beds/Rooms	256	8	4	12	8	10	18
620	Nursing Home	60	Beds/Rooms	120	7	3	10	4	9	13
Total		739		1,886	53	61	114	84	77	161

Note: It is assumed that there is one bed per room, and therefore each bed is considered one dwelling unit.

Table 2: Trip Generation for Westport Subdivision at Ford's Colony Development

ITE ITE Description		Density	Unit	Daily	AM Peak Hour			PM Peak Hour		
Code	ITE Description	Density	Onit	Daily	ln	Out	Total	ln	Out	Total
210	Single-Family Detached Housing	43	Dwelling Units	483	10	30	40	31	18	49

Proposed Land Use

Kimley-Horn will use *ITE Trip Generation 9th Edition* (2012) Trip Generation Rates and Land Use Code 230: Residential Condominium/Townhouse. This is consistent with the land use provided in the *Ford's Colony Traffic Impact Study 2003-2004 Update*. Trip generation calculations for the proposed development are shown in **Table 3**. No pass-by or internal capture rate reductions will be included as part of this analysis.

Table 3: Trip Generation for Residential Development

	Dwelling	Weekday	AM			PM		
Land Use (ITE Code)	Units	,	Total	Enter (17%)	Exit (83%)	Total	Enter (67%)	Exit (33%)
Residential Condominium/Townhouse (230)	60 units	412	34	6	28	40	27	13

To assign the hourly site traffic for the future traffic signal warrant analysis, hourly variations will be used for Residential Uses Combined – Excluding Senior-Oriented Facilities as provided in the *Hourly Variation in Trip Generation for Office and Residential Land Uses* article published in the ITE Journal January 2015, as shown in **Table 4** below. It is noted that the hourly trip generation variation for residential land uses is proposed since it is a similar land use and ITE does not provide an applicable hourly variation breakdown for Residential Condominium/Townhouse (230).

Table 4: Hourly Trip Generation Variations for Residential Land Uses

	Average Weekday						
Time	Percent of 24- Hour Entering Traffic	Percent of 24- Hour Exiting Traffic					
6 AM – 7 AM	1.6	5.7					
7 AM – 8 AM	2.5	9.0					
8 AM – 9 AM	3.7	9.1					
9 AM – 10 AM	3.7	6.5					
10 AM – 11 AM	4.1	5.5					
11 AM – 12 PM	4.5	5.7					
12 PM – 1 PM	5.3	5.3					
1 PM – 2 PM	5.4	5.7					
2 PM – 3 PM	6.5	5.9					
3 PM – 4 PM	8.1	6.3					
4 PM – 5 PM	9.8	6.3					
5 PM – 6 PM	10.8	6.5					

Site traffic distributions will be determined from existing travel patterns, site location within Ford's Colony, access to/from the external adjacent street network, and employment/activity center destinations in the surrounding area. Based on this, we are assuming that the following distributions will be used for the proposed development:

- 65% of the trips generated will travel to/from the north on Ford's Colony Drive
- 20% of the trips generated will travel to/from the west on Manchester Drive
- 10% of the trips generated will travel to/from the east on Williamsburg W. Drive
- 5% of the trips generated will travel to/from the south on Firestone Drive

Analysis Years

The proposed development is anticipated to be completed in 2019. Therefore, the following analysis scenarios for the AM and PM peak hours will be studied as part of this TIS update.

- Scenario 1 Existing (2017) traffic conditions
- Scenario 2 Opening Year (2019) No-Build conditions Build-out year traffic conditions
 <u>with</u> only background development trips applied (i.e., approved adjacent development
 traffic)
- Scenario 3 Opening Year (2019) Build-out conditions Build-out year traffic conditions
 <u>with</u> background development trips applied <u>plus</u> traffic volumes generated by the
 proposed development
- Scenario 4 Opening Year +6 years (2025) No-Build conditions Build-out year traffic conditions <u>with</u> only background development trips applied (i.e., approved adjacent development traffic)
- Scenario 5 Opening Year +6 years (2025) Build-out conditions Build-out year traffic conditions <u>with</u> background development trips applied <u>plus</u> traffic volumes generated by the proposed development

Traffic Operations Analysis

Proposed inputs and analysis methodologies will be consistent with VDOT's Traffic Operations and Safety Analysis Manual (TOSAM). Operational analyses for the study area intersections will be conducted using traffic analysis tools (e.g., Synchro 9.1 Professional, SimTraffic 9.1) and Highway Capacity Manual (HCM) methodologies.

The following warrants will be analyzed for the study area intersections for future no-build and build conditions: *Warrant 1 – Eight Hour* and *Warrant 2 – Four Hour*. Kimley-Horn will conduct a traffic signal warrant analysis using the standards provided in the *Manual of Uniform Traffic Control Devices (MUTCD)*. The traffic signal warrant analysis will be performed for the following intersections:

- Ford's Colony Drive at Longhill Road
- Firestone Drive at News Road

Turn-lane warrant analyses will be prepared and evaluated for the intersection of Ford's Colony Drive at Longhill Road. The turn-lane warrant analysis will be consistent with methodologies shown in Appendix C of the VDOT Road Design Manual as well as guidelines provided in Appendix F of the VDOT Access Management Design Standards for Entrances and Intersections. Should a turn-lane be warranted, recommendations for storage length and taper length will be provided.

The future conditions analyses will confirm the need and define the geometric configurations necessary for the proposed roadway and intersection capacity improvements. Measures of effectiveness that will be reported for each scenario will consist of delay per vehicle, level of service (LOS), and maximum queue lengths. These measures of effectiveness will be presented in tabular format. Vehicle delay and LOS will be summarized by movement, approach, and overall intersection, while maximum queue lengths will be summarized for each movement.

Reporting

A TIS report with an accompanying appendix (including all analysis files) will be prepared that summarizes the analysis methodology and results. The report and associated analysis files will be provided in electronic format as a part of the FINAL traffic analysis submittal.

Appendix B: Traffic Count Data

File Name: Longhill and Country Club

Site Code:

Start Date : 6/8/2017

Page No : 1

Groups Printed- Passenger Veh - Trucks

			TO 1							ed- Passeng	er ven - 1							T 1.00			I
			ane Plac					Longhill					ountry Cl					Longhill			
		F	rom Nor	th			F	rom Eas	st			F	rom Sout	h			F	rom Wes	st		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	4	0	4	0	8	2	71	1	0	74	26	0	5	0	31	1	84	0	0	85	198
06:45 AM	3	0	9	0	12	3	123	4	0	130	35	1	11	0	47	1	107	0	0	108	297
Total	7	0	13	0	20	5	194	5	0	204	61	1	16	0	78	2	191	0	0	193	495
07:00 AM	1	1	10	0	14	2	147		0	155	57	0	1.5	0	72	4	164	0	0	168	409
07:00 AM 07:15 AM	3	0	12 8	0	14 11	2 4	100	6 7	0	155 111	57 52	0	15 6	0	72 58	4 4	164 158	0	0	163	343
	3	0	8 17		1	5		,	0	1	52 53	1	-	0			158	1	0	172	
07:30 AM	9	0	17 19	0	21	5 7	92	10 9		107		2	15		69	3	200	1	0		369
07:45 AM	17	- 0		0	28 74		121		0	137	239	3	10	0	89			1		210	464 1585
Total	1/	1	56	0	/4	18	460	32	0	510	239	3	46	0	288	20	690	3	0	713	1585
08:00 AM	5	1	11	0	17	4	125	10	0	139	50	0	11	0	61	4	182	1	0	187	404
08:15 AM	0	0	9	0	9	2	129	14	0	145	44	0	6	0	50	5	192	0	0	197	401
Total	5	1	20	0	26	6	254	24	0	284	94	0	17	0	111	9	374	1	0	384	805
04:00 PM	2	0	6	0	8	11	192	45	0	248	33	0	7	0	40	10	155	6	0	171	467
04:15 PM	2	0	4	0	6	7	227	61	0	295	33	0	9	0	42	13	174	4	0	191	534
04:30 PM	8	0	6	0	14	11	211	50	0	272	27	1	5	0	33	11	180	3	0	194	513
04:45 PM	4	0	7	0	11	6	239	61	0	306	33	0	12	0	45	10	181	3	0	194	556
Total	16	0	23	0	39	35	869	217	0	1121	126	1	33	0	160	44	690	16	0	750	2070
05:00 PM	2	0	4	0	6	10	237	49	0	296	34	0	10	0	44	8	198	9	0	215	561
05:15 PM	4	0	6	0	10	16	266	60	0	342	29	0	14	0	43	8	182	2	0	192	587
05:30 PM	4	0	6	0	10	6	235	36	0	277	40	0	14	0	54	9	174	3	0	186	527
05:45 PM	5	0	1	0	6	11	244	44	0	299	32	0	10	0	42	8	172	5	0	185	532
Total	15	0	17	0	32	43	982	189	0	1214	135	0	48	0	183	33	726	19	0	778	2207
					,																' 1
Grand Total	60	2	129	0	191	107	2759	467	0	3333	655	5	160	0	820	108	2671	39	0	2818	7162
Apprch %	31.4	1	67.5	0		3.2	82.8	14	0		79.9	0.6	19.5	0		3.8	94.8	1.4	0		
Total %	0.8	0_	1.8	0	2.7	1.5	38.5	6.5	0	46.5	9.1	0.1	2.2	0	11.4	1.5	37.3	0.5	0	39.3	
Passenger Veh	55	2	126	0	183	103	2688	464	0	3255	650	2	154	0	806	107	2602	37	0	2746	6990
% Passenger Veh	91.7	100	97.7	0	95.8	96.3	97.4	99.4	0	97.7	99.2	40	96.2	0	98.3	99.1	97.4	94.9	0	97.4	97.6
Trucks	5	0	3	0	8	4	71	3	0	78	5	3	6	0	14	1	69	2	0	72	172
% Trucks	8.3	0	2.3	0	4.2	3.7	2.6	0.6	0	2.3	0.8	60	3.8	0	1.7	0.9	2.6	5.1	0	2.6	2.4

File Name: Longhill and Country Club

Site Code:

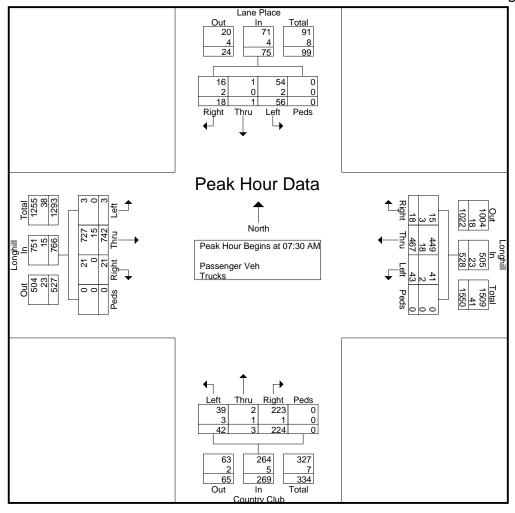
Start Date : 6/8/2017

			ane Plac rom Nor]	Longhill From Eas					ountry Cl rom Sou					Longhill rom We			
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis					1 of 1										,						
Peak Hour for Entir	re Intersec	tion Begin	ns at 07:30	O AM																	
07:30 AM	4	0	17	0	21	5	92	10	0	107	53	1	15	0	69	3	168	1	0	172	369
07:45 AM	9	0	19	0	28	7	121	9	0	137	77	2	10	0	89	9	200	1	0	210	464
08:00 AM	5	1	11	0	17	4	125	10	0	139	50	0	11	0	61	4	182	1	0	187	404
08:15 AM	0	0	9	0	9	2	129	14	0	145	44	0	6	0	50	5	192	0	0	197	401
Total Volume	18	1	56	0	75	18	467	43	0	528	224	3	42	0	269	21	742	3	0	766	1638
% App. Total	24	1.3	74.7	0		3.4	88.4	8.1	0		83.3	1.1	15.6	0		2.7	96.9	0.4	0		
PHF	.500	.250	.737	.000	.670	.643	.905	.768	.000	.910	.727	.375	.700	.000	.756	.583	.928	.750	.000	.912	.883
Passenger Veh	16	1	54	0	71	15	449	41	0	505	223	2	39	0	264	21	727	3	0	751	1591
% Passenger Veh	88.9	100	96.4	0	94.7	83.3	96.1	95.3	0	95.6	99.6	66.7	92.9	0	98.1	100	98.0	100	0	98.0	97.1
Trucks	2	0	2	0	4	3	18	2	0	23	1	1	3	0	5	0	15	0	0	15	47
% Trucks	11.1	0	3.6	0	5.3	16.7	3.9	4.7	0	4.4	0.4	33.3	7.1	0	1.9	0	2.0	0	0	2.0	2.9

File Name: Longhill and Country Club

Site Code:

Start Date : 6/8/2017



File Name: Longhill and Country Club

Site Code:

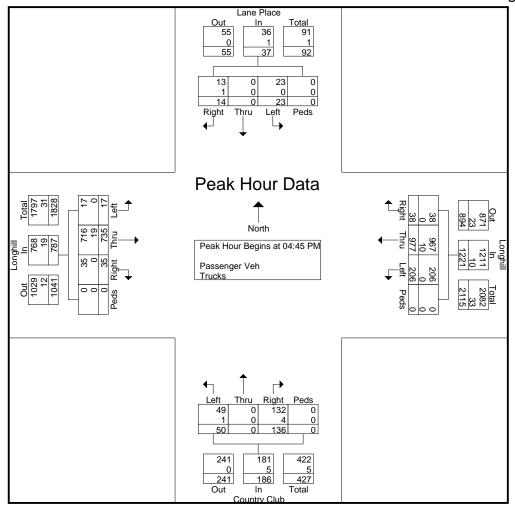
Start Date : 6/8/2017

			ane Place				Į	Longhill From Eas					ountry Cl rom Sou					Longhill rom We			
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis	s From 12:0	00 PM to	05:45 PM	- Peak 1	of 1																
Peak Hour for Entir	re Intersect	ion Begin	s at 04:45	PM																	
04:45 PM	4	0	7	0	11	6	239	61	0	306	33	0	12	0	45	10	181	3	0	194	556
05:00 PM	2	0	4	0	6	10	237	49	0	296	34	0	10	0	44	8	198	9	0	215	561
05:15 PM	4	0	6	0	10	16	266	60	0	342	29	0	14	0	43	8	182	2	0	192	587
05:30 PM	4	0	6	0	10	6	235	36	0	277	40	0	14	0	54	9	174	3	0	186	527
Total Volume	14	0	23	0	37	38	977	206	0	1221	136	0	50	0	186	35	735	17	0	787	2231
% App. Total	37.8	0	62.2	0		3.1	80	16.9	0		73.1	0	26.9	0		4.4	93.4	2.2	0		
PHF	.875	.000	.821	.000	.841	.594	.918	.844	.000	.893	.850	.000	.893	.000	.861	.875	.928	.472	.000	.915	.950
Passenger Veh	13	0	23	0	36	38	967	206	0	1211	132	0	49	0	181	35	716	17	0	768	2196
% Passenger Veh	92.9	0	100	0	97.3	100	99.0	100	0	99.2	97.1	0	98.0	0	97.3	100	97.4	100	0	97.6	98.4
Trucks	1	0	0	0	1	0	10	0	0	10	4	0	1	0	5	0	19	0	0	19	35
% Trucks	7.1	0	0	0	2.7	0	1.0	0	0	0.8	2.9	0	2.0	0	2.7	0	2.6	0	0	2.4	1.6

File Name: Longhill and Country Club

Site Code:

Start Date : 6/8/2017



File Name: Longhill and Fords Colony

Site Code : 13333333 Start Date : 6/8/2017

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Groups Printed- Passenger Veh - Trucks

										<u>ted- Passe</u>	<u>nger Veh</u>										
			Entrance					Longhil					rds Col					Longhill			
		F	rom Nor					From Ea	st			<u> </u>	rom Sou	uth			F	rom We			
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	1	10	3	0	14	8	0	4	0	12	3	16	0	0	19	45
06:15 AM	1	0	1	0	2	1	13	1	0	15	6	0	2	0	8	2	21	1	0	24	49
06:30 AM	0	0	0	0	0	1	19	7	0	27	7	0	2	0	9	0	26	0	0	26	62
06:45 AM	0	0	0	0	0	1	36	9	0	46	25	0	6	0	31	2	55	1	0	58	135
Total	1	0	1	0	2	4	78	20	0	102	46	0	14	0	60	7	118	2	0	127	291
07:00 AM	0	0	1	0	1	1	46	11	0	58	39	1	3	0	43	2	51	0	0	53	155
07:15 AM	1	0	0	0	1	Ö	55	20	0	75	26	Ö	16	0	42	8	64	0	0	72	190
07:30 AM	Ö	0	0	0	Ö	0	68	19	0	87	28	0	15	0	43	4	56	0	0	60	190
07:45 AM	0	0	0	0	0	0	55	30	0	85	37	0	15	0	52	7	84	1	0	92	229
Total	1	0	1	0	2	1	224	80	0	305	130	1	49	0	180	21	255	1	0	277	764
	I				·	I															I
08:00 AM	0	0	0	0	0	1	53	28	0	82	36	0	15	0	51	10	69	2	0	81	214
08:15 AM	0	1	0	0	1	0	90	29	0	119	29	1	25	0	55	15	84	0	0	99	274
08:30 AM	0	0	0	0	0	0	63	39	0	102	42	0	10	0	52	14	80	0	0	94	248
08:45 AM	0	0	1	0	1	1	52	45	0	98	32	0	10	0	42	12	56	0	0	68	209
Total	0	1	1	0	2	2	258	141	0	401	139	1	60	0	200	51	289	2	0	342	945
09:00 AM	0	0	0	0	0	1	56	27	0	84	22	0	11	0	33	12	58	1	0	71	188
09:15 AM	0	0	0	0	0	0	48	25	0	73	25	0	9	0	34	10	66	0	0	76	183
09:30 AM	0	0	1	0	1	1	36	20	0	57	37	0	12	0	49	11	61	1	0	73	180
09:45 AM	0	0	0	0	0	0	38	48	0	86	43	0	10	0	53	12	63	0	0	75	214
Total	0	0	1	0	1	2	178	120	0	300	127	0	42	0	169	45	248	2	0	295	765
10:00 AM	1	0	0	0	1	0	53	30	0	83	44	0	17	0	61	9	36	0	0	45	190
10:15 AM	0	0	1	0	1	0	41	28	0	69	41	0	16	0	57	14	49	0	0	63	190
10:30 AM	1	0	0	0	1	1	41	20	0	62	34	0	14	0	48	5	39	1	0	45	156
10:45 AM	1	0	1	0	2	0	40	28	0	68	29	3	14	0	46	10	42	1	0	53	169
Total	3	0	2	0	5	1	175	106	0	282	148	3	61	0	212	38	166	2	0	206	705
11:00 AM	1	0	1	0	2	1	37	32	0	70	35	0	6	0	41	15	39	1	0	55	168
11:15 AM	Ö	0	0	0	0	2	38	30	0	70	24	0	9	0	33	11	48	Ö	0	59	162
11:30 AM	0	0	1	0	1	0	45	33	0	78	25	2	14	0	41	12	53	1	0	66	186
11:45 AM	0	0	3	0	3	0	49	41	0	90	33	0	12	0	45	17	49	0	0	66	204
Total	1	0	5	0	6	3	169	136	0	308	117	2	41	0	160	55	189	2	0	246	720
	' '	J	J	3	5		.00	.00	3	000		_	71	3	100	00	.00	_	3	2-10	20
12:00 PM	1	1	0	0	2	2	56	51	0	109	29	1	13	0	43	9	44	0	0	53	207
12:15 PM	2	0	0	0	2	3	48	33	0	84	30	0	5	0	35	18	34	2	0	54	175
12:30 PM	0	1	0	0	1	0	46	33	0	79	29	1	9	0	39	11	37	0	0	48	167
12:45 PM	0	0	0	0	0	0	46	34	0	80	36	0	19	0	55	21	52	0	0	73	208
Total	3	2	0	0	5	5	196	151	0	352	124	2	46	0	172	59	167	2	0	228	757

File Name: Longhill and Fords Colony

Site Code : 13333333 Start Date : 6/8/2017

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Groups Printed- Passenger Veh - Trucks

			_							<u>ed- Passe</u> i	nger Veh										
			Entrance					Longhil					rds Cold					Longhill			
		F	rom Nor				F	rom Ea	st			F	rom Sou	th			F	rom We	st		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
01:00 PM	2	0	0	0	2	1	35	31	0	67	38	0	15	0	53	12	38	0	0	50	172
01:15 PM	0	0	1	0	1	4	62	40	0	106	28	0	10	0	38	11	59	0	0	70	215
01:30 PM	0	1	3	0	4	2	45	27	0	74	20	0	8	0	28	11	38	0	0	49	155
01:45 PM	2	0	3	0	5	2	32	20	0	54	28	0	9	0	37	8	59	1	0	68	164
Total	4	1	7	0	12	9	174	118	0	301	114	0	42	0	156	42	194	1	0	237	706
,	1																				
02:00 PM	0	0	0	0	0	1	64	42	0	107	42	1	18	0	61	12	51	3	0	66	234
02:15 PM	1	0	1	0	2	1	60	51	0	112	29	0	5	0	34	15	43	0	0	58	206
02:30 PM	2	0	2	0	4	1	83	37	0	121	29	0	10	0	39	16	55	1	0	72	236
02:45 PM	2	0	0	0	2	0	86	51	0	137	34	0	19	0	53	8	55	1_	0	64	256_
Total	5	0	3	0	8	3	293	181	0	477	134	1	52	0	187	51	204	5	0	260	932
1	1 .	_	_	_	- 1	_			_	1		_		_	1			_	_	1	
03:00 PM	1	0	2	0	3	0	58	41	0	99	31	0	15	0	46	16	45	0	0	61	209
03:15 PM	1	0	4	0	5	1	73	32	0	106	29	0	14	0	43	30	105	0	0	135	289
03:30 PM	3	0	1	0	4	1	77	45	0	123	30	0	14	0	44	20	75	1	0	96	267
03:45 PM	5	0	1	0	1	0	60	43	0	103	36	2	27	0	65	15	63	1	0	79	248
Total	5	0	8	0	13	2	268	161	0	431	126	2	70	0	198	81	288	2	0	371	1013
04:00 PM	0	1	0	0	1	0	68	31	0	99	32	0	16	0	48	12	77	0	0	89	237
04:00 PM	0	0	1	0	1	1	61	37	0	99	27	0	9	0	36	16	84	6	0	106	242
04:30 PM	1	0	Ó	0	1	Ö	74	38	0	112	27	1	13	0	41	9	77	1	0	87	241
04:45 PM	1	0	0	0	1	0	65	50	0	115	30	1	14	0	45	19	93	Ó	0	112	273
Total	2	1	1	0	4	1	268	156	0	425	116	2	52	0	170	56	331	7	0	394	993
Total	_	•	•	O	7.1		200	100	O	720	110	_	02	O	170	00	001	•	O	004	330
05:00 PM	3	0	0	0	3	1	63	39	0	103	31	2	4	0	37	11	78	0	0	89	232
05:15 PM	0	Ö	1	Ö	1	1	79	47	Ö	127	25	0	14	Ö	39	9	86	0	Ö	95	262
05:30 PM	1	0	3	0	4	0	75	56	0	131	35	0	13	0	48	14	83	0	0	97	280
05:45 PM	0	0	0	0	0	0	53	44	0	97	39	0	5	0	44	13	81	0	0	94	235
Total	4	0	4	0	8	2	270	186	0	458	130	2	36	0	168	47	328	0	0	375	1009
					·															·	
Grand Total	29	5	34	0	68	35	2551	1556	0	4142	1451	16	565	0	2032	553	2777	28	0	3358	9600
Apprch %	42.6	7.4	50	0		8.0	61.6	37.6	0		71.4	8.0	27.8	0		16.5	82.7	8.0	0		
Total %	0.3	0.1	0.4	0	0.7	0.4	26.6	16.2	0	43.1	15.1	0.2	5.9	0	21.2	5.8	28.9	0.3	0	35	
Passenger Veh	29	4	34	0	67	35	2433	1538	0	4006	1443	15	551	0	2009	537	2645	27	0	3209	9291
% Passenger Veh	100	80	100	0	98.5	100	95.4	98.8	0	96.7	99.4	93.8	97.5	0	98.9	97.1	95.2	96.4	0	95.6	96.8
Trucks	0	1	0	0	1	0	118	18	0	136	8	1	14	0	23	16	132	1	0	149	309
% Trucks	0	20	0	0	1.5	0	4.6	1.2	0	3.3	0.6	6.2	2.5	0	1.1	2.9	4.8	3.6	0	4.4	3.2

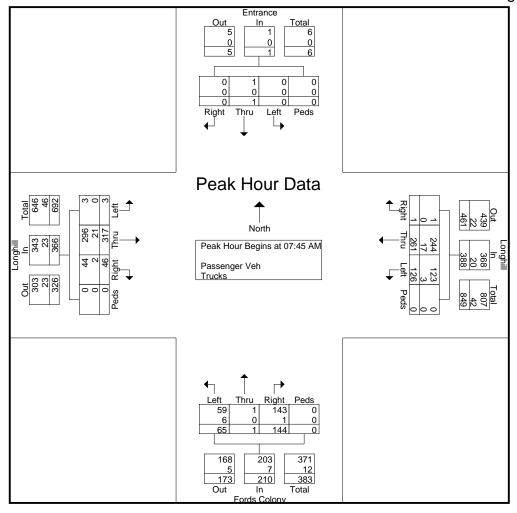
File Name: Longhill and Fords Colony

Site Code : 13333333 Start Date : 6/8/2017

			Entrance rom Nor				F	Longhill rom Ea					ords Col				F	Longhill rom We	st		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analys																					
Peak Hour for Ent	tire Inters	ection Be	egins at C)7:45 AN	1 .																
07:45 AM	0	0	0	0	0	0	55	30	0	85	37	0	15	0	52	7	84	1	0	92	229
08:00 AM	0	0	0	0	0	1	53	28	0	82	36	0	15	0	51	10	69	2	0	81	214
08:15 AM	0	1	0	0	1	0	90	29	0	119	29	1	25	0	55	15	84	0	0	99	274
08:30 AM	0	0	0	0	0	0	63	39	0	102	42	0	10	0	52	14	80	0	0	94	248
Total Volume	0	1	0	0	1	1	261	126	0	388	144	1	65	0	210	46	317	3	0	366	965
% App. Total	0	100	0	0		0.3	67.3	32.5	0		68.6	0.5	31	0		12.6	86.6	0.8	0		
PHF	.000	.250	.000	.000	.250	.250	.725	.808	.000	.815	.857	.250	.650	.000	.955	.767	.943	.375	.000	.924	.880
Passenger Veh	0	1	0	0	1	1	244	123	0	368	143	1	59	0	203	44	296	3	0	343	915
% Passenger Veh	0	100	0	0	100	100	93.5	97.6	0	94.8	99.3	100	90.8	0	96.7	95.7	93.4	100	0	93.7	94.8
Trucks	0	0	0	0	0	0	17	3	0	20	1	0	6	0	7	2	21	0	0	23	50
% Trucks	0	0	0	0	0	0	6.5	2.4	0	5.2	0.7	0	9.2	0	3.3	4.3	6.6	0	0	6.3	5.2

File Name: Longhill and Fords Colony

Site Code : 13333333 Start Date : 6/8/2017



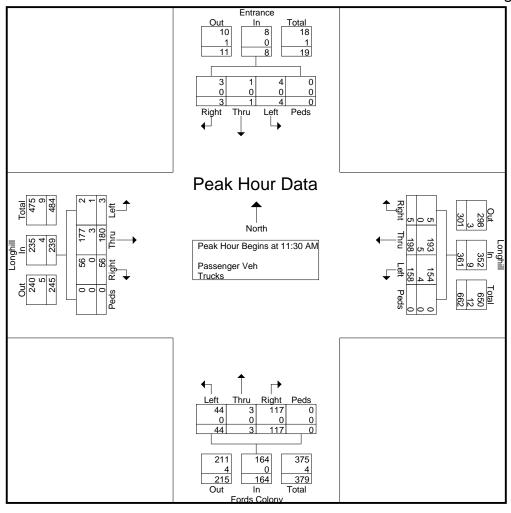
File Name: Longhill and Fords Colony

Site Code : 13333333 Start Date : 6/8/2017

			Entrance				F	Longhill rom Eas					ords Col	,			F	Longhill rom We	st		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analys	is From 1	0:00 AM	to 01:45	PM - Pe	ak 1 of 1																
Peak Hour for Ent	ire Interse	ection Be	gins at 1	1:30 AM																	
11:30 AM	0	0	1	0	1	0	45	33	0	78	25	2	14	0	41	12	53	1	0	66	186
11:45 AM	0	0	3	0	3	0	49	41	0	90	33	0	12	0	45	17	49	0	0	66	204
12:00 PM	1	1	0	0	2	2	56	51	0	109	29	1	13	0	43	9	44	0	0	53	207
12:15 PM	2	0	0	0	2	3	48	33	0	84	30	0	5	0	35	18	34	2	0	54	175
Total Volume	3	1	4	0	8	5	198	158	0	361	117	3	44	0	164	56	180	3	0	239	772
% App. Total	37.5	12.5	50	0		1.4	54.8	43.8	0		71.3	1.8	26.8	0		23.4	75.3	1.3	0		
PHF	.375	.250	.333	.000	.667	.417	.884	.775	.000	.828	.886	.375	.786	.000	.911	.778	.849	.375	.000	.905	.932
Passenger Veh	3	1	4	0	8	5	193	154	0	352	117	3	44	0	164	56	177	2	0	235	759
% Passenger Veh	100	100	100	0	100	100	97.5	97.5	0	97.5	100	100	100	0	100	100	98.3	66.7	0	98.3	98.3
Trucks	0	0	0	0	0	0	5	4	0	9	0	0	0	0	0	0	3	1	0	4	13
% Trucks	0	0	0	0	0	0	2.5	2.5	0	2.5	0	0	0	0	0	0	1.7	33.3	0	1.7	1.7

File Name: Longhill and Fords Colony

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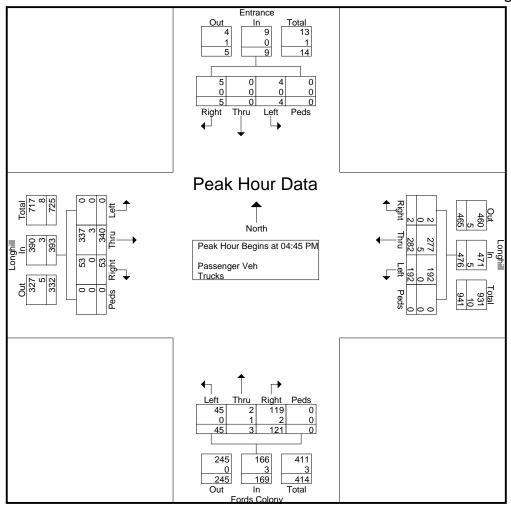
File Name: Longhill and Fords Colony

Site Code : 13333333 Start Date : 6/8/2017

			Entrance				ſ	Longhill rom Ea					ords Colo	,			F	Longhill rom We	st		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analys	sis From 0	2:00 PM	to 05:45	PM - P	eak 1 of 1																
Peak Hour for Ent	tire Interse	ection Be	gins at 0	4:45 PN	1 .																
04:45 PM	1	0	0	0	1	0	65	50	0	115	30	1	14	0	45	19	93	0	0	112	273
05:00 PM	3	0	0	0	3	1	63	39	0	103	31	2	4	0	37	11	78	0	0	89	232
05:15 PM	0	0	1	0	1	1	79	47	0	127	25	0	14	0	39	9	86	0	0	95	262
05:30 PM	1	0	3	0	4	0	75	56	0	131	35	0	13	0	48	14	83	0	0	97	280
Total Volume	5	0	4	0	9	2	282	192	0	476	121	3	45	0	169	53	340	0	0	393	1047
% App. Total	55.6	0	44.4	0		0.4	59.2	40.3	0		71.6	1.8	26.6	0		13.5	86.5	0	0		
PHF	.417	.000	.333	.000	.563	.500	.892	.857	.000	.908	.864	.375	.804	.000	.880	.697	.914	.000	.000	.877	.935
Passenger Veh	5	0	4	0	9	2	277	192	0	471	119	2	45	0	166	53	337	0	0	390	1036
% Passenger Veh	100	0	100	0	100	100	98.2	100	0	98.9	98.3	66.7	100	0	98.2	100	99.1	0	0	99.2	98.9
Trucks	0	0	0	0	0	0	5	0	0	5	2	1	0	0	3	0	3	0	0	3	11
% Trucks	0	0	0	0	0	0	1.8	0	0	1.1	1.7	33.3	0	0	1.8	0	0.9	0	0	8.0	1.1

File Name: Longhill and Fords Colony

Site Code : 13333333 Start Date : 6/8/2017



File Name: Centerville and Manchester

Site Code:

Start Date : 6/8/2017

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Groups Printed- Passenger Veh - Trucks

	1									ed- Passeng	er Veh - 🛚										
		(Centerville	e			M	ancheste	er			C	entervill	e			7	Westport	t		
		F	rom Nort	h			F	rom Eas	t			Fı	om Sout	h			F	rom Wes	st		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	19	6	0	25	3	0	4	0	7	2	31	1	0	34	1	0	0	0	1	67
06:45 AM	0	28	10	0	38	7	0	7	0	14	4	54	0	0	58	0	0	0	0	0	110
Total	0	47	16	0	63	10	0	11	0	21	6	85	1	0	92	1	0	0	0	1	177
07:00 AM	1	29	1	0	31	7	0	9	0	16	5	57	0	0	62	1	0	0	0	1	110
07:15 AM	0	52	7	0	59	10	0	13	0	23	6	77	2	0	85	0	0	0	0	0	167
07:30 AM	2	36	9	0	47	11	0	12	0	23	11	123	1	0	135	0	1	2	0	3	208
07:45 AM	0	58	10	0	68	10	0	15	0	25	10	85	1	0	96	0	0	1	0	1	190
Total	3	175	27	0	205	38	0	49	0	87	32	342	4	0	378	1	1	3	0	5	675
08:00 AM	0	55	14	0	69	8	0	16	0	24	10	61	0	0	71	0	0	1	0	1	165
08:15 AM	1	61	17	0	79	18	0	11	0	29	12	68	0	0	80	2	0	0	0	2	190
Total	1	116	31	0	148	26	0	27	0	53	22	129	0	0	151	2	0	1	0	3	355
04:00 PM	0	59	11	0	70	5	2	11	0	18	17	74	0	0	91	1	0	1	0	2	181
04:15 PM	0	58	4	0	62	1	0	9	0	10	16	65	0	0	81	0	0	1	0	1	154
04:30 PM	1	45	5	0	51	6	0	7	0	13	13	85	0	0	98	2	1	0	0	3	165
04:45 PM	0	61	5	0	66	7	0	15	0	22	21	71	0	0	92	1	1	2	0	4	184
Total	1	223	25	0	249	19	2	42	0	63	67	295	0	0	362	4	2	4	0	10	684
05:00 PM	0	60	6	0	66	9	0	12	0	21	16	66	0	0	82	0	0	0	0	0	169
05:15 PM	2	59	7	0	68	5	0	8	0	13	14	74	2	0	90	1	0	0	0	1	172
05:30 PM	0	57	5	0	62	7	0	12	0	19	13	79	0	0	92	0	0	1	0	1	174
05:45 PM	1	58	9	0	68	5	0	13	0	18	13	46	2	0	61	1	0	2	0	3	150
Total	3	234	27	0	264	26	0	45	0	71	56	265	4	0	325	2	0	3	0	5	665
Grand Total	8	795	126	0	929	119	2	174	0	295	183	1116	9	0	1308	10	3	11	0	24	2556
Apprch %	0.9	85.6	13.6	0		40.3	0.7	59	0		14	85.3	0.7	0		41.7	12.5	45.8	0		
Total %	0.3	31.1	4.9	0	36.3	4.7	0.1	6.8	0	11.5	7.2	43.7	0.4	0	51.2	0.4	0.1	0.4	0	0.9	
Passenger Veh	6	752	117	0	875	114	2	170	0	286	165	1050	8	0	1223	9	3	10	0	22	2406
% Passenger Veh	75	94.6	92.9	0	94.2	95.8	100	97.7	0	96.9	90.2	94.1	88.9	0	93.5	90	100	90.9	0	91.7	94.1
Trucks	2	43	9	0	54	5	0	4	0	9	18	66	1	0	85	1	0	1	0	2	150
% Trucks	25	5.4	7.1	0	5.8	4.2	0	2.3	0	3.1	9.8	5.9	11.1	0	6.5	10	0	9.1	0	8.3	5.9

File Name: Centerville and Manchester

Site Code:

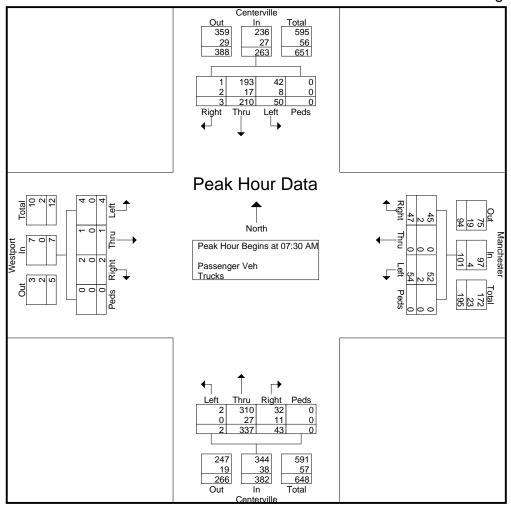
Start Date : 6/8/2017

			Centervill From Nor					Ianchesto From Eas					Centervill rom Sou					Westpor rom We			
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis	s From 06	:30 AM to	11:45 Al	M - Peak	1 of 1		'						'	'							
Peak Hour for Entir	re Intersec	tion Begin	ns at 07:30) AM																	
07:30 AM	2	36	9	0	47	11	0	12	0	23	11	123	1	0	135	0	1	2	0	3	208
07:45 AM	0	58	10	0	68	10	0	15	0	25	10	85	1	0	96	0	0	1	0	1	190
08:00 AM	0	55	14	0	69	8	0	16	0	24	10	61	0	0	71	0	0	1	0	1	165
08:15 AM	1	61	17	0	79	18	0	11	0	29	12	68	0	0	80	2	0	0	0	2	190
Total Volume	3	210	50	0	263	47	0	54	0	101	43	337	2	0	382	2	1	4	0	7	753
% App. Total	1.1	79.8	19	0		46.5	0	53.5	0		11.3	88.2	0.5	0		28.6	14.3	57.1	0		
PHF	.375	.861	.735	.000	.832	.653	.000	.844	.000	.871	.896	.685	.500	.000	.707	.250	.250	.500	.000	.583	.905
Passenger Veh	1	193	42	0	236	45	0	52	0	97	32	310	2	0	344	2	1	4	0	7	684
% Passenger Veh	33.3	91.9	84.0	0	89.7	95.7	0	96.3	0	96.0	74.4	92.0	100	0	90.1	100	100	100	0	100	90.8
Trucks	2	17	8	0	27	2	0	2	0	4	11	27	0	0	38	0	0	0	0	0	69
% Trucks	66.7	8.1	16.0	0	10.3	4.3	0	3.7	0	4.0	25.6	8.0	0	0	9.9	0	0	0	0	0	9.2

File Name: Centerville and Manchester

Site Code:

Start Date : 6/8/2017



File Name: Centerville and Manchester

Site Code:

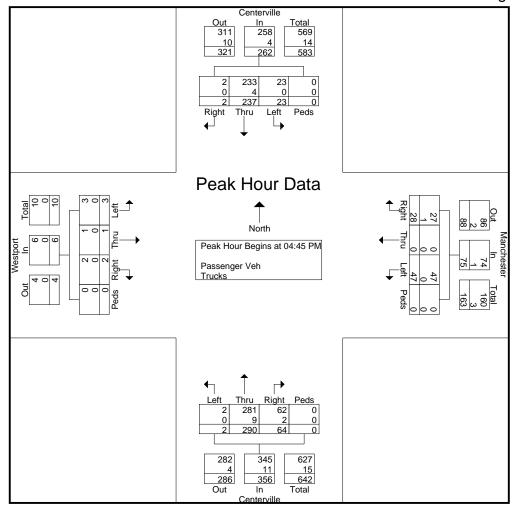
Start Date : 6/8/2017

		_	Centerville rom Nort					lancheste rom Eas					Centervill					Westpor rom We			
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis	From 12:0	00 PM to	05:45 PM	- Peak 1	of 1																
Peak Hour for Entir	e Intersect	ion Begin	s at 04:45	PM																	
04:45 PM	0	61	5	0	66	7	0	15	0	22	21	71	0	0	92	1	1	2	0	4	184
05:00 PM	0	60	6	0	66	9	0	12	0	21	16	66	0	0	82	0	0	0	0	0	169
05:15 PM	2	59	7	0	68	5	0	8	0	13	14	74	2	0	90	1	0	0	0	1	172
05:30 PM	0	57	5	0	62	7	0	12	0	19	13	79	0	0	92	0	0	1	0	1	174
Total Volume	2	237	23	0	262	28	0	47	0	75	64	290	2	0	356	2	1	3	0	6	699
% App. Total	0.8	90.5	8.8	0		37.3	0	62.7	0		18	81.5	0.6	0		33.3	16.7	50	0		
PHF	.250	.971	.821	.000	.963	.778	.000	.783	.000	.852	.762	.918	.250	.000	.967	.500	.250	.375	.000	.375	.950
Passenger Veh	2	233	23	0	258	27	0	47	0	74	62	281	2	0	345	2	1	3	0	6	683
% Passenger Veh	100	98.3	100	0	98.5	96.4	0	100	0	98.7	96.9	96.9	100	0	96.9	100	100	100	0	100	97.7
Trucks	0	4	0	0	4	1	0	0	0	1	2	9	0	0	11	0	0	0	0	0	16
% Trucks	0	1.7	0	0	1.5	3.6	0	0	0	1.3	3.1	3.1	0	0	3.1	0	0	0	0	0	2.3

File Name: Centerville and Manchester

Site Code:

Start Date : 6/8/2017



File Name: News and Firestone

Site Code : 00681114 Start Date : 6/8/2017

Groups Printed- Passenger Veh - Trucks	
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]	Firestone	;				News	<u>аротти</u>	ea rassenge	, , , , , , ,	- GOILO						News			
			rom Nor					From Eas	st			I	rom Sout	h			I	From Wes	t		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	7	0	7	0	3	0	0	3	0	0	0	0	0	0	17	0	0	17	27
06:15 AM	0	0	5	0	5	1	6	0	0	7	0	0	0	0	0	0	21	0	0	21	33
06:30 AM	1	0	16	0	17	3	6	0	0	9	0	0	0	0	0	0	26	0	0	26	52
06:45 AM	1	0	14	0	15	1	14	0	0	15	0	0	0	0	0	0	27	0	0	27	57
Total	2	0	42	0	44	5	29	0	0	34	0	0	0	0	0	0	91	0	0	91	169
07:00 AM	2	0	18	0	20	2	23	0	0	25	0	0	0	0	0	0	36	0	0	36	81
07:15 AM	2	0	15	0	17	2	21	0	0	23	0	0	0	0	0	0	47	0	0	47	87
07:30 AM	1	0	24	0	25	9	30	0	0	39	0	0	0	0	0	0	49	0	0	49	113
07:45 AM	5	0	15	0	20	11	29	0	0	40	0	0	0	0	0	0	55	2	0	57	117
Total	10	0	72	0	82	24	103	0	0	127	0	0	0	0	0	0	187	2	0	189	398
08:00 AM	4	0	27	0	31	11	31	0	0	42	0	0	0	0	0	0	39	3	0	42	115
08:15 AM	7	0	19	0	26	12	35	0	0	47	0	0	0	0	0	0	45	5	0	50	123
08:30 AM	1	0	30	0	31	9	25	0	0	34	0	0	0	0	0	0	58	4	0	62	127
08:45 AM	2	0	18	0	20	11	40	0	0		0	0	0	0	0	0	61	1	0	62	133
Total	14	0	94	0	108	43	131	0	0	174	0	0	0	0	0	0	203	13	0	216	498
09:00 AM	3	0	25	0	28	13	46	0	0	59	0	0	0	0	0	0	66	0	0	66	153
09:15 AM	5	0	22	0	27	16	25	0	0	41	0	0	0	0	0	0	38	1	0	39	107
09:30 AM	4	0	18	0	22	13	29	0	0	42	0	0	0	0	0	0	36	1	0	37	101
09:45 AM	4	0	22	0	26	19	22	0	0	41	0	0	0	0	0	0	35	0	0	35	102
Total	16	0	87	0	103	61	122	0	0	183	0	0	0	0	0	0	175	2	0	177	463
10:00 AM	1	0	19	0	20	22	28	0	0	50	0	0	0	0	0	0	34	2	0	36	106
10:15 AM	4	0	29	0	33	10	32	0	0	42	0	0	0	0	0	0	37	0	0	37	112
10:30 AM	3	0	27	0	30	13	22	0	0	35	0	0	0	0	0	0	39	1	0	40	105
10:45 AM	3	0	35	0	38	33	35	0	0		0	0	0	0	0	0	43	1	0	44	150
Total	11	0	110	0	121	78	117	0	0	195	0	0	0	0	0	0	153	4	0	157	473
11:00 AM	3	0	22	0	25	31	30	0	0	61	0	0	0	0	0	0	31	2	0	33	119
11:15 AM	6	0	22	0	28	20	35	0	0		0	0	0	0	0	0	41	1	0	42	125
11:30 AM	0	0	31	0	31	21	52	0	0		0	0	0	0	0	0	43	0	0	43	147
11:45 AM	2	0	29	0	31	33	35	0	0	68	0	0	0	0	0	0	31	3	0	34	133
Total	11	0	104	0	115	105	152	0	0	257	0	0	0	0	0	0	146	6	0	152	524
12:00 PM	3	0	19	0	22	29	23	0	0	52	0	0	0	0	0	0	32	3	0	35	109
12:15 PM	3	0	26	0	29	33	40	0	0		0	0	0	0	0	0	36	2	0	38	140
12:30 PM	0	0	21	0	21	29	44	0	0	73	0	0	0	0	0	0	33	2	0	35	129
12:45 PM	6	0	17	0	23	35	65	0	0	100	0	0	0	0	0	0	41	4	0	45	168
Total	12	0	83	0	95	126	172	0	0	298	0	0	0	0	0	0	142	11	0	153	546

File Name: News and Firestone

Site Code : 00681114 Start Date : 6/8/2017

Groups Printed- P	assenger Ve	eh - Trucks
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			Firestone				1	News From Eas	•	d- I assenge	V CH 17		rom Sout	h			F	News From Wes	et .		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
01:00 PM	6	0	32	0	38	28	39	0	0	67	0	0	0	0	0	0	47	0	0	47	152
01:15 PM	0	0	30	0	30	25	44	0	0	69	0	0	0	0	0	0	31	4	0	35	134
01:30 PM	1	0	27	0	28	21	34	0	0	55	0	0	0	0	0	0	40	0	0	40	123
01:45 PM	3	0	25	0	28	32	41	0	0	73	0	0	0	0	0	0	28	1	0	29	130
Total	10	0	114	0	124	106	158	0	0	264	0	0	0	0	0	0	146	5	0	151	539
02:00 PM	4	0	28	0	32	22	40	0	1	63	0	0	0	0	0	0	49	6	0	55	150
02:15 PM	2	0	32	0	34	29	46	0	0	75	0	0	0	0	0	0	29	0	0	29	138
02:30 PM	3	0	26	0	29	37	66	0	0	103	0	0	0	0	0	0	43	2	0	45	177
02:45 PM	8	0	26	0	34	30	59	0	0	89	0	0	0	0	0	0	37	2	0	39	162
Total	17	0	112	0	129	118	211	0	1	330	0	0	0	0	0	0	158	10	0	168	627
03:00 PM	2	0	18	0	20	27	48	0	0	75	0	0	0	0	0	0	30	5	0	35	130
03:15 PM	1	0	24	0	25	38	56	0	0	94	0	0	0	0	0	0	35	0	0	35	154
03:30 PM	2	0	19	0	21	34	60	0	0	94	0	0	0	0	0	0	64	8	0	72	187
03:45 PM	3	0	20	0	23	24	56	0	0	80	0	0	0	0	0	0	44	3	0	47	150
Total	8	0	81	0	89	123	220	0	0	343	0	0	0	0	0	0	173	16	0	189	621
04:00 PM	4	0	14	0	18	39	51	0	0	90	0	0	0	0	0	0	52	5	0	57	165
04:15 PM	1	0	20	0	21	36	52	0	0	88	0	0	0	0	0	0	37	4	0	41	150
04:30 PM	6	0	16	0	22	33	61	0	0	94	0	0	0	0	0	0	38	5	0	43	159
04:45 PM	3	0_	15	0	18	27	67	0	0	94	0	0	0	0	0	0	37	3	0	40_	152
Total	14	0	65	0	79	135	231	0	0	366	0	0	0	0	0	0	164	17	0	181	626
05:00 PM	0	0	17	0	17	39	60	0	0	99	0	0	0	0	0	0	34	2	0	36	152
05:15 PM	1	0	12	0	13	25	57	0	0	82	0	0	0	0	0	0	41	0	0	41	136
05:30 PM	3	0	21	0	24	21	63	0	0	84	0	0	0	0	0	0	35	3	0	38	146
05:45 PM	2	0	24	0	26	35	70	0	0	105	0	0	0	0	0	0	34	4	0	38	169
Total	6	0	74	0	80	120	250	0	0	370	0	0	0	0	0	0	144	9	0	153	603
Grand Total	131	0	1038	0	1169	1044	1896	0	1	2941	0	0	0	0	0	0	1882	95	0	1977	6087
Apprch %	11.2	0	88.8	0		35.5	64.5	0	0		0	0	0	0		0	95.2	4.8	0		
Total %	2.2	0	17.1	0	19.2	17.2	31.1	0	0	48.3	0	0	0	0	0	0	30.9	1.6	0	32.5	504
Passenger Veh	122	0	1024	0	1146	1034	1819	0	1	2854	0	0	0	0	0	0	1827	90	0	1917	5917
% Passenger Veh	93.1	0	98.7	0	98	99	95.9	0	100	97	0	0	0	0	0	0	97.1	94.7	0	97	97.2
Trucks	9	0	14	0	23	10	77	0	0	87	0	0	0	0	0	0	55	5	0	60	170
% Trucks	6.9	0	1.3	0	2	1	4.1	0	0	3	0	0	0	0	0	0	2.9	5.3	0	3	2.8

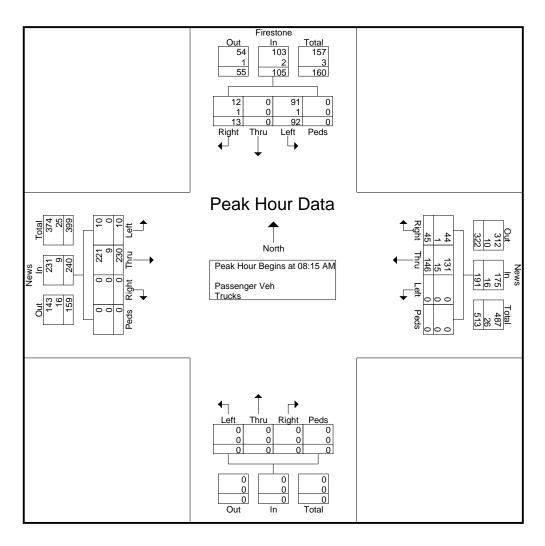
File Name: News and Firestone

Site Code : 00681114 Start Date : 6/8/2017

			Firestone from Nort]	News From East	t			F	rom Sout	h			F	News From Wes	t		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis					1 of 1		'		'				'		'						
Peak Hour for Entir	re Intersec	tion Begin	is at 08:15	5 AM																	
08:15 AM	7	0	19	0	26	12	35	0	0	47	0	0	0	0	0	0	45	5	0	50	123
08:30 AM	1	0	30	0	31	9	25	0	0	34	0	0	0	0	0	0	58	4	0	62	127
08:45 AM	2	0	18	0	20	11	40	0	0	51	0	0	0	0	0	0	61	1	0	62	133
09:00 AM	3	0	25	0	28	13	46	0	0	59	0	0	0	0	0	0	66	0	0	66	153
Total Volume	13	0	92	0	105	45	146	0	0	191	0	0	0	0	0	0	230	10	0	240	536
% App. Total	12.4	0	87.6	0		23.6	76.4	0	0		0	0	0	0		0	95.8	4.2	0		
PHF	.464	.000	.767	.000	.847	.865	.793	.000	.000	.809	.000	.000	.000	.000	.000	.000	.871	.500	.000	.909	.876
Passenger Veh	12	0	91	0	103	44	131	0	0	175	0	0	0	0	0	0	221	10	0	231	509
% Passenger Veh	92.3	0	98.9	0	98.1	97.8	89.7	0	0	91.6	0	0	0	0	0	0	96.1	100	0	96.3	95.0
Trucks	1	0	1	0	2	1	15	0	0	16	0	0	0	0	0	0	9	0	0	9	27
% Trucks	7.7	0	1.1	0	1.9	2.2	10.3	0	0	8.4	0	0	0	0	0	0	3.9	0	0	3.8	5.0

File Name: News and Firestone

Site Code : 00681114 Start Date : 6/8/2017



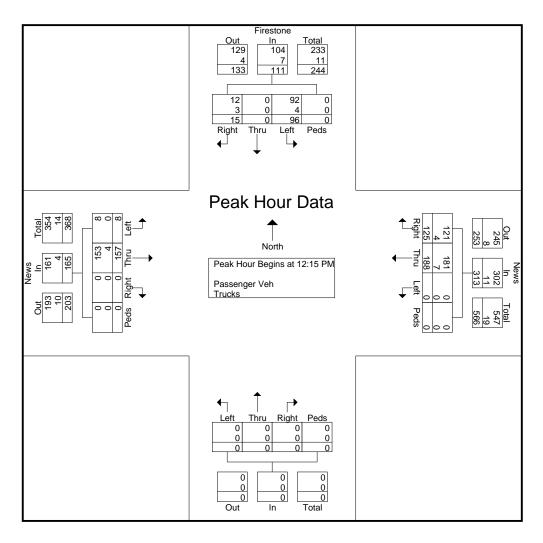
File Name: News and Firestone

Site Code : 00681114 Start Date : 6/8/2017

]	Firestone					News										News			
		F	rom Nort	h			I	From East	<u> </u>			F	rom Sout	h			F	rom Wes	t		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis	s From 10:0	00 AM to	01:45 PM	1 - Peak 1	of 1																
Peak Hour for Entir	re Intersect	ion Begin	s at 12:15	PM																	i
12:15 PM	3	0	26	0	29	33	40	0	0	73	0	0	0	0	0	0	36	2	0	38	140
12:30 PM	0	0	21	0	21	29	44	0	0	73	0	0	0	0	0	0	33	2	0	35	129
12:45 PM	6	0	17	0	23	35	65	0	0	100	0	0	0	0	0	0	41	4	0	45	168
01:00 PM	6	0	32	0	38	28	39	0	0	67	0	0	0	0	0	0	47	0	0	47	152
Total Volume	15	0	96	0	111	125	188	0	0	313	0	0	0	0	0	0	157	8	0	165	589
% App. Total	13.5	0	86.5	0		39.9	60.1	0	0		0	0	0	0		0	95.2	4.8	0		
PHF	.625	.000	.750	.000	.730	.893	.723	.000	.000	.783	.000	.000	.000	.000	.000	.000	.835	.500	.000	.878	.876
Passenger Veh	12	0	92	0	104	121	181	0	0	302	0	0	0	0	0	0	153	8	0	161	567
% Passenger Veh	80.0	0	95.8	0	93.7	96.8	96.3	0	0	96.5	0	0	0	0	0	0	97.5	100	0	97.6	96.3
Trucks	3	0	4	0	7	4	7	0	0	11	0	0	0	0	0	0	4	0	0	4	22
% Trucks	20.0	0	4.2	0	6.3	3.2	3.7	0	0	3.5	0	0	0	0	0	0	2.5	0	0	2.4	3.7

File Name: News and Firestone

Site Code : 00681114 Start Date : 6/8/2017



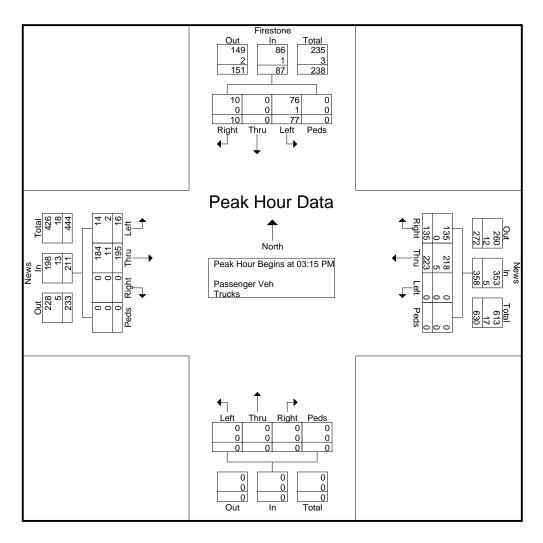
File Name: News and Firestone

Site Code : 00681114 Start Date : 6/8/2017

			Firestone					News					a .					News			
		F1	rom Nortl	h				From East				F:	rom Sout	<u>h</u>			F	rom Wes	<u>t </u>		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis	s From 02:0	00 PM to	05:45 PM	- Peak 1	of 1																
Peak Hour for Entir	re Intersect	ion Begin	s at 03:15	PM																	
03:15 PM	1	0	24	0	25	38	56	0	0	94	0	0	0	0	0	0	35	0	0	35	154
03:30 PM	2	0	19	0	21	34	60	0	0	94	0	0	0	0	0	0	64	8	0	72	187
03:45 PM	3	0	20	0	23	24	56	0	0	80	0	0	0	0	0	0	44	3	0	47	150
04:00 PM	4	0	14	0	18	39	51	0	0	90	0	0	0	0	0	0	52	5	0	57	165
Total Volume	10	0	77	0	87	135	223	0	0	358	0	0	0	0	0	0	195	16	0	211	656
% App. Total	11.5	0	88.5	0		37.7	62.3	0	0		0	0	0	0		0	92.4	7.6	0		
PHF	.625	.000	.802	.000	.870	.865	.929	.000	.000	.952	.000	.000	.000	.000	.000	.000	.762	.500	.000	.733	.877
Passenger Veh	10	0	76	0	86	135	218	0	0	353	0	0	0	0	0	0	184	14	0	198	637
% Passenger Veh	100	0	98.7	0	98.9	100	97.8	0	0	98.6	0	0	0	0	0	0	94.4	87.5	0	93.8	97.1
Trucks	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	0	11	2	0	13	19
% Trucks	0	0	1.3	0	1.1	0	2.2	0	0	1.4	0	0	0	0	0	0	5.6	12.5	0	6.2	2.9

File Name: News and Firestone

Site Code : 00681114 Start Date : 6/8/2017



Appendix C: Volume Worksheets

Longhill Road at Williamsburg W. Drive/Lane Place Drive AM Peak Hour (7:30 AM to 8:30 AM)

I	Description		Longhill Road Eastbound			Longhill Road Westbound			iamsburg W. I		L	ane Place Driv	/e
	•	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017	Counts												
	Cars	3	727	21	41	449	15	39	2	223	54	1	16
	Trucks	0	15	0	2	18	3	3	1	1	2	0	2
Total E	Existing 2017 Traffic	3	742	21	43	467	18	42	3	224	56	1	18
	Truck %	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
	PHF	0,0	270	0,0	270	170	0.		2270	070	.,,	0,0	1170
	•												
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	Existing												
2019	Existing	3	772	22	45	486	19	44	3	233	58	1	19
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	Background Traffic												
	Westport												
Е	Entering Distribution					26%							
	Exiting Distribution		<u>25%</u>										
i	Entering Assignment					2							
	Exiting Assignment		<u>7</u>										
	Windsor												
E	Entering Distribution					60%							
	Exiting Distribution		60%										
	Entering Assignment					2							
	Exiting Assignment		7										
			<u>-</u>										
	The Village												
Į.	Entering Distribution					8%							
	Exiting Distribution		<u>4%</u>			0,0							
	Entering Assignment		17.0			4							
· ·	Exiting Assignment		<u>2</u>			7							
	Latering Assignment		<u>4</u>										
2021	No Build	3	819	23	47	514	20	46	3	242	60	1	20
2027	No Build	4	920	26	53	577	22	52	4	273	68	1	22
	Proposed Trips												
F	Entering Distribution					60%							
	Exiting Distribution		60%										
	Entering Assignment					4							
·	Exiting Assignment		<u>13</u>			,							
			<u></u>										
Pro	posed + Background												
110	2021 Total Traffic	3	832	23	47	518	20	46	3	242	60	1	20
	2027 Total Traffic	4	933	26	53	581	22	52	4	273	68	1	22
	202/ Iotai Italiic	4	733	20	33	361	22	32	4	213	00	1	22

ı	Description		Longhill Road <u>Eastbound</u>			Longhill Roa		Will	iamsburg W. Northbound		L	ane Place Dri	
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017	Counts												
	Cars	17	716	35	206	967	38	49	0	132	23	0	13
7F 4 1 F	Trucks	0	19 735	0	0	10	0	1	0	126	23	0	1 14
Iotal E	Existing 2017 Traffic	17	/33	35	206	977	38	50	0	136	23	0	14
	Truck %	0%	3%	0%	0%	1%	0%	2%	_	3%	0%	-	7%
	PHF				I			.95			I		
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	Existing	10	=	2.5	24.4	4.04.6	40						
2019	Existing	18	765	36	214	1,016	40	52	0	141	24	0	15
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	Background Traffic												_
	Westport												
Ε	Entering Distribution					25%							
	Exiting Distribution		28%										
1	Entering Assignment					7							
	Exiting Assignment		<u>5</u>										
	Windsor												
Е	Entering Distribution					55%							
	Exiting Distribution		55%										
j	Entering Assignment					7							
	Exiting Assignment		<u>4</u>										
			-										
	The Village												
F	Entering Distribution					5%							
_	Exiting Distribution		<u>5%</u>			2,0							
i	Entering Assignment		270			4							
1	Exiting Assignment		<u>4</u>			7							
	Zatenig / Borginiett		2										
2021	No Build	19	809	37	223	1,075	42	54	0	147	25	0	16
2027	No Build	21	909	42	251	1,209	47	61	0	165	28	0	18
	Proposed Trips												
E	Entering Distribution					55%							
	Exiting Distribution		<u>55%</u>										
1	Entering Assignment		_			13							
	Exiting Assignment		<u>8</u>										
			-										
Pror	posed + Background												
71	2021 Total Traffic	19	817	37	223	1,088	42	54	0	147	25	0	16
	2027 Total Traffic	21	917	42	251	1,222	47	61	0	165	28	0	18

Longhill Road at Ford's Colony Drive AM Peak Hour (7:30 AM to 8:30 AM)

			Longhill Road			Longhill Road		Fo	ords Colony Dri	ve	Dom	inion Village Er	ntrance
D.	escription	Left	Eastbound Through	Right	Left	Westbound Through	Right	Left	Northbound Through	Right	Left	Southbound Through	Right
2017	Counts												
	Cars	3	277	34	103	247	1	63	1	130	0	1	0
T	Trucks	0	16	2	3	19	0	7	0	0	0	0	0
Total Exi	isting 2017 Traffic	3	293	36	106	266	1	70	1	130	0	1	0
	Truck %	0%	5%	6%	3%	7%	0%	10%	0%	0%	-	0%	-
	PHF				I			.83					
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2019	Existing Existing	3	305	37	110	277	1	73	1	135	0	1	0
2017	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
В	ackground Traffic	21070	21070	2.070	2.070	2.070	21070	2.070	21070	2.070	21070	21070	21070
	Westport												
	tering Distribution		250/			26%							
_	Exiting Distribution		<u>25%</u>										
	ntering Assignment		7			2							
-	Exiting Assignment		<u>7</u>										
	Windsor												
F				20%	60%								
	tering Distribution Exiting Distribution			20%	00%			200/		60%			
_	_			1	2			20%		00%			
	ntering Assignment Exiting Assignment			1	2			2		7			
-	Exiting Assignment							2		7			
	The Village												
Fn	tering Distribution					8%							
	Exiting Distribution		<u>4%</u>			070							
	ntering Assignment		170			4							
	Exiting Assignment		<u>2</u>			,		1					
			=					1					
2021	No Build	3	326	39	116	294	1	78	1	148	0	1	0
2027	No Build	4	366	44	131	331	1	88	1	165	0	1	0
	Proposed Trips							1					
En	tering Distribution			20%	60%			1					
]	Exiting Distribution							<u>20%</u>		60%			
En	ntering Assignment			1	4			1					
	Exiting Assignment							<u>4</u>		<u>13</u>			
	sed + Background					_							
	2021 Total Traffic	3	326	40	120	294	1	82	1	161	0	1	0
	2027 Total Traffic	4	366	45	135	331	1	92	1	178	0	1	0

D	Description		Longhill Road Eastbound			Longhill Roa Westbound		Fo	rds Colony Di Northbound		Domir	nion Village E Southbound	
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017	Counts												
	Cars	0	337	53	192	277	2	45	2	119	4	0	5
	Trucks	0	3	0	0	5	0	0	1	2	0	0	0
Total Ex	isting 2017 Traffic	0	340	53	192	282	2	45	3	121	4	0	5
	Truck %	_	1%	0%	0%	2%	0%	0%	33%	2%	0%	_	0%
	PHF		170	070	070	270		94	3370	270	070		070
	F												
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	Existing												
2019	Existing	0	354	55	200	293	2	47	3	126	4	0	5
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
В	ackground Traffic												

F.,	Westport					25%							
	tering Distribution Exiting Distribution		28%			2370							
	_		2070			7							
	ntering Assignment		_			7							
	Exiting Assignment		<u>5</u>										
	Windsor												
F12	ntering Distribution			15%	55%								
	Exiting Distribution			1370	3370			15%		55%			
	ntering Assignment			2	7			1370		3370			
	Exiting Assignment			2	,			1		4			
	LAITING ASSIGNMENT							1		<u>4</u>			
	The Village												
En	ntering Distribution					5%							
	Exiting Distribution		<u>5%</u>										
	ntering Assignment		_			4							
	Exiting Assignment		<u>4</u>			•							
			-										
2021	No Build	0	377	59	215	316	2	50	3	135	4	0	5
2027	No Build	0	424	66	242	354	2	56	4	152	5	0	6
· <u></u>													
	Proposed Trips												
En	ntering Distribution			15%	55%								
	Exiting Distribution							<u>15%</u>		<u>55%</u>			
Ei	ntering Assignment			4	13								
	Exiting Assignment							<u>2</u>		<u>8</u>			
Propo	osed + Background												
	2021 Total Traffic	0	377	63	228	316	2	52	3	143	4	0	5
	2027 Total Traffic	0	424	70	255	354	2	58	4	160	5	0	6

Centerville Road at Manchester Drive AM Peak Hour (7:30 AM to 8:30 AM)

			Westport			Manchester Drive	e		Centerville Road	l		Centerville Road	
Desc	eription	Left	Eastbound Through	Right	Left	Westbound Through	Right	Left	Northbound Through	Right	Left	Sout hbound Through	Right
2017	Counts												
	Cars	4	1	2	52	0	45	2	310	32	42	193	1
	Trucks	0	0	0	2	0	2	0	27	11	8	17	2
otal Existin	g 2017 Traffic	4	1	2	54	0	47	2	337	43	50	210	3
	Truck%	0%	0%	0%	4%	_	4%	0%	8%	26%	16%	8%	67%
	PHF	070	070	070	470	-		.91	070	2070	1070	870	0770
	Growth Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
*010	Existing			-		•	40		271			***	
2019	Existing	4	1	2 50/	57	0	49	2 2 50/	354	45	53	221	3
Rack	Growth Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Dackg	ground frame												
	Westport												
Enteri	ing Distribution							25%					75%
Exiti	ing Distribution	<u>72%</u>		<u>28%</u>									
Enteri	ing Assignment							2					7
Exiti	ng Assignment	19		<u>7</u>									
	Windsor												
Enteri	ing Distribution									15%	5%		
Exiti	ing Distribution				15%		5%						
Enteri	ing Assignment									1	0		
Exiti	ng Assignment				<u>2</u>		1						
	The Village												
Enteri	ing Distribution											22%	
Exiti	ing Distribution								12%				
Enteri	ing Assignment											11	
Exiti	ng Assignment								<u>6</u>				
2021	No Build	23	1	9	62	0	52	4	378	48	56	243	10
2027	No Build	24	1	10	71	0	61	4	437	55	65	280	11
P	Proposed Trips												
Enteri	ing Distribution									15%	5%		
Exiti	ing Distribution				<u>15%</u>		<u>5%</u>						
Enteri	ing Assignment									1	0		
Exiti	ng Assignment				<u>3</u>		1						
Proposed	+ Background												
2021	1 Total Traffic	23	1	9	65	0	53	4	378	49	56	243	10
2027	7 Total Traffic	24	1	10	74	0	62	4	437	56	65	280	11

			Westport		N	fanchester Driv	/e	(Centerville Roa	d	(Centerville Road	d
Desc	cription		Eastbound			Westbound			Northbound			Sout hbound	
2017	Counts	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017	Counts	3	1	2	47	0	27	2	281	62	23	233	2
	Trucks	0	0	0	0	0	1	0	9	2	0	4	0
otal Existin	g 2017 Traffic	3	1	2	47	0	28	2	290	64	23	237	2
	_												
	Truck%	0%	0%	0%	0%	-	4%	0%	3%	3%	0%	2%	0%
	PHF				T		0.	.95			_		
	C d D d	2.50/	2.50/	2.50/	2.50/	2.50/	2.50/	2.50/	2.50/	2.50/	2.50/	2.50/	0.50/
	Growth Rate Existing	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
2019	Existing	3	1	2	49	0	29	2	305	67	24	249	2
	Growth Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Back	ground Traffic												
	Westport												
	ing Distribution	700/		2107				29%					71%
-	ing Distribution	<u>79%</u>		21%									• •
	ing Assignment	4.0						8					20
Exiti	ing Assignment	<u>13</u>		4									

	Windsor												
	ing Distribution									30%			
	ing Distribution				<u>30%</u>								
	ing Assignment									4			
Exiti	ing Assignment				<u>5</u>								
	The Village											****	
	ing Distribution											13%	
	ing Distribution								14%				
	ing Assignment											11	
Exiti	ing Assignment								<u>11</u>				
2021	No Build	16			56	0	20	10	221	7.4	25	272	22
2021	No Build	16 17	1	6	64	0	30	10	331	74 86	29	273 314	22
2027	NO Dalla	1/	ı	0	04	U	33	10	383	00	29	314	LL
,	Proposed Trips												
	ing Distribution									30%			
	ing Distribution				30%					50/0			
	ing Distribution				3070					7			
					4					/			
EXIU	ing Assignment				4								
Proposed	+ Background												
	+ Background 1 Total Traffic	16	1	6	60	0	30	10	331	81	25	273	22
	7 Total Traffic	17	1	6	68	0	35	10	383	93	29	314	22
202	/ Total Traffic	17	ı	0	08	U	33	10	383	93	29	314	LL

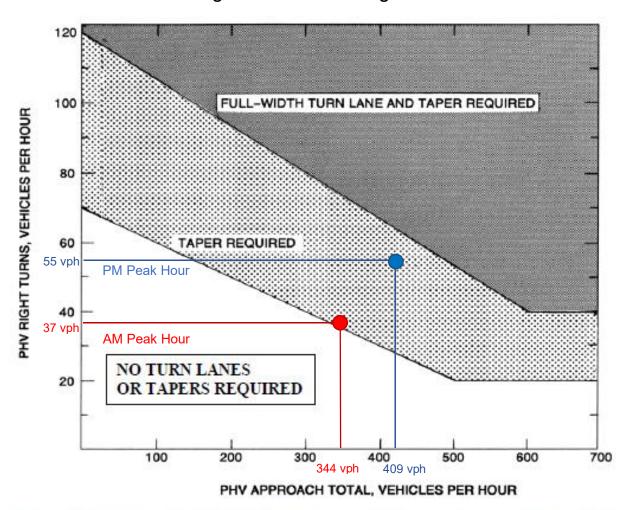
Firestone Drive at News Road AM Peak Hour (7:30 AM to 8:30 AM)

Description		News Road Eastbound			News Road Westbound			Proposed Entrance			Firestone Drive Southbound		
Desci	ription	Left	Through	Right	Left	Through	Right	Left	Northbound Through	Right	Left	Through	Right
2017	Counts	Lett	rmougn	rugiii	Len	rmougn	rugui		1110491	rugui		rmougn	rugin
	Cars	8	182	0	0	109	42	-	-	-	85	0	17
	Trucks	10	6	0	0	16	1	-	-	-	0	0	0
Total Exist	Total Existing 2017 Traffic		188	0	0	125	43	0	0	0	85	0	17
	Truck %	20%	3%	_	_	13%	2%	_	_	_	0%	-	0%
	PHF	2070	370	-	_	1370		.95			070		070
	_												
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	Existing												
2019	Existing	10	196	0	0	130	45	0	0	0	88	0	18
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Bac	kground Traffic												
	Westport												
Enter	ring Distribution					20%							
	iting Distribution		<u>25%</u>										
Ente	ring Assignment					2							
Ex	titing Assignment		<u>7</u>										
	Windsor												
Enter	ring Distribution					10%							
	iting Distribution		10%										
	ring Assignment					0							
	aiting Assignment		<u>1</u>										
	The Village												
Enter	ring Distribution			37%	63%								
	iting Distribution							<u>27%</u>		<u>73%</u>			
	ring Assignment			18	31								
	atting Assignment							<u>14</u>		<u>38</u>			
										_	1		
2021	No Build	10	212	18	31	137	47	14	0	38	92	0	19
2027	No Build	12	237	18	31	154	53	14	0	38	103	0	21
	Proposed Trips										1		
Enter	ring Distribution					10%							
Ex	iting Distribution		10%										
	ring Assignment					1							
	xiting Assignment		<u>2</u>								1		
	_												
Propose	d + Background												
	21 Total Traffic	10	214	18	31	138	47	14	0	38	92	0	19
	27 Total Traffic	12	239	18	31	155	53	14	0	38	103	0	21

		News Road News Road						I	Proposed Entranc	e	Firestone Drive		
Description			Eastbound		Westbound			Northbound			Southbound		
	•	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017	Counts			_			_			-			
	Cars	8	144	0	0	243	112	-	-	-	64	0	7
	Trucks	0	3	0	0	4	0	-	-	-	1	0	0
Total Existing 2017 Traf		8	147	0	0	247	112	0	0	0	65	0	7
	Tenals 0/	00/	20/			20/	00/				20/		00/
	Truck % PHF	0%	2%	-	-	2%	0%	96	-	-	2%	-	0%
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	Existing												
2019	Existing	8	153	0	0	257	117	0	0	0	68	0	7
	Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Ba	ackground Traffic												

E	Westport tering Distribution					25%							
	Exiting Distribution		20%			23%							
			20%			_							
	ntering Assignment					7							
	Exiting Assignment		<u>3</u>										
	Windsor												
E	tering Distribution					30%							
	Exiting Distribution		200/			30%							
_	_		<u>30%</u>			,							
	ntering Assignment					4							
<u> </u>	Exiting Assignment		2										
	The Village												
Entering Distribution				28%	72%								
				20/0	/2/0			200/		710/			
Exiting Distribution				2.2	50			<u>29%</u>		<u>71%</u>			
	ntering Assignment			23	59								
_	Exiting Assignment							<u>23</u>		<u>56</u>			
2021	No Build	8	164	23	59	278	122	23	0	56	71	0	7
2027	No Build	9	182	23	59	308	137	23	0	56	80	0	8
		-											
	Proposed Trips												
Entering Distribution						30%							
Exiting Distribution			30%										
Entering Assignment						7							
Exiting Assignment			1			,							
1	EATHING ASSIGNMENT		<u>4</u>										
Propos	sed + Background												
2021 Total Traffic		8	168	23	59	285	122	23	0	56	71	0	7
	2027 Total Traffic												

Appendix D: Turn Lane and Signal Warrant Worksheets



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.

Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour

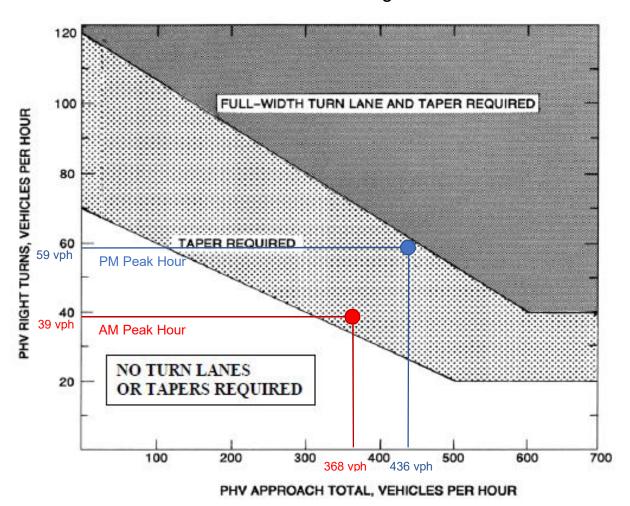
D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

Rev. 1/15



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.

Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour

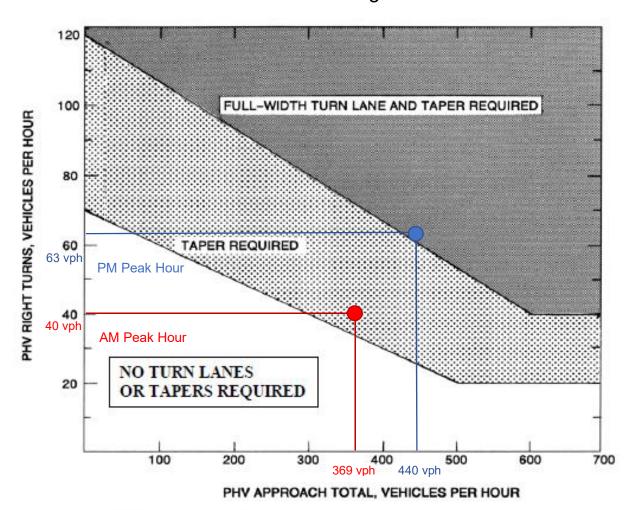
D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria."

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

Rev 1/15



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.

Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour

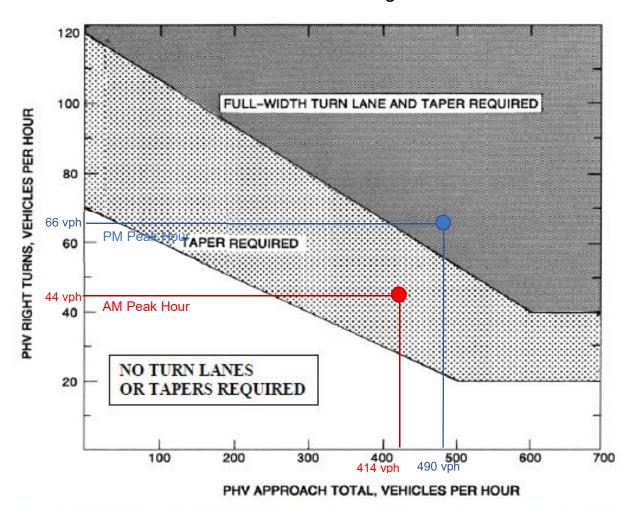
D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria."

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

Rev 1/15



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.

Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

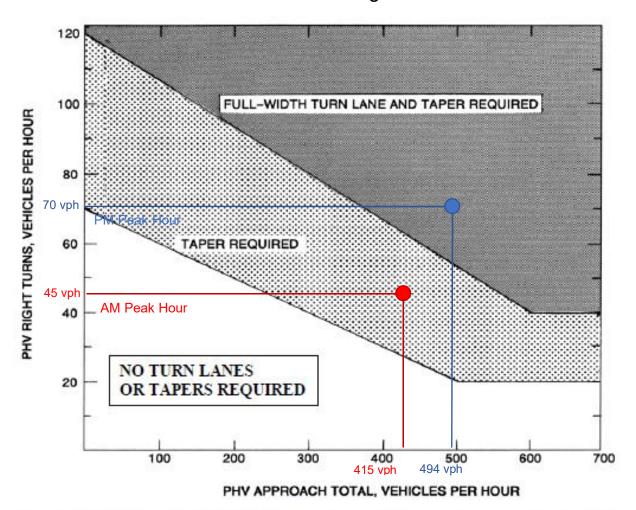
K = the percent of AADT occurring in the peak hour D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria."

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

Rev 1/15



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph, PHV right turns > 40, and PHV total < 300.

Adjusted right turns = PHV Right Turns - 20
If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria."

FIGURE 3-26 WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

Rev 1/15

Firestone Drive at News Road

INTERSECTION NAME:	Firestone Drive at News Road	COUNT DATE:	6/8/2017

INTERSECTION CONDITION: 2019 Existing (No SBR or WBR)

> # OF APPROACH LANES: MAJOR STREET: News Road # OF APPROACH LANES: MINOR STREET: Firestone Drive

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

						WARRA	ANT 1, Cond	dition A	WARR	ANT 1, Cond	lition B		WARR	ANT 1, Co	mbination W	/arrant			
			MAJOR ST	MINC	R ST							С	ONDITION	A	С	ONDITION E	3	WARRANT 2	WARRANT 3
			BOTH APPROACHES	HIGHEST A	APPROACH	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD \	VALUE	S	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM	TO	07:00 AM	125	42	0											Υ			
07:00 AM	TO	08:00 AM	304	72	0					Υ						Y			
08:00 AM	TO	09:00 AM	360	94	0					Υ		Υ	Υ	Υ		Υ			
09:00 AM	TO	10:00 AM	311	87	0					Y			Y			Υ			
10:00 AM	TO	11:00 AM	285	110	0		Υ			Y			Υ			Υ			
11:00 AM	TO	12:00 AM	316	104	0					Y			Υ			Υ			
12:00 PM	TO	01:00 PM	338	83	0					Υ		Υ				Υ			
01:00 PM	TO	02:00 PM	321	114	0		Υ			Y			Υ			Υ			
02:00 PM	TO	03:00 PM	394	112	0		Υ			Y		Υ	Y	Υ		Υ			
03:00 PM	TO	04:00 PM	425	81	0	Υ				Υ		Υ				Υ			
04:00 PM	TO	05:00 PM	428	65	0	Υ				Y		Υ				Υ			
05:00 PM	TO	06:00 PM	419	74	0					Y		Y				Υ			
			0	0	0														
			0	0	0														
			0	0	0														
			0	0	0														
			4,026	1,038	0	_		0			0			2			0	0	0
						8 HOURS NEEDED NOT SATISFIED				8 HOURS NEEDED NOT SATISFIED								4 HRS NEEDED NOT SATISFIED	1 HR NEEDED NOT SATISFIE

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A: Minimum Vehicular Volume Condition B: Interruption of Continuous Traffic

Combination: Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

INTERSECTION NAME:	Firestone Drive at News Road	COUNT DATE:	6/8/2017
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INTERSECTION CONDITION: 2021 No Build (No SBR, WBR, or NBR)

> MAJOR STREET: MINOR STREET: Firestone Drive/The Villages Driveway

OF APPROACH LANES: # OF APPROACH LANES:

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

					WARRA	ANT 1, Cond	lition A	WARR	ANT 1, Cond	lition B		WARR	ANT 1, Co	mbination W	/arrant			
		MAJOR ST	MINC	R ST							С	ONDITION	A	С	ONDITION	В	WARRANT 2	WARRANT 3
		BOTH APPROACHES	HIGHEST A	APPROACH	MAJOR STREET	MINOR STREET	BOTH MET											
THRESHOLD VAL	UES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM TO	07:00 AM	151	42	32											Υ			
07:00 AM TO	08:00 AM	348	72	50					Υ		Υ				Υ			
08:00 AM TO	09:00 AM	417	94	51					Υ		Υ	Υ	Υ		Υ			
09:00 AM TO	10:00 AM	363	87	36					Υ		Υ	Υ	Υ		Υ			
10:00 AM TO	11:00 AM	338	110	31		Υ			Υ		Υ	Y	Υ		Υ			
11:00 AM TO	12:00 AM	374	104	32					Υ		Υ	Υ	Υ		Υ			
12:00 PM TO	01:00 PM	393	83	32					Υ		Υ				Υ			
01:00 PM TO	02:00 PM	377	114	34		Υ			Υ		Υ	Υ	Υ		Υ			
02:00 PM TO	03:00 PM	462	112	36	Υ	Υ	Υ		Υ		Υ	Υ	Υ		Υ			
03:00 PM TO	04:00 PM	504	81	38	Υ				Υ		Υ			Υ	Υ	Υ		
04:00 PM TO	05:00 PM	520	65	38	Υ				Υ		Υ			Υ	Υ	Υ		
05:00 PM TO	06:00 PM	518	74	39	Υ				Υ		Υ			Υ	Υ	Υ		
		0	0	0														
		0	0	0														
		0	0	0														
		0	0	0														
•		4,765	1,038	449			1		•	0			6			3	0	0
				•							'							
					8 HOURS NEEDED				8 HOURS NEEDED			URS OF BO	TH COND	. A AND CO	DED	4 HRS NEEDED	1 HR NEEDED	
					NOT SATISFIED				NOT SATISFIED				NOT SA	TISFIED		NOT SATISFIED	NOT SATISFIE	

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A: Minimum Vehicular Volume Condition B: Interruption of Continuous Traffic

Combination: Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

INTERSECTION NAME:	Firestone Drive at News Road	COUNT DATE:	6/8/201

INTERSECTION CONDITION: 2021 Build (No SBR, WBR, or NBR)

> MAJOR STREET: News Road MINOR STREET: Firestone Drive/The Villages Driveway

OF APPROACH LANES: # OF APPROACH LANES:

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

						WARRA	NT 1, Cond	lition A	WARR	ANT 1, Cond	lition B		WARR	ANT 1, Co	mbination W	/arrant			
			MAJOR ST	MINO	R ST							С	ONDITION	A	С	ONDITION E	3	WARRANT 2	WARRANT 3
			BOTH APPROACHES	HIGHEST A	APPROACH	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD	VALU	ES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM	TO	07:00 AM	151	43	32											Υ			
07:00 AM	TO	08:00 AM	348	74	50					Υ		Υ				Υ			
08:00 AM	TO	09:00 AM	417	96	51					Υ		Υ	Υ	Υ		Υ			
09:00 AM	TO	10:00 AM	363	88	36					Υ		Υ	Υ	Υ		Υ			
10:00 AM	TO	11:00 AM	338	111	31		Υ			Υ		Υ	Υ	Υ		Υ			
11:00 AM	TO	12:00 AM	374	105	32		Υ			Υ		Υ	Υ	Υ		Υ			
12:00 PM	TO	01:00 PM	393	84	32					Υ		Υ	Y	Y		Υ			
01:00 PM	TO	02:00 PM	377	115	34		Υ			Υ		Υ	Υ	Υ		Υ			
02:00 PM	TO	03:00 PM	462	113	36	Υ	Υ	Υ		Υ		Υ	Υ	Υ		Υ			
03:00 PM	TO	04:00 PM	504	82	38	Υ				Υ		Υ			Υ	Υ	Υ		
04:00 PM	TO	05:00 PM	520	66	38	Υ				Υ		Υ			Υ	Υ	Υ		
05:00 PM	TO	06:00 PM	518	75	39	Y				Υ		Υ			Υ	Υ	Υ		
			0	0	0														
			0	0	0														
			0	0	0														
			0	0	0														
			4,765	1,052	449			1			0			7			3	0	0
						8 HOURS NEEDED NOT SATISFIED				8 HOURS NEEDED NOT SATISFIED								4 HRS NEEDED NOT SATISFIED	1 HR NEEDED NOT SATISFIE

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A: Minimum Vehicular Volume

Condition B: Interruption of Continuous Traffic

Combination: Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

INTERSECTION NAME:	Firestone Drive at News Road	COUNT DATE:	6/8/2017

INTERSECTION CONDITION: 2027 No Build (No SBR, WBR, or NBR)

> MAJOR STREET: MINOR STREET: Firestone Drive/The Villages Driveway

OF APPROACH LANES: # OF APPROACH LANES:

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

						WARRA	ANT 1, Cond	lition A	WARR	ANT 1, Cond	lition B		WARR	ANT 1, Co	mbination W	/arrant			
			MAJOR ST	MINO	R ST							C	ONDITION	A	С	ONDITION E	3	WARRANT 2	WARRANT 3
			BOTH APPROACHES	HIGHEST A	APPROACH	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD) VALU	ES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM	TO	07:00 AM	188	42	32											Υ			
07:00 AM	TO	08:00 AM	420	72	50	Υ				Υ		Υ				Υ			
08:00 AM	TO	09:00 AM	511	94	51	Υ				Υ		Υ	Υ	Υ	Υ	Υ	Υ		
09:00 AM	TO	10:00 AM	453	87	36	Υ				Υ		Υ	Υ	Υ		Υ			
10:00 AM	TO	11:00 AM	429	110	31	Υ	Υ	Υ		Υ		Υ	Υ	Υ		Υ			
11:00 AM	TO	12:00 AM	474	104	32	Υ				Υ		Υ	Υ	Υ		Υ			
12:00 PM	TO	01:00 PM	515	83	32	Υ				Y		Y			Υ	Υ	Υ		
01:00 PM	TO	02:00 PM	499	114	34	Υ	Υ	Υ		Υ		Υ	Υ	Υ		Υ			
02:00 PM	TO	03:00 PM	609	112	36	Υ	Υ	Υ		Υ		Υ	Υ	Υ	Υ	Υ	Υ		
03:00 PM	TO	04:00 PM	679	81	38	Y			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
04:00 PM	TO	05:00 PM	720	65	38	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
05:00 PM	TO	06:00 PM	733	74	39	Υ			Υ	Y	Υ	Υ			Υ	Υ	Υ		
			0	0	0														
			0	0	0														
			0	0	0														
			0	0	0														
			6,230	1,038	449			3			3			6			6	0	0
						8 HOURS NEEDED NOT SATISFIED							8 HOURS OF BOTH COND. A AND COND. B NEEDED NOT SATISFIED					4 HRS NEEDED NOT SATISFIED	1 HR NEEDED NOT SATISFIE

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A: Minimum Vehicular Volume Condition B: Interruption of Continuous Traffic

Combination: Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

INTERSECTION NAME:	Firestone Drive at News Road	COUNT DATE:	6/8/2017

INTERSECTION CONDITION: 2027 Build (No SBR, WBR, or NBR)

> MAJOR STREET: News Road # OF APPROACH LANES: # OF APPROACH LANES: MINOR STREET: Firestone Drive/The Villages Driveway

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

						WARRA	ANT 1, Cond	ition A	WARRA	ANT 1, Cond	lition B		WARR	ANT 1, Co	mbination V	/arrant		·	
			MAJOR ST	MINO	R ST							С	ONDITION	A	С	ONDITION	В	WARRANT 2	WARRANT 3
			BOTH APPROACHES	HIGHEST A	APPROACH	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD) VALU	ES	EB/WB	SB	NB	420	105		630	53		336	84		504	42			
06:00 AM	TO	07:00 AM	188	43	32											Υ			
07:00 AM	TO	08:00 AM	420	74	50	Υ				Υ		Υ				Υ			
08:00 AM	TO	09:00 AM	511	96	51	Υ				Υ		Υ	Υ	Υ	Υ	Υ	Υ		
09:00 AM	TO	10:00 AM	453	88	36	Υ				Υ		Υ	Υ	Υ		Υ			
10:00 AM	TO	11:00 AM	429	111	31	Υ	Υ	Υ		Υ		Υ	Υ	Υ		Υ			
11:00 AM	TO	12:00 AM	474	105	32	Υ	Υ	Υ		Υ		Υ	Υ	Υ		Υ			
12:00 PM	TO	01:00 PM	515	84	32	Υ				Υ		Υ	Υ	Υ	Υ	Υ	Υ		
01:00 PM	TO	02:00 PM	499	115	34	Υ	Υ	Υ		Υ		Y	Υ	Υ		Υ			
02:00 PM	TO	03:00 PM	609	113	36	Υ	Υ	Υ		Υ		Υ	Υ	Υ	Υ	Υ	Υ		
03:00 PM	TO	04:00 PM	679	82	38	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
04:00 PM	TO	05:00 PM	720	66	38	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
05:00 PM	TO	06:00 PM	733	75	39	Υ			Υ	Υ	Y	Y			Y	Υ	Υ		
			0	0	0														
			0	0	0														
			0	0	0														
			0	0	0														
			6,230	1,052	449			4			3			7			6	0	0
						8 HOURS NEEDED							URS OF BO		. A AND CO	DED	4 HRS NEEDED	1 HR NEEDED	
					NOT SATISFIED					NOT SATISFIED NOT SATISFIED							NOT SATISFIED	NOT SATISFIE	

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A: Minimum Vehicular Volume Condition B: Interruption of Continuous Traffic

Combination: Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

Fords Colony Drive at Longhill Road

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME:	Fords Colony Drive at Longhill Road	COUNT DATE:	6/8/2017
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INTERSECTION CONDITION: 2019 Existing (No WBR or NBR)

 MAJOR STREET:
 Longhill Road
 # OF APPROACH LANES:
 2

 MINOR STREET:
 Fords Colony Drive
 # OF APPROACH LANES:
 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

N Y

					WARR	ANT 1. Cond	ition A	WARR	ANT 1. Cond	ition B		WARR	ANT 1 Co	mbination W	arrant			
		MAJOR ST	MINO	R ST	WAR	111 1, CONG	ILIOITA	WAIN	uvi i, cond	IIIOII D	С	ONDITION	, .		ONDITION E	В	WARRANT 2	WARRANT 3
		BOTH APPROACHES	HIGHEST A		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALU	ES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO	07:00 AM	234	15	2														
07:00 AM TO	08:00 AM	604	52	2	Υ						Υ			Υ	Υ	Υ		
08:00 AM TO	09:00 AM	771	63	2	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
09:00 AM TO	10:00 AM	617	44	1	Υ						Υ			Υ	Υ	Y		
10:00 AM TO	11:00 AM	507	66	5	Υ				Υ		Υ			Y	Υ	Υ		
11:00 AM TO	12:00 AM	573	45	6	Υ						Υ			Υ	Υ	Y		
12:00 PM TO	01:00 PM	598	50	5	Υ						Υ			Υ	Υ	Υ		
01:00 PM TO	02:00 PM	551	44	12	Υ						Υ			Υ	Υ	Υ		
02:00 PM TO	03:00 PM	763	55	8	Υ			Υ	Υ	Υ	Υ			Y	Υ	Y		
03:00 PM TO	04:00 PM	833	75	13	Υ			Υ	Υ	Υ	Υ			Y	Υ	Y	Υ	
04:00 PM TO	05:00 PM	850	56	4	Υ			Υ	Υ	Υ	Υ			Y	Υ	Υ		
05:00 PM TO	06:00 PM	865	39	8	Υ			Υ			Υ			Y				
		0	0	0														
		0	0	0														
		0	0	0														
		0	0	0														
		7,766	604	68		·	0			4			0			10	1	0
									'									
						URS NEED		8 HOURS NEEDED								DED	4 HRS NEEDED	1 HR NEEDED
					NO.	NOT SATISFIED NOT SATISFIED					NOT SATISFIED						NOT SATISFIED	NOT SATISFIED

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A : Minimum Vehicular Volume

Condition B : Interruption of Continuous Traffic

Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION CONDITION: 2021 No Build (No WBR or NBR)

 MAJOR STREET:
 Longhill Road
 # OF APPROACH LANES:
 2

 MINOR STREET:
 Fords Colony Drive
 # OF APPROACH LANES:
 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): N Y

				-	WARR	ANT 1. Cond	lition A	WARRANT 1, Condition B			WARRANT 1. Combination Warrant							
		MAJOR ST	MINO	R ST	WAIN	Water and it, contained to			Water att 1, Generalis B		С	ONDITION			ONDITION E	3	WARRANT 2	WARRANT 3
		BOTH	WIIIVO		MAJOR	MINOR	вотн	MAJOR	MINOR	вотн	MAJOR	MINOR	вотн	MAJOR	MINOR	вотн		
		APPROACHES	HIGHEST A	PPROACH	STREET	STREET	MET	STREET	STREET	MET	STREET	STREET	MET	STREET	STREET	MET		
THRESHOLD VALUE	ES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO	07:00 AM	268	18	2														
07:00 AM TO	08:00 AM	665	57	2	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
08:00 AM TO	09:00 AM	843	69	2	Υ			Υ	Υ	Υ	Y			Υ	Υ	Υ		
09:00 AM TO	10:00 AM	674	48	1	Υ			Υ			Υ			Υ	Υ	Υ		
10:00 AM TO	11:00 AM	560	71	5	Υ				Υ		Υ			Υ	Υ	Υ		
11:00 AM TO	12:00 AM	631	49	6	Υ			Υ			Υ			Υ	Υ	Υ		
12:00 PM TO	01:00 PM	656	54	5	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
01:00 PM TO	02:00 PM	608	48	12	Υ						Υ			Υ	Υ	Υ		
02:00 PM TO	03:00 PM	831	59	8	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
03:00 PM TO	04:00 PM	909	80	14	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
04:00 PM TO	05:00 PM	932	60	4	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
05:00 PM TO	06:00 PM	950	43	8	Υ			Υ			Υ			Υ	Υ	Υ		
		0	0	0														
		0	0	0														
		0	0	0														
		0	0	0														
		8,527	656	69		·	0			6			0		·	11	2	0
					8 HC	OURS NEED	ED	8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
					NO.	T SATISFII	ED	NO	T SATISFII	ED	NOT SATISFIED						NOT SATISFIED	NOT SATISFIED

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A : Minimum Vehicular Volume

Condition B : Interruption of Continuous Traffic

Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME:	Fords Colony Drive at Longhill Road	COUNT DATE:	6/8/2017
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INTERSECTION CONDITION: 2021 Build (No WBR or NBR)

 MAJOR STREET:
 Longhill Road
 # OF APPROACH LANES:
 2

 MINOR STREET:
 Fords Colony Drive
 # OF APPROACH LANES:
 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

N Y

				-	WADD.	ANT 1. Cond	lition A	WARRANT 1, Condition B			WARRANT 1. Combination Warrant							
		MAJOR ST	MINO	R ST	WARRA	AINT I, COIL	IIIOII A	WARR	AIN I, COIL	ilion B	C	ONDITION			ONDITION E	3	WARRANT 2	WARRANT 3
		BOTH	WIIIVO	101	MAJOR	MINOR	вотн	MAJOR	MINOR	вотн	MAJOR	MINOR	вотн	MAJOR	MINOR	вотн		
		APPROACHES	HIGHEST A	PPROACH	STREET	STREET	MET	STREET	STREET	MET	STREET	STREET	MET	STREET	STREET	MET		
THRESHOLD VALU	ES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO	07:00 AM	273	23	2														
07:00 AM TO	08:00 AM	673	64	2	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
08:00 AM TO	09:00 AM	855	77	2	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
09:00 AM TO	10:00 AM	686	53	1	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
10:00 AM TO	11:00 AM	573	76	5	Υ				Υ		Υ			Υ	Υ	Υ		
11:00 AM TO	12:00 AM	646	54	6	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
12:00 PM TO	01:00 PM	671	57	5	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
01:00 PM TO	02:00 PM	623	52	12	Υ						Υ			Υ	Υ	Υ		
02:00 PM TO	03:00 PM	850	63	8	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
03:00 PM TO	04:00 PM	932	84	14	Υ			Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Y	
04:00 PM TO	05:00 PM	960	64	4	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
05:00 PM TO	06:00 PM	982	47	8	Υ			Υ			Υ			Υ	Υ	Υ		
		0	0	0														
		0	0	0														
		0	0	0														_
		0	0	0														
		8,724	714	69			0			8			1			11	3	0
					8 HC	OURS NEED	ED	8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
					NO.	T SATISFII	ED	5	SATISFIED		NOT SATISFIED						NOT SATISFIED	NOT SATISFIED

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A : Minimum Vehicular Volume

Condition B : Interruption of Continuous Traffic

Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME:	Fords Colony Drive at Longhill Road	COUNT DATE:	6/8/2017
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INTERSECTION CONDITION: 2027 No Build (No WBR or NBR)

 MAJOR STREET:
 Longhill Road
 # OF APPROACH LANES:
 2

 MINOR STREET:
 Fords Colony Drive
 # OF APPROACH LANES:
 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

N Y

					WARD.	ANT 1. Cond	ition A	WARR	ANT 1. Cond	lition B		WADD	ANT 1 Co	mbination W	arrant			
		MAJOR ST	MINO	R ST	THE SECTION OF THE SE		IIIOII A	WWW.WWW.T, Condition B		III D	С	ONDITION			ONDITION E	В	WARRANT 2	WARRANT 3
		BOTH APPROACHES	HIGHEST A		MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET	MAJOR STREET	MINOR STREET	BOTH MET		
THRESHOLD VALU	ES	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
06:00 AM TO	07:00 AM	300	20	2														
07:00 AM TO	08:00 AM	743	64	2	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
08:00 AM TO	09:00 AM	944	77	2	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
09:00 AM TO	10:00 AM	755	54	1	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
10:00 AM TO	11:00 AM	626	79	6	Υ				Υ		Υ			Υ	Υ	Υ		
11:00 AM TO	12:00 AM	706	55	7	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Y		
12:00 PM TO	01:00 PM	734	61	6	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
01:00 PM TO	02:00 PM	680	54	14	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
02:00 PM TO	03:00 PM	931	66	9	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
03:00 PM TO	04:00 PM	1,018	90	15	Υ			Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Y	
04:00 PM TO	05:00 PM	1,043	68	5	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
05:00 PM TO	06:00 PM	1,064	48	9	Υ			Υ			Υ			Υ	Υ	Υ		
		0																
		0	0	0														
		0	0	0														
		0	0	0														
		9,544	736	78			0			9			1			11	4	0
					8 HC	URS NEED	ED	8 HC	OURS NEED	ED	8 HOI	JRS OF BO	TH COND	. A AND CO	ND. B NEE	DED	4 HRS NEEDED	1 HR NEEDED
					NO.	T SATISFIE	ED	S	ATISFIED				NOT SA	TISFIED			SATISFIED	NOT SATISFIED

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A : Minimum Vehicular Volume

Condition B : Interruption of Continuous Traffic

Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS

INTERSECTION NAME:	Fords Colony Drive at Longhill Road	COUNT DATE:	6/8/2017
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INTERSECTION CONDITION: 2027 Build (No WBR or NBR)

 MAJOR STREET:
 Longhill Road
 # OF APPROACH LANES:
 2

 MINOR STREET:
 Fords Colony Drive
 # OF APPROACH LANES:
 1

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): 85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

N Y

										1							
				WARRA	ANT 1, Cond	lition A	WARRANT 1, Condition B			/ ·							
	MAJOR ST	MINO	R ST							С	ONDITION	A	C	ONDITION I	3	WARRANT 2	WARRANT 3
	BOTH			MAJOR	MINOR	вотн	MAJOR	MINOR	вотн	MAJOR	MINOR	вотн	MAJOR	MINOR	вотн		
	APPROACHES	HIGHEST A	PPROACH	STREET	STREET	MET	STREET	STREET	MET	STREET	STREET	MET	STREET	STREET	MET		
S	EB/WB	NB	SB	420	105		630	53		336	84		504	42			
07:00 AM	305	25	2														
08:00 AM	751	71	2	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
09:00 AM	956	85	2	Υ			Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	
10:00 AM	767	59	1	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
11:00 AM	639	84	6	Υ			Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ		
12:00 AM	721	60	7	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
01:00 PM	749	64	6	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
02:00 PM	695	58	14	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ		
03:00 PM	950	70	9	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
04:00 PM	1,041	94	15	Υ			Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	Υ	
05:00 PM	1,071	72	5	Υ			Υ	Υ	Υ	Υ			Υ	Υ	Υ	Υ	
06:00 PM	1,096	52	9	Υ			Υ			Υ			Υ	Υ	Υ		
	0	0	0														
	0	0	0														
	0	0	0														
	0	0	0														
	9,741	794	78			0			10			3			11	4	0
•													•				
				8 HC	URS NEED	ED	8 HOURS NEEDED			8 HOURS OF BOTH COND. A AND COND. B NEEDED						4 HRS NEEDED	1 HR NEEDED
				NO.												SATISFIED	NOT SATISFIED
	07:00 AM 08:00 AM 09:00 AM 10:00 AM 11:00 AM 12:00 AM 01:00 PM 02:00 PM 03:00 PM 04:00 PM 05:00 PM	BOTH APPROACHES S EB/WB 07:00 AM 305 08:00 AM 751 09:00 AM 956 10:00 AM 639 12:00 AM 721 01:00 PM 749 02:00 PM 695 03:00 PM 950 04:00 PM 1,041 05:00 PM 1,071 06:00 PM 1,096 0 0	BOTH APPROACHES HIGHEST A SE EB/WB NB 07:00 AM 305 25 08:00 AM 751 71 09:00 AM 956 85 10:00 AM 639 84 12:00 AM 721 60 01:00 PM 749 64 02:00 PM 695 58 03:00 PM 950 70 04:00 PM 1,041 94 05:00 PM 1,041 94 05:00 PM 1,096 52 0 0 0 0 0 0 0	BOTH APPROACHES HIGHEST APPROACH SE EB/WB NB SB 07:00 AM 305 25 2 08:00 AM 751 71 2 09:00 AM 956 85 2 11:00 AM 767 59 1 11:00 AM 639 84 6 12:00 AM 721 60 7 01:00 PM 749 64 6 02:00 PM 695 58 14 03:00 PM 950 70 9 04:00 PM 1,041 94 15 05:00 PM 1,071 72 5 06:00 PM 1,096 52 9 0 0 0 0	MAJOR ST BOTH HIGHEST APPROACH STREET SE EBWB NB SB 420 07:00 AM 305 25 2 08:00 AM 751 71 2 Y 09:00 AM 956 85 2 Y 10:00 AM 639 84 6 Y 11:00 AM 639 84 6 Y 12:00 AM 721 60 7 Y 01:00 PM 749 64 6 Y 02:00 PM 695 58 14 Y 03:00 PM 950 70 9 Y 04:00 PM 1,041 94 15 Y 05:00 PM 1,071 72 5 Y 06:00 PM 1,096 52 9 Y 0 0 0 0 0 0 0 0 9,741 794 78	MAJOR ST BOTH APPROACHES RES BEWB NB SB 420 105 07:00 AM 305 25 2 08:00 AM 751 71 2 Y 09:00 AM 956 85 2 Y 10:00 AM 12:00 AM 767 59 1 Y 11:00 AM 639 84 6 Y 12:00 AM 721 60 7 7 7 9:00 PM 12:00 PM 10:00	BOTH APPROACHES HIGHEST APPROACH STREET STREET MET SE EBWB NB SB 420 105 07:00 AM 305 25 2	MAJOR ST BOTH APPROACHES RES BBWB NB SB 420 105 630 07:00 AM 305 25 2 08:00 AM 751 71 2 Y 99:00 AM 956 85 2 Y 10:00 AM 767 59 1 Y 11:00 AM 639 84 6 Y 12:00 AM 721 600 7 Y 12:00 AM 721 600 7 Y 12:00 AM 749 64 6 Y 14 Y 15 14 Y 15 15 Y 15 16 16 16 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	MAJOR ST BOTH APPROACH STREET	MAJOR ST BOTH APPROACHES HIGHEST APPROACH STREET STREET STREET STREET MET MET MET MET MET MET MET MET MET	MAJOR ST BOTH APPROACHES NB SB 420 105 630 53 336 07:00 AM 305 25 2 08:00 AM 751 71 2 Y Y Y Y Y Y 10:00 AM 956 85 2 Y Y Y Y Y Y Y 11:00 AM 639 84 6 Y Y Y Y Y Y Y 11:00 AM 721 60 7 Y Y Y Y Y Y 11:00 AM 749 64 6 Y Y Y Y Y Y Y 02:00 PM 695 58 114 Y Y Y Y Y Y 03:00 PM 950 70 9 Y Y Y Y Y Y 04:00 PM 1,041 94 15 Y Y Y Y Y 06:00 PM 1,071 72 5 Y Y Y Y Y Y 06:00 PM 1,096 52 9 Y Y Y Y Y Y 08:00 PM 1,096 52 9 Y Y Y Y Y Y Y 09:00 PM 1,096 52 9 Y Y Y Y Y Y Y 09:00 PM 1,096 52 9 Y Y Y Y Y Y Y 09:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y Y Y 00:00 PM 1,096 52 9 Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	MAJOR ST BOTH APPROACHES HIGHEST APPROACH STREET STREET	MAJOR ST BOTH APPROACHES HIGHEST APPROACH STREET MET STREET MET STREET MET MET STREET STREET STREET STREET STREET STREET STREET STREET MET MET STREET	MAJOR ST BOTH APPROACH HIGHEST APPROACH STREET STREET	MAJOR ST BOTH APPROACHS HIGHEST APPROACH STREET STR	MAJOR ST BOTH HIGHEST APPROACH HIGHEST APPROACH STREET STREET	MAJOR ST ABOTH ABOTH

WARRANT 1 -- Eight-Hour Vehicular Volume Warrant Condition A : Minimum Vehicular Volume

Condition B : Interruption of Continuous Traffic

Combination : Combination of Condition A and Condition B

WARRANT 2 -- Four-Hour Vehicular Volume Warrant

Appendix E: Synchro and SimTraffic Reports

1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Fords Colony TIS Update

2019 Existing

	۶	→	•	•	←	•	1	†	-	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	↑	7	ሻ	↑	7		4	7		4	
Traffic Volume (vph)	3	772	22	45	486	19	44	3	233	58	1	19
Future Volume (vph)	3	772	22	45	486	19	44	3	233	58	1	19
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.967	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1673	1615	0	1676	0
Flt Permitted	0.346			0.084				0.955			0.964	
Satd. Flow (perm)	657	1863	1615	152	1827	1380	0	1673	1615	0	1676	0
Satd. Flow (RTOR)			156			156			265		13	
Adj. Flow (vph)	3	877	25	51	552	22	50	3	265	66	1	22
Lane Group Flow (vph)	3	877	25	51	552	22	0	53	265	0	89	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	15.0	50.0	50.0	15.0	50.0	50.0	20.0	20.0	20.0	20.0	20.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	51.1	45.5	45.5	47.9	50.8	50.8		9.2	9.2		9.9	
Actuated g/C Ratio	0.59	0.53	0.53	0.56	0.59	0.59		0.11	0.11		0.12	
v/c Ratio	0.01	0.89	0.03	0.27	0.51	0.03		0.30	0.65		0.44	
Control Delay	9.3	35.7	0.0	13.1	15.4	0.1		43.8	13.5		41.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	9.3	35.7	0.0	13.1	15.4	0.1		43.8	13.5		41.3	
LOS	Α	D	Α	В	В	Α		D	В		D	
Approach Delay		34.6			14.7			18.5			41.3	
Approach LOS		С			В			В			D	

Intersection Summary

Cycle Length: 105

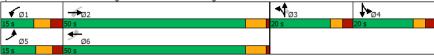
Actuated Cycle Length: 85.9
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89

Intersection Signal Delay: 25.8 Intersection Capacity Utilization 75.1%

Intersection LOS: C ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2019 Existing

Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT	SBR
Traffic Volume (vph) 3 772 22 45 486 19 44 3 233 58 1 Future Volume (vph) 3 772 22 45 486 19 44 3 233 58 1 Ideal Flow (vphpl) 1900	
Future Volume (vph)	
Ideal Flow (vphpl)	19
Total Lost time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 5.5 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	19
Lane Util. Factor 1.00 0.85 1.00 0.085 0.97 Fit Protected 0.95 1.00 1.00 0.95 1.00 1.00 0.95 1.00 0.96 Satd. Flow (prot) 1865 1863 1615 1719 1827 1380 1673 1615 1676 Fit Permitted 0.35 1.00 1.00 0.08 1.00 1.00 0.95 1.00 0.96 Satd. Flow (perm) 658 1863 1615 152 1827 1380 1673 1615 1676 Peak-hour factor, PHF 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.88 <td>1900</td>	1900
Frt Protected 0.95 1.00 1.00 0.85 1.00 1.00 0.85 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.96 Satd. Flow (prot) 1805 1863 1615 1719 1827 1380 1673 1615 1676 Flt Permitted 0.35 1.00 1.00 0.08 1.00 1.00 0.95 1.00 0.96 Satd. Flow (perm) 658 1863 1615 152 1827 1380 1673 1615 1676 Peak-hour factor, PHF 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.8	
Fit Protected 0.95 1.00 1.00 0.95 1.00 1.00 0.95 1.00 0.95 0.96 Satd. Flow (prot) 1805 1863 1615 1719 1827 1380 1673 1615 1676 1676 Fit Permitted 0.35 1.00 1.00 1.00 1.00 0.95 1.00 0.96 Satd. Flow (perm) 658 1863 1615 152 1827 1380 1673 1615 1676 1676 Peak-hour factor, PHF 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.8	
Satd. Flow (prot) 1805 1863 1615 1719 1827 1380 1673 1615 1676 Flt Permitted 0.35 1.00 1.00 0.08 1.00 1.00 0.95 1.00 0.96 Satd. Flow (perm) 658 1863 1615 152 1827 1380 1613 1615 1676 Peak-hour factor, PHF 0.88 0.80 0.80 0.80 0.80 0.80 0.	
Fit Permitted 0.35 1.00 1.00 0.08 1.00 1.00 0.95 1.00 0.96 Satd. Flow (perm) 658 1863 1615 152 1827 1380 1673 1615 1676 Peak-hour factor, PHF 0.88 0.80 0.80 0.80	
Satd. Flow (perm) 658 1863 1615 152 1827 1380 1673 1615 1676 Peak-hour factor, PHF 0.88 0.80 2 <td< td=""><td></td></td<>	
Peak-hour factor, PHF 0.88 0.80 2 2 2 2 0.80 0.90 0.90 1 2 0 0.82 0.80 0.81 0.80 0.80 0.80 0.80 0.80 0.8	
Adj. Flow (vph) 3 877 25 51 552 22 50 3 265 66 1 RTOR Reduction (vph) 0 0 12 0 0 10 0 239 0 12 Lane Group Flow (vph) 3 877 13 51 552 12 0 53 26 0 77 Heavy Vehicles (%) 0% 2% 0% 5% 4% 17% 7% 33% 0% 4% 0% Turn Type D.P+P NA Perm D.P+P NA Perm Split NA Perm Split NA Protected Phases 5 2 1 6 3 3 3 4 4 4 Permitted Phases 6 2 2 6 3 3 3 4 4 4 Actuated Green, G (s) 51.5 47.6 47.6 51.0 50.7 50.7 9.2<	
RTOR Reduction (vph) 0 0 12 0 0 10 0 239 0 12 Lane Group Flow (vph) 3 877 13 51 552 12 0 53 26 0 77 Heavy Vehicles (%) 0% 2% 0% 5% 4% 17% 7% 33% 0% 4% 0% Turn Type D.P+P NA Perm D.P+P NA Perm Split <	0.88
Lane Group Flow (vph) 3 877 13 51 552 12 0 53 26 0 77 Heavy Vehicles (%) 0% 2% 0% 5% 4% 17% 7% 33% 0% 4% 0% Turn Type D.P+P NA Perm D.P+P NA Perm Split NA Perm Split NA Permitted Phases 6 2 2 6 3 3 3 4 4 Permitted Phases 6 2 2 6 3 3 3 8 8 8 8 3 3 4 4 4 Permitted Phases 6 2 2 6 3 3 3 4 4 4 6 15.0 50.7 50.7 9.2 9.2 8.0 8 6 20.2 50.5 50.7 50.7 9.2 9.2 8.0 8 6 6.0 </td <td>22</td>	22
Heavy Vehicles (%) 0% 2% 0% 5% 4% 17% 7% 33% 0% 4% 0% Turn Type D.P+P NA Perm D.P+P NA Perm Split NA 4 4 Perm Split NA 4 4 Perm Split NA Perm Split NA Perm Split NA 4 4 Perm Split NA Perm Split NA Perm Split NB Sp	0
Turn Type D.P+P NA Perm D.P+P NA Perm Split NA Perm Split NA Protected Phases 5 2 1 6 3 3 3 4 4 4 Permitted Phases 6 2 2 6 3 3 3 4 <td< td=""><td>0</td></td<>	0
Protected Phases 5 2 1 6 3 3 4 4 Permitted Phases 6 2 2 6 3 3 Actuated Green, G (s) 51.5 47.6 47.6 51.0 50.7 50.7 9.2 9.2 8.0 Effective Green, g (s) 51.5 47.6 47.6 51.0 50.7 50.7 9.2 9.2 8.0 Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.55 0.10 0.10 0.09 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 377 961 833 141 1004 758 166 161 145	11%
Permitted Phases 6 2 2 6 3 Actuated Green, G (s) 51.5 47.6 47.6 51.0 50.7 50.7 9.2 9.2 8.0 Effective Green, g (s) 51.5 47.6 47.6 51.0 50.7 50.7 9.2 9.2 8.0 Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.55 0.10 0.10 0.09 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 Vehicle Extension (s) 2.0 5.0 2.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 377 961 833 141 1004 758 166 161 145	
Actuated Green, G (s) 51.5 47.6 47.6 51.0 50.7 50.7 9.2 9.2 8.0 Effective Green, g (s) 51.5 47.6 47.6 51.0 50.7 50.7 9.2 9.2 8.0 Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.55 0.10 0.10 0.09 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 Vehicle Extension (s) 2.0 5.0 2.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 377 961 833 141 1004 758 166 161 145	
Effective Green, g (s) 51.5 47.6 47.6 51.0 50.7 50.7 9.2 9.2 8.0 Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.55 0.10 0.10 0.09 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 Vehicle Extension (s) 2.0 5.0 2.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 377 961 833 141 1004 758 166 161 145	
Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.10 0.10 0.09 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 377 961 833 141 1004 758 166 161 145	
Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 377 961 833 141 1004 758 166 161 145	
Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 377 961 833 141 1004 758 166 161 145	
Lane Grp Cap (vph) 377 961 833 141 1004 758 166 161 145	
v/s Ratio Prot 0.00 c0.47 c0.01 c0.30 c0.03 c0.05	
v/s Ratio Perm 0.00 0.01 0.19 0.01 0.02	
v/c Ratio 0.01 0.91 0.02 0.36 0.55 0.02 0.32 0.16 0.53	
Uniform Delay, d1 9.8 20.4 10.9 17.3 13.4 9.4 38.6 38.0 40.3	
Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	
Incremental Delay, d2 0.0 13.3 0.0 0.6 1.1 0.0 1.1 0.5 3.7	
Delay (s) 9.8 33.7 10.9 17.9 14.5 9.4 39.7 38.5 44.0	
Level of Service A C B B B A D D D	
Approach Delay (s) 33.0 14.6 38.7 44.0	
Approach LOS C B D D	
Intersection Summary	
HCM 2000 Control Delay 28.5 HCM 2000 Level of Service C	
HCM 2000 Volume to Capacity ratio 0.76	
Actuated Cycle Length (s) 92.2 Sum of lost time (s) 24.0	
Intersection Capacity Utilization 75.1% ICU Level of Service D	
Analysis Period (min) 15	
c Critical Lane Group	

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 9 Report - 11/11/2019 Page 1 Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 9 Report - 11/11/2019 Page 2

Fords Colony TIS Update 2019 Existing

2: Fords Colony Drive/Dominon Village & Longhill Road

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		•	•			٠,	'	′		•	
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
7	1•		7	•	7		4			4	
3	305	37	110	277	1	73	1	135	0	1	0
3	305	37	110	277	1	73	1	135	0	1	0
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.984				0.850		0.913				
0.950			0.950				0.983				
1805	1779	0	1752	1776	1615	0	1648	0	0	1900	0
0.950			0.950				0.983				
1805	1779	0	1752	1776	1615	0	1648	0	0	1900	0
4	367	45	133	334	1	88	1	163	0	1	0
4	412	0	133	334	1	0	252	0	0	1	0
	Free			Free			Stop			Stop	
	3 1.00 0.950 1805 0.950 1805 4	3 305 3 305 1.00 1.00 0.984 0.950 1805 1779 0.950 1805 1779 4 367 4 412	3 305 37 3 305 37 1.00 1.00 1.00 0.984 0.950 1805 1779 0 0.950 1805 1779 0 4 367 45 4 412 0	1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 1	1 10 10 10 10 10 10 10 10 10 10 10 10 10	1	1	100 100	1	1	1

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 53.5%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc.

Synchro 9 Report - 11/11/2019 Page 3 HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2019 Existing

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	J.	f)		, A	†	7		4			4	
Traffic Volume (veh/h)	3	305	37	110	277	1	73	1	135	0	1	0
Future Volume (Veh/h)	3	305	37	110	277	1	73	1	135	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	4	367	45	133	334	1	88	1	163	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	335			412			998	998	390	1138	1020	334
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	335			412			998	998	390	1138	1020	334
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			88			55	100	75	100	100	100
cM capacity (veh/h)	1236			1142			195	216	663	123	210	712
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	4	412	133	334	1	252	1					
Volume Left	4	412	133	0	0	88	0					
	0	45	133	0	1	163	0					
Volume Right cSH	1236	1700	1142	1700	1700	359	210					
							0.00					
Volume to Capacity	0.00	0.24	0.12	0.20	0.00	0.70						
Queue Length 95th (ft)	0	0	10	0	0	128	0					
Control Delay (s)	7.9	0.0	8.6	0.0	0.0	35.5	22.2					
Lane LOS	A		A			E	С					
Approach Delay (s)	0.1		2.4			35.5	22.2					
Approach LOS						Е	С					
Intersection Summary												
Average Delay			8.9									
Intersection Capacity Utiliza	ation		53.5%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									
. ,												

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 9 Report - 11/11/2019 Page 4

Fords Colony TIS Update 2019 Existing

3: Centerville Road & Westport/Manchester Drive

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		*	î,		Ţ	†	7	٦	†	7
Traffic Volume (vph)	4	1	2	57	0	49	2	354	45	53	221	3
Future Volume (vph)	4	1	2	57	0	49	2	354	45	53	221	3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.850				0.850			0.850
Flt Protected		0.972		0.950			0.950			0.950		
Satd. Flow (prot)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.972		0.950			0.950			0.950		
Satd. Flow (perm)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	4	1	2	63	0	54	2	389	49	58	243	3
Lane Group Flow (vph)	0	7	0	63	54	0	2	389	49	58	243	3
Sign Control		Stop			Stop			Free			Free	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 36.9%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc.

Synchro 9 Report - 11/11/2019 Page 5 HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive

Fords Colony TIS Update 2019 Existing

	٠	→	•	•	←	•	4	†	1	\	ļ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		٦	1₃		ሻ	^	7	Ţ	†	7
Traffic Volume (veh/h)	4	1	2	57	0	49	2	354	45	53	221	3
Future Volume (Veh/h)	4	1	2	57	0	49	2	354	45	53	221	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	1	2	63	0	54	2	389	49	58	243	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)								110.10			110110	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	806	801	243	754	755	389	246			438		
vC1, stage 1 conf vol	000	001	2.10	701	100	000	210			100		
vC2, stage 2 conf vol												
vCu, unblocked vol	806	801	243	754	755	389	246			438		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)	7.1	0.0	0.2	7.1	0.0	0.2	7.1			7.0		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	98	100	100	79	100	92	100			94		
cM capacity (veh/h)	266	302	801	307	321	655	1332			1051		
. , ,										1031		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	7	63	54	2	389	49	58	243	3			
Volume Left	4	63	0	2	0	0	58	0	0			
Volume Right	2	0	54	0	0	49	0	0	3			
cSH	336	307	655	1332	1700	1700	1051	1700	1700			
Volume to Capacity	0.02	0.21	0.08	0.00	0.23	0.03	0.06	0.14	0.00			
Queue Length 95th (ft)	2	19	7	0	0	0	4	0	0			
Control Delay (s)	16.0	19.7	11.0	7.7	0.0	0.0	8.6	0.0	0.0			
Lane LOS	С	С	В	Α			Α					
Approach Delay (s)	16.0	15.7		0.0			1.6					
Approach LOS	С	С										
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utiliza	ation		36.9%	IC	U Level	of Service			Α			
Analysis Period (min)			15									
- , , ,												

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 9 Report - 11/11/2019 Page 6 Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2019 Existing

HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2019 Existing

Page 8

	•	→	←	•	-	4
l C	EDI	EDT	WDT	WDD	CDI	CDD
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ሻ			7	- 1	7
Traffic Volume (vph)	10	196	130	45	88	18
Future Volume (vph)	10	196	130	45	88	18
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1504	1845	1681	1583	1805	1615
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1504	1845	1681	1583	1805	1615
Adj. Flow (vph)	11	206	137	47	93	19
Lane Group Flow (vph)	11	206	137	47	93	19
Sign Control		Free	Free		Stop	
Intersection Summary						
Control Type: Unsignalized						
Intersection Capacity Utiliz	ation 21.9%			10	CU Level	of Service
Analysis Period (min) 15						

	_	-	_	_	-	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	*	1	†	7	7	7
Traffic Volume (veh/h)	10	196	130	45	88	18
Future Volume (Veh/h)	10	196	130	45	88	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	206	137	47	93	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						6
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	184				365	137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184				365	137
tC, single (s)	4.3				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.5	3.3
p0 queue free %	99				85	98
cM capacity (veh/h)	1290				633	917
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	11	206	137	47	112	
Volume Left	11	0	0	0	93	
Volume Right	0	0	0	47	19	
cSH	1290	1700	1700	1700	762	
Volume to Capacity	0.01	0.12	0.08	0.03	0.15	
Queue Length 95th (ft)	1	0.12	0.00	0.00	13	
Control Delay (s)	7.8	0.0	0.0	0.0	11.2	
Lane LOS	A	0.0	0.0	0.0	В	
Approach Delay (s)	0.4		0.0		11.2	
Approach LOS	0		0.0		В	
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utili	zation		21.9%	IC	lll evel d	of Service
Analysis Period (min)	ZULIUII		15	IC	O LEVEL	JI OCI VICE
Analysis Penou (IIIII)			13			

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	Т	R	L	Т	R	LT	R	LTR
Maximum Queue (ft)	69	479	164	81	230	41	92	120	112
Average Queue (ft)	3	197	13	24	93	6	35	61	43
95th Queue (ft)	39	398	82	62	182	26	76	101	88
Link Distance (ft)		1007			741	741	405		475
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	250		225	250				225	
Storage Blk Time (%)	0	6	0	0	0				
Queuing Penalty (veh)	0	1	0	0	0				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	SB
wovement	ED	ED	VVD	IND	<u> </u>
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	14	10	70	192	6
Average Queue (ft)	1	0	21	69	0
95th Queue (ft)	7	6	51	148	4
Link Distance (ft)		2032		736	278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200		225		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Centerville Road & Westport/Manchester Drive

EB	WB	WB	NB	SB	
LTR	L	TR	L	L	
30	60	54	8	64	
5	23	19	0	14	
22	48	41	5	45	
247	762				
		140	190	190	
	LTR 30 5 22	LTR L 30 60 5 23 22 48	LTR L TR 30 60 54 5 23 19 22 48 41 247 762	LTR L TR L 30 60 54 8 5 23 19 0 22 48 41 5 247 762	LTR L TR L L 30 60 54 8 64 5 23 19 0 14 22 48 41 5 45 247 762

Movement	EB	WB	SB	SB	
Directions Served	L	Т	L	R	Ī
Maximum Queue (ft)	40	4	69	31	
Average Queue (ft)	2	0	34	14	
95th Queue (ft)	18	4	57	39	
Link Distance (ft)		493	375		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	225			150	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 2

Queuing and Blocking Report

Intersection: 4: News Road & Firestone Drive

Fords Colony TIS Update

1: Williamsburg W Drive/Lane PI Drive & Longhill Road

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	↑	7	7	↑	7		ર્ન	7		4	
Traffic Volume (vph)	3	819	23	47	514	20	46	3	242	60	1	20
Future Volume (vph)	3	819	23	47	514	20	46	3	242	60	1	20
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.966	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1673	1615	0	1674	0
Flt Permitted	0.342			0.088				0.955			0.964	
Satd. Flow (perm)	650	1863	1615	159	1827	1380	0	1673	1615	0	1674	0
Satd. Flow (RTOR)			182			182			244		15	
Adj. Flow (vph)	3	890	25	51	559	22	50	3	263	65	1	22
Lane Group Flow (vph)	3	890	25	51	559	22	0	53	263	0	88	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	15.0	15.0	15.0	15.0	15.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	47.8	43.0	43.0	44.7	47.5	47.5		8.3	8.3		8.5	
Actuated g/C Ratio	0.59	0.53	0.53	0.56	0.59	0.59		0.10	0.10		0.11	
v/c Ratio	0.01	0.89	0.03	0.27	0.52	0.02		0.31	0.68		0.46	
Control Delay	7.7	34.1	0.0	12.0	14.1	0.1		41.9	17.0		40.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.7	34.1	0.0	12.0	14.1	0.1		41.9	17.0		40.3	
LOS	Α	С	Α	В	В	Α		D	В		D	
Approach Delay		33.1			13.4			21.2			40.3	
Approach LOS		С			В			С			D	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 80.4
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89

Intersection Signal Delay: 25.1 Intersection Capacity Utilization 78.1%

Intersection LOS: C ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis

1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

Fords Colony TIS Update 2021 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑	7	7	†	7		4	7		4	
Traffic Volume (vph)	3	819	23	47	514	20	46	3	242	60	1	20
Future Volume (vph)	3	819	23	47	514	20	46	3	242	60	1	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380		1673	1615		1675	
Flt Permitted	0.34	1.00	1.00	0.09	1.00	1.00		0.95	1.00		0.96	
Satd. Flow (perm)	650	1863	1615	160	1827	1380		1673	1615		1675	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	890	25	51	559	22	50	3	263	65	1	22
RTOR Reduction (vph)	0	0	12	0	0	10	0	0	221	0	14	0
Lane Group Flow (vph)	3	890	13	51	559	12	0	53	42	0	74	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	48.4	45.2	45.2	47.9	47.5	47.5		8.3	8.3		6.7	
Effective Green, g (s)	48.4	45.2	45.2	47.9	47.5	47.5		8.3	8.3		6.7	
Actuated g/C Ratio	0.56	0.52	0.52	0.55	0.55	0.55		0.10	0.10		0.08	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	373	969	840	136	998	754		159	154		129	
v/s Ratio Prot	0.00	c0.48		c0.01	0.31			c0.03			c0.04	
v/s Ratio Perm	0.00		0.01	0.19		0.01			0.03			
v/c Ratio	0.01	0.92	0.02	0.38	0.56	0.02		0.33	0.27		0.57	
Uniform Delay, d1	9.3	19.2	10.1	16.5	12.9	9.0		36.7	36.5		38.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	13.8	0.0	0.6	1.2	0.0		1.2	1.0		6.1	
Delay (s)	9.3	33.0	10.1	17.2	14.1	9.0		38.0	37.5		44.8	
Level of Service	Α	С	В	В	В	Α		D	D		D	
Approach Delay (s)		32.3			14.1			37.6			44.8	
Approach LOS		С			В			D			D	
Intersection Summary												
HCM 2000 Control Delay			27.8	H	CM 2000	Level of S	Service		С			
HCM 2000 Volume to Capa	acity ratio		0.78									
Actuated Cycle Length (s)			86.9	S	um of los	t time (s)			24.0			
Intersection Capacity Utiliza	ation		78.1%	IC	U Level	of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Fords Colony TIS Update 2021 No Build

2: Fords Colony Drive/Dominon Village & Longhill Road

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			•	•			,	Į.	′		•	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	1}		7		7		4			4	
Traffic Volume (vph)	3	326	39	116	294	1	78	1	148	0	1	0
Future Volume (vph)	3	326	39	116	294	1	78	1	148	0	1	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.912				
Flt Protected	0.950			0.950				0.983				
Satd. Flow (prot)	1805	1779	0	1752	1776	1615	0	1647	0	0	1900	0
Flt Permitted	0.950			0.950				0.983				
Satd. Flow (perm)	1805	1779	0	1752	1776	1615	0	1647	0	0	1900	0
Adj. Flow (vph)	3	354	42	126	320	1	85	1	161	0	1	0
Lane Group Flow (vph)	3	396	0	126	320	1	0	247	0	0	1	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 56.1%
Analysis Period (min) 15

ICU Level of Service B

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc.

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HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2021 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	î.		ሻ	↑	7		4			4	
Traffic Volume (veh/h)	3	326	39	116	294	1	78	1	148	0	1	0
Future Volume (Veh/h)	3	326	39	116	294	1	78	1	148	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	354	42	126	320	1	85	1	161	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	321			396			954	954	375	1094	974	320
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	321			396			954	954	375	1094	974	320
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			60	100	76	100	100	100
cM capacity (veh/h)	1250			1157			210	232	676	134	226	725
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	3	396	126	320	1	247	1					
Volume Left	3	0	126	0	0	85	0					
Volume Right	0	42	0	0	1	161	0					
cSH	1250	1700	1157	1700	1700	382	226					
Volume to Capacity	0.00	0.23	0.11	0.19	0.00	0.65	0.00					
Queue Length 95th (ft)	0	0	9	0	0	109	0					
Control Delay (s)	7.9	0.0	8.5	0.0	0.0	30.1	21.0					
Lane LOS	Α		Α			D	С					
Approach Delay (s)	0.1		2.4			30.1	21.0					
Approach LOS						D	С					
Intersection Summary												
Average Delay			7.8									
Intersection Capacity Utiliz	ation		56.1%	IC	CU Level	of Service			В			
Analysis Period (min)			15									

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 4

Fords Colony TIS Update 2021 No Build

3: Centerville Road & Westport/Manchester Drive

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		*	1>		*	^	7	*		1
Traffic Volume (vph)	23	1	9	62	0	52	4	378	48	56	243	10
Future Volume (vph)	23	1	9	62	0	52	4	378	48	56	243	10
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.850				0.850			0.850
Flt Protected		0.966		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.966		0.950			0.950			0.950		
Satd. Flow (perm)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	25	1	10	67	0	57	4	411	52	61	264	11
Lane Group Flow (vph)	0	36	0	67	57	0	4	411	52	61	264	11
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized Intersection Capacity Utilization 41.8% Analysis Period (min) 15

ICU Level of Service A

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc.

Synchro 10 Report - 01/13/2020 Page 5 HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive Fords Colony TIS Update 2021 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ሻ	1>		7	†	7	ሻ	†	7
Traffic Volume (veh/h)	23	1	9	62	0	52	4	378	48	56	243	10
Future Volume (Veh/h)	23	1	9	62	0	52	4	378	48	56	243	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	1	10	67	0	57	4	411	52	61	264	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	862	857	264	816	816	411	275			463		
vC1, stage 1 conf vol	002	007	201	0.0	0.0		2.0			100		
vC2, stage 2 conf vol												
vCu, unblocked vol	862	857	264	816	816	411	275			463		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)		0.0	0.2		0.0	O.E						
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	90	100	99	76	100	91	100			94		
cM capacity (veh/h)	241	279	780	275	294	636	1300			1029		
1 3 , ,								00.0	00.0	1027		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	36	67	57	4	411	52	61	264	11			
Volume Left	25	67	0	4	0	0	61	0	0			
Volume Right	10	0	57	0	0	52	0	0	11			
cSH	299	275	636	1300	1700	1700	1029	1700	1700			
Volume to Capacity	0.12	0.24	0.09	0.00	0.24	0.03	0.06	0.16	0.01			
Queue Length 95th (ft)	10	23	7	0	0	0	5	0	0			
Control Delay (s)	18.7	22.2	11.2	7.8	0.0	0.0	8.7	0.0	0.0			
Lane LOS	С	С	В	Α			Α					
Approach Delay (s)	18.7	17.2		0.1			1.6					
Approach LOS	С	С										
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utiliza	ation		41.8%	IC	U Level	of Service			Α			
Analysis Period (min)			15									
, ,												

Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2021 No Build

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	4		7	₽			4	7		ર્ન	7
Traffic Volume (vph)	10	212	18	31	137	47	14	Ö	38	92	Ö	19
Future Volume (vph)	10	212	18	31	137	47	14	0	38	92	0	19
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.962				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1824	0	1770	1659	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1824	0	1770	1659	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	11	223	19	33	144	49	15	0	40	97	0	20
Lane Group Flow (vph)	11	242	0	33	193	0	0	15	40	0	97	20
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 37.3%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc.

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HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2021 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	î.		ሻ	1>			ની	7		ની	7
Traffic Volume (veh/h)	10	212	18	31	137	47	14	0	38	92	0	19
Future Volume (Veh/h)	10	212	18	31	137	47	14	0	38	92	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	223	19	33	144	49	15	0	40	97	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	193			242			474	514	232	500	498	168
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	193			242			474	514	232	500	498	168
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			97	100	95	78	100	98
cM capacity (veh/h)	1279			1324			477	449	807	449	458	881
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	11	242	33	193	55	117						
Volume Left	11	0	33	0	15	97						
Volume Right	0	19	0	49	40	20						
cSH	1279	1700	1324	1700	1109	542						
Volume to Capacity	0.01	0.14	0.02	0.11	0.05	0.22						
Queue Length 95th (ft)	1	0	2	0	4	20						
Control Delay (s)	7.8	0.0	7.8	0.0	10.5	14.2						
Lane LOS	Α		Α		В	В						
Approach Delay (s)	0.3		1.1		10.5	14.2						
Approach LOS					В	В						
Intersection Summary												
Average Delay			4.0									
Intersection Capacity Utiliza	ation		37.3%	IC	U Level	of Service			Α			
Analysis Period (min)			15									
, (······)												

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 8

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	
Directions Served	L	Т	R	L	Т	R	LT	R	LTR	
Maximum Queue (ft)	46	563	205	67	206	51	93	133	115	
Average Queue (ft)	2	241	18	30	94	7	38	63	46	
95th Queue (ft)	28	465	106	58	179	30	80	105	94	
Link Distance (ft)		1007			741	741	405		475	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	250		225	250				225		
Storage Blk Time (%)		10	0		0					
Queuing Penalty (veh)		3	0		0					

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	5	22	77	209	14
Average Queue (ft)	0	1	23	72	1
95th Queue (ft)	4	9	56	151	6
Link Distance (ft)		2032		736	278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200		225		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB	
Directions Served	LTR	L	TR	L	L	
Maximum Queue (ft)	45	72	52	9	60	
Average Queue (ft)	19	25	19	0	15	
95th Queue (ft)	41	50	40	4	45	
Link Distance (ft)	247	762				
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140	190	190	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	LT	R	LT	R
Maximum Queue (ft)	28	31	40	54	82	33
Average Queue (ft)	2	6	12	24	35	14
95th Queue (ft)	15	23	37	49	63	39
Link Distance (ft)			372		374	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	225	225		150		150
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Network Summary

Network wide Queuing Penalty: 3

Fords Colony TIS Update 2021 Build

1: Williamsburg W Drive/Lane PI Drive & Longhill Road

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	↑	7	Ť	†	7		4	7		4	
Traffic Volume (vph)	3	832	23	47	518	20	46	3	242	60	1	20
Future Volume (vph)	3	832	23	47	518	20	46	3	242	60	1	20
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.966	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1673	1615	0	1674	0
Flt Permitted	0.339			0.088				0.955			0.964	
Satd. Flow (perm)	644	1863	1615	159	1827	1380	0	1673	1615	0	1674	0
Satd. Flow (RTOR)			182			182			241		15	
Adj. Flow (vph)	3	904	25	51	563	22	50	3	263	65	1	22
Lane Group Flow (vph)	3	904	25	51	563	22	0	53	263	0	88	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	15.0	15.0	15.0	15.0	15.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	47.8	43.0	43.0	44.7	47.5	47.5		8.3	8.3		8.5	
Actuated g/C Ratio	0.59	0.53	0.53	0.56	0.59	0.59		0.10	0.10		0.11	
v/c Ratio	0.01	0.91	0.03	0.27	0.52	0.02		0.31	0.69		0.46	
Control Delay	7.7	35.8	0.0	12.0	14.1	0.1		41.9	17.5		40.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.7	35.8	0.0	12.0	14.1	0.1		41.9	17.5		40.3	
LOS	Α	D	Α	В	В	Α		D	В		D	
Approach Delay		34.7			13.5			21.6			40.3	
Approach LOS		С			В			С			D	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 80.4
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91

Intersection Signal Delay: 26.0
Intersection Capacity Utilization 78.8%

Intersection LOS: C

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2021 Build

Lane Configurations 1 1 1 1 1 1 2 4 1 2 4 1 2 4 6 1 2 2 4 0 1 0 1 2 2 4 6 0 1 2 0 4 6 0 1 2 0 1 0 1 2 0 1 0 1 100 1 100 1		•	-	\rightarrow	•	←	•	1	†	/	-	ţ	1
Traffic Volume (vph)	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Volume (vph)	Lane Configurations	Ŋ	^	7	¥	†	7		ર્ન	7		4	
Ideal Flow (vphpl)	Traffic Volume (vph)	3	832	23	47	518	20	46	3	242	60	1	20
Total Lost time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 5.5 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Future Volume (vph)		832		47	518					60	1	20
Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0			1900		1900	1900		1900			1900	1900	1900
Fit Protected 0.95 1.00 1.00 0.85 1.00 1.00 0.85 1.00 0.95 1.00 0.96 Stadt. Flow (prot) 1805 1863 1615 1719 1827 1380 1673 1615 1675 Fit Permitted 0.34 1.00 1.00 0.99 1.00 1.00 0.95 1.00 0.96 Stadt. Flow (perm) 645 1863 1615 1615 160 1827 1380 1673 1615 1675 Peak-hour factor, PHF 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92				6.0									
Fit Protected 0.95 1.00 1.00 0.95 1.00 1.00 0.96 Satd. Flow (prot) 1805 1863 1615 1719 1827 1380 1673 1615 1675 1675 Flit Permitted 0.34 1.00 1.00 0.09 1.00 1.00 0.95 1.00 0.96 Satd. Flow (perm) 645 1863 1615 160 1827 1380 1673 1615 1675 1675 Peak-hour factor, PHF 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92	Lane Util. Factor	1.00	1.00						1.00	1.00		1.00	
Satd. Flow (prot)													
Fit Permitted													
Satd. Flow (perm) 645 1863 1615 160 1827 1380 1673 1615 1675 Peak-hour factor, PHF 0.92													
Peak-hour factor, PHF 0.92	Flt Permitted				0.09								
Adj. Flow (vph) 3 904 25 51 563 22 50 3 263 65 1 22 RTOR Reduction (vph) 0 0 12 0 0 0 10 0 0 218 0 14 0 Lane Group Flow (vph) 3 904 13 51 563 12 0 53 45 0 74 0 Heavy Vehicles (%) 0% 2% 0% 5% 4% 17% 7% 33% 0% 4% 0% 11% Turn Type D.P+P NA Perm D.P+P NA Perm Split NA Perm Split NA Protected Phases 5 2 1 6 3 3 3 4 4 4 Permitted Phases 6 2 2 6 6 3 Actuated Green, G (s) 48.4 45.2 45.2 47.9 47.5 47.5 8.3 8.3 6.7 Effective Green, g (s) 48.4 45.2 45.2 47.9 47.5 47.5 8.3 8.3 8.3 6.7 Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.55 0.10 0.10 0.08 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 371 969 840 136 998 754 159 154 129 v/s Ratio Perm 0.00 0.04 136 998 754 159 154 129 v/s Ratio Perm 0.00 0.04 10.0 1.09 0.01 0.03 V/s Ratio Perm 0.00 0.01 0.19 0.01 0.03 V/s Ratio Perm 0.00 0.01 1.01 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0													
RTOR Reduction (vph) 0 0 12 0 0 10 0 0 218 0 14 0 Lane Group Flow (vph) 3 904 13 51 563 12 0 53 45 0 74 0 Heavy Vehicles (%) 0% 2% 0% 5% 4% 17% 7% 33% 0% 4% 0% 11% Turn Type D.P+P NA Perm D.P+P NA Perm Split NA A 4 4 4 4 <td< td=""><td>Peak-hour factor, PHF</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.92</td></td<>	Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph) 3 904 13 51 563 12 0 53 45 0 74 0 Heavy Vehicles (%) 0% 2% 0% 5% 4% 17% 7% 33% 0% 4% 0% 11% Turn Type D.P+P NA Perm D.P+P NA Perm Split NA Perm Split NA Permetted Phases 5 2 1 6 3 3 4 4 4 Permitted Phases 6 2 2 6 6 3 Actuated Green, G (s) 48.4 45.2 45.2 47.9 47.5 47.5 8.3 8.3 6.7 Actuated Green, G (s) 48.4 45.2 45.2 45.9 47.9 47.5 47.5 8.3 8.3 6.7 Actuated g/C Ratio 0.56 0.52 0.55 0.55 0.55 0.10 0.10 0.00 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 371 969 840 136 998 754 159 154 129 v/s Ratio Prot 0.00 c0.49 c0.01 0.31 c0.03 c0.04 v/s Ratio Prot 0.00 c0.49 c0.01 0.31 c0.03 v/c Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Adj. Flow (vph)	3	904		51	563		50	3	263	65	1	22
Heavy Vehicles (%)													0
Turn Type D.P+P NA Perm D.P+P NA Perm D.P+P NA Perm Split NA Perm Split NA Protected Phases 5 2 1 6 3 3 3 4 4 Permitted Phases 6 2 2 6 3 3 4 4 Actuated Green, G (s) 48.4 45.2 45.2 47.9 47.5 47.5 8.3 8.3 6.7 Effective Green, g (s) 48.4 45.2 45.2 47.9 47.5 47.5 8.3 8.3 6.7 Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.55 0.10 0.10 0.08 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5	Lane Group Flow (vph)												0
Protected Phases 5	Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Permitted Phases 6 2 2 2 6 3 Actuated Green, G (s) 48.4 45.2 45.2 47.9 47.5 47.5 8.3 8.3 6.7 Effective Green, g (s) 48.4 45.2 45.2 47.9 47.5 47.5 8.3 8.3 6.7 Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.10 0.10 0.08 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 371 969 840 136 998 754 159 154 129 v/s Ratio Prot 0.00 c0.49 c0.01 0.31 c0.03 v/c Ratio Perm 0.00 c0.49 c0.01 0.31 c0.03 v/c Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Actuated Green, G (s)	Protected Phases	5	2		1	6		3	3		4	4	
Effective Green, g (s) 48.4 45.2 45.2 47.5 47.5 8.3 8.3 6.7 Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.55 0.10 0.10 0.08 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Lane Grp Cap (vph) 371 969 840 136 998 754 159 154 129 v/s Ratio Perr 0.00 c0.49 c0.01 0.31 c0.03 c0.04 v/s Ratio Perr 0.00 c0.19 c0.01 0.31 c0.03 c0.04 v/s Ratio Perr 0.00 c0.19 c0.01 0.31 c0.03 c0.04 v/s Ratio Perr 0.00 0.01 0.01 0.01 0.01 0.03 c0.04 v/s Ratio Perr 0.01 0.9	Permitted Phases	6		2	2		6						
Actuated g/C Ratio 0.56 0.52 0.52 0.55 0.55 0.10 0.10 0.08 Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 371 969 840 136 998 754 159 154 129 v/s Ratio Prot 0.00 c0.49 c0.01 0.31 c0.03 c0.04 v/s Ratio Perm 0.00 c0.01 0.19 0.01 0.03 c0.04 v/s Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Actuated Green, G (s)	48.4	45.2	45.2	47.9	47.5	47.5		8.3	8.3		6.7	
Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5 5.5 5.5 Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 5.0 3.0 3.0 3.0 Lane Grp Cap (vph) 371 969 840 136 998 754 159 154 129 v/s Ratio Prot 0.00 c0.49 c0.01 0.31 c0.03 c0.04 v/s Ratio Perm 0.00 0.01 0.19 0.01 0.03 0.03 v/c Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Effective Green, g (s)	48.4	45.2	45.2	47.9	47.5	47.5		8.3	8.3		6.7	
Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 3.0 3.0 3.0 3.0 Lane Grp Cap (vph) 371 969 840 136 998 754 159 154 129 v/s Ratio Port 0.00 c0.49 c.0.01 0.31 c0.03 c0.04 v/s Ratio Perm 0.00 0.01 0.19 0.01 0.03 v/c Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00	Actuated g/C Ratio	0.56	0.52	0.52	0.55	0.55	0.55		0.10	0.10		0.08	
Lane Grp Cap (vph) 371 969 840 136 998 754 159 154 129 v/s Ratio Perm 0.00 c0.49 c0.01 0.31 c0.03 c0.04 v/s Ratio Perm 0.00 0.01 0.19 0.01 0.03 v/c Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 <td< td=""><td>Clearance Time (s)</td><td>6.5</td><td>6.0</td><td>6.0</td><td>7.0</td><td>6.0</td><td>6.0</td><td></td><td>5.5</td><td>5.5</td><td></td><td>5.5</td><td></td></td<>	Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
v/s Ratio Prot 0.00 c0.49 c0.01 0.31 c0.03 c0.04 v/s Ratio Perm 0.00 0.01 0.19 0.01 0.03 0.03 v/c Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 1	Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
v/s Ratio Perm 0.00 0.01 0.19 0.01 0.03 v/c Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 Incremental Delay, d2 0.0 15.8 0.0 0.6 1.2 0.0 1.2 1.1 6.1 Delay (s) 9.4 35.2 10.1 17.7 14.1 9.0 38.0 37.6 44.8 Level of Service A D B B B A D D D Approach LOS C B D D D D Intersection Summary HCM 2000 Control Delay 28.9 HCM 2000 Level of Service C HCM 2000 Volume to Capacity ratio 0.79 Actuated Cycle Length (s) 86.9 Sum of lost time (s) 24.0	Lane Grp Cap (vph)	371	969	840	136	998	754		159	154		129	
v/c Ratio 0.01 0.93 0.02 0.38 0.56 0.02 0.33 0.29 0.57 Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 <	v/s Ratio Prot	0.00	c0.49		c0.01	0.31			c0.03			c0.04	
Uniform Delay, d1 9.4 19.4 10.1 17.0 12.9 9.0 36.7 36.6 38.7 Progression Factor 1.00 <td< td=""><td>v/s Ratio Perm</td><td>0.00</td><td></td><td>0.01</td><td>0.19</td><td></td><td>0.01</td><td></td><td></td><td>0.03</td><td></td><td></td><td></td></td<>	v/s Ratio Perm	0.00		0.01	0.19		0.01			0.03			
Progression Factor 1.00 <td>v/c Ratio</td> <td>0.01</td> <td>0.93</td> <td>0.02</td> <td>0.38</td> <td>0.56</td> <td>0.02</td> <td></td> <td>0.33</td> <td>0.29</td> <td></td> <td>0.57</td> <td></td>	v/c Ratio	0.01	0.93	0.02	0.38	0.56	0.02		0.33	0.29		0.57	
Incremental Delay, d2	Uniform Delay, d1	9.4	19.4	10.1	17.0	12.9	9.0		36.7	36.6		38.7	
Delay (s) 9.4 35.2 10.1 17.7 14.1 9.0 38.0 37.6 44.8 Level of Service A D B B B A D D D Approach Delay (s) 34.5 14.2 37.7 44.8 Approach LOS C B D D Intersection Summary HCM 2000 Control Delay 28.9 HCM 2000 Level of Service C HCM 2000 Volume to Capacity ratio 0.79 Actuated Cycle Length (s) 86.9 Sum of lost time (s) 24.0	Progression Factor	1.00	1.00	1.00	1.00		1.00			1.00		1.00	
Level of Service A D B B B A D D D Approach Delay (s) 34.5 14.2 37.7 44.8 Approach LOS C B D D Intersection Summary HCM 2000 Control Delay 28.9 HCM 2000 Level of Service C HCM 2000 Volume to Capacity ratio 0.79 C Actuated Cycle Length (s) 86.9 Sum of lost time (s) 24.0	Incremental Delay, d2											6.1	
Approach Delay (s) 34.5 14.2 37.7 44.8 Approach LOS C B D D Intersection Summary HCM 2000 Control Delay 28.9 HCM 2000 Level of Service C HCM 2000 Volume to Capacity ratio 0.79 Actuated Cycle Length (s) 86.9 Sum of lost time (s) 24.0		9.4		10.1	17.7		9.0		38.0	37.6		44.8	
Approach LOS C B D D Intersection Summary HCM 2000 Control Delay 28.9 HCM 2000 Level of Service C HCM 2000 Volume to Capacity ratio 0.79 Capacity Control Delay Sum of lost time (s) 24.0	Level of Service	Α	D	В	В	В	Α		D	D		D	
HCM 2000 Control Delay 28.9 HCM 2000 Level of Service C	Approach Delay (s)		34.5			14.2			37.7			44.8	
HCM 2000 Control Delay 28.9 HCM 2000 Level of Service C HCM 2000 Volume to Capacity ratio 0.79 Actuated Cycle Length (s) 86.9 Sum of lost time (s) 24.0	Approach LOS		С			В			D			D	
HCM 2000 Volume to Capacity ratio 0.79 Actuated Cycle Length (s) 86.9 Sum of lost time (s) 24.0													
Actuated Cycle Length (s) 86.9 Sum of lost time (s) 24.0					H	CM 2000	Level of S	Service		С			
	HCM 2000 Volume to Cap	acity ratio											
Intersection Capacity Utilization 78.8% ICU Level of Service D	Actuated Cycle Length (s)				S	um of los	t time (s)			24.0			
		ation		78.8%	IC	U Level	of Service			D			_
Analysis Period (min) 15				15									
c Critical Lane Group	c Critical Lane Group												

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 1 Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 2

Fords Colony TIS Update 2021 Build

2: Fords Colony Drive/Dominon Village & Longhill Road

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BL E	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ሻ	^	7		↑	7		ની	7		4	
3	326	40	120	294	1	82	1	161	0	1	0
3	326	40	120	294	1	82	1	161	0	1	0
.00 1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0.850			0.850			0.850			
950			0.950				0.953				
305 1	810	1524	1752	1776	1615	0	1648	1615	0	1900	0
950			0.950				0.953				
305 1	810	1524	1752	1776	1615	0	1648	1615	0	1900	0
3	354	43	130	320	1	89	1	175	0	1	0
3	354	43	130	320	1	0	90	175	0	1	0
F	Free			Free			Stop			Stop	
	3 3 3 .000 .000 .000 .000 .000 .000 .00	3 326 3 326 .00 1.00 .00 1.00 .050 .050 .050 .050 .050 .050 .050	3 326 40 3 326 40 0.00 1.00 1.00 0.850 055 055 1810 1524 050 3 354 43 3 354 43	3 326 40 120 3 326 40 120 0.00 1.00 1.00 1.00 0.850 0.50 0.950 0.950 0.950 0.950 0.950 0.950 1810 1524 1752 0.950 0.950 1810 1524 1752 3 354 43 130 3 354 43 130	3 326 40 120 294 3 326 40 120 294 0.00 1.00 1.00 1.00 1.00 0.850 0.950 005 1810 1524 1752 1776 0.950 0.950 0.950 1810 1524 1752 1776 0.950 1810 1524 1752 1776 3 354 43 130 320 3 354 43 130 320	3 326 40 120 294 1 3 326 40 120 294 1 .00 1.00 1.00 1.00 1.00 .850 .850 .850 .850 .850 .850 .850 .	3 326 40 120 294 1 82 3 326 40 120 294 1 82 .00 1.00 1.00 1.00 1.00 1.00 0.850 0.850 0.50 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950	3 326 40 120 294 1 82 1 3 326 40 120 294 1 82 1 3 326 40 120 294 1 82 1 0.00 1.00 1.00 1.00 1.00 1.00 1.00 0.850 0.850 0.850 0.950 0.950 0.953 0.950 0.950 0.953 0.953 0.953 1810 1524 1752 1776 1615 0 1648 0.953 0.953 3 354 43 130 320 1 89 1 3 354 43 130 320 1 89 0	1	1	1

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 45.1%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2021 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*		7	"		7		र्स	7		4	
Traffic Volume (veh/h)	3	326	40	120	294	1	82	1	161	0	1	0
Future Volume (Veh/h)	3	326	40	120	294	1	82	1	161	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	354	43	130	320	1	89	1	175	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									7			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	321			397			940	941	354	1028	983	320
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	321			397			940	941	354	1028	983	320
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			58	100	75	100	100	100
cM capacity (veh/h)	1250			1156			214	235	694	146	222	725
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	3	354	43	130	320	1	265	1				
Volume Left	3	0	0	130	0	0	89	0				
Volume Right	0	0	43	0	0	1	175	0				
cSH	1250	1700	1700	1156	1700	1700	631	222				
Volume to Capacity	0.00	0.21	0.03	0.11	0.19	0.00	0.42	0.00				
Queue Length 95th (ft)	0	0	0	9	0	0	52	0				
Control Delay (s)	7.9	0.0	0.0	8.5	0.0	0.0	19.2	21.3				
Lane LOS	Α			Α			С	С				
Approach Delay (s)	0.1			2.5			19.2	21.3				
Approach LOS							С	С				
Intersection Summary												
Average Delay			5.6									
Intersection Capacity Utiliz	ation		45.1%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

Fords Colony TIS Update 2021 Build

3: Centerville Road & Westport/Manchester Drive

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		*	î,		٦	†	7	Ţ	†	7
Traffic Volume (vph)	23	1	9	65	0	53	4	378	49	56	243	10
Future Volume (vph)	23	1	9	65	0	53	4	378	49	56	243	10
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.850				0.850			0.850
Flt Protected		0.966		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.966		0.950			0.950			0.950		
Satd. Flow (perm)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	25	1	10	71	0	58	4	411	53	61	264	11
Lane Group Flow (vph)	0	36	0	71	58	0	4	411	53	61	264	11
Sign Control		Stop			Stop			Free			Free	

ICU Level of Service A

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 41.8%
Analysis Period (min) 15

Page 5

HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive Fords Colony TIS Update 2021 Build

	•	-	•	•	←	•	4	†	<i>></i>	/	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ň	ĵ.		Ţ	^	7	ň	†	7
Traffic Volume (veh/h)	23	1	9	65	0	53	4	378	49	56	243	10
Future Volume (Veh/h)	23	1	9	65	0	53	4	378	49	56	243	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	1	10	71	0	58	4	411	53	61	264	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	863	858	264	816	816	411	275			464		
vC1, stage 1 conf vol	000	000	201	010	010		210			101		
vC2, stage 2 conf vol												
vCu, unblocked vol	863	858	264	816	816	411	275			464		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)	7.1	0.0	0.2	7.1	0.0	0.2	1.1			1.0		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	90	100	99	74	100	91	100			94		
cM capacity (veh/h)	240	278	780	275	294	636	1300			1028		
1 3 , ,								00.0	00.0	1020		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	36	71	58	4	411	53	61	264	11			
Volume Left	25	71	0	4	0	0	61	0	0			
Volume Right	10	0	58	0	0	53	0	0	11			
cSH	298	275	636	1300	1700	1700	1028	1700	1700			
Volume to Capacity	0.12	0.26	0.09	0.00	0.24	0.03	0.06	0.16	0.01			
Queue Length 95th (ft)	10	25	7	0	0	0	5	0	0			
Control Delay (s)	18.7	22.6	11.2	7.8	0.0	0.0	8.7	0.0	0.0			
Lane LOS	С	С	В	Α			Α					
Approach Delay (s)	18.7	17.5		0.1			1.6					
Approach LOS	С	С										
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utiliz	ation		41.8%	IC	U Level	of Service	:		Α			
Analysis Period (min)			15									
mary sis i chioù (min)			10									

Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2021 Build

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	1€		7	1}			ર્ન	7		4	7
Traffic Volume (vph)	10	214	18	31	138	47	14	0	38	92	0	19
Future Volume (vph)	10	214	18	31	138	47	14	0	38	92	0	19
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.962				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1824	0	1770	1658	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1824	0	1770	1658	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	11	225	19	33	145	49	15	0	40	97	0	20
Lane Group Flow (vph)	11	244	0	33	194	0	0	15	40	0	97	20
Sign Control		Free			Free			Stop			Stop	

ICU Level of Service A

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 37.5%
Analysis Period (min) 15

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc.

HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2021 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ĵ»		ሻ	1>			ની	7		र्स	7
Traffic Volume (veh/h)	10	214	18	31	138	47	14	0	38	92	0	19
Future Volume (Veh/h)	10	214	18	31	138	47	14	0	38	92	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	225	19	33	145	49	15	0	40	97	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	194			244			478	516	234	502	502	170
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	194			244			478	516	234	502	502	170
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			97	100	95	78	100	98
cM capacity (veh/h)	1278			1322			474	447	805	447	456	880
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	11	244	33	194	55	117						
Volume Left	11	0	33	0	15	97						
Volume Right	0	19	0	49	40	20						
cSH	1278	1700	1322	1700	1106	539						
Volume to Capacity	0.01	0.14	0.02	0.11	0.05	0.22						
Queue Length 95th (ft)	1	0	2	0	4	20						
Control Delay (s)	7.8	0.0	7.8	0.0	10.6	14.2						
Lane LOS	Α.	0.0	Α.	0.0	В	В						
Approach Delay (s)	0.3		1.1		10.6	14.2						
Approach LOS	0.5		1.1		В	В						
Intersection Summary												
Average Delay			4.0									
Intersection Capacity Utiliz	ation		37.5%	IC	U Level	of Service			А			
Analysis Period (min)	audii		15	10	C LOVOI V	J. JOI VICE			,,			
Analysis i cilou (iiiii)			13									

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 8

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	
Directions Served	L	Т	R	L	Т	R	LT	R	LTR	
Maximum Queue (ft)	66	561	187	65	217	49	92	141	124	
Average Queue (ft)	3	255	19	28	93	7	36	65	46	
95th Queue (ft)	38	499	106	57	181	31	75	108	96	
Link Distance (ft)		1007			741	741	405		475	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	250		225	250				225		
Storage Blk Time (%)		11	0		0					
Queuing Penalty (veh)		3	1		0					

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	R	L	LT	R	LTR
Maximum Queue (ft)	9	8	103	115	93	14
Average Queue (ft)	1	0	32	42	35	1
95th Queue (ft)	6	5	72	90	67	6
Link Distance (ft)				723		278
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200	300	225		175	
Storage Blk Time (%)				0	0	
Queuing Penalty (veh)				0	0	

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LTR	L	TR	L	T	L
Maximum Queue (ft)	47	68	55	7	2	64
Average Queue (ft)	18	27	19	0	0	15
95th Queue (ft)	41	54	40	4	2	47
Link Distance (ft)	247	762			622	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140	190		190
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	LT	R	LT	R
Maximum Queue (ft)	30	28	40	54	71	33
Average Queue (ft)	3	5	12	24	35	14
95th Queue (ft)	17	21	37	49	59	39
Link Distance (ft)			372		374	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	225	225		150		150
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 4

Fords Colony TIS Update

1: Williamsburg W Drive

e/La	ane Pl	Drive	& Lon	ghill R	oad			J. 40 0	J. J. J.	2027 N	
•	→	•	•	—	•	•	†	/	-	ţ	*
BL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SI
×	44	7	*	44	7		4	7		4	

	_	_	•	•		_	١,		- /	-	•	-
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	† †	7	Ţ	^	7		4	7		4	
Traffic Volume (vph)	4	920	26	53	577	22	52	4	273	68	1	22
Future Volume (vph)	4	920	26	53	577	22	52	4	273	68	1	22
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.967	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380	0	1669	1615	0	1676	0
Flt Permitted	0.377			0.186				0.955			0.964	
Satd. Flow (perm)	716	3539	1615	337	3471	1380	0	1669	1615	0	1676	0
Satd. Flow (RTOR)			164			164			207		13	
Adj. Flow (vph)	4	1000	28	58	627	24	57	4	297	74	1	24
Lane Group Flow (vph)	4	1000	28	58	627	24	0	61	297	0	99	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	24.0	24.0	24.0	16.0	16.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	40.9	34.0	34.0	36.4	40.7	40.7		12.0	12.0		9.8	
Actuated g/C Ratio	0.52	0.43	0.43	0.46	0.52	0.52		0.15	0.15		0.12	
v/c Ratio	0.01	0.65	0.04	0.23	0.35	0.03		0.24	0.71		0.45	
Control Delay	10.5	22.1	0.1	12.9	13.4	0.1		37.2	22.6		42.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	10.5	22.1	0.1	12.9	13.4	0.1		37.2	22.6		42.3	
LOS	В	С	Α	В	В	Α		D	С		D	
Approach Delay		21.5			12.9			25.1			42.3	
Approach LOS		С			В			С			D	

Intersection Summary Cycle Length: 100

Actuated Cycle Length: 78.6
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 20.3
Intersection Capacity Utilization 61.9%

Intersection LOS: C ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2027 No Build

	•	-	•	•	•	•	1	†	1	-	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	^	7	*	^	7		4	7		4	
Traffic Volume (vph)	4	920	26	53	577	22	52	4	273	68	1	22
Future Volume (vph)	4	920	26	53	577	22	52	4	273	68	1	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380		1670	1615		1677	
Flt Permitted	0.38	1.00	1.00	0.19	1.00	1.00		0.96	1.00		0.96	
Satd. Flow (perm)	716	3539	1615	336	3471	1380		1670	1615		1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1000	28	58	627	24	57	4	297	74	1	24
RTOR Reduction (vph)	0	0	16	0	0	12	0	0	177	0	12	0
Lane Group Flow (vph)	4	1000	12	58	627	12	0	61	120	0	87	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6	_	-	3	•	•	
Actuated Green, G (s)	41.5	37.4	37.4	41.0	40.7	40.7		12.0	12.0		6.8	
Effective Green, g (s)	41.5	37.4	37.4	41.0	40.7	40.7		12.0	12.0		6.8	
Actuated g/C Ratio	0.50	0.45	0.45	0.49	0.49	0.49		0.14	0.14		0.08	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	364	1579	720	223	1685	670		239	231		136	
v/s Ratio Prot	0.00	c0.28		c0.01	c0.18			0.04			c0.05	
v/s Ratio Perm	0.01		0.01	0.12		0.01			c0.07			
v/c Ratio	0.01	0.63	0.02	0.26	0.37	0.02		0.26	0.52		0.64	
Uniform Delay, d1	10.8	17.9	12.9	12.5	13.5	11.2		31.9	33.2		37.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	1.2	0.0	0.2	0.3	0.0		0.6	2.0		9.9	
Delay (s)	10.8	19.1	13.0	12.7	13.8	11.2		32.5	35.2		47.2	
Level of Service	В	В	В	В	В	В		С	D		D	
Approach Delay (s)		18.9			13.6			34.7			47.2	
Approach LOS		В			В			С			D	
Intersection Summary												
HCM 2000 Control Delay			21.0	Н	CM 2000	Level of S	Service		С			
HCM 2000 Volume to Cap	acity ratio		0.59									
Actuated Cycle Length (s)	-		83.8	S	um of los	t time (s)			24.0			
Intersection Capacity Utiliz	ation		61.9%	IC	CU Level	of Service			В			
Analysis Period (min)			15									
c Critical Lane Group												

Fords Colony TIS Update 2027 No Build

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2: Fords Colony Drive/Dominon Village & Longhill Road

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				*			,		,		*	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ĵ₃				7		4			4	
Traffic Volume (vph)	4	366	44	131	331	1	88	1	165	0	1	0
Future Volume (vph)	4	366	44	131	331	1	88	1	165	0	1	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850		0.912				
Flt Protected	0.950			0.950				0.983				
Satd. Flow (prot)	1805	1779	0	1752	1776	1615	0	1646	0	0	1900	0
Flt Permitted	0.950			0.950				0.983				
Satd. Flow (perm)	1805	1779	0	1752	1776	1615	0	1646	0	0	1900	0
Adj. Flow (vph)	4	398	48	142	360	1	96	1	179	0	1	0
Lane Group Flow (vph)	4	446	0	142	360	1	0	276	0	0	1	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized Intersection Capacity Utilization 60.9% Analysis Period (min) 15

ICU Level of Service B

HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2027 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	1>		ሻ	↑	7		4			4	
Traffic Volume (veh/h)	4	366	44	131	331	1	88	1	165	0	1	0
Future Volume (Veh/h)	4	366	44	131	331	1	88	1	165	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	398	48	142	360	1	96	1	179	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361			446			1074	1075	422	1230	1098	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361			446			1074	1075	422	1230	1098	360
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			44	99	72	100	99	100
cM capacity (veh/h)	1209			1109			171	192	636	100	186	689
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	4	446	142	360	1	276	1					
Volume Left	4	0	142	0	0	96	0					
Volume Right	0	48	0	0	1	179	0					
cSH	1209	1700	1109	1700	1700	325	186					
Volume to Capacity	0.00	0.26	0.13	0.21	0.00	0.85	0.01					
Queue Length 95th (ft)	0	0	11	0	0	189	0					
Control Delay (s)	8.0	0.0	8.7	0.0	0.0	55.5	24.4					
Lane LOS	Α		Α			F	C					
Approach Delay (s)	0.1		2.5			55.5	24.4					
Approach LOS						F	С					
Intersection Summary												
Average Delay			13.5									
Intersection Capacity Utilizati	on		60.9%	IC	CU Level	of Service			В			
Analysis Period (min)	UII					DI OCIVICO						

Fords Colony TIS Update 2027 No Build

3: Centerville Road & Westport/Manchester Drive

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		*	î.		ሻ	↑	7	Ť	↑	7
Traffic Volume (vph)	24	1	10	71	0	61	4	437	55	65	280	11
Future Volume (vph)	24	1	10	71	0	61	4	437	55	65	280	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.850				0.850			0.850
Flt Protected		0.967		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.967		0.950			0.950			0.950		
Satd. Flow (perm)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	26	1	11	77	0	66	4	475	60	71	304	12
Lane Group Flow (vph)	0	38	0	77	66	0	4	475	60	71	304	12
Sign Control		Stop			Stop			Free			Free	

ICU Level of Service A

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 45.3%
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive

Fords Colony TIS Update 2027 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		7	1₃		7	^	7	Ť	↑	7
Traffic Volume (veh/h)	24	1	10	71	0	61	4	437	55	65	280	11
Future Volume (Veh/h)	24	1	10	71	0	61	4	437	55	65	280	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	1	11	77	0	66	4	475	60	71	304	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	995	989	304	940	941	475	316			535		
vC1, stage 1 conf vol	770	707	301	710	711	170	310			000		
vC2, stage 2 conf vol												
vCu, unblocked vol	995	989	304	940	941	475	316			535		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)	7.1	0.5	0.2	7.1	0.5	0.2	7.1			7.5		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	86	100	99	66	100	89	100			93		
cM capacity (veh/h)	188	230	740	223	245	586	1256			966		
, , ,										700		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	38	77	66	4	475	60	71	304	12			
Volume Left	26	77	0	4	0	0	71	0	0			
Volume Right	11	0	66	0	0	60	0	0	12			
cSH	242	223	586	1256	1700	1700	966	1700	1700			
Volume to Capacity	0.16	0.34	0.11	0.00	0.28	0.04	0.07	0.18	0.01			
Queue Length 95th (ft)	14	37	9	0	0	0	6	0	0			
Control Delay (s)	22.6	29.4	11.9	7.9	0.0	0.0	9.0	0.0	0.0			
Lane LOS	С	D	В	Α			Α					
Approach Delay (s)	22.6	21.3		0.1			1.7					
Approach LOS	С	С										
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utiliza	ation		45.3%	IC	U Level	of Service	:		Α			
Analysis Period (min)			15									
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Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2027 No Build

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, T	ĵ.		٦	f)			ર્ન	7		4	7
Traffic Volume (vph)	12	237	18	31	154	53	14	0	38	103	0	21
Future Volume (vph)	12	237	18	31	154	53	14	0	38	103	0	21
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.961				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1826	0	1770	1657	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1826	0	1770	1657	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	13	249	19	33	162	56	15	0	40	108	0	22
Lane Group Flow (vph)	13	268	0	33	218	0	0	15	40	0	108	22
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 39.3%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc.

HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2027 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	f)		ř	ĵ»			4	7		ર્ન	1
Traffic Volume (veh/h)	12	237	18	31	154	53	14	0	38	103	Ö	21
Future Volume (Veh/h)	12	237	18	31	154	53	14	0	38	103	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	13	249	19	33	162	56	15	0	40	108	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	218			268			524	568	258	551	550	190
vC1, stage 1 conf vol	2.0						021	000	200		000	170
vC2, stage 2 conf vol												
vCu, unblocked vol	218			268			524	568	258	551	550	190
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			97	100	95	74	100	97
cM capacity (veh/h)	1252			1296			440	417	780	414	427	857
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	13	268	33	218	55	130						
Volume Left	13	0	33	0	15	108						
Volume Right	0	19	0	56	40	22						
cSH	1252	1700	1296	1700	1073	498						
Volume to Capacity	0.01	0.16	0.03	0.13	0.05	0.26						
Queue Length 95th (ft)	1	0.10	0.03	0.13	0.03	26						
Control Delay (s)	7.9	0.0	7.9	0.0	10.8	15.5						
Lane LOS	7.9 A	0.0	7.9 A	0.0	10.8 B	15.5 C						
Approach Delay (s)	0.4		1.0		10.8	15.5						
Approach LOS	U.4		1.0		10.8 B	15.5 C						
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization	ation		39.3%	10	'III ovel	of Service			Α			
	auull		39.3%	IC	o Level (or Service			А			
Analysis Period (min)			15									

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	
Directions Served	L	T	T	R	L	Т	T	R	LT	R	LTR	
Maximum Queue (ft)	27	233	229	67	78	157	132	55	94	168	132	
Average Queue (ft)	2	114	107	8	28	84	39	10	37	73	49	
95th Queue (ft)	14	197	189	43	61	143	92	38	79	133	101	
Link Distance (ft)		1006	1006			738	738		392		461	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			225	250			250		225		
Storage Blk Time (%)		0	0	0						0		
Queuing Penalty (veh)		0	0	0						0		

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	SB	
Directions Served	L	TR	L	LTR	LTR	
Maximum Queue (ft)	7	19	84	291	5	
Average Queue (ft)	1	1	26	106	0	
95th Queue (ft)	6	11	60	233	3	
Link Distance (ft)		2032		736	278	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200		225			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	NB	NB	SB
Directions Served	LTR	L	TR	L	T	R	L
Maximum Queue (ft)	47	69	58	10	2	5	72
Average Queue (ft)	20	28	20	1	0	0	19
95th Queue (ft)	42	56	41	6	2	5	52
Link Distance (ft)	247	762			622		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			140	190		325	190
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	LT	R	LT	R
Maximum Queue (ft)	28	26	38	54	79	33
Average Queue (ft)	3	5	12	24	40	16
95th Queue (ft)	16	20	37	51	67	40
Link Distance (ft)			372		374	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	225	225		150		150
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Fords Colony TIS Update 2027 Build

1: Williamsburg W Drive/Lane PI Drive & Longhill Road

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ř	† †	7	, N	† †	7		4	7		4	
Traffic Volume (vph)	4	933	26	53	581	22	52	4	273	68	1	22
Future Volume (vph)	4	933	26	53	581	22	52	4	273	68	1	22
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.967	
Flt Protected	0.950			0.950				0.955			0.964	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380	0	1669	1615	0	1676	0
Flt Permitted	0.374			0.181				0.955			0.964	
Satd. Flow (perm)	711	3539	1615	328	3471	1380	0	1669	1615	0	1676	0
Satd. Flow (RTOR)			164			164			206		13	
Adj. Flow (vph)	4	1014	28	58	632	24	57	4	297	74	1	24
Lane Group Flow (vph)	4	1014	28	58	632	24	0	61	297	0	99	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	48.0	48.0	12.0	48.0	48.0	24.0	24.0	24.0	16.0	16.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	41.1	34.1	34.1	36.5	40.9	40.9		12.0	12.0		9.8	
Actuated g/C Ratio	0.52	0.43	0.43	0.46	0.52	0.52		0.15	0.15		0.12	
v/c Ratio	0.01	0.66	0.04	0.23	0.35	0.03		0.24	0.71		0.45	
Control Delay	10.5	22.3	0.1	12.9	13.5	0.1		37.2	22.8		42.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	10.5	22.3	0.1	12.9	13.5	0.1		37.2	22.8		42.5	
LOS	В	С	Α	В	В	Α		D	С		D	
Approach Delay		21.7			13.0			25.2			42.5	
Approach LOS		С			В			С			D	

Intersection Summary Cycle Length: 100
Actuated Cycle Length: 78.8
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 20.4 Intersection Capacity Utilization 62.3%

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



Intersection LOS: C ICU Level of Service B HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2027 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	^	7	*	^	7		4	7		4	
Traffic Volume (vph)	4	933	26	53	581	22	52	4	273	68	1	22
Future Volume (vph)	4	933	26	53	581	22	52	4	273	68	1	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.96	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380		1670	1615		1677	
Flt Permitted	0.37	1.00	1.00	0.18	1.00	1.00		0.96	1.00		0.96	
Satd. Flow (perm)	711	3539	1615	327	3471	1380		1670	1615		1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1014	28	58	632	24	57	4	297	74	1	24
RTOR Reduction (vph)	0	0	15	0	0	12	0	0	177	0	12	0
Lane Group Flow (vph)	4	1014	13	58	632	12	0	61	120	0	87	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	41.7	37.6	37.6	41.2	40.9	40.9		12.0	12.0		6.8	
Effective Green, g (s)	41.7	37.6	37.6	41.2	40.9	40.9		12.0	12.0		6.8	
Actuated g/C Ratio	0.50	0.45	0.45	0.49	0.49	0.49		0.14	0.14		0.08	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	363	1584	722	220	1690	671		238	230		135	
v/s Ratio Prot	0.00	c0.29		c0.01	c0.18			0.04			c0.05	
v/s Ratio Perm	0.01		0.01	0.12		0.01			c0.07			
v/c Ratio	0.01	0.64	0.02	0.26	0.37	0.02		0.26	0.52		0.64	
Uniform Delay, d1	10.8	18.0	12.9	12.5	13.5	11.2		32.0	33.4		37.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.0	1.2	0.0	0.2	0.3	0.0		0.6	2.1		10.1	
Delay (s)	10.8	19.2	12.9	12.8	13.8	11.2		32.6	35.5		47.5	
Level of Service	В	В	В	В	В	В		С	D		D	
Approach Delay (s)		19.0			13.6			35.0			47.5	
Approach LOS		В			В			D			D	
Intersection Summary												
HCM 2000 Control Delay			21.1	Н	CM 2000	Level of S	Service		С			
HCM 2000 Volume to Capa	acity ratio		0.60									
Actuated Cycle Length (s)			84.0	S	um of los	t time (s)			24.0			
Intersection Capacity Utiliz	ation		62.3%	IC	CU Level	of Service			В			
Analysis Period (min)			15									
c Critical Lane Group												

Fords Colony TIS Update 2027 Build

2: Fords Colony Drive/Dominon Village & Longhill Road

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			•	*			,	•	,		•	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*		7	"	•	7		ર્ન	7		4	
Traffic Volume (vph)	4	366	45	135	331	1	92	1	178	0	1	0
Future Volume (vph)	4	366	45	135	331	1	92	1	178	0	1	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950				0.953				
Satd. Flow (prot)	1805	1810	1524	1752	1776	1615	0	1648	1615	0	1900	0
Flt Permitted	0.950			0.950				0.953				
Satd. Flow (perm)	1805	1810	1524	1752	1776	1615	0	1648	1615	0	1900	0
Adj. Flow (vph)	4	398	49	147	360	1	100	1	193	0	1	0
Lane Group Flow (vph)	4	398	49	147	360	1	0	101	193	0	1	0
Sign Control		Free			Free			Stop			Stop	

ICU Level of Service A

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 48.6%
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2027 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	†	7	ሻ	†	7		4	7		4	
Traffic Volume (veh/h)	4	366	45	135	331	1	92	1	178	0	1	0
Future Volume (Veh/h)	4	366	45	135	331	1	92	1	178	0	1	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	398	49	147	360	1	100	1	193	0	1	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									7			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361			447			1060	1061	398	1157	1109	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361			447			1060	1061	398	1157	1109	360
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			42	99	71	100	99	100
cM capacity (veh/h)	1209			1108			174	195	656	110	183	689
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	4	398	49	147	360	1	294	1				
Volume Left	4	0	0	147	0	0	100	0				
Volume Right	0	0	49	0	0	1	193	0				
cSH	1209	1700	1700	1108	1700	1700	507	183				
Volume to Capacity	0.00	0.23	0.03	0.13	0.21	0.00	0.58	0.01				
Queue Length 95th (ft)	0	0	0	11	0	0	91	0				
Control Delay (s)	8.0	0.0	0.0	8.7	0.0	0.0	25.9	24.8				
Lane LOS	Α			Α			D	С				
Approach Delay (s)	0.1			2.5			25.9	24.8				
Approach LOS							D	С				
Intersection Summary												
Average Delay			7.1									
Intersection Capacity Utiliza	ation		48.6%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

Fords Colony TIS Update 2027 Build

3: Centerville Road & Westport/Manchester Drive

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	LUL	4	LDIK	ሻ	1	WDIC	*	<u> </u>	7	N N	<u> </u>	7
Traffic Volume (vph)	24	1	10	74	0	62	4	437	56	65	280	11
Future Volume (vph)	24	1	10	74	0	62	4	437	56	65	280	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961			0.850				0.850			0.850
Flt Protected		0.967		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.967		0.950			0.950			0.950		
Satd. Flow (perm)	0	1766	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	26	1	11	80	0	67	4	475	61	71	304	12
Lane Group Flow (vph)	0	38	0	80	67	0	4	475	61	71	304	12
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized Intersection Capacity Utilization 45.3% Analysis Period (min) 15

ICU Level of Service A

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc.

Synchro 10 Report - 01/13/2020

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HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive Fords Colony TIS Update 2027 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ሻ	ĵ.		ሻ	†	7	ሻ	†	7
Traffic Volume (veh/h)	24	1	10	74	0	62	4	437	56	65	280	11
Future Volume (Veh/h)	24	1	10	74	0	62	4	437	56	65	280	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	1	11	80	0	67	4	475	61	71	304	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	996	990	304	940	941	475	316			536		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	996	990	304	940	941	475	316			536		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	86	100	99	64	100	89	100			93		
cM capacity (veh/h)	188	229	740	223	245	586	1256			965		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	38	80	67	4	475	61	71	304	12			
Volume Left	26	80	0/	4	4/5	0	71	304	0			
Volume Right	11	0	67	0	0	61	0	0	12			
cSH		223		1256	1700		965	1700	1700			
	241		586			1700						
Volume to Capacity	0.16	0.36	0.11	0.00	0.28	0.04	0.07	0.18	0.01			
Queue Length 95th (ft)	14	39	10	0	0	0	6	0	0			
Control Delay (s)	22.7	29.9	11.9	7.9	0.0	0.0	9.0	0.0	0.0			
Lane LOS	C	D	В	A			A					
Approach Delay (s)	22.7	21.7		0.1			1.7					
Approach LOS	С	С										
Intersection Summary												
Average Delay			4.2									
Intersection Capacity Utiliz	ation		45.3%	IC	:U Level	of Service			Α			
Analysis Period (min)			15									

Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2027 Build

	•	→	•	•	←	•	4	†	~	\	ļ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ĭ	f)		٦	f)			ર્ન	7		4	7
Traffic Volume (vph)	12	239	18	31	155	53	14	0	38	103	0	21
Future Volume (vph)	12	239	18	31	155	53	14	0	38	103	0	21
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.962				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1826	0	1770	1659	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1826	0	1770	1659	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	13	252	19	33	163	56	15	0	40	108	0	22
Lane Group Flow (vph)	13	271	0	33	219	0	0	15	40	0	108	22
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 39.4%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: AM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 7

HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2027 Build

	٠	→	•	•	←	•	4	†	<i>></i>	>	ļ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	î.		ሻ	₽			ની	7		र्स	7
Traffic Volume (veh/h)	12	239	18	31	155	53	14	0	38	103	0	21
Future Volume (Veh/h)	12	239	18	31	155	53	14	0	38	103	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	13	252	19	33	163	56	15	0	40	108	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	219			271			528	572	262	555	554	191
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	219			271			528	572	262	555	554	191
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			97	100	95	74	100	97
cM capacity (veh/h)	1251			1292			437	415	777	411	425	856
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	13	271	33	219	55	130						
Volume Left	13	0	33	0	15	108						
Volume Right	0	19	0	56	40	22						
cSH	1251	1700	1292	1700	1069	495						
Volume to Capacity	0.01	0.16	0.03	0.13	0.05	0.26						
Queue Length 95th (ft)	1	0.10	2	0.10	4	26						
Control Delay (s)	7.9	0.0	7.9	0.0	10.9	15.6						
Lane LOS	Α.,	0.0	Α.,	0.0	В	C						
Approach Delay (s)	0.4		1.0		10.9	15.6						
Approach LOS	0.4		1.0		В	C						
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utiliza	ation		39.4%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	
Directions Served	L	Т	Т	R	L	Т	T	R	LT	R	LTR	
Maximum Queue (ft)	49	250	264	29	67	166	140	44	98	167	124	
Average Queue (ft)	4	122	118	7	26	80	44	8	35	77	52	
95th Queue (ft)	32	211	211	24	55	141	101	32	76	138	99	
Link Distance (ft)		1006	1006			738	738		392		461	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			225	250			250		225		
Storage Blk Time (%)	0	0	0							0		
Queuing Penalty (veh)	0	0	0							0		

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	EB	WB	NB	NB	SB
Directions Served	L	T	R	L	LT	R	LTR
Maximum Queue (ft)	16	4	8	87	196	132	9
Average Queue (ft)	1	0	0	34	58	44	0
95th Queue (ft)	9	4	6	69	146	102	5
Link Distance (ft)		2030			723		278
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		300	225		175	
Storage Blk Time (%)					1	0	
Queuing Penalty (veh)					3	0	

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	NB	NB	SB
Directions Served	LTR	L	TR	L	Т	R	L
Maximum Queue (ft)	51	77	56	8	2	4	69
Average Queue (ft)	19	30	20	1	0	0	20
95th Queue (ft)	44	61	42	7	2	5	53
Link Distance (ft)	247	762			622		
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			140	190		325	190
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	NB	NB	SB	SB
Directions Served	L	L	LT	R	LT	R
Maximum Queue (ft)	37	26	36	52	82	37
Average Queue (ft)	3	4	13	24	40	17
95th Queue (ft)	17	18	38	48	68	42
Link Distance (ft)			372		374	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	225	225		150		150
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 3

Fords Colony TIS Update

1: Williamsburg W Drive/Lane Pl Drive & Longhill Road

2019 Existing

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	↑	7	75	↑	7		ર્ન	7		4	
Traffic Volume (vph)	18	765	36	214	1016	40	52	0	141	24	0	15
Future Volume (vph)	18	765	36	214	1016	40	52	0	141	24	0	15
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.970	
Satd. Flow (prot)	1805	1845	1615	1805	1881	1615	0	1770	1568	0	1699	0
Flt Permitted	0.073			0.138				0.950			0.970	
Satd. Flow (perm)	139	1845	1615	262	1881	1615	0	1770	1568	0	1699	0
Satd. Flow (RTOR)			156			156			161		161	
Adj. Flow (vph)	19	805	38	225	1069	42	55	0	148	25	0	16
Lane Group Flow (vph)	19	805	38	225	1069	42	0	55	148	0	41	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	15.0	50.0	50.0	15.0	50.0	50.0	20.0	20.0	20.0	20.0	20.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	56.6	44.4	44.4	51.4	55.1	55.1		8.5	8.5		7.1	
Actuated g/C Ratio	0.65	0.51	0.51	0.59	0.64	0.64		0.10	0.10		0.08	
v/c Ratio	0.10	0.85	0.04	0.75	0.89	0.04		0.32	0.49		0.14	
Control Delay	7.8	31.0	0.1	30.3	29.5	0.1		43.1	11.6		1.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.8	31.0	0.1	30.3	29.5	0.1		43.1	11.6		1.1	
LOS	Α	С	Α	С	С	Α		D	В		Α	
Approach Delay		29.2			28.7			20.1			1.1	
Approach LOS		С			С			С			Α	

Intersection Summary

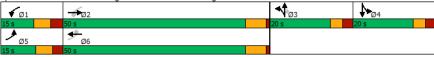
Cycle Length: 105 Actuated Cycle Length: 86.6

Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89 Intersection Signal Delay: 27.7 Intersection Capacity Utilization 81.6%

Intersection LOS: C ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2019 Existing

			•	-
Movement EBL EBT EBR WBL WBT WBR NBL NBT	NBR	SBL	. SBT	SBR
Lane Configurations 7 7 7 7 4	7		4	
Traffic Volume (vph) 18 765 36 214 1016 40 52 0	141	24	0	15
Future Volume (vph) 18 765 36 214 1016 40 52 0	141			15
Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190	1900	1900	1900	1900
Total Lost time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5	5.5		5.5	
Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00		1.00	
Frt 1.00 1.00 0.85 1.00 1.00 0.85 1.00	0.85		0.95	
Flt Protected 0.95 1.00 1.00 0.95 1.00 1.00 0.95	1.00		0.97	
Satd. Flow (prot) 1805 1845 1615 1805 1881 1615 1770	1568		1700	
Flt Permitted 0.07 1.00 1.00 0.14 1.00 1.00 0.95	1.00		0.97	
<u>Satd. Flow (perm)</u> 138 1845 1615 262 1881 1615 1770	1568		1700	
Peak-hour factor, PHF 0.95 0.95 0.95 0.95 0.95 0.95 0.95	0.95			0.95
Adj. Flow (vph) 19 805 38 225 1069 42 55 0	148	3 25		16
RTOR Reduction (vph) 0 0 18 0 0 17 0 0	134			0
Lane Group Flow (vph) 19 805 20 225 1069 25 0 55	14			0
Heavy Vehicles (%) 0% 3% 0% 0% 1% 0% 2% 0%	3%	0%	0%	7%
Turn Type D.P+P NA Perm D.P+P NA Perm Split NA	Perm	Split	l NA	
Protected Phases 5 2 1 6 3 3		4	4	
Permitted Phases 6 2 2 6	3			
Actuated Green, G (s) 57.1 48.5 48.5 56.6 55.1 55.1 8.5	8.5	5	3.9	
Effective Green, g (s) 57.1 48.5 48.5 56.6 55.1 55.1 8.5	8.5	5	3.9	
Actuated g/C Ratio 0.61 0.52 0.52 0.61 0.59 0.59 0.09	0.09		0.04	
Clearance Time (s) 6.5 6.0 6.0 7.0 6.0 6.0 5.5			5.5	
Vehicle Extension (s) 2.0 5.0 5.0 2.0 5.0 5.0	3.0		3.0	
Lane Grp Cap (vph) 120 962 842 293 1114 956 161	143	3	71	
v/s Ratio Prot 0.00 0.44 c0.07 c0.57 c0.03			c0.00	
v/s Ratio Perm 0.09 0.01 0.40 0.02	0.01			
v/c Ratio 0.16 0.84 0.02 0.77 0.96 0.03 0.34	0.09		0.02	
Uniform Delay, d1 20.3 18.9 10.8 15.3 17.9 7.8 39.6	38.7	•	42.7	
Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00		1.00	
Incremental Delay, d2 0.2 7.1 0.0 10.4 18.2 0.0 1.3			0.1	
Delay (s) 20.6 26.0 10.8 25.7 36.1 7.9 40.9	39.0		42.9	
Level of Service C C B C D A D	D)	D	
Approach Delay (s) 25.2 33.5 39.5			42.9	
Approach LOS C C D			D	
Intersection Summary				
HCM 2000 Control Delay 31.2 HCM 2000 Level of Service	С	;		
HCM 2000 Volume to Capacity ratio 0.88				
Actuated Cycle Length (s) 93.0 Sum of lost time (s)	24.0)		
Intersection Capacity Utilization 81.6% ICU Level of Service	D)		
Analysis Period (min) 15				
c Critical Lane Group				

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 9 Report - 11/11/2019 Page 1 Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 9 Report - 11/11/2019

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Fords Colony TIS Update 2019 Existing

Synchro 9 Report - 11/11/2019

Page 3

2: Fords Colony Drive/Dominon Village & Longhill Road

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		-	•	•			٠,	'	'		•	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	₽.		7	↑	7		4			4	
Traffic Volume (vph)	0	354	55	200	293	2	47	3	126	4	0	5
Future Volume (vph)	0	354	55	200	293	2	47	3	126	4	0	5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980				0.850		0.903			0.925	
Flt Protected				0.950				0.987			0.978	
Satd. Flow (prot)	1900	1846	0	1805	1863	1615	0	1661	0	0	1719	0
Flt Permitted				0.950				0.987			0.978	
Satd. Flow (perm)	1900	1846	0	1805	1863	1615	0	1661	0	0	1719	0
Adj. Flow (vph)	0	377	59	213	312	2	50	3	134	4	0	5
Lane Group Flow (vph)	0	436	0	213	312	2	0	187	0	0	9	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 54.8%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2019 Existing

	•	-	•	•	←	•	•	†	<i>></i>	-	ļ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	f)		,	^	7		4			4	
Traffic Volume (veh/h)	0	354	55	200	293	2	47	3	126	4	0	5
Future Volume (Veh/h)	0	354	55	200	293	2	47	3	126	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	377	59	213	312	2	50	3	134	4	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	314			436			1150	1146	406	1250	1174	312
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	314			436			1150	1146	406	1250	1174	312
tC, single (s)	4.1			4.1			7.1	6.8	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.3	3.3	3.5	4.0	3.3
p0 queue free %	100			81			67	98	79	96	100	99
cM capacity (veh/h)	1258			1134			150	142	644	101	157	733
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	0	436	213	312	2	187	9					
Volume Left	0	0	213	0	0	50	4					
Volume Right	0	59	0	0	2	134	5					
cSH	1700	1700	1134	1700	1700	333	193					
Volume to Capacity	0.00	0.26	0.19	0.18	0.00	0.56	0.05					
Queue Length 95th (ft)	0.00	0.20	17	0	0	81	4					
Control Delay (s)	0.0	0.0	8.9	0.0	0.0	28.8	24.5					
Lane LOS	0.0	0.0	A	0.0	0.0	D	C					
Approach Delay (s)	0.0		3.6			28.8	24.5					
Approach LOS	0.0		0.0			D	C					
Intersection Summary												
Average Delay			6.5									
Intersection Capacity Utiliza	ation		54.8%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

Fords Colony TIS Update 2019 Existing

3: Centerville Road & Westport/Manchester Drive

	ၨ	-	•	•	←	•	4	†	~	-	↓	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		Ť	ĥ		٦	†	7	Ť	†	7
Traffic Volume (vph)	3	1	2	49	0	29	2	305	67	24	249	2
Future Volume (vph)	3	1	2	49	0	29	2	305	67	24	249	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.976		0.950			0.950			0.950		
Satd. Flow (prot)	0	1771	0	1805	1553	0	1805	1845	1568	1805	1863	1615
FIt Permitted		0.976		0.950			0.950			0.950		
Satd. Flow (perm)	0	1771	0	1805	1553	0	1805	1845	1568	1805	1863	1615
Adj. Flow (vph)	3	1	2	52	0	31	2	321	71	25	262	2
Lane Group Flow (vph)	0	6	0	52	31	0	2	321	71	25	262	2
Sign Control		Stop			Stop			Free			Free	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 31.4%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 9 Report - 11/11/2019 Page 5 HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive Fords Colony TIS Update 2019 Existing

	٠	→	•	•	←	•	4	†	~	>	ļ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ሻ	1•				7	7	•	7
Traffic Volume (veh/h)	3	1	2	49	0	29	2	305	67	24	249	2
Future Volume (Veh/h)	3	1	2	49	0	29	2	305	67	24	249	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3	1	2	52	0	31	2	321	71	25	262	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	668	708	262	640	639	321	264			392		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	668	708	262	640	639	321	264			392		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	86	100	96	100			98		
cM capacity (veh/h)	352	354	782	383	388	715	1312			1178		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	6	52	31	2	321	71	25	262	2			
Volume Left	3	52	0	2	0	0	25	0	0			
Volume Right	2	0	31	0	0	71	0	0	2			
cSH	431	383	715	1312	1700	1700	1178	1700	1700			
Volume to Capacity	0.01	0.14	0.04	0.00	0.19	0.04	0.02	0.15	0.00			
Queue Length 95th (ft)	1	12	3	0.00	0.13	0.04	2	0.10	0.00			
Control Delay (s)	13.5	15.9	10.3	7.7	0.0	0.0	8.1	0.0	0.0			
Lane LOS	В	13.3 C	10.3 B	Α.	0.0	0.0	Α.	0.0	0.0			
Approach Delay (s)	13.5	13.8	D	0.0			0.7					
Approach LOS	В	В		0.0			0.1					
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utiliz	ation		31.4%	IC	U Level	of Service			Α			
Analysis Period (min)			15									
, ()												

Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2019 Existing

HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2019 Existing

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	•	→	←	•	\	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	*	*	*	7	*	1
Traffic Volume (vph)	8	153	257	117	68	7
Future Volume (vph)	8	153	257	117	68	7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1863	1863	1615	1770	1615
Flt Permitted	0.950	1000	.000		0.950	10.10
Satd. Flow (perm)	1805	1863	1863	1615	1770	1615
Adj. Flow (vph)	8	159	268	122	71	7
Lane Group Flow (vph)	8	159	268	122	71	7
Sign Control	· ·	Free	Free		Stop	
•		1100	1100		Отор	
Intersection Summary						
Control Type: Unsignalized						
Intersection Capacity Utiliza	ition 24.0%			10	CU Level	of Service A
Analysis Period (min) 15						

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	
Directions Served	L	Т	R	L	Т	R	LT	R	LTR	
Maximum Queue (ft)	148	519	206	250	763	690	97	109	81	
Average Queue (ft)	16	228	25	124	330	110	39	47	26	
95th Queue (ft)	74	445	120	248	758	532	78	81	61	
Link Distance (ft)		1007			741	741	405		475	
Upstream Blk Time (%)					7	3				
Queuing Penalty (veh)					0	0				
Storage Bay Dist (ft)	250		225	250				225		
Storage Blk Time (%)	0	9	0	1	7					
Queuing Penalty (veh)	0	5	1	7	15					

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	WB	WB	NB	SB
Directions Served	TR	L	Т	LTR	LTR
Maximum Queue (ft)	21	88	4	156	17
Average Queue (ft)	2	34	0	58	4
95th Queue (ft)	11	71	4	118	14
Link Distance (ft)	2032		1469	736	278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		225			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB	
Directions Served	LTR	L	TR	L	L	
Maximum Queue (ft)	28	42	46	4	30	
Average Queue (ft)	6	20	13	0	6	
95th Queue (ft)	23	37	34	3	23	
Link Distance (ft)	247	762				
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140	190	190	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	SB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	27	5	71	31
Average Queue (ft)	3	0	34	6
95th Queue (ft)	16	5	60	26
Link Distance (ft)			375	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	225	300		150
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 28

Fords Colony TIS Update 2021 No Build

1: Williamsburg W Drive/Lane PI Drive & Longhill Road

	•	-	\rightarrow	•	←	•	1	†	^	-	ļ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	^	7	Ť	↑	7		4	7		4	
Traffic Volume (vph)	19	809	37	223	1075	42	54	0	147	25	0	16
Future Volume (vph)	19	809	37	223	1075	42	54	0	147	25	0	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.971	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1687	1615	0	1636	0
Flt Permitted	0.069			0.106				0.950			0.971	
Satd. Flow (perm)	131	1863	1615	192	1827	1380	0	1687	1615	0	1636	0
Satd. Flow (RTOR)			158			158			164		164	
Adj. Flow (vph)	20	852	39	235	1132	44	57	0	155	26	0	17
Lane Group Flow (vph)	20	852	39	235	1132	44	0	57	155	0	43	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	55.0	55.0	16.0	59.0	59.0	17.0	17.0	17.0	12.0	12.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	59.2	45.7	45.7	53.9	57.8	57.8		8.6	8.6		6.6	
Actuated g/C Ratio	0.67	0.51	0.51	0.61	0.65	0.65		0.10	0.10		0.07	
v/c Ratio	0.11	0.89	0.04	0.86	0.95	0.05		0.35	0.51		0.16	
Control Delay	7.4	34.2	0.1	49.7	36.6	0.1		46.6	12.4		1.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.4	34.2	0.1	49.7	36.6	0.1		46.6	12.4		1.2	
LOS	Α	С	Α	D	D	Α		D	В		Α	
Approach Delay		32.1			37.7			21.6			1.2	
Approach LOS		С			D			С			Α	

Intersection Summary Cycle Length: 100
Actuated Cycle Length: 88.9
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95

Intersection Signal Delay: 33.8
Intersection Capacity Utilization 84.8%
Analysis Period (min) 15

Intersection LOS: C ICU Level of Service E

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2021 No Build

	•	\rightarrow	•	1	•	•	1	†	-	-	ţ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7		7	*	†	7		ર્ન	7		4	
Traffic Volume (vph)	19	809	37	223	1075	42	54	Ö	147	25	0	16
Future Volume (vph)	19	809	37	223	1075	42	54	0	147	25	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380		1687	1615		1635	
Flt Permitted	0.07	1.00	1.00	0.11	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	131	1863	1615	192	1827	1380		1687	1615		1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	20	852	39	235	1132	44	57	0	155	26	0	17
RTOR Reduction (vph)	0	0	19	0	0	17	0	0	141	0	41	0
Lane Group Flow (vph)	20	852	20	235	1132	27	0	57	14	0	2	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	59.7	50.0	50.0	59.2	57.8	57.8		8.6	8.6		3.5	
Effective Green, q (s)	59.7	50.0	50.0	59.2	57.8	57.8		8.6	8.6		3.5	
Actuated g/C Ratio	0.63	0.52	0.52	0.62	0.61	0.61		0.09	0.09		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	115	977	847	266	1108	836		152	145		60	
v/s Ratio Prot	0.00	0.46		c0.09	c0.62			c0.03			c0.00	
v/s Ratio Perm	0.10		0.01	0.46		0.02			0.01			
v/c Ratio	0.17	0.87	0.02	0.88	1.02	0.03		0.38	0.10		0.03	
Uniform Delay, d1	22.1	19.8	10.9	21.9	18.8	7.5		40.8	39.8		44.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.3	9.3	0.0	26.7	32.6	0.0		1.6	0.3		0.2	
Delay (s)	22.3	29.2	10.9	48.6	51.4	7.6		42.4	40.1		44.4	
Level of Service	С	С	В	D	D	Α		D	D		D	
Approach Delay (s)		28.3			49.5			40.7			44.4	
Approach LOS		С			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			41.2	Н	CM 2000	Level of S	Service		D			
HCM 2000 Volume to Cap	acity ratio		0.95									
Actuated Cycle Length (s)	-		95.3	S	um of los	t time (s)			24.0			
Intersection Capacity Utiliz	ation		84.8%	IC	CU Level	of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 1 Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020

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Fords Colony TIS Update 2021 No Build

2: Fords Colony Drive/Dominon Village & Longhill Road

	•	-	•	•	-	•	•	†	/	-	. ↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	1≽		ሻ	†	7		4			4	
Traffic Volume (vph)	0	377	59	215	316	2	50	3	135	4	0	5
Future Volume (vph)	0	377	59	215	316	2	50	3	135	4	0	5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980				0.850		0.903			0.925	
Flt Protected				0.950				0.987			0.978	
Satd. Flow (prot)	1900	1771	0	1752	1776	1615	0	1650	0	0	1719	0
Flt Permitted				0.950				0.987			0.978	
Satd. Flow (perm)	1900	1771	0	1752	1776	1615	0	1650	0	0	1719	0
Adj. Flow (vph)	0	401	63	229	336	2	53	3	144	4	0	5
Lane Group Flow (vph)	0	464	0	229	336	2	0	200	0	0	9	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 57.8%
Analysis Period (min) 15

ICU Level of Service B

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

Synchro 10 Report - 01/13/2020

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HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2021 No Build

	•	→	•	•	←	•	1	†	~	/	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	f)		,	^	7		4			4	
Traffic Volume (veh/h)	0	377	59	215	316	2	50	3	135	4	0	5
Future Volume (Veh/h)	0	377	59	215	316	2	50	3	135	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	401	63	229	336	2	53	3	144	4	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	338			464			1232	1228	432	1340	1258	336
vC1, stage 1 conf vol	000						1202	ILLO	.02	1010	.200	000
vC2, stage 2 conf vol												
vCu, unblocked vol	338			464			1232	1228	432	1340	1258	336
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							,,_	0.0	O.L		0.0	0.2
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			79			5.7	98	77	95	100	99
cM capacity (veh/h)	1232			1092			124	142	627	83	136	711
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	0	464	229	336	2	200	9					
Volume Left	0	0	229	0	0	53	4					
Volume Right	0	63	0	0	2	144	5					
cSH	1700	1700	1092	1700	1700	294	163					
Volume to Capacity	0.00	0.27	0.21	0.20	0.00	0.68	0.06					
Queue Length 95th (ft)	0.00	0.27	20	0.20	0.00	115	0.06					
	0.0	0.0	9.2	0.0		39.7	28.3					
Control Delay (s)	0.0	0.0		0.0	0.0							
Lane LOS	0.0		A			E	D					
Approach Delay (s)	0.0		3.7			39.7	28.3					
Approach LOS						E	D					
Intersection Summary												
Average Delay			8.3									
Intersection Capacity Utiliza	ation		57.8%	IC	CU Level	of Service			В			
Analysis Period (min)			15									

Fords Colony TIS Update 2021 No Build

3: Centerville Road & Westport/Manchester Drive

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		*	î,		Ţ	†	7	Ţ	†	7
Traffic Volume (vph)	16	1	6	56	0	30	10	331	74	25	273	22
Future Volume (vph)	16	1	6	56	0	30	10	331	74	25	273	22
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.850				0.850			0.850
Flt Protected		0.966		0.950			0.950			0.950		
Satd. Flow (prot)	0	1773	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.966		0.950			0.950			0.950		
Satd. Flow (perm)	0	1773	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	17	1	6	59	0	32	11	348	78	26	287	23
Lane Group Flow (vph)	0	24	0	59	32	0	11	348	78	26	287	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 35.4%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive

Fords Colony TIS Update 2021 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		7	1₃		7	^	7	Ť	^	7
Traffic Volume (veh/h)	16	1	6	56	0	30	10	331	74	25	273	22
Future Volume (Veh/h)	16	1	6	56	0	30	10	331	74	25	273	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	1	6	59	0	32	11	348	78	26	287	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	741	787	287	716	732	348	310			426		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	741	787	287	716	732	348	310			426		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	95	100	99	82	100	95	99			98		
cM capacity (veh/h)	311	315	757	331	339	691	1262			1062		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	24	59	32	11	348	78	26	287	23			
Volume Left	17	59	0	11	0	0	26	0	0			
Volume Right	6	0	32	0	0	78	0	0	23			
cSH	365	331	691	1262	1700	1700	1062	1700	1700			
Volume to Capacity	0.07	0.18	0.05	0.01	0.20	0.05	0.02	0.17	0.01			
Queue Length 95th (ft)	5	16	4	1	0	0	2	0	0			
Control Delay (s)	15.6	18.2	10.5	7.9	0.0	0.0	8.5	0.0	0.0			
Lane LOS	С	С	В	Α			Α					
Approach Delay (s)	15.6	15.5		0.2			0.7					
Approach LOS	C	C										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utiliza	ation		35.4%	IC	U Level	of Service	е		Α			
Analysis Period (min)			15									
,												

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Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Undate

Folus Colony	113 Opuale
	2021 No Build

	•	→	•	•	•	•	•	†	-	-	Ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	7>	LDIK	ኘ	7	WDIC	IVDL	4	7	JDL	4	7
Traffic Volume (vph)	8	164	23	59	278	122	23	0	56	71	0	7
Future Volume (vph)	8	164	23	59	278	122	23	0	56	71	0	7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1814	0	1770	1653	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1814	0	1770	1653	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	8	171	24	61	290	127	24	0	58	74	0	7
Lane Group Flow (vph)	8	195	0	61	417	0	0	24	58	0	74	7
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 46.0%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

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Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2021 No Build

	•	→	•	•	+	•	1	†	<i>></i>	/	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	₽		ሻ	1>			ની	7		र्स	7
Traffic Volume (veh/h)	8	164	23	59	278	122	23	0	56	71	0	7
Future Volume (Veh/h)	8	164	23	59	278	122	23	0	56	71	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	8	171	24	61	290	127	24	0	58	74	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	417			195			614	738	183	692	686	354
vC1, stage 1 conf vol				170			011	700	100	0,2	000	001
vC2, stage 2 conf vol												
vCu, unblocked vol	417			195			614	738	183	692	686	354
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)								0.0	O.L		0.0	0.2
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			94	100	93	77	100	99
cM capacity (veh/h)	1052			1378			384	328	859	324	351	695
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	8	195	61	417	82	81						
Volume Left	8	0	61	0	24	74						
Volume Right	0	24	0	127	58	7						
cSH	1052	1700	1378	1700	1215	354						
Volume to Capacity	0.01	0.11	0.04	0.25	0.07	0.23						
Queue Length 95th (ft)	1	0.11	3	0.25	5	22						
Control Delay (s)	8.4	0.0	7.7	0.0	11.1	18.6						
Lane LOS	0.4 A	0.0	Α.	0.0	В	C						
Approach Delay (s)	0.3		1.0		11.1	18.6						
Approach LOS	0.3		1.0		В	10.0 C						
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utiliza	ation		46.0%	IC	U Level	of Service			Α			
Analysis Period (min)			15									
			.5									

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Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	
Directions Served	L	T	R	L	Т	R	LT	R	LTR	
Maximum Queue (ft)	167	562	224	250	772	777	115	83	88	
Average Queue (ft)	19	251	25	145	397	204	45	45	30	
95th Queue (ft)	85	474	120	271	843	748	93	74	68	
Link Distance (ft)		1007			741	741	405		475	
Upstream Blk Time (%)					13	7				
Queuing Penalty (veh)					0	0				
Storage Bay Dist (ft)	250		225	250				225		
Storage Blk Time (%)	0	10	0	1	9					
Queuing Penalty (veh)	0	6	1	6	19					

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	WB	NB	SB
Directions Served	TR	L	LTR	LTR
Maximum Queue (ft)	33	105	246	22
Average Queue (ft)	3	39	84	4
95th Queue (ft)	18	79	193	16
Link Distance (ft)	2032		736	278
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		225		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB	
Directions Served	LTR	L	TR	L	L	
Maximum Queue (ft)	40	56	46	16	50	
Average Queue (ft)	14	24	13	1	6	
95th Queue (ft)	37	47	32	8	30	
Link Distance (ft)	247	762				
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140	190	190	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: News Road & Firestone Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	
Directions Served	L	TR	L	TR	LT	R	LT	R	
Maximum Queue (ft)	35	1	34	4	57	68	76	33	
Average Queue (ft)	2	0	7	0	18	31	34	6	
95th Queue (ft)	16	0	26	3	47	55	61	25	
Link Distance (ft)		1230		492	372		374		
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	225		225			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Network Summary

Network wide Queuing Penalty: 32

Fords Colony TIS Update 2021 Build

1: Williamsburg W Drive/Lane PI Drive & Longhill Road

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	*	7	*	*	7		4	7		4	
Traffic Volume (vph)	19	817	37	223	1088	42	54	Ö	147	25	0	16
Future Volume (vph)	19	817	37	223	1088	42	54	0	147	25	0	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.971	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380	0	1687	1615	0	1636	0
Flt Permitted	0.069			0.101				0.950			0.971	
Satd. Flow (perm)	131	1863	1615	183	1827	1380	0	1687	1615	0	1636	0
Satd. Flow (RTOR)			158			158			164		164	
Adj. Flow (vph)	20	860	39	235	1145	44	57	0	155	26	0	17
Lane Group Flow (vph)	20	860	39	235	1145	44	0	57	155	0	43	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	55.0	55.0	16.0	59.0	59.0	17.0	17.0	17.0	12.0	12.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	59.5	46.0	46.0	54.2	58.1	58.1		8.6	8.6		6.6	
Actuated g/C Ratio	0.67	0.52	0.52	0.61	0.65	0.65		0.10	0.10		0.07	
v/c Ratio	0.11	0.90	0.04	0.88	0.96	0.05		0.35	0.51		0.16	
Control Delay	7.4	34.7	0.1	53.4	38.3	0.1		46.8	12.5		1.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.4	34.7	0.1	53.4	38.3	0.1		46.8	12.5		1.2	
LOS	А	С	Α	D	D	Α		D	В		Α	
Approach Delay		32.7			39.6			21.7			1.2	

Intersection Summary

Approach LOS

Cycle Length: 100 Actuated Cycle Length: 89.2

Control Type: Actuated-Uncoordinated Maximum v/c Ratio: 0.96

Intersection Signal Delay: 35.1 Intersection Capacity Utilization 85.5%

Intersection LOS: D ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2021 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*5	^	7	7	↑	7		4	7		4	
Traffic Volume (vph)	19	817	37	223	1088	42	54	0	147	25	0	16
Future Volume (vph)	19	817	37	223	1088	42	54	0	147	25	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	1863	1615	1719	1827	1380		1687	1615		1635	
Flt Permitted	0.07	1.00	1.00	0.10	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	131	1863	1615	184	1827	1380		1687	1615		1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	20	860	39	235	1145	44	57	0	155	26	0	17
RTOR Reduction (vph)	0	0	18	0	0	17	0	0	141	0	41	0
Lane Group Flow (vph)	20	860	21	235	1145	27	0	57	14	0	2	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	60.0	50.3	50.3	59.5	58.1	58.1		8.6	8.6		3.5	
Effective Green, g (s)	60.0	50.3	50.3	59.5	58.1	58.1		8.6	8.6		3.5	
Actuated g/C Ratio	0.63	0.53	0.53	0.62	0.61	0.61		0.09	0.09		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	115	980	849	262	1110	838		151	145		59	
v/s Ratio Prot	0.00	0.46		c0.09	c0.63			c0.03			c0.00	
v/s Ratio Perm	0.11		0.01	0.47		0.02			0.01			
v/c Ratio	0.17	0.88	0.02	0.90	1.03	0.03		0.38	0.10		0.03	
Uniform Delay, d1	22.2	19.9	10.9	23.0	18.7	7.5		41.0	39.9		44.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.3	9.7	0.0	29.4	35.4	0.0		1.6	0.3		0.2	
Delay (s)	22.4	29.6	10.9	52.4	54.2	7.5		42.6	40.2		44.6	
Level of Service	С	C 28.7	В	D	D	Α		D	D		D	
Approach Delay (s)					52.4			40.9			44.6	
Approach LOS		С			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			43.0	Н	CM 2000	Level of S	Service		D			
HCM 2000 Volume to Capa	acity ratio		0.96									
Actuated Cycle Length (s)			95.6		um of los				24.0			
Intersection Capacity Utiliz	ation		85.5%	10	U Level	of Service			Е			
Analysis Period (min)			15									
c Critical Lane Group												

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 1 Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 2

Fords Colony TIS Update 2021 Build

2: Fords Colony Drive/Dominon Village & Longhill Road

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			•	*			,	· · · · · ·	,		•	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7		7	ሻ		7		ની	7		4	
Traffic Volume (vph)	0	377	63	228	316	2	52	3	143	4	0	5
Future Volume (vph)	0	377	63	228	316	2	52	3	143	4	0	5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.925	
Flt Protected				0.950				0.955			0.978	
Satd. Flow (prot)	1900	1810	1524	1752	1776	1615	0	1657	1615	0	1719	0
Flt Permitted				0.950				0.955			0.978	
Satd. Flow (perm)	1900	1810	1524	1752	1776	1615	0	1657	1615	0	1719	0
Adj. Flow (vph)	0	401	67	243	336	2	55	3	152	4	0	5
Lane Group Flow (vph)	0	401	67	243	336	2	0	58	152	0	9	0
Sign Control		Free			Free			Stop			Stop	

ICU Level of Service A

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 48.2%
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2021 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, j	†	7	, j	^	7		4	7		4	
Traffic Volume (veh/h)	0	377	63	228	316	2	52	3	143	4	0	5
Future Volume (Veh/h)	0	377	63	228	316	2	52	3	143	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	401	67	243	336	2	55	3	152	4	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									7			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	338			468			1228	1225	401	1300	1290	336
vC1, stage 1 conf vol	000			100			ILLO	ILLO		1000	1270	000
vC2, stage 2 conf vol												
vCu, unblocked vol	338			468			1228	1225	401	1300	1290	336
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			78			55	98	77	95	100	99
cM capacity (veh/h)	1232			1088			123	140	653	87	128	711
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	0	401	67	243	336	2	210	9				
Volume Left	0	0	0	243	0	0	55	4				
Volume Right	0	0	67	0	0	2	152	5				
cSH	1700	1700	1700	1088	1700	1700	447	170				
Volume to Capacity	0.00	0.24	0.04	0.22	0.20	0.00	0.47	0.05				
Queue Length 95th (ft)	0.00	0.21	0.01	21	0.20	0.00	61	4				
Control Delay (s)	0.0	0.0	0.0	9.3	0.0	0.0	24.7	27.3				
Lane LOS	0.0	0.0	0.0	Α.	0.0	0.0	C	D				
Approach Delay (s)	0.0			3.9			24.7	27.3				
Approach LOS	0.0			3.7			C C	D				
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utiliza	ation		48.2%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

Fords Colony TIS Update 2021 Build

3: Centerville Road & Westport/Manchester Drive

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	EDL		EDK	WDL		WDK	INDL	INDI	INDK	ODL.	3D1	3DK
Lane Configurations		4		1	₽			Т	ľ		Т	r
Traffic Volume (vph)	16	1	6	60	0	30	10	331	81	25	273	22
Future Volume (vph)	16	1	6	60	0	30	10	331	81	25	273	22
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.850				0.850			0.850
Flt Protected		0.966		0.950			0.950			0.950		
Satd. Flow (prot)	0	1773	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.966		0.950			0.950			0.950		
Satd. Flow (perm)	0	1773	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	17	1	6	63	0	32	11	348	85	26	287	23
Lane Group Flow (vph)	0	24	0	63	32	0	11	348	85	26	287	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 35.4%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

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Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

Fords Colony TIS Update 2021 Build

3: Centerville Road		пропи	viariori	COLCI E	71140							1 Build
	۶	-	•	•	←	•	1	†		-	¥	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations		4		7	₽		7	•	7	7		7
Fraffic Volume (veh/h)	16	1	6	60	0	30	10	331	81	25	273	22
Future Volume (Veh/h)	16	1	6	60	0	30	10	331	81	25	273	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	1	6	63	0	32	11	348	85	26	287	23
Pedestrians												
_ane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Jpstream signal (ft)												
X, platoon unblocked												
C, conflicting volume	741	794	287	716	732	348	310			433		
C1, stage 1 conf vol												
C2, stage 2 conf vol												
/Cu, unblocked vol	741	794	287	716	732	348	310			433		
C, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
C, 2 stage (s)												
F (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	95	100	99	81	100	95	99			98		
cM capacity (veh/h)	311	312	757	331	339	691	1262			1056		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	24	63	32	11	348	85	26	287	23			
/olume Left	17	63	0	11	0	0	26	0	0			
Volume Right	6	0	32	0	0	85	0	0	23			
cSH	365	331	691	1262	1700	1700	1056	1700	1700			
Volume to Capacity	0.07	0.19	0.05	0.01	0.20	0.05	0.02	0.17	0.01			
Queue Length 95th (ft)	5	17	4	1	0	0	2	0	0			
Control Delay (s)	15.6	18.4	10.5	7.9	0.0	0.0	8.5	0.0	0.0			
Lane LOS	С	С	В	Α			Α					
Approach Delay (s)	15.6	15.7		0.2			0.7					
Approach LOS	С	С										
ntersection Summary												
Average Delay			2.4									
Intersection Capacity Utiliza	ation		35.4%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

Synchro 10 Report - 01/13/2020 Page 6 Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2021 Build

	•	→	•	•	•	•	•	†	~	\	↓	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	ĵ.		Ť	f)			ર્ન	7		ર્ન	7
Traffic Volume (vph)	8	168	23	59	285	122	23	0	56	71	0	7
Future Volume (vph)	8	168	23	59	285	122	23	0	56	71	0	7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.955				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1814	0	1770	1654	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1814	0	1770	1654	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	8	175	24	61	297	127	24	0	58	74	0	7
Lane Group Flow (vph)	8	199	0	61	424	0	0	24	58	0	74	7
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Control Type: Unsignalized Intersection Capacity Utilization 46.4% Analysis Period (min) 15

ICU Level of Service A

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

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Fords Colony TIS Update 2021 Build

0.96

74

0.96

0

4: News Road & Firestone Drive EBT EBR WBL WBT WBR Movement Lane Configurations Traffic Volume (veh/h) 168 285 122 Future Volume (Veh/h) 59 8 168 23 285 122 23 0 56 71 0 Sign Control Free Free Stop Stop 0% 0% 0% 0%

0.96

127

0.96

24

0.96

0

0.96

58

0.96

297

Hourly flow rate (vph)
Pedestrians Lane Width (ft)

Grade

Walking Speed (ft/s) Percent Blockage

Direction, Lane #

Peak Hour Factor

Right turn flare (veh) Median type None None Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume 424 199 626 749 187 702 698 360 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 424 tC, single (s) 4.3 4.1 7.1 6.5 6.2 7.1 6.5 6.2 tC, 2 stage (s) tF (s) 2.4 2.2 3.5 4.0 3.3 3.5 4.0 3.3 100 p0 queue free % 100 93 99 96 99 cM capacity (veh/h) 1045 1373 377 323 855 346 689 318

EB1 EB2 WB1 WB2 NB1 SB1

Volume Total	8	199	61	424	82	81
Volume Left	8	0	61	0	24	74
Volume Right	0	24	0	127	58	7
cSH	1045	1700	1373	1700	1209	348
Volume to Capacity	0.01	0.12	0.04	0.25	0.07	0.23
Queue Length 95th (ft)	1	0	3	0	5	22
Control Delay (s)	8.5	0.0	7.7	0.0	11.2	18.9
Lane LOS	Α		Α		В	С
Approach Delay (s)	0.3		1.0		11.2	18.9
Approach LOS					В	С

HCM Unsignalized Intersection Capacity Analysis

0.96

0.96

175

0.96

24

0.96

61

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Timing Plan: PM Peak Hour Synchro 10 Report - 01/13/2020 Kimley-Horn and Associates, Inc. Page 8

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	
Directions Served	L	T	R	L	T	R	LT	R	LTR	
Maximum Queue (ft)	209	553	204	250	784	777	140	87	83	
Average Queue (ft)	23	266	23	144	454	253	45	47	28	
95th Queue (ft)	105	491	111	270	929	835	98	74	63	
Link Distance (ft)		1007			741	741	405		475	
Upstream Blk Time (%)					18	10				
Queuing Penalty (veh)					0	0				
Storage Bay Dist (ft)	250		225	250				225		
Storage Blk Time (%)	0	12	0	1	10					
Queuing Penalty (veh)	0	7	0	8	22					

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	NB	NB	SB
Directions Served	T	R	L	LT	R	LTR
Maximum Queue (ft)	2	17	125	155	106	26
Average Queue (ft)	0	1	53	45	34	5
95th Queue (ft)	2	9	98	110	74	18
Link Distance (ft)	2030			723		278
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		300	225		175	
Storage Blk Time (%)				0	0	
Queuing Penalty (veh)				0	0	

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB	
Directions Served	LTR	L	TR	L	L	
Maximum Queue (ft)	39	58	47	16	53	
Average Queue (ft)	15	24	14	1	6	
95th Queue (ft)	37	49	33	9	29	
Link Distance (ft)	247	762				
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140	190	190	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: News Road & Firestone Drive

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	LT	R	LT	R
Maximum Queue (ft)	33	1	34	49	59	87	32
Average Queue (ft)	3	0	8	18	30	35	6
95th Queue (ft)	17	0	28	46	52	67	26
Link Distance (ft)		1230		372		374	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225		225		150		150
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 37

Fords Colony TIS Update 2027 No Build

1: Williamsburg W Drive/Lane PI Drive & Longhill Road

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	^	7	Ť	44	7		4	7		4	
Traffic Volume (vph)	21	909	42	251	1209	47	61	0	165	28	0	18
Future Volume (vph)	21	909	42	251	1209	47	61	0	165	28	0	18
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.971	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380	0	1687	1615	0	1636	0
Flt Permitted	0.151			0.214				0.950			0.971	
Satd. Flow (perm)	287	3539	1615	387	3471	1380	0	1687	1615	0	1636	0
Satd. Flow (RTOR)			195			132			200		200	
Adj. Flow (vph)	22	957	44	264	1273	49	64	0	174	29	0	19
Lane Group Flow (vph)	22	957	44	264	1273	49	0	64	174	0	48	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	64.0	64.0	22.0	74.0	74.0	22.0	22.0	22.0	12.0	12.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	54.4	38.6	38.6	48.2	53.4	53.4		9.6	9.6		7.1	
Actuated g/C Ratio	0.64	0.45	0.45	0.57	0.63	0.63		0.11	0.11		0.08	
v/c Ratio	0.08	0.60	0.05	0.68	0.59	0.05		0.34	0.48		0.15	
Control Delay	6.8	19.6	0.1	18.5	12.7	0.1		47.4	9.4		1.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	6.8	19.6	0.1	18.5	12.7	0.1		47.4	9.4		1.0	
LOS	Α	В	Α	В	В	Α		D	Α		Α	
Approach Delay		18.5			13.3			19.6			1.0	
Approach LOS		В			В			В			Α	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 85.2
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68 Intersection Signal Delay: 15.4
Intersection Capacity Utilization 63.8%

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2027 No Build

	•	-	\rightarrow	•	•	•	•	†	~	-	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	^	7	*	^	7		4	7		4	
Traffic Volume (vph)	21	909	42	251	1209	47	61	Ö	165	28	0	18
Future Volume (vph)	21	909	42	251	1209	47	61	0	165	28	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380		1687	1615		1635	
Flt Permitted	0.15	1.00	1.00	0.21	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	286	3539	1615	387	3471	1380		1687	1615		1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	957	44	264	1273	49	64	0	174	29	0	19
RTOR Reduction (vph)	0	0	23	0	0	20	0	0	156	0	46	0
Lane Group Flow (vph)	22	957	21	264	1273	29	0	64	18	0	2	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	55	2	. 0	1	6		3	3		4	4	
Permitted Phases	6		2	2	-	6	_	-	3	•	•	
Actuated Green, G (s)	55.0	43.8	43.8	54.5	53.4	53.4		9.6	9.6		3.3	
Effective Green, q (s)	55.0	43.8	43.8	54.5	53.4	53.4		9.6	9.6		3.3	
Actuated g/C Ratio	0.60	0.48	0.48	0.60	0.58	0.58		0.11	0.11		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	198	1695	773	386	2027	806		177	169		59	-
v/s Ratio Prot	0.00	0.27		c0.08	c0.37			c0.04			c0.00	
v/s Ratio Perm	0.06		0.01	c0.33		0.02			0.01			
v/c Ratio	0.11	0.56	0.03	0.68	0.63	0.04		0.36	0.11		0.03	
Uniform Delay, d1	8.9	17.0	12.6	10.5	12.5	8.1		38.0	37.0		42.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.7	0.0	4.0	0.9	0.0		1.3	0.3		0.2	
Delay (s)	9.0	17.7	12.6	14.4	13.3	8.1		39.3	37.3		42.7	
Level of Service	A	В	В	В	В	Α		D	D		D	
Approach Delay (s)		17.3			13.4			37.8			42.7	
Approach LOS		В			В			D			D	
Intersection Summary												
HCM 2000 Control Delay			17.3	Н	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Cap	acity ratio		0.62									
Actuated Cycle Length (s)			91.4	S	um of los	t time (s)			24.0			
Intersection Capacity Utiliz	ation		63.8%	IC	CU Level	of Service			В			
Analysis Period (min)			15									
c Critical Lane Group												

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 1 Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020

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Fords Colony TIS Update 2027 No Build

2: Fords Colony Drive/Dominon Village & Longhill Road

	▶	_	\sim	_	•	•	•	†	-	_	1	4
			•	•			٠,		•		•	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	₽.		7		7		4			4	
Traffic Volume (vph)	0	424	66	242	354	2	56	4	152	5	0	6
Future Volume (vph)	0	424	66	242	354	2	56	4	152	5	0	6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980				0.850		0.903			0.926	
Flt Protected				0.950				0.987			0.978	
Satd. Flow (prot)	1900	1771	0	1752	1776	1615	0	1650	0	0	1721	0
Flt Permitted				0.950				0.987			0.978	
Satd. Flow (perm)	1900	1771	0	1752	1776	1615	0	1650	0	0	1721	0
Adj. Flow (vph)	0	451	70	257	377	2	60	4	162	5	0	6
Lane Group Flow (vph)	0	521	0	257	377	2	0	226	0	0	11	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 63.7%
Analysis Period (min) 15

ICU Level of Service B

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

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HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2027 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, P	f)		, j	*	7		4			4	
Traffic Volume (veh/h)	0	424	66	242	354	2	56	4	152	5	0	6
Future Volume (Veh/h)	0	424	66	242	354	2	56	4	152	5	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	451	70	257	377	2	60	4	162	5	0	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	379			521			1383	1379	486	1506	1412	377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			521			1383	1379	486	1506	1412	377
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			75			36	96	72	91	100	99
cM capacity (veh/h)	1191			1040			93	110	585	57	105	674
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	0	521	257	377	2	226	11					
Volume Left	0	0	257	0	0	60	5					
Volume Right	0	70	0	0	2	162	6					
cSH	1700	1700	1040	1700	1700	236	114					
Volume to Capacity	0.00	0.31	0.25	0.22	0.00	0.96	0.10					
Queue Length 95th (ft)	0	0	24	0	0	215	8					
Control Delay (s)	0.0	0.0	9.6	0.0	0.0	92.0	39.8					
Lane LOS			Α			F	Ε					
Approach Delay (s)	0.0		3.9			92.0	39.8					
Approach LOS						F	Е					
Intersection Summary												
Average Delay			17.0									
Intersection Capacity Utiliz	ation		63.7%	IC	CU Level	of Service			В			
Analysis Period (min)			15									

Fords Colony TIS Update 2027 No Build

3: Centerville Road & Westport/Manchester Drive

	ၨ	→	\rightarrow	•	←	•	•	†	/	-	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		7	₽		ሻ	†	7	ሻ	↑	7
Traffic Volume (vph)	17	1	6	64	0	35	10	383	86	29	314	22
Future Volume (vph)	17	1	6	64	0	35	10	383	86	29	314	22
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.850				0.850			0.850
Flt Protected		0.965		0.950			0.950			0.950		
Satd. Flow (prot)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.965		0.950			0.950			0.950		
Satd. Flow (perm)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	18	1	6	67	0	37	11	403	91	31	331	23
Lane Group Flow (vph)	0	25	0	67	37	0	11	403	91	31	331	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Control Type: Unsignalized Intersection Capacity Utilization 38.8% Analysis Period (min) 15

ICU Level of Service A

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

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HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive

Fords Colony TIS Update 2027 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ň	ĵ»		, F	†	7	J.	†	7
Traffic Volume (veh/h)	17	1	6	64	0	35	10	383	86	29	314	22
Future Volume (Veh/h)	17	1	6	64	0	35	10	383	86	29	314	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	1	6	67	0	37	11	403	91	31	331	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	855	909	331	824	841	403	354			494		
vC1, stage 1 conf vol	000	,,,	001	02.	011	100	001					
vC2, stage 2 conf vol												
vCu, unblocked vol	855	909	331	824	841	403	354			494		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)		0.0	0.2		0.0	O.L				110		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	93	100	99	76	100	94	99			97		
cM capacity (veh/h)	256	266	715	278	291	643	1216			1001		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	25	67	37	11	403	91	31	331	23			
Volume Left	18	67 0	0 37	11 0	0	0 91	31 0	0	0 23			
Volume Right	6											
cSH	304	278	643	1216	1700	1700	1001	1700	1700			
Volume to Capacity	0.08	0.24	0.06	0.01	0.24	0.05	0.03	0.19	0.01			
Queue Length 95th (ft)	7	23	5	1	0	0	2	0	0			
Control Delay (s)	17.9	22.0	10.9	8.0	0.0	0.0	8.7	0.0	0.0			
Lane LOS	С	С	В	Α			Α					
Approach Delay (s) Approach LOS	17.9 C	18.1 C		0.2			0.7					
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utiliza	ation		38.8%	IC	U Level	of Service			Α			
Analysis Period (min)			15			2 2. 1.00						
			.5									

Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2027 No Build

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	1€		*	₽			ર્ન	7		4	7
Traffic Volume (vph)	9	182	23	59	308	137	23	0	56	80	0	8
Future Volume (vph)	9	182	23	59	308	137	23	0	56	80	0	8
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1815	0	1770	1654	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1815	0	1770	1654	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	9	190	24	61	321	143	24	0	58	83	0	8
Lane Group Flow (vph)	9	214	0	61	464	0	0	24	58	0	83	8
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 49.0%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2027 No Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, j	f)		ř	ĵ.			4	7		4	7
Traffic Volume (veh/h)	9	182	23	59	308	137	23	Ö	56	80	Ö	8
Future Volume (Veh/h)	9	182	23	59	308	137	23	0	56	80	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	9	190	24	61	321	143	24	0	58	83	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	464			214			667	806	202	752	746	392
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	464			214			667	806	202	752	746	392
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			93	100	93	72	100	99
cM capacity (veh/h)	1009			1356			353	299	839	294	323	661
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	9	214	61	464	82	91						
Volume Left	9	0	61	0	24	83						
Volume Right	0	24	0	143	58	8						
cSH	1009	1700	1356	1700	1186	322						
Volume to Capacity	0.01	0.13	0.04	0.27	0.07	0.28						
Queue Length 95th (ft)	1	0	4	0	6	28						
Control Delay (s)	8.6	0.0	7.8	0.0	11.5	21.0						
Lane LOS	Α		Α		В	С						
Approach Delay (s)	0.3		0.9		11.5	21.0						
Approach LOS					В	С						
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utiliza	ation		49.0%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	
Directions Served	L	T	T	R	L	T	T	R	LT	R	LTR	
Maximum Queue (ft)	59	238	228	33	211	251	230	73	109	110	90	
Average Queue (ft)	15	123	113	9	93	110	93	12	45	47	31	
95th Queue (ft)	48	203	204	29	170	212	185	49	91	87	66	
Link Distance (ft)		1006	1006			738	738		390		461	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			225	250			250		225		
Storage Blk Time (%)		0	0		0	0	0	0				
Queuing Penalty (veh)		0	0		1	1	0	0				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	WB	NB	SB
Directions Served	TR	L	LTR	LTR
Maximum Queue (ft)	32	138	500	26
Average Queue (ft)	4	52	216	5
95th Queue (ft)	19	102	508	18
Link Distance (ft)	2032		736	278
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		225		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Centerville Road & Westport/Manchester Drive

Movement	EB	WB	WB	NB	SB	
Directions Served	LTR	L	TR	L	L	
Maximum Queue (ft)	38	70	46	14	54	
Average Queue (ft)	15	27	15	1	8	
95th Queue (ft)	38	57	35	10	33	
Link Distance (ft)	247	762				
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140	190	190	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	TR	LT	R	LT	R
Maximum Queue (ft)	37	32	2	52	67	99	33
Average Queue (ft)	4	8	0	18	30	40	7
95th Queue (ft)	20	27	2	46	56	76	29
Link Distance (ft)			492	372		374	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225	225			150		150
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Network Summary

Network wide Queuing Penalty: 1

Fords Colony TIS Update 2027 Build

1: Williamsburg W Drive/Lane PI Drive & Longhill Road

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	^	7	7	^	7		4	7		4	
Traffic Volume (vph)	21	917	42	251	1222	47	61	0	165	28	0	18
Future Volume (vph)	21	917	42	251	1222	47	61	0	165	28	0	18
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950				0.950			0.971	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380	0	1687	1615	0	1636	0
Flt Permitted	0.147			0.211				0.950			0.971	
Satd. Flow (perm)	279	3539	1615	382	3471	1380	0	1687	1615	0	1636	0
Satd. Flow (RTOR)			195			132			200		200	
Adj. Flow (vph)	22	965	44	264	1286	49	64	0	174	29	0	19
Lane Group Flow (vph)	22	965	44	264	1286	49	0	64	174	0	48	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Total Split (s)	12.0	64.0	64.0	22.0	74.0	74.0	22.0	22.0	22.0	12.0	12.0	
Total Lost Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Act Effct Green (s)	54.7	38.9	38.9	48.5	53.6	53.6		9.6	9.6		7.1	
Actuated g/C Ratio	0.64	0.45	0.45	0.57	0.63	0.63		0.11	0.11		0.08	
v/c Ratio	0.08	0.60	0.05	0.69	0.59	0.05		0.34	0.48		0.15	
Control Delay	6.8	19.6	0.1	18.9	12.8	0.1		47.5	9.4		1.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	6.8	19.6	0.1	18.9	12.8	0.1		47.5	9.4		1.0	
LOS	Α	В	Α	В	В	Α		D	Α		Α	
Approach Delay		18.5			13.4			19.6			1.0	
Approach LOS		В			В			В			Α	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 85.5
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69

Intersection Signal Delay: 15.5 Intersection Capacity Utilization 64.0%

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road



HCM Signalized Intersection Capacity Analysis 1: Williamsburg W Drive/Lane Pl Drive & Longhill Road Fords Colony TIS Update 2027 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	†	7	Ţ	† †	7		ર્ન	7		4	
Traffic Volume (vph)	21	917	42	251	1222	47	61	0	165	28	0	18
Future Volume (vph)	21	917	42	251	1222	47	61	0	165	28	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (prot)	1805	3539	1615	1719	3471	1380		1687	1615		1635	
Flt Permitted	0.15	1.00	1.00	0.21	1.00	1.00		0.95	1.00		0.97	
Satd. Flow (perm)	280	3539	1615	382	3471	1380		1687	1615		1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	965	44	264	1286	49	64	0	174	29	0	19
RTOR Reduction (vph)	0	0	23	0	0	20	0	0	156	0	46	0
Lane Group Flow (vph)	22	965	21	264	1286	29	0	64	18	0	2	0
Heavy Vehicles (%)	0%	2%	0%	5%	4%	17%	7%	33%	0%	4%	0%	11%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	6		2	2		6			3			
Actuated Green, G (s)	55.2	44.0	44.0	54.7	53.6	53.6		9.6	9.6		3.3	
Effective Green, g (s)	55.2	44.0	44.0	54.7	53.6	53.6		9.6	9.6		3.3	
Actuated g/C Ratio	0.60	0.48	0.48	0.60	0.59	0.59		0.10	0.10		0.04	
Clearance Time (s)	6.5	6.0	6.0	7.0	6.0	6.0		5.5	5.5		5.5	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	195	1699	775	384	2031	807		176	169		58	
v/s Ratio Prot	0.00	0.27		c0.08	c0.37			c0.04			c0.00	
v/s Ratio Perm	0.07		0.01	c0.33		0.02			0.01			
v/c Ratio	0.11	0.57	0.03	0.69	0.63	0.04		0.36	0.11		0.03	
Uniform Delay, d1	9.0	17.0	12.5	10.5	12.5	8.0		38.2	37.1		42.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.7	0.0	4.0	0.9	0.0		1.3	0.3		0.2	
Delay (s)	9.1	17.7	12.6	14.6	13.4	8.1		39.4	37.4		42.8	
Level of Service	Α	В	В	В	В	Α		D	D		D	
Approach Delay (s)		17.3			13.5			38.0			42.8	
Approach LOS		В			В			D			D	
Intersection Summary												
HCM 2000 Control Delay			17.3	Н	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capa	acity ratio		0.62									
Actuated Cycle Length (s)			91.6		um of los				24.0			
Intersection Capacity Utiliz	ation		64.0%	IC	CU Level	of Service			В			
Analysis Period (min)			15									
c Critical Lane Group												

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 1 Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020

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Fords Colony TIS Update 2027 Build

2: Fords Colony	Drive/Dominon	Village &	Longhill	Road
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			•	*			,	· · · · · ·	,		•	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7		7		↑	7		ર્ન	7		4	
Traffic Volume (vph)	0	424	70	255	354	2	58	4	160	5	0	6
Future Volume (vph)	0	424	70	255	354	2	58	4	160	5	0	6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.926	
Flt Protected				0.950				0.955			0.978	
Satd. Flow (prot)	1900	1810	1524	1752	1776	1615	0	1659	1615	0	1721	0
Flt Permitted				0.950				0.955			0.978	
Satd. Flow (perm)	1900	1810	1524	1752	1776	1615	0	1659	1615	0	1721	0
Adj. Flow (vph)	0	451	74	271	377	2	62	4	170	5	0	6
Lane Group Flow (vph)	0	451	74	271	377	2	0	66	170	0	11	0
Sign Control		Free			Free			Stop			Stop	

ICU Level of Service A

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 52.7%
Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 2: Fords Colony Drive/Dominon Village & Longhill Road

Fords Colony TIS Update 2027 Build

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, j		7	, j	^	7		ર્ન	7		4	
Traffic Volume (veh/h)	0	424	70	255	354	2	58	4	160	5	0	6
Future Volume (Veh/h)	0	424	70	255	354	2	58	4	160	5	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	451	74	271	377	2	62	4	170	5	0	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									7			
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	379			525			1376	1372	451	1457	1444	377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			525			1376	1372	451	1457	1444	377
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			74			33	96	72	92	100	99
cM capacity (veh/h)	1191			1037			93	109	613	61	98	674
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	0	451	74	271	377	2	236	11				
Volume Left	0	0	0	271	0	0	62	5				
Volume Right	0	0	74	0	0	2	170	6				
cSH	1700	1700	1700	1037	1700	1700	336	121				
Volume to Capacity	0.00	0.27	0.04	0.26	0.22	0.00	0.70	0.09				
Queue Length 95th (ft)	0	0	0	26	0	0	126	7				
Control Delay (s)	0.0	0.0	0.0	9.7	0.0	0.0	38.8	37.7				
Lane LOS				Α			F	Е				
Approach Delay (s)	0.0			4.0			38.8	37.7				
Approach LOS	0.0			1.0			E	E				
Intersection Summary												
Average Delay			8.6									
Intersection Capacity Utiliza	ation		52.7%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

Fords Colony TIS Update 2027 Build

3: Centerville Road & Westport/Manchester Drive

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		7	1≽		7	↑	7	7	↑	7
Traffic Volume (vph)	17	1	6	68	0	35	10	383	93	29	314	22
Future Volume (vph)	17	1	6	68	0	35	10	383	93	29	314	22
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.850				0.850			0.850
Flt Protected		0.965		0.950			0.950			0.950		
Satd. Flow (prot)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Flt Permitted		0.965		0.950			0.950			0.950		
Satd. Flow (perm)	0	1775	0	1736	1553	0	1805	1759	1282	1556	1759	967
Adj. Flow (vph)	18	1	6	72	0	37	11	403	98	31	331	23
Lane Group Flow (vph)	0	25	0	72	37	0	11	403	98	31	331	23
Sign Control		Stop			Stop			Free			Free	

ICU Level of Service A

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 38.8%
Analysis Period (min) 15

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc. Synchro 10 Report - 01/13/2020 Page 5

HCM Unsignalized Intersection Capacity Analysis 3: Centerville Road & Westport/Manchester Drive

Fords Colony TIS Update 2027 Build

	۶	→	\rightarrow	•	←	•	4	†	~	-	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ሻ	1>		ሻ	†	7	ሻ	↑	7
Traffic Volume (veh/h)	17	1	6	68	0	35	10	383	93	29	314	22
Future Volume (Veh/h)	17	1	6	68	0	35	10	383	93	29	314	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	1	6	72	0	37	11	403	98	31	331	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	855	916	331	824	841	403	354			501		
vC1, stage 1 conf vol	000	710	001	02.	011	100	001			001		
vC2, stage 2 conf vol												
vCu, unblocked vol	855	916	331	824	841	403	354			501		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)	7	0.0	0.2		0.0	0.2				1.0		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	93	100	99	74	100	94	99			97		
cM capacity (veh/h)	256	263	715	278	291	643	1216			995		
1 3 , ,								00.0	00.0	775		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3			
Volume Total	25	72	37	11	403	98	31	331	23			
Volume Left	18	72	0	11	0	0	31	0	0			
Volume Right	6	0	37	0	0	98	0	0	23			
cSH	303	278	643	1216	1700	1700	995	1700	1700			
Volume to Capacity	0.08	0.26	0.06	0.01	0.24	0.06	0.03	0.19	0.01			
Queue Length 95th (ft)	7	25	5	1	0	0	2	0	0			
Control Delay (s)	17.9	22.5	10.9	8.0	0.0	0.0	8.7	0.0	0.0			
Lane LOS	С	С	В	Α			Α					
Approach Delay (s)	17.9	18.5		0.2			0.7					
Approach LOS	С	С										
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utiliza	ation		38.8%	IC	U Level	of Service			Α			
Analysis Period (min)			15			2 2						
			.5									

Lanes, Volumes, Timings 4: News Road & Firestone Drive Fords Colony TIS Update 2027 Build

	•	→	\rightarrow	•	←	•	•	†	/	>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, T	f)		7	f)			ર્ન	7		4	7
Traffic Volume (vph)	9	186	23	59	315	137	23	0	56	80	0	8
Future Volume (vph)	9	186	23	59	315	137	23	0	56	80	0	8
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1504	1815	0	1770	1653	0	0	1770	1583	0	1805	1615
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1504	1815	0	1770	1653	0	0	1770	1583	0	1805	1615
Adj. Flow (vph)	9	194	24	61	328	143	24	0	58	83	0	8
Lane Group Flow (vph)	9	218	0	61	471	0	0	24	58	0	83	8
Sign Control		Free			Free			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 49.4%
Analysis Period (min) 15

ICU Level of Service A

Timing Plan: PM Peak Hour Kimley-Horn and Associates, Inc.

Synchro 10 Report - 01/13/2020

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HCM Unsignalized Intersection Capacity Analysis 4: News Road & Firestone Drive

Fords Colony TIS Update 2027 Build

	•	→	•	•	←	4	1	†	~	/	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	î.		ሻ	₽			ની	7		र्स	7
Traffic Volume (veh/h)	9	186	23	59	315	137	23	0	56	80	0	8
Future Volume (Veh/h)	9	186	23	59	315	137	23	0	56	80	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	9	194	24	61	328	143	24	0	58	83	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									6			6
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	471			218			678	817	206	762	758	400
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	471			218			678	817	206	762	758	400
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			93	100	93	71	100	99
cM capacity (veh/h)	1003			1352			347	294	835	289	319	655
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	9	218	61	471	82	91						
Volume Left	9	0	61	0	24	83						
Volume Right	0	24	0	143	58	8						
cSH	1003	1700	1352	1700	1180	317						
Volume to Capacity	0.01	0.13	0.05	0.28	0.07	0.29						
Queue Length 95th (ft)	1	0	4	0.20	6	29						
Control Delay (s)	8.6	0.0	7.8	0.0	11.5	21.4						
Lane LOS	A	0.0	A	0.0	В	C						
Approach Delay (s)	0.3		0.9		11.5	21.4						
Approach LOS	0.5		0.7		В	C						
Intersection Summary												
Average Delay 3.7												
		49.4%	ICU Level of Service					Α				
Analysis Period (min)			15									

Intersection: 1: Williamsburg W Drive/Lane PI Drive & Longhill Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	
Directions Served	L	Т	Т	R	L	Т	Т	R	LT	R	LTR	
Maximum Queue (ft)	69	262	253	53	215	242	244	115	128	103	88	
Average Queue (ft)	15	129	120	11	94	108	96	12	45	42	32	
95th Queue (ft)	50	229	219	40	166	203	189	59	97	80	69	
Link Distance (ft)		1006	1006			738	738		390		461	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			225	250			250		225		
Storage Blk Time (%)	0	0	1	0	0	0	0	0				
Queuing Penalty (veh)	0	0	0	0	0	0	0	0				

Intersection: 2: Fords Colony Drive/Dominon Village & Longhill Road

Movement	EB	EB	WB	B11	NB	NB	SB
Directions Served	T	R	L	Т	LT	R	LTR
Maximum Queue (ft)	5	19	134	54	357	156	24
Average Queue (ft)	0	1	62	2	107	56	5
95th Queue (ft)	5	8	112	55	362	145	18
Link Distance (ft)	2030			2988	723		278
Upstream Blk Time (%)					1		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)		300	225			175	
Storage Blk Time (%)					10	1	
Queuing Penalty (veh)					16	0	

Intersection: 3: Centerville Road & Westport/Manchester Drive

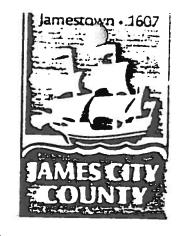
Movement	EB	WB	WB	NB	SB	SB	
Directions Served	LTR	L	TR	L	L	R	
Maximum Queue (ft)	42	63	49	19	49	2	
Average Queue (ft)	15	27	16	2	9	0	
95th Queue (ft)	39	52	36	11	33	0	
Link Distance (ft)	247	762					
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			140	190	190	325	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: News Road & Firestone Drive

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	TR	LT	R	LT	R
Maximum Queue (ft)	44	37	6	54	54	94	33
Average Queue (ft)	4	10	0	18	28	40	7
95th Queue (ft)	23	31	3	46	50	76	29
Link Distance (ft)			492	372		374	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	225	225			150		150
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Network Summary

Network wide Queuing Penalty: 18



OFFICE OF COUNTY ATTORNEY

COUNTY GOVERNMENT CENTER, 101 MOUNTS BAY ROAD

Frank M. Morton, III County Attorney

Mailing Address:

Williamsburg, Va. 23187-3627 Tel. 253-6612

P.O. Box JC

Larry W. Davis Assistant County Attorney August 1, 1988



Vernon M. Geddy, Jr., Esquire McGuire, Woods, Battle & Boothe 137 York Street Williamsburg, Virginia 23185

RE: Ford's Colony - Phasing Plan for Road Improvements

Dear Bud:

Enclosed please find an executed copy of the Agreement and schedule for the road improvements at Ford's Colony. A copy of the Resolution adopted by the Board of Supervisors at their July 12, 1988 meeting is also attached.

Very truly yours,

Frank M. Morton, III County Attorney

/mfr 4.2F Enclosures

cc: JCC Planning Dept.

Frenk -

after you sign

litter - plo. have somione

Pienning light one for our file.

RESOLUTION

FORD'S COLONY - PHASING PLAN FOR ROAD IMPROVEMENTS

WHEREAS, Ford's Colony has submitted a phasing plan for road improvements proffered as part of the Master Plan approved on October 5, 1987.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors hereby approves the attached agreement between James City County and Realtec Incorporated providing for the approval of the phasing plan as described herein authorizes and directs the Chairman of the Board of Supervisors to execute that certain Agreement dated June 20, 1988, by and between Realtec, Inc., and the County of James City.

Jack O Edwards, Chairman Board of Supervisors

ATTEST:

David B. Norman

Clerk to the Board

SUPERVISOR VOTE

NORMENT AYE
TAYLOR AYE
MAHONE AYE
DEPUE AYE
EDWARDS AYE

Adopted by the Board of Supervisors of James City County. Virginia, this 12th day of July, 1988.

0630w

THIS AGREEMENT, made this 20th day of Junk, 1988, between THE COUNTY OF JAMES CITY, a Virginia political subdivision (JCC); and REALTEC INCORPORATED (formerly FORD'S COLONY AT WILLIAMSBURG, INC.), a North Carolina corporation (REALTEC).

JCC has previously approved a Master Plan for the development of Ford's Colony at Williamsburg and has approved amendments thereto subject to Proffers set forth in a document dated March 11, 1987 entitled "FORD'S COLONY PROFFERS" (the Proffers) and subsequently restated in a document dated October 1, 1987 entitled "RESTATED FORD'S COLONY PROFFERS" (the Restated Proffers), and

Paragraph 3 of the Proffers and Paragraph 1) of the Restated Proffers requires REALTEC to submit to JCC for approval by its Board of Supervisors, a phasing plan for the installation of the roadway and intersection improvements which REALTEC set forth in the Proffers, and

REALTEC has submitted such phasing plan supported by a Traffic Impact Study dated April, 1988, prepared by Vilbur Smith Associates, copies of which have been delivered to JCC, and which is incorporated herein by this reference, and

The phasing plan attached hereto as Exhibit A is acceptable to REALTEC and to JCC.

THEREFORE, THIS AGREEMENT WITNESSETH:

1) REALTEC covenants and agrees that it will construct each of the roadway and intersection improvements set

forth in the Proffers and Restated Proffers in accordance with the schedule set forth in Exhibit A. Each of such improvements shall be begun and expeditiously completed when the number of residential building permits issued by JCC for family dwelling units within the Ford's Colony development equals the number of units set forth in Column A or Column B of Exhibit A opposite the particular improvement proffered by REALTEC. Each individual dwelling unit within a multi-family structure shall be considered a separate "residential building permit" for the purposes of the schedules set forth in Exhibit A. The 310-room hotel/convention center shown on the Master Plan when built, shall equal 428 "residential building permits" for purposes of the schedule set forth in Exhibit A. Column A of Exhibit A sets forth the residential building permits in addition to the 310-room hotel/convention center. In the event that the hotel/convention center is not built, then Column B of Exhibit A sets forth the schedule of construction.

each five years thereafter, REALTEC shall submit to the County Planning Department for their approval a traffic impact study by an independent traffic consultant showing then existing and anticipated traffic volume. Should any such approved study require acceleration of the schedule set forth in Exhibit A, REALTEC will conform to the schedule shown to be necessary by such approved study, or studies. If such approved study, or studies, justifies delay in the schedule or deletion of any of

the improvements shown in Exhibit A, REALTEC and JCC agree that such improvements may be constructed in accordance with the delayed schedule or deleted, as the case may be.

3) JCC hereby approv	es the construction schedule set
forth in Exhibit A and the term	s of this Agreement.
WITNESSETH the follow	ing signatures:
	THE COUNTY OF JAMES CITY
	By: Chairman of Board of
	Supervisors
	REALTEC INCORPORATED
	By: Duan Hang
	Vice President
APPROVED AS TO FORM:	
County Attorney	
STATE OF VIRGINIA AT LARGE	
COUNTY OF James City	, to-wit:
The foregoing instrum	ent was acknowledged before me
this 12th day of July	, 1988 by
9 1	man of the Board of Supervisors.
	Mai La Smith
	NOTARY PUBLIC
My commission expires:	
7 1 1/ 1000	

til. 14, 1989

STATE OF VIRGINIA AT LARGE
CITY OF WILLIAMSBURG, to-wit:

The foregoing instrument was acknowledged before me this day of ______, 1988 by Brian F. Ford, Vice President of REALTEC INCORPORATED, on behalf of the corporation,

NOTARY PUBLIC PAINES

My commission expires: June 29, 1991

July 4, 1989

	Column A	Column B
Proffer Number	Residential Building Permits if Hotel Built	Building Permits i
(a) Installation of traffic signals:(i) Williamsburg West Drive/Longhill Road	1,808 units	2236 units
(ii) News Road Entrance	3,250 units	3250 units
(iii) Ford's Colony Drive/ Longhill Road	519 units	_
(b) Installation of left and right turn land(i) News Road Entrance	nes 2,175 units	2603 units
(ii) Centerville Road/Old Manchester Drive Note	519 units : Completed 1987	
(c) Construct Williamsburg West Drive:(i) Establish right of way for four lan road to Longhill Road Note:		15 4 5 units
(ii) Construct two lane private road (Williamsburg West Drive) to Longhill Road	l,117 units Note: Phase I Onstruction-1988	1545 units
(iii) If VDOT does not permit construction of an intersection with Route 199 as set forth in Paragraph (g) below, wi the initial two lane road to a four-	5 ! .a	2928 units
(d) Installation of dual through lanes on Roturn on Route 612 to Williamsburg West Drive;		ta 612 to

- turn on Route 612 to Villiamszurg West Drive; right turn on Route 612 to Williamsburg West Drive; dual right turn on Williamsburg West Drive to Route 612:
 - (i) Construct intersection of Williamsburg 1,117 units 1545 units West Drive and Longhill Road with:

Right turn lane on Williamsburg West Drive onto Longhill Road; Right turn lane on Longhill Road onto Williamsburg West Drive; and Left turn lane on Longhill Road onto Williamsburg West Drive

		onto williamsburg west Drive.		
	(ii)	Add two through lanes on Longhill Road.	2,175 units	2603 unit:
	(iii)	Add lane for dual left turn lanes on westbound Longhill Road onto Longhill Road onto Williamsburg West Drive.	2,500 units	2928 units
	(iv)	Add lane for dual right turn on Williamsburg West Drive onto Longhill Road.	3,250 units	3250 units
(e)		allation of right turn lane on this colony Drive.	519 units	947 units
(f)	four Driv	cation of 15 foot strip of land and struction of improvements to create a lane road from Williamsburg West to the proposed intersection of whill Road with Route 199.	1,117 units	1545 un;
(g)	inst poin cros appr	ent of \$230,000 to VDOT for the sallation of an intersection at a st on Ford's Colony where Route 199 ses the property and as may be oved by VDOT, including, the	As required by VDOT when construction begins	Y

installation of appropriate turn lanes

and traffic signals to the extent

required by VDOT.

90002925

AMENDED AND RESTATED FORD'S

COLONY PROFFERS

These AMENDED and RESTATED FORD'S COLONY PROFFERS are made this 24% day of January, 1999 by REALTEC INCORPORATED, a North Carolina corporation ("Realtec"), JAMES HERBERT NEW, MATTIE PAGE SPRATT, CHARLES G. NEW, JR., SUZANNE SEELY, REBECCA HENDRICKSON and MELINDA COX, owners of the property described on Exhibit A-3, C. C. CASEY LIMITED COMPANY, a Virginia limited liability company and owner of the property described on Exhibit A-1, and PAUL A. WILFORD, RUTH WILFORD CACCAVALE, MARY WILFORD-HUNT and CARL J. WILFORD, owners of the property described on Exhibit A-2. Realtec and each of the other signatories to these Proffers and their respective successors in title are hereinafter collectively referred to as "Owner".

RECITALS

- A. Realtec is the owner and developer of the Ford's Colony at Williamsburg development containing approximately 2,512.21 acres and which is zoned R-4, Residential Planned Community, with proffers, and subject to a Master Plan heretofore approved by James City County.
- B. Realtec, with the consent of each other Owner, has applied to amend its existing Master Plan to include four tracts of land containing approximately 265 acres, which property is more particularly described on Exhibits A-1 through A-4 hereto (the "Additional Property") and to rezone the Additional Property to R-4.

- C. In connection with prior Master Plan amendments,
 Realtec has entered into and James City County has accepted
 Amended and Restated Ford's Colony Proffers dated as of September
 29, 1995 and recorded in the Clerk's Office of the Circuit Court
 for the City of Williamsburg and County of James City in James
 City Deed Book 757 at page 526 and Richard J. Ford has entered
 into and James City County has accepted Richard J. Ford/Ford's
 Colony Proffers dated as of September 29, 1995 and recorded in
 the Clerk's Office of the Circuit Court for the City of
 Williamsburg and County of James City in James City Deed Book 757
 at page 529 (together, the "Existing Proffers"). Realtec now
 owns the property subject to the Richard J. Ford/Ford's Colony
 Proffers referenced above.
- D. In consideration of the approval of the amendment of its Master Plan and the rezoning, Realtec, with the approval of the other Owners as evidenced by their signatures hereon, desires to amend and restate the Existing Proffers as set forth below. If the requested amendment of Realtec's Master Plan is not approved by James City County, these Amended and Restated Ford's Colony Proffers shall be void and the Existing Proffers shall remain unchanged, in full force and effect.

RESTATEMENT AND AMENDMENTS

- 1. Restatement. The Existing Proffers are hereby restated and incorporated herein by reference.
- Additional Property. These Amended and Restated
 Proffers shall apply to the property now subject to the Existing

Proffers and, in addition, to the Additional Property.

Archaeological Sites. A Phase I Archaeological Study for each parcel of the Additional Property shall be submitted to the Director of Planning for his review and approval prior to land disturbance in the applicable parcel. A treatment plan shall be submitted to and approved by the Director of Planning for all sites in the Phase I study that are recommended for a Phase II evaluation and/or identified as being eligible for inclusion on the National Register of Historic Places. Phase II study is undertaken such a study shall be approved by the Director of Planning and a treatment plan for said sites shall be submitted to and approved by the Director of Planning for sites that are determined to be eligible for inclusion on the National Register of Historic Places and/or those sites that require a Phase III study. If, in the Phase II study, a site is determined eligible for nomination to the National Register of Historic Places and said site is to be preserved in place, the treatment plan shall include nomination of the site to the National Register of Historic Places. If a Phase III study is undertaken for said sites, such studies shall be approved by the Director Of Planning prior to land disturbance within the study All Phase I, Phase II, and Phase III studies shall meet the Virginia Department of Historic Resources' Guidelines for Preparing Archaeological Resource Management Reports and the Secretary of the Interior's Standard and Guidelines' for Archaeological Documentation, as applicable, and shall be

conducted under the supervision of a qualified archaeologist who meets the qualifications set forth in the Secretary of the Interior's Professional Qualification Standards. All approved treatment plans shall be incorporated into the plan of development for the site, and the clearing, grading or construction activities thereon. If Owner undertakes any Phase II studies on the Additional Property it shall make available a portion of the artifacts for display in public buildings.

- 4. Endangered Plant Species. Owner shall cause surveys to be conducted of the Additional Property for endangered plant The location of any small whorled pogonias or Virginia species. least trillium located on the Additional Property shall be shown on all subdivision or other development plans of the Additional Property and Owner shall submit to the Director of Planning with any subdivision or development plan a conservation plan for such The conservation plan shall provide for the conservation plants. of such plants either through transplanting the plants to other suitable habitat within Ford's Colony or by preserving a 20 foot buffer around the plants and, if necessary planting additional overstory to shade the plants, all as determined by Owner consistent with its past practices at Ford's Colony. The conservation plan shall be approved by the Director of Planning before any land disturbing activity is allowed in the vicinity of the any small whorled pogonias or Virginia least trillium identified on the Additional Property.
 - 5. Longhill Road Bike Lanes. Owner shall install shoulder

bike lanes within the existing rights-of-way adjacent to the right turn lanes Owner is installing at the entrances into Ford's Colony from Longhill Road at the time of construction of the right turn lanes. In addition, at the request of the County Administrator Owner shall convey to the County up to an additional 10 feet of right-of-way from the Additional Property along Longhill Road as necessary to accommodate a bike lane.

- 6. Longhill Road Buffer. The Owner shall designate a greenbelt buffer along the Additional Property's Longhill Road frontage in the locations shown on the Amended Master Plan. The buffer shall have a width of 150 feet unless reductions in the buffer to no less than 100 feet are approved by the Director of Planning, provided, however, that Owner shall have the right to appeal any decision of the Director of Planning refusing to approve reductions in the buffer to the Development Review Committee, whose decision shall be final. It is the intent of this provision to provide for a determination if existing or proposed topography, vegetation and/or building setbacks from Longhill Road provide sufficient buffer to satisfy the objectives of the County's greenbelt buffer policy. The greenbelt buffer shall be exclusive of any lots and, except as set forth below, shall be undisturbed. Utilities, drainage improvements, pedestrian/bicycle trails and signs as approved by the Owner and the Development Review Committee shall be permitted.
- 7. Off-Site Road Improvements. Owner shall make a contribution of \$750.00 to the County for each residential lot or

unit shown on final subdivision plats or site plans of the portion of the Additional Property described on Exhibits A-1 through A-3. Such contributions shall be used by the County to finance off-site road improvements on News Road, Longhill Road and/or Centerville Road or used by the County for any other project included in the County's capital improvement program, the need for which is generated in whole or in part by the development of the Additional Property. Such contributions shall be made at the time of final subdivision plat or site plan approval for lots or units within the portions of the Additional Land described above.

- 8. New Town Buffer. Owner shall provide a 50 foot buffer along the boundary of the Additional Property and Section 13 of the New Town development. The buffer shall be exclusive of any lots and, except as set forth below, shall be undisturbed. Utilities and drainage improvements as approved by the Owner and the Development Review Committee shall be permitted.
- 9. Emergency Services Contribution. Owner shall make a contribution of \$312.00 to the County for each of the residential lots or units shown on final subdivision plats or site plans of the Additional Property as hereinafter provided. Such contributions shall be used by the County for emergency services purposes or for any other project included in the County's capital improvement program, the need for which is generated in whole or in part by the development of the Additional Property. For the first 126 residential lots or units within the Additional

Property, such contributions shall be made at the time of final subdivision plat or site plan approval. For the balance of the residential lots or units within the Additional Property (assumed to be 242 lots or units), such contributions shall be made in five annual installments, consisting of four equal annual installments of \$15,100.80 and a final installment of the unpaid balance due under this Proffer. Payments shall be due beginning on the date one year from the date of final approval of the subdivision plat or site plan for the 126th lot or unit within the Additional Property and on each of the succeeding four anniversary dates of such approval. The final payment shall be equal to \$15,100.80 unless as of its due date either (i) the Additional Property has been fully developed and contains either more or less than 368 lots or units in which case the final payment shall be in an amount necessary to make the total payments under this Proffer equal to the actual number of lots or units on the Additional Property multiplied by \$312.00 or (ii) the Additional Property has not been fully developed but the Owner and the County agree that at full development the Additional Property will contain either more or less than 368 lots or units in which case the final payment shall be in an amount necessary to make the total payments under this Proffer equal the agreed upon number of lots or units on the Additional Property multiplied by \$312.00. The obligation of Owner to make the installment payments required by this Proffer shall be secured by the subdivision improvement surety posted by Owner

with the County.

- 10. Conservation Easement. Within 90 days of the approval by the County of final subdivision plats for the portions of the Additional Property adjacent to Powhatan Creek, Owner shall (i) grant a conservation easement in form approved by the County Attorney to the Williamsburg Land Conservancy or another land conservancy organization acceptable to the County over the portions of Ford's Colony along Longhill Swamp, Chisel Run and Powhatan Creek generally as shown on Exhibit B hereto now estimated to contain in excess of 200 acres (the "Conservation Area") and (ii) convey the Conservation Area, subject to the conservation easement described in this Condition, to the Ford's Colony at Williamsburg Homeowners Association. The conservation easement described in this condition shall permit installation and maintenance of (i) passive recreational facilities, including but not limited to, nature trails, overlooks, bird watching towers and similar facilities, (ii) utilities and stormwater management facilities approved by the County Engineer and (iii) wetland mitigation projects as approved by the U.S. Army Corps of Engineers. In addition, the conservation easement over the Conservation Area shall be subject to the rights of the holders of all existing easements to exercise their rights under the applicable easement agreements.
- 11. Passive Recreation. Within three years from approval by the County of the applied for rezoning and the amendment of the Master Plan, a soft surface nature trail shall be

constructed within the Conservation Area to connect Recreation

Park #10 as shown on the Amended Master Plan with John Pott Drive

and a bird watching tower shall be constructed within the portion

of the Conservation Area south of Williamsburg West Drive.

Greenway Contribution. At the time of approval of the 12. first final subdivision plat of lots within the Additional Property, Owner shall make a restricted contribution to the Williamsburg Land Conservancy of \$5,000.00 for use by the Williamsburg Land Conservancy for the acquisition of greenways and/or development of trails within existing greenways within James City County. On or before the first, second and third anniversaries of the approval of the first final subdivision plat of lots within the Additional Property, Owner shall make additional restricted contributions to the Williamsburg Land Conservancy of \$5,000.00 for use by the Williamsburg Land Conservancy for the acquisition of greenways and/or development of trails within existing greenways within James City County. A further condition of these contributions shall be that if for any reason the Williamsburg Land Conservancy is unable or unwilling to use the contributions for their intended purpose within four years of the date of the initial contribution, that the Williamsburg Land Conservancy shall transfer the funds contributed to it pursuant to this Condition to the County's greenway fund included in the County's capital improvement program for the acquisition of greenways and/or development of trails within existing greenways within James City County.

any contribution required by this Proffer is not made when due, the County shall not be obligated to approve subdivision plats or site plans until such contribution has been made.

- approval of the first final subdivision plat of lots within the Additional Property, Owner shall make a contribution to Housing Partnerships of \$4,000.00 for use by Housing Partnerships within James City County and a contribution of \$1,000.00 to the County's Neighborhood Connections program. On or before the first, second and third anniversaries of the approval of the first final subdivision plat of lots within the Additional Property, Owner shall make additional contributions to Housing Partnerships of \$4,000.00 for use by Housing Partnerships within James City County and additional contributions of \$1,000.00 to the County's Neighborhood Connections program. If any contribution required by this Proffer is not made when due, the County shall not be obligated to approve subdivision plats or site plans until such contribution has been made.
- 14. Miscellaneous. These Proffers shall be a part of the zoning regulations applicable to the Additional Property and the obligations hereunder run with title to the Additional Property. Upon the conveyance of the portions of the Additional Property owned by Owners other than Realtec to Realtec, Realtec and its successors in title to such Additional Property shall be bound by these Proffers and such other Owners shall have no further obligations under these Proffers.

WITNESS the following signatures.

REALTEC INCORPORATED

Title: VICE PASSID

STATE OF VIRGINIA

CITY/COUNTY OF WILLIAMS JRG

The foregoing instrument was acknowledged before me this

3rd day of February , 1999, by MEW R MULHTANCAS VICE PRESIDENT OF

Realtec Incorporated.

NOTARY PUBLIC

My commission expires: 12 31 99

James Hertert Men
JAMES HERBERT NEW
Mattie Just stratt
MATTIE PAGE SPRATT
Marle O. THU GY.
CHARLES G. NEW JR. DATTOWNEY-IN-FACT
sugarn fley
SUZANNE SEFLY STATES HERSONT New, ATTOMOSY-IN-FACT
REBECCA HENDRICKSON
REBECCA HENDRICKSON BY TAMES HEADENT NEW, ATTOMNEY-IN-FACT
MELINDA COX BY JAMES HERBERT NEW, ATTORNEY-IN-FACT
BY JAMES HERBERT NEW!

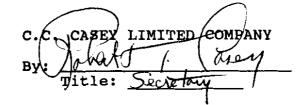
STATE OF VIRGINIA

CIRY/COUNTY OF Fairfax

The foregoing instrument was acknowledged before me this $q^{\frac{1}{2}}$ day of February, 1999, by James Herbert New, individually and as attorney-in-fact for Mattie Page Spratt, Charles G. New, Jr., Suzanne Seely, Rebecca Hendrickson and Melinda Cox.

My commission expires: 03/31/00

NOTARY PUBLIC



STATE OF VIRGINIA CITY/COUNTY OF dames

The foregoing instrument was acknowledged before me this 5 day of February 1999, by Robert T. Casey as Secretary of C.C. Casey Limited Company.

My commission expires: Sept 30, 2000



	Paul A Wilford Paul A. WILFORD Puth Wilford Caccavale by Paul A. Wilford RUTH WILFORD CACCAVALE her attorney in fact. Many Wilford-Hunt by Paul A. Wefel her attorney MARY WILFORD-HUNT
	MARY WILFORD-HUNT
	Carl J. Wilford by Pal A Wilf I has attorned to fact
STATE OF VIRGINIA	,
CITY/COUNTY OF	
	was acknowledged before me this by Paul A. Wilford, individually and

COLLEEN E. SHEATARY PUBLIC
A Notary Public of New Jersey
My Commission Expires Dec. 28, 1999

as attorney-in-fact for Ruth Wilford Caccavale, Mary Wilford-Hunt

My commission expires:

and Carl J. Wilford.



This document prepared by: Vernon Geddy, III Geddy, Harris & Geddy 516 S Henry Street Williamsburg, VA 23185

Description of Additional Property

Casey Parcel

All that certain lot or parcel containing 72 acres, more or less, shown and described as "Parcel C" on a plat entitled "CASEY PROPERTY PROPOSED WEST SIDE SUBDIVISION, BERKELEY DISTRICT, JAMES CITY COUNTY, VIRGINIA" dated 2/2/98 and made by AES Consulting Engineers of Williamsburg, Virginia.

Description of Additional Property

Wilford Parcel

All that certain piece, parcel or tract of land containing 33 acres more or less, situate in James City County, Virginia, adjoining Mount Pleasant Grave Yard, and separated by an newly chopped line of trees, and bounded on the north by the land of P. W. Hiden; on the south and southeast by the land of J. S. New; and on the west by Powhatan Swamp.

All that certain tract or parcel of land, containing 45.1 acres, more or less, situate in James City County, Virginia, being a portion of a tract containing 152.6 acres which was partitioned among the heirs of J. S. New, deceased; the parcel hereby conveyed being bounded and described as follows: Beginning at a concrete monument on the western boundary line of the property now or formerly owned by Charles New and on the division line between the property now or formerly owned by Henley New and the parcel hereby conveyed; thence North 58° 15' West, passing a pine and an oak, 1685 feet to a stob on the boundary line of the property now or formerly owned by J. R. Austin; thence North 59° 15' East, 50.2 feet to a point, thence North 36° 00' East 178 feet to a 20 inch maple; thence North 45° 30' East 330 feet to an 8 inch ash; thence North 39° 45' East 170 feet to a 12 inch ash; thence north 76° 00' East 297 feet to a stob; thence South 58° 15' East 1441 feet to a concrete monument on the line between the property herein conveyed and that of the property now or formerly owned by P. H. Hiden; thence South 41° 30' West 1240 feet to a concrete monument, the point of beginning.

Description of Additional Property

New Parcel

All that certain tract, or parcel of land, containing 45.1 acres and bounded and described as follows:

Beginning at a point designated by a concrete monument at the eastern corner of the said tract of land, thence south 77' 30" west 169 feet to a 16 inch qum; thence south 72' 20" west 205 feet to a point,, thence south 77' 00" west, passing a 4 inch pine and a 16 inch hickory 340 feet to a point; thence south 81' 15" west 176 feet to a 36 inch pine; thence south 84' 00" west, along a fence 723 feet to a point on the west side of the road; thence south 84' 30" west 293 feet to a point, thence south 76' 30" west 48 feet to a point, thence south 72' 30" west 247 feet to a large tree; thence south 70' 30" west 148 feet to a point; thence south 72' 00" west 200 feet to a point; thence south 65' 00" west 164 feet to a concrete monument; thence north 41' 30" east 980 feet to a concrete monument; thence same course 1240 feet to a concrete monument; thence south 58' 15" east 1898 feet to the point of beginning. Bounded on the northeast by the land of P. W. Hieden (Hiden); on the south by the lands of William A New's Estate; on the west by the parcels conveyed to Henly New and Drummond New.

Description of Additional Property

Carter Parcel

That certain piece or parcel of land located in James City County shown and set out as Tax Parcel (31-3)(1-30) owned by Elizabeth Carter.

PLAT ATTACHED

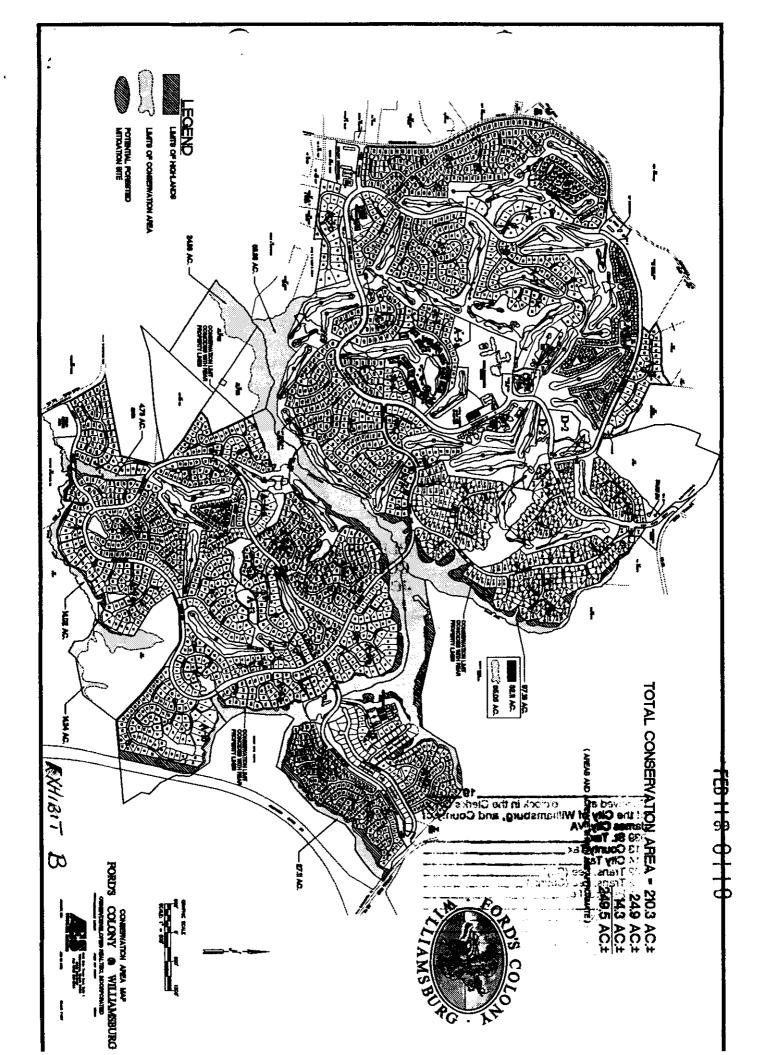
James City, to Wit:

In the Clerk's Office of the Circuit Court of the City of Williamsburg and County of James City the day of Market 1972. This Mended admitted to record at 1972 o'clock

Teste: Helene S. Ward, Clerk

Deputy Clerk

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COMMONWEALTH OF VIRGINIA



DATE: 02/11/99 TIME: 14:26:35 ACCOUNT: 830CLR990002925 RECEIPT: 990000094557 DFFICIAL RECEIFT WILLIAMSBURG/JAMES CITY COUNTY CIRCUIT DEED RECEIFT

DATE OF DESCRIPTION 1: FARCEL C CASEY PROPERTY, AMENDED AND RECONSIDERATION: 00 ASSUME/VAL.

DATE OF DEED: 01/24/99

RECORDED: 02/11/99 AT 14:25 EX: N LOC: CD EX: N PCT: 100%

TECHNOLOGY FUND FEE

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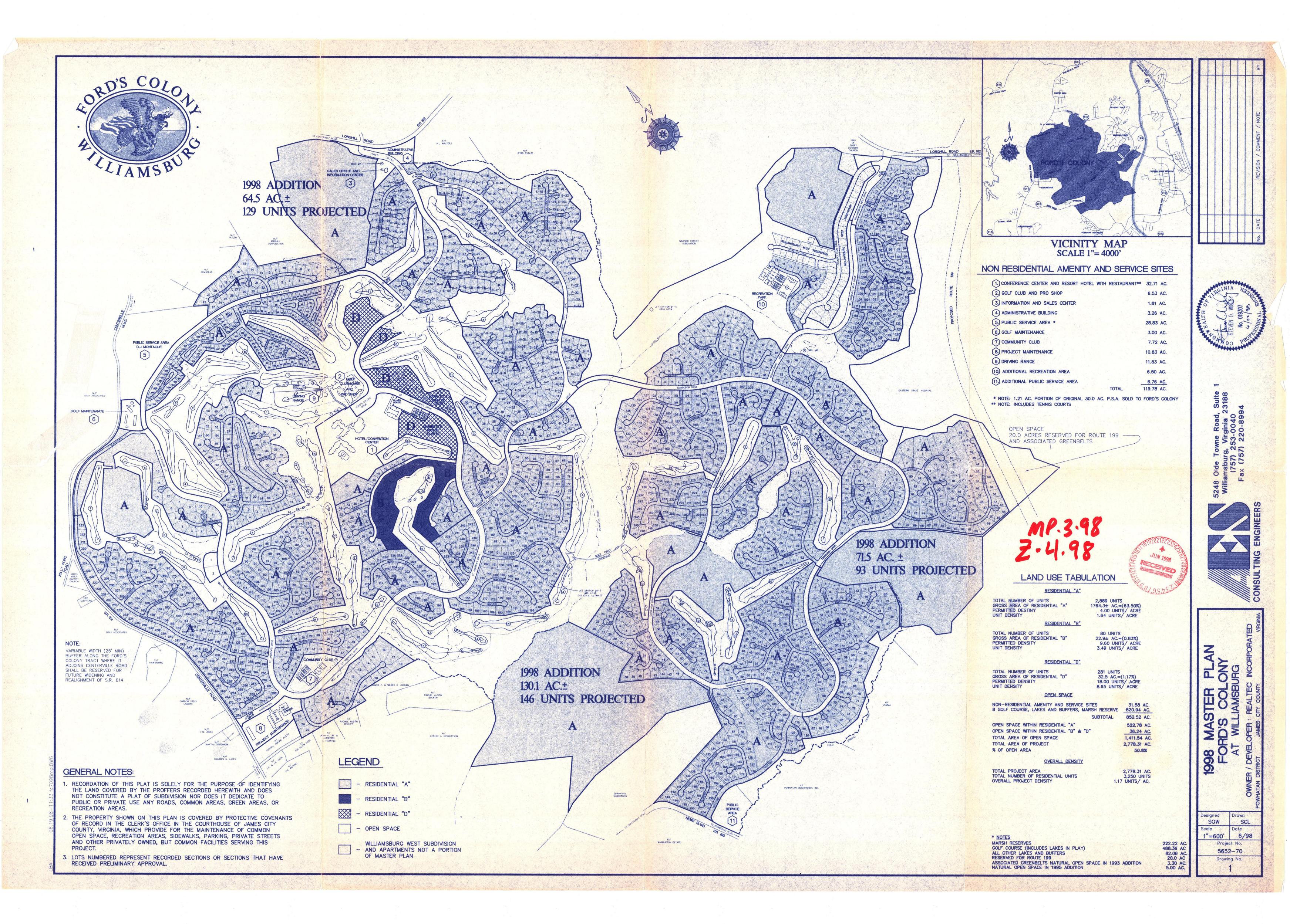
ją.

PAID 1.00

CLERK OF COURT: HELENE S. WARD

PLEASE RETURN TO: COUNTY ATTORNEY JCC - BLDG. C

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2/11 10 99
Received at Sectolock in the Clerk's Office of the City of Williamsburg, and County of James City, VA.
213 County Tex
214 City Tex 222 Trans. Fee (City) 212 Trans. Fee (County)
301 Record, Fee 301 Plats
220 Local Tax (County) 221 Local Tax (City)
Misc. Fee



AGENDA ITEM NO. F.3.

ITEM SUMMARY

DATE: 4/1/2020

TO: The Planning Commission

FROM: Brett Meadows, Planner

SUBJECT: Z-20-0001. Norge Center Proffer Amendment

ATTACHMENTS:

	Description	Type
П	Staff Report	Staff Report
ם	Attachment 1. Location Map	Backup Material
D	Attachment 2. Proposed Proffer Amendment	Backup Material
ם	Attachment 3. Proffers Z-11-88	Backup Material
ם	Attachment 4. Proffers Z-32-86	Backup Material
ם	Attachment 5. Conditions SUP-36-04	Backup Material
ם	Attachment 6. Applicant Narrative	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning Commission	Holt, Paul	Approved	3/24/2020 - 5:15 PM
Planning Commission	Holt, Paul	Approved	3/24/2020 - 5:16 PM
Publication Management	Burcham, Nan	Approved	3/25/2020 - 7:33 AM
Planning Commission	Holt, Paul	Approved	3/25/2020 - 12:16 PM

REZONING-20-0001. Norge Center Proffer Amendment

Staff Report for the April 1, 2020, Planning Commission Public Hearing

SUMMARY FACTS

Applicant: Mr. Vernon Geddy of Geddy, Harris, Franck,

& Hickman, LLP

Land Owner: Norge Plaza, Inc., c/o Pearson Properties

Proposal: To amend Condition No. 1 of the adopted

proffers to permit office uses on the property.

Location: 115 Norge Lane

Tax Map/Parcel No.: 2320100071F

Project Acreage: 5.86 +/- acres

Zoning: B1, General Business with Proffers

Comprehensive Plan: Community Commercial

Primary Service Area: Inside

Staff Contact: Brett A. Meadows, Planner

PUBLIC HEARING DATES

Planning Commission: April 1, 2020, 6 p.m.

Board of Supervisors: May 12, 2020, 5 p.m. (tentative)

FACTORS FAVORABLE

- 1. The proposed use is consistent with the recommendation of the 2035 Comprehensive Plan for community-scale commercial, professional, and office uses.
- 2. There are no proposed changes to the existing scale of development on the property.
- 3. Impacts: See Impact Analysis on Pages 3-4.

FACTORS UNFAVORABLE

- 1. Staff finds no unfavorable factors.
- 2. Impacts: See Impact Analysis on Pages 3-4.

SUMMARY STAFF RECOMMENDATION

1. Staff recommends approval of this application to the Board of Supervisors.

PROJECT DESCRIPTION

Mr. Vernon Geddy of Geddy, Harris, Franck, & Hickman, LLP has submitted a request on behalf of Norge Plaza, Inc. and Chesapeake Bank to amend Condition No. 1 of the adopted Proffers, dated June 2, 1988 (Attachment No. 3). Per the applicant, Chesapeake Bank has contracted with the landowner to purchase Parcel No. 2320100071F, located at 115 Norge Lane, and plans to convert the former Farm Fresh grocery store into office space. Business and professional offices are permitted uses on property zoned B-1, General Business. However, existing proffers on the parcel limit uses to a shopping center. The proposed use does not fit within the definition of a shopping center,

Staff Report for the April 1, 2020, Planning Commission Public Hearing

and the proposed proffer amendment would allow for office use, in addition to the shopping center use, still within the existing overall square footage established for the Norge Center development.

According to information provided by the applicant, the office space will have the following characteristics:

- 1. The location will not have retail banking.
- 2. The existing vacant building (former Farm Fresh) will be repurposed, and no new development or construction is proposed other than the renovation of the interior of the building. The existing vacant building contains approximately 52,915 square feet of floor area.
- 3. Chesapeake Bank plans to use the building for its Chesapeake Payment Systems. Operations include phone support, electronic communications, or onsite support at a customer's place of business.
- 4. Chesapeake Bank also plans to use the building to consolidate and house call center and other support personnel that are currently in multiple locations throughout James City County. The applicant states that the use of the vacant building would provide space, allow pooling resources, and allow for growth.

PLANNING AND ZONING HISTORY

1. In 1986, the Board of Supervisors approved the rezoning of approximately 37.13 acres of land bounded by Norge Lane, Richmond Road, and Croaker Road from A-1 General Agricultural to B-1, General Business, with Proffers.

- 2. In 1986, the Board of Supervisors approved amendments to the existing Proffers. These amendments limited site development to a shopping center as well as provided for a 30-foot buffer and dedication of a 10-foot right-of-way along Norge Road.
- 3. In 2004, the Board of Supervisors approved a Special Use Permit (SUP), Case No. SUP-0036-2004, to allow the construction and use of gas pumps on the parcel. The SUP conditions included lighting, stormwater, and landscaping conditions specific to a master plan for the pump area.

SURROUNDING ZONING AND DEVELOPMENT

The area surrounding the parcel contains a mix of zoning designations.

- 1. Parcels to the immediate southwest, northwest, and northeast are zoned B-1, General Business and currently include retail shops, retail banking, and undeveloped land. The immediate area is approximately defined by Croaker Road, Richmond Road, Norge Lane, and the CSX Railroad. This area is designated as Community Commercial in the 2035 Comprehensive Plan.
- 2. The parcels directly across Norge Lane are zoned R-8, Rural Residential (St. Olaf Catholic Church) and A1, General Agricultural (a mix of single-family and multifamily uses). These parcels are designated as Low Density Residential in the 2035 Comprehensive Plan.

Staff Report for the April 1, 2020, Planning Commission Public Hearing

Impacts/Potentially Unfavorable Conditions	Status (No Mitigation Required/Mitigated/Not Fully Mitigated)	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Groundwater and Drinking Water Resources	No Mitigation Required	Project receives public water and sewer.Staff finds this project does not generate impacts that require mitigation.
Watersheds, Streams, and Reservoirs	Mitigated	 The project is located predominantly within the Skimino Creek watershed and partially within the Yarmouth Creek watershed. The property currently has an existing stormwater management facility, YR011. This facility is an infiltration basin and was designed with the Norge Center Farm Fresh site plan, circa 2008. During the 2019 stormwater facility inspection cycle, this facility was noted as requiring general maintenance. The noted maintenance, submitted by letter to the owner in December 2019, must be completed prior to the issuance of a Certificate of Occupancy.
Nearby and Surrounding Properties	No Mitigation Required	 The parcel is surrounded by commercial and undeveloped parcels. Across Norge Lane, the project is adjacent to residential and religious uses. The applicant has stated that no new development or construction is proposed beyond interior renovations.
Community Character	No Mitigation Required	 The parcel is not located directly on a Community Character Corridor. The parcel is located within the Norge Community Character Area. The Community Character Area encourages "mixed use development which provides residential, commercial, and office uses in close proximity". Previously adopted Proffers require a 30-foot buffer along Norge Lane.

Staff Report for the April 1, 2020, Planning Commission Public Hearing

Impacts/Potentially Unfavorable Conditions	Status (No Mitigation Required/Mitigated/Not Fully Mitigated)	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
<u>Cultural/Historic</u>	No Mitigation Required	- No new land disturbance has been proposed.
Public Transportation: Vehicular	No Mitigation Required	 Under general office building use, the Institute of Transportation Engineers (ITE) estimates average of 75 weekday vehicle trips during PM peak hours. Under the prior use as a supermarket, there was an estimated average of 402 weekday vehicle trips during PM peak hours. The applicant expects an estimated number of 60 employees, with office hours 8:30 a.m. to 5:30 p.m. Monday-Friday. This amount of traffic would be less than supermarket use and less or similar to the ITE estimate. The applicant states that most vehicles will be employee's personal vehicles; Chesapeake has several company logoed vehicles which may come and go occasionally; and delivery vehicles will be normal UPS, Fed Ex, and similar vehicles typically servicing an office facility. No changes to the right-of-way are proposed. Previously adopted Proffers provided a 10-foot right-of-way for Norge Lane.
Public Transportation: Bicycle/ Pedestrian	No Mitigation Required	- No impacts anticipated
Public Safety	No Mitigation Required	- Staff finds this project does not generate impacts that require mitigation to the County's Fire Department facilities or services.
Public Schools	No Mitigation Required	- N/A since no residential dwelling units are proposed.
Public Parks and Recreation	No Mitigation Required	- N/A since no residential dwelling units are proposed.
Public Libraries and Cultural Centers	No Mitigation Required	- Staff finds this project does not generate impacts that require mitigation.

Staff Report for the April 1, 2020, Planning Commission Public Hearing

COMPREHENSIVE PLAN

The property is designated Community Commercial as are surrounding parcels between Norge Lane, Richmond Road, and Croaker Road. The property is also located within the Norge Community Character Area.

Community Commercial uses include community-scale commercial, professional, and office uses such as office parks and service establishments. Community Commercial has development standards for use and character compatibility. Each Community Commercial area should be clearly separated from other Community Commercial areas to retain the small town and rural character of the County, provide a sense of place, and promote transportation mobility. Furthermore, potentially objectionable aspects of commercial uses should be mitigated through an approach including performance standards, buffering, and special setback regulations.

Community Commercial should protect environmentally sensitive resources such as watersheds with watershed management plans and designated Community Character Areas and other sensitive resources by locating conflicting uses away from such resources and utilizing design features, including building and site design, buffers, and screening to adequately protect the resource.

Staff has determined that the proposed use fits the use of an office park and the proposed use is consistent with the recommendations of the adopted Comprehensive Plan. The proposed use is mitigated by several factors: the project does not propose to change the scale of the existing building and development; the project is located on a secondary arterial road, and estimated vehicle traffic is lower than the previous estimated vehicle traffic for a grocery store; the site of the proposed use is already developed with buffering and setbacks to fit

with the rest of the existing commercial use as well as to provide separation from adjacent residential areas.

PUBLIC IMPACTS

Staff does not anticipate additional impacts to be generated by this Proffer amendment

PROPOSED PROFFER AMENDMENT

The full text of the proposed proffer amendment is provided in Attachment No. 2.

STAFF RECOMMENDATION

Staff finds that the proposal is compatible with surrounding zoning and development and consistent with the 2035 Comprehensive Plan.

Staff recommends the Planning Commission recommend approval subject to the attached proffer amendment.

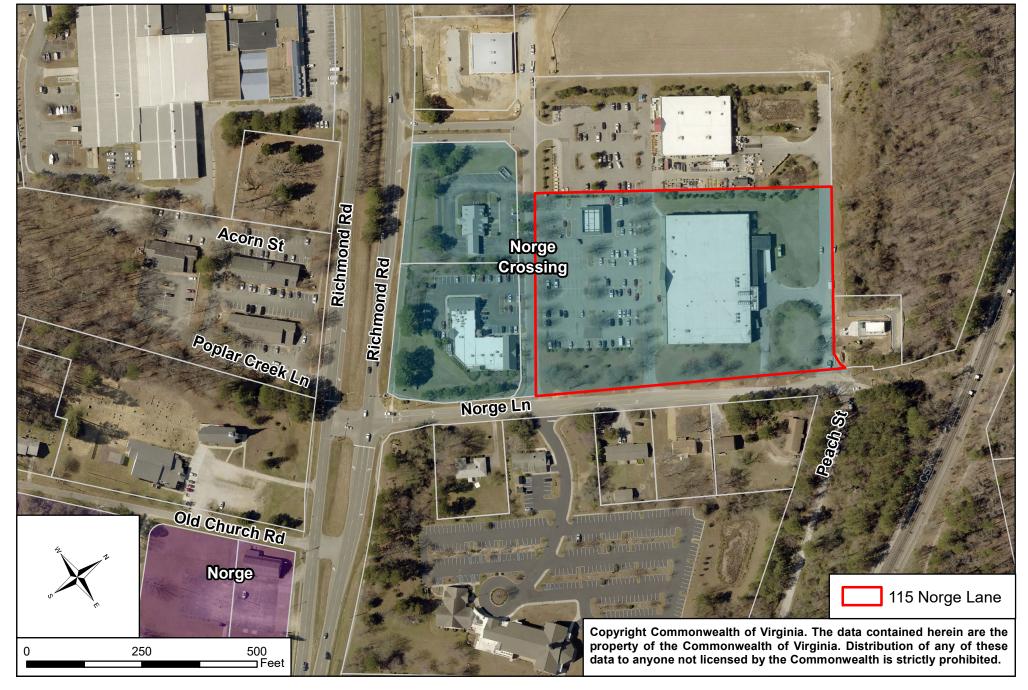
BAM/nb Z-20-01NorgeCtrProf

Attachments:

- 1. Location Map
- 2. Proposed Proffer Amendment
- 3. Proffers, Z-11-88, dated June 12, 1988
- 4. Proffers, Z-32-86, dated December 23, 1986
- 5. Conditions for SUP-0036-2004
- 6. Applicant Narrative Statement

JCC Z-20-0001 Norge Center Proffer Amendment





Tax Parcel: 2320100071F

Prepared by: Vernon M. Geddy, III, Esquire (VSB#21902) Geddy, Harris, Franck & Hickman, LLP 1177 Jamestown Road Williamsburg, VA 23185 Return to: County Attorney 101-D Mounts Bay Road Williamsburg, Virginia 23185

FIRST AMENDMENT TO PROFFER AGREEMENT

This FIRST AMENDMENT TO PROFFER AGREEMENT is made this ______ day of ______, 2020 by NORGE PLAZA, INC., a South Carolina corporation (the "Owner"), and CHESAPEAKE BANK, a Virginia banking corporation (the "Bank"), each to be indexed as Grantor, and JAMES CITY COUNTY, VIRGINIA, to be indexed as Grantee.

RECITALS

- A. Owner is the owner of James City Tax Parcel # 2320100071F located at 115 Norge Lane, James City County, Virginia, being more particularly described on Schedule A attached hereto (the "Property").
- B. The Bank is the contract purchaser of the Property and proposes to put the Property to an office use.
- C. The Property is now subject to proffered zoning conditions set forth in an Agreement dated June 2, 1988 made by Norge Center, Inc. and recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City in Deed Book 393 at page 826 (the "Existing Proffers"). The Existing Proffers limit the use of the property subject thereto, including the Property, to a "shopping center not to exceed 362,000 square feet of gross floor area."
- D. The parties desire to amend the Existing Proffers to permit office uses on the Property.

NOW, THEREFORE, the Existing Proffers are hereby amended as follows:

- 1. Condition 1 of the Existing Proffers is amended by the addition of the following sentence:
 - "The foregoing limitation notwithstanding, the Property may be used for office uses. Any such office use shall be included within the 362,000 square feet of gross floor area limitation set forth in the preceding sentence."
- 2. Except as specifically modified by this Amendment, the Existing Proffers remain in full force and effect.

[signatures appear on following pages]

WITNESS the following signatures:

NORGE PLAZA, INC.

	By: Title:
CTATE OF	
STATE OFCOUNTY/CITY OF	to-wit:
The foregoing instrument was a day of	acknowledged before me in my aforesaid jurisdiction this, 2020, by, as arge Plaza, Inc. on behalf of the corporation.
	NOTARY PUBLIC (SEAL)
My Commission expires:Notary ID #	
	CHESAPEAKE BANK
	By: Title:
STATE OFCOUNTY/CITY OF	, to-wit:
day of	acknowledged before me in my aforesaid jurisdiction this, 2020, by,
as of	Chesapeake Bank, on behalf of the corporation.
	NOTARY PUBLIC (SEAL)
My Commission expires:Notary ID #	

SCHEDULE A

ALL THAT CERTAIN PIECE OR PARCEL OF LAND, TOGETHER WITH ALL IMPROVEMENTS THEREON, LYING AND BEING IN THE COUNTY OF JAMES CITY, VIRGINIA, AND BEING DESIGNATED AS "PARCEL 7, 05.7978 AC.," ON THAT CERTAIN PLAT DATED OCTOBER 6, 1994, MADE BY AES CONSULTING ENGINEERS, ENTITLED "ALTA/ACSM LAND TITLE SURVEY, PARCEL 7, NORGE PLAZA, INC.", A COPY OF WHICH PLAT IS RECORDED IN PLAT BOOK 60, PAGE 38.

BEING THE SAME REAL ESTATE CONVEYED TO NORGE PLAZA, INC., A SOUTH CAROLINA CORPORATION BY DEED FROM NORGE CENTER, INC., A VIRGINIA CORPORATION, DATED AUGUST 10, 1993 AND RECORDED AUGUST 10, 1993 IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OFJAMES CITY COUNTY, VIRGINIA IN DEED BOOK 634, PAGE 480.

Z-11-88. Norge Shopping Center

*These proffers are provided for reference purposes only and are not official documents. Please refer to the Proffer Books in the Planning Division or Zoning Division for copies of officially recorded proffers.

AGREEMENT

WHEREAS, Norge Center, Inc., a Virginia corporation, (hereinafter called "the Owner"), owns certain real property in James City County, Virginia (hereinafter called "the property"), and more particularly described as follows:

All that certain lot, piece or parcel of land, situate, lying and being in Stonehouse District, James City County, Virginia, fronting on U. S. #60, and shown on that certain plat of survey under the legend of "Section No. 4 37.13 acres, Mrs. Ellen Taylor Howard," which plat is attached to that certain deed dated April 10, 1940, between R. Kember Taylor, et als and Richard E. Taylor, et ux, of record in the Clerk's Office of the Circuit Court of James City County, Virginia, in Deed Book 32, page 93, and bounded and described on said plat of survey as follows:

Beginning at a point on said highway, which point marks the line dividing the subject property and the property partitioned to Kitty Taylor; thence along said line North 37 degrees and 39 minutes East 2305.0 feet to a point on the center line of the old York River Road; thence along said center line North 89 degrees and 12 minutes East 159.0 feet, North 71 degrees and 33 minutes East 500.0 feet, North 65 degrees and 35 minutes East 135.0 feet to a point on the line dividing the subject property and the property of Our Savior Lutheran Church; thence along said line North 81 degrees and 22 minutes East 231.0 feet to a point on the line dividing the subject property and the property partitioned to Rufus Taylor; thence along said line South 37 degrees and 39 minutes West 3132.0 feet to a point on the East line of Highway #60, thence along said right-of-way or a 3 degree and 20 minute curve to the left 621.0 feet to the point of beginning; containing 37.13 acres, more ore less; the lines included in the above description extend across the present right-of-way of the Chesapeake and Ohio railway, but this is done for the purpose of settling reversion rights in the event of abandonment of any portion of the present right-of-way of said railway; in severalty and divided from the portions of R. Kemper Taylor, Rufus Taylor, Kitty Taylor and Minnie Taylor Bentley.

WHEREAS, the Owner acquired the said real estate from Ellen Taylor Howard after the property was rezoned from General Agricultural District, A-1, to the General Business District, B-1; and

WHEREAS, the property was subjected to certain conditions for its development as set forth in an agreement with Ellen Taylor Howard and James City County executed December 23, 1986; and

WHEREAS, the Owner desires to alter the development plans and, therefore has requested of James City County that condition number 1. of the aforesaid agreement be amended.

NOW, THEREFORE, in consideration of the County of James City amending condition number 1, the Owner agrees that in addition to the regulations provided for in the General Business District, B-1, but subject to the limitations set forth in the aforesaid Codes, they will meet and comply with all of the following conditions for he development of the property:

1. Site development, excluding outparcels, will be for a shopping center not to exceed 362,000 square feet of gross floor area.

2. Owner agrees to impose a 100 foot structural setback from the right-of-way of Richmond Road. In addition, the Owner agrees to impose a 50 foot buffer strip along the entire Richmond road frontage and a 30 foot buffer zone along Norge Lane, the C&O Railroad, and also that portion of the property fronting on Croaker Road. The buffer zones will exclude parking and be broken only by necessary access roads, project signage and utilities. A landscaping plan will be submitted for approval by the James City County Staff and the Site Plan Review Committee for these buffer zones concurrent with the first site plan submitted on the subject property. The Owner agrees to implement the approved Landscaping Plan for this Buffer Zone concurrent with the site development of the first parcel.

This agreement specifically excludes the adjoining parcels which are rezoned General Business District, B-1.

- 3. The Owner agrees to limit the number of access points along the perimeter of the subject property to one on Richmond Road, four on Norge lane and one on Croaker Road (Route 607).
- 4. The Owner agrees to exclude the following uses permitted in the General Business , B-1, zoning district:
 - a. Funeral Homes
 - b. Cemetaries
- 5. The Owner agrees to design, furnish the equipment, and install a traffic signal at Norge Lane and Richmond Road concurrent with development of any portion of the property, excluding outparcels as depicted on the preliminary site plan as submitted.
- 6. The Owner agrees to install all left and right turn lanes as approved by the Site Plan Review Committee, concurrent with the development of the appropriate phase of site construction.
 - 7. The Owner will subdivide the property into no more than fourteen (14) parcels.
- 8. The Owner will dedicate a ten (10) foot right-of-way strip along the northeast border of the property fronting on Norge Lane for widening and improving of the existing road. In addition, the Owner agrees to improve Norge Lane concurrent with the appropriate phase of site construction in accordance with current VDOT requirements for the level of traffic envisioned by the preliminary site plan, said improvements to be approved by VDOT, and the appropriate planning commission review committee.

Z-32-86. Norge Shopping Center

*These proffers are provided for reference purposes only and are not official documents. Please refer to the Proffer Books in the Planning Division or Zoning Division for copies of officially recorded proffers.

AGREEMENT

WHEREAS, Ellen Taylor Howard, (hereinafter called "the Owner"), owns certain real property in James City County, Virginia, (hereinafter called "the property"), and more particularly described as follows:

All that certain lot, piece or parcel of land, situate, lying and being in Stonehouse District, James City County, Virginia, fronting on U.S. #60, and shown on that certain plat of survey under the legend of "Section No. 4. 37.13 acres, Mrs. Ellen Taylor Howard," which plat is attached to that certain deed dated April 10, 1940, between R. Kember Taylor, et als and Richard E. Taylor, et ux, of record in the Clerk's Office of the Circuit Court of James City County, Virginia, in Deed Book 32, page 93, and bounded and described on said plat of survey as follows:

Beginning at a point on said highway, which point marks the line dividing the subject property and the property partitioned to Kitty Taylor; thence along said line North 37° and 39" East 2305.0 feet to a point on the center line of the old York River Road; thence along said center line North 89° and 12" East 159.0 feet, North 71° and 33" East 500.0 feet, North 65° and 35" East 135.0 feet to a point on the line dividing the subject property and the property of Our Savior Lutheran Church; thence along said line North 81° and 22" East 231.0 feet to a point on the line dividing the subject property and the property partitioned to Rufus Taylor; thence along said line South 37° and 39" West 3132.0 feet to a point on the East line of Highway #60, thence along said right-of-way on a 3° and 20" curve to the left 621.0 feet to the point of beginning; containing 37.13 acres, more or less; the lines included in the above description extend across the present right-of-way of the Chesapeake and Ohio Railway, but this is done for the purpose of settling reversion rights in the event of abandonment of any portion of the present right-of-way of said railway; in severalty and divided from the portions of R. Kemper Taylor, Rufus Taylor, Kitty Taylor and Minnie Taylor Bentley.

WHEREAS, the Owner has entered into a contract for the sale of said real property and the purchasers thereof have applied for rezoning of the Property from the General Agricultural District A-1, to the General Business District, B-1; and

WHEREAS, the County of James City may be unwilling to rezone the Property from the General Agricultural District, A-1, to the General Business District, B-1, because the General Business District, B-1, zoning regulations may be deemed inadequate for the orderly development of the Property, because competing and incompatible uses may conflict; and

WHEREAS, more flexible and adaptable zoning methods are deemed advisable to permit the use of the Property; and

WHEREAS, the Owner, at purchasers' request, is desirous of offering certain conditions for the protection of the community that are not applicable to land similarly zoned in addition to the regulations provided for in the General Business District, B-1.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH:

That for and in consideration of the County of James City rezoning the Property from the General Agricultural District, A-1, to the General Business District, B-1, and pursuant to Section 15.1-491.1, et seq of the Code of Virginia, 1950, as amended, and Section 20-14.2, et seq of Chapter 20 of the Code of James City County, Virginia, the Owner agrees that in addition to the regulations provided for in the General Business District, B-1, but subject to the limitations set forth in the aforesaid Codes, she will meet and comply with all of the following conditions for the development of the Property.

CONDITIONS

- 1. Site development will be in substantial accordance with the conceptual plan, together with a traffic study prepared by Wilbur Smith and Associates of Richmond, Virginia, as submitted. The Owner agrees that "Substantial Accordance" will be as determined by the James City County Staff and the Site Plan Review Committee.
- 2. Owner agrees to impose a 100 foot structural setback from the right-of-way of Richmond Road. In addition, the Owner agrees to impose a 50 foot buffer strip along her entire Richmond Road frontage and a 30 foot buffer zone along Norge Lane, the C & O Railroad, and also that portion of the property fronting on Croaker Road. The buffer zones will exclude parking and be broken only by necessary access roads, project signage and utilities. A landscaping plan will be submitted for approval by the James City County Staff and the Site Plan Review Committee for these buffer zones concurrent with the first site plan submitted on the subject property. The Owner agrees to implement the approved Landscaping Plan for this Buffer Zone concurrent with the site development of the first parcel.

This agreement specifically excludes Parcels 6 and 7 as shown on the submitted plans which are already zoned General Business District, B-1.

- 3. The Owner agrees to limit the number of access points along the perimeter of the subject property to one on Richmond Road, four on Norge lane and one on Croaker Road (Route 607).
- 4. The Owner agrees to exclude the following uses permitted in the General Business, B-1, zoning district:
 - a. Funeral Homes
 - b. Cemetaries.
- 5. The Owner agrees to purchase the equipment for a traffic signal at Richmond Road and Croaker Road (Route 607).
- 6. The Owner agrees to design, furnish the equipment, and install a traffic signal at Norge Lane and Richmond Road concurrent with development of any portion of the largest parcel as depicted on the preliminary plan as submitted.
- 7. The Owner agrees to install all left and right turn lanes as approved by the Site Plan Review Committee, concurrent with the development of the appropriate phase of site construction.
- 8. The Owner will subdivide the property into no more than fourteen (14) parcels, with twelve C12) being depicted on the submitted plans.
- 9. The Owner will dedicate a ten (10) foot right-of-way, strip along the northeast border of the property fronting on Norge Lane for widening and improving of the existing road. In addition; the Owner agrees to improve Norge Lane concurrent with the appropriate phase of site construction in accordance with current VDH&T requirements for the level of traffic envisioned by the preliminary plan,

said improvements commission review of		by	VDH&T,	the	County	Staff,	and	the	appropriate	planning

RESOLUTION

CASE NO. SUP-36-04. FARM FRESH GAS PUMPS

- WHEREAS, the Board of Supervisors of James City County has adopted by ordinance, specific land uses that shall be subjected to a special use permit process; and
- WHEREAS, the applicant has requested a special use permit to allow four gasoline pumps and a canopy in a B-1, General Business District, with proffers, located at 115 Norge Lane, further identified as a Parcel No. (1-71F) on James City County Real Estate Tax Map No. (23-2).
- NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby approve the issuance of Special Use Permit No. 36-04 as described herein with the following conditions:
 - 1. The architecture of the canopy shall be generally compatible with that of the Farm Fresh Store and contain architectural features, colors, and materials that reflect the surrounding character of the Norge community as determined by the Planning Director. The architectural design, color, and materials for the canopy shall be approved by the Planning Director prior to final site plan approval.
 - 2. There shall be no more that four gas pumps (a total of eight vehicle fueling stations) permitted on the property. The pumps shall be arranged in a configuration generally consistent with the attached conceptual site layout titled "Exhibit for Special Use Permit", prepared by MSA, P.C. and dated 03/24/2005, herein after referred to as the "master plan".
 - 3. A minimum horizontal separation of 100 feet shall be maintained between all water and sewer piping, the underground storage tanks, and all associated petroleum piping. Water lines and fire hydrants shall be relocated by the applicant at no cost to the James City Service Authority or the County as shown on the attached master plan prior to the issuance of a Certificate of Occupancy. The applicant shall dedicate new utility easements for the relocated lines to the James City Service Authority prior to the issuance of a Certificate of Occupancy. A Certificate to Construct Water and Sewer Facilities shall be obtained prior to construction of the relocated utilities once final site plan approval has been granted.
 - 4. No more than two signs shall be allowed on the canopy unless otherwise mentioned herein. Gas pricing signs may be allowed on a monument type sign in the parking area or the columns of the canopy. Signage shall be consistent with current zoning and sign regulations.
 - 5. An enhanced landscaping plan shall be provided for the landscaped area along Norge Lane. Unless reduced or waived by the Planning Director, the enhanced landscaping to be included with the site plan shall include a quantity of planting materials that is a minimum of 133 percent of the minimum ordinance requirements. A minimum of 50 percent of all trees and 50 percent of all shrubs shall be evergreen.

- 6. The lighting for the site, to include canopy lighting, shall be reviewed and approved by the Planning Director prior to final site plan approval. There shall be no glare outside the boundaries of the additional parking area and fueling facility. All lights, including any canopy lighting, shall have recessed fixtures with no bulb, lens, or globe extending below the casing or canopy ceiling.
- No outside display, sale, or storage of merchandise shall be permitted at the fueling 7. facility. As used for this condition, the term "merchandise" shall include but not be limited to ice, soda, candy, and/or snack machines.
- 8. Intercom and other speaker systems shall operate in such a manner that they shall not be audible from adjacent properties.
- 9. The area beneath the fuel area canopy shall not drain directly into the existing infiltration BMPs for the shopping center. An alternate BMP or a separation system to accept drainage from this project shall be shown on the site plan and shall be approved by the Environmental Division prior to final site plan approval.
- 10. If construction has not begun on the project within thirty-six months of the issuance of the special use permit, it shall become void. Construction shall be defined as obtaining permits for building construction and footings and/or foundation has passed required inspections.
- 11. The applicant shall design access ways, drive aisles, curbing, pavement markings and landscape islands in such a way as to provide for the safe flow of traffic in and around the fueling facility as determined by the Planning Director.
- 12. This special use permit is not severable. Invalidation of any word, phrase, clause, sentence, or paragraph shall invalidate the remainder.

Michael C. Brown

Chairman, Board of Supervisors

SUPERVISOR VOTE HARRISON AYE GOODSON ABSENT MCGLENNON AYE BRADSHAW AYE AYE

Sanford B. Wanner Clerk to the Board

ATTEST:

Adopted by the Board of Supervisors of James City County, Virginia, this 14th day of June,

BROWN

SUP-36-04.res

2005.

APPLICANT'S NARRATIVE

Chesapeake Bank is the contract purchaser of Parcel 2320100071F located at 115 Norge Lane. The property is 5.86 acres, is zoned B-1 with proffers and has a vacant building containing approximately 52,915 square feet that was formerly occupied by the Farm Fresh grocery store. Chesapeake plans to convert the space into office space to house Chesapeake Payment Systems and other Bank back office functions. This location will not have retail banking. No new development or construction is proposed other than the renovation of the interior of the building.

Chesapeake Payment Systems, a division of Chesapeake Bank provides merchant card processing services. It is an office environment that has very little customer foot traffic. The majority of the operations involves support via phone, electronic communications or onsite support at the customer's place of business.

The division has been operating in a 4,500 square foot commercial unit on the ground floor of Foundation Square in New Town since 2013. In 2018 the division expanded operations into an additional 1,400 square feet of leased space in an adjacent unit to accommodate the department growth. As the department continues to grow it has been determined that a different facility will be necessary to house the department under one roof.

The Bank also has a call center and support personnel that are currently housed in multiple locations throughout the Williamsburg area. The former Farm Fresh Norge building would provide current office space needs, efficiencies through pooled resources, shared meeting spaces and onsite support staff in addition to future bank growth.

The existing proffers applicable to the Norge Center shopping center limit development to "a shopping center not to exceed 362,000 square feet of gross floor area." Staff has determined that the proposed office use of this building would not fall with the definition of a shopping center. Accordingly, the applicant is applying to amend the existing proffers applicable to this Parcel to also allow office use. Office use is generally permitted by right in the B-1 zoning district.

AGENDA ITEM NO. H.1.

ITEM SUMMARY

DATE: 4/1/2020

TO: The Planniing Commission

FROM: Paul D. Holt, III, Director of Community Development and Planning

Planning Director's Report - April 2020 SUBJECT:

ATTACHMENTS:

Description Type

D Memorandum Cover Memo

Spreadsheet Listing New Cases Received **Exhibit** D

REVIEWERS:

Department	Reviewer	Action	Date		
Planning Commission	Holt, Paul	Approved	3/24/2020 - 5:06 PM		
Planning Commission	Holt, Paul	Approved	3/24/2020 - 5:07 PM		
Publication Management	Burcham, Nan	Approved	3/25/2020 - 7:34 AM		
Planning Commission	Holt, Paul	Approved	3/25/2020 - 12:16 PM		

PLANNING DIRECTOR'S REPORT April 2020

This report summarizes the status of selected Department of Community Development activities during the past month.

• Planning

➤ Monthly Case Reports: For a list of all cases received in the last month, please see the attached document

Board Action Results:

March 10, 2020

- SUP-19-0025. 5403 Riverview Road Tourist Home (Approved 5-0)
- SUP-19-0029. 4451 Longhill Road Life Church and Parents Daycare Program (Resolution 2: Approved 5-0)
- SUP-19-0028. Strait Gate Temple Expansion (Approved 5-0)
- SUP-20-0003. Jamestown High School Learning Cottage (Approved 5-0)
- SUP-20-0004. Stonehouse Elementary Learning Cottage (Approved 5-0)

Comprehensive Plan Update

The Planning Team finalized details for the March 9 and March 23 Community Participation Team (CPT) Listening Forums. The forums were advertised on the County website and social media pages, and more than 150 local organizations received reminders to register for a forum presentation time slot or to submit their input online. In response to registrant preferences, the March 9 forum was consolidated with the March 23 forum with 10 organizations scheduled to present. Due to COVID-19 closures, the Listening Forum was postponed indefinitely. Organizations were encouraged to submit online input in the interim.

Staff continued to work with consultants on scenario planning and modeling efforts by gathering existing condition information, verifying analyses, and reviewing potential scenarios and indicators. The team continued to develop and coordinate efforts for establishing a summer "Exploring Future Alternatives Assembly" for public input and release of an online questionnaire related to Phase 2, Scenario Building and Modeling.

New Cases for April 2020

Case Type	Plan Number	Case Title	Address	Description	Assigned To	District
Constant Plan	C-19-0103	4559 Rochambeau Dr. Automobile Repair	4559 ROCHAMBEAU DR	Conceptual plan for automobile repair use at 4559 Rochambeau Drive.	Thomas Wysong	Stonehouse
	C-20-0027	132 Reflection Dr. Subdivision	132 REFLECTION DR	Conceptual plan for a boundary line adjustment between 132 Reflection Drive and 7901 Croaker Road.	Jose Ribeiro	Stonehouse
	C-20-0028	Williamsburg Montessori School Expansion	4202 LONGHILL RD	Conceptual plan for the expansion of Williamsburg Montessori School at 4202 Longhill Road.	Thomas Wysong	Powhatan
	C-20-0029	3175 Ironbound Rd. Dollar General	3175 IRONBOUND RD	Conceptual plan for a proposed Dollar General at 3175 Ironbound Road.	Thomas Leininger	Berkeley
	C-20-0030	6487 Richmond Road Verizon Tower Antenna Replacement	6487 RICHMOND RD	Conceptual plan to review proposed antenna replacements on an existing communications tower at 6487 Richmond Road.	Thomas Leininger	Stonehouse
	C-20-0031	7961 Richmond Rd. Virginia Bread Company	7961 RICHMOND	Conceptual plan for Virginia Bread Company and parking expansion at 7961 Richmond Road.	Jose Ribeiro	Stonehouse
	C-20-0032	Shops at Norge Crossing, Daddy'O's Outdoor Smoking Area	7500 RICHMOND RD	Conceptual plan for an outdoor smoking area at Daddyo's Tavern at the Shops at Norge Crossing.	Terry Costello	Stonehouse
	C-20-0033	3531 News Rd. BLA	3531 NEWS RD	Conceptual plan for a boundary line adjustment at 3531 News Road.	Tori Haynes	Berkeley
	C-20-0034	3889 News Road Ford's Bluff	3889 NEWS RD	Conceptual plan for a Continuing Care Retirement Community at Ford's Colony.	Brett Meadows	Jamestown
	C-20-0035	3097 Ironbound Rd. Tourist Home	3097 IRONBOUND RD	Conceptual plan for a tourist home use at 3097 Ironbound Road.	Terry Costello	Berkeley
	C-20-0040	Jolly's Mill Pond Picnics at the Pond	2756 JOLLY POND RD	Conceptual plan for picnic events at 2756 Jolly Pond Road.	Brett Meadows	Powhatan
	S-20-0005	The Promenade at John Tyler Parcels 27, 28 & 29 BLA	5307 JOHN TYLER HWY	Boundary line adjustment for the Promenade at John Tyler.	Jose Ribeiro	Berkeley
	S-20-0006	Colonial Heritage Phase VI, Section 2A	499 JOLLY POND RD	Subdivision plat for 46 residential lots at Colonial Heritage, Phase VI, Section 2A.	Jose Ribeiro	Stonehouse
Subdivision	S-20-0010	The Promenade at John Tyler Phase 44 - Courthouse Plat	5304 JOHN TYLER HWY	Courthouse plat for The Promenade at John Tyler Phase 44.	Ellen Cook	Berkeley
	S-20-0011	The Promenade at John Tyler Phase 43 - Courthouse Plat	5304 JOHN TYLER HWY	Courthouse plat for The Promenade at John Tyler Phase 43.	Ellen Cook	Berkeley
	S-20-0012	3252 N Riverside Dr BLE	3252 N RIVERSIDE DR	Boundary line extinguishment between 3252 N Riverside Drive, 7712 Cedar Drive, 7714 Cedar Drive, and 7716 Cedar Drive.	Thomas Wysong	Powhatan
	SP-20-0011	Country Village MHP Mailbox Shelter SP Amend.	10 GRAY GABLES DR	Site plan amendment for a mailbox shelter at Country Village Mobile Home Park.	Tori Haynes	Roberts
	SP-20-0013	Williamsburg Community Garden	4900 STADIUM RD	Site plan for the Williamsburg Community Garden at 4900 Stadium Road.	Thomas Wysong	Powhatan
	SP-20-0014	Toano Mini-Storage SP Amend.	3825 ROCHAMBEAU DR	Site plan amendment for the Toano Mini-Storage at 3825 Rochambeau Drive.	Terry Costello	Stonehouse
	SP-20-0015	Virginia Health Services Williamsburg	6799 RICHMOND RD	Site plan for an assisted living facility at 6799 Richmond Road.	Tori Haynes	Stonehouse
Sita Dlan	SP-20-0017	Jamestown High School Learning Cottage	3751 JOHN TYLER HWY	Site plan for a learning cottage at Jamestown High School.	Thomas Wysong	Berkeley
Site Plan	SP-20-0018	Stonehouse Elementary School Learning Cottage	3651 ROCHAMBEAU DR	Site plan for a learning cottage at Stonehouse Elementary School.	Thomas Wysong	Stonehouse
	SP-20-0019	Patriot's Colony Drainage SP Amend.	3400 JOHN TYLER HWY	Site plan amendments for alterations to a drainage ditch at Patriot's Colony.	John Risinger	Berkeley
	SP-20-0020	325 McLaws Circle Generator SP Amend.	325 MCLAWS CIR	Site plan amendment for a backup generator at 325 McLaws Circle.	Tori Haynes	Roberts
	SP-20-0023	Busch Gardens La Cucina SP Amend.	7851 POCAHONTAS TRL	Site plan amendment for the La Cucina restaurant in Busch Gardens.	Brett Meadows	Roberts
	SP-20-0026	James City County Marina Improvement Project SP Amend.	2054 JAMESTOWN RD	Site plan amendment for Phase I improvements to the James City County Marina.	Tori Haynes	Berkeley
Subdivision Construction Plan	SPLN-20-0002	3877 Strawberry Plains Rd. Subdivision Construction Plan	3877 STRAWBERRY PLAINS RD	Subdivision construction plan for 5 residential lots at 3877 Strawberry Plains Road.	Tori Haynes	Jamestown
Special Use Dermit	SUP-20-0005	230 Peach St. Tourist Home	230 PEACH ST	Special use permit for a tourist home use at 230 Peach Street.	Thomas Leininger	Stonehouse
Special Use Permit	SUP-20-0007	805 Arlington Island Road Tourist Home	805 ARLINGTON ISLAND RD	Special use permit for a tourist home use at 805 Arlington Island Road.	Thomas Leininger	Powhatan
Rezoning	Z-20-0001	Norge Center Proffer Amend.	115 NORGE LN	Proffer amendment to allow office uses at Norge Crossing.	Brett Meadows	Stonehouse