CITY OF REYNOLDSBURG

AGENDA

BOARD OF ZONING AND BUILDING APPEALS
THURSDAY, APRIL 21, 2016 6:30 PM

PLACE: COUNCIL CHAMBERS
7232 E. MAIN ST, REYNOLDSBURG, OH 43068

A. CALL TO ORDER
   1. ROLL CALL
   2. APPROVAL OF MINUTES
   3. APPROVAL OF AGENDA
   4. SWEARING IN OF SPEAKERS

B. PUBLIC COMMENT

C. UNFINISHED BUSINESS

D. NEW BUSINESS

1. **6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg; Business: the Kroger Co.; Special Exception Use Permit - Gasoline Station**

2. **6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg; Business: the Kroger Co.; Special Exception Use - Drive Thru Service**

3. **6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg; Business: the Kroger Co.; Major Site Plan Review - New Commercial Building**

4. **6630 E. Main St.; Application #173129; Applicant: Tony Fredenberg; Business: the Kroger Co.; Variance from 1175.08 of the Zoning Code of the City of Reynoldsburg**

5. **6630 E. Main St.; Application #173130; Applicant: Tony Fredenberg; Business: the Kroger Co.; Variance from Section 1196.05(A) of the Zoning Code of the City of Reynoldsburg**

6. **6630 E. Main St.; Application #173131; Applicant: Tony Fredenberg; Business: the Kroger Co.; Variance from Section 1196.05(B) of the Zoning Code of the City of Reynoldsburg**

7. **6630 E. Main St.; Application #173132; Applicant: Tony Fredenberg; Business: the Kroger Co.; Variance from Section 1196.07(E) of the Zoning Code of the City of Reynoldsburg**

8. **6630 E. Main St.; Application #173133; Applicant: Tony Fredenberg; Business: the Kroger Co.; Variance from Section 1196.09(C) of the Zoning Code of the City of Reynoldsburg**

9. **6630 E. Main St.; Application #173134; Applicant: Tony Fredenberg; Business: the Kroger Co.; Variance from Section 1196.10(A) of the Zoning Code of the City of Reynoldsburg**

10. **6630 E. Main St.; Application #173135; Applicant: Tony Fredenberg; Business: the Kroger Co.; Variance from Section 1196.10(B) of the Zoning Code of the City of Reynoldsburg**

11. **6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg; Business: the Kroger Co.; Comprehensive Sign Plan**

12. **7088 E. Main St.; Application #173147: Applicant Viktor Prozapas; Business: Adrenaline Trampoline Park; Special Exception Use**

E. OTHER BUSINESS

F. ADJOURNMENT

The Kroger Co.

Reynoldsburg, Ohio

Special Exception Statement

In conjunction with its development / redevelopment proposal for the 16.47 acres located along the north side of East Main Street, west of its intersection with Rose Hill Road, the applicant requests two Special Exceptions, one to allow its drive-thru pharmacy located on the west side of the building, the other for its gasoline station located generally along the southeast side of the property, both as depicted on the attached Site Plan. RZC Section 1145.09 – Standards and Requirements for all Special Exceptions provides the criteria considerations for Special Exceptions, each of these are stated below in italics and together addressed thereafter for the requests. In addition, Section 1145.10 – Supplementary Requirements for Special Exceptions provides further criteria to be considered for both a Gasoline Station, in subsection (a), and for Drive-thru Service, in subsection (b). Each of those criteria are also stated in italics and individually addressed for each use.

(a) The proposed use shall be in harmony with the existing or intended character of the district and nearby affected districts and shall not change the essential character of the neighborhood.

A drive-thru pharmacy and gasoline station are typical ancillary and accessory uses common with grocery store developments in today's marketplace. Both of these uses are in harmony with the intended character of CC, Community Commerce zoned properties. Neither of these uses will change the essential character of this neighborhood which is proposed to be redeveloped with a Kroger grocery. The drive-thru pharmacy is located on the east side of the grocery, with direct access provided through engineered drive aisles. It is generally internal to the site, and located well away from any abutting residentially used property.

The gas station is an integral part of this grocery operation. It is purposefully located along the commercial corridor, as depicted on the site plan, and accessed both from internal drive aisles and from Main Street access points. A gas station use is a common and necessary use along commercial corridors and will not change the essential character of this CC, Community Commerce District.

(b) The proposed use shall not adversely affect the use of adjacent property.

Neither the drive-thru pharmacy use, nor the gasoline station will adversely affect the uses of any adjacent property. Again, the pharmacy drive-thru operates in conjunction with the store, located along its west side. It is well situated and well screened and well away from any residentially used property to the north, and next to property also zoned CC to the west.

The gasoline station will likewise not adversely affect the use of any adjacent property in any way. Kroger controls the frontage on both sides of the gasoline station location, to the east over to Rose Hill Road, and to the west over to the property boundary to the CC developed property – as depicted on the Site Plan.

Attachment: Special Exception Gasoline Station (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

(c) The proposed use shall not adversely affect the health, safety, morals, or welfare of persons residing or working in the neighborhood.

These uses will have no adverse affect whatsoever on the health, safety, morals, or welfare of people residing or working in this neighborhood. These uses are beneficial, providing a convenient and economical service to people who live and work in the area. Both of these uses are purposefully located on the site to maximize user interface and efficiency, and are in no way detrimental.

(d) The proposed use shall be served adequately by public facilities and services such as, but not limited to, roads, police and fire protection, storm water facilities, water, sanitary sewer, and schools.

These uses will be adequately served by all public facilities, including roads – traffic study attached, police and fire protection, storm water facilities, water, sanitary sewer, and schools. The documents submitting herewith consist of professionally prepared and studied plans for this development. This drive-thru pharmacy and gasoline sales center are adequately served by existing infrastructure, which will be improved upon by implementation of this redevelopment.

(e) The proposed use shall not impose a traffic impact upon the public right-of-way significantly different from that anticipated from permitted uses of the district.

Neither the drive-thru pharmacy, nor the gas sales center, will impose a traffic impact on either East Main Street or Rose Hill Road different in any way from uses of the CC, Community Commerce District. These are both purposefully planned, and appropriately located, on this 16.5 acre property. Additionally, a traffic study in proof of this is submitted as part of the application information with this redevelopment proposal.

(f) The proposed use shall be in accord with the general and specific objectives, and the purpose and intent of this Zoning Code and the Land Use Plan and any other plans and ordinances of the City.

The drive-thru pharmacy and gasoline sales center are integral parts of this grocery use redevelopment of the property. They are in accord with all objectives associated with the development of this property, the purpose and intent of the RZC, and all planning and economic development objectives associated with this property, and all other ordinances of the City. These are essential components of a modern grocery use, and a modern grocery use of this property is consistent with the purpose of the CC, Community Commerce zoning of the property, and this redevelopment – as proposed – is in furtherance of the long-term objectives to see this property development in a manner beneficial to the City of Reynoldsburg.

(g) The proposed use complies with the applicable specific provisions and standards of this Code.

For both uses – drive-thru pharmacy and gasoline sales – these uses comply in every way with all applicable provision and standards of the RZC. These are ancillary and accessory uses to a major grocery facility and are here purposefully and appropriately planned to be beneficial to the customer base, user friendly, and without impact on existing infrastructure, or detrimental any way.

(h) The proposed use shall be found to meet the definition and intent of a use specifically listed as a special exception in the district in which it is proposed to be located, except as otherwise provided by this Zoning Code.

RZC Table 1175.01 specifically provides that both gasoline stations, and drive thru service, are Special Exceptions of the CC, Community Commerce District, which is the zoning classification of the subject property.

Gasoline station Special Exceptions must also meet the requirement of RZC Section 1145.10 – Supplementary Requirements for Special Exceptions.

(1) Parking of employee vehicles, vehicles used in the operation of the business, vehicles awaiting servicing or return to customers after servicing, and vehicles held for disposal shall only be permitted in the locations approved on the site plan. Parking and storage of vehicles not related to the principal use of the site shall not be permitted.

The gasoline service center proposed here is not the sort contemplated by this supplementary requirement, which goes more to a "service" component, and less to a facility in which people purchase gas and leave. There is ample employee parking on-site, none of the remainder is applicable here. There will be no vehicles awaiting servicing or return to customers, no vehicles held for disposal, and no parking and storage of vehicles related to the gas sales use.

(2) Vehicle sales, service, rental, or leasing shall not be permitted on the site unless specifically approved.

There will be no vehicle sales, service, rental or leasing.

(3) Retail sales of products other than vehicular fuels shall be permitted only within an enclosed structure which shall comply with all provisions of the district, including requirements for parking. Outdoor display, storage, or sale of goods shall not be permitted on the site unless specifically approved in the special exception use permit and in conformance with the supplementary standards for outdoor display, storage, and sale.

All retail sales here will occur from the kiosk located under the canopy as reflected on the Site Plan. Limited outdoor display, storage, and sale of goods will occur in the customary manner in the area within, and around the perimeter, of this kiosk area.

(4) Temporary outdoor storage of discarded materials, vehicle parts, scrap and other waste prior to collection shall only be permitted within a storage area completely surrounded by a gated masonry wall six (6) feet in height or other screening approved by the Board. Such screening shall be set back from residential districts at least six (6) feet and landscaped according to the approved site plan.

None of this is applicable here. There will be no temporary storage of discarded materials or the like.

(5) *Fuel pumps and canopies shall conform to all requirements of this ordinance with regard to height, setbacks, and signs.*

Unless otherwise varied as a part of the general development scheme, and as included with the Comprehensive Sign Plan, fuel pumps, canopies, setbacks, and signage will conform to the RZC.

(6) *Air compressor pumps (e.g., for tire inflation) and other outdoor equipment shall be identified on the site plan and shall be located in a manner which minimizes noise impacts on residential areas.*

Such mechanicals are appropriately identified on the Site plan and will have no impact whatsoever on any residential area. This is located along the south of the property along the commercial corridor.

(7) *Curb cuts shall be limited to two (2) per site. On corner lots, curb cuts shall be limited to one (1) per street.*

As reflected on the Site Plan, this request is in compliance with this requirement. Further the access points serve the dual purpose of access to both the grocer center, and gasoline sales facility.

Drive-thru Service Special Exceptions must also meet the requirement of RZC Section 1145.10 – Supplementary Requirements for Special Exceptions.

(1) *Loudspeakers shall be located and designed, with volume and hours of operation controlled, in a manner to minimize noise impacts on nearby residential uses.*

With this drive-thru pharmacy request the users interface with the pharmacist or pharmacy technician at the drive-thru located along the west side of the building. This location on the property, the design, and the hours of operation are all controlled, and planned, to have no impact off-site whatsoever.

(2) *Lanes required for vehicle access to and waiting for use of a drive thru facility shall be designed to have sufficient length to accommodate the peak number of vehicles projected to use the facility at any one time, to provide escape/abort lanes for vehicles desiring to leave the stacking lanes or to avoid disabled vehicles, and to minimize impacts on the use of other required parking or drives or on the use of abutting streets and hazards to pedestrians. The applicant shall provide a traffic study which documents to the satisfaction of the Board the projected vehicular use of the proposed facilities and evidence of compliance with the provisions of this Zoning Ordinance.*

This drive thru pharmacy is designed to exceed the accommodation necessary to serve the peak use projections, this design provides escape lanes as needed. It is designed, and located, such that impacts on other motorists, or pedestrians is minimized and views are maximized to reduce potential for conflicts. A traffic study is submitted with the development proposal materials.

(3) *The Board may impose restrictions on the hours of operation in order to reduce inappropriate impacts on abutting uses and on street traffic and to ensure compatibility with normal vehicular activity in the district.*

With this proposal, due to the location of the drive thru on site, and the comprehensive redevelopment that is occurring, there will be no impacts on abutting uses or on street traffic, or interference with normal vehicular activity in the district.

Attachment: Special Exception Gasoline Station (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

(4) The applicant shall so design the site plan or otherwise provide assurances as to reduce the impacts of lighting, litter, noise, and exhaust resulting from the facility, especially impacts on nearby residential uses.

The applicant has designed the drive thru location in conjunction with the grocery store use to appropriately address all of these stated issues and concerns. No adjacent use will be adversely impacted.

Having demonstrated that this Special Exception request for both Gasoline Sales, and Drive Thru, meets or exceeds the requirement of RZC Section 1145.09, and the applicable supplementary requirements of RZC Section 1145.10, the applicant respectfully requests that the Special Exceptions be approved.

Respectfully submitted,

The Kroger Co.

By: David Hay - attorney

Date: March 24, 2016

City of Reynoldsburg
Board of Zoning and Building Appeals
STAFF REPORT
April 21, 2016

New Business

6630 E. Main Street – Kroger – Major Site Plan, Variance, Special Exception Use Permit, Comprehensive Sign Plan

Application: **#173126-173136**

Location: Property is located on the northwest corner of E. Main Street and Rosehill Road.

Existing Zoning: CC – Community Commerce / CCO – Community Commercial Overlay

Request: Request for review of a major site plan, variances from the Zoning Code, special exception use permits and a comprehensive sign plan in order to construct a new commercial building.

Current Use: Vacant land

Applicant: The Kroger Co. c/o Tony Fredenberg/David Hodge

BACKGROUND INFORMATION

Proposal
The applicant is requesting the Board review and approve a major site plan, variances, special exception use permits and a comprehensive sign plan to construct a new 101,497SF commercial building, gasoline station and related improvements.

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

Existing Site & Context
The 16.47AC site consists of multiple parcels that have a variety of legacy uses, including residential dwellings, a mobile home park, a retail sales business, some personal services uses. The main tracts are undeveloped at this time, but were previously used for a trailer sales business. Along Main Street, the site abuts other commercial businesses, all in the CC district. To the north, the property abuts a multi-family housing complex. Along the northernmost lot line, the site is adjacent to single family dwellings in the City of Columbus. All parcels that front E. Main Street are within the Community Commercial Overlay. Records indicate that commercial zoning has been applied to the majority of the site since the early 1970s.

CONSIDERATIONS

1143.03 SITE PLAN.

(c) Major Site Plan. A written application for a major site plan shall be submitted to the Zoning Officer on forms provided and shall include:

(1) General Requirements.

A. Completed major site plan application.
B. Six copies of the major site plan submitted on 22" x 34" paper, and three copies submitted on 11" x 17".
C. Professional engineer, architect, or landscape architect registered with the State of Ohio must sign and seal all plans.
D. The current zoning of the property. In addition, current zoning of adjacent parcels.
E. Vicinity map showing the location of the proposed development in relationship to the surrounding area including major thoroughfares.
F. Property lines, parcel dimensions and adjoining rights-of-way.
G. The names and addresses of all adjoining property within 150 feet of the proposed development.
H. Title block for each sheet.
I. Location of proposed buildings and structures.
J. Wetland limits and size clearly shown, regardless of size.
K. One hundred-year flood elevation to be clearly indicated.
L. The location of existing water bodies, streams, drainage ditches, stands of trees and other pertinent features within 150 feet of the proposed development.
M. The location, width, names, and classification of existing and proposed streets, rights-of-way, and easements, and where pertinent, their designated use within 250 feet of the proposed subdivision.
N. Approximate location of all existing buildings within 150 feet of the proposed development.
O. The approximate location, dimensions, and area of all property proposed to be set aside for parks and open space, and other public or private reservation, with designation of the purpose and proposed ownership thereof.
P. Topography with a maximum contour interval of two feet.
Q. Preliminary proposals for connection to existing water supply and sanitary sewer systems and for the collection and discharge of surface water drainage including the location and size of existing and proposed water mains, sanitary sewers and drainage facilities.
R. Show all existing conditions, including but not limited to: ditches, culverts, waterways, utilities, sidewalks, power poles, easements, building footprint and finish grade, finish grade of adjacent buildings, wetlands and woodlands, etc.
S. Show existing adjacent roads with rights-of-way.
T. Complete facility demand worksheets as provided by the Planning Administrator.
U. All exterior lighting shall be shown, including parking lot, pedestrian, and building accent lighting. Lighting intensity and installation height shall be indicated.
V. Exterior building design and surface treatments shall be indicated, including building material and color. Color and material samples shall also be made available for inspection.

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

W. Fees as required by Chapter 1155.

(2) Zoning Standards and Requirements.

A. Setbacks and building separations shall be noted in accordance with zoning requirements.

B. Striping for parking lot shall be indicated directly on the plans, and include the spaces required vs. spaces provided.

C. Loading spaces indicated.

D. Plantings shown in accordance with zoning requirements. All utilities shall be shown on all planting plans.

E. Completed zoning certificate and fee.

(some sections omitted.)

Approval of a major site plan shall expire twelve (12) months from the date of approval unless building permits have been obtained for construction. A single extension, not to exceed six (6) months may be granted by the Board upon receipt of a written request from the applicant

Table 1179 Required Parking

Grocery Store – 1 space of every 300SF of building area.

Additional Relevant Sections of the Zoning Code.

Section 1145.06

Section 1145.09

Section 1147.05

STAFF REVIEW

Site Layout

The applicant met with Staff several times during the pre-application phase. Staff requested that the applicant include pedestrian accommodations and access to the front of the main building, and move the fuel center away from the corner of Rosehill Road and E. Main Street. The applicant was agreeable to Staff's proposed changes and Staff supports the general layout of the site plan.

Traffic & Parking

Staff has reviewed the site circulation study and found that the applicant is exceeding the minimum parking requirements of Table 1179. The required parking for grocery store is 1 space for every 300SF of building area. This would require the applicant to have 338 parking spaces on site, and they have provided 634 spaces. The applicant has provided a traffic study for review by the City Engineer. The applicant proposes to reduce the number of curb cuts on E. Main Street and Rosehill Road as part of this proposed development.

Landscaping & Buffering

The applicant has provided a detailed landscape plan showing proposed screening to the neighboring single and multi-family dwellings. Upon review of the plan, Staff requested that the applicant extend the proposed mounded along the entire rear of property. After conducting a meeting with the neighboring property owners, the applicant has submitted a revised landscape plan extending the mound and adding a rear privacy fence. Staff is comfortable that the fence and the amount of landscape materials shown on the plan meet or exceed the requirements of

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

Chapter 1180. The applicant has also utilized the same brick material around the entire exterior of the 4 sided main building, portions of which will face the residential uses.

Lot Characteristics

	Required	Proposed
Min Lot Area / Building	None	None
Min Rear Yard Depth	30FT	72FT
Min Side Yard Width	10FT	91.3FT
Min Side Yard Sum	N/A	N/A
Max Bldg Lot Coverage	40%	14%
Max Bldg Stories	6	1
Max Bldg Height	90FT	35FT

Variances – Chapter 1196
The applicant has requested several variances from Chapter 1196. This chapter enacts the regulations of the Community Commercial Overlay. The overlay was designed to improve the characteristics of E. Main Street that existed at the time it was enacted: small to medium sized commercial buildings that were aging, needed to have higher quality materials, and could be easily expanded toward the public street. The overlay was not designed for a development on this scale, and therefore, Staff is supportive of the applicant varying from the requirements of the overlay that are impossible for them to meet in a big-box style development. The applicant has attempted to comply with the provisions of this chapter whenever possible, especially with the building materials requirements.

Variance – Section 1175.08
The applicant is requesting a variance from the Zoning Code. Per Section 1175.08, the minimum setback for the parking and building from residential districts 50FT and 120FT respectively, but can be reduced by 50% given the applicant's landscape. The applicant is requesting that drive lane along south side of the AR-1 multi-family district be permitted at 20FT instead of the required 25FT.

Special Exception Use Permit – Drive Thru
The applicant has requested a special exception use permit for drive-thru service for a pharmacy. The proposed drive-thru is along the west side of the building. The drive-thru complies with provisions of Section 1196.07 that require drive-thru's to be attached to the main building and located at the side or rear. The large setback of the building and the location of the attached drive-thru prevents vehicles from stacking back into any public street. The drive-thru is screened from the neighboring office use by a mound and landscaping that exceeds the requirements of Chapter 1180.

Special Exception Use Permit – Gasoline Station
The applicant is requesting a special exception use permit for a gasoline station. Gasoline stations are a typical part of this applicant's business model. Staff has worked with the applicant

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

to move the gasoline station away from the corner of E. Main Street and Rosehill Road in order to allow a site for future commercial development directly on the corner. Staff is comfortable with the location because it is not adjacent to any of the abutting residential uses and does not directly block the main structure. Although the materials shown are generally consistent with the main structure, Staff would like to request that the applicant modify the design to utilize the same brick material on the gas station structure rather than the proposed CMU paneling material.

Comprehensive Sign Plan
Per the Code, the applicant is permitted one sign up to 760SF in area on the main building. The applicant has submitted a comprehensive sign plan showing 273.66SF of signage to be split up in 6 individual, internally illuminated signs. Staff supports this because the amount of wall signage is less than would be permitted by Code and is sited to indicate where to enter the structure for the various services.

The applicant also proposed 141.12SF of signage on the gasoline station. Signage areas for gasoline stations are very difficult to determine based on the code, but staff is comfortable the proposed signage is consistent with typical gasoline stations and is not overpowering the canopy. The applicant should clarify if the canopy mounted fuel signage is LED or copy change style signage.

Finally, the applicant is proposing a 118.02SF ground sign with multiple sign panels for service uses and an LED style sign for fuel pricing. Staff supports that idea that the applicant is concentrating all of their signage is one location rather than having separate ground signs for the store and gasoline station. The proposed signage is larger than would be permitted under the Community Commercial Overlay, but a building setback of this distance was not envisioned when that Chapter was enacted. The applicant worked Staff to lower the height of the sign, change the style and materials to be consistent with the design on other signage along E. Main Street. Staff also supports the use of the same brick materials used on the main structure.

STAFF RECOMMENDATION

The Board should determine if the applicant has met all the criteria for major site plan review and approval as outlined in Section 1143.03(c) of the Zoning Code, and if the site plan as proposed will have a negative impact on the public health, safety, morals, comfort and general welfare. Staff finds the proposed site plan in compliance with those standards and recommends approval of the site plan as submitted. Staff also recommends that the required variances and special exceptions be approved based on the standards contained in those chapters of the Zoning Code. Staff recommends one condition of the site plan approval:

1. That the applicant be required to submit new architectural drawings to the Design Review Board and Staff, utilizing the same brick material for the gasoline station structure that is used on the main building.

NEXT STEPS

Provided the Board approves the application, the next steps are as follows:

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

1. The applicant has already applied for a certificate of appropriateness from the Design Review Board. The applicant will receive an updated statement following that approval.

2. The applicant should contact the Planning Administrator at 614-322-6829 to submit an application for a zoning certificate and zoning sign permit. Staff will require two sets of plans to confirm compliance with the approved major site plan and certificate of appropriateness.

3. The applicant will need to contact the Building Division at 614-322-6802 to submit an application for plot-grade-utility plan review and approval. The Planning Administrator cannot issue a zoning certificate until a plot-grade-utility plan is approved.

4. The applicant will need to contact the Building Division at 614-322-6802 to submit building plans for review, secure permits, and complete the required inspections.

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

2) **7088 E. Main Street — Adrenaline Trampoline Park - Special Exception Use Permit**

Application: **#173147 – Special Exception Use Permit**

Location: Property is located on the north side of E. Main Street between Aide Drive and Briarcliff Road.

Existing Zoning: CC – Community Commerce / CCO – Community Commercial Overlay

Request: Request for a special exception Use permit to operate a commercial recreation facility.

Current Use: Retail Sales

Applicant: Viktor Prozapas

BACKGROUND INFORMATION

Proposal
The request of the applicant is for a special exception use permit to convert an existing retail sales establishment into a commercial recreation facility use. The facility will be a trampoline park that has small attached party rooms.

Site Context
The entire site consists of a multi-tenant commercial building in the CC – Community Commerce District. The properties to the north are single family homes in the R-3 district, which are screened by fencing of various styles. To the east, the property is adjacent to a commercial shopping center in the CC district across Aide Drive. To the south, across E. Main Street, the property abuts other commercial businesses. To the west, the property abuts a residential care facility use in the AR-1 district.

CONSIDERATIONS

1145.09 STANDARDS AND REQUIREMENTS FOR ALL SPECIAL EXCEPTIONS.
In review of a special exception application, the Board shall consider whether the application is complete and whether it provides adequate evidence that the proposed special exception is consistent with the following standards:

(a) The proposed use shall be in harmony with the existing or intended character of the district and nearby affected districts and shall not change the essential character of the districts;

(b) The proposed use shall not adversely affect the use of adjacent property;

(c) The proposed use shall not adversely affect the health, safety, morals, or welfare of persons residing or working in the neighborhood;

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

(d) The proposed use shall be served adequately by public facilities and services such as, but not limited to, roads, police and fire protection, storm water facilities, water, sanitary sewer, and schools;

(e) The proposed use shall not impose a traffic impact upon the public right-of-way significantly different from that anticipated from permitted uses of the district;

(f) The proposed use shall be in accord with the general and specific objectives, and the purpose and intent of this Zoning Code and the Land Use Plan and any other plans and ordinances of the City;

(g) The proposed use complies with the applicable specific provisions and standards of this Code;

(h) The proposed use shall be found to meet the definition and intent of a use specifically listed as a special exception in the district in which it is proposed to be located, except as otherwise provided by this Zoning Code.

1145.06 CONDITIONS OF APPROVAL.

In approving a special exception, the Board may impose such conditions as it deems necessary to protect the public welfare, preserve the purpose and intent of this ordinance, to protect the character of the surrounding properties and neighborhood affected by the proposed use, and to mitigate the special impacts of the use. Such conditions may include, but shall not be limited to:

(a) Locations, setbacks, and configurations of structures and of uses of interior and exterior space

(b) Screening comprised of landscaping, walls, fencing or other materials or construction;

(c) Access points and traffic management provisions, including those impacting vehicular and pedestrian access, and the locations and design of parking facilities;

(d) Noise control measures, including those regulating loudspeakers or irregular vehicular or equipment noise;

(e) Other features of construction, including but not limited to paving and parking, signs, and landscaping;

(f) Hours and method of operation;

(g) Maintenance of the site, structures, and landscaping;

(h) Means of controlling glare, vibration, odors, dust, smoke, hazardous materials, refuse matter, water-carried waste, and storm water;

(i) A time limit for operation of the use, if temporary operation is determined to be a typical characteristic of the proposed use or otherwise appropriate given unique circumstances of the proposed use.

STAFF REVIEW

Adjacent Uses & Nuisances

The proposed facility will be adjacent to a fitness gym, and several retail stores. Although the use will appeal to all ages, children are one of the primary users of the property facility. Since the trampoline activity takes place inside of the structure, no exterior loading or unloading activity along the rear service drive will be adjacent to any location accessible to children utilizing the facility. Staff is not concerned that there will be a danger of children becoming injured due to any adjacent uses. The interior nature of the use will not increase the noise impacts to the adjacent single family beyond the impact of the retail sale use.

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

Parking
The applicant has provided a parking plan showing that 513 spaces are provided on site. If the entire complex was developed as retail sales uses, only 509 spaces would be required. The parking requirements for the proposed recreation facility are the same are retail sales: 1 space/200SF of building area. Staff is comfortable that the site has the required parking.

STAFF RECOMMENDATION

The Board should apply the standards for review of special exceptions contained in Section 1145.09 of the Zoning Code and determine if the proposed special exception complies with those standards.

NEXT STEPS

Following the meeting, Staff will mail a record of action notice to the applicant at the address provided. Provided the Board approves the application, the next steps are as follows:

1. This application will be forwarded to City Council. The Clerk of Council will contact the applicant when the Council elects to hold additional hearings.

2. The applicant should submit for a zoning certificate. Staff will require two copies of a site plan showing the location of the proposed use within the existing shopping center.

3. Once a zoning certificate is secured, the applicant will need to contact the Building Division at 614-322-6802 to submit plans for building occupancy and to complete the required inspections.

Per section 1145 of the Zoning Code, Staff will review this permit approval in 6 months to confirm compliance and report those findings to the Board. If the applicant has not complied with all conditions of their approval and completed all the required steps to open the business/use, the special exception use permit can be revoked by the Board.

Attachment: 20160421 BZBA Staff Report (1390 : 6630 E. Main St.; Application #173126; Applicant: Tony Fredenberg)

Reynoldsburg Kroger
Traffic Impact Study

March 10, 2016

6612 Singletree Drive
Columbus, Ohio 43229
614.656.2424
www.cmtran.com

CARPENTER MARTY transportation

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

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1.0 Purpose of Report & Study Objectives

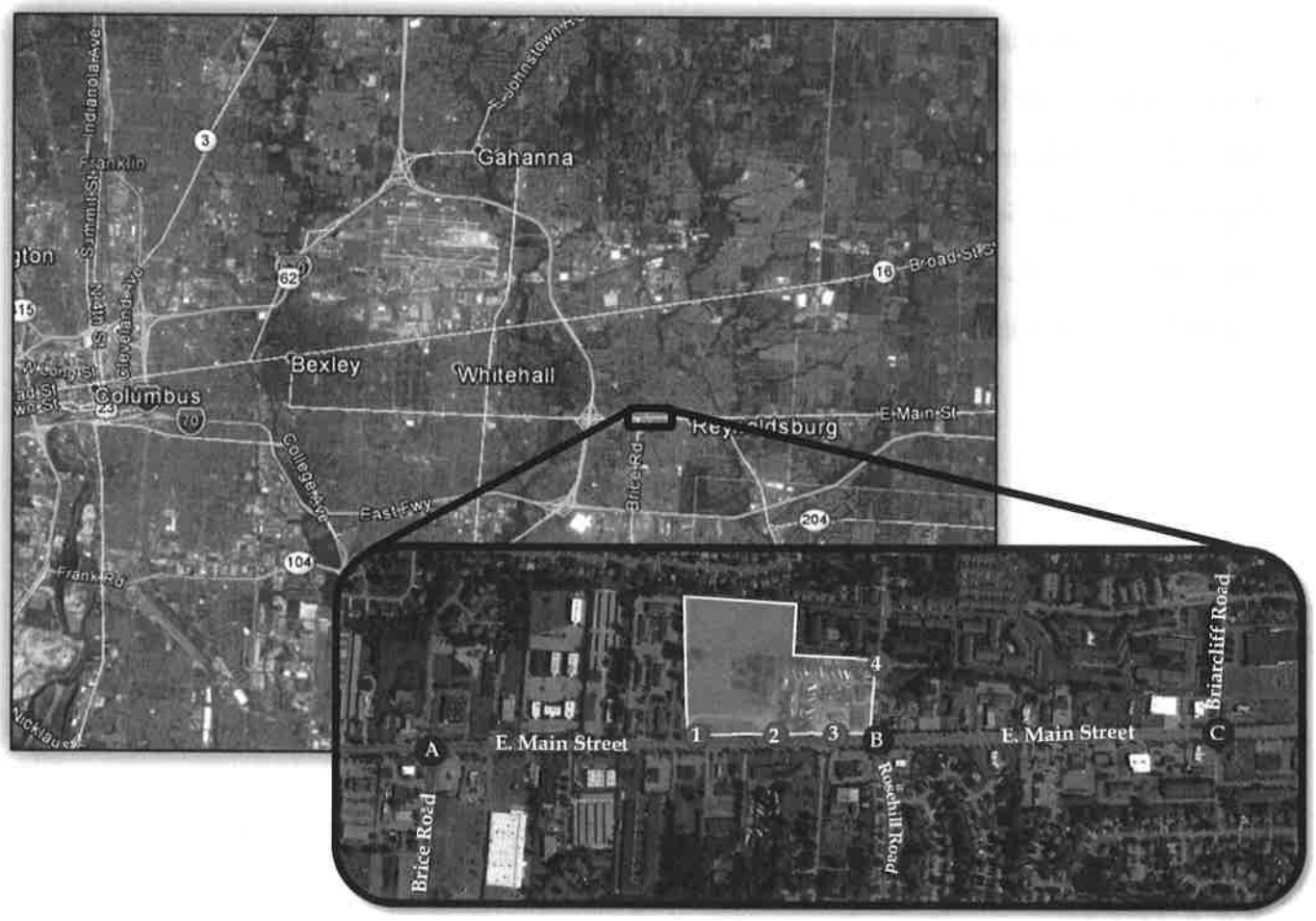
A Kroger is proposed to be built in Reynoldsburg, Ohio. The purpose of this traffic analysis and report is to document the potential traffic impacts that the proposed Kroger will have on the surrounding intersections. This study and report are being requested by the City of Reynoldsburg.

2.0 Proposed Development

2.1 Location

The proposed site is located on the northwest corner of E. Main Street and Rosehill Road. **Error! Reference source not found.** shows the location of the proposed site in Ohio and its location in Reynoldsburg.

Figure 1 – Proposed Site Location in Central Ohio (Yellow Shading)



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

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2.2 Existing Conditions

The site currently consists primarily of empty green space, a small trailer park, and two small businesses. Existing structures will be removed for this proposed development.

2.3 Site Plan

The site is proposed to consist of a 101,497 SF Kroger, a Kroger gas station with 14 fueling positions, and 14,000 SF of retail. The site will be serviced by four full-access drives. There will be three full-access drives along East Main Street and one full-access drive along Rosehill Road. Figure 1 shows these locations as red numbered dots. A draft of the site plan can be found in Appendix A.

2.4 Study Years

For analysis, the Opening Year for the development is 2017 and the Horizon Year is 2027.

3.0 Area Conditions

3.1 Area of Influence

The study intersections and proposed site drives, letters and numbers listed below, correspond with Figure 1.

Study Intersections:

A. East Main Street & Brice Road
B. East Main Street & Rosehill Road
C. East Main Street & Briarcliff Road

Proposed Site Drives:

1. East Main Street & Site Drive 1
2. East Main Street & Site Drive 2
3. East Main Street & Site Drive 3
4. Rosehill Road & Site Drive 4

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

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3.2 Traffic Volumes and Conditions

AM (7-9) and PM (4-6) peak hour turning movement counts were collected at each of the existing study intersections on January 28, 2016. These counts can be found in Appendix B.

Adjacent to the site, East Main Street is a five lane roadway with a two-way left turn lane separating two eastbound and two westbound through lanes. Rosehill Road is a three lane roadway with a two-way left turn lane separating one northbound and one southbound through lane.

4.0 Projected Traffic

4.1 Background Traffic

Annual growth rates for all approaches of the study area were provided by the Mid-Ohio Regional Planning Commission (MORPC). The growth rates and their respective approaches can be seen in Table 1 below. These growth rates were applied to the count data to develop Opening Year and Horizon Year background traffic volumes. Volume development and MORPC correspondence can be found in Appendix C.

Table 1 – MORPC Growth Rates

Growth Rate	
Main St. e/o Brice Rd.	0.5%
Brice Rd. n/o Main St.	0.5%
Main St. w/o Brice Rd.	0.4%
Brice Rd. s/o Main St.	0.5%
Main St. e/o Rosehill Rd.	0.6%
Rosehill Rd. n/o Main St.	0.5%
Main St. w/o Rosehill Rd.	0.6%
Rosehill Rd. s/o Main St.	0.5%
Main St. e/o Briarcliff Rd.	0.7%
Briarcliff Rd. n/o Main St.	0.5%
Main St. w/o Briarcliff Rd.	0.6%
Briarcliff Rd. s/o Main St.	0.5%

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

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4.2 Site Traffic

4.2.1 Trip Generation

Trips for the proposed development were generated using the Institute of Transportation Engineer's (ITE) OTISS[1] software, which uses Volume 9 of *Trip Generation* and the 2nd Edition of *Trip Generation Handbook*. The following Land Use Codes (LUC) were used to generate trips: LUC 850 – *Supermarket* and LUC 944 – *Gasoline/Service Station*. The proposed development will generate pass-by and non-pass-by trips, and have internal capture.

Standard ITE pass-by rates were used[2], and a standard Retail-to-Retail internal capture rate of 20% divided evenly between the uses and applied in the PM Peak. The full trip generation analysis can be seen in Appendix D. Table 2 shows the trip generation, pass-by trips, and the total non-pass-by trips for the proposed site.

Table 2 - Trip Generation Summary for the Proposed Site

Land Use	Size	AM Peak		PM Peak	
		Entry	Exit	Entry	Exit
850 - Supermarket	101,500 SF Gross Floor Area	214	131	401	386
Internal		0	0	18	18
Pass-by		0	0	138	132
Non-pass-by		214	131	245	236
944 - Gasoline/Service Station	14 Vehicle Fueling Positions	87	83	97	97
Internal		0	0	18	18
Pass-by		50	49	33	33
Non-pass-by		37	34	46	46
820 – Shopping Center	14,000 SF Gross Leasable Area	29	18	77	83
Internal		0	0	16	16
Pass-By		0	0	21	23
Non-Pass-By		29	18	40	44
Total		330	232	575	566
Total Internal		0	0	52	52
Total Pass-by		50	49	192	188
Total Non-pass-by		280	183	331	326

[1] Online Traffic Impact Study Software developed by ITE and Transoft Solutions.
[2] The average ITE pass-by rate of 34% was used for the shopping center. Shopping Center is the valid use since this site contains several retail establishments.

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4.2.2 Trip Distribution & Assignment

All non-pass-by trips were assigned to the study area using a distribution proportional to the AM and PM peak volumes entering/exiting the study area (rounded to nearest 5%):

- 20% To/From the North
- 15% To/From the South
- 30% To/From the East
- 35% To/From the West

All pass-by trips were distributed using the weighted PM Peak directional distributions on East Main Street and Rosehill Road. The following percentages were determined:

- 8% of southbound pass-by traffic will occur on Rosehill Road
- 7% of northbound pass-by traffic will occur on Rosehill Road
- 35% of eastbound pass-by traffic will occur on East Main Street
- 50% of westbound pass-by traffic will occur on East Main Street

The detailed distributions can be found in Appendix C.

4.3 Total Traffic

Total traffic was determined by adding site traffic to the Background traffic for the AM and PM peaks in the Opening and Horizon Years. These volumes can be seen in Appendix C.

5.0 Traffic Analysis

5.1 Turn Lanes

Turn lane warrant analyses were conducted on the proposed site drives seen in Figure 1 (Intersections 1-4). ODOT Turn Lane Warrants were used to determine where left and right turn lanes are required. If a turn lane was required, the length of the lane was also calculated based on the procedure outline in the ODOT L&D Manual. East Main Street has a speed limit of 35 miles per hour and Rosehill Road has a speed limit of 35 miles per hour, therefore a design speed of 40 miles per hour was used in the turn lane length calculations per the ODOT L&D Manual.

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

5.2 Capacity & Level of Service (LOS)

Version 9 of Synchro software was used to determine the LOS for the signalized and unsignalized intersections within the study area. A minimum LOS of D was required for each intersection, with no movement falling below LOS E. A cycle length of 120 seconds was used for all signalized intersections in the study area.

6.0 Results

6.1 Turn Lane Warrant Analysis

Table 3 below shows the turn lanes that are warranted in each scenario. The turn lane warrant graphs and length calculations that were used to produce these results can be seen in Appendix E. The warranted left turn lanes can be accommodated by the existing two-way left turn lanes on East Main Street and Rosehill Road.

Table 3 – Results of Turn Lane Warrant Analysis

Intersection	Turn Lane	Design Year	
		2017	2027
East Main Street & Site Drive 1	Right Turn Lane	---	---
	Left Turn Lane	125′	125′
East Main Street & Site Drive 2	Right Turn Lane	125′	125′
	Left Turn Lane	125′	125′
East Main Street & Site Drive 3	Right Turn Lane	125′	125′
	Left Turn Lane	125′	125′
Rosehill Road & Site Drive 4	Right Turn Lane	211′	211′
	Left Turn Lane	211′	211′

6.2 Capacity Analysis

All study intersections and proposed site drives perform at an acceptable LOS, with the exception of the intersection of East Main Street and Brice Road, which fails under No Build *and* Build Conditions. Table 4 shows the LOS and delay at each study intersection. The worst approach LOS is provided for the site drives. The full Synchro reports can be found in Appendix F.

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

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Table 4 – AM & PM Peak Capacity Results (LOS/delay)

Intersection	Approach	2017				2027			
		AM		PM		AM		PM	
		No Build	Build	No Build	Build	No Build	Build	No Build	Build
East Main Street & Brice Road	Northbound	E/71.7[3]	E/67.6[3]	E/55.2	E/74.6[3]	E/70.4[3]	E/68.1[3]	E/58.0	E/61.2[3]
	Southbound	E/62.4	E/71.5	E/78.1	E/64.0	F/80.3	F/86.5	F/85.3	F/109.0
	Eastbound	C/23.9	C/24.6	E/76.3[3]	E/63.6[3]	C/24.0	C/24.9	F/89.2	F/103.8
	Westbound	E/69.0[3]	E/72.4[3]	C/32.7	E/74.4[3]	E/78.6[3]	F/88.3	D/36.0[3]	D/35.8[3]
	TOTAL	*E/60.1*	*E/61.2*	*E/59.3*	*E/69.0*	*E/66.4*	*E/71.0*	*E/67.0*	*E/75.1*
East Main Street & Brice Road w/ Improvements	Northbound	D/45.1	D/41.6	D/48.3	D/52.5	D/46.1	D/47.6	D/51.0	D/50.4
	Southbound	D/45.4	D/47.5	D/49.8	D/53.2	D/48.2	D/50.4	D/52.8	D/51.5
	Eastbound	C/20.9	C/20.5	C/49.3	D/52.3	C/20.4	B/19.9	D/49.2	D/50.9
	Westbound	D/46.3	D/47.5	C/28.4	C/25.8	D/49.5	D/50.9	C/27.5	C/22.8
	TOTAL	*D/41.0*	*D/40.6*	*D/42.8*	*D/44.0*	*D/43.0*	*D/43.7*	*D/43.1*	*D/41.9*
East Main Street & Rosehill Road	Northbound	C/33.0	D/37.0	C/33.9	D/42.6	D/35.6	D/40.5	C/34.4	D/46.6
	Southbound	D/40.0	D/44.5	C/30.7	C/34.8	D/43.5	D/47.0	D/35.0	D/38.2
	Eastbound	B/19.5	B/19.2	C/33.2	D/42.3	C/20.2	C/20.2	C/34.7	D/46.8
	Westbound	D/39.6	D/44.3	C/26.4	D/36.7	D/42.7	D/47.1	C/26.6	D/38.5
	TOTAL	*C/34.7*	*D/38.5*	*C/30.9*	*D/39.4*	*C/37.4*	*D/40.9*	*C/32.3*	*D/42.9*
East Main Street & Briarcliff Road	Northbound	C/24.9	C/28.3	B/18.6	C/20.7	C/28.8	C/30.2	C/20.2	C/22.0
	Southbound	C/26.8	C/30.4	C/20.3	C/22.7	C/30.9	C/32.6	C/22.1	C/24.3
	Eastbound	B/10.5	B/11.2	B/14.1	B/15.8	B/11.4	B/10.9	B/16.2	B/16.8
	Westbound	C/27.0	C/28.9	C/20.1	C/22.2	C/30.5	C/31.3	C/21.9	C/23.4
	TOTAL	*C/23.0*	*C/24.6*	*B/16.9*	*B/18.8*	*C/25.9*	*C/26.3*	*B/18.9*	*B/20.0*
Drive 1	Southbound	—	D/26.7	—	C/24.4	—	D/29.4	—	D/26.5
Drive 2	Southbound	—	D/26.7	—	C/18.4	—	D/29.4	—	C/19.5
Drive 3	Southbound	—	E/37.3	—	D/30.9	—	E/42.3	—	D/33.9
Drive 4	Eastbound	—	B/12.6	—	C/18.8	—	B/12.8	—	C/19.7

Figure 2 shows the proposed improvements to the intersection of Brice Road and East Main Street. The southbound left-through-right lane needs to be separated into three individual lanes. An additional northbound left turn lane is also required. These improvements bring the intersection to an acceptable LOS in all scenarios, with or without the proposed development.

[3] One or more movements is at an LOS F.

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

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Figure 2 – Brice Road & E. Main Street Proposed Improvements

7.0 Recommendations

It is recommended that the following turn lanes be installed prior to Opening Day:

1. 125′ westbound right turn lane at East Main Street and Site Drive 2
2. 125′ westbound right turn lane at East Main Street and Site Drive 3
3. 211′ southbound right turn lane at Rosehill Drive and Site Drive 4

The improvements required at the intersection of Brice Road and East Main Street are necessary with or without the proposed development. Therefore, it is not recommended that the developer provide these improvements.

8.0 Appendices

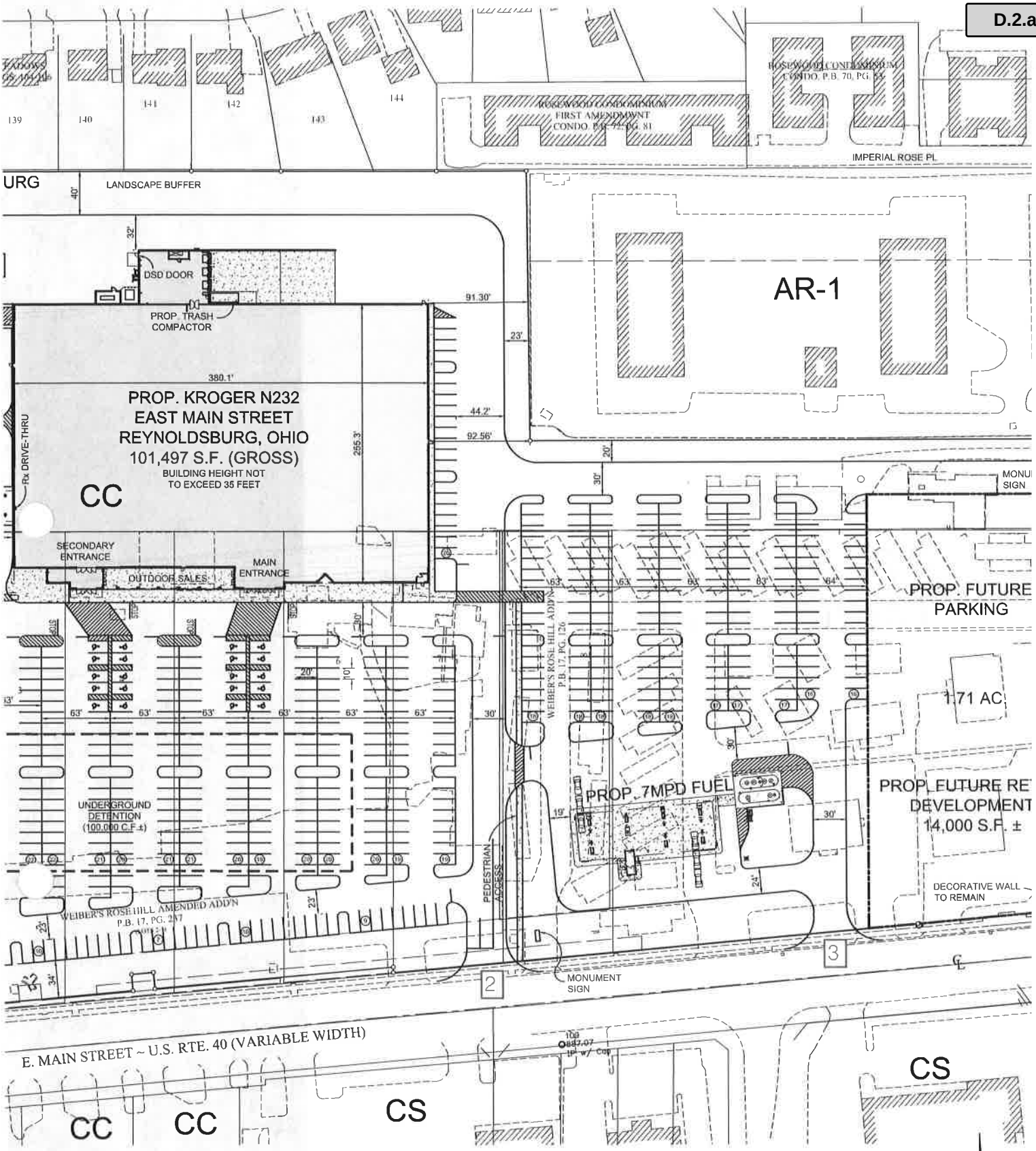
Appendix A – Site Plan
Appendix B – Traffic Counts
Appendix C – Volume Development
Appendix D – Trip Generation
Appendix E – Turn Lane Warrants
Appendix F – Capacity Analysis

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Appendix A
Site Plan

CARPENTER MARTY transportation

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)



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634	1/160 6.25 PER 1000

STATE OF OHIO
ANDREW A. GARDNER
E-68659
REGISTERED
PROFESSIONAL ENGINEER

SCALE: 1" = 60'
0 60 120
GRAPHIC SCALE

ANDREW GARDNER ~ OHIO ENGINEER NO. E-68659

Date

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

Appendix B
Traffic Counts

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Appendix B

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

CM Transportation

6612 Singletree Drive
Columbus, OH 43229

File Name : 160127 E Main & Brice AM Peak
Site Code :
Start Date : 1/27/2016
Page No : 1

Groups Printed- Cars - Trucks

	Brice Rd From North				E Main St From East				Brice Rd From South				E Main St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	30	8	4	42	5	364	16	385	37	10	79	126	13	86	7	106	659
07:15 AM	24	11	6	41	2	382	18	402	29	14	106	149	16	102	6	124	716
07:30 AM	34	19	13	66	1	336	14	351	38	20	96	154	17	127	7	151	722
07:45 AM	28	10	7	45	3	399	31	433	51	19	64	134	19	168	7	194	806
Total	116	48	30	194	11	1481	79	1571	155	63	345	563	65	483	27	575	2903
08:00 AM	18	22	8	48	0	299	40	339	42	16	64	122	27	117	6	150	659
08:15 AM	16	16	9	41	4	322	29	355	41	8	40	89	29	151	6	186	671
08:30 AM	12	17	7	36	4	289	29	322	53	21	55	129	25	131	6	162	649
08:45 AM	11	16	8	35	4	229	32	265	39	12	43	94	31	147	3	181	575
Total	57	71	32	160	12	1139	130	1281	175	57	202	434	112	546	21	679	2554
Grand Total	173	119	62	354	23	2620	209	2852	330	120	547	997	177	1029	48	1254	5457
Apprch %	48.9	33.6	17.5		0.8	91.9	7.3		33.1	12	54.9		14.1	82.1	3.8		
Total %	3.2	2.2	1.1	6.5	0.4	48	3.8	52.3	6	2.2	10	18.3	3.2	18.9	0.9	23	
Cars	171	117	61	349	22	2601	205	2828	330	118	544	992	176	1016	45	1237	5406
% Cars	98.8	98.3	98.4	98.6	95.7	99.3	98.1	99.2	100	98.3	99.5	99.5	99.4	98.7	93.8	98.6	99.1
Trucks	2	2	1	5	1	19	4	24	0	2	3	5	1	13	3	17	51
% Trucks	1.2	1.7	1.6	1.4	4.3	0.7	1.9	0.8	0	1.7	0.5	0.5	0.6	1.3	6.2	1.4	0.9

	Brice Rd From North				E Main St From East				Brice Rd From South				E Main St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	30	8	4	42	5	364	16	385	37	10	79	126	13	86	7	106	659
07:15 AM	24	11	6	41	2	382	18	402	29	14	106	149	16	102	6	124	716
07:30 AM	34	19	13	66	1	336	14	351	38	20	96	154	17	127	7	151	722
07:45 AM	28	10	7	45	3	399	31	433	51	19	64	134	19	168	7	194	806
Total Volume	116	48	30	194	11	1481	79	1571	155	63	345	563	65	483	27	575	2903
% App. Total	59.8	24.7	15.5		0.7	94.3	5		27.5	11.2	61.3		11.3	84	4.7		
PHF	.853	.632	.577	.735	.550	.928	.637	.907	.760	.788	.814	.914	.855	.719	.964	.741	.900

CM Transportation

6612 Singletree Drive
Columbus, OH 43229

File Name : 160126 E Main & Brice PM Peak
Site Code :
Start Date : 1/26/2016
Page No : 1

Groups Printed- Cars - Trucks

	Brice Rd From North				E Main St From East				Brice Rd From South				E Main St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
04:00 PM	25	33	13	71	7	198	49	254	57	28	43	128	62	249	18	329	782
04:15 PM	9	17	11	37	6	165	58	229	55	22	58	135	56	269	17	342	743
04:30 PM	3	27	11	41	6	198	49	253	55	23	54	132	72	294	23	389	815
04:45 PM	17	32	8	57	7	180	57	244	66	33	60	159	64	260	24	348	808
Total	54	109	43	206	26	741	213	980	233	106	215	554	254	1072	82	1408	3148
05:00 PM	11	39	9	59	5	209	61	275	75	25	69	169	66	280	19	365	868
05:15 PM	18	18	16	52	5	193	43	241	58	29	52	139	62	317	23	402	834
05:30 PM	11	25	11	47	5	176	52	233	57	16	50	123	75	291	17	383	786
05:45 PM	10	18	15	43	5	187	65	257	49	15	36	100	57	257	15	329	729
Total	50	100	51	201	20	765	221	1006	239	85	207	531	260	1145	74	1479	3217
Grand Total	104	209	94	407	46	1506	434	1986	472	191	422	1085	514	2217	156	2887	6365
Apprch %	25.6	51.4	23.1		2.3	75.8	21.9		43.5	17.6	38.9		17.8	76.8	5.4		
Total %	1.6	3.3	1.5	6.4	0.7	23.7	6.8	31.2	7.4	3	6.6	17	8.1	34.8	2.5	45.4	
Cars	104	209	94	407	46	1496	433	1975	472	191	421	1084	512	2206	156	2874	6340
% Cars	100	100	100	100	100	99.3	99.8	99.4	100	100	99.8	99.9	99.6	99.5	100	99.5	99.6
Trucks	0	0	0	0	0	10	1	11	0	0	1	1	2	11	0	13	25
% Trucks	0	0	0	0	0	0.7	0.2	0.6	0	0	0.2	0.1	0.4	0.5	0	0.5	0.4

	Brice Rd From North				E Main St From East				Brice Rd From South				E Main St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	3	27	11	41	6	198	49	253	55	23	54	132	72	294	23	389	815
04:45 PM	17	32	8	57	7	180	57	244	66	33	60	159	64	260	24	348	808
05:00 PM	11	39	9	59	5	209	61	275	75	25	69	169	66	280	19	365	868
05:15 PM	18	18	16	52	5	193	43	241	58	29	52	139	62	317	23	402	834
Total Volume	49	116	44	209	23	780	210	1013	254	110	235	599	264	1151	89	1504	3325
% App. Total	23.4	55.5	21.1		2.3	77	20.7		42.4	18.4	39.2		17.6	76.5	5.9		
PHF	.681	.744	.688	.886	.821	.933	.861	.921	.847	.833	.851	.886	.917	.908	.927	.935	.958

rpenter Marty Transportatio Inc.
6612 Singletree Dr.
Columbus, OH 43229

File Name : 160127 E Main & Rosehill AM Peak
Site Code :
Start Date : 1/27/2016
Page No : 1

Groups Printed- Cars - Trucks

	Rosehill Road From North				E. Main Street From East				Rosehill Road From South				E. Main Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	25	12	19	56	10	361	7	378	11	29	26	66	6	87	17	110	610
07:15 AM	38	16	9	63	25	376	12	413	5	17	17	39	8	86	13	107	622
07:30 AM	37	22	16	75	27	356	13	396	4	22	14	40	19	124	22	165	676
07:45 AM	29	26	29	84	28	317	21	366	14	30	29	73	10	118	31	159	682
Total	129	76	73	278	90	1410	53	1553	34	98	86	218	43	415	83	541	2590
08:00 AM	52	27	20	99	28	301	20	349	9	20	29	58	12	103	20	135	641
08:15 AM	48	16	26	90	15	284	6	305	6	14	28	48	15	115	14	144	587
08:30 AM	37	22	14	73	14	259	21	294	8	22	27	57	10	120	23	153	577
08:45 AM	35	17	14	66	15	174	16	205	14	17	22	53	11	116	18	145	469
Total	172	82	74	328	72	1018	63	1153	37	73	106	216	48	454	75	577	2274
Grand Total	301	158	147	606	162	2428	116	2706	71	171	192	434	91	869	158	1118	4864
Apprch %	49.7	26.1	24.3		6	89.7	4.3		16.4	39.4	44.2		8.1	77.7	14.1		
Total %	6.2	3.2	3	12.5	3.3	49.9	2.4	55.6	1.5	3.5	3.9	8.9	1.9	17.9	3.2	23	
Cars	301	158	146	605	162	2417	116	2695	71	171	191	433	91	859	158	1108	4841
% Cars	100	100	99.3	99.8	100	99.5	100	99.6	100	100	99.5	99.8	100	98.8	100	99.1	99.5
Trucks	0	0	1	1	0	11	0	11	0	0	1	1	0	10	0	10	23
% Trucks	0	0	0.7	0.2	0	0.5	0	0.4	0	0	0.5	0.2	0	1.2	0	0.9	0.5

	Rosehill Road From North				E. Main Street From East				Rosehill Road From South				E. Main Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	38	16	9	63	25	376	12	413	5	17	17	39	8	86	13	107	622
07:30 AM	37	22	16	75	27	356	13	396	4	22	14	40	19	124	22	165	676
07:45 AM	29	26	29	84	28	317	21	366	14	30	29	73	10	118	31	159	682
08:00 AM	52	27	20	99	28	301	20	349	9	20	29	58	12	103	20	135	641
Total Volume	156	91	74	321	108	1350	66	1524	32	89	89	210	49	431	86	566	2621
% App. Total	48.6	28.3	23.1		7.1	88.6	4.3		15.2	42.4	42.4		8.7	76.1	15.2		
PHF	.750	.843	.638	.811	.964	.898	.786	.923	.571	.742	.767	.719	.645	.869	.694	.858	.961

Carpenter Marty Transportation, Inc.

6612 Singletree Dr.
Columbus, OH 43229

File Name : 160126 E Main & Rosehill PM Peak
Site Code :
Start Date : 1/26/2016
Page No : 1

Groups Printed- Cars - Trucks

	Rosehill Road From North				E. Main Street From East				Rosehill Road From South				E. Main Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
04:00 PM	29	37	39	105	18	209	31	258	26	27	16	69	21	269	36	326	758
04:15 PM	42	33	30	105	12	153	18	183	25	31	19	75	20	254	43	317	680
04:30 PM	42	38	41	121	22	174	26	222	28	33	14	75	19	279	42	340	758
04:45 PM	34	46	43	123	24	194	25	243	29	44	18	91	24	271	52	347	804
Total	147	154	153	454	76	730	100	906	108	135	67	310	84	1073	173	1330	3000
05:00 PM	25	44	29	98	28	193	20	241	30	23	23	76	21	267	54	342	757
05:15 PM	26	34	31	91	23	158	27	208	34	34	21	89	21	272	62	355	743
05:30 PM	32	36	39	107	26	168	35	229	31	18	19	68	63	236	43	342	746
05:45 PM	35	33	42	110	25	168	31	224	22	15	12	49	17	226	44	287	670
Total	118	147	141	406	102	687	113	902	117	90	75	282	122	1001	203	1326	2916
Grand Total	265	301	294	860	178	1417	213	1808	225	225	142	592	206	2074	376	2656	5916
Apprch %	30.8	35	34.2		9.8	78.4	11.8		38	38	24		7.8	78.1	14.2		
Total %	4.5	5.1	5	14.5	3	24	3.6	30.6	3.8	3.8	2.4	10	3.5	35.1	6.4	44.9	
Cars	265	301	294	860	178	1408	213	1799	225	225	142	592	206	2065	376	2647	5898
% Cars	100	100	100	100	100	99.4	100	99.5	100	100	100	100	100	99.6	100	99.7	99.7
Trucks	0	0	0	0	0	9	0	9	0	0	0	0	0	9	0	9	18
% Trucks	0	0	0	0	0	0.6	0	0.5	0	0	0	0	0	0.4	0	0.3	0.3

	Rosehill Road From North				E. Main Street From East				Rosehill Road From South				E. Main Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	42	38	41	121	22	174	26	222	28	33	14	75	19	279	42	340	758
04:45 PM	34	46	43	123	24	194	25	243	29	44	18	91	24	271	52	347	804
05:00 PM	25	44	29	98	28	193	20	241	30	23	23	76	21	267	54	342	757
05:15 PM	26	34	31	91	23	158	27	208	34	34	21	89	21	272	62	355	743
Total Volume	127	162	144	433	97	719	98	914	121	134	76	331	85	1089	210	1384	3062
% App. Total	29.3	37.4	33.3		10.6	78.7	10.7		36.6	40.5	23		6.1	78.7	15.2		
PHF	.756	.880	.837	.880	.866	.927	.907	.940	.890	.761	.826	.909	.885	.976	.847	.975	.952

CM Transportatic

6612 Singletree Drive
Columbus, OH 43229

File Name : 160127 E Main & Briarcliff AM Peak
Site Code :
Start Date : 1/27/2016
Page No : 1

Groups Printed- Cars - Trucks

	Briarcliff Road From North				E Main Street From East				Briarcliff Road From South				E Main Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	27	0	4	31	0	373	2	375	0	0	8	8	2	97	12	111	525
07:15 AM	32	0	6	38	7	361	3	371	1	0	10	11	2	95	8	105	525
07:30 AM	15	0	4	19	6	391	1	398	2	0	8	10	3	122	13	138	565
07:45 AM	18	1	11	30	4	300	2	306	6	1	8	15	4	139	12	155	506
Total	92	1	25	118	17	1425	8	1450	9	1	34	44	11	453	45	509	2121
08:00 AM	8	3	5	16	4	247	7	258	1	2	5	8	1	105	8	114	396
08:15 AM	23	0	5	28	1	279	3	283	0	0	3	3	2	108	14	124	438
08:30 AM	26	0	6	32	2	230	0	232	3	1	3	7	3	112	14	129	400
08:45 AM	22	0	16	38	3	169	1	173	6	0	1	7	1	125	9	135	353
Total	79	3	32	114	10	925	11	946	10	3	12	25	7	450	45	502	1587
Grand Total	171	4	57	232	27	2350	19	2396	19	4	46	69	18	903	90	1011	3708
Apprch %	73.7	1.7	24.6		1.1	98.1	0.8		27.5	5.8	66.7		1.8	89.3	8.9		
Total %	4.6	0.1	1.5	6.3	0.7	63.4	0.5	64.6	0.5	0.1	1.2	1.9	0.5	24.4	2.4	27.3	
Cars	171	4	57	232	26	2339	19	2384	19	4	46	69	18	892	90	1000	3685
% Cars	100	100	100	100	96.3	99.5	100	99.5	100	100	100	100	100	98.8	100	98.9	99.4
Trucks	0	0	0	0	1	11	0	12	0	0	0	0	0	11	0	11	23
% Trucks	0	0	0	0	3.7	0.5	0	0.5	0	0	0	0	0	1.2	0	1.1	0.6

	Briarcliff Road From North				E Main Street From East				Briarcliff Road From South				E Main Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	27	0	4	31	0	373	2	375	0	0	8	8	2	97	12	111	525
07:15 AM	32	0	6	38	7	361	3	371	1	0	10	11	2	95	8	105	525
07:30 AM	15	0	4	19	6	391	1	398	2	0	8	10	3	122	13	138	565
07:45 AM	18	1	11	30	4	300	2	306	6	1	8	15	4	139	12	155	506
Total Volume	92	1	25	118	17	1425	8	1450	9	1	34	44	11	453	45	509	2121
% App. Total	78	0.8	21.2		1.2	98.3	0.6		20.5	2.3	77.3		2.2	89	8.8		
PHF	.719	.250	.568	.776	.607	.911	.667	.911	.375	.250	.850	.733	.688	.815	.865	.821	.938

CM Transportation

6612 Singletree Drive
Columbus, OH 43229

File Name : 160127 E Main & Briarcliff PM Peak
Site Code :
Start Date : 1/27/2016
Page No : 1

Groups Printed- Cars - Trucks

	Briarcliff Road From North				E Main Street From East				Briarcliff Road From South				E Main Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
04:00 PM	26	1	11	38	12	210	9	231	10	2	6	18	9	274	45	328	615
04:15 PM	24	5	17	46	6	189	6	201	4	2	8	14	5	252	34	291	552
04:30 PM	14	3	8	25	4	183	3	190	6	2	6	14	3	252	23	278	507
04:45 PM	17	2	12	31	8	163	7	178	4	4	4	12	4	191	26	221	442
Total	81	11	48	140	30	745	25	800	24	10	24	58	21	969	128	1118	2116
05:00 PM	21	2	17	40	20	203	3	226	6	2	10	18	4	212	34	250	534
05:15 PM	26	3	8	37	15	208	9	232	6	4	8	18	7	244	30	281	568
05:30 PM	30	1	22	53	10	168	4	182	6	3	6	15	6	198	36	240	490
05:45 PM	23	3	13	39	15	199	2	216	3	3	5	11	6	194	38	238	504
Total	100	9	60	169	60	778	18	856	21	12	29	62	23	848	138	1009	2096
Grand Total	181	20	108	309	90	1523	43	1656	45	22	53	120	44	1817	266	2127	4212
Apprch %	58.6	6.5	35		5.4	92	2.6		37.5	18.3	44.2		2.1	85.4	12.5		
Total %	4.3	0.5	2.6	7.3	2.1	36.2	1	39.3	1.1	0.5	1.3	2.8	1	43.1	6.3	50.5	
Cars	181	20	108	309	90	1518	43	1651	45	22	53	120	44	1816	266	2126	4206
% Cars	100	100	100	100	100	99.7	100	99.7	100	100	100	100	100	99.9	100	100	99.9
Trucks	0	0	0	0	0	5	0	5	0	0	0	0	0	1	0	1	6
% Trucks	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	0.1	0	0	0.1

	Briarcliff Road From North				E Main Street From East				Briarcliff Road From South				E Main Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	26	1	11	38	12	210	9	231	10	2	6	18	9	274	45	328	615
04:15 PM	24	5	17	46	6	189	6	201	4	2	8	14	5	252	34	291	552
04:30 PM	14	3	8	25	4	183	3	190	6	2	6	14	3	252	23	278	507
04:45 PM	17	2	12	31	8	163	7	178	4	4	4	12	4	191	26	221	442
Total Volume	81	11	48	140	30	745	25	800	24	10	24	58	21	969	128	1118	2116
% App. Total	57.9	7.9	34.3		3.8	93.1	3.1		41.4	17.2	41.4		1.9	86.7	11.4		
PHF	.779	.550	.706	.761	.625	.887	.694	.866	.600	.625	.750	.806	.583	.884	.711	.852	.860

Appendix C
Volume Development

CARPENTER MARTY transportation

Appendix C

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

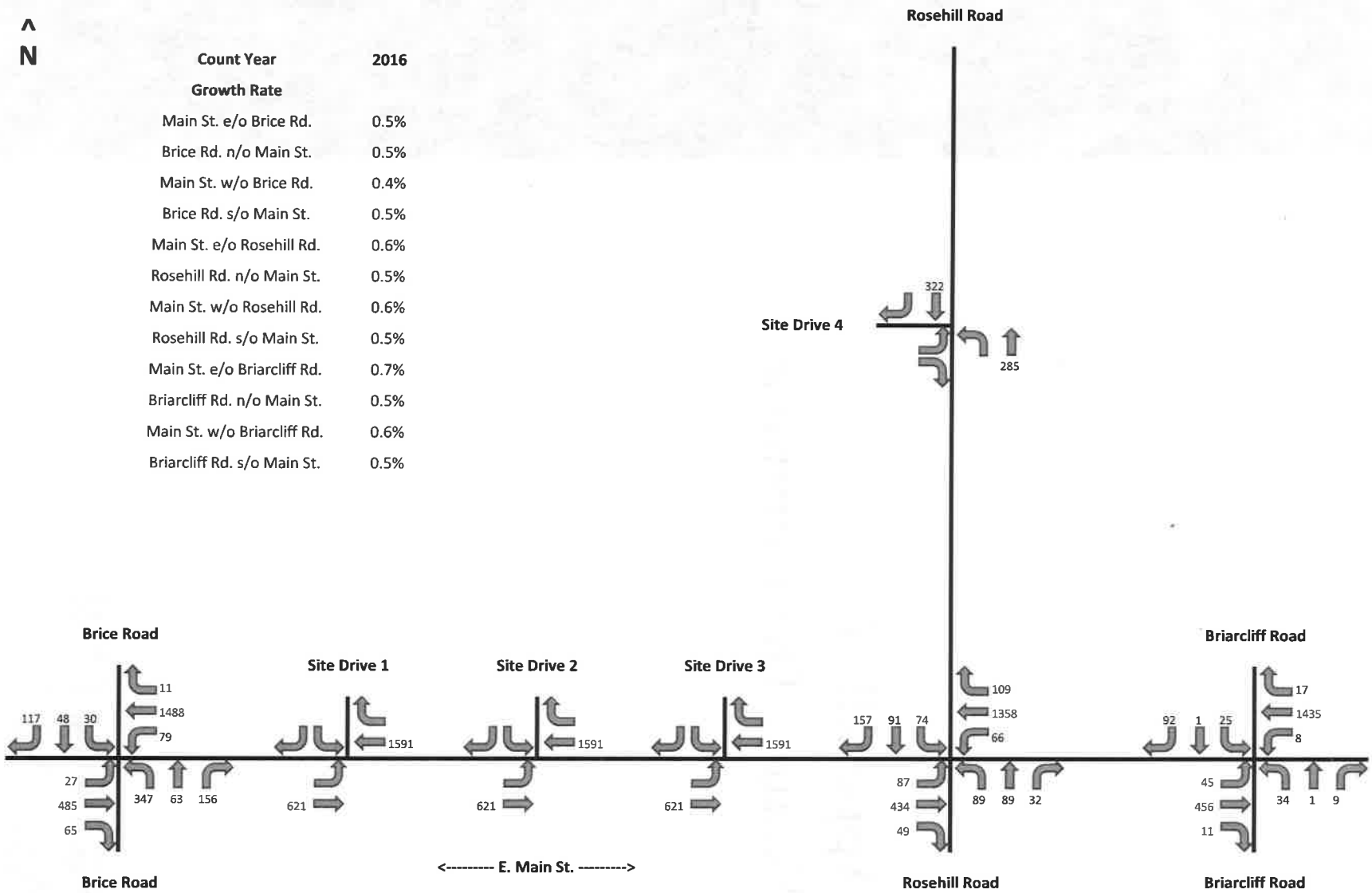
Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation

Year	Period	Scenario	Plate
2017	AM	Background Traffic	A

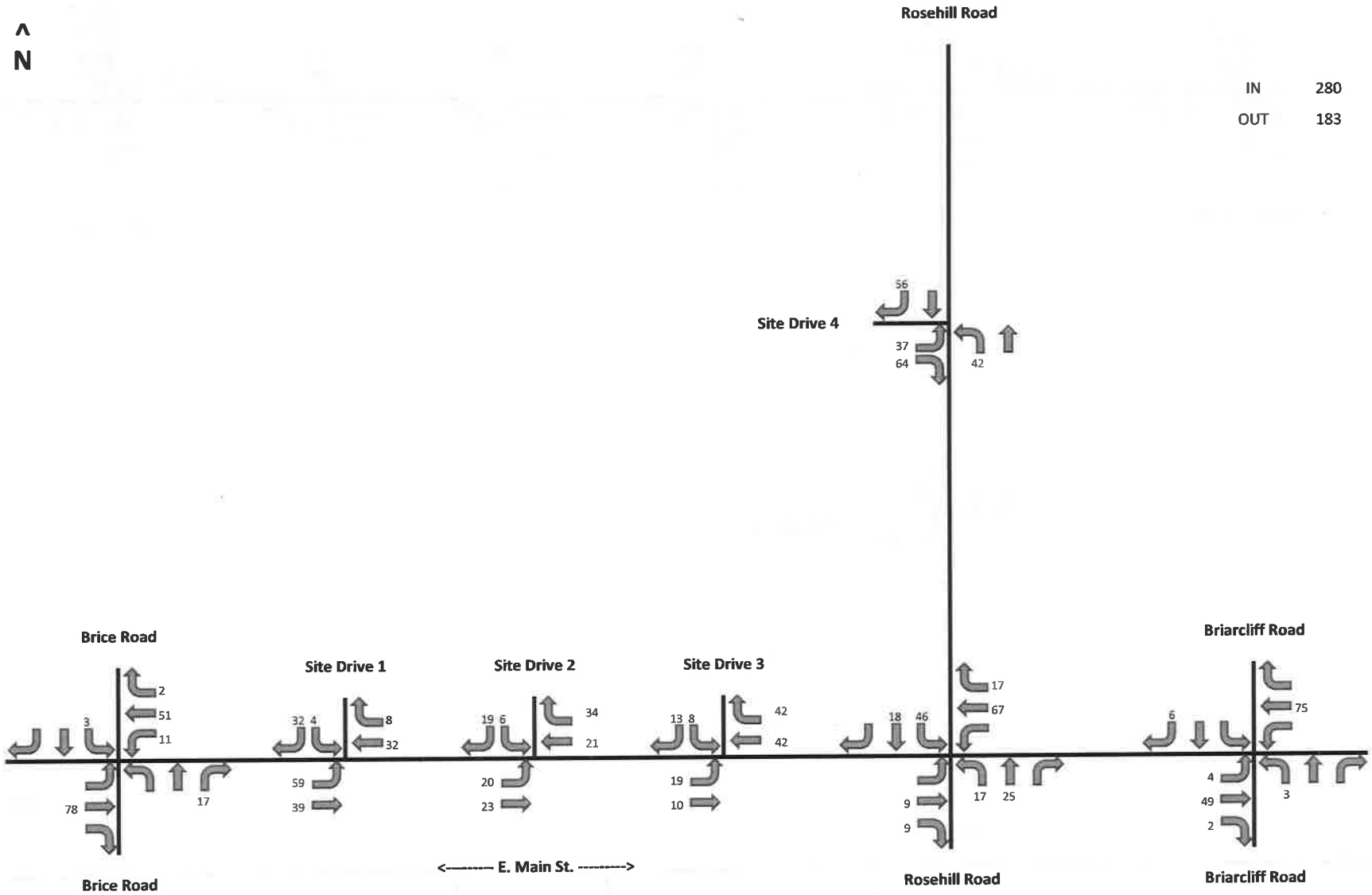
N

Count Year	2016
Growth Rate	
Main St. e/o Brice Rd.	0.5%
Brice Rd. n/o Main St.	0.5%
Main St. w/o Brice Rd.	0.4%
Brice Rd. s/o Main St.	0.5%
Main St. e/o Rosehill Rd.	0.6%
Rosehill Rd. n/o Main St.	0.5%
Main St. w/o Rosehill Rd.	0.6%
Rosehill Rd. s/o Main St.	0.5%
Main St. e/o Briarcliff Rd.	0.7%
Briarcliff Rd. n/o Main St.	0.5%
Main St. w/o Briarcliff Rd.	0.6%
Briarcliff Rd. s/o Main St.	0.5%



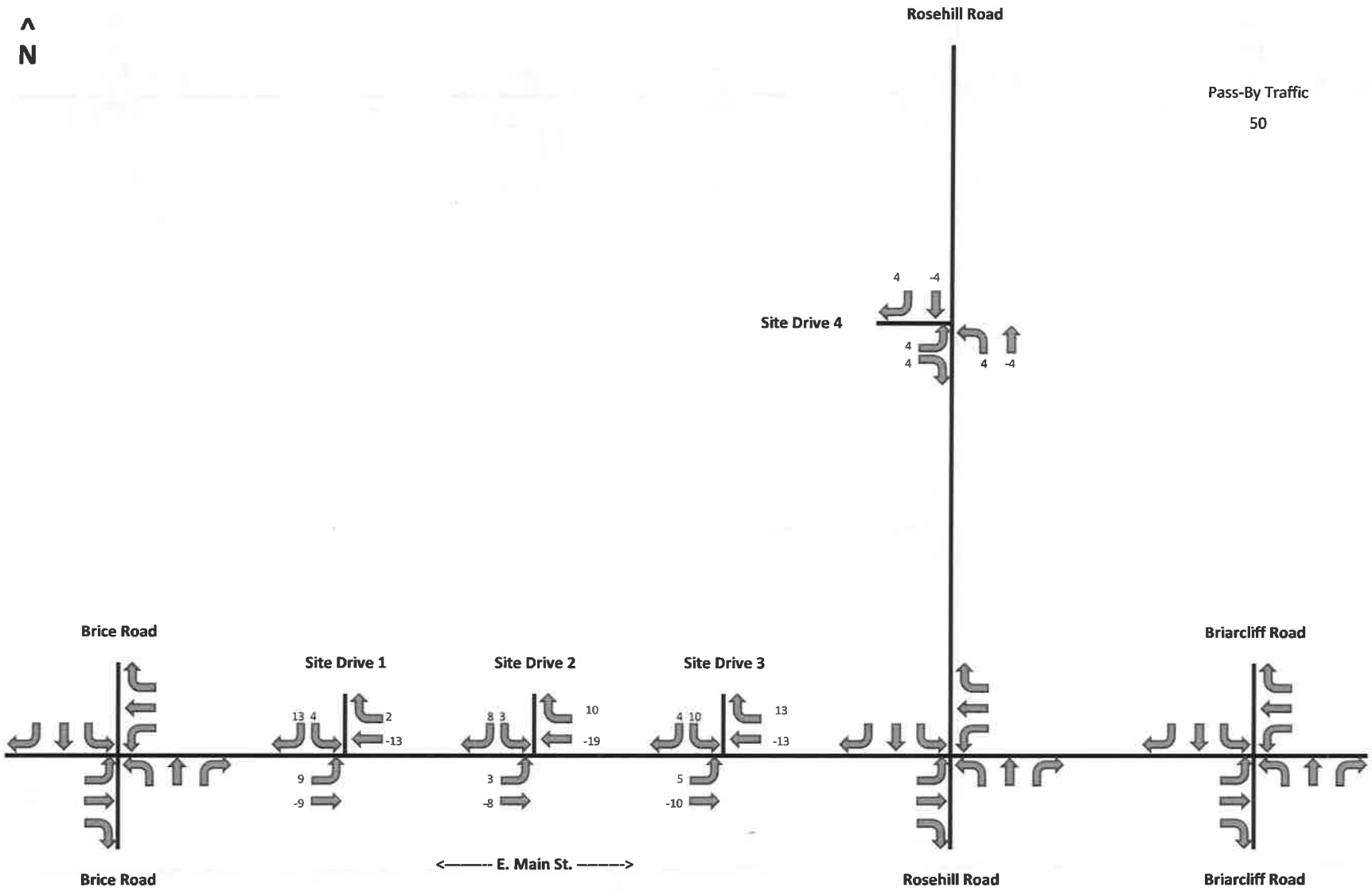
Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
		AM	Non-Pass-By Site Traffic	B



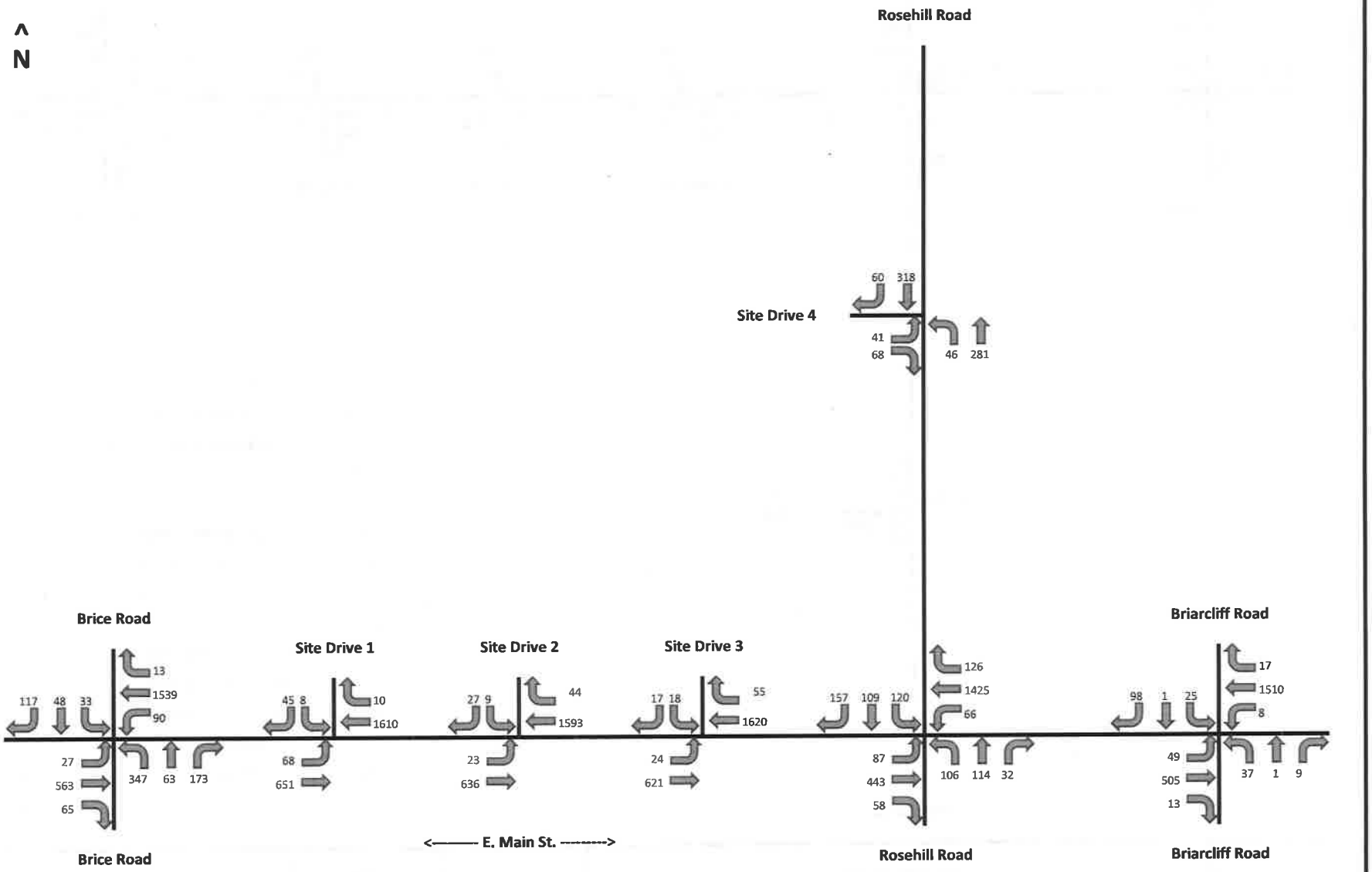
Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
		AM	Pass-By Site Traffic	C



Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
	2017	AM	Total Traffic	D = A + B + C

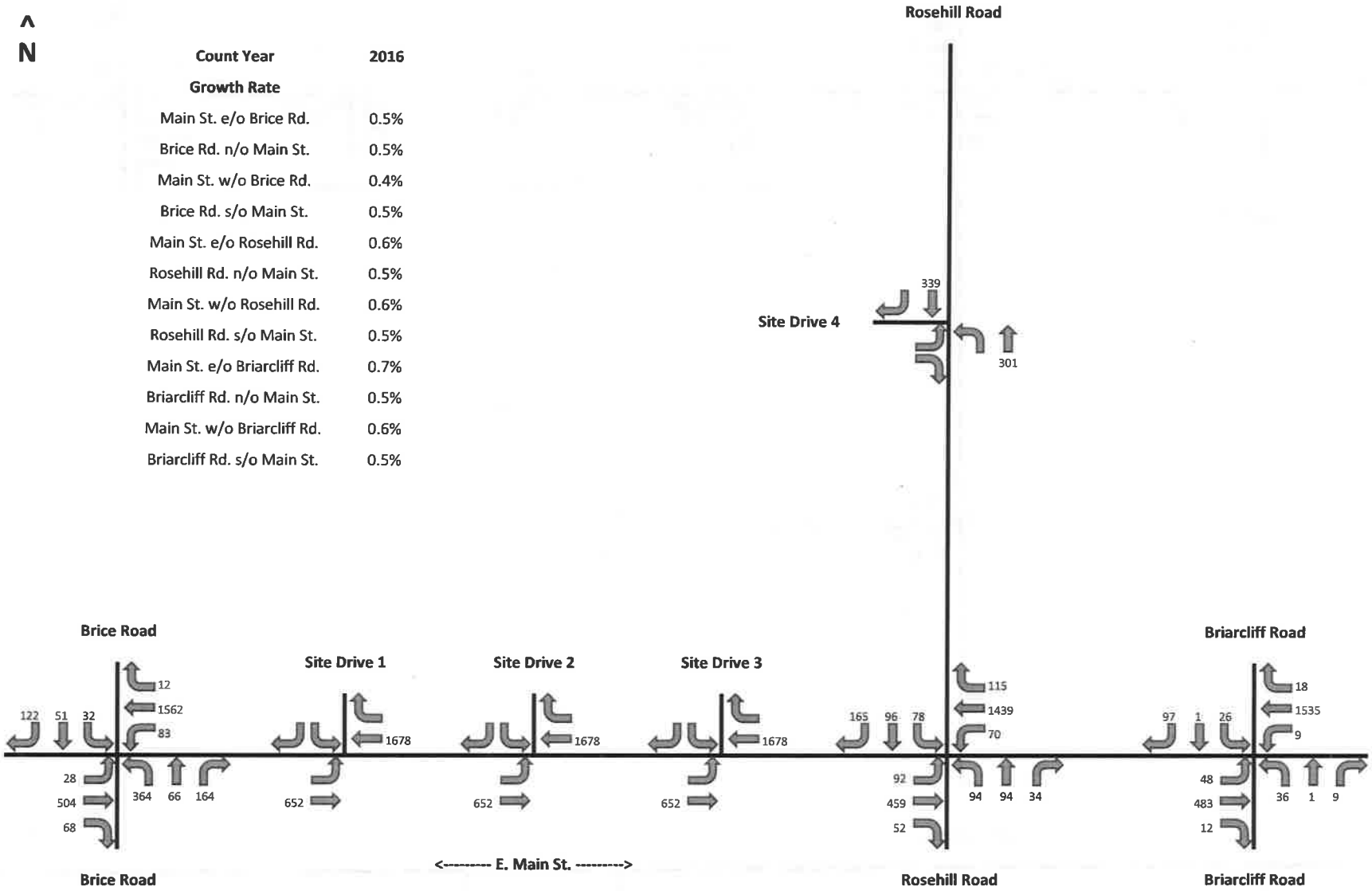


Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
	2027	AM	Background Traffic	E

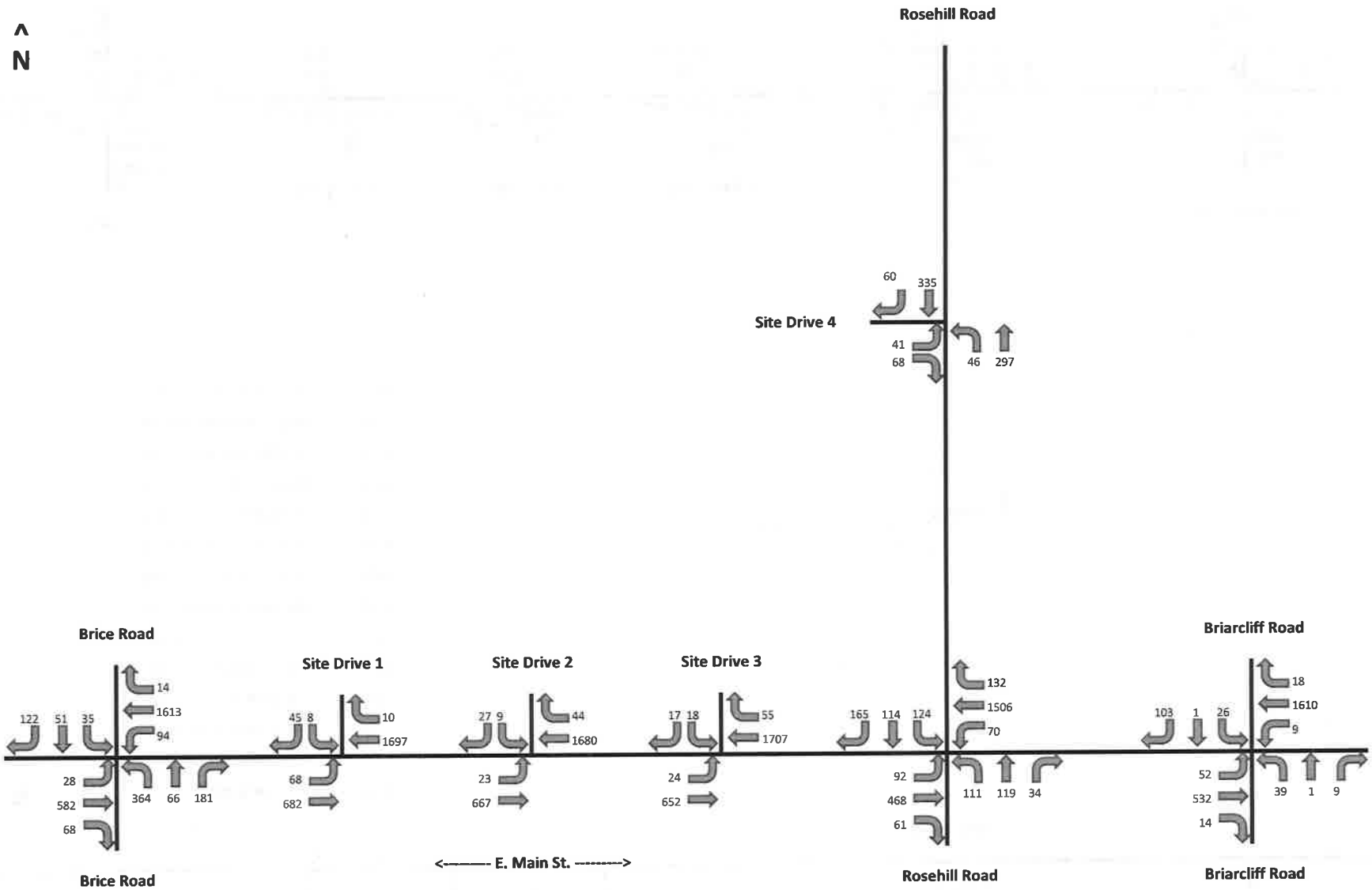
^
N

Count Year	2016
Growth Rate	
Main St. e/o Brice Rd.	0.5%
Brice Rd. n/o Main St.	0.5%
Main St. w/o Brice Rd.	0.4%
Brice Rd. s/o Main St.	0.5%
Main St. e/o Rosehill Rd.	0.6%
Rosehill Rd. n/o Main St.	0.5%
Main St. w/o Rosehill Rd.	0.6%
Rosehill Rd. s/o Main St.	0.5%
Main St. e/o Briarcliff Rd.	0.7%
Briarcliff Rd. n/o Main St.	0.5%
Main St. w/o Briarcliff Rd.	0.6%
Briarcliff Rd. s/o Main St.	0.5%



Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
	2027	AM	Total Traffic	F = E + B + C

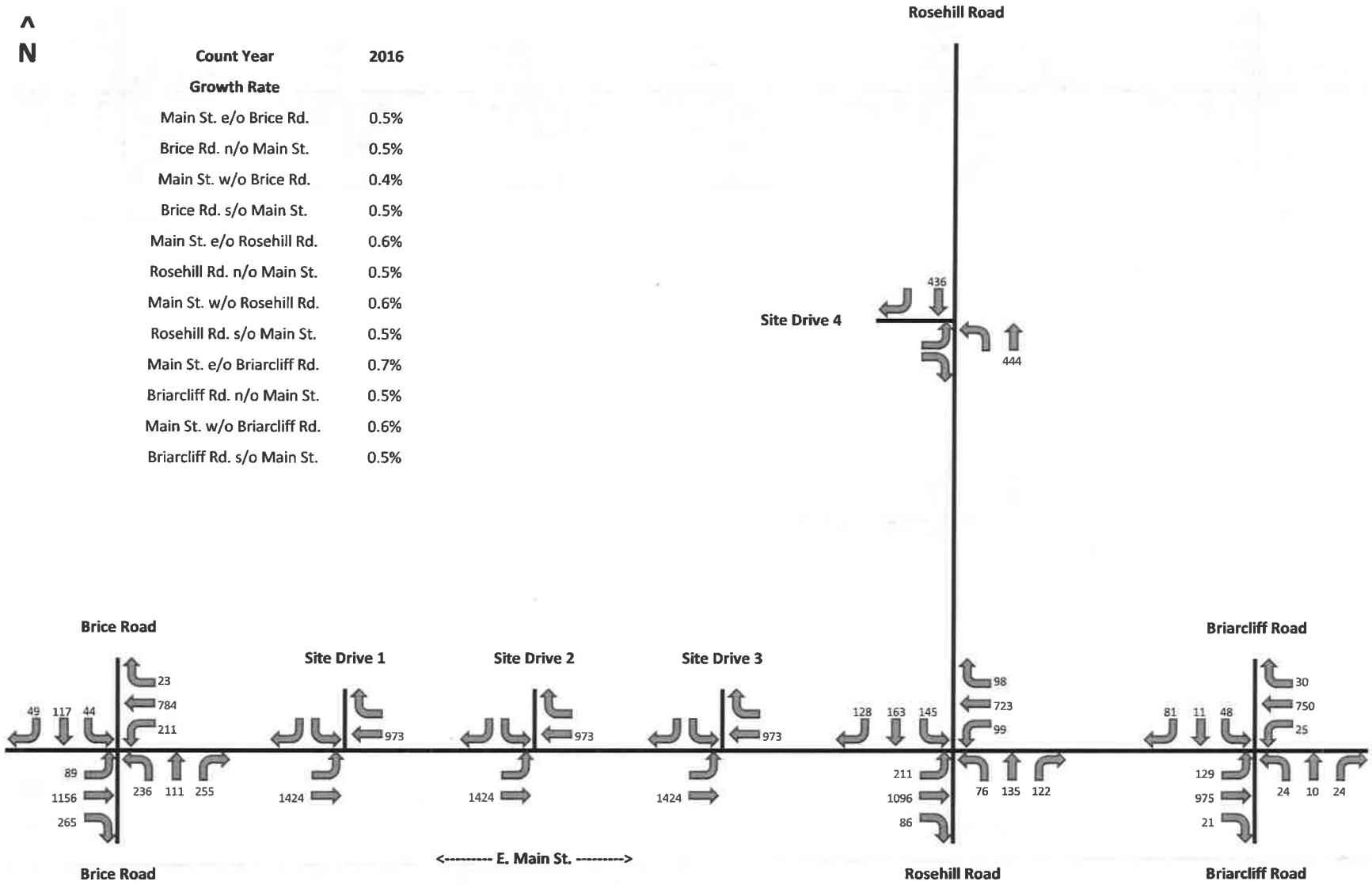


Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
	2017	PM	Background Traffic	A

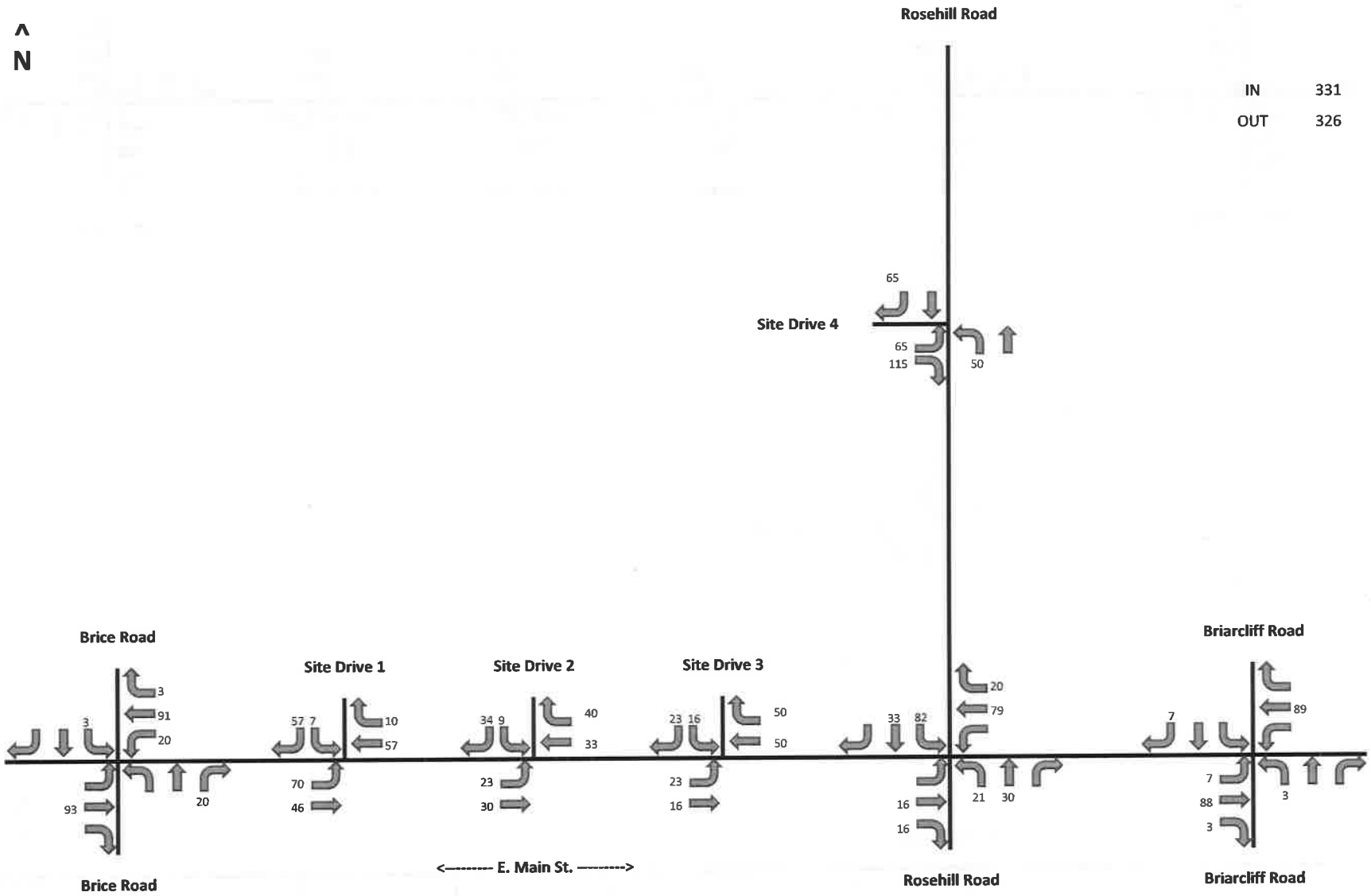
N

Count Year	2016
Growth Rate	
Main St. e/o Brice Rd.	0.5%
Brice Rd. n/o Main St.	0.5%
Main St. w/o Brice Rd.	0.4%
Brice Rd. s/o Main St.	0.5%
Main St. e/o Rosehill Rd.	0.6%
Rosehill Rd. n/o Main St.	0.5%
Main St. w/o Rosehill Rd.	0.6%
Rosehill Rd. s/o Main St.	0.5%
Main St. e/o Briarcliff Rd.	0.7%
Briarcliff Rd. n/o Main St.	0.5%
Main St. w/o Briarcliff Rd.	0.6%
Briarcliff Rd. s/o Main St.	0.5%



Reynoldsburg Kroger
Traffic Volume Calculations

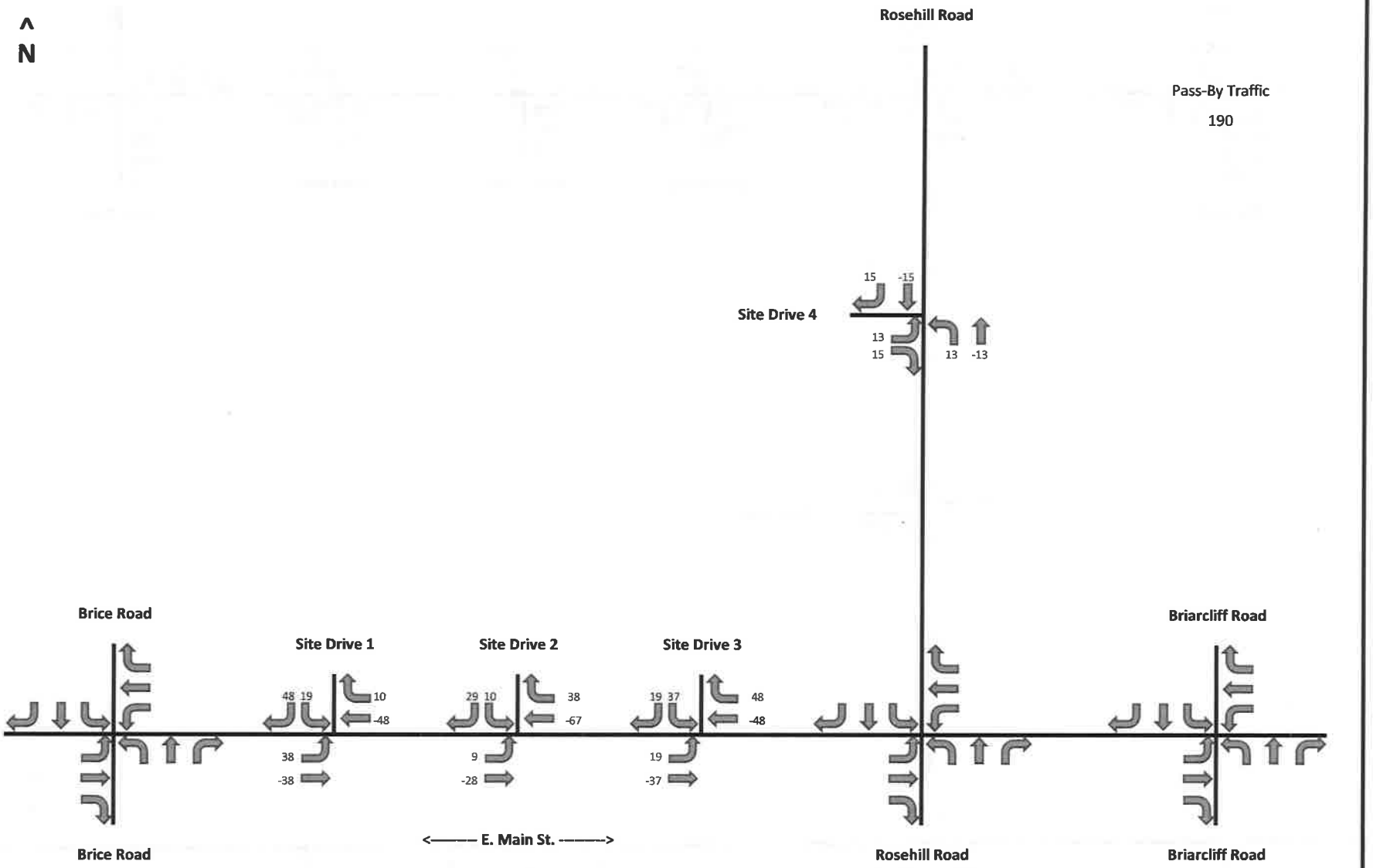
CARPENTER MARTY transportation	Year	Period	Scenario	Plate
		PM	Non-Pass-By Site Traffic	B



Reynoldsburg Kroger
Traffic Volume Calculations

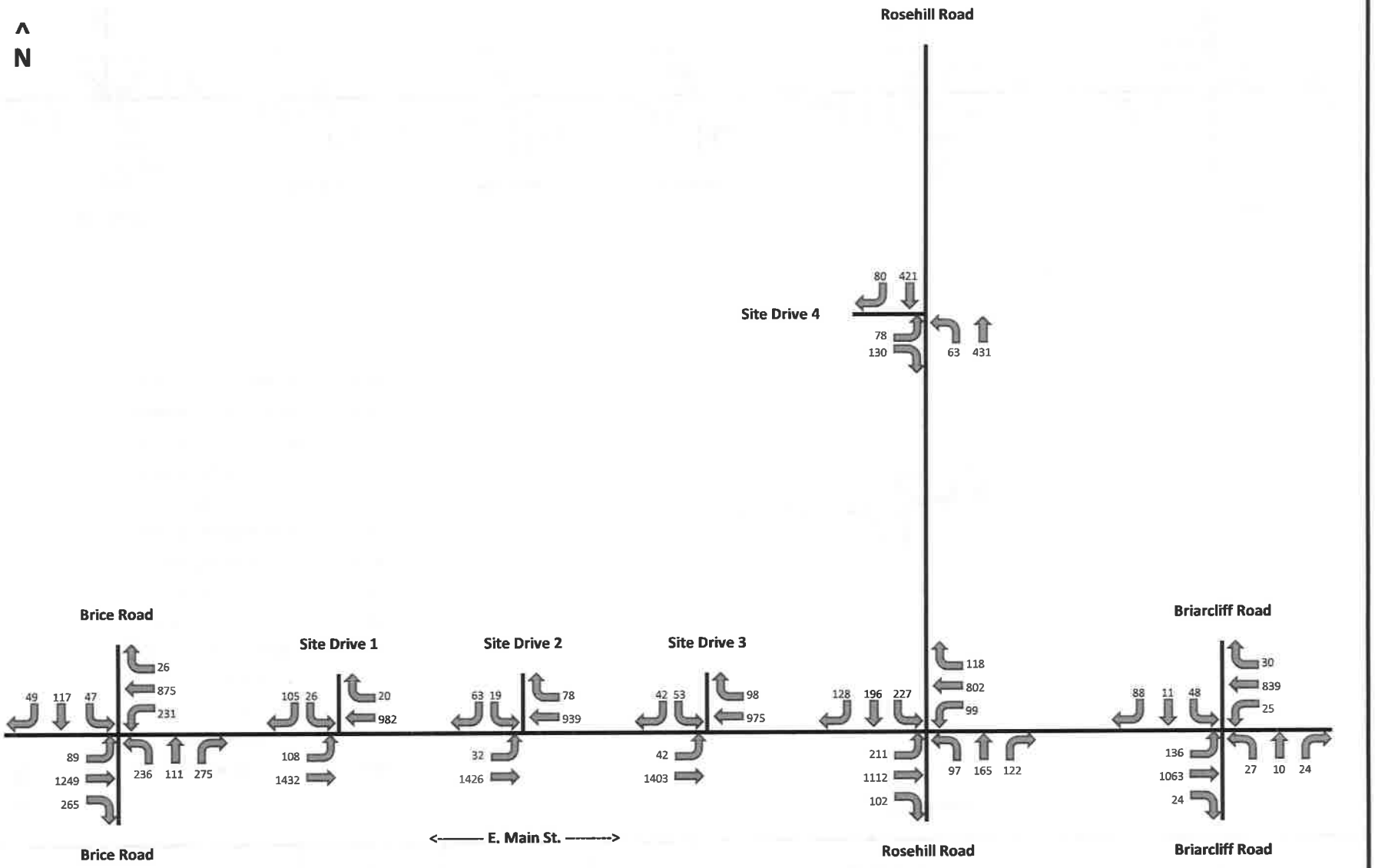
CARPENTER MARTY transportation

Year	Period	Scenario	Plate
	PM	Pass-By Site Traffic	C



Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
	2017	PM	Total Traffic	D = A + B + C

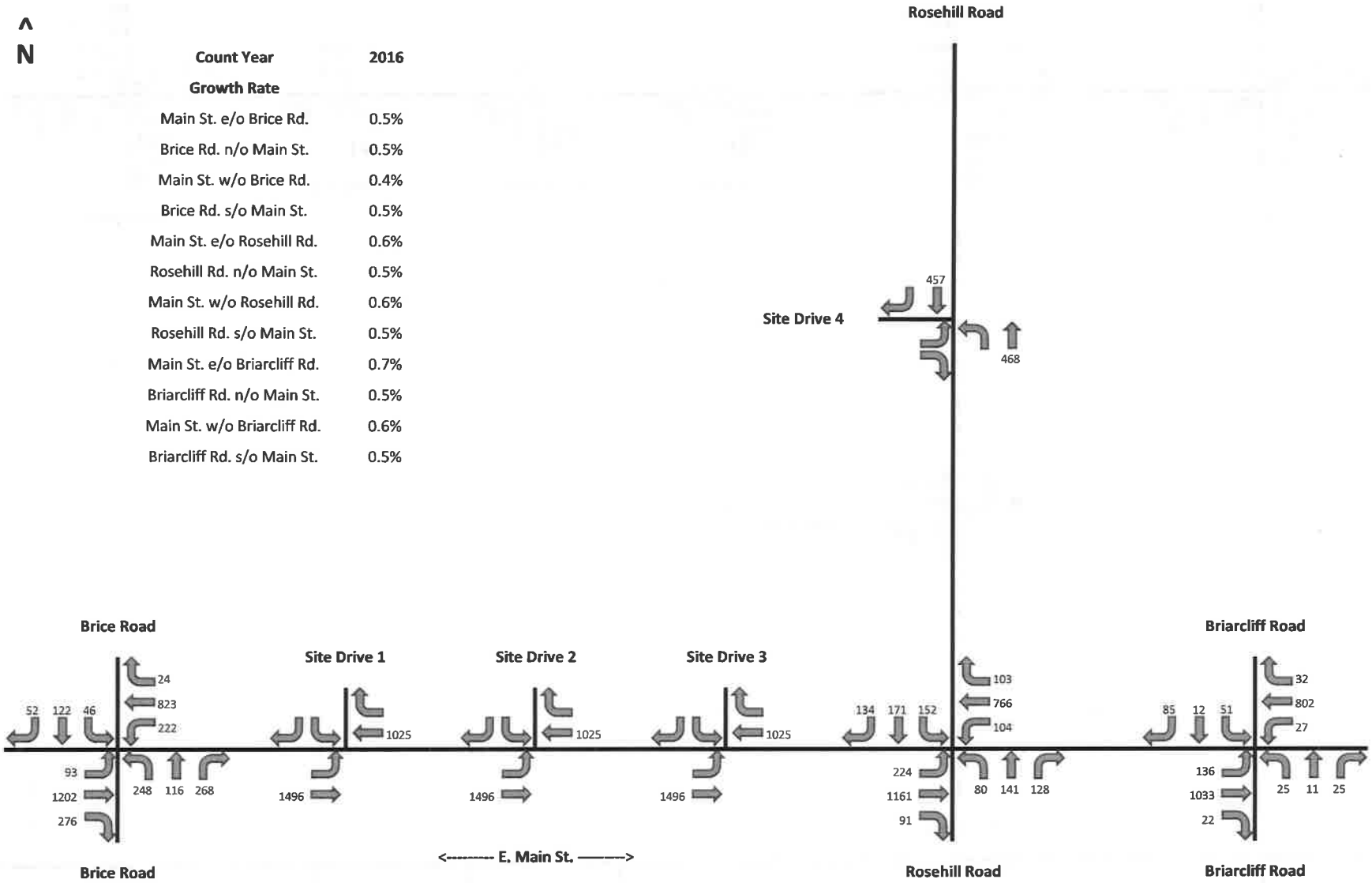


Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
	2027	PM	Background Traffic	E

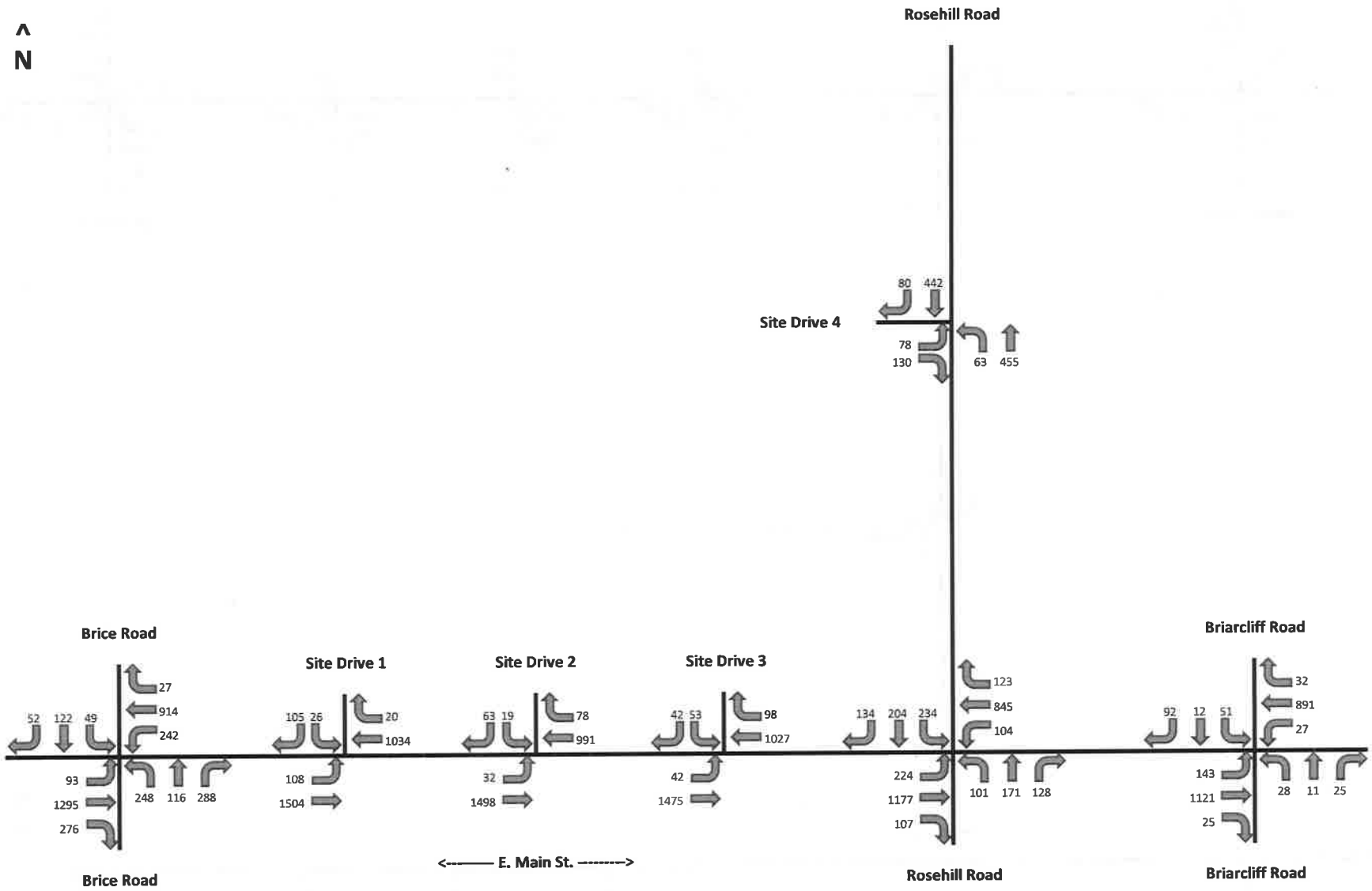
^
N

Count Year	2016
Growth Rate	
Main St. e/o Brice Rd.	0.5%
Brice Rd. n/o Main St.	0.5%
Main St. w/o Brice Rd.	0.4%
Brice Rd. s/o Main St.	0.5%
Main St. e/o Rosehill Rd.	0.6%
Rosehill Rd. n/o Main St.	0.5%
Main St. w/o Rosehill Rd.	0.6%
Rosehill Rd. s/o Main St.	0.5%
Main St. e/o Briarcliff Rd.	0.7%
Briarcliff Rd. n/o Main St.	0.5%
Main St. w/o Briarcliff Rd.	0.6%
Briarcliff Rd. s/o Main St.	0.5%



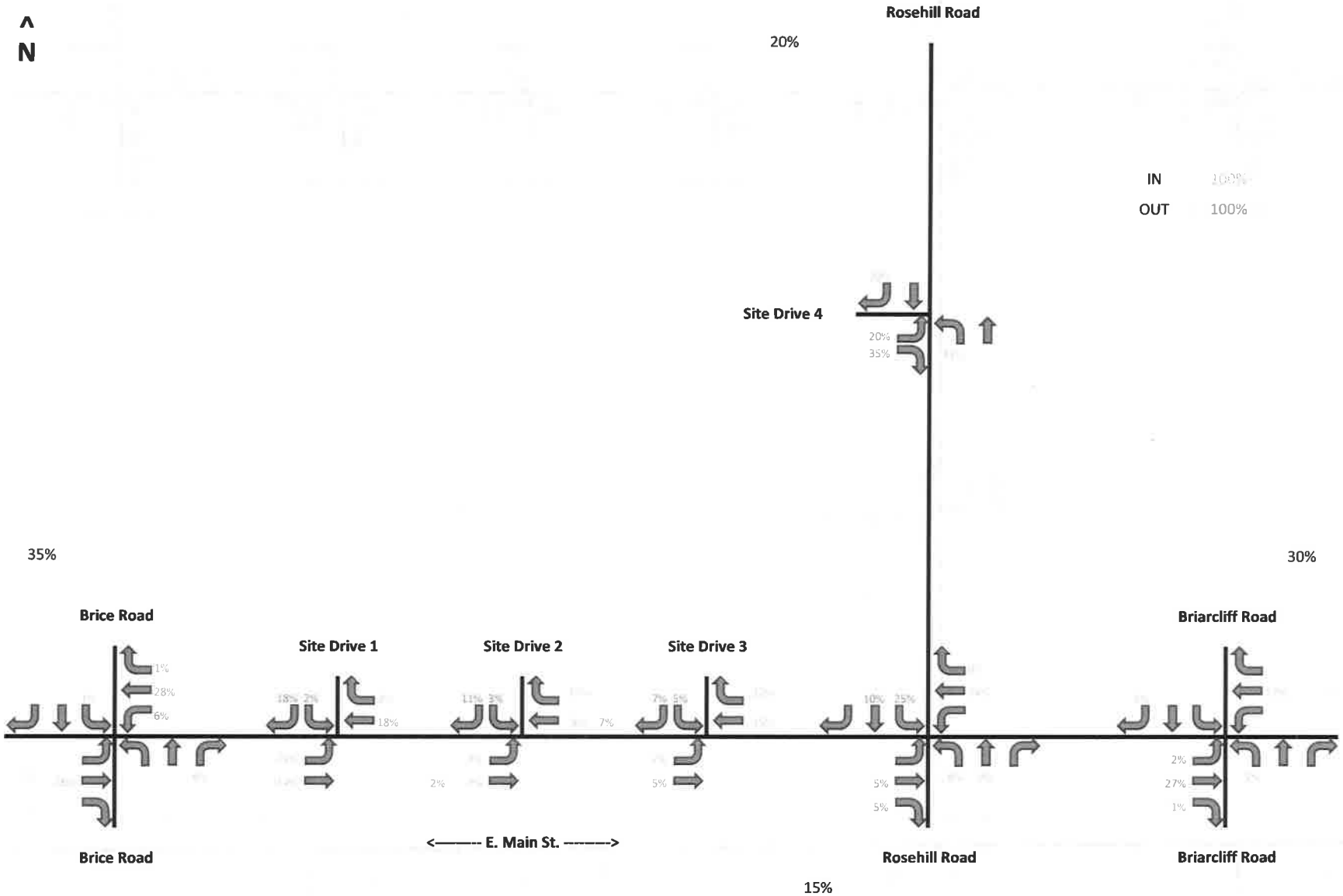
Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
	2027	PM	Total Traffic	F = E + B + C



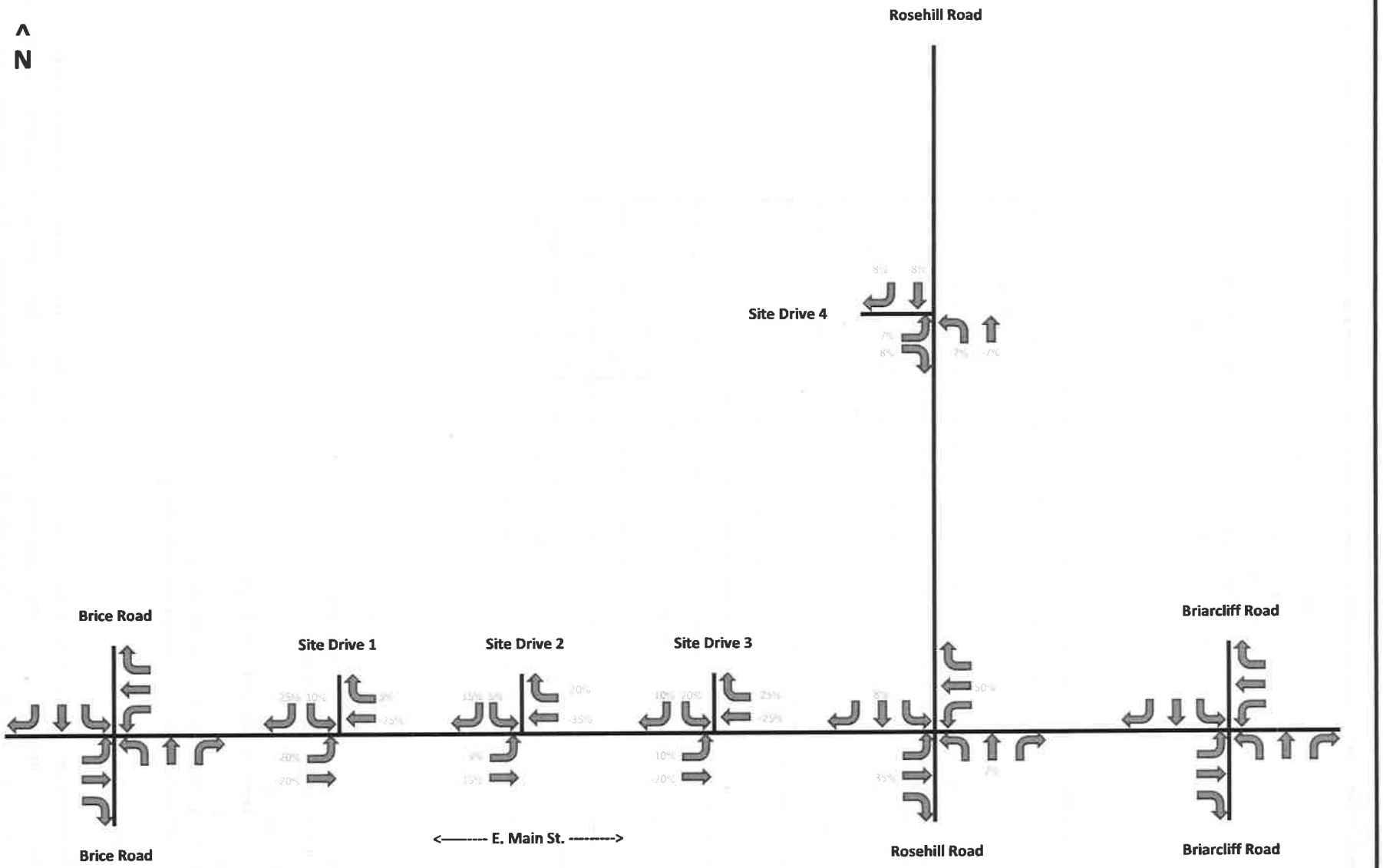
Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
			Non-Pass-By Site Traffic Distribution	G



Reynoldsburg Kroger
Traffic Volume Calculations

CARPENTER MARTY transportation	Year	Period	Scenario	Plate
			Pass-By Site Traffic Distribution	H



Kristine Connolly

From: Hwashik Jang <hjang@morpc.org>
Sent: Friday, February 12, 2016 2:48 PM
To: Drew Laurent
Cc: Zhuojun Jiang; Nick Gill; Kristine Connolly
Subject: RE: Growth Rate Request - Kroger Reynoldsburg

Drew,

We have completed growth rate for Reynoldsburg Kroger study intersections.
Please use a linear annual growth rates as summarized in the following table below.

Location	Linear Annual Growth Rate
Main St, e/o Brice Rd	0.50%
Brice Rd, n/o Main St	0.50%
Main St, w/o Brice Rd	0.40%
Brice Rd, s/o Main St	0.50%
Main St, e/o Rosehill Rd	0.60%
Rosehill Rd, n/o Main St	0.50%
Main St, w/o Rosehill Rd	0.60%
Rosehill Rd, s/o Main St	0.50%
Main St, e/o Briarcliff Rd	0.70%
Briarcliff Rd, n/o Main St	0.50%
Main St, w/o Briarcliff Rd	0.60%
Briarcliff Rd, s/o Main St	0.50%

Note: This is planning level analysis based on MORPC regional travel demand model.
If you have any other questions, please let me know.

Thanks,

-Hwashik

Hwashik Jang | hjang@morpc.org | **MORPC**
Tel 614.233.4145 | **Fax 614.233.4245**

From: Drew Laurent [mailto:dlaurent@cmtran.com]
Sent: Thursday, January 28, 2016 8:03 AM
To: Hwashik Jang
Cc: Zhuojun Jiang; Nick Gill; Kristine Connolly
Subject: Growth Rate Request - Kroger Reynoldsburg

Good morning Hwashik,

We would like to request a growth rate for a traffic impact study for a proposed Kroger in Reynoldsburg. The site is located on the north side of E. Main Street just west of Rosehill Road. The opening year is 2017 and the horizon year is 2027. The study will be reviewed by Eric Snowden at the City of Reynoldsburg. I have attached recent count data from surrounding study intersections. We would like a growth rate for each of these roads if possible.

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Study intersections: E. Main Street & Briarcliff Road
E. Main Street & Rosehill Drive
E. Main Street & Brice Road

Thank you!

Drew Laurent
Planner
CARPENTER MARTY transportation
6612 Singletree Drive | Columbus, Ohio 43229
614.656.2416 | www.cmtran.com

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Appendix D
Trip Generation

CARPENTER MARTY transportation

Appendix D

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

PERIOD SETTING

Analysis Name :	AM Peak		
Project Name :	Reynoldsburg Kroger	**No :**	
Date:	1/27/2016	**City:**	
State/Province:	OH	**Zip/Postal Code:**	
Country:		**Client Name:**	Bird & Bull
Analyst's Name:	AML	**Edition:**	ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
850 - Supermarket	1000 Sq. Feet Gross Floor Area	101.5 (0)	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average	214	131	345
944 - Gasoline/Service Station	Vehicle Fueling Positions	14 (0)	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average	87	83	170
820 - Shopping Center	1000 Sq. Feet Gross Leasable Area	14	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LOG)	29	18	47

(0) indicates size out of range.

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
850 - Supermarket	0 %	214	0 %	131
944 - Gasoline/Service Station	0 %	87	0 %	83
820 - Shopping Center	0 %	29	0 %	18

INTERNAL TRIPS

850 - Supermarket

Exit	131	Demand Exit:	0 % (0)	Balanced: 0	Demand Entry:	0 % (0)
Entry	214	Demand Entry:	0 % (0)	Balanced: 0	Demand Exit:	0 % (0)

944 - Gasoline/Service Station

Entry	87
Exit	83

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

850 - Supermarket | **820 - Shopping Center**

Exit	131	Demand Exit:	0 % (0)	Balanced: 0	Demand Entry:	0 % (0)	**Entry**	29
Entry	214	Demand Entry:	0 % (0)	Balanced: 0	Demand Exit:	0 % (0)	**Exit**	18

944 - Gasoline/Service Station | **820 - Shopping Center**

Exit	83	Demand Exit:	0 % (0)	Balanced: 0	Demand Entry:	0 % (0)	**Entry**	29
Entry	87	Demand Entry:	0 % (0)	Balanced: 0	Demand Exit:	0 % (0)	**Exit**	18

850 - Supermarket

	Total Trips	Internal Trips			External Trips
		944 - Gasoline/Service Station	820 - Shopping Center	Total	
Entry	214 (100%)	0 (0%)	0 (0%)	0 (0%)	214 (100%)
Exit	131 (100%)	0 (0%)	0 (0%)	0 (0%)	131 (100%)
Total	345 (100%)	0 (0%)	0 (0%)	0 (0%)	345 (100%)

944 - Gasoline/Service Station

	Total Trips	Internal Trips			External Trips
		850 - Supermarket	820 - Shopping Center	Total	
Entry	87 (100%)	0 (0%)	0 (0%)	0 (0%)	87 (100%)
Exit	83 (100%)	0 (0%)	0 (0%)	0 (0%)	83 (100%)
Total	170 (100%)	0 (0%)	0 (0%)	0 (0%)	170 (100%)

820 - Shopping Center

	Total Trips	Internal Trips			External Trips
		850 - Supermarket	944 - Gasoline/Service Station	Total	
Entry	29 (100%)	0 (0%)	0 (0%)	0 (0%)	29 (100%)
Exit	18 (100%)	0 (0%)	0 (0%)	0 (0%)	18 (100%)
Total	47 (100%)	0 (0%)	0 (0%)	0 (0%)	47 (100%)

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
850 - Supermarket	345	0 %	0	345
944 - Gasoline/Service Station	170	58 %	99	71
820 - Shopping Center	47	0 %	0	47

ITE DEVIATION DETAILS

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Landuse	No deviations from ITE.
Methods	No deviations from ITE.
External Trips	850 - Supermarket ITE does not recommend a particular pass-by% for this case. 820 - Shopping Center ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	330
Total Exiting	232
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	50
Total Exiting Pass-by Reduction	49
Total Entering Non-Pass-by Trips	280
Total Exiting Non-Pass-by Trips	183

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

PERIOD SETTING

Analysis Name :	PM Peak		
Project Name :	Reynoldsburg Kroger	**No :**	
Date:	1/27/2016	**City:**	
State/Province:	OH	**Zip/Postal Code:**	
Country:		**Client Name:**	Bird & Bull
Analyst's Name:	AML	**Edition:**	ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
850 - Supermarket	1000 Sq. Feet Gross Floor Area	101.5	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG)	401	386	787
944 - Gasoline/Service Station	Vehicle Fueling Positions	14	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average	97	97	194
820 - Shopping Center	1000 Sq. Feet Gross Leasable Area	14	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG)	77	83	160

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
850 - Supermarket	0 %	401	0 %	386
944 - Gasoline/Service Station	0 %	97	0 %	97
820 - Shopping Center	0 %	77	0 %	83

INTERNAL TRIPS

850 - Supermarket

Exit	386	Demand Exit:	10	%	(39)	Balanced: 10	Demand Entry:	10	%	(10)	**Entry** 97
Entry	401	Demand Entry:	10	%	(40)	Balanced: 10	Demand Exit:	10	%	(10)	**Exit** 97

944 - Gasoline/Service Station

850 - Supermarket **820 - Shopping Center**

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Exit	386	Demand Exit:	10 %	(39)	Balanced: 8	Demand Entry:	10 %	(8)	**Entry** 77
Entry	401	Demand Entry:	10 %	(40)	Balanced: 8	Demand Exit:	10 %	(8)	**Exit** 83

944 - Gasoline/Service Station **820 - Shopping Center**

Exit	97	Demand Exit:	10 %	(10)	Balanced: 8	Demand Entry:	10 %	(8)	**Entry** 77
Entry	97	Demand Entry:	10 %	(10)	Balanced: 8	Demand Exit:	10 %	(8)	**Exit** 83

850 - Supermarket

	Total Trips	Internal Trips			External Trips
		944 - Gasoline/Service Station	820 - Shopping Center	Total	
Entry	401 (100%)	10 (2%)	8 (2%)	18 (4%)	383 (96%)
Exit	386 (100%)	10 (3%)	8 (2%)	18 (5%)	368 (95%)
Total	787 (100%)	20 (3%)	16 (2%)	36 (5%)	751 (95%)

944 - Gasoline/Service Station

	Total Trips	Internal Trips			External Trips
		850 - Supermarket	820 - Shopping Center	Total	
Entry	97 (100%)	10 (10%)	8 (8%)	18 (19%)	79 (81%)
Exit	97 (100%)	10 (10%)	8 (8%)	18 (19%)	79 (81%)
Total	194 (100%)	20 (10%)	16 (8%)	36 (19%)	158 (81%)

820 - Shopping Center

	Total Trips	Internal Trips			External Trips
		850 - Supermarket	944 - Gasoline/Service Station	Total	
Entry	77 (100%)	8 (10%)	8 (10%)	16 (21%)	61 (79%)
Exit	83 (100%)	8 (10%)	8 (10%)	16 (19%)	67 (81%)
Total	160 (100%)	16 (10%)	16 (10%)	32 (20%)	128 (80%)

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
850 - Supermarket	751	36 %	270	481
944 - Gasoline/Service Station	158	42 %	66	92
820 - Shopping Center	128	34 %	44	84

ITE DEVIATION DETAILS

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Landuse	No deviations from ITE.
Methods	No deviations from ITE.
External Trips	820 - Shopping Center The chosen pass-by% (34) is not provided by ITE. ITE recommends 69.

SUMMARY

Total Entering	575
Total Exiting	566
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	52
Total Exiting Internal Capture Reduction	52
Total Entering Pass-by Reduction	192
Total Exiting Pass-by Reduction	188
Total Entering Non-Pass-by Trips	331
Total Exiting Non-Pass-by Trips	326

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Appendix E
Turn Lane Warrants

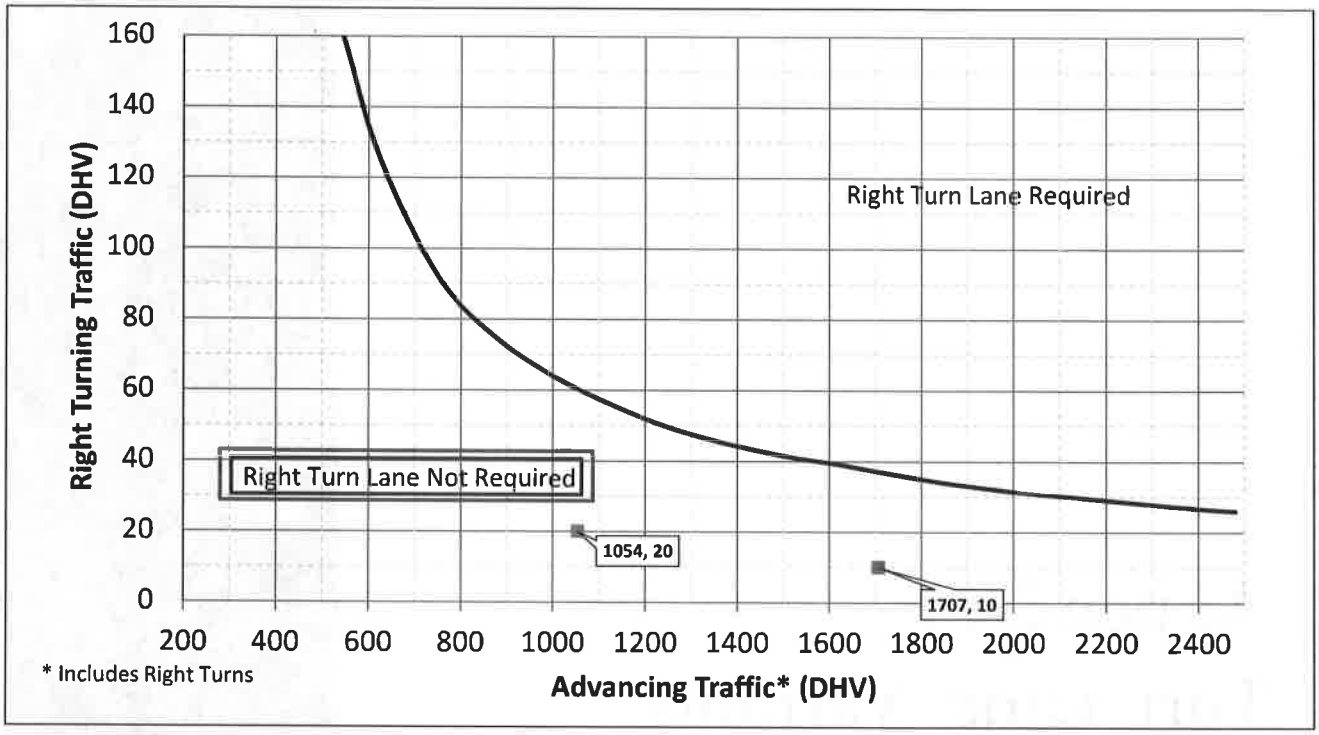
CARPENTER MARTY transportation

Appendix E

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Right Turn Lane Warrant

(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

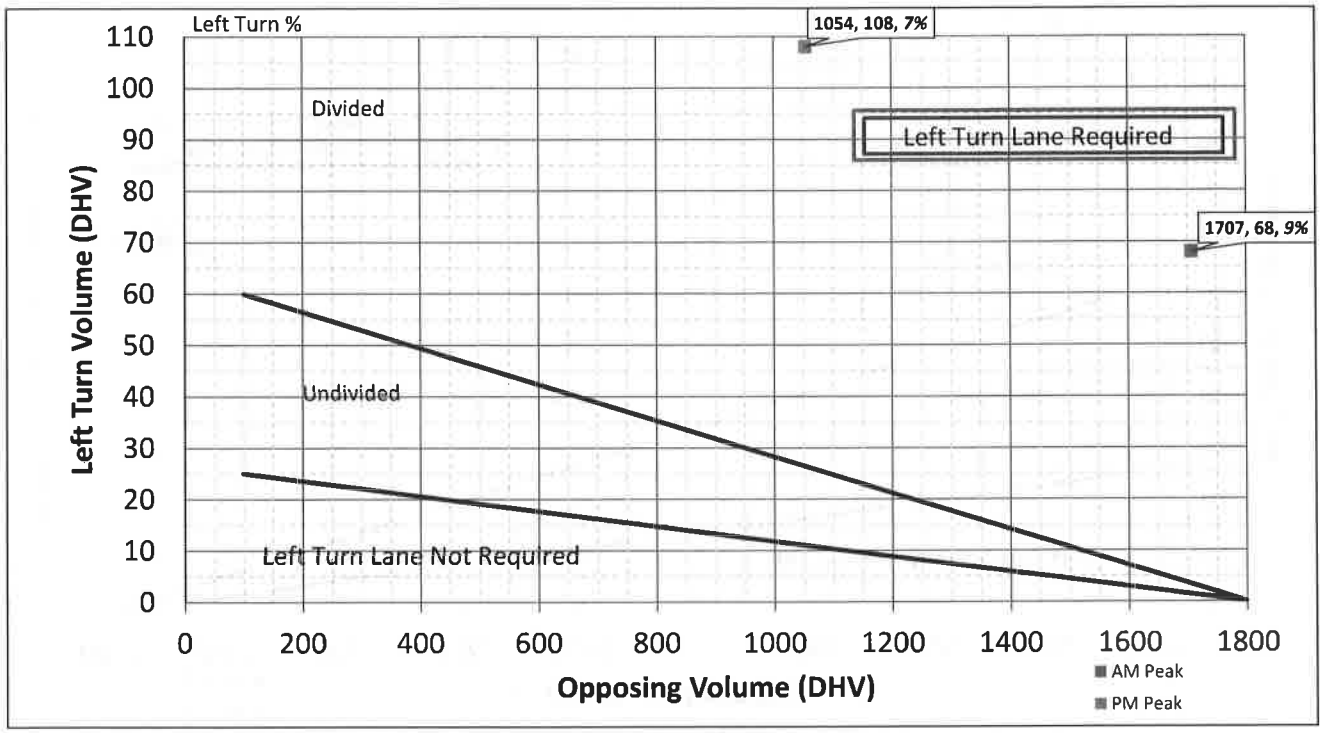
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle	1	
	Turn Lane Length		
Is Right Turn Warrant Met		No	No Right Turn Lane Required

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Left Turn Lane Warrant



Turn Lane Length Calculations

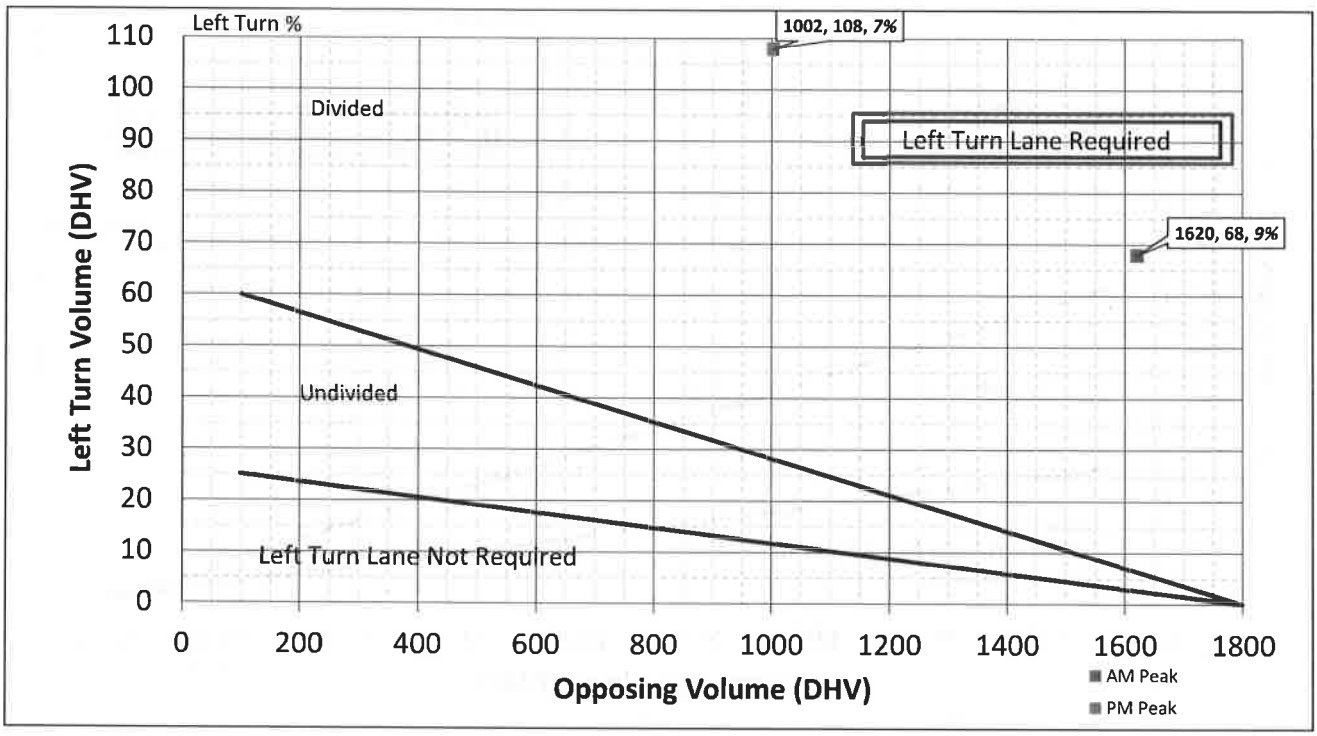
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour	60	*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Opposing Volume		VPH
	Left Turn Percentage	9%	
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
	Offset Width	12	
	Approach Taper		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	*Assume 60*
	Turn Lane Volume	108	
	Advancing Traffic	1612	VPH
	Opposing Volume		VPH
	Left Turn Percentage	7%	
	Location Type		
	Condition		
	Vehicles/Cycle	2	
	Turn Lane Length	125	
	Offset Width	12	
	Approach Taper	320	
Is Left Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Left Turn Lane Warrant



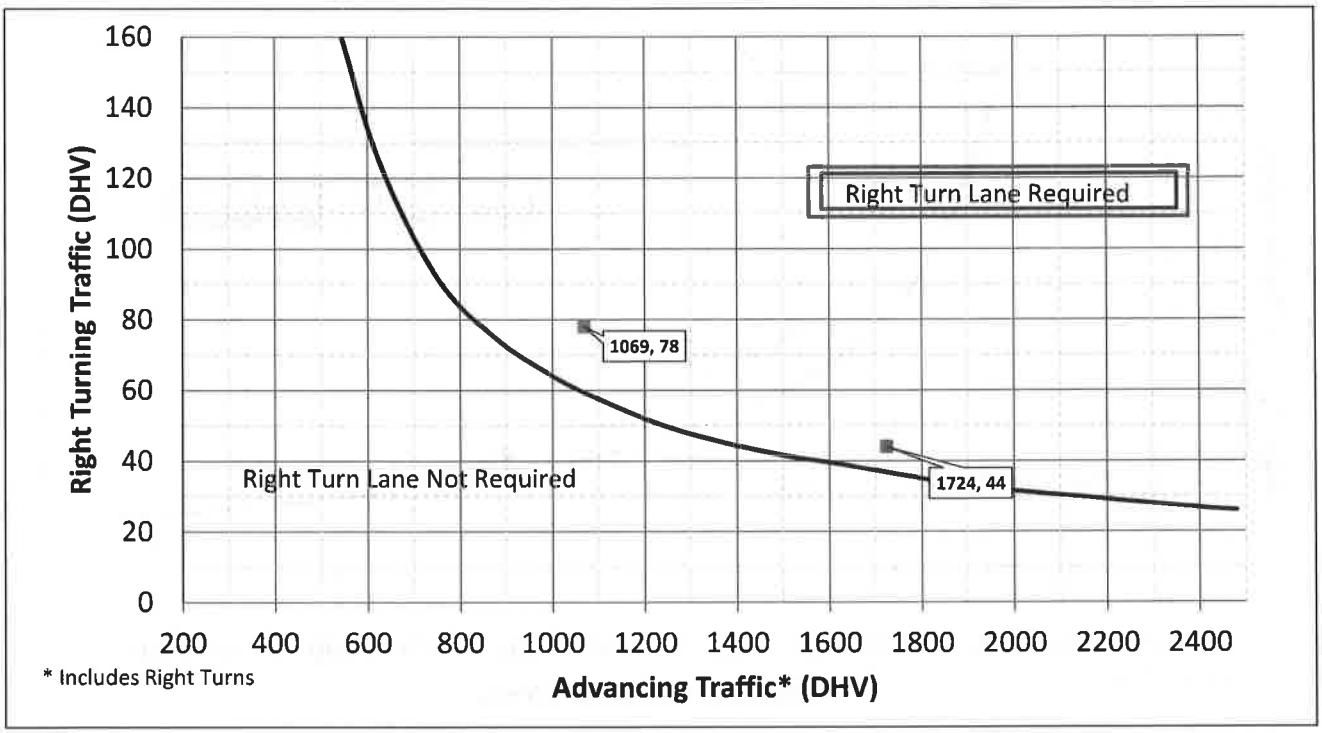
Turn Lane Length Calculations

AM Peak	Design Speed		mph	
	Traffic Control			
	Cycle Length			
	Cycles Per Hour	60	*Assume 60*	
	Turn Lane Volume		VPH	
	Advancing Traffic		VPH	
	Opposing Volume		VPH	
	Left Turn Percentage	9%		
	Location Type			
	Condition			
	Vehicles/Cycle			
	Turn Lane Length			** Turn Lane Length includes 50 ft diverging taper*
	Offset Width	12		
	Approach Taper			
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	*Assume 60*	
	Turn Lane Volume	108		
	Advancing Traffic	1540	VPH	
	Opposing Volume		VPH	
	Left Turn Percentage	7%		
	Location Type			
	Condition			
	Vehicles/Cycle	2		
	Turn Lane Length	125		** Turn Lane Length includes 50 ft diverging taper*
	Offset Width	12		
	Approach Taper	320		
Is Left Turn Warrant Met		Yes	See Above	

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Right Turn Lane Warrant

(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle	2	
	Turn Lane Length		
Is Right Turn Warrant Met		Yes	See Above

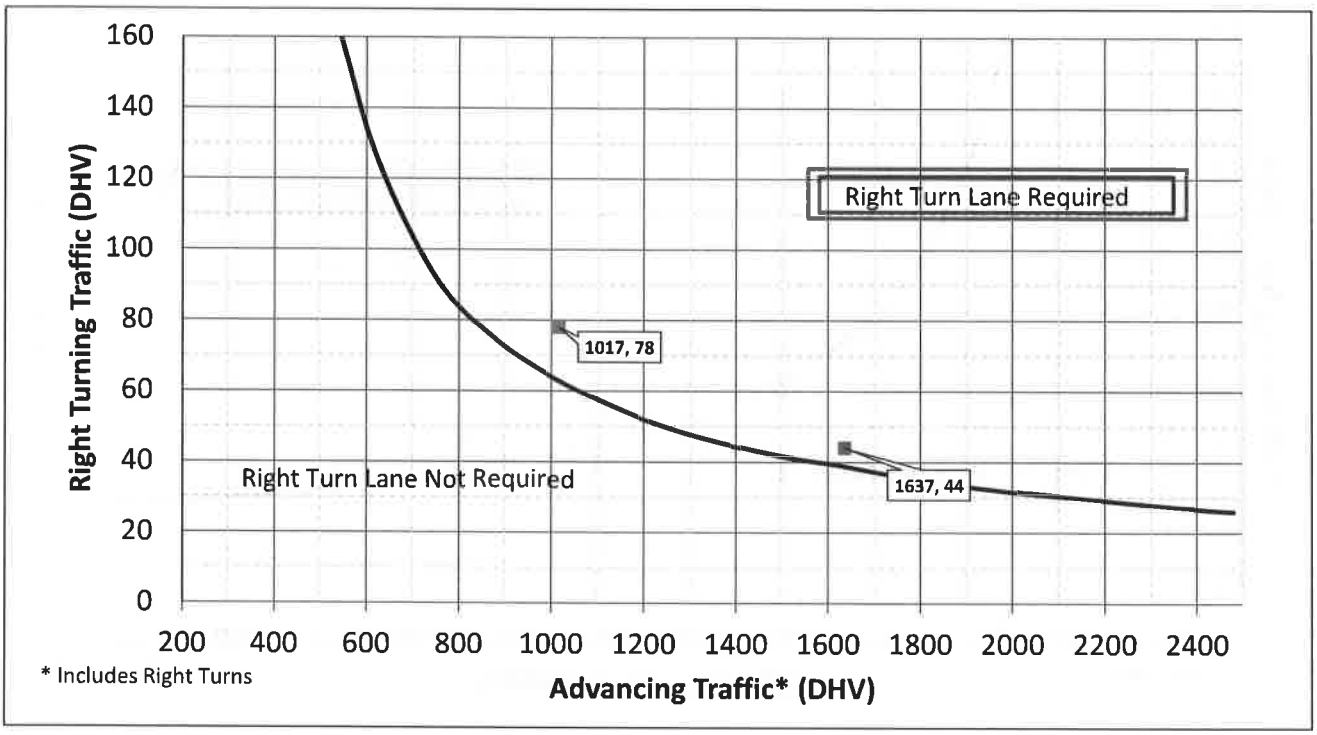
** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Right Turn Lane Warrant

(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

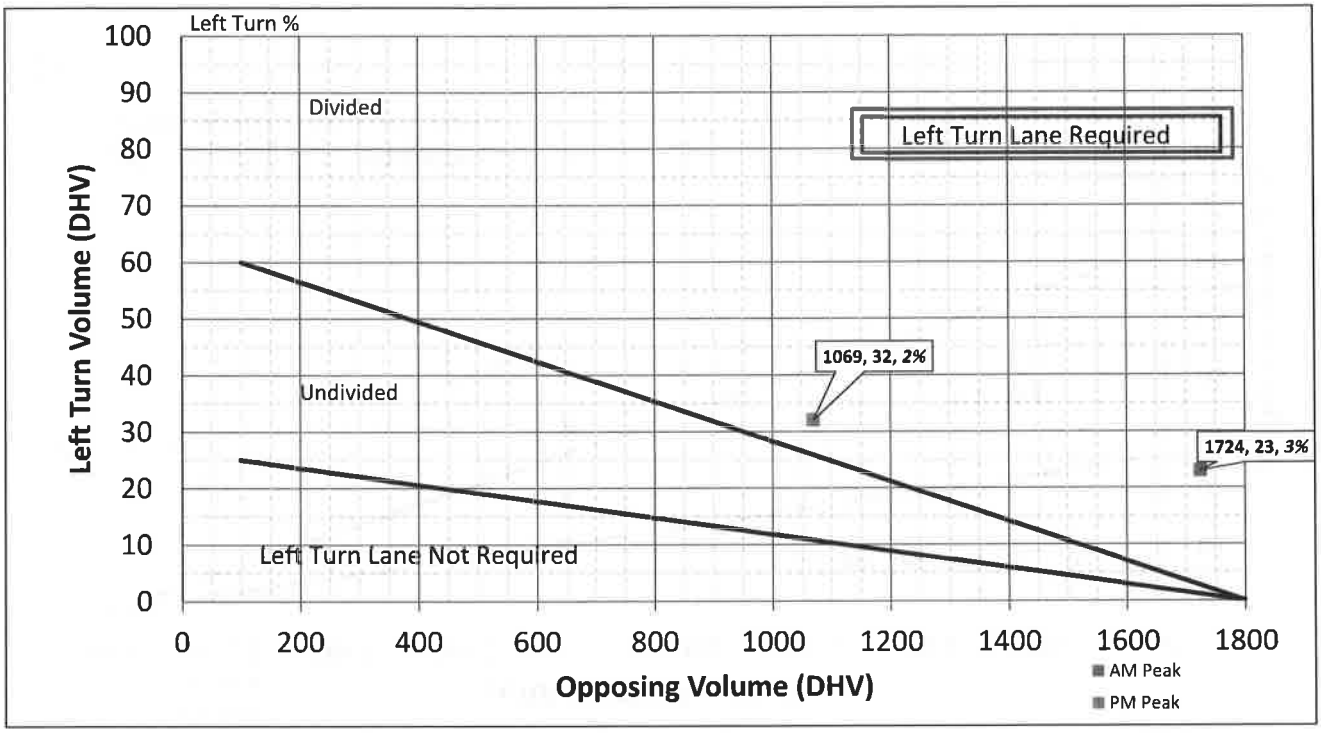
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle	2	
	Turn Lane Length		
Is Right Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Left Turn Lane Warrant



Turn Lane Length Calculations

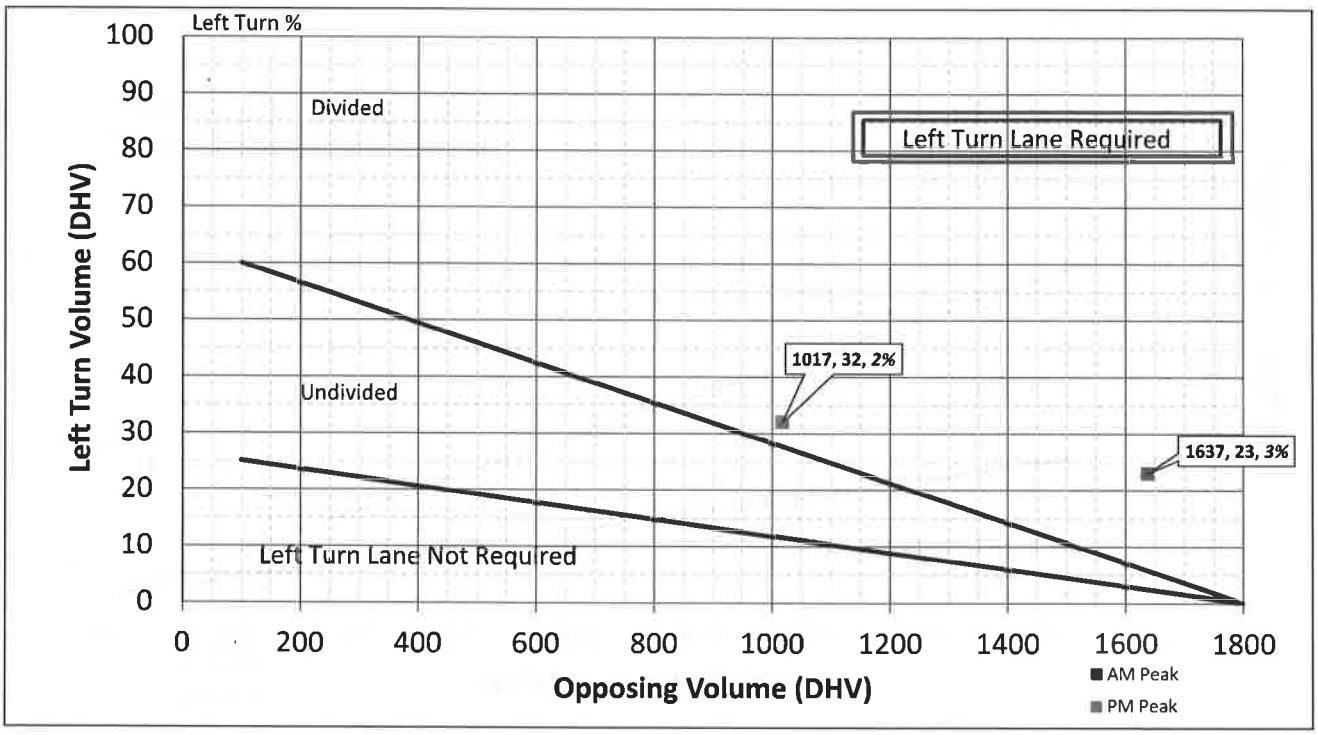
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour	60	*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Opposing Volume		VPH
	Left Turn Percentage	3%	
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
	Offset Width	12	
	Approach Taper		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	*Assume 60*
	Turn Lane Volume	32	
	Advancing Traffic	1530	VPH
	Opposing Volume		VPH
	Left Turn Percentage	2%	
	Location Type		
	Condition		
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
	Approach Taper	320	
Is Left Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Left Turn Lane Warrant



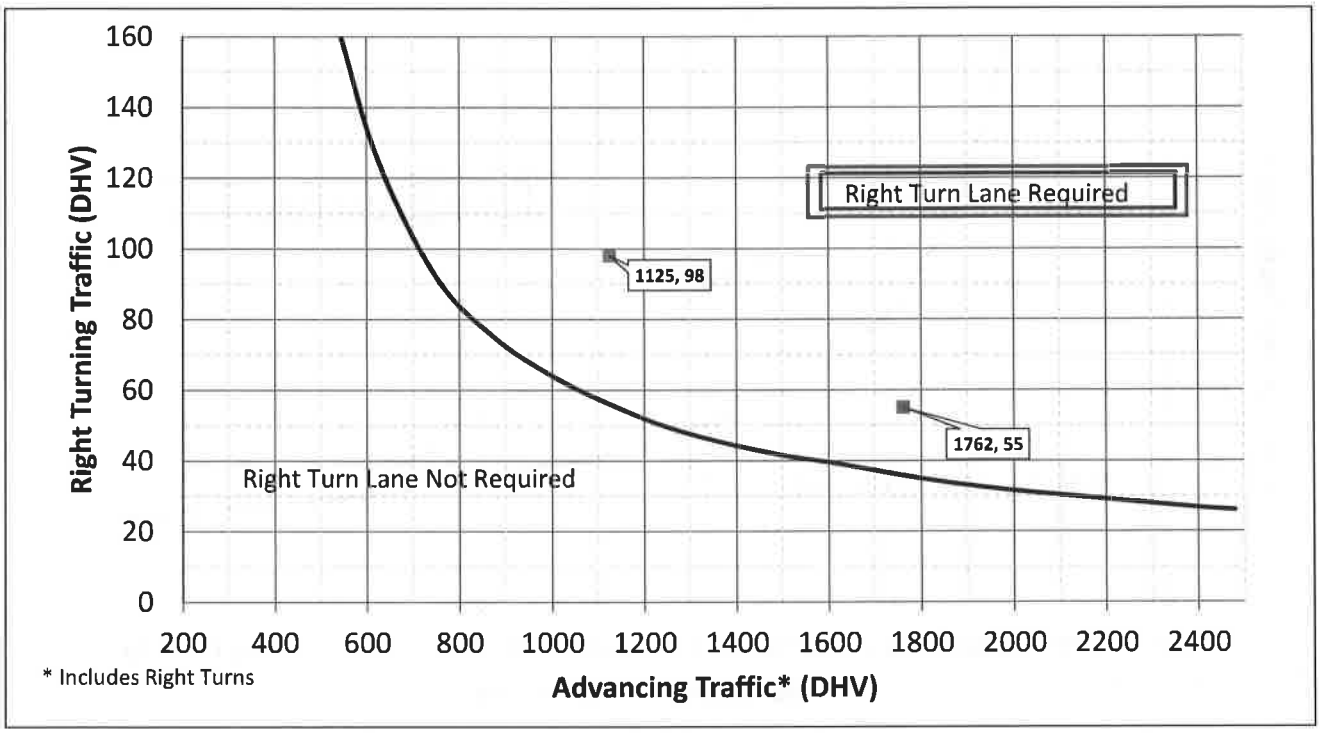
Turn Lane Length Calculations

AM Peak	Design Speed		mph	
	Traffic Control			
	Cycle Length			
	Cycles Per Hour	60	*Assume 60*	
	Turn Lane Volume		VPH	
	Advancing Traffic		VPH	
	Opposing Volume		VPH	
	Left Turn Percentage	3%		
	Location Type			
	Condition			
	Vehicles/Cycle			
	Turn Lane Length			** Turn Lane Length includes 50 ft diverging taper*
	Offset Width	12		
	Approach Taper			
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	*Assume 60*	
	Turn Lane Volume	32		
	Advancing Traffic	1458	VPH	
	Opposing Volume		VPH	
	Left Turn Percentage	2%		
	Location Type			
	Condition			
	Vehicles/Cycle	1		
	Turn Lane Length	125		** Turn Lane Length includes 50 ft diverging taper*
	Offset Width	12		
	Approach Taper	320		
Is Left Turn Warrant Met		Yes	See Above	

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Right Turn Lane Warrant

(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

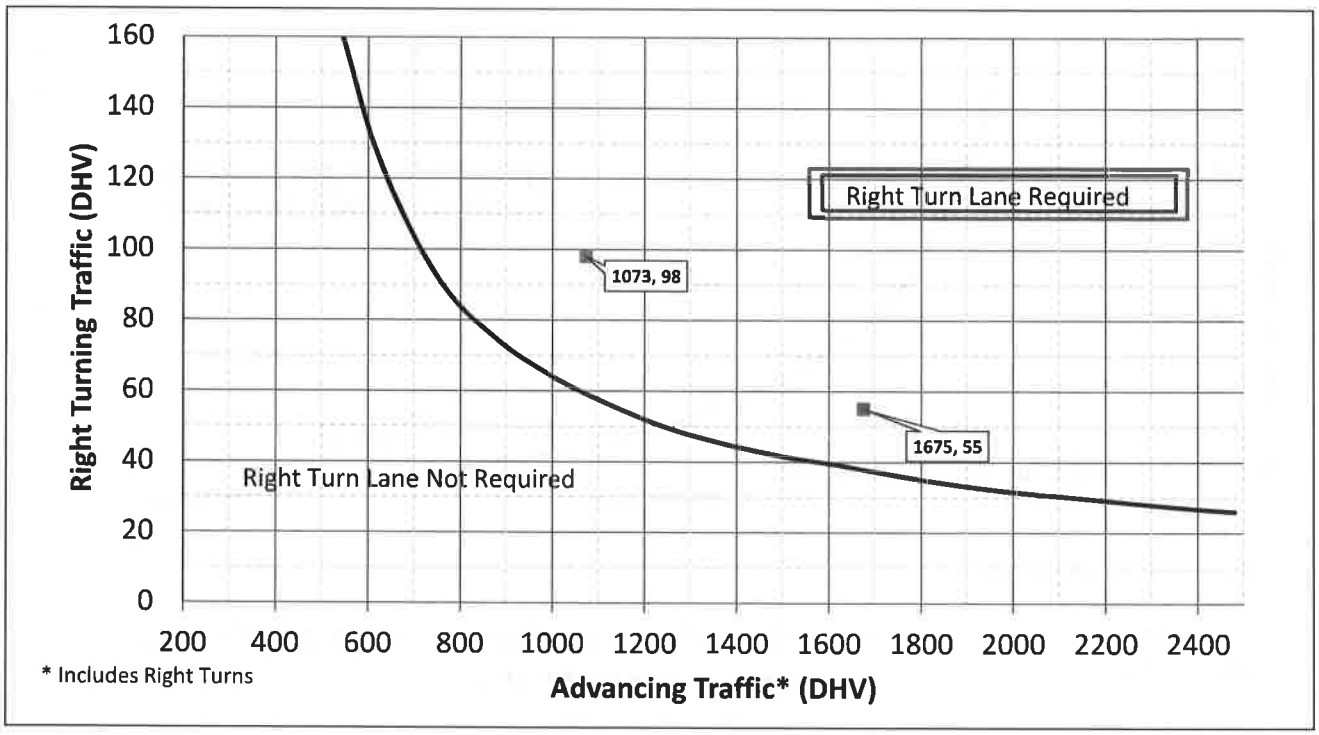
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle	2	
	Turn Lane Length		
Is Right Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

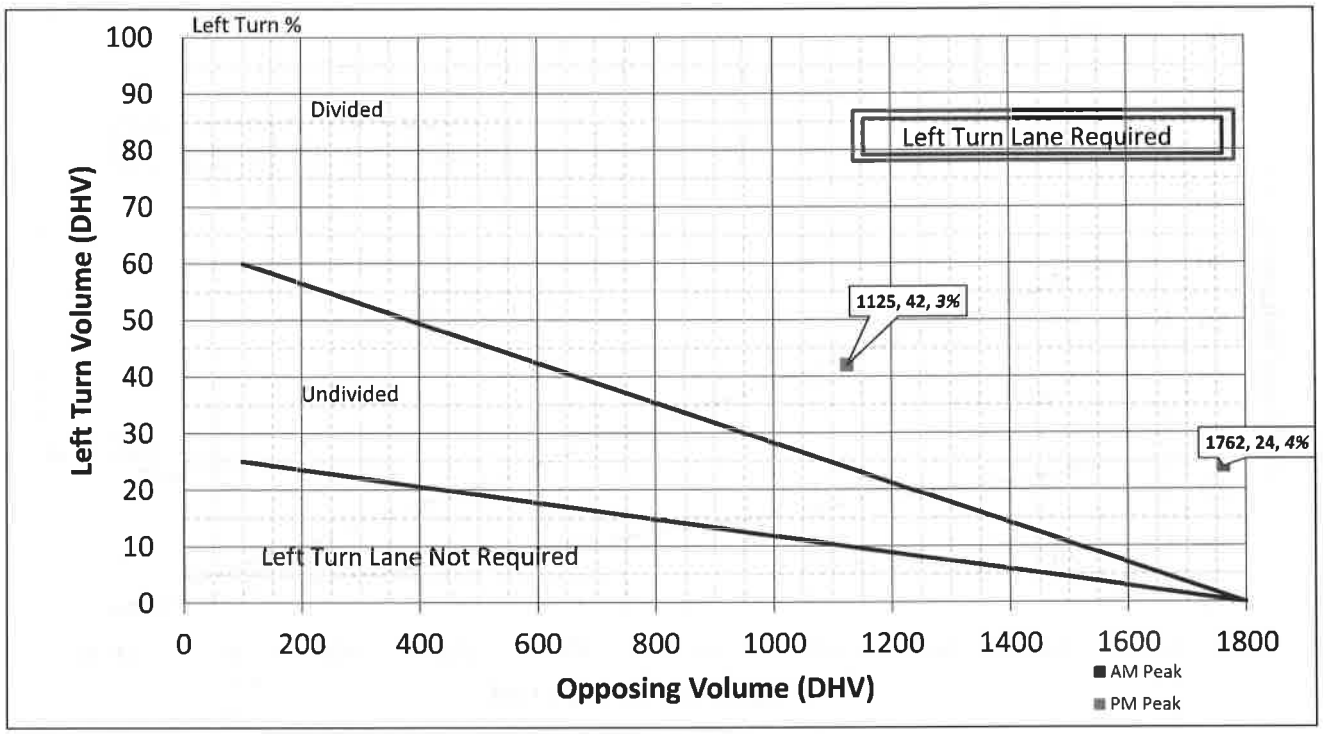
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle	2	
	Turn Lane Length		
Is Right Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Left Turn Lane Warrant



Turn Lane Length Calculations

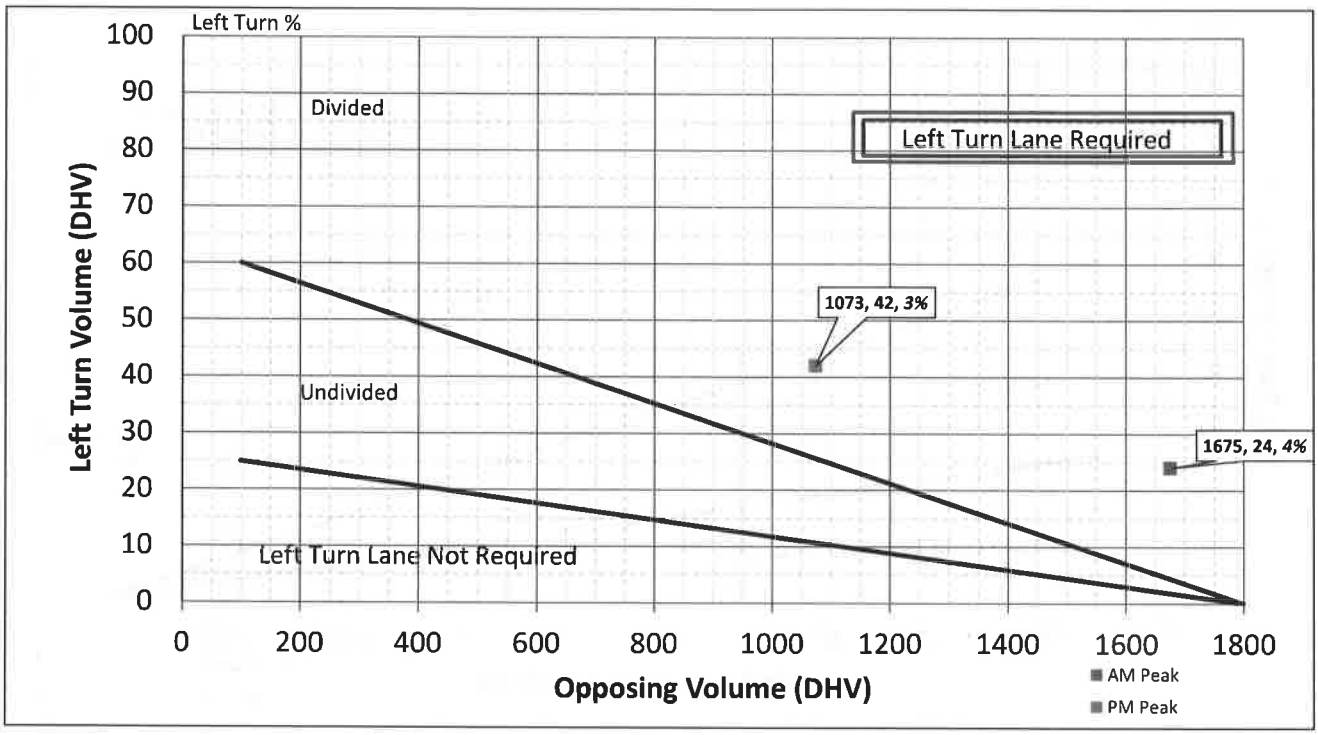
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour	60	*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Opposing Volume		VPH
	Left Turn Percentage	4%	
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
	Offset Width	12	
	Approach Taper		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	*Assume 60*
	Turn Lane Volume	42	
	Advancing Traffic	1517	VPH
	Opposing Volume		VPH
	Left Turn Percentage	3%	
	Location Type		
	Condition		
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
	Approach Taper	320	
Is Left Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

4-Lane Highway Left Turn Lane Warrant

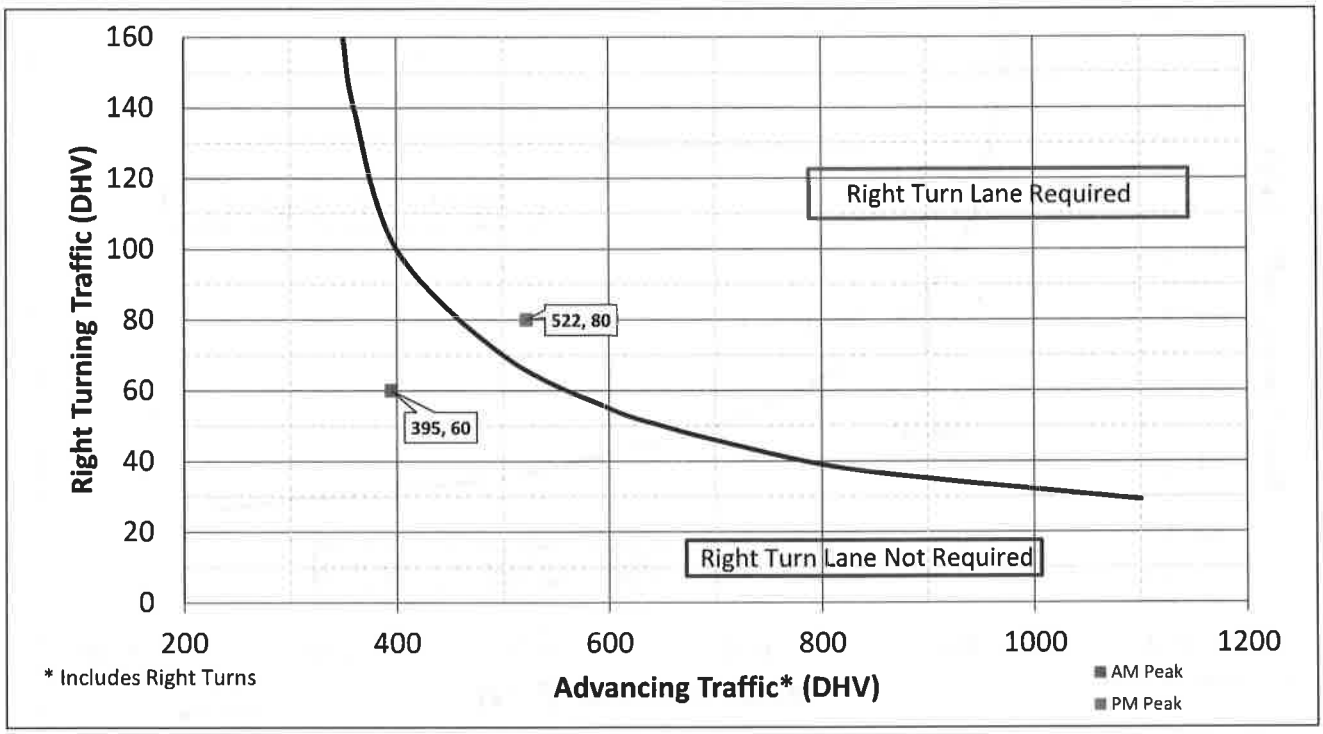


Turn Lane Length Calculations

AM Peak	Design Speed		mph	
	Traffic Control			
	Cycle Length			
	Cycles Per Hour	60	*Assume 60*	
	Turn Lane Volume		VPH	
	Advancing Traffic		VPH	
	Opposing Volume		VPH	
	Left Turn Percentage	4%		
	Location Type			
	Condition			
	Vehicles/Cycle			
	Turn Lane Length			** Turn Lane Length includes 50 ft diverging taper*
	Offset Width	12		
	Approach Taper			
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	*Assume 60*	
	Turn Lane Volume	42		
	Advancing Traffic	1445	VPH	
	Opposing Volume		VPH	
	Left Turn Percentage	3%		
	Location Type			
	Condition			
	Vehicles/Cycle	1		
	Turn Lane Length	125		** Turn Lane Length includes 50 ft diverging taper*
	Offset Width	12		
	Approach Taper	320		
Is Left Turn Warrant Met		Yes	See Above	

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



* Includes Right Turns

Turn Lane Length Calculations

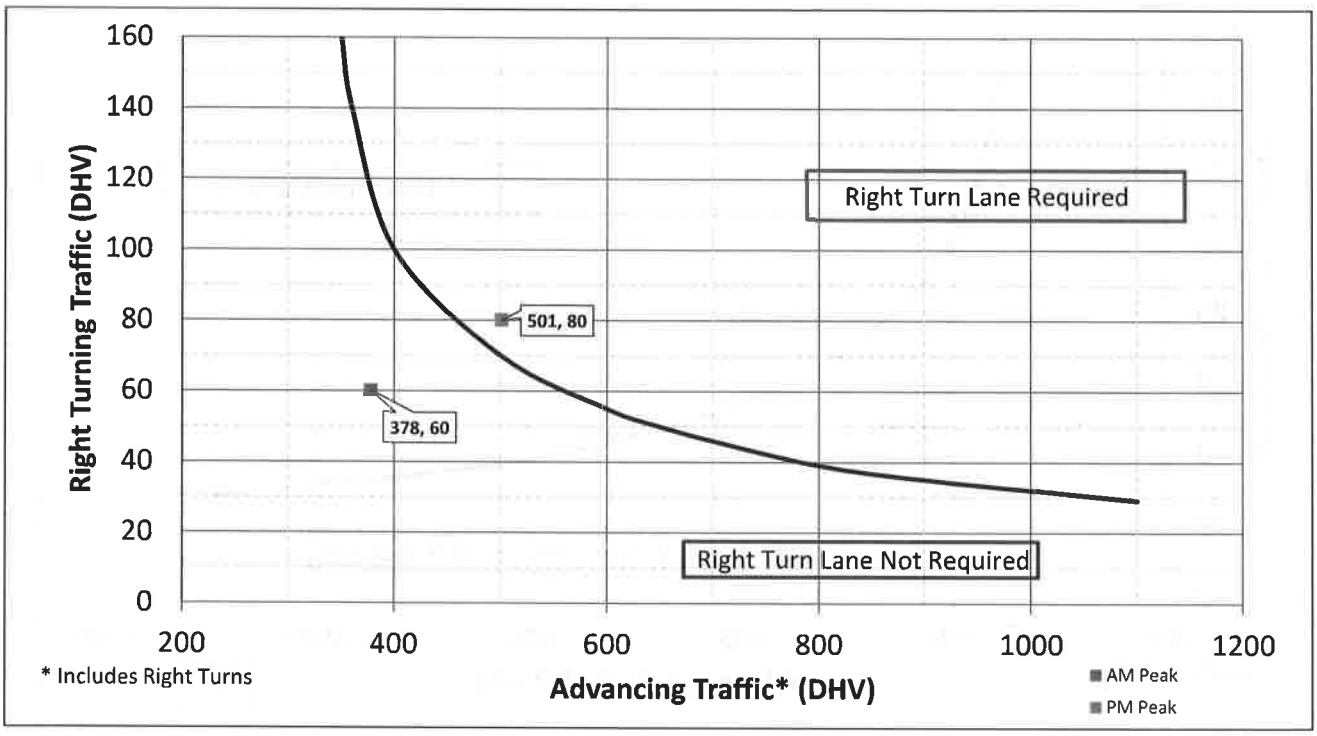
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle	2	
	Turn Lane Length		
Is Right Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

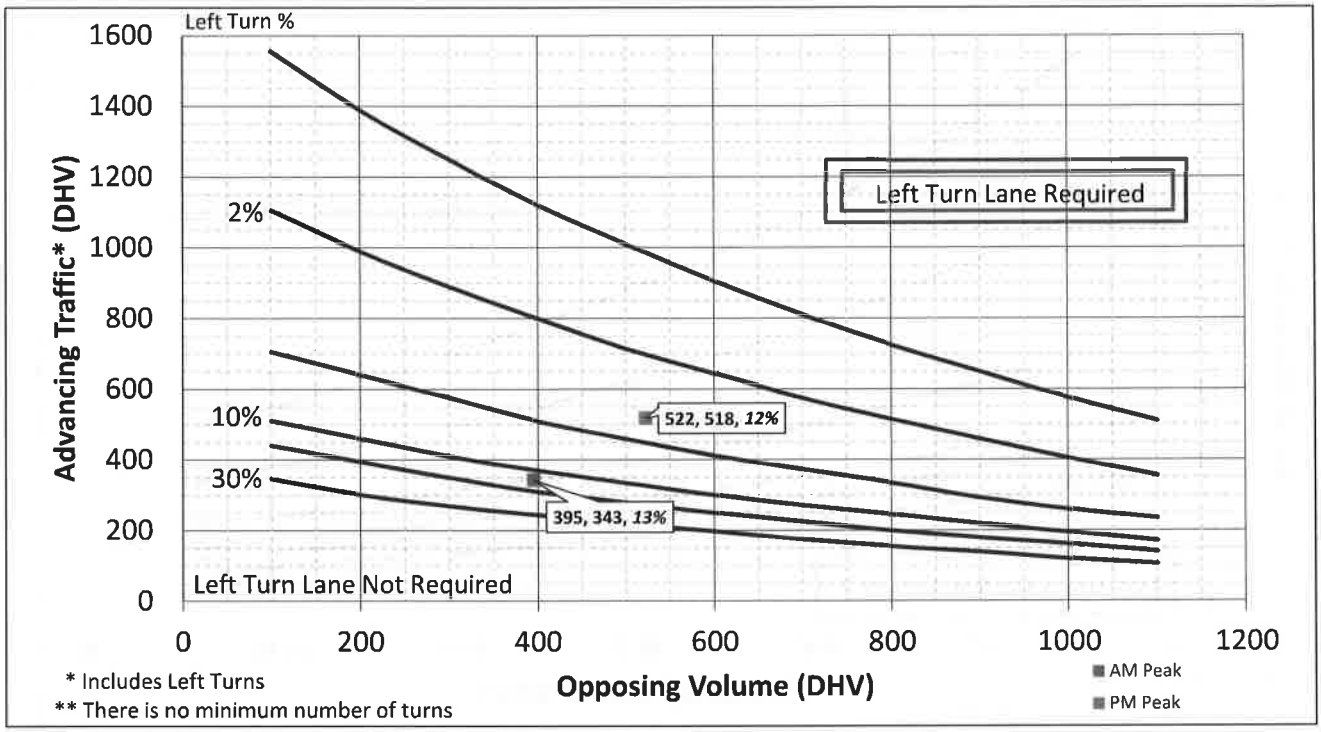
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Right Turn Percentage		
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length	Unsignalized	
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic	501	
	Right Turn Percentage	16%	
	Location Type	Through Road	
	Condition	C	
	Vehicles/Cycle	2	
	Turn Lane Length		
Is Right Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

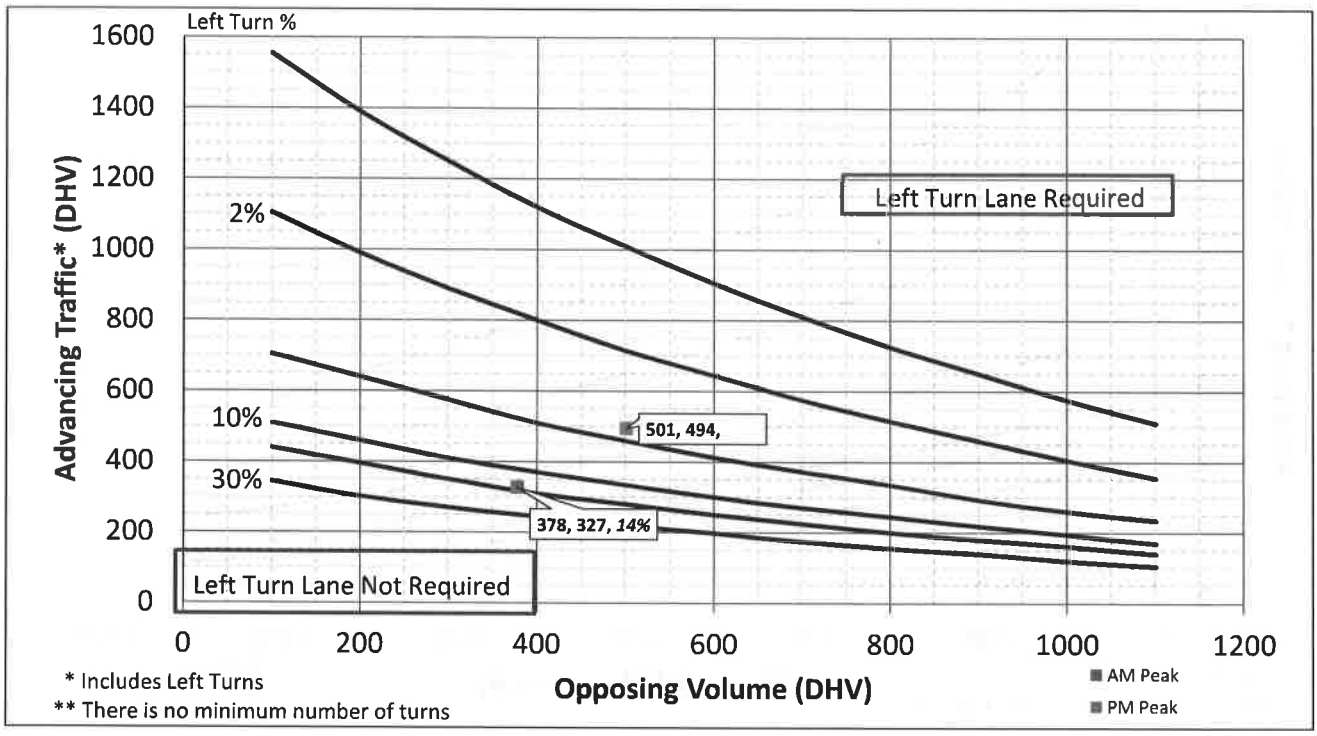
AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour	60	*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Opposing Volume		VPH
	Left Turn Percentage	13%	
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
	Offset Width	12	
	Approach Taper		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic	518	VPH
	Opposing Volume		VPH
	Left Turn Percentage		
	Location Type		
	Condition	C	
	Vehicles/Cycle	2	
	Turn Lane Length	211	
	Offset Width	12	
	Approach Taper		
Is Left Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



* Includes Left Turns
** There is no minimum number of turns

Turn Lane Length Calculations

AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour	60	*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Opposing Volume		VPH
	Left Turn Percentage	14%	
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length		
	Offset Width	12	
	Approach Taper		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic	494	VPH
	Opposing Volume		VPH
	Left Turn Percentage		
	Location Type		
	Condition	C	
	Vehicles/Cycle	2	
	Turn Lane Length	211	
	Offset Width	12	
	Approach Taper		
Is Left Turn Warrant Met		Yes	See Above

** Turn Lane Length includes 50 ft diverging taper*

** Turn Lane Length includes 50 ft diverging taper*

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Left Turn Lane Length Calculations

AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Left Turn Percentage	31%	
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length	See Column to Right	261
	Offset Width		
	Approach Taper		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume	234	VPH
	Advancing Traffic	572	
	Left Turn Percentage	41%	
	Location Type		
	Condition	B or C	
	Vehicles/Cycle		
	Turn Lane Length		286
	Offset Width	12	
	Approach Taper		

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Left Turn Lane Length Calculations

AM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume		VPH
	Advancing Traffic		VPH
	Left Turn Percentage	31%	
	Location Type		
	Condition		
	Vehicles/Cycle		
	Turn Lane Length	See Column to Right	211
	Offset Width		
	Approach Taper		
PM Peak	Design Speed		mph
	Traffic Control		
	Cycle Length		
	Cycles Per Hour		*Assume 60*
	Turn Lane Volume	227	VPH
	Advancing Traffic	551	
	Left Turn Percentage	41%	
	Location Type		
	Condition	B or C	
	Vehicles/Cycle		
	Turn Lane Length		286
	Offset Width	12	
	Approach Taper		

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Appendix F
Capacity Analysis

CARPENTER MARTY transportation

Appendix F

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	485	65	79	1488	11	347	63	156	30	48	117
Future Volume (veh/h)	27	485	65	79	1488	11	347	63	156	30	48	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	29	527	71	86	1617	12	377	68	170	33	52	127
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	1321	177	385	1574	12	376	395	402	44	69	169
Arrive On Green	0.03	0.42	0.42	0.04	0.44	0.44	0.21	0.21	0.21	0.17	0.17	0.17
Sat Flow, veh/h	1774	3137	421	1774	3601	27	1774	1863	1583	260	410	1002
Grp Volume(v), veh/h	29	297	301	86	794	835	377	68	170	212	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1788	1774	1770	1858	1774	1863	1583	1673	0	0
Q Serve(g_s), s	1.1	13.5	13.6	3.2	50.5	50.5	24.5	3.4	10.4	13.9	0.0	0.0
Cycle Q Clear(g_c), s	1.1	13.5	13.6	3.2	50.5	50.5	24.5	3.4	10.4	13.9	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.01	1.00		1.00	0.16		0.60
Lane Grp Cap(c), veh/h	109	745	753	385	774	812	376	395	402	282	0	0
V/C Ratio(X)	0.27	0.40	0.40	0.22	1.03	1.03	1.00	0.17	0.42	0.75	0.00	0.00
Avail Cap(c_a), veh/h	177	774	782	426	774	812	376	395	402	282	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.2	23.2	23.3	18.4	32.5	32.5	45.5	37.2	36.0	45.7	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.3	0.3	0.3	39.3	38.9	46.9	0.9	3.2	16.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.7	6.8	1.6	32.9	34.5	16.8	1.9	4.9	7.7	0.0	0.0
LnGrp Delay(d),s/veh	29.5	23.6	23.6	18.7	71.9	71.4	92.4	38.2	39.2	62.4	0.0	0.0
LnGrp LOS	C	C	C	B	F	F	F	D	D	E		
Approach Vol, veh/h		627			1715			615			212	
Approach Delay, s/veh		23.9			69.0			71.7			62.4	
Approach LOS		C			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.0	9.4	53.2		24.0	7.5	55.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		24.5	7.5	50.5		19.5	7.5	50.5
Max Q Clear Time (g_c+I1), s		26.5	5.2	15.6		15.9	3.1	52.5
Green Ext Time (p_c), s		0.0	0.0	21.9		0.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	60.1
HCM 2010 LOS	E

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

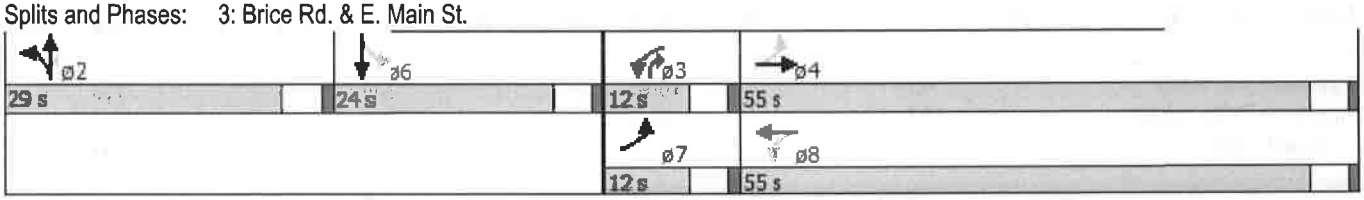
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

2/26/2016

Phase Number	2	3	4	6	7	8
Movement	NBTL	WBL	EBTL	SBTL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	Max	None	None	Max	None	None
Maximum Split (s)	29	12	55	24	12	55
Maximum Split (%)	24.2%	10.0%	45.8%	20.0%	10.0%	45.8%
Minimum Split (s)	22.5	9.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7		7	7		7
Flash Dont Walk (s)	11		11	11		11
Dual Entry	Yes	No	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53	65	29	53	65
End Time (s)	29	65	0	53	65	0
Yield/Force Off (s)	24.5	60.5	115.5	48.5	60.5	115.5
Yield/Force Off 170(s)	13.5	60.5	104.5	37.5	60.5	104.5
Local Start Time (s)	0	53	65	29	53	65
Local Yield (s)	24.5	60.5	115.5	48.5	60.5	115.5
Local Yield 170(s)	13.5	60.5	104.5	37.5	60.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	130

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
12: Rosehill Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	434	49	66	1358	109	89	89	32	74	91	157
Future Volume (veh/h)	87	434	49	66	1358	109	89	89	32	74	91	157
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	95	472	53	72	1476	118	97	97	35	80	99	171
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	1574	176	483	1618	129	287	351	127	407	163	281
Arrive On Green	0.04	0.49	0.49	0.04	0.49	0.49	0.05	0.27	0.27	0.05	0.26	0.26
Sat Flow, veh/h	1774	3210	359	1774	3322	264	1774	1308	472	1774	614	1061
Grp Volume(v), veh/h	95	259	266	72	783	811	97	0	132	80	0	270
Grp Sat Flow(s),veh/h/ln	1774	1770	1799	1774	1770	1816	1774	0	1779	1774	0	1675
Q Serve(g_s), s	3.1	10.1	10.2	2.3	46.8	47.7	4.6	0.0	6.8	3.7	0.0	16.3
Cycle Q Clear(g_c), s	3.1	10.1	10.2	2.3	46.8	47.7	4.6	0.0	6.8	3.7	0.0	16.3
Prop In Lane	1.00		0.20	1.00		0.15	1.00		0.27	1.00		0.63
Lane Grp Cap(c), veh/h	161	868	882	483	862	884	287	0	477	407	0	444
V/C Ratio(X)	0.59	0.30	0.30	0.15	0.91	0.92	0.34	0.00	0.28	0.20	0.00	0.61
Avail Cap(c_a), veh/h	217	911	927	514	881	904	287	0	477	419	0	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.1	17.5	17.6	13.9	27.2	27.4	29.9	0.0	33.3	28.8	0.0	37.1
Incr Delay (d2), s/veh	3.4	0.2	0.2	0.1	13.0	13.8	0.7	0.0	1.4	0.2	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.9	5.1	1.1	25.9	27.3	2.3	0.0	3.5	1.8	0.0	8.3
LnGrp Delay(d),s/veh	29.5	17.7	17.7	14.1	40.1	41.2	30.6	0.0	34.7	29.0	0.0	43.2
LnGrp LOS	C	B	B	B	D	D	C		C	C		D
Approach Vol, veh/h		620			1666			229			350	
Approach Delay, s/veh		19.5			39.6			33.0			40.0	
Approach LOS		B			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	35.4	9.0	60.9	10.2	35.0	9.4	60.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.1	30.1	6.5	59.3	5.7	30.5	8.5	57.3
Max Q Clear Time (g_c+I1), s	5.7	8.8	4.3	12.2	6.6	18.3	5.1	49.7
Green Ext Time (p_c), s	0.0	2.4	0.0	24.3	0.0	1.9	0.1	6.4

Intersection Summary	
HCM 2010 Ctrl Delay	34.7
HCM 2010 LOS	C

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

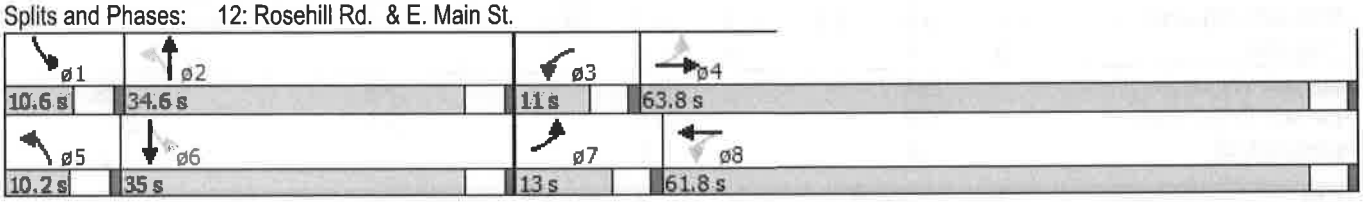
Timing Report, Sorted By Phase
12: Rosehill Rd. & E. Main St.

2/26/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	Max	None	None
Maximum Split (s)	10.6	34.6	11	63.8	10.2	35	13	61.8
Maximum Split (%)	8.8%	28.8%	9.2%	53.2%	8.5%	29.2%	10.8%	51.5%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10.6	45.2	56.2	0	10.2	45.2	58.2
End Time (s)	10.6	45.2	56.2	0	10.2	45.2	58.2	0
Yield/Force Off (s)	6.1	40.7	51.7	115.5	5.7	40.7	53.7	115.5
Yield/Force Off 170(s)	6.1	29.7	51.7	104.5	5.7	29.7	53.7	104.5
Local Start Time (s)	109.4	0	34.6	45.6	109.4	119.6	34.6	47.6
Local Yield (s)	115.5	30.1	41.1	104.9	115.1	30.1	43.1	104.9
Local Yield 170(s)	115.5	19.1	41.1	93.9	115.1	19.1	43.1	93.9

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	90

Splits and Phases: 12: Rosehill Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	456	11	8	1435	17	34	1	9	25	1	92
Future Volume (veh/h)	45	456	11	8	1435	17	34	1	9	25	1	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	49	496	12	9	1560	18	37	1	10	27	1	100
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	2111	51	530	1849	21	386	17	89	121	29	382
Arrive On Green	0.04	0.60	0.60	0.52	0.52	0.52	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	3532	85	888	3584	41	1031	55	286	250	92	1222
Grp Volume(v), veh/h	49	248	260	9	770	808	48	0	0	128	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1848	888	1770	1855	1372	0	0	1564	0	0
Q Serve(g_s), s	1.2	6.6	6.6	0.5	37.5	37.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.2	6.6	6.6	0.5	37.5	37.6	2.2	0.0	0.0	5.9	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.02	0.77		0.21	0.21		0.78
Lane Grp Cap(c), veh/h	183	1058	1104	530	913	957	493	0	0	533	0	0
V/C Ratio(X)	0.27	0.23	0.24	0.02	0.84	0.84	0.10	0.00	0.00	0.24	0.00	0.00
Avail Cap(c_a), veh/h	444	1397	1459	570	993	1041	493	0	0	533	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.6	9.5	9.5	11.9	20.9	20.9	24.5	0.0	0.0	25.8	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.1	0.1	0.0	6.3	6.1	0.4	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.2	3.4	0.1	19.8	20.7	1.0	0.0	0.0	2.8	0.0	0.0
LnGrp Delay(d),s/veh	19.4	9.6	9.6	11.9	27.2	27.0	24.9	0.0	0.0	26.8	0.0	0.0
LnGrp LOS	B	A	A	B	C	C	C			C		
Approach Vol, veh/h		557			1587			48			128	
Approach Delay, s/veh		10.5			27.0			24.9			26.8	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		36.0		64.7		36.0	8.2	56.5
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		31.5		79.5		31.5	18.5	56.5
Max Q Clear Time (g_c+I1), s		4.2		8.6		7.9	3.2	39.6
Green Ext Time (p_c), s		1.0		27.6		1.0	0.1	12.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

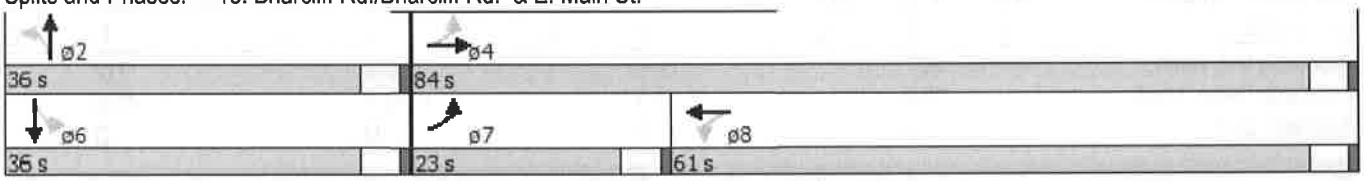
Timing Report, Sorted By Phase
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

2/26/2016

Phase Number	2	4	6	7	8
Movement	NBTL	EBTL	SBTL	EBL	WBTL
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	Max	None	Max	None	None
Maximum Split (s)	36	84	36	23	61
Maximum Split (%)	30.0%	70.0%	30.0%	19.2%	50.8%
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7	7		7
Flash Dont Walk (s)	11	11	11		11
Dual Entry	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	36	0	36	59
End Time (s)	36	0	36	59	0
Yield/Force Off (s)	31.5	115.5	31.5	54.5	115.5
Yield/Force Off 170(s)	20.5	104.5	20.5	54.5	104.5
Local Start Time (s)	0	36	0	36	59
Local Yield (s)	31.5	115.5	31.5	54.5	115.5
Local Yield 170(s)	20.5	104.5	20.5	54.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	70

Splits and Phases: 15: Briarcliff Rd./Briarcliff Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	485	65	79	1488	11	347	63	156	30	48	117
Future Volume (veh/h)	27	485	65	79	1488	11	347	63	156	30	48	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	29	527	71	86	1617	12	377	68	170	33	52	127
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	1444	194	420	1709	13	518	589	564	50	361	348
Arrive On Green	0.03	0.46	0.46	0.04	0.47	0.47	0.15	0.32	0.32	0.03	0.19	0.19
Sat Flow, veh/h	1774	3137	421	1774	3601	27	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	29	297	301	86	794	835	377	68	170	33	52	127
Grp Sat Flow(s),veh/h/ln	1774	1770	1788	1774	1770	1858	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.0	12.6	12.7	3.0	49.7	49.8	12.1	3.0	9.0	2.1	2.7	7.9
Cycle Q Clear(g_c), s	1.0	12.6	12.7	3.0	49.7	49.8	12.1	3.0	9.0	2.1	2.7	7.9
Prop In Lane	1.00		0.24	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	815	823	420	840	882	518	589	564	50	361	348
V/C Ratio(X)	0.24	0.36	0.37	0.20	0.95	0.95	0.73	0.12	0.30	0.66	0.14	0.36
Avail Cap(c_a), veh/h	175	845	854	448	845	888	518	589	564	84	361	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	20.3	20.3	16.0	29.1	29.1	47.1	28.2	26.9	55.9	38.8	38.4
Incr Delay (d2), s/veh	1.0	0.3	0.3	0.2	19.0	18.6	8.6	0.4	1.4	13.8	0.8	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.2	6.3	1.5	28.7	30.1	6.4	1.6	4.1	1.2	1.5	3.7
LnGrp Delay(d),s/veh	27.6	20.6	20.6	16.2	48.1	47.7	55.7	28.6	28.3	69.7	39.7	41.4
LnGrp LOS	C	C	C	B	D	D	E	C	C	E	D	D
Approach Vol, veh/h		627			1715			615			212	
Approach Delay, s/veh		20.9			46.3			45.1			45.4	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	41.2	9.2	58.0	22.0	27.0	7.5	59.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	34.5	6.5	55.5	17.5	22.5	6.5	55.5
Max Q Clear Time (g_c+I1), s	4.1	11.0	5.0	14.7	14.1	9.9	3.0	51.8
Green Ext Time (p_c), s	0.0	1.6	0.0	24.0	0.5	1.3	0.0	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	41.0
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

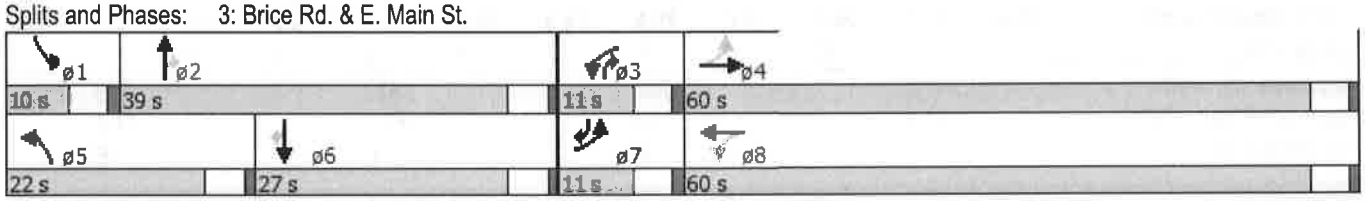
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

2/26/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None
Maximum Split (s)	10	39	11	60	22	27	11	60
Maximum Split (%)	8.3%	32.5%	9.2%	50.0%	18.3%	22.5%	9.2%	50.0%
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7	7	7		7
Flash Dont Walk (s)		11		11	11	11		11
Dual Entry	No	Yes	No	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10	49	60	0	22	49	60
End Time (s)	10	49	60	0	22	49	60	0
Yield/Force Off (s)	5.5	44.5	55.5	115.5	17.5	44.5	55.5	115.5
Yield/Force Off 170(s)	5.5	33.5	55.5	104.5	6.5	33.5	55.5	104.5
Local Start Time (s)	110	0	39	50	110	12	39	50
Local Yield (s)	115.5	34.5	45.5	105.5	7.5	34.5	45.5	105.5
Local Yield 170(s)	115.5	23.5	45.5	94.5	116.5	23.5	45.5	94.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	110

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	563	65	90	1539	13	347	63	173	33	48	117
Future Volume (veh/h)	27	563	65	90	1539	13	347	63	173	33	48	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	29	612	71	98	1673	14	377	68	188	36	52	127
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	1363	158	362	1606	13	385	404	417	44	64	156
Arrive On Green	0.03	0.43	0.43	0.05	0.45	0.45	0.22	0.22	0.22	0.16	0.16	0.16
Sat Flow, veh/h	1774	3197	370	1774	3597	30	1774	1863	1583	280	405	989
Grp Volume(v), veh/h	29	338	345	98	822	865	377	68	188	215	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1797	1774	1770	1857	1774	1863	1583	1674	0	0
Q Serve(g_s), s	1.1	15.9	16.0	3.6	52.5	52.5	24.8	3.5	11.7	14.6	0.0	0.0
Cycle Q Clear(g_c), s	1.1	15.9	16.0	3.6	52.5	52.5	24.8	3.5	11.7	14.6	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.02	1.00		1.00	0.17		0.59
Lane Grp Cap(c), veh/h	107	754	766	362	790	829	385	404	417	263	0	0
V/C Ratio(X)	0.27	0.45	0.45	0.27	1.04	1.04	0.98	0.17	0.45	0.82	0.00	0.00
Avail Cap(c_a), veh/h	144	754	766	409	790	829	385	404	417	263	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.6	23.9	23.9	18.6	32.5	32.5	45.8	37.4	36.2	47.9	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.4	0.4	0.4	43.1	42.8	41.1	0.9	3.5	23.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	7.9	8.0	1.8	34.9	36.6	16.5	1.9	5.5	8.5	0.0	0.0
LnGrp Delay(d),s/veh	29.9	24.3	24.4	19.0	75.6	75.3	86.8	38.3	39.7	71.5	0.0	0.0
LnGrp LOS	C	C	C	B	F	F	F	D	D	E		
Approach Vol, veh/h		712			1785			633			215	
Approach Delay, s/veh		24.6			72.4			67.6			71.5	
Approach LOS		C			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		30.0	9.9	54.6		23.0	7.6	57.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		25.5	8.5	49.5		18.5	5.5	52.5
Max Q Clear Time (g_c+I1), s		26.8	5.6	18.0		16.6	3.1	54.5
Green Ext Time (p_c), s		0.0	0.0	21.9		0.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.2
HCM 2010 LOS	E

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

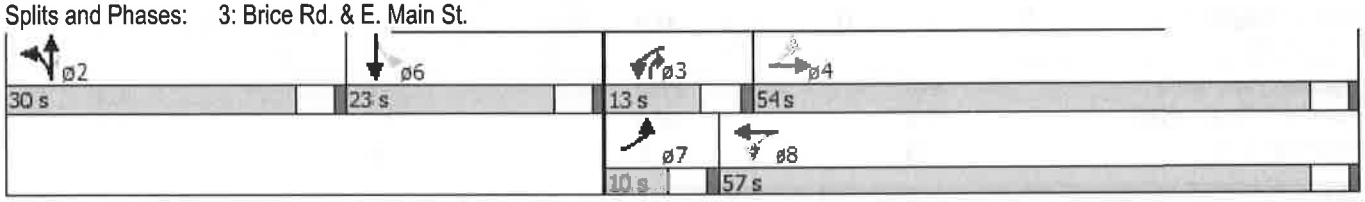
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

3/9/2016

Phase Number	2	3	4	6	7	8
Movement	NBTL	WBL	EBTL	SBTL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	Max	None	None	Max	None	None
Maximum Split (s)	30	13	54	23	10	57
Maximum Split (%)	25.0%	10.8%	45.0%	19.2%	8.3%	47.5%
Minimum Split (s)	22.5	9.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7		7	7		7
Flash Dont Walk (s)	11		11	11		11
Dual Entry	Yes	No	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53	66	30	53	63
End Time (s)	30	66	0	53	63	0
Yield/Force Off (s)	25.5	61.5	115.5	48.5	58.5	115.5
Yield/Force Off 170(s)	14.5	61.5	104.5	37.5	58.5	104.5
Local Start Time (s)	0	53	66	30	53	63
Local Yield (s)	25.5	61.5	115.5	48.5	58.5	115.5
Local Yield 170(s)	14.5	61.5	104.5	37.5	58.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	130

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
12: Rosehill Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	443	58	66	1425	126	106	114	32	120	109	157
Future Volume (veh/h)	87	443	58	66	1425	126	106	114	32	120	109	157
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	95	482	63	72	1549	137	115	124	35	130	118	171
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	1578	205	484	1640	144	266	324	92	382	165	239
Arrive On Green	0.04	0.50	0.50	0.04	0.50	0.50	0.06	0.23	0.23	0.07	0.24	0.24
Sat Flow, veh/h	1774	3150	410	1774	3292	289	1774	1398	395	1774	689	998
Grp Volume(v), veh/h	95	270	275	72	827	859	115	0	159	130	0	289
Grp Sat Flow(s),veh/h/ln	1774	1770	1790	1774	1770	1812	1774	0	1793	1774	0	1687
Q Serve(g_s), s	3.0	10.3	10.4	2.3	50.6	52.1	5.6	0.0	8.6	6.3	0.0	18.1
Cycle Q Clear(g_c), s	3.0	10.3	10.4	2.3	50.6	52.1	5.6	0.0	8.6	6.3	0.0	18.1
Prop In Lane	1.00		0.23	1.00		0.16	1.00		0.22	1.00		0.59
Lane Grp Cap(c), veh/h	150	886	897	484	881	902	266	0	416	382	0	403
V/C Ratio(X)	0.63	0.30	0.31	0.15	0.94	0.95	0.43	0.00	0.38	0.34	0.00	0.72
Avail Cap(c_a), veh/h	222	917	928	530	886	908	266	0	416	403	0	403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	16.9	16.9	13.3	27.2	27.6	31.9	0.0	37.2	30.5	0.0	40.2
Incr Delay (d2), s/veh	4.3	0.2	0.2	0.1	17.2	19.2	1.1	0.0	2.7	0.5	0.0	10.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	5.1	5.2	1.1	28.8	30.8	2.8	0.0	4.5	3.2	0.0	9.6
LnGrp Delay(d),s/veh	31.1	17.1	17.1	13.5	44.4	46.8	33.0	0.0	39.9	31.0	0.0	50.6
LnGrp LOS	C	B	B	B	D	D	C		D	C		D
Approach Vol, veh/h		640			1758			274			419	
Approach Delay, s/veh		19.2			44.3			37.0			44.5	
Approach LOS		B			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	31.2	9.0	62.1	11.9	32.0	9.3	61.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.6	25.3	7.5	59.6	7.4	27.5	9.5	57.6
Max Q Clear Time (g_c+I1), s	8.3	10.6	4.3	12.4	7.6	20.1	5.0	54.1
Green Ext Time (p_c), s	0.0	2.3	0.0	26.6	0.0	1.6	0.1	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	38.5
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

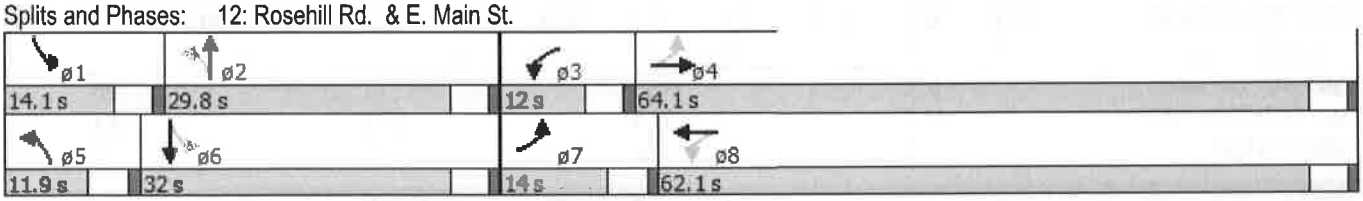
Timing Report, Sorted By Phase
12: Rosehill Rd. & E. Main St.

3/9/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	Max	None	None
Maximum Split (s)	14.1	29.8	12	64.1	11.9	32	14	62.1
Maximum Split (%)	11.8%	24.8%	10.0%	53.4%	9.9%	26.7%	11.7%	51.8%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	14.1	43.9	55.9	0	11.9	43.9	57.9
End Time (s)	14.1	43.9	55.9	0	11.9	43.9	57.9	0
Yield/Force Off (s)	9.6	39.4	51.4	115.5	7.4	39.4	53.4	115.5
Yield/Force Off 170(s)	9.6	28.4	51.4	104.5	7.4	28.4	53.4	104.5
Local Start Time (s)	105.9	0	29.8	41.8	105.9	117.8	29.8	43.8
Local Yield (s)	115.5	25.3	37.3	101.4	113.3	25.3	39.3	101.4
Local Yield 170(s)	115.5	14.3	37.3	90.4	113.3	14.3	39.3	90.4

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	90

Splits and Phases: 12: Rosehill Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	505	13	8	1510	17	37	1	9	25	1	98
Future Volume (veh/h)	49	505	13	8	1510	17	37	1	9	25	1	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	53	549	14	9	1641	18	40	1	10	27	1	107
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	2157	55	516	1920	21	371	15	80	112	26	382
Arrive On Green	0.04	0.61	0.61	0.54	0.54	0.54	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	3527	90	844	3586	39	1019	49	260	239	86	1240
Grp Volume(v), veh/h	53	275	288	9	809	850	51	0	0	135	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1847	844	1770	1856	1327	0	0	1565	0	0
Q Serve(g_s), s	1.4	8.0	8.0	0.6	43.8	44.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	8.0	8.0	0.6	43.8	44.0	3.1	0.0	0.0	7.0	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.02	0.78		0.20	0.20		0.79
Lane Grp Cap(c), veh/h	171	1082	1130	516	947	994	466	0	0	521	0	0
V/C Ratio(X)	0.31	0.25	0.25	0.02	0.85	0.86	0.11	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	226	1209	1262	550	1019	1069	466	0	0	521	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.2	10.0	10.0	12.2	22.3	22.3	27.8	0.0	0.0	29.2	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.1	0.1	0.0	6.8	6.6	0.5	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.9	4.1	0.1	23.1	24.3	1.2	0.0	0.0	3.3	0.0	0.0
LnGrp Delay(d),s/veh	22.2	10.1	10.1	12.2	29.1	28.9	28.3	0.0	0.0	30.4	0.0	0.0
LnGrp LOS	C	B	B	B	C	C	C			C		
Approach Vol, veh/h		616			1668			51			135	
Approach Delay, s/veh		11.2			28.9			28.3			30.4	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		39.0		73.0		39.0	8.5	64.5
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		34.5		76.5		34.5	7.5	64.5
Max Q Clear Time (g_c+I1), s		5.1		10.0		9.0	3.4	46.0
Green Ext Time (p_c), s		1.1		30.7		1.1	0.0	14.0

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

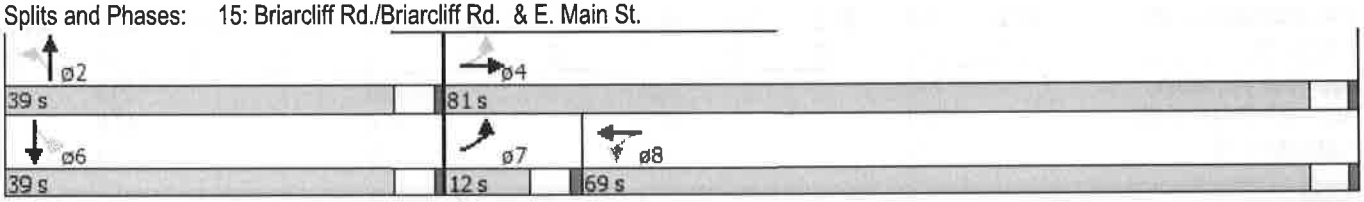
Timing Report, Sorted By Phase
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

3/9/2016

Phase Number	2	4	6	7	8
Movement	NBTL	EBTL	SBTL	EBL	WBTL
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	Max	None	Max	None	None
Maximum Split (s)	39	81	39	12	69
Maximum Split (%)	32.5%	67.5%	32.5%	10.0%	57.5%
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7	7		7
Flash Dont Walk (s)	11	11	11		11
Dual Entry	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	39	0	39	51
End Time (s)	39	0	39	51	0
Yield/Force Off (s)	34.5	115.5	34.5	46.5	115.5
Yield/Force Off 170(s)	23.5	104.5	23.5	46.5	104.5
Local Start Time (s)	0	39	0	39	51
Local Yield (s)	34.5	115.5	34.5	46.5	115.5
Local Yield 170(s)	23.5	104.5	23.5	46.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	75

Splits and Phases: 15: Briarcliff Rd./Briarcliff Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	563	65	90	1539	13	347	63	173	33	48	117
Future Volume (veh/h)	27	563	65	90	1539	13	347	63	173	33	48	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	29	612	71	98	1673	14	377	68	188	36	52	127
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	1487	172	400	1741	15	567	558	545	53	307	303
Arrive On Green	0.03	0.47	0.47	0.05	0.48	0.48	0.16	0.30	0.30	0.03	0.16	0.16
Sat Flow, veh/h	1774	3197	370	1774	3597	30	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	29	338	345	98	822	865	377	68	188	36	52	127
Grp Sat Flow(s),veh/h/ln	1774	1770	1797	1774	1770	1857	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.9	14.2	14.3	3.2	50.3	50.5	11.5	3.0	9.9	2.3	2.7	7.9
Cycle Q Clear(g_c), s	0.9	14.2	14.3	3.2	50.3	50.5	11.5	3.0	9.9	2.3	2.7	7.9
Prop In Lane	1.00		0.21	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	823	836	400	856	899	567	558	545	53	307	303
V/C Ratio(X)	0.24	0.41	0.41	0.25	0.96	0.96	0.67	0.12	0.34	0.68	0.17	0.42
Avail Cap(c_a), veh/h	240	827	840	517	858	901	567	558	545	118	307	303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	19.9	19.9	15.3	28.0	28.0	44.0	28.6	27.4	53.9	40.3	40.0
Incr Delay (d2), s/veh	1.0	0.3	0.3	0.3	21.6	21.2	6.1	0.4	1.7	13.9	1.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.0	7.2	1.6	29.6	31.0	6.0	1.6	4.6	1.3	1.5	3.8
LnGrp Delay(d),s/veh	27.2	20.2	20.2	15.6	49.5	49.2	50.1	29.1	29.1	67.8	41.5	44.2
LnGrp LOS	C	C	C	B	D	D	D	C	C	E	D	D
Approach Vol, veh/h		712			1785			633			215	
Approach Delay, s/veh		20.5			47.5			41.6			47.5	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	38.1	9.6	56.8	23.0	23.0	7.5	58.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	29.5	12.5	52.5	18.5	18.5	10.5	54.5
Max Q Clear Time (g_c+I1), s	4.3	11.9	5.2	16.3	13.5	9.9	2.9	52.5
Green Ext Time (p_c), s	0.0	1.5	0.1	24.1	0.6	1.1	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	40.6
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

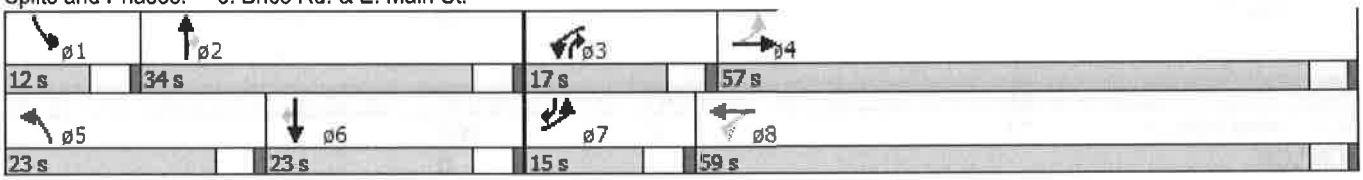
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

3/9/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None
Maximum Split (s)	12	34	17	57	23	23	15	59
Maximum Split (%)	10.0%	28.3%	14.2%	47.5%	19.2%	19.2%	12.5%	49.2%
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7	7	7		7
Flash Dont Walk (s)		11		11	11	11		11
Dual Entry	No	Yes	No	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	46	63	0	23	46	61
End Time (s)	12	46	63	0	23	46	61	0
Yield/Force Off (s)	7.5	41.5	58.5	115.5	18.5	41.5	56.5	115.5
Yield/Force Off 170(s)	7.5	30.5	58.5	104.5	7.5	30.5	56.5	104.5
Local Start Time (s)	108	0	34	51	108	11	34	49
Local Yield (s)	115.5	29.5	46.5	103.5	6.5	29.5	44.5	103.5
Local Yield 170(s)	115.5	18.5	46.5	92.5	115.5	18.5	44.5	92.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	110

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	68	651	1610	10	8	45
Future Vol, veh/h	68	651	1610	10	8	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	708	1750	11	9	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1761	0	-	0	2257	880
Stage 1	-	-	-	-	1755	-
Stage 2	-	-	-	-	502	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	351	-	-	-	35	290
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	573	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	351	-	-	-	28	290
Mov Cap-2 Maneuver	-	-	-	-	97	-
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	452	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	26.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	351	-	-	-	223
HCM Lane V/C Ratio	0.211	-	-	-	0.258
HCM Control Delay (s)	18	-	-	-	26.7
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	0.8	-	-	-	1

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	636	1593	44	9	27
Future Vol, veh/h	23	636	1593	44	9	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	691	1732	48	10	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1732	0	-	0	2128	866
Stage 1	-	-	-	-	1732	-
Stage 2	-	-	-	-	396	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	360	-	-	-	43	297
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	360	-	-	-	40	297
Mov Cap-2 Maneuver	-	-	-	-	106	-
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	604	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	26.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	360	-	-	-	205
HCM Lane V/C Ratio	0.069	-	-	-	0.191
HCM Control Delay (s)	15.7	-	-	-	26.7
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	0.7

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	24	621	1620	55	18	17
Future Vol, veh/h	24	621	1620	55	18	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	675	1761	60	20	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1761	0	-	0	2151	880
Stage 1	-	-	-	-	1761	-
Stage 2	-	-	-	-	390	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	351	-	-	-	41	290
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	653	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	351	-	-	-	38	290
Mov Cap-2 Maneuver	-	-	-	-	102	-
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	605	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	37.3
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	351	-	-	-	149
HCM Lane V/C Ratio	0.074	-	-	-	0.255
HCM Control Delay (s)	16.1	-	-	-	37.3
HCM Lane LOS	C	-	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	1

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	41	68	46	281	318	60
Future Vol, veh/h	41	68	46	281	318	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	161
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	74	50	305	346	65

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	751	346	346	0	-	0
Stage 1	346	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	378	697	1213	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	362	697	1213	-	-	-
Mov Cap-2 Maneuver	474	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1213	-	592	-	-
HCM Lane V/C Ratio	0.041	-	0.2	-	-
HCM Control Delay (s)	8.1	-	12.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1156	265	211	784	23	236	111	255	44	117	49
Future Volume (veh/h)	89	1156	265	211	784	23	236	111	255	44	117	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	97	1257	288	229	852	25	257	121	277	48	127	53
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	339	1207	273	248	1688	50	308	323	442	56	148	62
Arrive On Green	0.05	0.42	0.42	0.11	0.48	0.48	0.17	0.17	0.17	0.15	0.15	0.15
Sat Flow, veh/h	1774	2869	649	1774	3511	103	1774	1863	1583	373	987	412
Grp Volume(v), veh/h	97	769	776	229	429	448	257	121	277	228	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1748	1774	1770	1845	1774	1863	1583	1771	0	0
Q Serve(g_s), s	3.7	50.5	50.5	11.2	20.0	20.0	16.8	6.9	18.3	15.1	0.0	0.0
Cycle Q Clear(g_c), s	3.7	50.5	50.5	11.2	20.0	20.0	16.8	6.9	18.3	15.1	0.0	0.0
Prop In Lane	1.00		0.37	1.00		0.06	1.00		1.00	0.21		0.23
Lane Grp Cap(c), veh/h	339	745	736	248	851	887	308	323	442	266	0	0
V/C Ratio(X)	0.29	1.03	1.05	0.92	0.50	0.50	0.84	0.37	0.63	0.86	0.00	0.00
Avail Cap(c_a), veh/h	363	745	736	248	851	887	308	323	442	266	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.9	34.8	34.8	37.2	21.4	21.4	47.9	43.9	37.8	49.8	0.0	0.0
Incr Delay (d2), s/veh	0.5	41.6	48.6	37.3	0.5	0.5	22.8	3.3	6.6	28.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	33.2	34.3	10.1	9.9	10.3	10.2	3.9	8.8	9.4	0.0	0.0
LnGrp Delay(d),s/veh	19.3	76.4	83.3	74.5	21.8	21.8	70.7	47.2	44.4	78.1	0.0	0.0
LnGrp LOS	B	F	F	E	C	C	E	D	D	E		
Approach Vol, veh/h		1642			1106			655			228	
Approach Delay, s/veh		76.3			32.7			55.2			78.1	
Approach LOS		E			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.3	17.2	55.0		22.5	10.0	62.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		20.8	12.7	50.5		18.0	7.1	56.1
Max Q Clear Time (g_c+I1), s		20.3	13.2	52.5		17.1	5.7	22.0
Green Ext Time (p_c), s		0.1	0.0	0.0		0.1	0.0	23.3

Intersection Summary	
HCM 2010 Ctrl Delay	59.3
HCM 2010 LOS	E

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

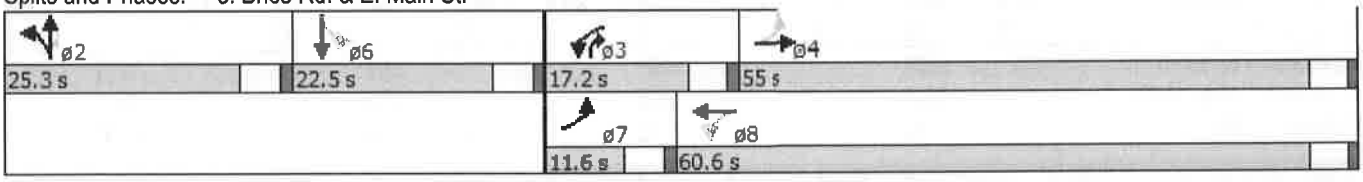
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

2/26/2016

Phase Number	2	3	4	6	7	8
Movement	NBTL	WBL	EBTL	SBTL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	Max	None	None	Max	None	None
Maximum Split (s)	25.3	17.2	55	22.5	11.6	60.6
Maximum Split (%)	21.1%	14.3%	45.8%	18.8%	9.7%	50.5%
Minimum Split (s)	22.5	9.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7		7	7		7
Flash Dont Walk (s)	11		11	11		11
Dual Entry	Yes	No	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	47.8	65	25.3	47.8	59.4
End Time (s)	25.3	65	0	47.8	59.4	0
Yield/Force Off (s)	20.8	60.5	115.5	43.3	54.9	115.5
Yield/Force Off 170(s)	9.8	60.5	104.5	32.3	54.9	104.5
Local Start Time (s)	0	47.8	65	25.3	47.8	59.4
Local Yield (s)	20.8	60.5	115.5	43.3	54.9	115.5
Local Yield 170(s)	9.8	60.5	104.5	32.3	54.9	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	120

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
12: Rosehill Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	1096	86	99	723	98	76	135	122	145	163	128
Future Volume (veh/h)	211	1096	86	99	723	98	76	135	122	145	163	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	229	1191	93	108	786	107	83	147	133	158	177	139
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	355	1352	105	216	1131	154	297	225	203	338	271	213
Arrive On Green	0.10	0.41	0.41	0.06	0.36	0.36	0.05	0.25	0.25	0.08	0.28	0.28
Sat Flow, veh/h	1774	3327	259	1774	3131	426	1774	902	816	1774	968	760
Grp Volume(v), veh/h	229	633	651	108	444	449	83	0	280	158	0	316
Grp Sat Flow(s),veh/h/ln	1774	1770	1817	1774	1770	1788	1774	0	1719	1774	0	1729
Q Serve(g_s), s	6.7	28.7	28.8	3.3	18.6	18.6	3.0	0.0	12.7	5.7	0.0	14.0
Cycle Q Clear(g_c), s	6.7	28.7	28.8	3.3	18.6	18.6	3.0	0.0	12.7	5.7	0.0	14.0
Prop In Lane	1.00		0.14	1.00		0.24	1.00		0.47	1.00		0.44
Lane Grp Cap(c), veh/h	355	719	738	216	639	646	297	0	428	338	0	483
V/C Ratio(X)	0.64	0.88	0.88	0.50	0.70	0.70	0.28	0.00	0.65	0.47	0.00	0.65
Avail Cap(c_a), veh/h	417	734	754	266	642	649	313	0	428	338	0	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.2	23.8	23.8	20.4	23.7	23.7	23.2	0.0	29.3	22.4	0.0	27.6
Incr Delay (d2), s/veh	2.6	11.8	11.7	1.8	3.2	3.2	0.5	0.0	7.6	1.0	0.0	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	16.2	16.7	1.7	9.6	9.7	1.5	0.0	6.9	2.9	0.0	7.6
LnGrp Delay(d),s/veh	19.8	35.6	35.6	22.2	26.9	26.9	23.7	0.0	36.9	23.4	0.0	34.3
LnGrp LOS	B	D	D	C	C	C	C		D	C		C
Approach Vol, veh/h		1513			1001			363			474	
Approach Delay, s/veh		33.2			26.4			33.9			30.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	26.1	9.4	39.8	8.8	28.8	13.4	35.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.0	21.6	7.4	36.0	5.1	23.5	11.9	31.5
Max Q Clear Time (g_c+I1), s	7.7	14.7	5.3	30.8	5.0	16.0	8.7	20.6
Green Ext Time (p_c), s	0.0	2.1	0.0	4.5	0.0	2.2	0.2	8.7

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

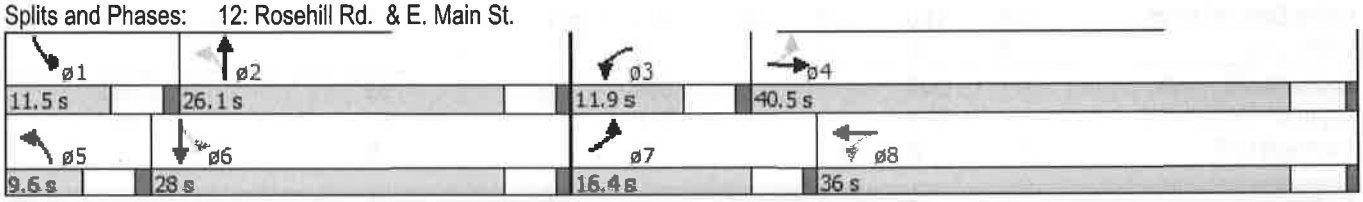
Timing Report, Sorted By Phase
12: Rosehill Rd. & E. Main St.

2/26/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	Max	None	None
Maximum Split (s)	11.5	26.1	11.9	40.5	9.6	28	16.4	36
Maximum Split (%)	12.8%	29.0%	13.2%	45.0%	10.7%	31.1%	18.2%	40.0%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11.5	37.6	49.5	0	9.6	37.6	54
End Time (s)	11.5	37.6	49.5	0	9.6	37.6	54	0
Yield/Force Off (s)	7	33.1	45	85.5	5.1	33.1	49.5	85.5
Yield/Force Off 170(s)	7	22.1	45	74.5	5.1	22.1	49.5	74.5
Local Start Time (s)	78.5	0	26.1	38	78.5	88.1	26.1	42.5
Local Yield (s)	85.5	21.6	33.5	74	83.6	21.6	38	74
Local Yield 170(s)	85.5	10.6	33.5	63	83.6	10.6	38	63

Intersection Summary	
Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	80

Splits and Phases: 12: Rosehill Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	975	21	25	750	30	24	10	24	48	11	81
Future Volume (veh/h)	129	975	21	25	750	30	24	10	24	48	11	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	140	1060	23	27	815	33	26	11	26	52	12	88
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	353	1888	41	256	1438	58	265	121	230	221	70	324
Arrive On Green	0.07	0.53	0.53	0.41	0.41	0.41	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1774	3542	77	519	3467	140	569	333	634	456	192	891
Grp Volume(v), veh/h	140	530	553	27	416	432	63	0	0	152	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1849	519	1770	1838	1536	0	0	1539	0	0
Q Serve(g_s), s	3.7	17.3	17.3	3.2	15.6	15.6	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	3.7	17.3	17.3	10.2	15.6	15.6	2.1	0.0	0.0	5.7	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.08	0.41		0.41	0.34		0.58
Lane Grp Cap(c), veh/h	353	943	985	256	734	762	617	0	0	615	0	0
V/C Ratio(X)	0.40	0.56	0.56	0.11	0.57	0.57	0.10	0.00	0.00	0.25	0.00	0.00
Avail Cap(c_a), veh/h	614	1622	1695	379	1153	1198	617	0	0	615	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.9	13.5	13.5	20.3	19.4	19.4	18.2	0.0	0.0	19.3	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.5	0.5	0.2	0.7	0.7	0.3	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	8.5	8.9	0.5	7.8	8.1	1.1	0.0	0.0	2.7	0.0	0.0
LnGrp Delay(d),s/veh	14.6	14.0	14.0	20.5	20.1	20.1	18.6	0.0	0.0	20.3	0.0	0.0
LnGrp LOS	B	B	B	C	C	C	B			C		
Approach Vol, veh/h		1223			875			63			152	
Approach Delay, s/veh		14.1			20.1			18.6			20.3	
Approach LOS		B			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		36.0		50.7		36.0	10.2	40.5
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		31.5		79.5		31.5	18.5	56.5
Max Q Clear Time (g_c+I1), s		4.1		19.3		7.7	5.7	17.6
Green Ext Time (p_c), s		1.3		21.4		1.2	0.3	18.4

Intersection Summary	
HCM 2010 Ctrl Delay	16.9
HCM 2010 LOS	B

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

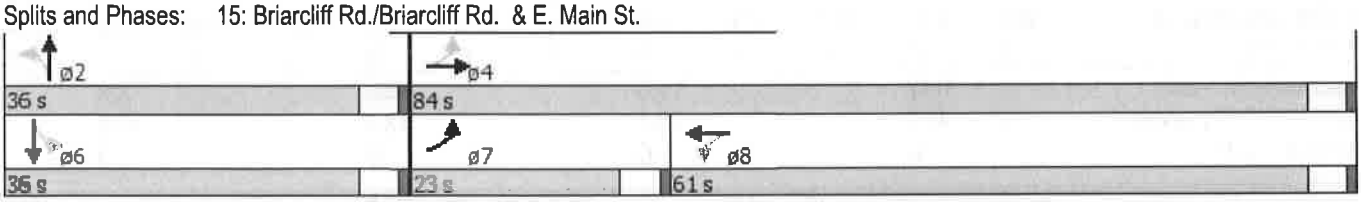
Timing Report, Sorted By Phase
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

2/26/2016

Phase Number	2	4	6	7	8
Movement	NBTL	EBTL	SBTL	EBL	WBTL
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	Max	None	Max	None	None
Maximum Split (s)	36	84	36	23	61
Maximum Split (%)	30.0%	70.0%	30.0%	19.2%	50.8%
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7	7		7
Flash Dont Walk (s)	11	11	11		11
Dual Entry	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	36	0	36	59
End Time (s)	36	0	36	59	0
Yield/Force Off (s)	31.5	115.5	31.5	54.5	115.5
Yield/Force Off 170(s)	20.5	104.5	20.5	54.5	104.5
Local Start Time (s)	0	36	0	36	59
Local Yield (s)	31.5	115.5	31.5	54.5	115.5
Local Yield 170(s)	20.5	104.5	20.5	54.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	55

Splits and Phases: 15: Briarcliff Rd./Briarcliff Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1156	265	211	784	23	236	111	255	44	117	49
Future Volume (veh/h)	89	1156	265	211	784	23	236	111	255	44	117	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	97	1257	288	229	852	25	257	121	277	48	127	53
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	370	1326	300	255	1834	54	331	464	558	62	350	366
Arrive On Green	0.04	0.46	0.46	0.10	0.52	0.52	0.10	0.25	0.25	0.03	0.19	0.19
Sat Flow, veh/h	1774	2869	649	1774	3511	103	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	97	769	776	229	429	448	257	121	277	48	127	53
Grp Sat Flow(s),veh/h/ln	1774	1770	1748	1774	1770	1845	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	3.4	49.5	51.4	10.4	18.3	18.3	8.7	6.2	16.4	3.2	7.1	3.2
Cycle Q Clear(g_c), s	3.4	49.5	51.4	10.4	18.3	18.3	8.7	6.2	16.4	3.2	7.1	3.2
Prop In Lane	1.00		0.37	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	818	808	255	924	963	331	464	558	62	350	366
V/C Ratio(X)	0.26	0.94	0.96	0.90	0.46	0.46	0.78	0.26	0.50	0.77	0.36	0.14
Avail Cap(c_a), veh/h	374	820	810	256	924	963	331	464	558	170	350	366
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	30.6	31.1	35.5	18.0	18.0	52.9	36.1	30.4	57.3	42.4	36.6
Incr Delay (d2), s/veh	0.4	18.5	22.4	31.1	0.4	0.3	16.4	1.4	3.1	18.3	2.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	28.3	29.8	9.6	9.0	9.4	4.9	3.4	7.7	1.9	4.0	1.5
LnGrp Delay(d),s/veh	16.5	49.1	53.5	66.6	18.4	18.4	69.2	37.5	33.6	75.6	45.3	37.4
LnGrp LOS	B	D	D	E	B	B	E	D	C	E	D	D
Approach Vol, veh/h		1642			1106			655			228	
Approach Delay, s/veh		49.3			28.4			48.3			49.8	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	34.3	16.9	59.8	16.0	27.0	9.7	67.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.5	22.5	12.5	55.5	11.5	22.5	5.5	62.5
Max Q Clear Time (g_c+I1), s	5.2	18.4	12.4	53.4	10.7	9.1	5.4	20.3
Green Ext Time (p_c), s	0.0	1.0	0.0	1.9	0.1	2.1	0.0	26.8

Intersection Summary	
HCM 2010 Ctrl Delay	42.8
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

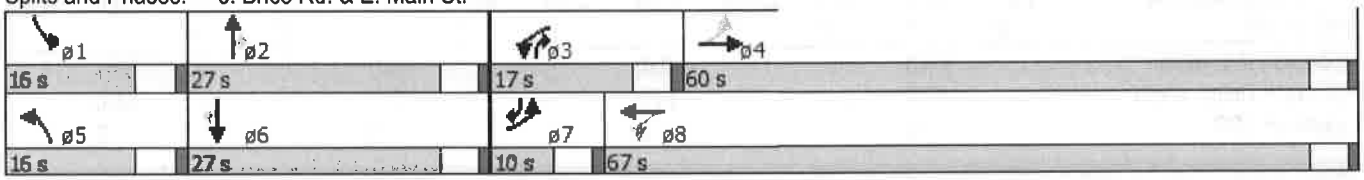
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

2/26/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None
Maximum Split (s)	16	27	17	60	16	27	10	67
Maximum Split (%)	13.3%	22.5%	14.2%	50.0%	13.3%	22.5%	8.3%	55.8%
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7	7	7		7
Flash Dont Walk (s)		11		11	11	11		11
Dual Entry	No	Yes	No	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	16	43	60	0	16	43	53
End Time (s)	16	43	60	0	16	43	53	0
Yield/Force Off (s)	11.5	38.5	55.5	115.5	11.5	38.5	48.5	115.5
Yield/Force Off 170(s)	11.5	27.5	55.5	104.5	0.5	27.5	48.5	104.5
Local Start Time (s)	104	0	27	44	104	0	27	37
Local Yield (s)	115.5	22.5	39.5	99.5	115.5	22.5	32.5	99.5
Local Yield 170(s)	115.5	11.5	39.5	88.5	104.5	11.5	32.5	88.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	120

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1249	265	231	875	26	236	111	275	47	117	49
Future Volume (veh/h)	89	1249	265	231	875	26	236	111	275	47	117	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	97	1358	288	251	951	28	257	121	299	51	127	53
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	1349	281	171	1690	50	273	287	343	67	166	69
Arrive On Green	0.04	0.46	0.46	0.06	0.48	0.48	0.15	0.15	0.15	0.17	0.17	0.17
Sat Flow, veh/h	1774	2917	608	1774	3511	103	1774	1863	1583	391	974	406
Grp Volume(v), veh/h	97	815	831	251	479	500	257	121	299	231	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1755	1774	1770	1845	1774	1863	1583	1771	0	0
Q Serve(g_s), s	3.4	55.0	55.5	7.5	23.1	23.1	17.2	7.1	18.5	14.9	0.0	0.0
Cycle Q Clear(g_c), s	3.4	55.0	55.5	7.5	23.1	23.1	17.2	7.1	18.5	14.9	0.0	0.0
Prop In Lane	1.00		0.35	1.00		0.06	1.00		1.00	0.22		0.23
Lane Grp Cap(c), veh/h	303	818	812	171	852	888	273	287	343	303	0	0
V/C Ratio(X)	0.32	1.00	1.02	1.47	0.56	0.56	0.94	0.42	0.87	0.76	0.00	0.00
Avail Cap(c_a), veh/h	336	818	812	171	852	888	273	287	343	303	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.7	32.1	32.3	34.9	22.1	22.1	50.2	45.9	45.4	47.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	30.3	37.8	240.0	0.9	0.8	40.9	4.5	24.9	16.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	33.6	35.4	17.0	11.5	12.0	11.5	4.0	11.9	8.7	0.0	0.0
LnGrp Delay(d),s/veh	18.3	62.4	70.0	274.9	23.0	23.0	91.1	50.4	70.3	64.0	0.0	0.0
LnGrp LOS	B	E	F	F	C	C	F	D	E	E		
Approach Vol, veh/h		1743			1230			677			231	
Approach Delay, s/veh		63.6			74.4			74.6			64.0	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.0	12.0	60.0		25.0	9.7	62.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		18.5	7.5	55.5		20.5	7.5	55.5
Max Q Clear Time (g_c+I1), s		20.5	9.5	57.5		16.9	5.4	25.1
Green Ext Time (p_c), s		0.0	0.0	0.0		0.4	0.0	23.3

Intersection Summary	
HCM 2010 Ctrl Delay	69.0
HCM 2010 LOS	E

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

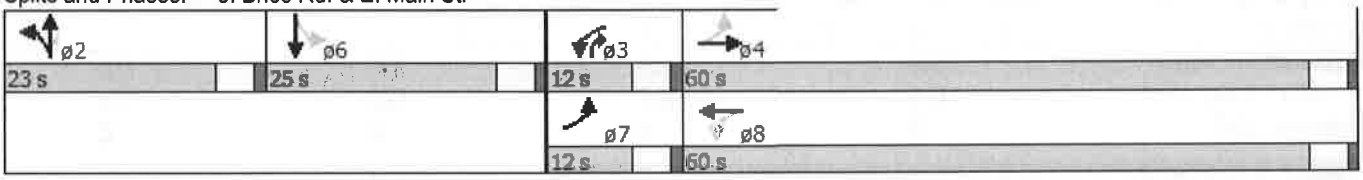
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

3/9/2016

Phase Number	2	3	4	6	7	8
Movement	NBTL	WBL	EBTL	SBTL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	Max	None	None	Max	None	None
Maximum Split (s)	23	12	60	25	12	60
Maximum Split (%)	19.2%	10.0%	50.0%	20.8%	10.0%	50.0%
Minimum Split (s)	22.5	9.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7		7	7		7
Flash Dont Walk (s)	11		11	11		11
Dual Entry	Yes	No	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	48	60	23	48	60
End Time (s)	23	60	0	48	60	0
Yield/Force Off (s)	18.5	55.5	115.5	43.5	55.5	115.5
Yield/Force Off 170(s)	7.5	55.5	104.5	32.5	55.5	104.5
Local Start Time (s)	0	48	60	23	48	60
Local Yield (s)	18.5	55.5	115.5	43.5	55.5	115.5
Local Yield 170(s)	7.5	55.5	104.5	32.5	55.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	130

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
12: Rosehill Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	1112	102	99	802	118	97	165	122	227	196	128
Future Volume (veh/h)	211	1112	102	99	802	118	97	165	122	227	196	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	229	1209	111	108	872	128	105	179	133	247	213	139
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	302	1356	124	185	1148	168	313	262	194	375	348	227
Arrive On Green	0.10	0.41	0.41	0.05	0.37	0.37	0.05	0.26	0.26	0.12	0.33	0.33
Sat Flow, veh/h	1774	3279	300	1774	3097	455	1774	994	739	1774	1054	688
Grp Volume(v), veh/h	229	651	669	108	498	502	105	0	312	247	0	352
Grp Sat Flow(s),veh/h/ln	1774	1770	1810	1774	1770	1783	1774	0	1732	1774	0	1741
Q Serve(g_s), s	8.9	39.8	40.1	4.4	28.8	28.8	5.0	0.0	18.9	11.4	0.0	19.8
Cycle Q Clear(g_c), s	8.9	39.8	40.1	4.4	28.8	28.8	5.0	0.0	18.9	11.4	0.0	19.8
Prop In Lane	1.00		0.17	1.00		0.26	1.00		0.43	1.00		0.39
Lane Grp Cap(c), veh/h	302	732	748	185	656	661	313	0	456	375	0	575
V/C Ratio(X)	0.76	0.89	0.89	0.58	0.76	0.76	0.34	0.00	0.68	0.66	0.00	0.61
Avail Cap(c_a), veh/h	372	763	781	205	656	661	313	0	456	395	0	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	31.7	31.8	27.5	32.1	32.1	30.0	0.0	38.6	27.1	0.0	32.8
Incr Delay (d2), s/veh	7.0	12.3	12.4	3.5	5.2	5.1	0.6	0.0	8.1	3.7	0.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	21.9	22.5	2.3	14.9	15.0	2.5	0.0	10.0	5.9	0.0	10.3
LnGrp Delay(d),s/veh	31.5	44.0	44.2	31.0	37.3	37.3	30.6	0.0	46.7	30.9	0.0	37.6
LnGrp LOS	C	D	D	C	D	D	C		D	C		D
Approach Vol, veh/h		1549			1108			417			599	
Approach Delay, s/veh		42.3			36.7			42.6			34.8	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	35.2	10.7	52.7	10.2	43.0	15.7	47.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.8	29.4	7.5	50.3	5.7	38.5	15.8	42.0
Max Q Clear Time (g_c+I1), s	13.4	20.9	6.4	42.1	7.0	21.8	10.9	30.8
Green Ext Time (p_c), s	0.1	2.7	0.0	6.1	0.0	3.8	0.3	9.3

Intersection Summary	
HCM 2010 Ctrl Delay	39.4
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

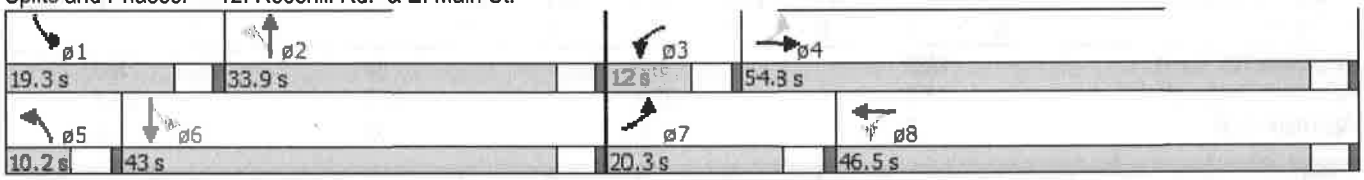
Timing Report, Sorted By Phase
12: Rosehill Rd. & E. Main St.

3/9/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	Max	None	None
Maximum Split (s)	19.3	33.9	12	54.8	10.2	43	20.3	46.5
Maximum Split (%)	16.1%	28.3%	10.0%	45.7%	8.5%	35.8%	16.9%	38.8%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	19.3	53.2	65.2	0	10.2	53.2	73.5
End Time (s)	19.3	53.2	65.2	0	10.2	53.2	73.5	0
Yield/Force Off (s)	14.8	48.7	60.7	115.5	5.7	48.7	69	115.5
Yield/Force Off 170(s)	14.8	37.7	60.7	104.5	5.7	37.7	69	104.5
Local Start Time (s)	100.7	0	33.9	45.9	100.7	110.9	33.9	54.2
Local Yield (s)	115.5	29.4	41.4	96.2	106.4	29.4	49.7	96.2
Local Yield 170(s)	115.5	18.4	41.4	85.2	106.4	18.4	49.7	85.2

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	90

Splits and Phases: 12: Rosehill Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	1063	24	25	839	30	27	10	24	48	11	88
Future Volume (veh/h)	136	1063	24	25	839	30	27	10	24	48	11	88
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	148	1155	26	27	912	33	29	11	26	52	12	96
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	325	1919	43	226	1501	54	277	113	219	208	66	337
Arrive On Green	0.07	0.54	0.54	0.43	0.43	0.43	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1774	3539	80	473	3484	126	614	309	599	437	180	924
Grp Volume(v), veh/h	148	577	604	27	463	482	66	0	0	160	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1849	473	1770	1840	1522	0	0	1541	0	0
Q Serve(g_s), s	4.3	21.6	21.6	4.0	19.6	19.6	0.0	0.0	0.0	2.6	0.0	0.0
Cycle Q Clear(g_c), s	4.3	21.6	21.6	14.7	19.6	19.6	2.4	0.0	0.0	6.8	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.07	0.44		0.39	0.32		0.60
Lane Grp Cap(c), veh/h	325	960	1003	226	762	793	609	0	0	611	0	0
V/C Ratio(X)	0.46	0.60	0.60	0.12	0.61	0.61	0.11	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	456	1374	1435	302	1046	1088	609	0	0	611	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.6	15.1	15.1	23.8	21.3	21.3	20.4	0.0	0.0	21.7	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.6	0.6	0.2	0.8	0.8	0.4	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	10.6	11.1	0.5	9.7	10.1	1.2	0.0	0.0	3.2	0.0	0.0
LnGrp Delay(d),s/veh	16.6	15.7	15.7	24.0	22.1	22.1	20.7	0.0	0.0	22.7	0.0	0.0
LnGrp LOS	B	B	B	C	C	C	C			C		
Approach Vol, veh/h		1329			972			66			160	
Approach Delay, s/veh		15.8			22.2			20.7			22.7	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		40.0		57.2		40.0	10.9	46.4
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		35.5		75.5		35.5	13.5	57.5
Max Q Clear Time (g_c+I1), s		4.4		23.6		8.8	6.3	21.6
Green Ext Time (p_c), s		1.4		24.2		1.3	0.2	20.3

Intersection Summary	
HCM 2010 Ctrl Delay	18.8
HCM 2010 LOS	B

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

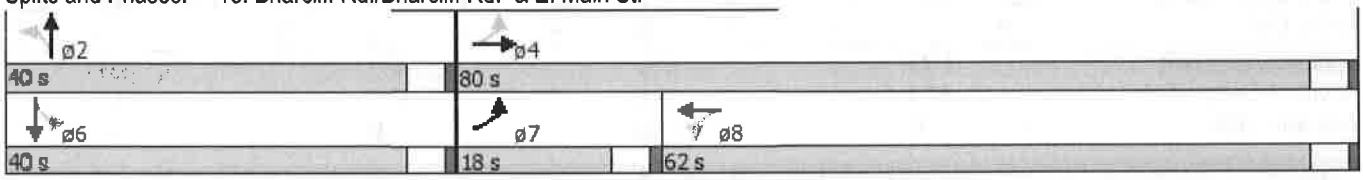
Timing Report, Sorted By Phase
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

3/9/2016

Phase Number	2	4	6	7	8
Movement	NBTL	EBTL	SBTL	EBL	WBTL
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	Max	None	Max	None	None
Maximum Split (s)	40	80	40	18	62
Maximum Split (%)	33.3%	66.7%	33.3%	15.0%	51.7%
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7	7		7
Flash Dont Walk (s)	11	11	11		11
Dual Entry	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	40	0	40	58
End Time (s)	40	0	40	58	0
Yield/Force Off (s)	35.5	115.5	35.5	53.5	115.5
Yield/Force Off 170(s)	24.5	104.5	24.5	53.5	104.5
Local Start Time (s)	0	40	0	40	58
Local Yield (s)	35.5	115.5	35.5	53.5	115.5
Local Yield 170(s)	24.5	104.5	24.5	53.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 15: Briarcliff Rd./Briarcliff Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	1249	265	231	875	26	236	111	275	47	117	49
Future Volume (veh/h)	89	1249	265	231	875	26	236	111	275	47	117	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	97	1358	288	251	951	28	257	121	299	51	127	53
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	363	1400	292	279	1955	58	307	390	523	66	293	318
Arrive On Green	0.04	0.48	0.48	0.12	0.56	0.56	0.09	0.21	0.21	0.04	0.16	0.16
Sat Flow, veh/h	1774	2917	608	1774	3511	103	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	97	815	831	251	479	500	257	121	299	51	127	53
Grp Sat Flow(s),veh/h/ln	1774	1770	1755	1774	1770	1845	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	3.2	52.2	55.1	12.0	19.4	19.4	8.7	6.5	18.4	3.4	7.3	3.3
Cycle Q Clear(g_c), s	3.2	52.2	55.1	12.0	19.4	19.4	8.7	6.5	18.4	3.4	7.3	3.3
Prop In Lane	1.00		0.35	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	363	849	843	279	985	1027	307	390	523	66	293	318
V/C Ratio(X)	0.27	0.96	0.99	0.90	0.49	0.49	0.84	0.31	0.57	0.78	0.43	0.17
Avail Cap(c_a), veh/h	534	849	843	314	985	1027	307	390	523	98	293	318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	29.5	30.2	37.6	15.9	15.9	52.8	39.3	32.6	56.2	44.9	38.9
Incr Delay (d2), s/veh	0.4	21.5	27.6	25.4	0.4	0.4	23.0	2.1	4.5	19.9	4.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	30.4	33.0	10.0	9.6	10.0	5.1	3.6	8.7	2.0	4.1	1.5
LnGrp Delay(d),s/veh	15.1	51.0	57.8	62.9	16.2	16.2	75.7	41.4	37.1	76.1	49.5	40.0
LnGrp LOS	B	D	E	E	B	B	E	D	D	E	D	D
Approach Vol, veh/h		1743			1230			677			231	
Approach Delay, s/veh		52.3			25.8			52.5			53.2	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	29.1	18.7	61.0	15.0	23.0	9.7	70.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	22.5	16.5	56.5	10.5	18.5	16.5	56.5
Max Q Clear Time (g_c+I1), s	5.4	20.4	14.0	57.1	10.7	9.3	5.2	21.4
Green Ext Time (p_c), s	0.0	0.6	0.2	0.0	0.0	1.8	0.1	26.0

Intersection Summary	
HCM 2010 Ctrl Delay	44.0
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

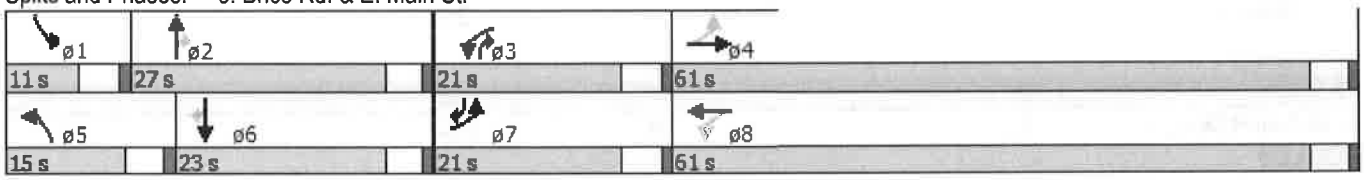
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

3/9/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None
Maximum Split (s)	11	27	21	61	15	23	21	61
Maximum Split (%)	9.2%	22.5%	17.5%	50.8%	12.5%	19.2%	17.5%	50.8%
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7	7	7		7
Flash Dont Walk (s)		11		11	11	11		11
Dual Entry	No	Yes	No	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	38	59	0	15	38	59
End Time (s)	11	38	59	0	15	38	59	0
Yield/Force Off (s)	6.5	33.5	54.5	115.5	10.5	33.5	54.5	115.5
Yield/Force Off 170(s)	6.5	22.5	54.5	104.5	119.5	22.5	54.5	104.5
Local Start Time (s)	109	0	27	48	109	4	27	48
Local Yield (s)	115.5	22.5	43.5	104.5	119.5	22.5	43.5	104.5
Local Yield 170(s)	115.5	11.5	43.5	93.5	108.5	11.5	43.5	93.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	130

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	108	1432	982	20	26	105
Future Vol, veh/h	108	1432	982	20	26	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	117	1557	1067	22	28	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1089	0	-	0	2091	545
Stage 1	-	-	-	-	1078	-
Stage 2	-	-	-	-	1013	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	636	-	-	-	45	482
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	312	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	636	-	-	-	37	482
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	255	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	24.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	636	-	-	-	325
HCM Lane V/C Ratio	0.185	-	-	-	0.438
HCM Control Delay (s)	11.9	-	-	-	24.4
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	2.1

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	32	1426	939	78	19	63
Future Vol, veh/h	32	1426	939	78	19	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	1550	1021	85	21	68

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1021	0	-	0	1866	510
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	845	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	675	-	-	-	64	509
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	382	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	675	-	-	-	61	509
Mov Cap-2 Maneuver	-	-	-	-	180	-
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	362	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	675	-	-	-	358
HCM Lane V/C Ratio	0.052	-	-	-	0.249
HCM Control Delay (s)	10.6	-	-	-	18.4
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	42	1403	975	98	53	42
Future Vol, veh/h	42	1403	975	98	53	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	1525	1060	107	58	46

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1060	0	-	0	1914	530
Stage 1	-	-	-	-	1060	-
Stage 2	-	-	-	-	854	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	653	-	-	-	60	493
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	377	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	653	-	-	-	~ 56	493
Mov Cap-2 Maneuver	-	-	-	-	171	-
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	350	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	30.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	653	-	-	-	240
HCM Lane V/C Ratio	0.07	-	-	-	0.43
HCM Control Delay (s)	10.9	-	-	-	30.9
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	2

Notes

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

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	78	130	63	431	421	80
Future Vol, veh/h	78	130	63	431	421	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	161
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	85	141	68	468	458	87

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1063	458	458	0	-	0
Stage 1	458	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	247	603	1103	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	232	603	1103	-	-	-
Mov Cap-2 Maneuver	363	-	-	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	511	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.8	1.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1103	-	483	-	-
HCM Lane V/C Ratio	0.062	-	0.468	-	-
HCM Control Delay (s)	8.5	-	18.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.5	-	-

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	504	68	83	1562	12	364	66	164	32	51	122
Future Volume (veh/h)	28	504	68	83	1562	12	364	66	164	32	51	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	30	548	74	90	1698	13	396	72	178	35	55	133
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	1343	181	383	1601	12	397	417	422	40	63	152
Arrive On Green	0.03	0.43	0.43	0.04	0.44	0.44	0.22	0.22	0.22	0.15	0.15	0.15
Sat Flow, veh/h	1774	3136	422	1774	3600	28	1774	1863	1583	263	413	998
Grp Volume(v), veh/h	30	309	313	90	834	877	396	72	178	223	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1788	1774	1770	1858	1774	1863	1583	1673	0	0
Q Serve(g_s), s	1.1	14.3	14.3	3.3	52.5	52.5	26.3	3.7	11.0	15.4	0.0	0.0
Cycle Q Clear(g_c), s	1.1	14.3	14.3	3.3	52.5	52.5	26.3	3.7	11.0	15.4	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.01	1.00		1.00	0.16		0.60
Lane Grp Cap(c), veh/h	108	758	766	383	787	826	397	417	422	255	0	0
V/C Ratio(X)	0.28	0.41	0.41	0.24	1.06	1.06	1.00	0.17	0.42	0.87	0.00	0.00
Avail Cap(c_a), veh/h	138	758	766	428	787	826	397	417	422	255	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.7	23.4	23.4	18.4	32.8	32.8	45.8	37.0	35.7	48.9	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.4	0.4	0.3	49.1	48.8	44.7	0.9	3.1	31.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	7.0	7.1	1.7	36.3	38.1	17.8	2.0	5.1	9.4	0.0	0.0
LnGrp Delay(d),s/veh	30.0	23.7	23.8	18.7	81.8	81.6	90.5	37.9	38.8	80.3	0.0	0.0
LnGrp LOS	C	C	C	B	F	F	F	D	D	F		
Approach Vol, veh/h		652			1801			646			223	
Approach Delay, s/veh		24.0			78.6			70.4			80.3	
Approach LOS		C			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		30.9	9.6	55.0		22.5	7.6	57.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		26.4	8.1	49.5		18.0	5.1	52.5
Max Q Clear Time (g_c+I1), s		28.3	5.3	16.3		17.4	3.1	54.5
Green Ext Time (p_c), s		0.0	0.0	22.5		0.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	66.4
HCM 2010 LOS	E

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

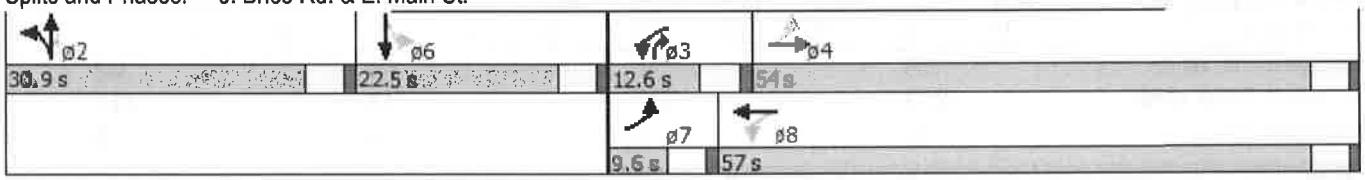
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

2/26/2016

Phase Number	2	3	4	6	7	8
Movement	NBTL	WBL	EBTL	SBTL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	Max	None	None	Max	None	None
Maximum Split (s)	30.9	12.6	54	22.5	9.6	57
Maximum Split (%)	25.8%	10.5%	45.0%	18.8%	8.0%	47.5%
Minimum Split (s)	22.5	9.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7		7	7		7
Flash Dont Walk (s)	11		11	11		11
Dual Entry	Yes	No	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53.4	66	30.9	53.4	63
End Time (s)	30.9	66	0	53.4	63	0
Yield/Force Off (s)	26.4	61.5	115.5	48.9	58.5	115.5
Yield/Force Off 170(s)	15.4	61.5	104.5	37.9	58.5	104.5
Local Start Time (s)	0	53.4	66	30.9	53.4	63
Local Yield (s)	26.4	61.5	115.5	48.9	58.5	115.5
Local Yield 170(s)	15.4	61.5	104.5	37.9	58.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	150

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
12: Rosehill Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	459	52	70	1439	115	94	94	34	78	96	165
Future Volume (veh/h)	92	459	52	70	1439	115	94	94	34	78	96	165
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	100	499	57	76	1564	125	102	102	37	85	104	179
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	1625	185	482	1673	133	258	335	121	383	158	272
Arrive On Green	0.04	0.51	0.51	0.04	0.50	0.50	0.05	0.26	0.26	0.05	0.26	0.26
Sat Flow, veh/h	1774	3203	365	1774	3322	264	1774	1306	474	1774	616	1060
Grp Volume(v), veh/h	100	275	281	76	828	861	102	0	139	85	0	283
Grp Sat Flow(s),veh/h/ln	1774	1770	1798	1774	1770	1816	1774	0	1779	1774	0	1676
Q Serve(g_s), s	3.2	10.8	10.9	2.4	51.9	53.2	5.1	0.0	7.5	4.2	0.0	18.0
Cycle Q Clear(g_c), s	3.2	10.8	10.9	2.4	51.9	53.2	5.1	0.0	7.5	4.2	0.0	18.0
Prop In Lane	1.00		0.20	1.00		0.15	1.00		0.27	1.00		0.63
Lane Grp Cap(c), veh/h	152	898	913	482	891	915	258	0	456	383	0	430
V/C Ratio(X)	0.66	0.31	0.31	0.16	0.93	0.94	0.40	0.00	0.30	0.22	0.00	0.66
Avail Cap(c_a), veh/h	159	900	915	496	900	924	258	0	456	383	0	430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.5	17.1	17.1	13.5	27.5	27.9	32.2	0.0	35.7	30.6	0.0	39.6
Incr Delay (d2), s/veh	9.0	0.2	0.2	0.2	15.5	17.1	1.0	0.0	1.7	0.3	0.0	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	5.3	5.4	1.2	29.1	30.9	2.5	0.0	3.9	2.1	0.0	9.3
LnGrp Delay(d),s/veh	36.6	17.3	17.3	13.7	43.0	45.0	33.2	0.0	37.4	30.9	0.0	47.3
LnGrp LOS	D	B	B	B	D	D	C		D	C		D
Approach Vol, veh/h		656			1765			241			368	
Approach Delay, s/veh		20.2			42.7			35.6			43.5	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	35.0	9.1	64.9	10.0	35.0	9.5	64.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	30.5	5.5	60.5	5.5	30.5	5.5	60.5
Max Q Clear Time (g_c+I1), s	6.2	9.5	4.4	12.9	7.1	20.0	5.2	55.2
Green Ext Time (p_c), s	0.0	2.5	0.0	27.0	0.0	1.8	0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

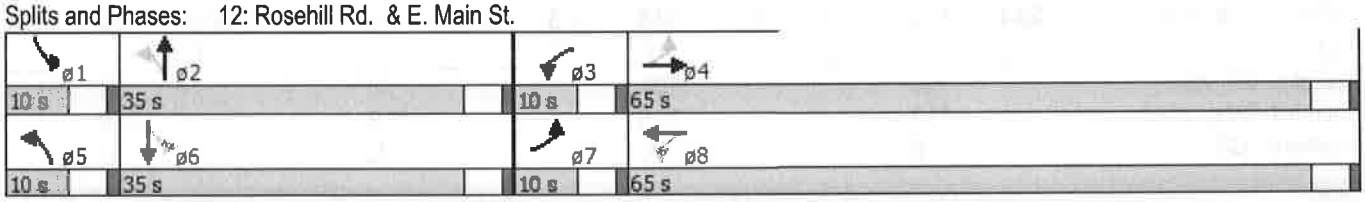
Timing Report, Sorted By Phase
12: Rosehill Rd. & E. Main St.

2/26/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	Max	None	None
Maximum Split (s)	10	35	10	65	10	35	10	65
Maximum Split (%)	8.3%	29.2%	8.3%	54.2%	8.3%	29.2%	8.3%	54.2%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10	45	55	0	10	45	55
End Time (s)	10	45	55	0	10	45	55	0
Yield/Force Off (s)	5.5	40.5	50.5	115.5	5.5	40.5	50.5	115.5
Yield/Force Off 170(s)	5.5	29.5	50.5	104.5	5.5	29.5	50.5	104.5
Local Start Time (s)	110	0	35	45	110	0	35	45
Local Yield (s)	115.5	30.5	40.5	105.5	115.5	30.5	40.5	105.5
Local Yield 170(s)	115.5	19.5	40.5	94.5	115.5	19.5	40.5	94.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	90

Splits and Phases: 12: Rosehill Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	483	12	9	1535	18	36	1	9	26	1	97
Future Volume (veh/h)	48	483	12	9	1535	18	36	1	9	26	1	97
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	52	525	13	10	1668	20	39	1	10	28	1	105
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	2159	53	527	1924	23	370	15	82	117	26	379
Arrive On Green	0.04	0.61	0.61	0.54	0.54	0.54	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	3530	87	864	3582	43	1015	49	266	255	83	1224
Grp Volume(v), veh/h	52	263	275	10	823	865	50	0	0	134	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1847	864	1770	1855	1330	0	0	1562	0	0
Q Serve(g_s), s	1.4	7.8	7.8	0.6	46.1	46.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	7.8	7.8	0.6	46.1	46.3	3.1	0.0	0.0	7.1	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.02	0.78		0.20	0.21		0.78
Lane Grp Cap(c), veh/h	164	1083	1130	527	951	997	468	0	0	522	0	0
V/C Ratio(X)	0.32	0.24	0.24	0.02	0.87	0.87	0.11	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	187	1166	1217	556	1011	1060	468	0	0	522	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.3	10.1	10.2	12.4	23.0	23.0	28.3	0.0	0.0	29.7	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.1	0.1	0.0	7.7	7.5	0.5	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.8	4.0	0.1	24.4	25.6	1.2	0.0	0.0	3.4	0.0	0.0
LnGrp Delay(d),s/veh	23.4	10.3	10.3	12.4	30.6	30.5	28.8	0.0	0.0	30.9	0.0	0.0
LnGrp LOS	C	B	B	B	C	C	C			C		
Approach Vol, veh/h		590			1698			50			134	
Approach Delay, s/veh		11.4			30.5			28.8			30.9	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		40.0		74.6		40.0	8.5	66.1
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		35.5		75.5		35.5	5.5	65.5
Max Q Clear Time (g_c+I1), s		5.1		9.8		9.1	3.4	48.3
Green Ext Time (p_c), s		1.1		30.9		1.1	0.0	13.2

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

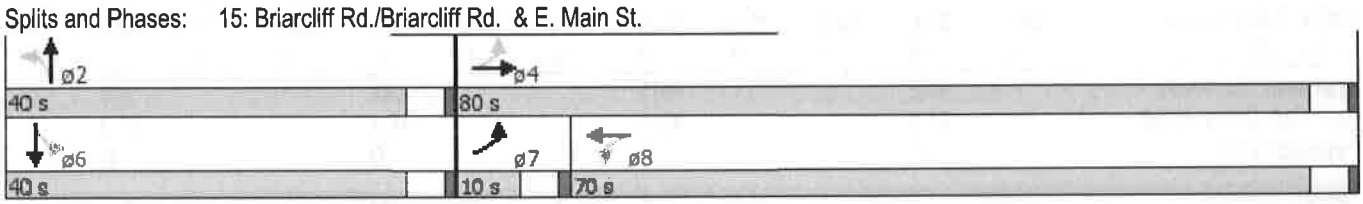
Timing Report, Sorted By Phase
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

2/26/2016

Phase Number	2	4	6	7	8
Movement	NBTL	EBTL	SBTL	EBL	WBTL
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	Max	None	Max	None	None
Maximum Split (s)	40	80	40	10	70
Maximum Split (%)	33.3%	66.7%	33.3%	8.3%	58.3%
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7	7		7
Flash Dont Walk (s)	11	11	11		11
Dual Entry	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	40	0	40	50
End Time (s)	40	0	40	50	0
Yield/Force Off (s)	35.5	115.5	35.5	45.5	115.5
Yield/Force Off 170(s)	24.5	104.5	24.5	45.5	104.5
Local Start Time (s)	0	40	0	40	50
Local Yield (s)	35.5	115.5	35.5	45.5	115.5
Local Yield 170(s)	24.5	104.5	24.5	45.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	75

Splits and Phases: 15: Briarcliff Rd./Briarcliff Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	504	68	83	1562	12	364	66	164	32	51	122
Future Volume (veh/h)	28	504	68	83	1562	12	364	66	164	32	51	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	30	548	74	90	1698	13	396	72	178	35	55	133
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	1486	200	423	1758	13	536	564	544	51	328	321
Arrive On Green	0.03	0.47	0.47	0.04	0.49	0.49	0.16	0.30	0.30	0.03	0.18	0.18
Sat Flow, veh/h	1774	3136	422	1774	3600	28	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	30	309	313	90	834	877	396	72	178	35	55	133
Grp Sat Flow(s),veh/h/ln	1774	1770	1788	1774	1770	1858	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.0	13.1	13.1	3.0	53.6	53.7	12.9	3.3	9.8	2.3	2.9	8.6
Cycle Q Clear(g_c), s	1.0	13.1	13.1	3.0	53.6	53.7	12.9	3.3	9.8	2.3	2.9	8.6
Prop In Lane	1.00		0.24	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	839	848	423	864	907	536	564	544	51	328	321
V/C Ratio(X)	0.26	0.37	0.37	0.21	0.97	0.97	0.74	0.13	0.33	0.68	0.17	0.41
Avail Cap(c_a), veh/h	153	839	848	461	866	909	536	564	544	159	328	321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	19.7	19.7	15.4	29.1	29.1	47.3	29.7	28.5	56.5	41.1	40.8
Incr Delay (d2), s/veh	1.1	0.3	0.3	0.2	22.4	22.0	8.8	0.5	1.6	14.6	1.1	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.4	6.5	1.5	31.3	33.1	6.8	1.8	4.5	1.3	1.6	4.1
LnGrp Delay(d),s/veh	28.7	20.0	20.0	15.6	51.5	51.1	56.2	30.2	30.1	71.2	42.2	44.7
LnGrp LOS	C	B	B	B	D	D	E	C	C	E	D	D
Approach Vol, veh/h		652			1801			646			223	
Approach Delay, s/veh		20.4			49.5			46.1			48.2	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	40.1	9.3	60.2	22.8	25.2	7.6	61.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	7.3	55.7	18.3	20.7	5.5	57.5
Max Q Clear Time (g_c+I1), s	4.3	11.8	5.0	15.1	14.9	10.6	3.0	55.7
Green Ext Time (p_c), s	0.0	1.5	0.0	25.6	0.5	1.3	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	43.0
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

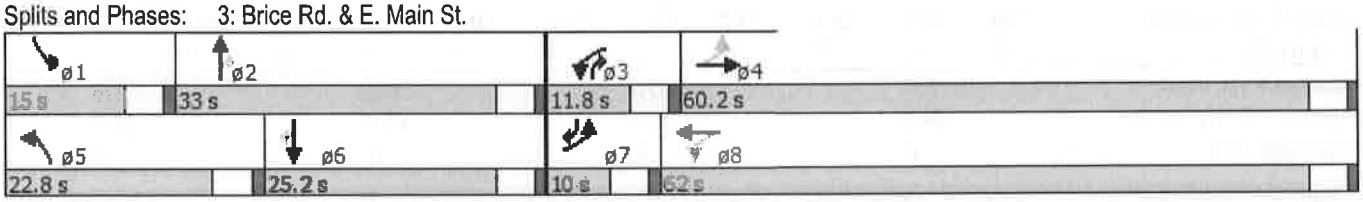
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

2/26/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None
Maximum Split (s)	15	33	11.8	60.2	22.8	25.2	10	62
Maximum Split (%)	12.5%	27.5%	9.8%	50.2%	19.0%	21.0%	8.3%	51.7%
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7	7	7		7
Flash Dont Walk (s)		11		11	11	11		11
Dual Entry	No	Yes	No	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	48	59.8	0	22.8	48	58
End Time (s)	15	48	59.8	0	22.8	48	58	0
Yield/Force Off (s)	10.5	43.5	55.3	115.5	18.3	43.5	53.5	115.5
Yield/Force Off 170(s)	10.5	32.5	55.3	104.5	7.3	32.5	53.5	104.5
Local Start Time (s)	105	0	33	44.8	105	7.8	33	43
Local Yield (s)	115.5	28.5	40.3	100.5	3.3	28.5	38.5	100.5
Local Yield 170(s)	115.5	17.5	40.3	89.5	112.3	17.5	38.5	89.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	110

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	582	68	94	1613	14	364	66	181	35	51	122
Future Volume (veh/h)	28	582	68	94	1613	14	364	66	181	35	51	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	30	633	74	102	1753	15	396	72	197	38	55	133
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	1357	158	355	1605	14	400	420	433	42	61	147
Arrive On Green	0.03	0.42	0.42	0.05	0.45	0.45	0.23	0.23	0.23	0.15	0.15	0.15
Sat Flow, veh/h	1774	3194	373	1774	3596	31	1774	1863	1583	282	408	986
Grp Volume(v), veh/h	30	350	357	102	862	906	396	72	197	226	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1797	1774	1770	1857	1774	1863	1583	1675	0	0
Q Serve(g_s), s	1.1	16.7	16.8	3.8	52.5	52.5	26.2	3.7	12.1	15.6	0.0	0.0
Cycle Q Clear(g_c), s	1.1	16.7	16.8	3.8	52.5	52.5	26.2	3.7	12.1	15.6	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.02	1.00		1.00	0.17		0.59
Lane Grp Cap(c), veh/h	108	752	764	355	790	829	400	420	433	249	0	0
V/C Ratio(X)	0.28	0.47	0.47	0.29	1.09	1.09	0.99	0.17	0.46	0.91	0.00	0.00
Avail Cap(c_a), veh/h	144	752	764	421	790	829	400	420	433	249	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.6	24.3	24.3	18.7	32.6	32.6	45.4	36.7	35.5	49.3	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.5	0.4	0.4	59.7	59.8	42.8	0.9	3.4	37.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	8.3	8.4	1.9	38.6	40.5	17.5	2.0	5.7	9.8	0.0	0.0
LnGrp Delay(d),s/veh	30.0	24.7	24.7	19.2	92.3	92.4	88.2	37.6	38.9	86.5	0.0	0.0
LnGrp LOS	C	C	C	B	F	F	F	D	D	F		
Approach Vol, veh/h		737			1870			665			226	
Approach Delay, s/veh		24.9			88.3			68.1			86.5	
Approach LOS		C			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		31.0	10.1	54.5		22.0	7.6	57.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		26.5	10.0	48.0		17.5	5.5	52.5
Max Q Clear Time (g_c+I1), s		28.2	5.8	18.8		17.6	3.1	54.5
Green Ext Time (p_c), s		0.0	0.1	21.8		0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	71.0
HCM 2010 LOS	E

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

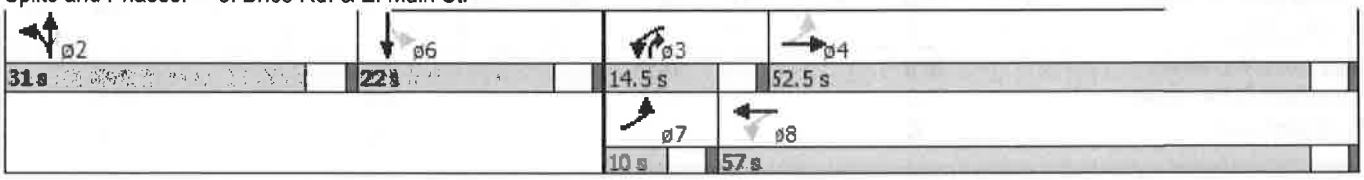
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

3/9/2016

Phase Number	2	3	4	6	7	8
Movement	NBTL	WBL	EBTL	SBTL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	Max	None	None	Max	None	None
Maximum Split (s)	31	14.5	52.5	22	10	57
Maximum Split (%)	25.8%	12.1%	43.8%	18.3%	8.3%	47.5%
Minimum Split (s)	22.5	9.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7		7	7		7
Flash Dont Walk (s)	11		11	11		11
Dual Entry	Yes	No	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	53	67.5	31	53	63
End Time (s)	31	67.5	0	53	63	0
Yield/Force Off (s)	26.5	63	115.5	48.5	58.5	115.5
Yield/Force Off 170(s)	15.5	63	104.5	37.5	58.5	104.5
Local Start Time (s)	0	53	67.5	31	53	63
Local Yield (s)	26.5	63	115.5	48.5	58.5	115.5
Local Yield 170(s)	15.5	63	104.5	37.5	58.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	140

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
12: Rosehill Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	468	61	70	1506	132	111	119	34	124	114	165
Future Volume (veh/h)	92	468	61	70	1506	132	111	119	34	124	114	165
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	100	509	66	76	1637	143	121	129	37	135	124	179
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	1639	212	485	1703	147	228	321	92	352	168	242
Arrive On Green	0.04	0.52	0.52	0.04	0.52	0.52	0.05	0.23	0.23	0.06	0.24	0.24
Sat Flow, veh/h	1774	3153	407	1774	3297	285	1774	1393	399	1774	690	997
Grp Volume(v), veh/h	100	285	290	76	871	909	121	0	166	135	0	303
Grp Sat Flow(s),veh/h/ln	1774	1770	1791	1774	1770	1812	1774	0	1792	1774	0	1687
Q Serve(g_s), s	3.1	11.0	11.1	2.4	55.9	58.0	5.7	0.0	9.4	7.0	0.0	19.8
Cycle Q Clear(g_c), s	3.1	11.0	11.1	2.4	55.9	58.0	5.7	0.0	9.4	7.0	0.0	19.8
Prop In Lane	1.00		0.23	1.00		0.16	1.00		0.22	1.00		0.59
Lane Grp Cap(c), veh/h	142	920	931	485	914	936	228	0	413	352	0	410
V/C Ratio(X)	0.70	0.31	0.31	0.16	0.95	0.97	0.53	0.00	0.40	0.38	0.00	0.74
Avail Cap(c_a), veh/h	150	920	931	498	917	939	228	0	413	352	0	410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.1	16.4	16.4	12.9	27.4	28.0	36.4	0.0	38.9	32.9	0.0	41.7
Incr Delay (d2), s/veh	13.0	0.2	0.2	0.1	19.2	22.4	2.3	0.0	2.9	0.7	0.0	11.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	5.4	5.5	1.2	32.0	34.6	1.1	0.0	5.0	3.4	0.0	10.5
LnGrp Delay(d),s/veh	41.1	16.6	16.6	13.0	46.7	50.4	38.7	0.0	41.8	33.6	0.0	53.0
LnGrp LOS	D	B	B	B	D	D	D		D	C		D
Approach Vol, veh/h		675			1856			287			438	
Approach Delay, s/veh		20.2			47.1			40.5			47.0	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	32.0	9.1	66.5	10.2	33.5	9.5	66.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.2	27.5	5.5	61.8	5.7	29.0	5.5	61.8
Max Q Clear Time (g_c+I1), s	9.0	11.4	4.4	13.1	7.7	21.8	5.1	60.0
Green Ext Time (p_c), s	0.0	2.5	0.0	29.7	0.0	1.6	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	40.9
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 1 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

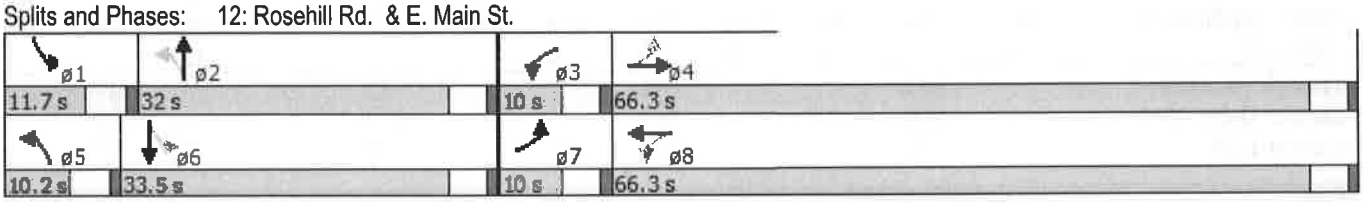
Timing Report, Sorted By Phase
12: Rosehill Rd. & E. Main St.

3/9/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	Max	None	None
Maximum Split (s)	11.7	32	10	66.3	10.2	33.5	10	66.3
Maximum Split (%)	9.8%	26.7%	8.3%	55.3%	8.5%	27.9%	8.3%	55.3%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11.7	43.7	53.7	0	10.2	43.7	53.7
End Time (s)	11.7	43.7	53.7	0	10.2	43.7	53.7	0
Yield/Force Off (s)	7.2	39.2	49.2	115.5	5.7	39.2	49.2	115.5
Yield/Force Off 170(s)	7.2	28.2	49.2	104.5	5.7	28.2	49.2	104.5
Local Start Time (s)	108.3	0	32	42	108.3	118.5	32	42
Local Yield (s)	115.5	27.5	37.5	103.8	114	27.5	37.5	103.8
Local Yield 170(s)	115.5	16.5	37.5	92.8	114	16.5	37.5	92.8

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	90

Splits and Phases: 12: Rosehill Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	532	14	9	1610	18	39	1	9	26	1	103
Future Volume (veh/h)	52	532	14	9	1610	18	39	1	9	26	1	103
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	57	578	15	10	1750	20	42	1	10	28	1	112
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	2213	57	516	1977	23	352	14	72	107	26	365
Arrive On Green	0.04	0.63	0.63	0.55	0.55	0.55	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1774	3525	91	821	3584	41	1008	47	245	235	87	1243
Grp Volume(v), veh/h	57	290	303	10	863	907	53	0	0	141	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1847	821	1770	1856	1301	0	0	1565	0	0
Q Serve(g_s), s	1.5	8.3	8.3	0.6	48.7	49.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	8.3	8.3	0.6	48.7	49.0	3.6	0.0	0.0	7.6	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.02	0.79		0.19	0.20		0.79
Lane Grp Cap(c), veh/h	161	1111	1159	516	976	1024	438	0	0	497	0	0
V/C Ratio(X)	0.35	0.26	0.26	0.02	0.88	0.89	0.12	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	213	1201	1254	534	1015	1065	438	0	0	497	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.6	9.5	9.5	11.6	22.4	22.4	29.7	0.0	0.0	31.2	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.1	0.1	0.0	9.1	8.9	0.6	0.0	0.0	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.1	4.2	0.1	26.0	27.5	1.3	0.0	0.0	3.6	0.0	0.0
LnGrp Delay(d),s/veh	24.9	9.6	9.6	11.6	31.5	31.4	30.2	0.0	0.0	32.6	0.0	0.0
LnGrp LOS	C	A	A	B	C	C	C			C		
Approach Vol, veh/h		650			1780			53			141	
Approach Delay, s/veh		10.9			31.3			30.2			32.6	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		38.0		76.2		38.0	8.7	67.5
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		33.5		77.5		33.5	7.5	65.5
Max Q Clear Time (g_c+I1), s		5.6		10.3		9.6	3.5	51.0
Green Ext Time (p_c), s		1.1		35.0		1.1	0.0	12.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

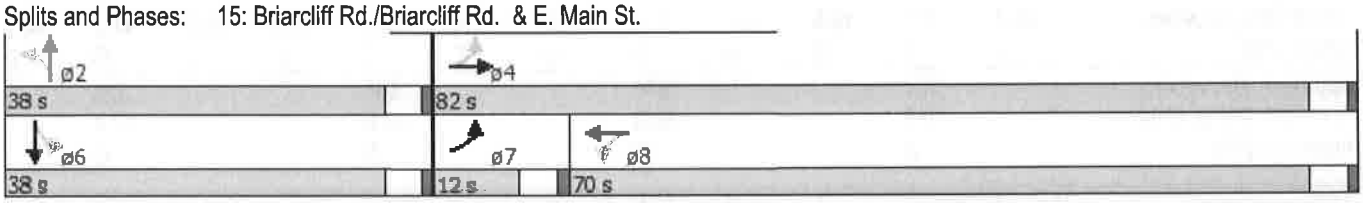
Timing Report, Sorted By Phase
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

3/9/2016

Phase Number	2	4	6	7	8
Movement	NBTL	EBTL	SBTL	EBL	WBTL
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	Max	None	Max	None	None
Maximum Split (s)	38	82	38	12	70
Maximum Split (%)	31.7%	68.3%	31.7%	10.0%	58.3%
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7	7		7
Flash Dont Walk (s)	11	11	11		11
Dual Entry	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	38	0	38	50
End Time (s)	38	0	38	50	0
Yield/Force Off (s)	33.5	115.5	33.5	45.5	115.5
Yield/Force Off 170(s)	22.5	104.5	22.5	45.5	104.5
Local Start Time (s)	0	38	0	38	50
Local Yield (s)	33.5	115.5	33.5	45.5	115.5
Local Yield 170(s)	22.5	104.5	22.5	45.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	80

Splits and Phases: 15: Briarcliff Rd./Briarcliff Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	582	68	94	1613	14	364	66	181	35	51	122
Future Volume (veh/h)	28	582	68	94	1613	14	364	66	181	35	51	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	30	633	74	102	1753	15	396	72	197	38	55	133
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	1530	179	402	1789	15	500	533	525	55	320	272
Arrive On Green	0.03	0.48	0.48	0.05	0.50	0.50	0.15	0.29	0.29	0.03	0.17	0.17
Sat Flow, veh/h	1774	3194	373	1774	3596	31	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	30	350	357	102	862	906	396	72	197	38	55	133
Grp Sat Flow(s),veh/h/ln	1774	1770	1797	1774	1770	1857	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.0	14.6	14.6	3.3	54.2	54.4	12.6	3.3	10.8	2.4	2.9	8.6
Cycle Q Clear(g_c), s	1.0	14.6	14.6	3.3	54.2	54.4	12.6	3.3	10.8	2.4	2.9	8.6
Prop In Lane	1.00		0.21	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	848	861	402	880	924	500	533	525	55	320	272
V/C Ratio(X)	0.26	0.41	0.41	0.25	0.98	0.98	0.79	0.14	0.38	0.70	0.17	0.49
Avail Cap(c_a), veh/h	217	880	894	470	880	924	500	533	525	102	320	272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	19.2	19.2	14.7	27.9	28.0	46.9	30.1	29.0	54.5	40.1	42.5
Incr Delay (d2), s/veh	1.2	0.3	0.3	0.3	25.1	24.9	12.1	0.5	2.0	14.8	1.2	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.2	7.3	1.6	32.5	34.1	6.8	1.8	5.0	1.4	1.6	4.2
LnGrp Delay(d),s/veh	28.1	19.5	19.5	15.0	53.1	52.9	59.0	30.6	31.0	69.3	41.3	48.7
LnGrp LOS	C	B	B	B	D	D	E	C	C	E	D	D
Approach Vol, veh/h		737			1870			665			226	
Approach Delay, s/veh		19.9			50.9			47.6			50.4	
Approach LOS		B			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	37.0	9.7	58.9	21.0	24.0	7.6	61.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	29.5	9.5	56.5	16.5	19.5	9.5	56.5
Max Q Clear Time (g_c+I1), s	4.4	12.8	5.3	16.6	14.6	10.6	3.0	56.4
Green Ext Time (p_c), s	0.0	1.6	0.1	27.2	0.3	1.2	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	43.7
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

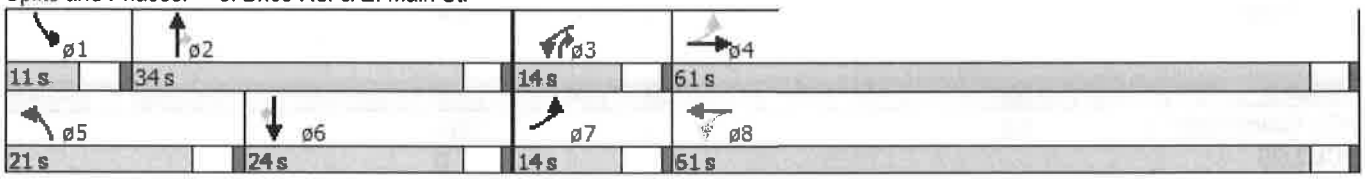
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

3/9/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None
Maximum Split (s)	11	34	14	61	21	24	14	61
Maximum Split (%)	9.2%	28.3%	11.7%	50.8%	17.5%	20.0%	11.7%	50.8%
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7	7	7		7
Flash Dont Walk (s)		11		11	11	11		11
Dual Entry	No	Yes	No	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	45	59	0	21	45	59
End Time (s)	11	45	59	0	21	45	59	0
Yield/Force Off (s)	6.5	40.5	54.5	115.5	16.5	40.5	54.5	115.5
Yield/Force Off 170(s)	6.5	29.5	54.5	104.5	5.5	29.5	54.5	104.5
Local Start Time (s)	109	0	34	48	109	10	34	48
Local Yield (s)	115.5	29.5	43.5	104.5	5.5	29.5	43.5	104.5
Local Yield 170(s)	115.5	18.5	43.5	93.5	114.5	18.5	43.5	93.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	120

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	68	682	1697	10	8	45
Future Vol, veh/h	68	682	1697	10	8	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	741	1845	11	9	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1855	0	-	0	2368	928
Stage 1	-	-	-	-	1850	-
Stage 2	-	-	-	-	518	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	322	-	-	-	29	270
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	563	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	322	-	-	-	22	270
Mov Cap-2 Maneuver	-	-	-	-	86	-
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	434	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	29.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	322	-	-	-	204
HCM Lane V/C Ratio	0.23	-	-	-	0.282
HCM Control Delay (s)	19.5	-	-	-	29.4
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	0.9	-	-	-	1.1

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	667	1680	44	9	27
Future Vol, veh/h	23	667	1680	44	9	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	725	1826	48	10	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1826	0	-	0	2239	913
Stage 1	-	-	-	-	1826	-
Stage 2	-	-	-	-	413	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	331	-	-	-	36	276
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	636	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	331	-	-	-	33	276
Mov Cap-2 Maneuver	-	-	-	-	94	-
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	588	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	29.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	331	-	-	-	186
HCM Lane V/C Ratio	0.076	-	-	-	0.21
HCM Control Delay (s)	16.8	-	-	-	29.4
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	24	652	1707	55	18	17
Future Vol, veh/h	24	652	1707	55	18	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	709	1855	60	20	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1855	0	-	0	2262	928
Stage 1	-	-	-	-	1855	-
Stage 2	-	-	-	-	407	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	322	-	-	-	35	270
Stage 1	-	-	-	-	109	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	322	-	-	-	32	270
Mov Cap-2 Maneuver	-	-	-	-	91	-
Stage 1	-	-	-	-	109	-
Stage 2	-	-	-	-	589	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	42.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	322	-	-	-	134
HCM Lane V/C Ratio	0.081	-	-	-	0.284
HCM Control Delay (s)	17.2	-	-	-	42.2
HCM Lane LOS	C	-	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	1.1

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	41	68	46	297	335	60
Future Vol, veh/h	41	68	46	297	335	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	161
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	74	50	323	364	65

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	787	364	364	0	-	0
Stage 1	364	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	360	681	1195	-	-	-
Stage 1	703	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	345	681	1195	-	-	-
Mov Cap-2 Maneuver	461	-	-	-	-	-
Stage 1	703	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1195	-	577	-	-
HCM Lane V/C Ratio	0.042	-	0.205	-	-
HCM Control Delay (s)	8.1	-	12.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	1202	276	222	823	24	248	116	268	46	122	52
Future Volume (veh/h)	93	1202	276	222	823	24	248	116	268	46	122	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	101	1307	300	241	895	26	270	126	291	50	133	57
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	1208	273	248	1682	49	308	323	442	55	147	63
Arrive On Green	0.05	0.42	0.42	0.11	0.48	0.48	0.17	0.17	0.17	0.15	0.15	0.15
Sat Flow, veh/h	1774	2870	648	1774	3512	102	1774	1863	1583	369	981	420
Grp Volume(v), veh/h	101	798	809	241	451	470	270	126	291	240	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1748	1774	1770	1845	1774	1863	1583	1770	0	0
Q Serve(g_s), s	3.8	50.5	50.5	12.2	21.4	21.4	17.8	7.2	19.5	16.0	0.0	0.0
Cycle Q Clear(g_c), s	3.8	50.5	50.5	12.2	21.4	21.4	17.8	7.2	19.5	16.0	0.0	0.0
Prop In Lane	1.00		0.37	1.00		0.06	1.00		1.00	0.21		0.24
Lane Grp Cap(c), veh/h	327	745	736	248	847	883	308	323	442	266	0	0
V/C Ratio(X)	0.31	1.07	1.10	0.97	0.53	0.53	0.88	0.39	0.66	0.90	0.00	0.00
Avail Cap(c_a), veh/h	426	745	736	248	847	883	308	323	442	266	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.0	34.8	34.8	38.3	21.9	21.9	48.4	44.0	38.2	50.1	0.0	0.0
Incr Delay (d2), s/veh	0.5	53.7	63.9	49.4	0.6	0.6	27.9	3.5	7.5	35.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	35.7	37.4	11.4	10.5	11.0	11.1	4.0	9.4	10.4	0.0	0.0
LnGrp Delay(d),s/veh	19.5	88.5	98.6	87.6	22.5	22.5	76.3	47.5	45.7	85.3	0.0	0.0
LnGrp LOS	B	F	F	F	C	C	E	D	D	F		
Approach Vol, veh/h		1708			1162			687			240	
Approach Delay, s/veh		89.2			36.0			58.0			85.3	
Approach LOS		F			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.3	17.2	55.0		22.5	10.2	62.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		20.8	12.7	50.5		18.0	12.5	50.7
Max Q Clear Time (g_c+I1), s		21.5	14.2	52.5		18.0	5.8	23.4
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0	0.1	20.7

Intersection Summary	
HCM 2010 Ctrl Delay	67.0
HCM 2010 LOS	E

Notes

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

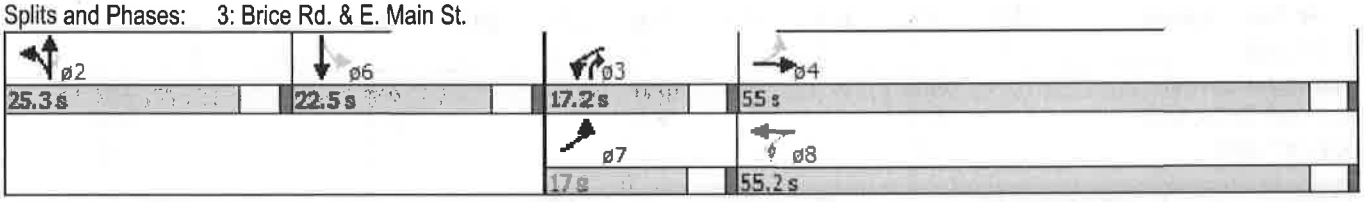
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

2/26/2016

Phase Number	2	3	4	6	7	8
Movement	NBTL	WBL	EBTL	SBTL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	Max	None	None	Max	None	None
Maximum Split (s)	25.3	17.2	55	22.5	17	55.2
Maximum Split (%)	21.1%	14.3%	45.8%	18.8%	14.2%	46.0%
Minimum Split (s)	22.5	9.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7		7	7		7
Flash Dont Walk (s)	11		11	11		11
Dual Entry	Yes	No	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	47.8	65	25.3	47.8	64.8
End Time (s)	25.3	65	0	47.8	64.8	0
Yield/Force Off (s)	20.8	60.5	115.5	43.3	60.3	115.5
Yield/Force Off 170(s)	9.8	60.5	104.5	32.3	60.3	104.5
Local Start Time (s)	0	47.8	65	25.3	47.8	64.8
Local Yield (s)	20.8	60.5	115.5	43.3	60.3	115.5
Local Yield 170(s)	9.8	60.5	104.5	32.3	60.3	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	130

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
12: Rosehill Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	1161	91	104	766	103	80	141	128	152	171	134
Future Volume (veh/h)	224	1161	91	104	766	103	80	141	128	152	171	134
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	243	1262	99	113	833	112	87	153	139	165	186	146
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	1402	110	210	1175	158	268	229	208	303	257	202
Arrive On Green	0.10	0.42	0.42	0.06	0.37	0.37	0.05	0.25	0.25	0.06	0.27	0.27
Sat Flow, veh/h	1774	3326	260	1774	3136	422	1774	900	818	1774	968	760
Grp Volume(v), veh/h	243	670	691	113	470	475	87	0	292	165	0	332
Grp Sat Flow(s),veh/h/ln	1774	1770	1817	1774	1770	1788	1774	0	1718	1774	0	1729
Q Serve(g_s), s	7.0	31.1	31.3	3.4	20.0	20.0	3.2	0.0	13.5	5.5	0.0	15.4
Cycle Q Clear(g_c), s	7.0	31.1	31.3	3.4	20.0	20.0	3.2	0.0	13.5	5.5	0.0	15.4
Prop In Lane	1.00		0.14	1.00		0.24	1.00		0.48	1.00		0.44
Lane Grp Cap(c), veh/h	354	746	766	210	663	670	268	0	438	303	0	459
V/C Ratio(X)	0.69	0.90	0.90	0.54	0.71	0.71	0.32	0.00	0.67	0.54	0.00	0.72
Avail Cap(c_a), veh/h	410	772	792	219	663	670	287	0	438	303	0	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.4	23.8	23.8	20.7	23.5	23.5	23.6	0.0	29.5	25.1	0.0	29.5
Incr Delay (d2), s/veh	3.9	13.2	13.3	2.4	3.5	3.5	0.7	0.0	7.8	2.0	0.0	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	17.8	18.4	1.8	10.3	10.4	1.6	0.0	7.4	3.1	0.0	8.6
LnGrp Delay(d),s/veh	21.3	37.0	37.1	23.1	27.0	27.0	24.3	0.0	37.3	27.1	0.0	39.0
LnGrp LOS	C	D	D	C	C	C	C		D	C		D
Approach Vol, veh/h		1604			1058			379			497	
Approach Delay, s/veh		34.7			26.6			34.4			35.0	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	27.0	9.6	41.7	9.1	27.9	13.7	37.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	22.5	5.5	38.5	5.5	22.5	12.0	32.0
Max Q Clear Time (g_c+I1), s	7.5	15.5	5.4	33.3	5.2	17.4	9.0	22.0
Green Ext Time (p_c), s	0.0	2.2	0.0	3.9	0.0	1.7	0.2	8.4

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

Notes

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

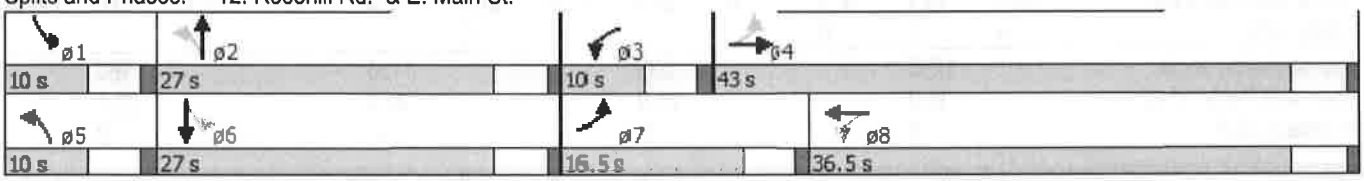
Timing Report, Sorted By Phase
12: Rosehill Rd. & E. Main St.

2/26/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	Max	None	None
Maximum Split (s)	10	27	10	43	10	27	16.5	36.5
Maximum Split (%)	11.1%	30.0%	11.1%	47.8%	11.1%	30.0%	18.3%	40.6%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	10	37	47	0	10	37	53.5
End Time (s)	10	37	47	0	10	37	53.5	0
Yield/Force Off (s)	5.5	32.5	42.5	85.5	5.5	32.5	49	85.5
Yield/Force Off 170(s)	5.5	21.5	42.5	74.5	5.5	21.5	49	74.5
Local Start Time (s)	80	0	27	37	80	0	27	43.5
Local Yield (s)	85.5	22.5	32.5	75.5	85.5	22.5	39	75.5
Local Yield 170(s)	85.5	11.5	32.5	64.5	85.5	11.5	39	64.5

Intersection Summary	
Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	80

Splits and Phases: 12: Rosehill Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	1033	22	27	802	32	25	11	25	51	12	85
Future Volume (veh/h)	136	1033	22	27	802	32	25	11	25	51	12	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	148	1123	24	29	872	35	27	12	27	55	13	92
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	1890	40	228	1494	60	267	126	236	224	69	331
Arrive On Green	0.06	0.53	0.53	0.43	0.43	0.43	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1774	3543	76	488	3469	139	573	336	629	467	186	883
Grp Volume(v), veh/h	148	561	586	29	445	462	66	0	0	160	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1849	488	1770	1838	1538	0	0	1536	0	0
Q Serve(g_s), s	4.4	21.1	21.1	4.2	18.6	18.6	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	4.4	21.1	21.1	15.3	18.6	18.6	2.4	0.0	0.0	6.7	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.08	0.41		0.41	0.34		0.57
Lane Grp Cap(c), veh/h	321	944	986	228	762	792	628	0	0	625	0	0
V/C Ratio(X)	0.46	0.59	0.59	0.13	0.58	0.58	0.11	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	321	1352	1413	341	1171	1216	628	0	0	625	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.8	15.5	15.5	24.2	21.1	21.1	19.8	0.0	0.0	21.1	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.6	0.6	0.2	0.7	0.7	0.3	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	10.4	10.9	0.6	9.2	9.5	1.2	0.0	0.0	3.1	0.0	0.0
LnGrp Delay(d),s/veh	16.8	16.1	16.1	24.4	21.8	21.8	20.2	0.0	0.0	22.1	0.0	0.0
LnGrp LOS	B	B	B	C	C	C	C			C		
Approach Vol, veh/h		1295			936			66			160	
Approach Delay, s/veh		16.2			21.9			20.2			22.1	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		41.0		56.5		41.0	10.0	46.5
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		36.5		74.5		36.5	5.5	64.5
Max Q Clear Time (g_c+I1), s		4.4		23.1		8.7	6.4	20.6
Green Ext Time (p_c), s		1.4		22.8		1.3	0.0	21.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

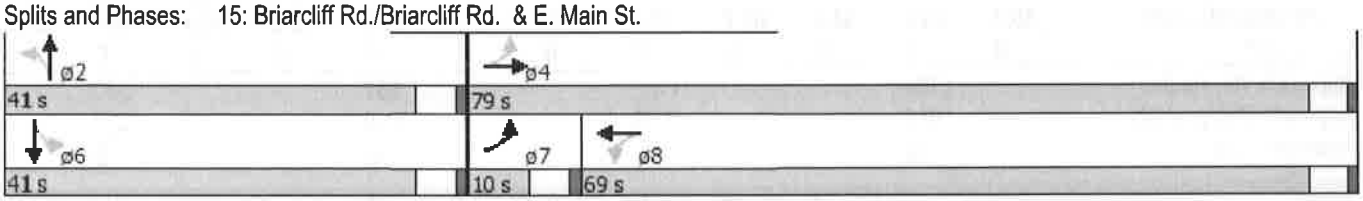
Timing Report, Sorted By Phase
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

2/26/2016

Phase Number	2	4	6	7	8
Movement	NBTL	EBTL	SBTL	EBL	WBTL
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	Max	None	Max	None	None
Maximum Split (s)	41	79	41	10	69
Maximum Split (%)	34.2%	65.8%	34.2%	8.3%	57.5%
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7	7		7
Flash Dont Walk (s)	11	11	11		11
Dual Entry	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	41	0	41	51
End Time (s)	41	0	41	51	0
Yield/Force Off (s)	36.5	115.5	36.5	46.5	115.5
Yield/Force Off 170(s)	25.5	104.5	25.5	46.5	104.5
Local Start Time (s)	0	41	0	41	51
Local Yield (s)	36.5	115.5	36.5	46.5	115.5
Local Yield 170(s)	25.5	104.5	25.5	46.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	55

Splits and Phases: 15: Briarcliff Rd./Briarcliff Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

2/26/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	1202	276	222	823	24	248	116	268	46	122	52
Future Volume (veh/h)	93	1202	276	222	823	24	248	116	268	46	122	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	101	1307	300	241	895	26	270	126	291	50	133	57
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	375	1369	309	267	1908	55	332	417	532	64	305	331
Arrive On Green	0.05	0.48	0.48	0.11	0.54	0.54	0.10	0.22	0.22	0.04	0.16	0.16
Sat Flow, veh/h	1774	2870	648	1774	3512	102	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	101	798	809	241	451	470	270	126	291	50	133	57
Grp Sat Flow(s),veh/h/ln	1774	1770	1748	1774	1770	1845	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	3.4	51.1	53.7	11.3	18.6	18.6	9.2	6.7	17.8	3.3	7.7	3.5
Cycle Q Clear(g_c), s	3.4	51.1	53.7	11.3	18.6	18.6	9.2	6.7	17.8	3.3	7.7	3.5
Prop In Lane	1.00		0.37	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	375	844	834	267	961	1002	332	417	532	64	305	331
V/C Ratio(X)	0.27	0.95	0.97	0.90	0.47	0.47	0.81	0.30	0.55	0.78	0.44	0.17
Avail Cap(c_a), veh/h	585	854	844	270	961	1002	332	417	532	97	305	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	29.7	30.3	37.0	16.7	16.7	52.8	38.5	32.2	56.9	44.9	38.6
Incr Delay (d2), s/veh	0.4	18.7	23.8	30.7	0.4	0.3	19.2	1.9	4.0	19.8	4.5	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	29.2	31.4	10.1	9.1	9.5	5.2	3.7	8.4	2.0	4.3	1.6
LnGrp Delay(d),s/veh	15.4	48.4	54.1	67.7	17.0	17.0	71.9	40.3	36.2	76.7	49.4	39.8
LnGrp LOS	B	D	D	E	B	B	E	D	D	E	D	D
Approach Vol, veh/h		1708			1162			687			240	
Approach Delay, s/veh		49.2			27.5			51.0			52.8	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	31.2	17.8	61.3	16.0	24.0	9.9	69.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.5	24.5	13.5	57.5	11.5	19.5	19.5	51.5
Max Q Clear Time (g_c+I1), s	5.3	19.8	13.3	55.7	11.2	9.7	5.4	20.6
Green Ext Time (p_c), s	0.0	1.2	0.0	1.1	0.0	1.9	0.2	22.8

Intersection Summary	
HCM 2010 Ctrl Delay	43.1
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

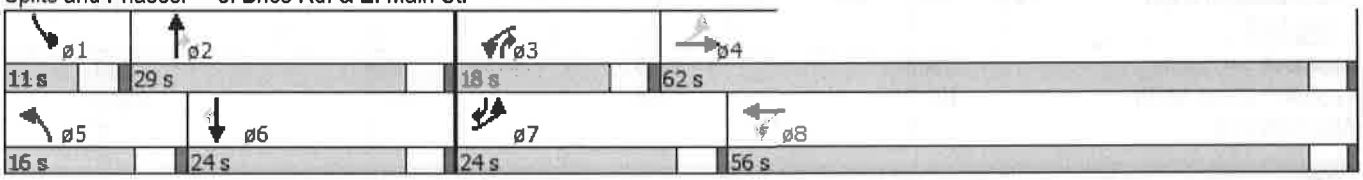
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

2/26/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None
Maximum Split (s)	11	29	18	62	16	24	24	56
Maximum Split (%)	9.2%	24.2%	15.0%	51.7%	13.3%	20.0%	20.0%	46.7%
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7	7	7		7
Flash Dont Walk (s)		11		11	11	11		11
Dual Entry	No	Yes	No	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	11	40	58	0	16	40	64
End Time (s)	11	40	58	0	16	40	64	0
Yield/Force Off (s)	6.5	35.5	53.5	115.5	11.5	35.5	59.5	115.5
Yield/Force Off 170(s)	6.5	24.5	53.5	104.5	0.5	24.5	59.5	104.5
Local Start Time (s)	109	0	29	47	109	5	29	53
Local Yield (s)	115.5	24.5	42.5	104.5	0.5	24.5	48.5	104.5
Local Yield 170(s)	115.5	13.5	42.5	93.5	109.5	13.5	48.5	93.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	120

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	1295	276	242	914	27	248	116	288	49	122	52
Future Volume (veh/h)	93	1295	276	242	914	27	248	116	288	49	122	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	101	1408	300	263	993	29	270	126	313	53	133	57
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	309	1251	261	267	1751	51	296	310	449	53	133	57
Arrive On Green	0.05	0.43	0.43	0.12	0.50	0.50	0.17	0.17	0.17	0.14	0.14	0.14
Sat Flow, veh/h	1774	2916	609	1774	3512	103	1774	1863	1583	386	969	415
Grp Volume(v), veh/h	101	843	865	263	500	522	270	126	313	243	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1755	1774	1770	1845	1774	1863	1583	1770	0	0
Q Serve(g_s), s	3.8	51.5	51.5	13.7	23.7	23.7	18.0	7.3	20.0	16.5	0.0	0.0
Cycle Q Clear(g_c), s	3.8	51.5	51.5	13.7	23.7	23.7	18.0	7.3	20.0	16.5	0.0	0.0
Prop In Lane	1.00		0.35	1.00		0.06	1.00		1.00	0.22		0.23
Lane Grp Cap(c), veh/h	309	759	753	267	882	920	296	310	449	243	0	0
V/C Ratio(X)	0.33	1.11	1.15	0.99	0.57	0.57	0.91	0.41	0.70	1.00	0.00	0.00
Avail Cap(c_a), veh/h	382	759	753	267	882	920	296	310	449	243	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.7	34.2	34.3	39.3	21.0	21.0	49.1	44.7	38.4	51.7	0.0	0.0
Incr Delay (d2), s/veh	0.6	67.2	81.7	50.8	0.9	0.8	34.2	3.9	8.7	57.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	39.3	42.0	12.5	11.7	12.2	11.6	4.1	10.3	11.9	0.0	0.0
LnGrp Delay(d),s/veh	19.3	101.5	116.0	90.1	21.9	21.9	83.3	48.6	47.1	109.0	0.0	0.0
LnGrp LOS	B	F	F	F	C	C	F	D	D	F		
Approach Vol, veh/h		1809			1285			709			243	
Approach Delay, s/veh		103.8			35.8			61.2			109.0	
Approach LOS		F			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.5	18.5	56.0		21.0	10.2	64.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		20.0	14.0	51.5		16.5	10.6	54.9
Max Q Clear Time (g_c+I1), s		22.0	15.7	53.5		18.5	5.8	25.7
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0	0.1	23.4

Intersection Summary	
HCM 2010 Ctrl Delay	75.1
HCM 2010 LOS	E

Notes

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

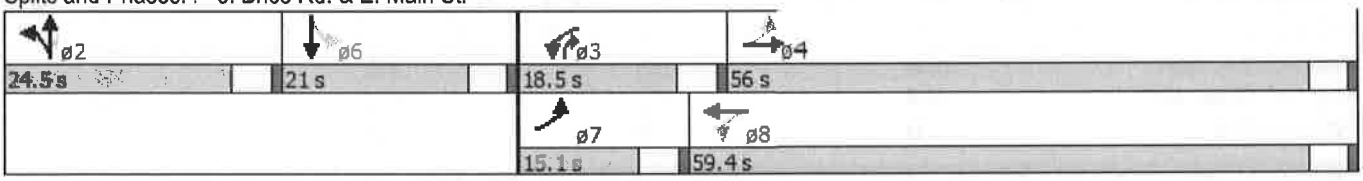
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

3/9/2016

Phase Number	2	3	4	6	7	8
Movement	NBTL	WBL	EBTL	SBTL	EBL	WBTL
Lead/Lag		Lead	Lag		Lead	Lag
Lead-Lag Optimize		Yes	Yes		Yes	Yes
Recall Mode	Max	None	None	Max	None	None
Maximum Split (s)	24.5	18.5	56	21	15.1	59.4
Maximum Split (%)	20.4%	15.4%	46.7%	17.5%	12.6%	49.5%
Minimum Split (s)	22.5	9.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)	7		7	7		7
Flash Dont Walk (s)	11		11	11		11
Dual Entry	Yes	No	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	45.5	64	24.5	45.5	60.6
End Time (s)	24.5	64	0	45.5	60.6	0
Yield/Force Off (s)	20	59.5	115.5	41	56.1	115.5
Yield/Force Off 170(s)	9	59.5	104.5	30	56.1	104.5
Local Start Time (s)	0	45.5	64	24.5	45.5	60.6
Local Yield (s)	20	59.5	115.5	41	56.1	115.5
Local Yield 170(s)	9	59.5	104.5	30	56.1	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	130

Splits and Phases: . 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
12: Rosehill Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	1177	107	104	845	123	101	171	128	234	204	134
Future Volume (veh/h)	224	1177	107	104	845	123	101	171	128	234	204	134
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	243	1279	116	113	918	134	110	186	139	254	222	146
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	299	1382	125	177	1163	170	292	249	186	356	335	221
Arrive On Green	0.10	0.42	0.42	0.05	0.38	0.38	0.05	0.25	0.25	0.12	0.32	0.32
Sat Flow, veh/h	1774	3283	297	1774	3100	452	1774	991	741	1774	1050	691
Grp Volume(v), veh/h	243	688	707	113	524	528	110	0	325	254	0	368
Grp Sat Flow(s),veh/h/ln	1774	1770	1810	1774	1770	1783	1774	0	1732	1774	0	1741
Q Serve(g_s), s	9.5	43.2	43.6	4.6	30.9	30.9	5.4	0.0	20.3	12.0	0.0	21.4
Cycle Q Clear(g_c), s	9.5	43.2	43.6	4.6	30.9	30.9	5.4	0.0	20.3	12.0	0.0	21.4
Prop In Lane	1.00		0.16	1.00		0.25	1.00		0.43	1.00		0.40
Lane Grp Cap(c), veh/h	299	745	762	177	664	669	292	0	436	356	0	556
V/C Ratio(X)	0.81	0.92	0.93	0.64	0.79	0.79	0.38	0.00	0.75	0.71	0.00	0.66
Avail Cap(c_a), veh/h	369	776	794	185	664	669	292	0	436	366	0	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	32.2	32.3	28.2	32.6	32.6	31.2	0.0	40.5	28.4	0.0	34.5
Incr Delay (d2), s/veh	10.8	16.3	16.7	6.7	6.4	6.3	0.8	0.0	11.0	6.2	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	24.4	25.1	2.5	16.2	16.3	2.7	0.0	11.0	6.5	0.0	11.3
LnGrp Delay(d),s/veh	35.7	48.5	49.0	34.9	38.9	38.9	32.0	0.0	51.5	34.6	0.0	40.6
LnGrp LOS	D	D	D	C	D	D	C		D	C		D
Approach Vol, veh/h		1638			1165			435			622	
Approach Delay, s/veh		46.8			38.5			46.6			38.2	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	34.0	10.9	53.9	10.6	42.0	16.3	48.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.7	28.9	6.9	51.5	6.1	37.5	16.4	42.0
Max Q Clear Time (g_c+I1), s	14.0	22.3	6.6	45.6	7.4	23.4	11.5	32.9
Green Ext Time (p_c), s	0.1	2.3	0.0	3.8	0.0	3.7	0.3	7.9

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

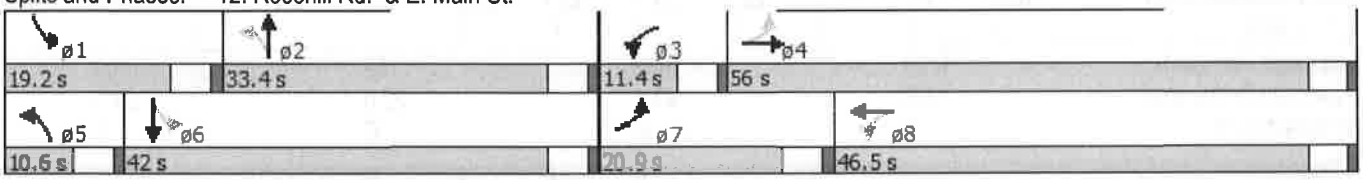
Timing Report, Sorted By Phase
12: Rosehill Rd. & E. Main St.

3/9/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	Max	None	None
Maximum Split (s)	19.2	33.4	11.4	56	10.6	42	20.9	46.5
Maximum Split (%)	16.0%	27.8%	9.5%	46.7%	8.8%	35.0%	17.4%	38.8%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	19.2	52.6	64	0	10.6	52.6	73.5
End Time (s)	19.2	52.6	64	0	10.6	52.6	73.5	0
Yield/Force Off (s)	14.7	48.1	59.5	115.5	6.1	48.1	69	115.5
Yield/Force Off 170(s)	14.7	37.1	59.5	104.5	6.1	37.1	69	104.5
Local Start Time (s)	100.8	0	33.4	44.8	100.8	111.4	33.4	54.3
Local Yield (s)	115.5	28.9	40.3	96.3	106.9	28.9	49.8	96.3
Local Yield 170(s)	115.5	17.9	40.3	85.3	106.9	17.9	49.8	85.3

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	90

Splits and Phases: 12: Rosehill Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	1121	25	27	891	32	28	11	25	51	12	92
Future Volume (veh/h)	143	1121	25	27	891	32	28	11	25	51	12	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	155	1218	27	29	968	35	30	12	27	55	13	100
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	1940	43	208	1528	55	270	115	215	208	65	334
Arrive On Green	0.07	0.55	0.55	0.44	0.44	0.44	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1774	3540	78	445	3484	126	604	315	591	443	179	916
Grp Volume(v), veh/h	155	609	636	29	492	511	69	0	0	168	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1849	445	1770	1841	1511	0	0	1539	0	0
Q Serve(g_s), s	4.7	24.4	24.4	4.9	22.2	22.2	0.0	0.0	0.0	3.5	0.0	0.0
Cycle Q Clear(g_c), s	4.7	24.4	24.4	18.1	22.2	22.2	2.7	0.0	0.0	7.6	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.07	0.43		0.39	0.33		0.60
Lane Grp Cap(c), veh/h	311	970	1013	208	776	807	601	0	0	607	0	0
V/C Ratio(X)	0.50	0.63	0.63	0.14	0.63	0.63	0.11	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	393	1264	1321	262	989	1029	601	0	0	607	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.7	16.0	16.0	26.1	22.5	22.5	21.6	0.0	0.0	23.1	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.7	0.6	0.3	0.9	0.8	0.4	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	12.0	12.6	0.6	11.0	11.4	1.4	0.0	0.0	3.6	0.0	0.0
LnGrp Delay(d),s/veh	18.0	16.7	16.7	26.4	23.3	23.3	22.0	0.0	0.0	24.3	0.0	0.0
LnGrp LOS	B	B	B	C	C	C	C			C		
Approach Vol, veh/h		1400			1032			69			168	
Approach Delay, s/veh		16.8			23.4			22.0			24.3	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		42.0		60.9		42.0	11.3	49.6
Change Period (Y+Rc), s		4.5		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		37.5		73.5		37.5	11.5	57.5
Max Q Clear Time (g_c+I1), s		4.7		26.4		9.6	6.7	24.2
Green Ext Time (p_c), s		1.5		25.5		1.4	0.2	20.9

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St;; Application #173127; Applicant: Tony Fredenberg)

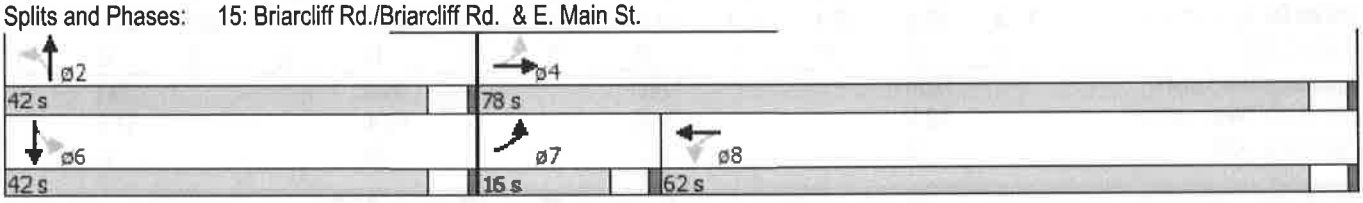
Timing Report, Sorted By Phase
15: Briarcliff Rd./Briarcliff Rd. & E. Main St.

3/9/2016

Phase Number	2	4	6	7	8
Movement	NBTL	EBTL	SBTL	EBL	WBTL
Lead/Lag				Lead	Lag
Lead-Lag Optimize				Yes	Yes
Recall Mode	Max	None	Max	None	None
Maximum Split (s)	42	78	42	16	62
Maximum Split (%)	35.0%	65.0%	35.0%	13.3%	51.7%
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7	7	7		7
Flash Dont Walk (s)	11	11	11		11
Dual Entry	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	42	0	42	58
End Time (s)	42	0	42	58	0
Yield/Force Off (s)	37.5	115.5	37.5	53.5	115.5
Yield/Force Off 170(s)	26.5	104.5	26.5	53.5	104.5
Local Start Time (s)	0	42	0	42	58
Local Yield (s)	37.5	115.5	37.5	53.5	115.5
Local Yield 170(s)	26.5	104.5	26.5	53.5	104.5

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 15: Briarcliff Rd./Briarcliff Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

HCM 2010 Signalized Intersection Summary
3: Brice Rd. & E. Main St.

3/9/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	1295	276	242	914	27	248	116	288	49	122	52
Future Volume (veh/h)	93	1295	276	242	914	27	248	116	288	49	122	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	101	1408	300	263	993	29	270	126	313	53	133	57
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	1443	301	294	2030	59	326	327	482	68	223	261
Arrive On Green	0.05	0.49	0.49	0.13	0.58	0.58	0.09	0.18	0.18	0.04	0.12	0.12
Sat Flow, veh/h	1774	2916	609	1774	3512	103	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	101	843	865	263	500	522	270	126	313	53	133	57
Grp Sat Flow(s),veh/h/ln	1774	1770	1755	1774	1770	1845	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	3.1	51.0	54.4	12.0	18.5	18.5	8.6	6.6	19.0	3.3	7.5	3.5
Cycle Q Clear(g_c), s	3.1	51.0	54.4	12.0	18.5	18.5	8.6	6.6	19.0	3.3	7.5	3.5
Prop In Lane	1.00		0.35	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	876	868	294	1023	1066	326	327	482	68	223	261
V/C Ratio(X)	0.27	0.96	1.00	0.89	0.49	0.49	0.83	0.38	0.65	0.78	0.60	0.22
Avail Cap(c_a), veh/h	625	876	868	362	1023	1066	326	327	482	145	304	330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	27.1	27.9	35.8	13.8	13.8	49.3	40.4	33.4	52.9	46.3	40.1
Incr Delay (d2), s/veh	0.4	21.8	29.4	20.5	0.4	0.3	16.2	3.4	6.6	16.9	2.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	30.1	33.3	9.6	9.0	9.4	4.8	3.7	9.2	1.9	4.0	1.5
LnGrp Delay(d),s/veh	13.3	48.9	57.4	56.3	14.1	14.1	65.6	43.8	40.1	69.7	48.9	40.5
LnGrp LOS	B	D	E	E	B	B	E	D	D	E	D	D
Approach Vol, veh/h		1809			1285			709			243	
Approach Delay, s/veh		50.9			22.8			50.4			51.5	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	24.0	18.8	59.4	15.0	17.8	9.5	68.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.1	19.5	18.5	54.9	10.5	18.1	20.9	52.5
Max Q Clear Time (g_c+I1), s	5.3	21.0	14.0	56.4	10.6	9.5	5.1	20.5
Green Ext Time (p_c), s	0.0	0.0	0.3	0.0	0.0	1.9	0.2	25.2

Intersection Summary	
HCM 2010 Ctrl Delay	41.9
HCM 2010 LOS	D

Notes

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

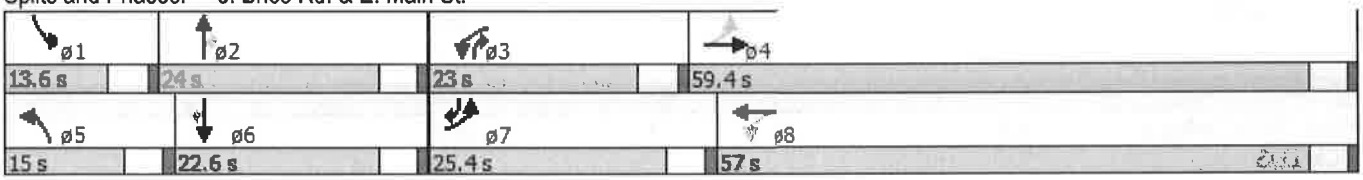
Timing Report, Sorted By Phase
3: Brice Rd. & E. Main St.

3/9/2016

Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	None	None	None	None
Maximum Split (s)	13.6	24	23	59.4	15	22.6	25.4	57
Maximum Split (%)	11.3%	20.0%	19.2%	49.5%	12.5%	18.8%	21.2%	47.5%
Minimum Split (s)	9.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7	7	7		7
Flash Dont Walk (s)		11		11	11	11		11
Dual Entry	No	Yes	No	Yes	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	13.6	37.6	60.6	0	15	37.6	63
End Time (s)	13.6	37.6	60.6	0	15	37.6	63	0
Yield/Force Off (s)	9.1	33.1	56.1	115.5	10.5	33.1	58.5	115.5
Yield/Force Off 170(s)	9.1	22.1	56.1	104.5	119.5	22.1	58.5	104.5
Local Start Time (s)	106.4	0	24	47	106.4	1.4	24	49.4
Local Yield (s)	115.5	19.5	42.5	101.9	116.9	19.5	44.9	101.9
Local Yield 170(s)	115.5	8.5	42.5	90.9	105.9	8.5	44.9	90.9

Intersection Summary	
Cycle Length	120
Control Type	Semi Act-Uncoord
Natural Cycle	140

Splits and Phases: 3: Brice Rd. & E. Main St.



Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	108	1504	1034	20	26	105
Future Vol, veh/h	108	1504	1034	20	26	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	117	1635	1124	22	28	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1146	0	-	0	2187	573
Stage 1	-	-	-	-	1135	-
Stage 2	-	-	-	-	1052	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	605	-	-	-	39	463
Stage 1	-	-	-	-	269	-
Stage 2	-	-	-	-	297	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	605	-	-	-	31	463
Mov Cap-2 Maneuver	-	-	-	-	130	-
Stage 1	-	-	-	-	269	-
Stage 2	-	-	-	-	240	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	26.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	605	-	-	-	307
HCM Lane V/C Ratio	0.194	-	-	-	0.464
HCM Control Delay (s)	12.4	-	-	-	26.5
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.7	-	-	-	2.3

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	32	1498	991	78	19	63
Future Vol, veh/h	32	1498	991	78	19	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	1628	1077	85	21	68

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1077	0	-	0	1961	539
Stage 1	-	-	-	-	1077	-
Stage 2	-	-	-	-	884	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	643	-	-	-	55	487
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	364	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	643	-	-	-	52	487
Mov Cap-2 Maneuver	-	-	-	-	167	-
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	344	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	19.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	643	-	-	-	337
HCM Lane V/C Ratio	0.054	-	-	-	0.264
HCM Control Delay (s)	10.9	-	-	-	19.5
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	42	1475	1027	98	53	42
Future Vol, veh/h	42	1475	1027	98	53	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	125	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	1603	1116	107	58	46

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1116	0	-	0	2009	558
Stage 1	-	-	-	-	1116	-
Stage 2	-	-	-	-	893	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	622	-	-	-	~ 51	473
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	360	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	622	-	-	-	~ 47	473
Mov Cap-2 Maneuver	-	-	-	-	159	-
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	333	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	33.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	622	-	-	-	225
HCM Lane V/C Ratio	0.073	-	-	-	0.459
HCM Control Delay (s)	11.2	-	-	-	33.9
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	2.2

Notes

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

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	78	130	63	455	442	80
Future Vol, veh/h	78	130	63	455	442	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	161
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	85	141	68	495	480	87

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1112	480	480	0	-	0
Stage 1	480	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	231	586	1082	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	216	586	1082	-	-	-
Mov Cap-2 Maneuver	349	-	-	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.7	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1082	-	467	-	-
HCM Lane V/C Ratio	0.063	-	0.484	-	-
HCM Control Delay (s)	8.6	-	19.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.6	-	-

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Queuing and Blocking Report

3/9/2016

Intersection: 12: Rosehill Rd. & E. Main St.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	136	160	168	199	766	765	141	187	145	325
Average Queue (ft)	65	76	91	51	417	440	72	85	88	162
95th Queue (ft)	119	153	163	155	823	835	126	152	163	291
Link Distance (ft)		151	151		1954	1954		608		368
Upstream Blk Time (%)	0	2	3							0
Queuing Penalty (veh)	0	7	9							1
Storage Bay Dist (ft)	230			175			260		120	
Storage Blk Time (%)	0	2			26				2	19
Queuing Penalty (veh)	0	2			18				7	23

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

Intersection: 20: Rosehill Rd. & Site Drive 4

Movement	EB	NB	SB	SB
Directions Served	LR	L	T	R
Maximum Queue (ft)	83	47	31	7
Average Queue (ft)	34	14	1	0
95th Queue (ft)	64	41	23	5
Link Distance (ft)	442		614	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50		161
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		1	0	

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Queuing and Blocking Report

3/9/2016

Intersection: 12: Rosehill Rd. & E. Main St.

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	150	211	191	200	447	462	256	452	145	377
Average Queue (ft)	121	166	159	101	256	278	93	211	123	241
95th Queue (ft)	174	202	186	210	413	422	222	420	175	408
Link Distance (ft)		151	151		1954	1954		608		368
Upstream Blk Time (%)	5	29	29					0		3
Queuing Penalty (veh)	0	224	219					0		18
Storage Bay Dist (ft)	230			175			260		120	
Storage Blk Time (%)	5	29		1	24		0	9	18	23
Queuing Penalty (veh)	27	66		2	25		0	9	62	53

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

Queuing and Blocking Report

3/9/2016

Intersection: 20: Rosehill Rd. & Site Drive 4

Movement	EB	NB	SB	SB
Directions Served	LR	L	T	R
Maximum Queue (ft)	309	53	132	41
Average Queue (ft)	101	22	13	1
95th Queue (ft)	255	49	74	24
Link Distance (ft)	442		692	
Upstream Blk Time (%)	2			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		50		161
Storage Blk Time (%)		0	0	0
Queuing Penalty (veh)		2	0	0

Attachment: Traffic Study Part 2 (1391 : 6630 E. Main St,; Application #173127; Applicant: Tony Fredenberg)

CITY OF REYNOLDSBURG

Board of Zoning and Building Appeals

April 21, 2016 Meeting

Due to the size
of the plans,
plans pertaining
to this packet
may be viewed
at the
City of Reynoldsburg
Department of Development.

Attachment: Large Plans (1391 : 6630 E. Main St.; Application #173127; Applicant: Tony Fredenberg)

McGRAW-EDISON®

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated.

Catalog #	GLEON-AE-##-LED-volt-optics-BZ	Type
Project	THE KROGER CO.	LD
Comments	LED SITE LIGHTING	Date
Prepared by	CORNELIUS ANDERSON	03/05/2015

SPECIFICATION FEATURES

Construction
Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics
Choice of 16 patented, high-efficiency AccuLED Optics. The optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 6000K CCT and 3000K CCT. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed. The house side shield is designed to seamlessly integrate with the SL2, SL3, SL4 or AFL optics.

Electrical
LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. Standard with 0-10V dimming. Shipped standard with Cooper Lighting proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 530mA and 700mA drive currents.

Mounting
Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during assembly. Designed for pole or wall mounting. When mounting two or more luminaires at 90° or 120° apart, the EA extended arm may be required. Refer to the arm mounting requirement table on page 3. For wall mounting, specify wall mount bracket option. 3G vibration rated.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Five-year warranty.

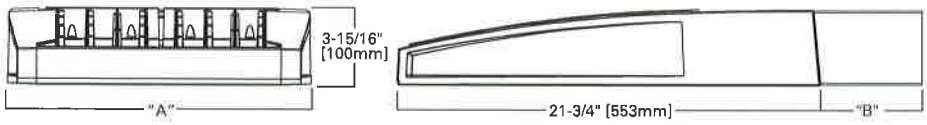
GLEC
GALLEON LI

1-10 Light Squ
Solid State

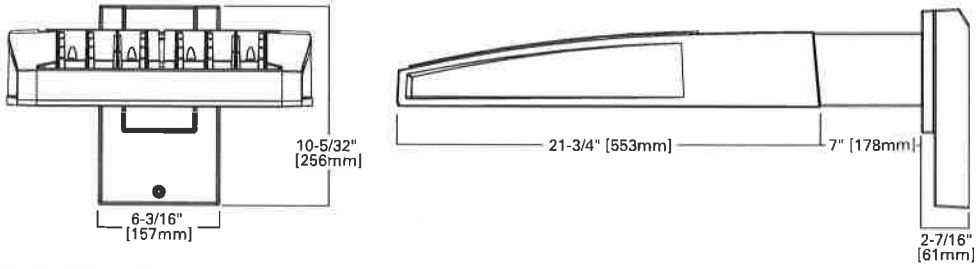
AREA/SITE LUMIN

DIMENSIONS

POLE MOUNT



WALL MOUNT



DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length [1]	Weight with Arm (lbs.)	EPA with Arm [2] (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. 2. EPA calculated with optional arm length.

CERTIFICATION DATA

UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
ARRA Compliant
IP66 Rated

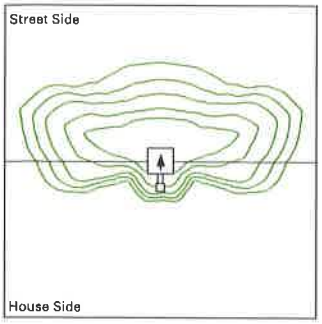
ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)

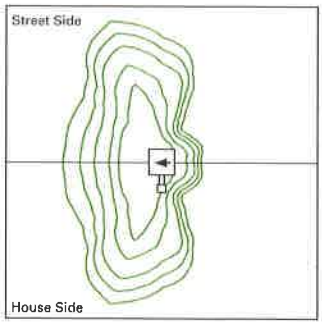
Cooper Lighting
by EATON

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

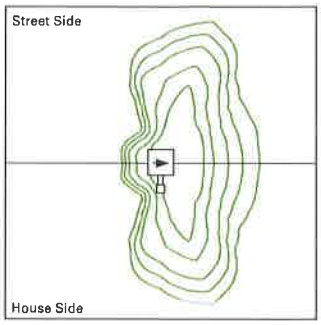
OPTIC ORIENTATION



Standard



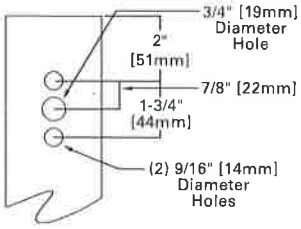
Optics Rotated Left @ 90° [L90]



Optics Rotated Right @ 90° [R90]

DRILLING PATTERN

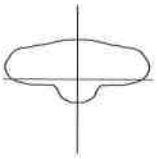
TYPE "N"



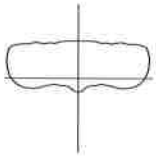
OPTICAL DISTRIBUTIONS

Asymmetric Area Distributions

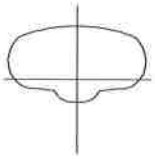
T2 (Type II)



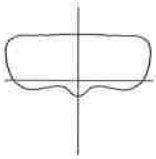
SL2 (Type II with Spill Control)



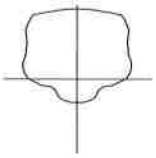
T3 (Type III)



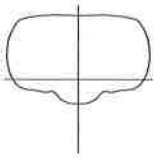
SL3 (Type II with Spill Control)



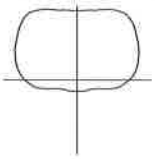
T4FT (Type IV Forward Throw)



T4W (Type IV Wide)

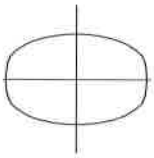


SL4 (Type IV with Spill Control)

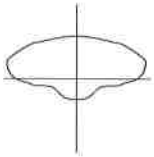


Asymmetric Roadway Distributions

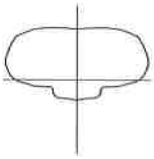
RW (Rectangular Wide Type I)



T2R (Type II Roadway)

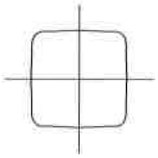


T3R (Type III Roadway)

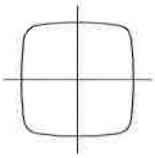


Symmetric Distributions

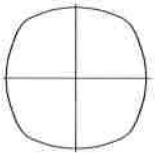
5NQ (Type V Square Narrow)



5MQ (Type V Square Medium)

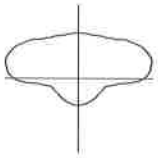


5WQ (Type V Square Wide)

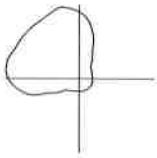


Specialized Distributions

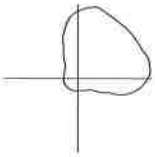
AFL (Automotive Frontline)



SLL (90° Spill Light Eliminator Left)



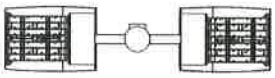
SLR (90° Spill Light Eliminator Right)



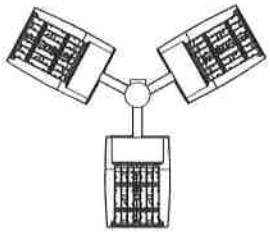
ARM MOUNTING REQUIREMENTS

Configuration	90° Apart	120° Apart
GLEON-AE-01	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-02	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-03	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-04	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-05	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AE-06	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AE-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AE-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AE-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GLEON-AE-10	16" Extended Arm (Required)	16" Extended Arm (Required)

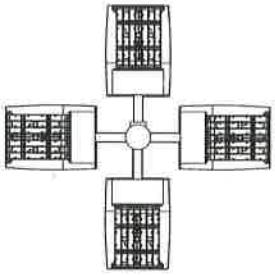
2 @ 180°



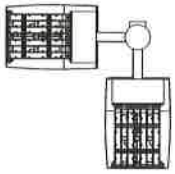
Triple[1]



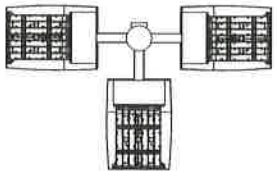
4 @ 90°



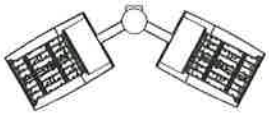
2 @ 90°



Triple[2]



2 @ 120°



Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

NOMINAL POWER AND LUMENS (1A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Drive Current		1A	1A	1A	1A	1A	1A	1A	1A	1A	1A
Nominal Power (Watts)		56	107	157	213	264	315	370	421	475	528
Input Current @ 120V (A)		0.47	0.90	1.31	1.79	2.21	2.64	3.09	3.51	3.96	4.41
Input Current @ 208V (A)		0.28	0.51	0.74	1.02	1.25	1.48	1.76	1.99	2.22	2.50
Input Current @ 240V (A)		0.25	0.45	0.65	0.90	1.10	1.30	1.55	1.75	1.95	2.20
Input Current @ 277V (A)		0.23	0.41	0.59	0.82	1.00	1.18	1.41	1.59	1.77	2.00
Optics											
T2	Lumens	5,272	10,303	15,373	20,313	25,168	30,118	35,618	40,357	45,018	49,842
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
T2R	Lumens	5,597	10,938	16,321	21,565	26,719	31,974	37,813	42,844	47,792	52,914
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5
T3	Lumens	5,374	10,501	15,669	20,704	25,652	30,697	36,303	41,134	45,884	50,802
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3R	Lumens	5,493	10,735	16,017	21,164	26,222	31,379	37,110	42,048	46,904	51,930
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4FT	Lumens	5,405	10,562	15,760	20,824	25,801	30,875	36,514	41,372	46,150	51,096
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4W	Lumens	5,335	10,426	15,556	20,555	25,468	30,476	36,042	40,838	45,554	50,436
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL2	Lumens	5,263	10,285	15,347	20,278	25,124	30,066	35,556	40,288	44,940	49,756
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL3	Lumens	5,373	10,500	15,667	20,701	25,649	30,693	36,298	41,128	45,878	50,794
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
SL4	Lumens	5,105	9,976	14,886	19,669	24,370	29,163	34,488	39,078	43,591	48,262
	BUG Rating	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	Lumens	5,542	10,830	16,160	21,352	26,455	31,658	37,439	42,421	47,320	52,392
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4
5MQ	Lumens	5,644	11,029	16,457	21,745	26,942	32,241	38,128	43,202	48,191	53,356
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
5WQ	Lumens	5,659	11,059	16,501	21,803	27,014	32,327	38,230	43,317	48,320	53,498
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
SLL/SLR	Lumens	4,722	9,227	13,767	18,191	22,539	26,971	31,897	36,141	40,315	44,635
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	Lumens	5,492	10,732	16,014	21,159	26,216	31,372	37,101	42,038	46,893	51,918
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
AFL	Lumens	5,512	10,771	16,072	21,236	26,311	31,486	37,236	42,191	47,063	52,107
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4

* Nominal data for 4000K CCT.

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Theoretical L70 (Hours)
25°C	> 94%	> 350,000
40°C	> 93%	> 250,000
50°C	> 90%	> 170,000

ORDERING INFORMATION

Sample Number: GLEON-AE-04-LED-E1-T3-GM-700

Product Family	Light Engine	Number of Light Squares [1]	Lamp Type	Voltage	Distribution	Color	Mounting
GLEON=Galleon	**AE**=1A Drive Current	**01**=1 **02**=2 **03**=3 **04**=4 **05**=5 **06**=6 **07**=7 **08**=8 **09**=9 **10**=10	**LED**=Solid State Light Emitting Diodes	**E1**=120-277V **347**=347V [2] **480**=480V [2]	**T2**=Type II **T2R**=Type II Roadway **T3**=Type III **T3R**=Type III Roadway **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **5NQ**=Type V Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **AFL**=Automotive Frontline	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White	**[Blank]**=Arm for Round or Square Pole **EA**=Extended Arm [3] **MA**=Mast Arm Adapter [4] **WM**=Wall Mount

Options (Add as Suffix)

2L=Two Circuits [5, 6]
7030=70 CRI 3000K [7]
7060=70 CRI 6000K [7]
530=Drive Current Factory Set to 530mA [8]
700=Drive Current Factory Set to 700mA [8]
P=Button Type Photocontrol (120, 208, 240 or 277V)
R=NEMA Twistlock Photocontrol Receptacle
HA=50°C High Ambient [6]
MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height [9, 10, 11, 12]
MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height [9, 10, 11, 12]
MS/DIM-L40=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height [9, 10, 11, 12]
MS/X-L08=Bi-Level Motion Sensor, Maximum 8' Mounting Height [11, 12, 13, 14]
MS/X-L20=Bi-Level Motion Sensor, 9' - 20' Mounting Height [10, 11, 14]
MS/X-L40=Bi-Level Motion Sensor, 21' - 40' Mounting Height [10, 11, 14]
DIMRF-LW=LumaWatt Wireless Sensor, Wide Lens for 8' - 16' Mounting Height [13]
DIMRF-LN=LumaWatt Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height [13]
L90=Optics Rotated 90° Left
R90=Optics Rotated 90° Right
MT=Factory Installed Mesh Top
TH=Tool-less Door Hardware
LCF=Light Square Trim Plate Painted to Match Housing
HSS=Factory Installed House Side Shield [15]

Accessories (Order Separately)

OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V
OA/RA1027=NEMA Photocontrol - 480V
OA/RA1201=NEMA Photocontrol - 347V
OA/RA1013=Photocontrol Shorting Cap
OA/RA1014=120V Photocontrol
MA1252=10kV Surge Module Replacement
MA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon
MA1037-XX=2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon
MA1197-XX=3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
MA1188-XX=4 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1189-XX=2 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1190-XX=3 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1191-XX=2 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
MA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon
MA1039-XX=2 @ 180° Tenon Adapter for 3-1/2" O.D. Tenon
MA1192-XX=3 @ 120° Tenon Adapter for 3-1/2" O.D. Tenon
MA1193-XX=4 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
MA1194-XX=2 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
MA1195-XX=3 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
FSIR-100=Wireless Configuration Tool for Occupancy Sensor [16]
GLEON-MT1=Field Installed Mesh Top for 1-4 Light Squares
GLEON-MT2=Field Installed Mesh Top for 5-6 Light Squares
GLEON-MT3=Field Installed Mesh Top for 7-8 Light Squares
GLEON-MT4=Field Installed Mesh Top for 9-10 Light Squares
LS/HSS=Field Installed House Side Shield [15, 17]

Notes:
1. Standard 4000K CCT and minimum 70 CRI.
2. LumaWatt Wireless Sensors not currently available for 347V or 480V applications.
3. May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
4. Factory installed.
5. Only available in 5-10 Light Squares.
6. Not available with LumaWatt wireless sensors.
7. Use dedicated IES files for 3000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website.
8. 1 Amp standard. Use dedicated IES files for 530mA and 700mA when performing layouts. These files are published on the Navion luminaire product page on the website.
9. Must specify dimming driver. Consult factory for more information.
10. 120V or 277V 60Hz and 230V 50Hz only. Replace E1 with specific voltage. Consult factory for availability in 347V and 480V.
11. The FSIR-100 accessory is required to adjust parameters.
12. Not available with HA option.
13. LumaWatt wireless sensors are factory installed only requiring network components RF-EM1, RF-GW1 and RF-ROUT1 in appropriate quantities. See www.cooperlighting.com for LumaWatt application information.
14. Sensor mounted externally. Available in 2, 3, 4, or 6 Light Square configurations. Replace "X" with number of Light Squares in low output mode. For ON/OFF operation, replace "X" with "0". Maximum two Light Squares in low output mode. Not available with dimming driver. No terminal block with bi-level operation.
15. Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected.
16. This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your Eaton's Cooper Lighting business representative for additional details.
17. One required for each Light Square.

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

McGRAW-EDISON®

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated.

Catalog #	GLEON-AE-##-LED-volt-optics-BZ-WM	Type
Project	THE KROGER CO.	LW
Comments	LED WALLPACKS	Date
Prepared by	CORNELIUS ANDERSON	03/05/2015

SPECIFICATION FEATURES

Construction
Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics
Choice of 16 patented, high-efficiency AccuLED Optics. The optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 6000K CCT and 3000K CCT. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed. The house side shield is designed to seamlessly integrate with the SL2, SL3, SL4 or AFL optics.

Electrical
LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. Standard with 0-10V dimming. Shipped standard with Cooper Lighting proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 530mA and 700mA drive currents.

Mounting
Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during assembly. Designed for pole or wall mounting. When mounting two or more luminaires at 90° or 120° apart, the EA extended arm may be required. Refer to the arm mounting requirement table on page 3. For wall mounting, specify wall mount bracket option. 3G vibration rated.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Five-year warranty.

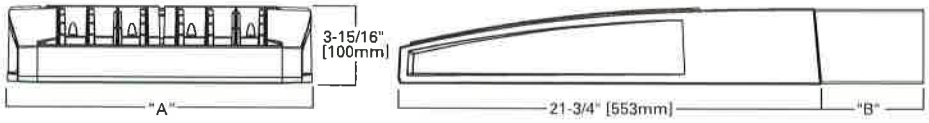
GLEC
GALLEON LI

1-10 Light Squ
Solid State

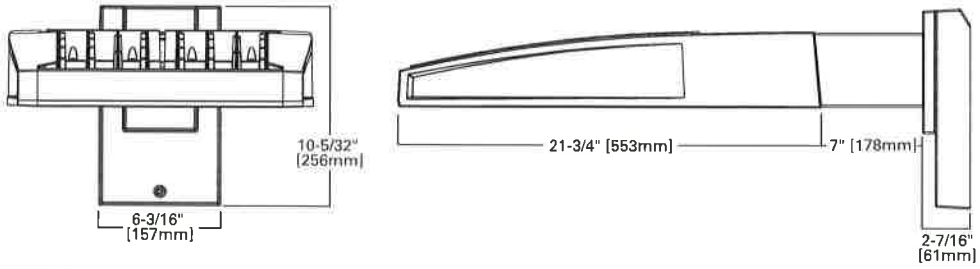
AREA/SITE LUMIN

DIMENSIONS

POLE MOUNT



WALL MOUNT



DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length [1]	Weight with Arm (lbs.)	EPA with Arm [2] (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. 2. EPA calculated with optional arm length.

CERTIFICATION DATA

UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
ARRA Compliant
IP66 Rated

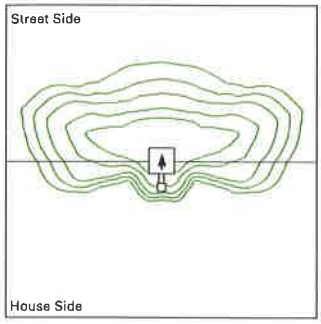
ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)

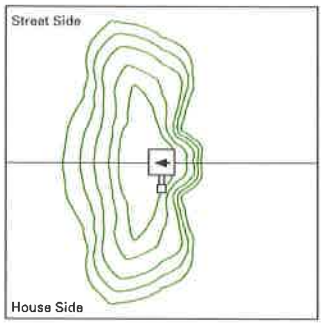
Cooper Lighting
by EATON

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

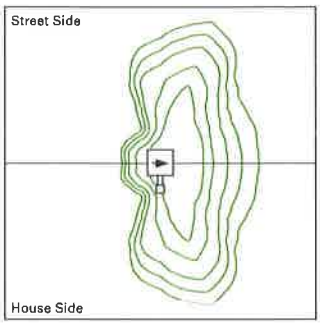
OPTIC ORIENTATION



Standard



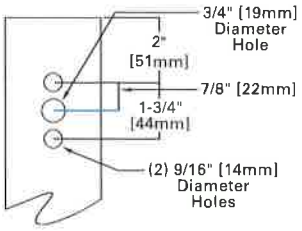
Optics Rotated Left @ 90° [L90]



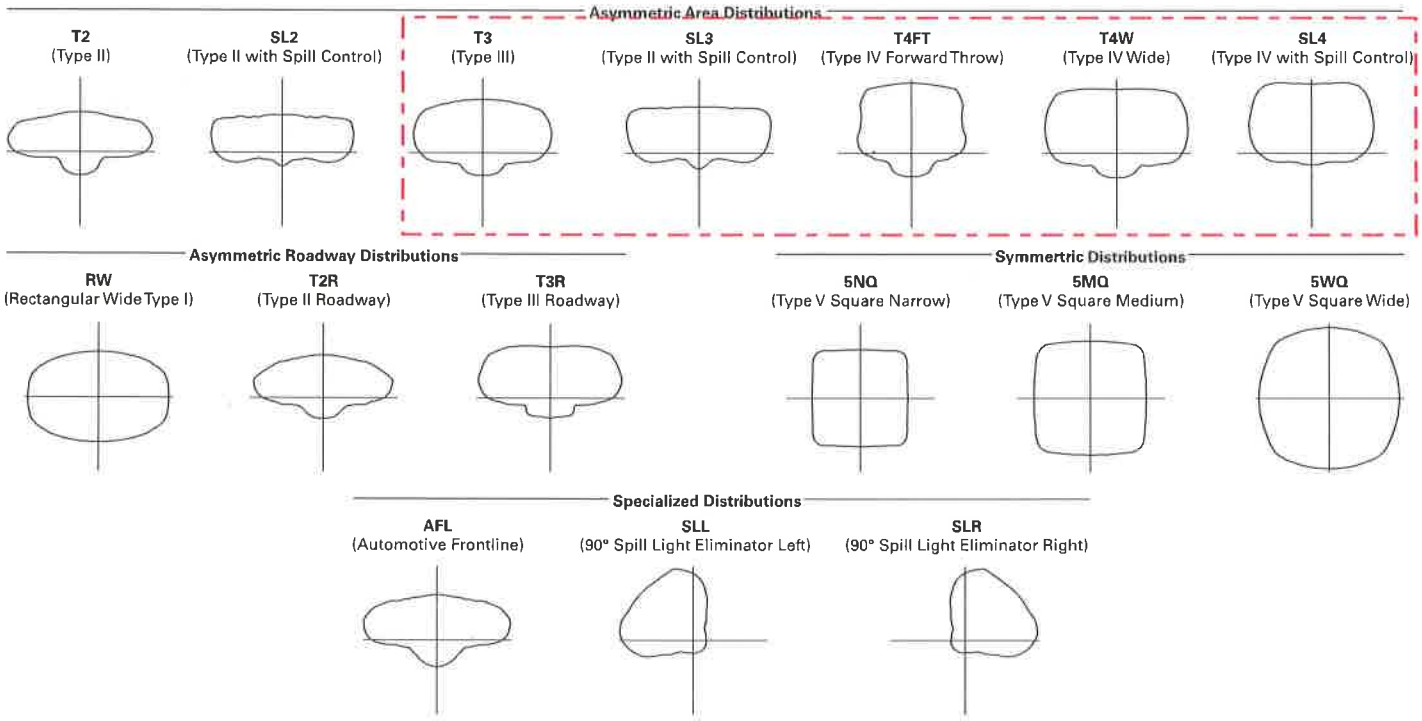
Optics Rotated Right @ 90° [R90]

DRILLING PATTERN

TYPE "N"

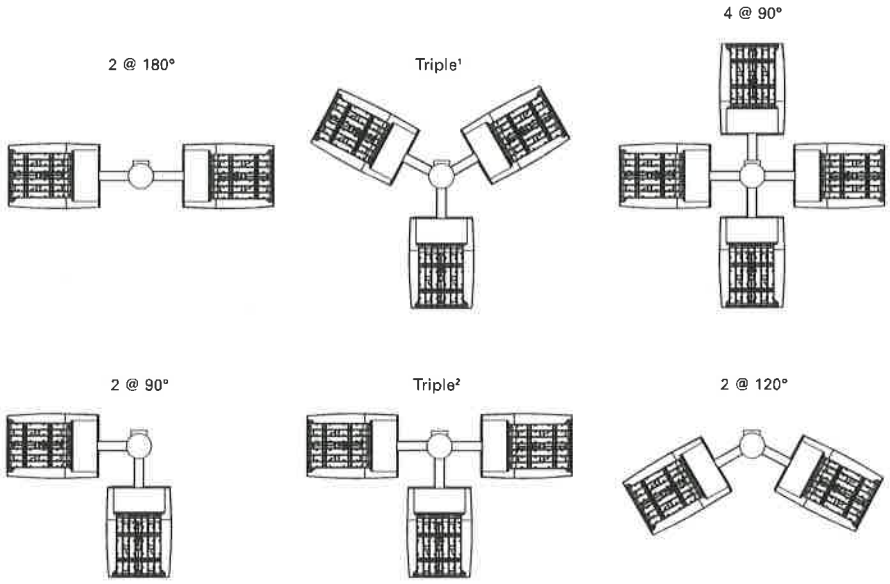


OPTICAL DISTRIBUTIONS



ARM MOUNTING REQUIREMENTS

Configuration	90° Apart	120° Apart
GLEON-AE-01	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-02	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-03	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-04	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-05	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AE-06	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AE-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AE-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AE-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GLEON-AE-10	16" Extended Arm (Required)	16" Extended Arm (Required)



NOMINAL POWER AND LUMENS (1A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Drive Current		1A	1A	1A	1A	1A	1A	1A	1A	1A	1A
Nominal Power (Watts)		56	107	157	213	264	315	370	421	475	528
Input Current @ 120V (A)		0.47	0.90	1.31	1.79	2.21	2.64	3.09	3.51	3.96	4.41
Input Current @ 208V (A)		0.28	0.51	0.74	1.02	1.25	1.48	1.76	1.99	2.22	2.50
Input Current @ 240V (A)		0.25	0.45	0.65	0.90	1.10	1.30	1.55	1.75	1.95	2.20
Input Current @ 277V (A)		0.23	0.41	0.59	0.82	1.00	1.18	1.41	1.59	1.77	2.00
Optics											
T2	Lumens	5,272	10,303	15,373	20,313	25,168	30,118	35,618	40,357	45,018	49,842
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
T2R	Lumens	5,597	10,938	16,321	21,565	26,719	31,974	37,813	42,844	47,792	52,914
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5
T3	Lumens	5,374	10,501	15,669	20,704	25,652	30,697	36,303	41,134	45,884	50,802
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3R	Lumens	5,493	10,735	16,017	21,164	26,222	31,379	37,110	42,048	46,904	51,930
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4FT	Lumens	5,405	10,562	15,760	20,824	25,801	30,875	36,514	41,372	46,150	51,096
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4W	Lumens	5,335	10,426	15,556	20,555	25,468	30,476	36,042	40,838	45,554	50,436
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL2	Lumens	5,263	10,285	15,347	20,278	25,124	30,066	35,556	40,288	44,940	49,756
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL3	Lumens	5,373	10,500	15,667	20,701	25,649	30,693	36,298	41,128	45,878	50,794
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
SL4	Lumens	5,105	9,976	14,886	19,669	24,370	29,163	34,488	39,078	43,591	48,262
	BUG Rating	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	Lumens	5,542	10,830	16,160	21,352	26,455	31,658	37,439	42,421	47,320	52,392
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4
5MQ	Lumens	5,644	11,029	16,457	21,745	26,942	32,241	38,128	43,202	48,191	53,356
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
5WQ	Lumens	5,659	11,059	16,501	21,803	27,014	32,327	38,230	43,317	48,320	53,498
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SLL/SLR	Lumens	4,722	9,227	13,767	18,191	22,539	26,971	31,897	36,141	40,315	44,635
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	Lumens	5,492	10,732	16,014	21,159	26,216	31,372	37,101	42,038	46,893	51,918
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
AFL	Lumens	5,512	10,771	16,072	21,236	26,311	31,486	37,236	42,191	47,063	52,107
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4

* Nominal data for 4000K CCT.

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Theoretical L70 (Hours)
25°C	> 94%	> 350,000
40°C	> 93%	> 250,000
50°C	> 90%	> 170,000

ORDERING INFORMATION

Sample Number: GLEON-AE-04-LED-E1-T3-GM-700

Product Family	Light Engine	Number of Light Squares [1]	Lamp Type	Voltage	Distribution	Color	Mounting
GLEON=Galleon	**AE**=1A Drive Current	**01**=1 **02**=2 **03**=3 **04**=4 **05**=5 **06**=6 **07**=7 **08**=8 **09**=9 **10**=10	**LED**=Solid State Light Emitting Diodes	**E1**=120-277V **347**=347V [2] **480**=480V [2]	**T2**=Type II **T2R**=Type II Roadway **T3**=Type III **T3R**=Type III Roadway **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **5NQ**=Type V Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **AFL**=Automotive Frontline	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White	**[Blank]**=Arm for Round or Square Pole **EA**=Extended Arm [3] **MA**=Mast Arm Adapter [4] **WM**=Wall Mount

Options (Add as Suffix)

2L=Two Circuits [5, 6]
7030=70 CRI 3000K [7]
7060=70 CRI 6000K [7]
530=Drive Current Factory Set to 530mA [8]
700=Drive Current Factory Set to 700mA [8]
P=Button Type Photocontrol (120, 208, 240 or 277V)
R=NEMA Twistlock Photocontrol Receptacle
HA=50°C High Ambient [6]
MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height [9, 10, 11, 12]
MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height [9, 10, 11, 12]
MS/DIM-L40=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height [9, 10, 11, 12]
MS/X-L08=Bi-Level Motion Sensor, Maximum 8' Mounting Height [11, 12, 13, 14]
MS/X-L20=Bi-Level Motion Sensor, 9' - 20' Mounting Height [10, 11, 14]
MS/X-L40=Bi-Level Motion Sensor, 21' - 40' Mounting Height [10, 11, 14]
DIMRF-LW=LumaWatt Wireless Sensor, Wide Lens for 8' - 16' Mounting Height [13]
DIMRF-LN=LumaWatt Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height [13]
L90=Optics Rotated 90° Left
R90=Optics Rotated 90° Right
MT=Factory Installed Mesh Top
TH=Tool-less Door Hardware
LCF=Light Square Trim Plate Painted to Match Housing
HSS=Factory Installed House Side Shield [15]

Accessories (Order Separately)

OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V
OA/RA1027=NEMA Photocontrol - 480V
OA/RA1201=NEMA Photocontrol - 347V
OA/RA1013=Photocontrol Shorting Cap
OA/RA1014=120V Photocontrol
MA1252=10kV Surge Module Replacement
MA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon
MA1037-XX=2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon
MA1197-XX=3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
MA1188-XX=4 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1189-XX=2 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1190-XX=3 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1191-XX=2 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
MA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon
MA1039-XX=2 @ 180° Tenon Adapter for 3-1/2" O.D. Tenon
MA1192-XX=3 @ 120° Tenon Adapter for 3-1/2" O.D. Tenon
MA1193-XX=4 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
MA1194-XX=2 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
MA1195-XX=3 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
FSIR-100=Wireless Configuration Tool for Occupancy Sensor [16]
GLEON-MT1=Field Installed Mesh Top for 1-4 Light Squares
GLEON-MT2=Field Installed Mesh Top for 5-6 Light Squares
GLEON-MT3=Field Installed Mesh Top for 7-8 Light Squares
GLEON-MT4=Field Installed Mesh Top for 9-10 Light Squares
LS/HSS=Field Installed House Side Shield [15, 17]

Notes:
1. Standard 4000K CCT and minimum 70 CRI.
2. LumaWatt Wireless Sensors not currently available for 347V or 480V applications.
3. May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
4. Factory installed.
5. Only available in 5-10 Light Squares.
6. Not available with LumaWatt wireless sensors.
7. Use dedicated IES files for 3000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website.
8. 1 Amp standard. Use dedicated IES files for 530mA and 700mA when performing layouts. These files are published on the Navion luminaire product page on the website.
9. Must specify dimming driver. Consult factory for more information.
10. 120V or 277V 60Hz and 230V 50Hz only. Replace E1 with specific voltage. Consult factory for availability in 347V and 480V.
11. The FSIR-100 accessory is required to adjust parameters.
12. Not available with HA option.
13. LumaWatt wireless sensors are factory installed only requiring network components RF-EM1, RF-GW1 and RF-ROUT1 in appropriate quantities. See www.cooperlighting.com for LumaWatt application information.
14. Sensor mounted externally. Available in 2, 3, 4, or 6 Light Square configurations. Replace "X" with number of Light Squares in low output mode. For ON/OFF operation, replace "X" with "0". Maximum two Light Squares in low output mode. Not available with dimming driver. No terminal block with bi-level operation.
15. Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected.
16. This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your Eaton's Cooper Lighting business representative for additional details.
17. One required for each Light Square.

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

RTS ROUND TAPERED STEEL

Catalog #	RTS9A39SFN#	Type	POLE
Project	THE KROGER CO.		
Comments	TYPICAL SITE LIGHTING POLE	Date	03/05/2015
Prepared by	CORNELIUS ANDERSON		

FEATURES

- ASTM Grade steel base plate with ASTM A366 base cover
- Hand hole assembly 3" x 5" on RTS poles
- 20'-50' mounting heights
- Drilled or tenon (specify)

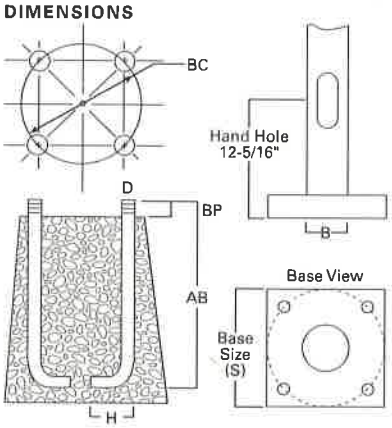
ORDERING INFORMATION

SAMPLE NUMBER: RTS8A30SF2XXG

Product Family	Shaft Size (Inches)[1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Arm Lengths (Feet)	Options (Add as Suffi
RTS=Round Tapered Steel	6=6" 7=7" 8=8" 9=9" Steel; 6-3/4" Aluminum 0=10"	A=0.120" D=0.180"	20=20' 25=25' 30=30' 35=35' 39=39' 45=45' 50=50'	S=Square Steel Base	F=Dark Bronze G=Galvanized Steel J=Summit White K=Carbon Bronze L=Dark Platinum P=Primer Powder Coat R=Hartford Green S=Silver T=Graphite Metallic V=Grey W=White X=Custom Color Y=Black	2=2-3/8" O.D. Tenon (4" Long) 3=3-1/2" O.D. Tenon (5" Long) 4=4" O.D. Tenon (6" Long) 5=3" O.D. Tenon (4" Long) 6=2-3/8" O.D. Tenon (6" Long) 7=4" O.D. Tenon (10" Long) A=Type A Drilling C=Type C Drilling E=Type E Drilling F=Type F Drilling G=Type G Drilling J=Type J Drilling K=Type K Drilling M=Type M Drilling R=Type R Drilling S=Standard Upsweep Arm Z=Type Z Drilling	1=Single 2=2 at 180° 3=Triple[2] 4=4 at 90° 5=2 at 90° 6=3 at 90° 7=2 at 120° X=None	X=None	A=1/2" Tapped H (Specify loca desired) B=3/4" Tapped H (Specify loca desired) C=Convenience Outlet[3] E=GFCI Convenience Outlet[3] G=Ground Lug H=Additional H Hole[4] L=Drilled for Bumper Glitt V=Vibration Dampener

NOTES: 1. All shaft sizes nominal. 2. Square poles are 3 at 90°, round poles are 3 at 120°. 3. Outlet is located 4' above base and on same side of pole as hand hole, unless specified otherwise. Recept not included, provision only. 4. Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified.

DIMENSIONS



WARNING: The use of unauthorized accessories such as banners, signs, cameras or pennants for which the pole was not designed voids the pole warranty from Eaton's Cooper Lighting business and ma result in pole failure causing serious injury or property damage. Upon request, Eaton's Cooper Lighting business will supply information regarding total loading capacity. The pole warranty from Eaton's Cooper Lighting business is void unless poles are used and installed as a complete pole/luminaire combination. This warranty specifically excludes failure as the result of a third party act or omission, mi unanticipated uses, fatigue failure or similar phenomena resulting from induced vibration, harmonic oscillation or resonance associated with movement of air currents around the product.

Specifications and dimensions subject to change without notice. Consult your Eaton's Cooper Lighting business representative or visit www.cooperlighting.com for available options, accessories and or information.

Cooper Lighting
by EATON

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

Effective Projected Area (At Pole Top)

Mounting Height (Feet)	Catalog Number [1,2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Taper [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			S	BC	BP	B	D x AB x H		80 mph	90 mph	100 mph	110 mph	
20	RTS6A20S	0.120	10-1/2	11	4-1/2	6.3 x 3.5	3/4 x 25 x 3	145	19.6	15.0	11.6	9.5	100
25	RTS7A25S	0.120	10-1/2	11	4-1/2	7.0 x 3.5	3/4 x 25 x 3	187	14.7	11.0	8.6	6.8	200
30	RTS8A30S	0.120	12-1/2	12-1/2	5	7.7 x 3.5	1 x 36 x 4	254	18.0	13.5	10.5	8.4	300
35	RTS8A35S	0.120	12-1/2	12-1/2	5	8.4 x 3.5	1 x 36 x 4	305	16.1	11.9	9.1	7.2	300
35	RTS9D35S	0.180	12-1/2	12-1/2	5	8.4 x 3.5	1 x 36 x 4	452	20.5	15.4	12.0	9.6	300
39	RTS9A39S	0.120	12-1/2	12-1/2	5	8.9 x 3.5	1 x 36 x 4	347	14.5	10.7	8.1	6.2	300
39	RTS9D39S	0.180	12-1/2	12-1/2	5	8.9 x 3.5	1 x 36 x 4	516	16.9	12.5	9.6	7.5	300
45	RTS0A45S [5]	0.120	13-1/2	13-1/2	5	10.2 x 4.2	1 x 36 x 4	466	14.5	10.1	7.7	5.8	300
45	RTS0D45S [5]	0.180	13-1/2	13-1/2	6	10.2 x 4.2	1-1/4 x 42 x 6	670	27.0	20.5	16.1	13.0	300
50	RTS0A50S [5]	0.120	13-1/2	13-1/2	5	10.2 x 3.5	1 x 36 x 4	490	7.4	4.9	3.3	2.2	400
50	RTS0D50S [5]	0.180	13-1/2	13-1/2	6	10.2 x 3.5	1-1/4 x 42 x 6	704	19.8	14.7	11.2	8.6	400

Effective Projected Area (Two Feet Above Pole Top)

Mounting Height (Feet)	Catalog Number [1,2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Taper [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			S	BC	BP	B	D x AB x H		80 mph	90 mph	100 mph	110 mph	
20	RTS6A20S	0.120	10-1/2	11	4-1/2	6.3 x 3.5	3/4 x 25 x 3	145	17.4	13.4	10.4	8.4	100
25	RTS7A25S	0.120	10-1/2	11	4-1/2	7.0 x 3.5	3/4 x 25 x 3	187	13.7	10.0	7.8	6.2	200
30	RTS8A30S	0.120	12-1/2	12-1/2	5	7.7 x 3.5	1 x 36 x 4	254	16.7	12.6	9.7	7.7	300
35	RTS8A35S	0.120	12-1/2	12-1/2	5	8.4 x 3.5	1 x 36 x 4	305	15.1	11.2	8.6	6.7	300
35	RTS9D35S	0.180	12-1/2	12-1/2	5	8.4 x 3.5	1 x 36 x 4	452	19.5	14.6	11.3	9.0	300
39	RTS9A39S	0.120	12-1/2	12-1/2	5	8.9 x 3.5	1 x 36 x 4	347	13.8	10.1	7.6	5.9	300
39	RTS9D39S	0.180	12-1/2	12-1/2	5	8.9 x 3.5	1 x 36 x 4	516	16.1	11.9	9.1	7.1	300
45	RTS0A45S [5]	0.120	13-1/2	13-1/2	5	10.2 x 4.2	1 x 36 x 4	466	13.2	9.8	7.3	5.6	300
45	RTS0D45S [5]	0.180	13-1/2	13-1/2	6	10.2 x 4.2	1-1/4 x 42 x 6	670	26.0	19.8	15.5	12.4	300
50	RTS0A50S [5]	0.120	13-1/2	13-1/2	5	10.2 x 3.5	1 x 36 x 4	490	7.1	4.7	3.7	2.1	400
50	RTS0D50S [5]	0.180	13-1/2	13-1/2	6	10.2 x 3.5	1-1/4 x 42 x 6	704	19.0	14.1	10.7	8.3	400

NOTES:
1. Catalog number includes pole with hardware kit. Anchor bolts not included. Before installing, make sure proper anchor bolts and templates are obtained from Eaton's Cooper Lighting business.
2. Tenon size or machining for rectangular arms must be specified. Hand hole position relative to drill location.
3. Shaft size, base square, anchor bolts and projections may vary slightly. All dimensions nominal.
4. EPAs based on shaft properties with wind normal to flat. EPAs calculated using base wind velocity as indicated plus 30% gust factor.
5. Two-piece pole.

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

COOPER LIGH

RSS ROUND STRAIGHT STEEL

Catalog #	RSS4A16SFN#	Type	POLE
Project	OFF SITE FUEL CENTER		
Comments	YARD LIGHTING POLE	Date	03/05/2015
Prepared by	CORNELIUS ANDERSON		

FEATURES
- ASTM Grade steel base plate with ASTM A366 base cover
- Hand hole assembly 3" x 5" on 5" and 6" poles, 2" x 4" on 4" poles
- 10'-30' mounting heights
- Drilled or tenon (specify)

ORDERING INFORMATION

SAMPLE NUMBER: RSS4A20SF2XG

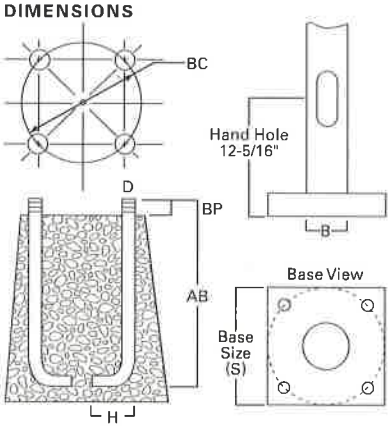
Product Family	Shaft Size (Inches)[1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Options (Add as Suffix)
RSS=Round Straight Steel	4=4" 5=5" 6=6"	A=0.120" M=0.188"	10=10' 15=15' 20=20' 25=25' 30=30'	S=Square Steel Base	F=Dark Bronze G=Galvanized Steel J=Summit White K=Carbon Bronze L=Dark Platinum P=Primer Powder Coat R=Hartford Green S=Silver T=Graphite Metallic V=Grey W=White X=Custom Color Y=Black	2=2-3/8" O.D. Tenon (4" Long) 3=3-1/2" O.D. Tenon (5" Long) 4=4" O.D. Tenon (6" Long) 5=3" O.D. Tenon (4" Long) 6=2-3/8" O.D. Tenon (6" Long) 7=4" O.D. Tenon (10" Long) A=Type A Drilling C=Type C Drilling E=Type E Drilling F=Type F Drilling G=Type G Drilling J=Type J Drilling K=Type K Drilling M=Type M Drilling R=Type R Drilling S=Standard Upsweep Arm Z=Type Z Drilling	1=Single SP1 2=2 at 180° SP2 3=Triple[2] 4=4 at 90° 5=2 at 90° SP3 6=3 at 90° 7=2 at 120° X=None	A=1/2" Tapped Hub (Specify location desired) B=3/4" Tapped Hub (Specify location desired) C=Convenience Outlet[3] E=GFCI Convenience Outlet G=Ground Lug H=Additional Hand Hole[4] L=Drilled for Bumper Glitter V=Vibration Dampener

Type N

16'

NOTES: 1. All shaft sizes nominal. 2. Square poles are 3 at 90°, round poles are 3 at 120°. 3. Outlet is located 4' above base and on same side of pole as hand hole, unless specified otherwise. Recept not included, provision only. 4. Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified.

DIMENSIONS



Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

WARNING: The use of unauthorized accessories such as banners, signs, cameras or pennants for which the pole was not designed voids the pole warranty from Eaton's Cooper Lighting business and ma result in pole failure causing serious injury or property damage. Upon request, Eaton's Cooper Lighting business will supply information regarding total loading capacity. The pole warranty from Eaton's Cooper Lighting business is void unless poles are used and installed as a complete pole/luminaire combination. This warranty specifically excludes failure as the result of a third party act or omission, mi unanticipated uses, fatigue failure or similar phenomena resulting from induced vibration, harmonic oscillation or resonance associated with movement of air currents around the product.

Specifications and dimensions subject to change without notice. Consult your Eaton's Cooper Lighting business representative or visit www.cooperlighting.com for available options, accessories and or information.

Cooper Lighting
by EATON

Effective Projected Area (At Pole Top)

Mounting Height (Feet)	Catalog Number [1,2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			S	BC	BP	B	D x AB x H		80 mph	90 mph	100 mph	110 mph	
10	RSS4A10S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	73	21.0	16.0	12.7	10.5	100
15	RSS4A15S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	97	11.2	8.3	6.4	5.1	100
20	RSS4A20S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	122	5.8	3.9	2.7	2.0	150
20	RSS5M20S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	216	17.0	13.0	10.4	8.4	150
25	RSS5M25S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	264	11.0	8.5	6.5	5.2	200
30	RSS6M30S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	394	14.0	10.7	8.4	6.7	200

Effective Projected Area (Two Feet Above Pole Top)

Mounting Height (Feet)	Catalog Number [1,2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			S	BC	BP	B	D x AB x H		80 mph	90 mph	100 mph	110 mph	
10	RSS4A10S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	73	16.7	13.0	10.4	8.5	100
15	RSS4A15S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	97	9.8	7.2	5.6	4.4	100
20	RSS4A20S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	122	5.3	3.5	2.4	1.8	150
20	RSS5M20S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	216	15.0	11.7	9.2	7.5	150
25	RSS5M25S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	264	10.2	7.8	6.0	4.8	200
30	RSS6M30S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	394	13.1	10.0	7.8	5.9	200

NOTES:

1. Catalog number includes pole with hardware kit. Anchor bolts not included. Before installing, make sure proper anchor bolts and templates are obtained from Eaton's Cooper Lighting business.
2. Tenon size or machining for rectangular arms must be specified. Hand hole position relative to drill location.
3. Shaft size, base square, anchor bolts and projections may vary slightly. All dimensions nominal.
4. EPAs based on shaft properties with wind normal to flat. EPAs calculated using base wind velocity as indicated plus 30% gust factor.

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated.

Catalog #	GLEON-AE-04-LED-volt-SL4-BZ	Type
Project	OFF-SITE FUEL CENTER	SP1, SP2, & S
Comments	YARD LIGHTING	Date
Prepared by	CORNELIUS ANDERSON	03/05/2015

SPECIFICATION FEATURES

Construction
Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics
Choice of 16 patented, high-efficiency AccuLED Optics. The optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 6000K CCT and 3000K CCT. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed. The house side shield is designed to seamlessly integrate with the SL2, SL3, SL4 or AFL optics.

Electrical
LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. Standard with 0-10V dimming. Shipped standard with Cooper Lighting proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 530mA and 700mA drive currents.

Mounting
Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during assembly. Designed for pole or wall mounting. When mounting two or more luminaires at 90° or 120° apart, the EA extended arm may be required. Refer to the arm mounting requirement table on page 3. For wall mounting, specify wall mount bracket option. 3G vibration rated.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Five-year warranty.

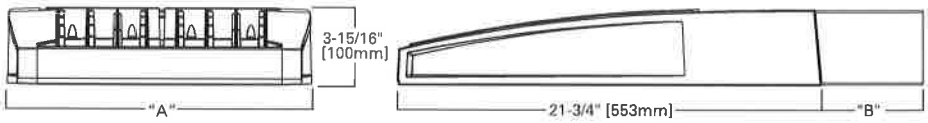
GLEC
GALLEON L

1-10 Light Squ
Solid State

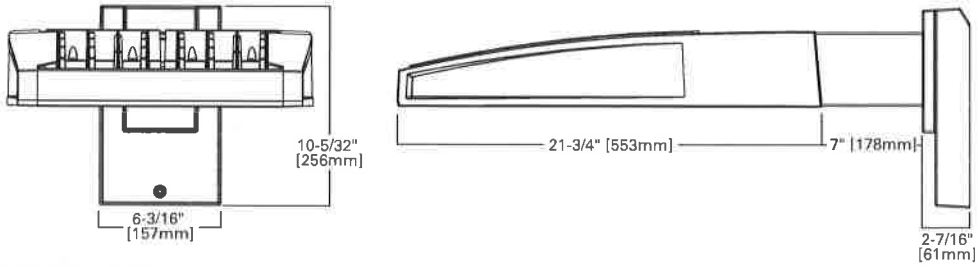
AREA/SITE LUMIN

DIMENSIONS

POLE MOUNT



WALL MOUNT



DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length [1]	Weight with Arm (lbs.)	EPA with Arm [2] (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

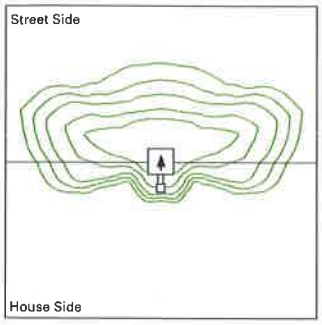
NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. 2. EPA calculated with optional arm length.

CERTIFICATION DATA
UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
ARRA Compliant
IP66 Rated

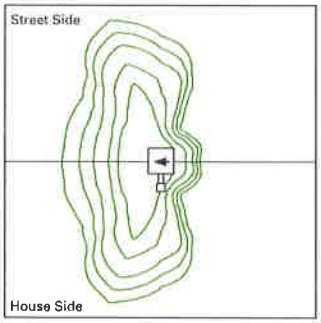
ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

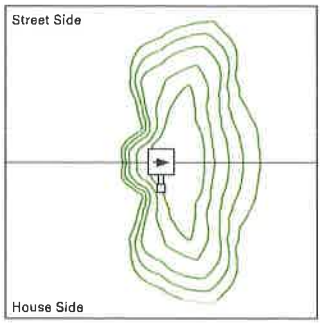
OPTIC ORIENTATION



Standard



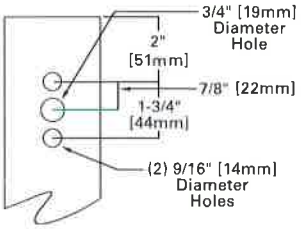
Optics Rotated Left @ 90° [L90]



Optics Rotated Right @ 90° [R90]

DRILLING PATTERN

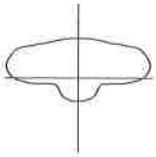
TYPE "N"



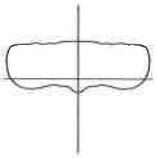
OPTICAL DISTRIBUTIONS

Asymmetric Area Distributions

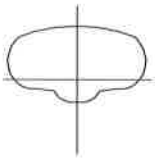
T2 (Type II)



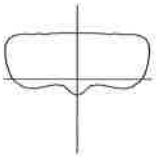
SL2 (Type II with Spill Control)



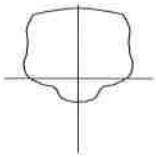
T3 (Type III)



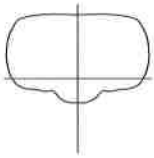
SL3 (Type II with Spill Control)



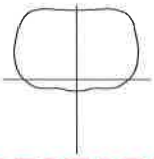
T4FT (Type IV Forward Throw)



T4W (Type IV Wide)

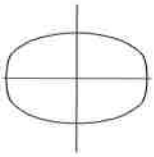


SL4 (Type IV with Spill Control)

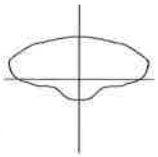


Asymmetric Roadway Distributions

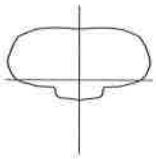
RW (Rectangular Wide Type I)



T2R (Type II Roadway)

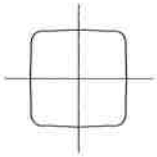


T3R (Type III Roadway)

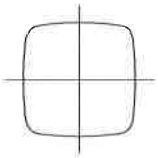


Symmetric Distributions

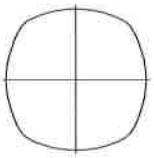
5NQ (Type V Square Narrow)



5MQ (Type V Square Medium)

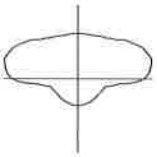


5WQ (Type V Square Wide)

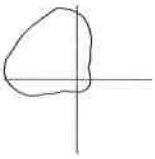


Specialized Distributions

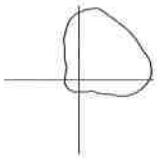
AFL (Automotive Frontline)



SLL (90° Spill Light Eliminator Left)



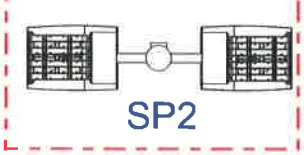
SLR (90° Spill Light Eliminator Right)



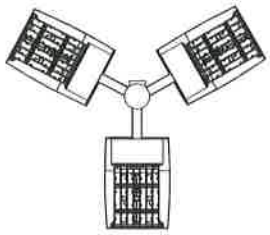
ARM MOUNTING REQUIREMENTS

Configuration	90° Apart	120° Apart
GLEON-AE-01	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-02	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-03	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-04	7" Arm (Standard)	7" Arm (Standard)
GLEON-AE-05	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AE-06	10" Extended Arm (Required)	7" Arm (Standard)
GLEON-AE-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AE-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GLEON-AE-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GLEON-AE-10	16" Extended Arm (Required)	16" Extended Arm (Required)

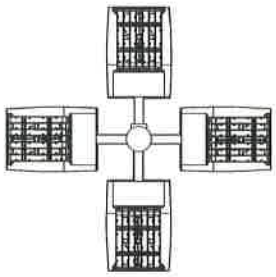
2 @ 180°



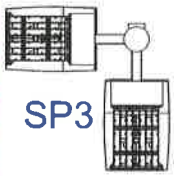
Triple[1]



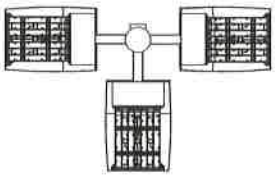
4 @ 90°



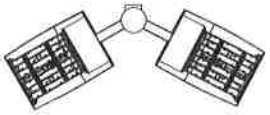
2 @ 90°



Triple[2]



2 @ 120°



Cooper Lighting by EATON

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

Eaton's Cooper Lighting Business
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.cooperlighting.com

Specifications and dimensions subject to change without notice

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

NOMINAL POWER AND LUMENS (1A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Drive Current		1A	1A	1A	1A	1A	1A	1A	1A	1A	1A
Nominal Power (Watts)		56	107	157	213	264	315	370	421	475	528
Input Current @ 120V (A)		0.47	0.90	1.31	1.79	2.21	2.64	3.09	3.51	3.96	4.41
Input Current @ 208V (A)		0.28	0.51	0.74	1.02	1.25	1.48	1.76	1.99	2.22	2.50
Input Current @ 240V (A)		0.25	0.45	0.65	0.90	1.10	1.30	1.55	1.75	1.95	2.20
Input Current @ 277V (A)		0.23	0.41	0.59	0.82	1.00	1.18	1.41	1.59	1.77	2.00
Optics											
T2	Lumens	5,272	10,303	15,373	20,313	25,168	30,118	35,618	40,357	45,018	49,842
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
T2R	Lumens	5,597	10,938	16,321	21,565	26,719	31,974	37,813	42,844	47,792	52,914
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4	B4-U0-G5
T3	Lumens	5,374	10,501	15,669	20,704	25,652	30,697	36,303	41,134	45,884	50,802
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3R	Lumens	5,493	10,735	16,017	21,164	26,222	31,379	37,110	42,048	46,904	51,930
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4FT	Lumens	5,405	10,562	15,760	20,824	25,801	30,875	36,514	41,372	46,150	51,096
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4W	Lumens	5,335	10,426	15,556	20,555	25,468	30,476	36,042	40,838	45,554	50,436
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL2	Lumens	5,263	10,285	15,347	20,278	25,124	30,066	35,556	40,288	44,940	49,756
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL3	Lumens	5,373	10,500	15,667	20,701	25,649	30,693	36,298	41,128	45,878	50,794
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
SL4	Lumens	5,105	9,976	14,886	19,669	24,370	29,163	34,488	39,078	43,591	48,262
	BUG Rating	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	Lumens	5,542	10,830	16,160	21,352	26,455	31,658	37,439	42,421	47,320	52,392
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4
5MQ	Lumens	5,644	11,029	16,457	21,745	26,942	32,241	38,128	43,202	48,191	53,356
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
5WQ	Lumens	5,659	11,059	16,501	21,803	27,014	32,327	38,230	43,317	48,320	53,498
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
SLL/SLR	Lumens	4,722	9,227	13,767	18,191	22,539	26,971	31,897	36,141	40,315	44,635
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	Lumens	5,492	10,732	16,014	21,159	26,216	31,372	37,101	42,038	46,893	51,918
	BUG Rating	B2-U0-G1	B3-U0-G1	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
AFL	Lumens	5,512	10,771	16,072	21,236	26,311	31,486	37,236	42,191	47,063	52,107
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4

* Nominal data for 4000K CCT.

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Theoretical L70 (Hours)
25°C	> 94%	> 350,000
40°C	> 93%	> 250,000
50°C	> 90%	> 170,000

ORDERING INFORMATION

Sample Number: GLEON-AE-04-LED-E1-T3-GM-700

Product Family	Light Engine	Number of Light Squares [1]	Lamp Type	Voltage	Distribution	Color	Mounting
GLEON=Galleon	**AE**=1A Drive Current	**01**=1 **02**=2 **03**=3 **04**=4 **05**=5 **06**=6 **07**=7 **08**=8 **09**=9 **10**=10	**LED**=Solid State Light Emitting Diodes	**E1**=120-277V **347**=347V [2] **480**=480V [2]	**T2**=Type II **T2R**=Type II Roadway **T3**=Type III **T3R**=Type III Roadway **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **5NQ**=Type V Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **AFL**=Automotive Frontline	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White	**[Blank]**=Arm for Round or Square Pole **EA**=Extended Arm [3] **MA**=Mast Arm Adapter [4] **WM**=Wall Mount

Options (Add as Suffix)

2L=Two Circuits [5, 6]
7030=70 CRI 3000K [7]
7060=70 CRI 6000K [7]
530=Drive Current Factory Set to 530mA [8]
700=Drive Current Factory Set to 700mA [8]
P=Button Type Photocontrol (120, 208, 240 or 277V)
R=NEMA Twistlock Photocontrol Receptacle
HA=50°C High Ambient [6]
MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height [9, 10, 11, 12]
MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height [9, 10, 11, 12]
MS/DIM-L40=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height [9, 10, 11, 12]
MS/X-L08=Bi-Level Motion Sensor, Maximum 8' Mounting Height [11, 12, 13, 14]
MS/X-L20=Bi-Level Motion Sensor, 9' - 20' Mounting Height [10, 11, 14]
MS/X-L40=Bi-Level Motion Sensor, 21' - 40' Mounting Height [10, 11, 14]
DIMRF-LW=LumaWatt Wireless Sensor, Wide Lens for 8' - 16' Mounting Height [13]
DIMRF-LN=LumaWatt Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height [13]
L90=Optics Rotated 90° Left
R90=Optics Rotated 90° Right
MT=Factory Installed Mesh Top
TH=Tool-less Door Hardware
LCF=Light Square Trim Plate Painted to Match Housing
HSS=Factory Installed House Side Shield [15]

Accessories (Order Separately)

OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V
OA/RA1027=NEMA Photocontrol - 480V
OA/RA1201=NEMA Photocontrol - 347V
OA/RA1013=Photocontrol Shorting Cap
OA/RA1014=120V Photocontrol
MA1252=10kV Surge Module Replacement
MA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon
MA1037-XX=2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon
MA1197-XX=3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
MA1188-XX=4 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1189-XX=2 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1190-XX=3 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
MA1191-XX=2 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
MA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon
MA1039-XX=2 @ 180° Tenon Adapter for 3-1/2" O.D. Tenon
MA1192-XX=3 @ 120° Tenon Adapter for 3-1/2" O.D. Tenon
MA1193-XX=4 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
MA1194-XX=2 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
MA1195-XX=3 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
FSIR-100=Wireless Configuration Tool for Occupancy Sensor [16]
GLEON-MT1=Field Installed Mesh Top for 1-4 Light Squares
GLEON-MT2=Field Installed Mesh Top for 5-6 Light Squares
GLEON-MT3=Field Installed Mesh Top for 7-8 Light Squares
GLEON-MT4=Field Installed Mesh Top for 9-10 Light Squares
LS/HSS=Field Installed House Side Shield [15, 17]

Notes:
1. Standard 4000K CCT and minimum 70 CRI.
2. LumaWatt Wireless Sensors not currently available for 347V or 480V applications.
3. May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
4. Factory installed.
5. Only available in 5-10 Light Squares.
6. Not available with LumaWatt wireless sensors.
7. Use dedicated IES files for 3000K and 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website.
8. 1 Amp standard. Use dedicated IES files for 530mA and 700mA when performing layouts. These files are published on the Navion luminaire product page on the website.
9. Must specify dimming driver. Consult factory for more information.
10. 120V or 277V 60Hz and 230V 50Hz only. Replace E1 with specific voltage. Consult factory for availability in 347V and 480V.
11. The FSIR-100 accessory is required to adjust parameters.
12. Not available with HA option.
13. LumaWatt wireless sensors are factory installed only requiring network components RF-EM1, RF-GW1 and RF-ROUT1 in appropriate quantities. See www.cooperlighting.com for LumaWatt application information.
14. Sensor mounted externally. Available in 2, 3, 4, or 6 Light Square configurations. Replace "X" with number of Light Squares in low output mode. For ON/OFF operation, replace "X" with "0". Maximum two Light Squares in low output mode. Not available with dimming driver. No terminal block with bi-level operation.
15. Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected.
16. This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your Eaton's Cooper Lighting business representative for additional details.
17. One required for each Light Square.

Attachment: McGraw Edison Lighting (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

CITY OF REYNOLDSBURG

Board of Zoning and Building Appeals

April 21, 2016 Meeting

Due to the size
of the plans,
plans pertaining
to this packet
may be viewed
at the
City of Reynoldsburg
Department of Development.

Attachment: Large Plans (1392 : 6630 E. Main St.; Application #173128; Applicant: Tony Fredenberg)

The Kroger Co.

Statement of Practical Difficutly

Reynoldsburg, Ohio

The Kroger Company ("Kroger"), the applicant in this City of Reynoldsburg Board of Zoning and Building Appeals (BZBA) request, seeks necessary entitlements to accommodate and foster the development and redevelopment of the subject property. The development proposal is for a new Kroger grocery and fuel center, and a future phase of new retail development, northwest of the intersection of East Main Street and Rosehill Road, on a total of 16.47+/- acres. The subject property has long been a development, and an economic development, target for the City of Reynoldsburg. As it exists, the property is grossly underutilized, and its current development is totally inconsistent with a vibrant commercial corridor.

Today the property consists of thirteen (13) separate parcels, among six (6) different property owners. Kroger has contracts to purchase the properties, and has worked diligently in this complicated assemblage, which is critical for any unified redevelopment of this property to occur. The subject property is all zoned in the CC, Community Commerce District, and is also located within the Main Street Community Commercial Overlay District. Though zoned CC, the land uses across the thirteen (13) properties varies, and includes undeveloped property, a horse barn, single-family residential, office, general retail, and a trailer park - most of which are obviously inconsistent with the long-term planning and economic development goals of any commercial corridor, in any city.

Among the complicating factors with this redevelopment proposal is that the current zoning regulations in Reynoldsburg do not include a planned commercial district, which would allow an applicant to draft applicable zoning development standards, and to commit to and register a site plan consistent with those development standards, which are ultimately memorialized in zoning legislation for the property. Nevertheless, more often than not there are multiple means of addressing an issue, and fortunately an alternative method of achieving the necessary result is through a series of development standard variances from the BZBA.

The following variances from the Reynoldsburg Zoning Code (RZC) are requested:

RZC Section 1175.08 – Side and Rear Yard Requirements for Non-Dwelling Uses Abutting Residential Districts

This section requires a fifty (50') foot pavement setback, and a one hundred twenty (120') foot building setback from adjacent residential districts for all commercial uses. Here, the applicant requests a reduction to a minimum of twenty (20') feet for the pavement setback, and a minimum of seventy-two (72') for the building setback.

In mitigation of these requirements, the applicant commits to the attached landscape plan which reflects the appropriate combination of mounding, landscaping, and fencing along the entirety of the northern perimeter of the property. At the twenty (20') foot setback location for the pavement the applicant proposes the installation of a six (6') board on board fence for screening.

Attachment: Variances (1393 : 6630 E. Main St.; Application #173129; Applicant: Tony Fredenberg)

RZC Section 1196.05(a) – Site Orientation

This section requires the build-to-line for a building to be twenty (20') feet, with up to 50% allowed to be between fifteen (15') feet and thirty-five (35') feet. Here the applicant requests to have the building setback beyond the thirty-four (34') foot corridor setback, and beyond its parking field, as reflected on the attached Site Plan. Strict compliance with this regulation is not possible. Among the major grocers in this region, Kroger understands its customer base, and is dedicated to providing an exceptional service and the most "user-friendly" interface with its customers possible. The model, with store towards the back of the property, and the parking field in the front along the commercial corridor is a time-tested, proven model, that is preferred by customers.

RZC Section 1196.05(b) – Site Orientation

Like subsection (a) of 1196.05 discussed above, because this property has frontage on two rights-of-way, Rose Hill Road not being a primary street, this section requires a build-to-line of between ten (10') feet and twenty (20') feet, with certain encroachment allowances for items such as signage and porticos. Here, the intersection of Rose Hill Road and East Main Street is exceptionally important to the views into, and visibility of, the Kroger store and therefore Kroger cannot construct at these setbacks. This Phase 2 area for retail development is important to Kroger, both in terms of location of the future building and the end-user. The setback from Rose Hill Road will ultimately likely be between seventy-five (75') feet and one hundred (100') feet from the western property line.

RZC Section 1196.07(e) – Design Standards

This section requires facades adjacent to the primary building frontage to continue the pattern of window glass a minimum of ten (10') feet. Here the applicant requests to not continue the window glass pattern on adjacent facades. This application typically lends itself to a different building type, however due to internal fixturing for a Kroger grocery, creates practical difficulties.

RZC Section 1196.09(c) – Design Standards

This section provides a maximum height of eighteen (18') feet for parking lot lighting. Here, the applicant requires forty (40') feet. These lights will be cut-off fixtures, directing light downward, and will not inappropriately spill light off-site or be detrimental to any surrounding property. A grocery this size requires a considerable parking field, and for customer safety must be well lit. This major grocer applicant understands how best to provide the type of lighting necessary while not having any impacts off-site.

RZC Section 1196.10(a) – Parking and Circulation

This section provides that parking is required to be on the side of a principal building. The applicant requests to have parking located between the principal building and the street, as reflected on the Site Plan.

RZC Section 1196.10(b) – Parking and Circulation

This section works in conjunction with subsection (a) immediately above, and provides specific guidance to that regulation. It provides that the parking is to be located in the rear of the building, but that half of

Attachment: Variances (1393 : 6630 E. Main St.; Application #173129; Applicant: Tony Fredenberg)

the parking may be located to the side of the building. Here, the primary parking field is located in front of the building.

The RZC provides standards for the BZBA to consider in weighing variance requests. Those standards from RZC Section 1147.05 are hereafter stated in italics, and individually addressed.

(a) The variance is in accord with the general purpose and intent of the regulations imposed by this Code in the district in which it is located, and shall not be injurious to the area or otherwise detrimental to the public welfare.

With the exception of Section 1175.08 requiring screening and buffering between commercial uses, these are regulations that seek to achieve a certain aesthetic, and were never intended to be strictly applicable to a Main Street assemblage of nearly 16.5 acres, nor were they ever intended to prohibit, or be overly burdensome to, an important Main Street development and redevelopment. Overlay standards have their place, though implementation of such standards across a development of this size and scope is neither practical, nor in this instance economically or operationally feasible in terms of how a grocery store operates. Section 1175.08 provides an important buffering function, and with the applicant's proposal to buffer any of its perimeter that includes residential it meets the spirit, if not the letter, of the requirement. The applicant proposes a combination of mounding, fencing, and landscaping, to more than adequately buffer this perimeter. This request is in accord with the general purpose and intent of the RZC, and of this neighborhood in particular. When approved, these variances will in no way be injurious to this area, or otherwise be detrimental in any way to the public welfare. This is a Main Street commercial development and redevelopment, on property long desired for development within the City of Reynoldsburg. This development creates jobs in the community, and boosts the tax base for the City. This is a beneficial development.

(b) The variance will not permit the establishment of any use which is not otherwise listed as a permitted use or special exception in the district, or which is expressly or by implication prohibited by this Code.

RZC Section 1175.04 – Permitted Uses and Special Exceptions specifically provides that retail stores are permitted. Further, RZC Section 1161.04 – Commercial Districts, provides in subsection (c) addressing the CC, Community Commerce District, "[t]he CC Community Commerce District provides land for the concentration of a wide variety of business establishments which are centrally located and provide adequate parking. Such district must also be located adjacent to major thoroughfares, have restricted points of access and be screened or fenced from surrounding residential areas. These variances <u>will not</u> permit the establishment of any use which is not expressly permitted in the existing CC, Community Commerce District.

Attachment: Variances (1393 : 6630 E. Main St.; Application #173129; Applicant: Tony Fredenberg)

(c) *There exist special circumstances or conditions, fully described in the findings, applicable to the land or structures for which the variance is sought, which are peculiar to such land or structures and which do not apply generally to land or structures in the area, and which are such that the strict application of the provisions of this Code would deprive the property owner of the reasonable use of such land or structures. There must be deprivation of beneficial use of land, as opposed to mere loss in value as justification for the variance.*

This entire development / redevelopment is a special circumstance and condition. As stated above, this is a very difficult 16.5+/- acre assemblage on Main Street, Reynoldsburg's primary commercial corridor, that consists of thirteen (13) different tax parcels and six (6) different property owners. This proposal affords the opportunity for this property – long deemed a development and redevelopment target – to develop in a way generally beneficial to the economic development objectives of the City of Reynoldsburg. This property is, and has been totally underdeveloped, it houses a mix of uses, most of which are inappropriate along any commercial corridor: single-family residential, a barn, a field, and a trailer park. This proposal brings jobs, and generally increases the tax base for the City. Kroger is in the grocery business. They are an effective and proven leader in their market, and the region generally. They know how to interface with their customer base, and how to deliver a quality product to the marketplace. Their proposal meets the spirit of the RZC generally, strict compliance with these mostly aesthetic requirements is practically difficult for this applicant to meet. It would decrease their ability to effectively serve the market. Its landscaping plan, attached hereto, will more than adequately buffer the commercial use from all surrounding residentially zoned and use properties, and it is imperative for a parking lot of this size that it be well lit for safety of ingress, egress, and circulation through the parking lot and aisles, and the light poles requested by Kroger are what the corporation believes is necessary to achieve this critical objective. These special circumstances and conditions warrant the grant of the requested variances.

(d) *There is proof of hardship or practical difficulty created by the strict application of this Code, beyond simply a showing that greater profit will result if the variance is granted. Economic hardship is not grounds for the variance. Furthermore, the hardship complained is not self-created nor is it established on this basis by one who purchased with or without knowledge of the restrictions. The hardship results from the application of this Code and is suffered directly by the property in question.*

These variance requests are neither about profit, nor economic hardship. Further the practical difficulties created by strict compliance with the regulations is not self-created, nor is there an effort to establish the warrant of these variances on the basis of knowledge, or lack thereof, of the restrictions. These difficulties occur from the application of certain provisions of the RZC and strict application prove practically difficult for this applicant, for this development / redevelopment proposal, to meet. Strict application of these regulations would deny this applicant its proven method of delivering its product to the marketplace. With the variances to the residential perimeter buffer and the light pole height, the proposal meets the spirit of the requirement. The perimeter is more than adequately buffered through a combination of mounding, landscaping, and fencing. The light pole height is what is required to adequately light the parking lot and drive aisles. This is all done in a way that does not detract from the overall aesthetic of the property. Overall this constitutes an improvement to the aesthetic of the property today, and a much better use of the property that it houses today.

Attachment: Variances (1393 : 6630 E. Main St.; Application #173129; Applicant: Tony Fredenberg)

(e) The variance is necessary for the reasonable use of the land or building, and the variance as granted is the minimum variance that will accomplish this purpose.

These variances are necessary for the reasonable use of the land and building, and they are the minimum necessary to accomplish this purpose. Strict application, which would require a radical revision to this applicant's typical development and course of business, would be unreasonable. These variances accommodate this important Main Street development / redevelopment. None of the variances requested are substantial, and none will be detrimental to any surrounding owner or the City of Reynoldsburg in general. Accommodating this proposal is in the City of Reynoldsburg's interest in terms of both land use for this property, and its economic development goals of job creation, and tax base increase, through collaboration with corporate entities that are proven, such as this applicant.

(f) The variance will not impair an adequate supply of light and air to adjacent property, substantially increase the congestion of public streets, increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area.

When granted, these variances will not impair an adequate supply of light and air to any adjacent property, this development will not substantially increase the congestion of public streets – in proof of that a traffic study is submitted with the application, these variances will not increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area. Without a doubt this is an important development / redevelopment and furthers the land use and economic development goals of the City of Reynoldsburg. None of the variances requested are detrimental to the quality of life of surrounding owners, or the residents of the City of Reynoldsburg generally.

(g) The variance will not confer on the property owner any special privilege that is unduly denied by this Code to other land, structures, or buildings in the same district.

Every proposal is unique, every property is unique, and each must be considered on its own merits taking into consideration the totality of the circumstances. Here, we have a 16.5 acre assemblage across thirteen (13) properties and six (6)separate land owners, all done in furtherance of an opportunity for this applicant to improve its service to the City of Reynoldsburg, while at the same time meeting the long-term land use and economic development objectives of the City. The unusual circumstances here are compelling to allow this corporate citizen to implement a reasonable development that it believes is critical to providing the best possible experience to its customer base. Kroger's belief that the development it proposes is what is necessary comes from its extensive experience across this community and region. Every circumstance is different and unique, and if another entity comes forward with a significant property assemblage such as this, it ought to be judged on its own merit rather than a one-size-fits-all overlay, or any other land development regulation. No special privilege would be granted to this applicant should the variances be granted.

(h) No nonconforming use of neighboring land or structures in the same district and no permitted or nonconforming use of land or structures in other districts are considered as ground for approval of the variance.

Neither of those is claimed here by the applicant, though it is worth noting that the proposal does address an issue of existing legal non-conforming uses on this property. Neither the single-family residences, nor

the trailer park, are CC-Community Commerce District uses and this proposal introduces development consistent with that zoning classification.

(i) *The variance is not a matter of convenience when other remedies are available within the provisions of this Code.*

These variances are not a matter of convenience to the applicant, but are rather matters of necessity. These variances are necessary for the applicant to bring this important development to the community, and are the minimum necessary to do so. There are presently no other remedies available within the provisions of the RZC.

Having demonstrated that its variance requests meet or exceed the standards for variance as provided by RZC Section 1147.05, the applicant respectfully requests that each of its variance requests be granted.

Respectfully submitted,

The Kroger Co.

By: David Hoffman - attorney

Date: March 24, 2016

Attachment: Variances (1393 : 6630 E. Main St.; Application #173129; Applicant: Tony Fredenberg)

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Attachment: Variances (1394 : 6630 E. Main St.; Application #173130; Applicant: Tony Fredenberg)

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Attachment: Variances (1394 : 6630 E. Main St.; Application #173130; Applicant: Tony Fredenberg)

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(c) *There exist special circumstances or conditions, fully described in the findings, applicable to the land or structures for which the variance is sought, which are peculiar to such land or structures and which do not apply generally to land or structures in the area, and which are such that the strict application of the provisions of this Code would deprive the property owner of the reasonable use of such land or structures. There must be deprivation of beneficial use of land, as opposed to mere loss in value as justification for the variance.*

This entire development / redevelopment is a special circumstance and condition. As stated above, this is a very difficult 16.5+/- acre assemblage on Main Street, Reynoldsburg's primary commercial corridor, that consists of thirteen (13) different tax parcels and six (6) different property owners. This proposal affords the opportunity for this property – long deemed a development and redevelopment target – to develop in a way generally beneficial to the economic development objectives of the City of Reynoldsburg. This property is, and has been totally underdeveloped, it houses a mix of uses, most of which are inappropriate along any commercial corridor: single-family residential, a barn, a field, and a trailer park. This proposal brings jobs, and generally increases the tax base for the City. Kroger is in the grocery business. They are an effective and proven leader in their market, and the region generally. They know how to interface with their customer base, and how to deliver a quality product to the marketplace. Their proposal meets the spirit of the RZC generally, strict compliance with these mostly aesthetic requirements is practically difficult for this applicant to meet. It would decrease their ability to effectively serve the market. Its landscaping plan, attached hereto, will more than adequately buffer the commercial use from all surrounding residentially zoned and use properties, and it is imperative for a parking lot of this size that it be well lit for safety of ingress, egress, and circulation through the parking lot and aisles, and the light poles requested by Kroger are what the corporation believes is necessary to achieve this critical objective. These special circumstances and conditions warrant the grant of the requested variances.

(d) *There is proof of hardship or practical difficulty created by the strict application of this Code, beyond simply a showing that greater profit will result if the variance is granted. Economic hardship is not grounds for the variance. Furthermore, the hardship complained is not self-created nor is it established on this basis by one who purchased with or without knowledge of the restrictions. The hardship results from the application of this Code and is suffered directly by the property in question.*

These variance requests are neither about profit, nor economic hardship. Further the practical difficulties created by strict compliance with the regulations is not self-created, nor is there an effort to establish the warrant of these variances on the basis of knowledge, or lack thereof, of the restrictions. These difficulties occur from the application of certain provisions of the RZC and strict application prove practically difficult for this applicant, for this development / redevelopment proposal, to meet. Strict application of these regulations would deny this applicant its proven method of delivering its product to the marketplace. With the variances to the residential perimeter buffer and the light pole height, the proposal meets the spirit of the requirement. The perimeter is more than adequately buffered through a combination of mounding, landscaping, and fencing. The light pole height is what is required to adequately light the parking lot and drive aisles. This is all done in a way that does not detract from the overall aesthetic of the property. Overall this constitutes an improvement to the aesthetic of the property today, and a much better use of the property that it houses today.

Attachment: Variances (1394 : 6630 E. Main St.; Application #173130; Applicant: Tony Fredenberg)

(e) The variance is necessary for the reasonable use of the land or building, and the variance as granted is the minimum variance that will accomplish this purpose.

These variances are necessary for the reasonable use of the land and building, and they are the minimum necessary to accomplish this purpose. Strict application, which would require a radical revision to this applicant's typical development and course of business, would be unreasonable. These variances accommodate this important Main Street development / redevelopment. None of the variances requested are substantial, and none will be detrimental to any surrounding owner or the City of Reynoldsburg in general. Accommodating this proposal is in the City of Reynoldsburg's interest in terms of both land use for this property, and its economic development goals of job creation, and tax base increase, through collaboration with corporate entities that are proven, such as this applicant.

(f) The variance will not impair an adequate supply of light and air to adjacent property, substantially increase the congestion of public streets, increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area.

When granted, these variances will not impair an adequate supply of light and air to any adjacent property, this development will not substantially increase the congestion of public streets – in proof of that a traffic study is submitted with the application, these variances will not increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area. Without a doubt this is an important development / redevelopment and furthers the land use and economic development goals of the City of Reynoldsburg. None of the variances requested are detrimental to the quality of life of surrounding owners, or the residents of the City of Reynoldsburg generally.

(g) The variance will not confer on the property owner any special privilege that is unduly denied by this Code to other land, structures, or buildings in the same district.

Every proposal is unique, every property is unique, and each must be considered on its own merits taking into consideration the totality of the circumstances. Here, we have a 16.5 acre assemblage across thirteen (13) properties and six (6)separate land owners, all done in furtherance of an opportunity for this applicant to improve its service to the City of Reynoldsburg, while at the same time meeting the long-term land use and economic development objectives of the City. The unusual circumstances here are compelling to allow this corporate citizen to implement a reasonable development that it believes is critical to providing the best possible experience to its customer base. Kroger's belief that the development it proposes is what is necessary comes from its extensive experience across this community and region. Every circumstance is different and unique, and if another entity comes forward with a significant property assemblage such as this, it ought to be judged on its own merit rather than a one-size-fits-all overlay, or any other land development regulation. No special privilege would be granted to this applicant should the variances be granted.

(h) No nonconforming use of neighboring land or structures in the same district and no permitted or nonconforming use of land or structures in other districts are considered as ground for approval of the variance.

Neither of those is claimed here by the applicant, though it is worth noting that the proposal does address an issue of existing legal non-conforming uses on this property. Neither the single-family residences, nor

the trailer park, are CC-Community Commerce District uses and this proposal introduces development consistent with that zoning classification.

(i) The variance is not a matter of convenience when other remedies are available within the provisions of this Code.

These variances are not a matter of convenience to the applicant, but are rather matters of necessity. These variances are necessary for the applicant to bring this important development to the community, and are the minimum necessary to do so. There are presently no other remedies available within the provisions of the RZC.

Having demonstrated that its variance requests meet or exceed the standards for variance as provided by RZC Section 1147.05, the applicant respectfully requests that each of its variance requests be granted.

Respectfully submitted,

The Kroger Co.

By: David Hoffman - attorney

Date: March 24, 2016

Attachment: Variances (1394 : 6630 E. Main St.; Application #173130; Applicant: Tony Fredenberg)

The Kroger Co.

Statement of Practical Difficutly

Reynoldsburg, Ohio

The Kroger Company ("Kroger"), the applicant in this City of Reynoldsburg Board of Zoning and Building Appeals (BZBA) request, seeks necessary entitlements to accommodate and foster the development and redevelopment of the subject property. The development proposal is for a new Kroger grocery and fuel center, and a future phase of new retail development, northwest of the intersection of East Main Street and Rosehill Road, on a total of 16.47+/- acres. The subject property has long been a development, and an economic development, target for the City of Reynoldsburg. As it exists, the property is grossly underutilized, and its current development is totally inconsistent with a vibrant commercial corridor.

Today the property consists of thirteen (13) separate parcels, among six (6) different property owners. Kroger has contracts to purchase the properties, and has worked diligently in this complicated assemblage, which is critical for any unified redevelopment of this property to occur. The subject property is all zoned in the CC, Community Commerce District, and is also located within the Main Street Community Commercial Overlay District. Though zoned CC, the land uses across the thirteen (13) properties varies, and includes undeveloped property, a horse barn, single-family residential, office, general retail, and a trailer park - most of which are obviously inconsistent with the long-term planning and economic development goals of any commercial corridor, in any city.

Among the complicating factors with this redevelopment proposal is that the current zoning regulations in Reynoldsburg do not include a planned commercial district, which would allow an applicant to draft applicable zoning development standards, and to commit to and register a site plan consistent with those development standards, which are ultimately memorialized in zoning legislation for the property. Nevertheless, more often than not there are multiple means of addressing an issue, and fortunately an alternative method of achieving the necessary result is through a series of development standard variances from the BZBA.

The following variances from the Reynoldsburg Zoning Code (RZC) are requested:

RZC Section 1175.08 – Side and Rear Yard Requirements for Non-Dwelling Uses Abutting Residential Districts

This section requires a fifty (50') foot pavement setback, and a one hundred twenty (120') foot building setback from adjacent residential districts for all commercial uses. Here, the applicant requests a reduction to a minimum of twenty (20') feet for the pavement setback, and a minimum of seventy-two (72') for the building setback.

In mitigation of these requirements, the applicant commits to the attached landscape plan which reflects the appropriate combination of mounding, landscaping, and fencing along the entirety of the northern perimeter of the property. At the twenty (20') foot setback location for the pavement the applicant proposes the installation of a six (6') board on board fence for screening.

Attachment: Variances (1395 : 6630 E. Main St.; Application #173131; Applicant: Tony Fredenberg)

RZC Section 1196.05(a) – Site Orientation

This section requires the build-to-line for a building to be twenty (20') feet, with up to 50% allowed to be between fifteen (15') feet and thirty-five (35') feet. Here the applicant requests to have the building setback beyond the thirty-four (34') foot corridor setback, and beyond its parking field, as reflected on the attached Site Plan. Strict compliance with this regulation is not possible. Among the major grocers in this region, Kroger understands its customer base, and is dedicated to providing an exceptional service and the most "user-friendly" interface with its customers possible. The model, with store towards the back of the property, and the parking field in the front along the commercial corridor is a time-tested, proven model, that is preferred by customers.

RZC Section 1196.05(b) – Site Orientation

Like subsection (a) of 1196.05 discussed above, because this property has frontage on two rights-of-way, Rose Hill Road not being a primary street, this section requires a build-to-line of between ten (10') feet and twenty (20') feet, with certain encroachment allowances for items such as signage and porticos. Here, the intersection of Rose Hill Road and East Main Street is exceptionally important to the views into, and visibility of, the Kroger store and therefore Kroger cannot construct at these setbacks. This Phase 2 area for retail development is important to Kroger, both in terms of location of the future building and the end-user. The setback from Rose Hill Road will ultimately likely be between seventy-five (75') feet and one hundred (100') feet from the western property line.

RZC Section 1196.07(e) – Design Standards

This section requires facades adjacent to the primary building frontage to continue the pattern of window glass a minimum of ten (10') feet. Here the applicant requests to not continue the window glass pattern on adjacent facades. This application typically lends itself to a different building type, however due to internal fixturing for a Kroger grocery, creates practical difficulties.

RZC Section 1196.09(c) – Design Standards

This section provides a maximum height of eighteen (18') feet for parking lot lighting. Here, the applicant requires forty (40') feet. These lights will be cut-off fixtures, directing light downward, and will not inappropriately spill light off-site or be detrimental to any surrounding property. A grocery this size requires a considerable parking field, and for customer safety must be well lit. This major grocer applicant understands how best to provide the type of lighting necessary while not having any impacts off-site.

RZC Section 1196.10(a) – Parking and Circulation

This section provides that parking is required to be on the side of a principal building. The applicant requests to have parking located between the principal building and the street, as reflected on the Site Plan.

RZC Section 1196.10(b) – Parking and Circulation

This section works in conjunction with subsection (a) immediately above, and provides specific guidance to that regulation. It provides that the parking is to be located in the rear of the building, but that half of

Attachment: Variances (1395 : 6630 E. Main St.; Application #173131; Applicant: Tony Fredenberg)

the parking may be located to the side of the building. Here, the primary parking field is located in front of the building.

The RZC provides standards for the BZBA to consider in weighing variance requests. Those standards from RZC Section 1147.05 are hereafter stated in italics, and individually addressed.

(a) The variance is in accord with the general purpose and intent of the regulations imposed by this Code in the district in which it is located, and shall not be injurious to the area or otherwise detrimental to the public welfare.

With the exception of Section 1175.08 requiring screening and buffering between commercial uses, these are regulations that seek to achieve a certain aesthetic, and were never intended to be strictly applicable to a Main Street assemblage of nearly 16.5 acres, nor were they ever intended to prohibit, or be overly burdensome to, an important Main Street development and redevelopment. Overlay standards have their place, though implementation of such standards across a development of this size and scope is neither practical, nor in this instance economically or operationally feasible in terms of how a grocery store operates. Section 1175.08 provides an important buffering function, and with the applicant's proposal to buffer any of its perimeter that includes residential it meets the spirit, if not the letter, of the requirement. The applicant proposes a combination of mounding, fencing, and landscaping, to more than adequately buffer this perimeter. This request is in accord with the general purpose and intent of the RZC, and of this neighborhood in particular. When approved, these variances will in no way be injurious to this area, or otherwise be detrimental in any way to the public welfare. This is a Main Street commercial development and redevelopment, on property long desired for development within the City of Reynoldsburg. This development creates jobs in the community, and boosts the tax base for the City. This is a beneficial development.

(b) The variance will not permit the establishment of any use which is not otherwise listed as a permitted use or special exception in the district, or which is expressly or by implication prohibited by this Code.

RZC Section 1175.04 – Permitted Uses and Special Exceptions specifically provides that retail stores are permitted. Further, RZC Section 1161.04 – Commercial Districts, provides in subsection (c) addressing the CC, Community Commerce District, "[t]he CC Community Commerce District provides land for the concentration of a wide variety of business establishments which are centrally located and provide adequate parking. Such district must also be located adjacent to major thoroughfares, have restricted points of access and be screened or fenced from surrounding residential areas. These variances <u>will not</u> permit the establishment of any use which is not expressly permitted in the existing CC, Community Commerce District.

Attachment: Variances (1395 : 6630 E. Main St.; Application #173131; Applicant: Tony Fredenberg)

(c) *There exist special circumstances or conditions, fully described in the findings, applicable to the land or structures for which the variance is sought, which are peculiar to such land or structures and which do not apply generally to land or structures in the area, and which are such that the strict application of the provisions of this Code would deprive the property owner of the reasonable use of such land or structures. There must be deprivation of beneficial use of land, as opposed to mere loss in value as justification for the variance.*

This entire development / redevelopment is a special circumstance and condition. As stated above, this is a very difficult 16.5+/- acre assemblage on Main Street, Reynoldsburg's primary commercial corridor, that consists of thirteen (13) different tax parcels and six (6) different property owners. This proposal affords the opportunity for this property – long deemed a development and redevelopment target – to develop in a way generally beneficial to the economic development objectives of the City of Reynoldsburg. This property is, and has been totally underdeveloped, it houses a mix of uses, most of which are inappropriate along any commercial corridor: single-family residential, a barn, a field, and a trailer park. This proposal brings jobs, and generally increases the tax base for the City. Kroger is in the grocery business. They are an effective and proven leader in their market, and the region generally. They know how to interface with their customer base, and how to deliver a quality product to the marketplace. Their proposal meets the spirit of the RZC generally, strict compliance with these mostly aesthetic requirements is practically difficult for this applicant to meet. It would decrease their ability to effectively serve the market. Its landscaping plan, attached hereto, will more than adequately buffer the commercial use from all surrounding residentially zoned and use properties, and it is imperative for a parking lot of this size that it be well lit for safety of ingress, egress, and circulation through the parking lot and aisles, and the light poles requested by Kroger are what the corporation believes is necessary to achieve this critical objective. These special circumstances and conditions warrant the grant of the requested variances.

(d) *There is proof of hardship or practical difficulty created by the strict application of this Code, beyond simply a showing that greater profit will result if the variance is granted. Economic hardship is not grounds for the variance. Furthermore, the hardship complained is not self-created nor is it established on this basis by one who purchased with or without knowledge of the restrictions. The hardship results from the application of this Code and is suffered directly by the property in question.*

These variance requests are neither about profit, nor economic hardship. Further the practical difficulties created by strict compliance with the regulations is not self-created, nor is there an effort to establish the warrant of these variances on the basis of knowledge, or lack thereof, of the restrictions. These difficulties occur from the application of certain provisions of the RZC and strict application prove practically difficult for this applicant, for this development / redevelopment proposal, to meet. Strict application of these regulations would deny this applicant its proven method of delivering its product to the marketplace. With the variances to the residential perimeter buffer and the light pole height, the proposal meets the spirit of the requirement. The perimeter is more than adequately buffered through a combination of mounding, landscaping, and fencing. The light pole height is what is required to adequately light the parking lot and drive aisles. This is all done in a way that does not detract from the overall aesthetic of the property. Overall this constitutes an improvement to the aesthetic of the property today, and a much better use of the property that it houses today.

Attachment: Variances (1395 : 6630 E. Main St.; Application #173131; Applicant: Tony Fredenberg)

(e) The variance is necessary for the reasonable use of the land or building, and the variance as granted is the minimum variance that will accomplish this purpose.

These variances are necessary for the reasonable use of the land and building, and they are the minimum necessary to accomplish this purpose. Strict application, which would require a radical revision to this applicant's typical development and course of business, would be unreasonable. These variances accommodate this important Main Street development / redevelopment. None of the variances requested are substantial, and none will be detrimental to any surrounding owner or the City of Reynoldsburg in general. Accommodating this proposal is in the City of Reynoldsburg's interest in terms of both land use for this property, and its economic development goals of job creation, and tax base increase, through collaboration with corporate entities that are proven, such as this applicant.

(f) The variance will not impair an adequate supply of light and air to adjacent property, substantially increase the congestion of public streets, increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area.

When granted, these variances will not impair an adequate supply of light and air to any adjacent property, this development will not substantially increase the congestion of public streets – in proof of that a traffic study is submitted with the application, these variances will not increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area. Without a doubt this is an important development / redevelopment and furthers the land use and economic development goals of the City of Reynoldsburg. None of the variances requested are detrimental to the quality of life of surrounding owners, or the residents of the City of Reynoldsburg generally.

(g) The variance will not confer on the property owner any special privilege that is unduly denied by this Code to other land, structures, or buildings in the same district.

Every proposal is unique, every property is unique, and each must be considered on its own merits taking into consideration the totality of the circumstances. Here, we have a 16.5 acre assemblage across thirteen (13) properties and six (6)separate land owners, all done in furtherance of an opportunity for this applicant to improve its service to the City of Reynoldsburg, while at the same time meeting the long-term land use and economic development objectives of the City. The unusual circumstances here are compelling to allow this corporate citizen to implement a reasonable development that it believes is critical to providing the best possible experience to its customer base. Kroger's belief that the development it proposes is what is necessary comes from its extensive experience across this community and region. Every circumstance is different and unique, and if another entity comes forward with a significant property assemblage such as this, it ought to be judged on its own merit rather than a one-size-fits-all overlay, or any other land development regulation. No special privilege would be granted to this applicant should the variances be granted.

(h) No nonconforming use of neighboring land or structures in the same district and no permitted or nonconforming use of land or structures in other districts are considered as ground for approval of the variance.

Neither of those is claimed here by the applicant, though it is worth noting that the proposal does address an issue of existing legal non-conforming uses on this property. Neither the single-family residences, nor

the trailer park, are CC-Community Commerce District uses and this proposal introduces development consistent with that zoning classification.

(i) The variance is not a matter of convenience when other remedies are available within the provisions of this Code.

These variances are not a matter of convenience to the applicant, but are rather matters of necessity. These variances are necessary for the applicant to bring this important development to the community, and are the minimum necessary to do so. There are presently no other remedies available within the provisions of the RZC.

Having demonstrated that its variance requests meet or exceed the standards for variance as provided by RZC Section 1147.05, the applicant respectfully requests that each of its variance requests be granted.

Respectfully submitted,

The Kroger Co.

By: David Hoffman - attorney

Date: March 24, 2016

Attachment: Variances (1395 : 6630 E. Main St.; Application #173131; Applicant: Tony Fredenberg)

The Kroger Co.

Statement of Practical Difficutly

Reynoldsburg, Ohio

The Kroger Company ("Kroger"), the applicant in this City of Reynoldsburg Board of Zoning and Building Appeals (BZBA) request, seeks necessary entitlements to accommodate and foster the development and redevelopment of the subject property. The development proposal is for a new Kroger grocery and fuel center, and a future phase of new retail development, northwest of the intersection of East Main Street and Rosehill Road, on a total of 16.47+/- acres. The subject property has long been a development, and an economic development, target for the City of Reynoldsburg. As it exists, the property is grossly underutilized, and its current development is totally inconsistent with a vibrant commercial corridor.

Today the property consists of thirteen (13) separate parcels, among six (6) different property owners. Kroger has contracts to purchase the properties, and has worked diligently in this complicated assemblage, which is critical for any unified redevelopment of this property to occur. The subject property is all zoned in the CC, Community Commerce District, and is also located within the Main Street Community Commercial Overlay District. Though zoned CC, the land uses across the thirteen (13) properties varies, and includes undeveloped property, a horse barn, single-family residential, office, general retail, and a trailer park - most of which are obviously inconsistent with the long-term planning and economic development goals of any commercial corridor, in any city.

Among the complicating factors with this redevelopment proposal is that the current zoning regulations in Reynoldsburg do not include a planned commercial district, which would allow an applicant to draft applicable zoning development standards, and to commit to and register a site plan consistent with those development standards, which are ultimately memorialized in zoning legislation for the property. Nevertheless, more often than not there are multiple means of addressing an issue, and fortunately an alternative method of achieving the necessary result is through a series of development standard variances from the BZBA.

The following variances from the Reynoldsburg Zoning Code (RZC) are requested:

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In mitigation of these requirements, the applicant commits to the attached landscape plan which reflects the appropriate combination of mounding, landscaping, and fencing along the entirety of the northern perimeter of the property. At the twenty (20') foot setback location for the pavement the applicant proposes the installation of a six (6') board on board fence for screening.

Attachment: Variances (1396 : 6630 E. Main St.; Application #173132; Applicant: Tony Fredenberg)

RZC Section 1196.05(a) – Site Orientation

This section requires the build-to-line for a building to be twenty (20') feet, with up to 50% allowed to be between fifteen (15') feet and thirty-five (35') feet. Here the applicant requests to have the building setback beyond the thirty-four (34') foot corridor setback, and beyond its parking field, as reflected on the attached Site Plan. Strict compliance with this regulation is not possible. Among the major grocers in this region, Kroger understands its customer base, and is dedicated to providing an exceptional service and the most "user-friendly" interface with its customers possible. The model, with store towards the back of the property, and the parking field in the front along the commercial corridor is a time-tested, proven model, that is preferred by customers.

RZC Section 1196.05(b) – Site Orientation

Like subsection (a) of 1196.05 discussed above, because this property has frontage on two rights-of-way, Rose Hill Road not being a primary street, this section requires a build-to-line of between ten (10') feet and twenty (20') feet, with certain encroachment allowances for items such as signage and porticos. Here, the intersection of Rose Hill Road and East Main Street is exceptionally important to the views into, and visibility of, the Kroger store and therefore Kroger cannot construct at these setbacks. This Phase 2 area for retail development is important to Kroger, both in terms of location of the future building and the end-user. The setback from Rose Hill Road will ultimately likely be between seventy-five (75') feet and one hundred (100') feet from the western property line.

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(c) *There exist special circumstances or conditions, fully described in the findings, applicable to the land or structures for which the variance is sought, which are peculiar to such land or structures and which do not apply generally to land or structures in the area, and which are such that the strict application of the provisions of this Code would deprive the property owner of the reasonable use of such land or structures. There must be deprivation of beneficial use of land, as opposed to mere loss in value as justification for the variance.*

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(d) *There is proof of hardship or practical difficulty created by the strict application of this Code, beyond simply a showing that greater profit will result if the variance is granted. Economic hardship is not grounds for the variance. Furthermore, the hardship complained is not self-created nor is it established on this basis by one who purchased with or without knowledge of the restrictions. The hardship results from the application of this Code and is suffered directly by the property in question.*

These variance requests are neither about profit, nor economic hardship. Further the practical difficulties created by strict compliance with the regulations is not self-created, nor is there an effort to establish the warrant of these variances on the basis of knowledge, or lack thereof, of the restrictions. These difficulties occur from the application of certain provisions of the RZC and strict application prove practically difficult for this applicant, for this development / redevelopment proposal, to meet. Strict application of these regulations would deny this applicant its proven method of delivering its product to the marketplace. With the variances to the residential perimeter buffer and the light pole height, the proposal meets the spirit of the requirement. The perimeter is more than adequately buffered through a combination of mounding, landscaping, and fencing. The light pole height is what is required to adequately light the parking lot and drive aisles. This is all done in a way that does not detract from the overall aesthetic of the property. Overall this constitutes an improvement to the aesthetic of the property today, and a much better use of the property that it houses today.

Attachment: Variances (1396 : 6630 E. Main St.; Application #173132; Applicant: Tony Fredenberg)

(e) The variance is necessary for the reasonable use of the land or building, and the variance as granted is the minimum variance that will accomplish this purpose.

These variances are necessary for the reasonable use of the land and building, and they are the minimum necessary to accomplish this purpose. Strict application, which would require a radical revision to this applicant's typical development and course of business, would be unreasonable. These variances accommodate this important Main Street development / redevelopment. None of the variances requested are substantial, and none will be detrimental to any surrounding owner or the City of Reynoldsburg in general. Accommodating this proposal is in the City of Reynoldsburg's interest in terms of both land use for this property, and its economic development goals of job creation, and tax base increase, through collaboration with corporate entities that are proven, such as this applicant.

(f) The variance will not impair an adequate supply of light and air to adjacent property, substantially increase the congestion of public streets, increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area.

When granted, these variances will not impair an adequate supply of light and air to any adjacent property, this development will not substantially increase the congestion of public streets – in proof of that a traffic study is submitted with the application, these variances will not increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area. Without a doubt this is an important development / redevelopment and furthers the land use and economic development goals of the City of Reynoldsburg. None of the variances requested are detrimental to the quality of life of surrounding owners, or the residents of the City of Reynoldsburg generally.

(g) The variance will not confer on the property owner any special privilege that is unduly denied by this Code to other land, structures, or buildings in the same district.

Every proposal is unique, every property is unique, and each must be considered on its own merits taking into consideration the totality of the circumstances. Here, we have a 16.5 acre assemblage across thirteen (13) properties and six (6)separate land owners, all done in furtherance of an opportunity for this applicant to improve its service to the City of Reynoldsburg, while at the same time meeting the long-term land use and economic development objectives of the City. The unusual circumstances here are compelling to allow this corporate citizen to implement a reasonable development that it believes is critical to providing the best possible experience to its customer base. Kroger's belief that the development it proposes is what is necessary comes from its extensive experience across this community and region. Every circumstance is different and unique, and if another entity comes forward with a significant property assemblage such as this, it ought to be judged on its own merit rather than a one-size-fits-all overlay, or any other land development regulation. No special privilege would be granted to this applicant should the variances be granted.

(h) No nonconforming use of neighboring land or structures in the same district and no permitted or nonconforming use of land or structures in other districts are considered as ground for approval of the variance.

Neither of those is claimed here by the applicant, though it is worth noting that the proposal does address an issue of existing legal non-conforming uses on this property. Neither the single-family residences, nor

the trailer park, are CC-Community Commerce District uses and this proposal introduces development consistent with that zoning classification.

(i) The variance is not a matter of convenience when other remedies are available within the provisions of this Code.

These variances are not a matter of convenience to the applicant, but are rather matters of necessity. These variances are necessary for the applicant to bring this important development to the community, and are the minimum necessary to do so. There are presently no other remedies available within the provisions of the RZC.

Having demonstrated that its variance requests meet or exceed the standards for variance as provided by RZC Section 1147.05, the applicant respectfully requests that each of its variance requests be granted.

Respectfully submitted,

The Kroger Co.

By: David Hoffman - attorney

Date: March 24, 2016

Attachment: Variances (1396 : 6630 E. Main St.; Application #173132; Applicant: Tony Fredenberg)

The Kroger Co.

Statement of Practical Difficutly

Reynoldsburg, Ohio

The Kroger Company ("Kroger"), the applicant in this City of Reynoldsburg Board of Zoning and Building Appeals (BZBA) request, seeks necessary entitlements to accommodate and foster the development and redevelopment of the subject property. The development proposal is for a new Kroger grocery and fuel center, and a future phase of new retail development, northwest of the intersection of East Main Street and Rosehill Road, on a total of 16.47+/- acres. The subject property has long been a development, and an economic development, target for the City of Reynoldsburg. As it exists, the property is grossly underutilized, and its current development is totally inconsistent with a vibrant commercial corridor.

Today the property consists of thirteen (13) separate parcels, among six (6) different property owners. Kroger has contracts to purchase the properties, and has worked diligently in this complicated assemblage, which is critical for any unified redevelopment of this property to occur. The subject property is all zoned in the CC, Community Commerce District, and is also located within the Main Street Community Commercial Overlay District. Though zoned CC, the land uses across the thirteen (13) properties varies, and includes undeveloped property, a horse barn, single-family residential, office, general retail, and a trailer park - most of which are obviously inconsistent with the long-term planning and economic development goals of any commercial corridor, in any city.

Among the complicating factors with this redevelopment proposal is that the current zoning regulations in Reynoldsburg do not include a planned commercial district, which would allow an applicant to draft applicable zoning development standards, and to commit to and register a site plan consistent with those development standards, which are ultimately memorialized in zoning legislation for the property. Nevertheless, more often than not there are multiple means of addressing an issue, and fortunately an alternative method of achieving the necessary result is through a series of development standard variances from the BZBA.

The following variances from the Reynoldsburg Zoning Code (RZC) are requested:

RZC Section 1175.08 – Side and Rear Yard Requirements for Non-Dwelling Uses Abutting Residential Districts

This section requires a fifty (50') foot pavement setback, and a one hundred twenty (120') foot building setback from adjacent residential districts for all commercial uses. Here, the applicant requests a reduction to a minimum of twenty (20') feet for the pavement setback, and a minimum of seventy-two (72') for the building setback.

In mitigation of these requirements, the applicant commits to the attached landscape plan which reflects the appropriate combination of mounding, landscaping, and fencing along the entirety of the northern perimeter of the property. At the twenty (20') foot setback location for the pavement the applicant proposes the installation of a six (6') board on board fence for screening.

Attachment: Variances (1397 : 6630 E. Main St.; Application #173133; Applicant: Tony Fredenberg)

RZC Section 1196.05(a) – Site Orientation

This section requires the build-to-line for a building to be twenty (20') feet, with up to 50% allowed to be between fifteen (15') feet and thirty-five (35') feet. Here the applicant requests to have the building setback beyond the thirty-four (34') foot corridor setback, and beyond its parking field, as reflected on the attached Site Plan. Strict compliance with this regulation is not possible. Among the major grocers in this region, Kroger understands its customer base, and is dedicated to providing an exceptional service and the most "user-friendly" interface with its customers possible. The model, with store towards the back of the property, and the parking field in the front along the commercial corridor is a time-tested, proven model, that is preferred by customers.

RZC Section 1196.05(b) – Site Orientation

Like subsection (a) of 1196.05 discussed above, because this property has frontage on two rights-of-way, Rose Hill Road not being a primary street, this section requires a build-to-line of between ten (10') feet and twenty (20') feet, with certain encroachment allowances for items such as signage and porticos. Here, the intersection of Rose Hill Road and East Main Street is exceptionally important to the views into, and visibility of, the Kroger store and therefore Kroger cannot construct at these setbacks. This Phase 2 area for retail development is important to Kroger, both in terms of location of the future building and the end-user. The setback from Rose Hill Road will ultimately likely be between seventy-five (75') feet and one hundred (100') feet from the western property line.

RZC Section 1196.07(e) – Design Standards

This section requires facades adjacent to the primary building frontage to continue the pattern of window glass a minimum of ten (10') feet. Here the applicant requests to not continue the window glass pattern on adjacent facades. This application typically lends itself to a different building type, however due to internal fixturing for a Kroger grocery, creates practical difficulties.

RZC Section 1196.09(c) – Design Standards

This section provides a maximum height of eighteen (18') feet for parking lot lighting. Here, the applicant requires forty (40') feet. These lights will be cut-off fixtures, directing light downward, and will not inappropriately spill light off-site or be detrimental to any surrounding property. A grocery this size requires a considerable parking field, and for customer safety must be well lit. This major grocer applicant understands how best to provide the type of lighting necessary while not having any impacts off-site.

RZC Section 1196.10(a) – Parking and Circulation

This section provides that parking is required to be on the side of a principal building. The applicant requests to have parking located between the principal building and the street, as reflected on the Site Plan.

RZC Section 1196.10(b) – Parking and Circulation

This section works in conjunction with subsection (a) immediately above, and provides specific guidance to that regulation. It provides that the parking is to be located in the rear of the building, but that half of

Attachment: Variances (1397 : 6630 E. Main St.; Application #173133; Applicant: Tony Fredenberg)

the parking may be located to the side of the building. Here, the primary parking field is located in front of the building.

The RZC provides standards for the BZBA to consider in weighing variance requests. Those standards from RZC Section 1147.05 are hereafter stated in italics, and individually addressed.

(a) The variance is in accord with the general purpose and intent of the regulations imposed by this Code in the district in which it is located, and shall not be injurious to the area or otherwise detrimental to the public welfare.

With the exception of Section 1175.08 requiring screening and buffering between commercial uses, these are regulations that seek to achieve a certain aesthetic, and were never intended to be strictly applicable to a Main Street assemblage of nearly 16.5 acres, nor were they ever intended to prohibit, or be overly burdensome to, an important Main Street development and redevelopment. Overlay standards have their place, though implementation of such standards across a development of this size and scope is neither practical, nor in this instance economically or operationally feasible in terms of how a grocery store operates. Section 1175.08 provides an important buffering function, and with the applicant's proposal to buffer any of its perimeter that includes residential it meets the spirit, if not the letter, of the requirement. The applicant proposes a combination of mounding, fencing, and landscaping, to more than adequately buffer this perimeter. This request is in accord with the general purpose and intent of the RZC, and of this neighborhood in particular. When approved, these variances will in no way be injurious to this area, or otherwise be detrimental in any way to the public welfare. This is a Main Street commercial development and redevelopment, on property long desired for development within the City of Reynoldsburg. This development creates jobs in the community, and boosts the tax base for the City. This is a beneficial development.

(b) The variance will not permit the establishment of any use which is not otherwise listed as a permitted use or special exception in the district, or which is expressly or by implication prohibited by this Code.

RZC Section 1175.04 – Permitted Uses and Special Exceptions specifically provides that retail stores are permitted. Further, RZC Section 1161.04 – Commercial Districts, provides in subsection (c) addressing the CC, Community Commerce District, "[t]he CC Community Commerce District provides land for the concentration of a wide variety of business establishments which are centrally located and provide adequate parking. Such district must also be located adjacent to major thoroughfares, have restricted points of access and be screened or fenced from surrounding residential areas. These variances <u>will not</u> permit the establishment of any use which is not expressly permitted in the existing CC, Community Commerce District.

Attachment: Variances (1397 : 6630 E. Main St.; Application #173133; Applicant: Tony Fredenberg)

(c) *There exist special circumstances or conditions, fully described in the findings, applicable to the land or structures for which the variance is sought, which are peculiar to such land or structures and which do not apply generally to land or structures in the area, and which are such that the strict application of the provisions of this Code would deprive the property owner of the reasonable use of such land or structures. There must be deprivation of beneficial use of land, as opposed to mere loss in value as justification for the variance.*

This entire development / redevelopment is a special circumstance and condition. As stated above, this is a very difficult 16.5+/- acre assemblage on Main Street, Reynoldsburg's primary commercial corridor, that consists of thirteen (13) different tax parcels and six (6) different property owners. This proposal affords the opportunity for this property – long deemed a development and redevelopment target – to develop in a way generally beneficial to the economic development objectives of the City of Reynoldsburg. This property is, and has been totally underdeveloped, it houses a mix of uses, most of which are inappropriate along any commercial corridor: single-family residential, a barn, a field, and a trailer park. This proposal brings jobs, and generally increases the tax base for the City. Kroger is in the grocery business. They are an effective and proven leader in their market, and the region generally. They know how to interface with their customer base, and how to deliver a quality product to the marketplace. Their proposal meets the spirit of the RZC generally, strict compliance with these mostly aesthetic requirements is practically difficult for this applicant to meet. It would decrease their ability to effectively serve the market. Its landscaping plan, attached hereto, will more than adequately buffer the commercial use from all surrounding residentially zoned and use properties, and it is imperative for a parking lot of this size that it be well lit for safety of ingress, egress, and circulation through the parking lot and aisles, and the light poles requested by Kroger are what the corporation believes is necessary to achieve this critical objective. These special circumstances and conditions warrant the grant of the requested variances.

(d) *There is proof of hardship or practical difficulty created by the strict application of this Code, beyond simply a showing that greater profit will result if the variance is granted. Economic hardship is not grounds for the variance. Furthermore, the hardship complained is not self-created nor is it established on this basis by one who purchased with or without knowledge of the restrictions. The hardship results from the application of this Code and is suffered directly by the property in question.*

These variance requests are neither about profit, nor economic hardship. Further the practical difficulties created by strict compliance with the regulations is not self-created, nor is there an effort to establish the warrant of these variances on the basis of knowledge, or lack thereof, of the restrictions. These difficulties occur from the application of certain provisions of the RZC and strict application prove practically difficult for this applicant, for this development / redevelopment proposal, to meet. Strict application of these regulations would deny this applicant its proven method of delivering its product to the marketplace. With the variances to the residential perimeter buffer and the light pole height, the proposal meets the spirit of the requirement. The perimeter is more than adequately buffered through a combination of mounding, landscaping, and fencing. The light pole height is what is required to adequately light the parking lot and drive aisles. This is all done in a way that does not detract from the overall aesthetic of the property. Overall this constitutes an improvement to the aesthetic of the property today, and a much better use of the property that it houses today.

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These variances are necessary for the reasonable use of the land and building, and they are the minimum necessary to accomplish this purpose. Strict application, which would require a radical revision to this applicant's typical development and course of business, would be unreasonable. These variances accommodate this important Main Street development / redevelopment. None of the variances requested are substantial, and none will be detrimental to any surrounding owner or the City of Reynoldsburg in general. Accommodating this proposal is in the City of Reynoldsburg's interest in terms of both land use for this property, and its economic development goals of job creation, and tax base increase, through collaboration with corporate entities that are proven, such as this applicant.

(f) The variance will not impair an adequate supply of light and air to adjacent property, substantially increase the congestion of public streets, increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area.

When granted, these variances will not impair an adequate supply of light and air to any adjacent property, this development will not substantially increase the congestion of public streets – in proof of that a traffic study is submitted with the application, these variances will not increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area. Without a doubt this is an important development / redevelopment and furthers the land use and economic development goals of the City of Reynoldsburg. None of the variances requested are detrimental to the quality of life of surrounding owners, or the residents of the City of Reynoldsburg generally.

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Every proposal is unique, every property is unique, and each must be considered on its own merits taking into consideration the totality of the circumstances. Here, we have a 16.5 acre assemblage across thirteen (13) properties and six (6)separate land owners, all done in furtherance of an opportunity for this applicant to improve its service to the City of Reynoldsburg, while at the same time meeting the long-term land use and economic development objectives of the City. The unusual circumstances here are compelling to allow this corporate citizen to implement a reasonable development that it believes is critical to providing the best possible experience to its customer base. Kroger's belief that the development it proposes is what is necessary comes from its extensive experience across this community and region. Every circumstance is different and unique, and if another entity comes forward with a significant property assemblage such as this, it ought to be judged on its own merit rather than a one-size-fits-all overlay, or any other land development regulation. No special privilege would be granted to this applicant should the variances be granted.

(h) No nonconforming use of neighboring land or structures in the same district and no permitted or nonconforming use of land or structures in other districts are considered as ground for approval of the variance.

Neither of those is claimed here by the applicant, though it is worth noting that the proposal does address an issue of existing legal non-conforming uses on this property. Neither the single-family residences, nor

the trailer park, are CC-Community Commerce District uses and this proposal introduces development consistent with that zoning classification.

(i) *The variance is not a matter of convenience when other remedies are available within the provisions of this Code.*

These variances are not a matter of convenience to the applicant, but are rather matters of necessity. These variances are necessary for the applicant to bring this important development to the community, and are the minimum necessary to do so. There are presently no other remedies available within the provisions of the RZC.

Having demonstrated that its variance requests meet or exceed the standards for variance as provided by RZC Section 1147.05, the applicant respectfully requests that each of its variance requests be granted.

Respectfully submitted,

The Kroger Co.

By: David Hoffman - attorney

Date: March 24, 2016

Attachment: Variances (1397 : 6630 E. Main St.; Application #173133; Applicant: Tony Fredenberg)

The Kroger Co.

Statement of Practical Difficutly

Reynoldsburg, Ohio

The Kroger Company ("Kroger"), the applicant in this City of Reynoldsburg Board of Zoning and Building Appeals (BZBA) request, seeks necessary entitlements to accommodate and foster the development and redevelopment of the subject property. The development proposal is for a new Kroger grocery and fuel center, and a future phase of new retail development, northwest of the intersection of East Main Street and Rosehill Road, on a total of 16.47+/- acres. The subject property has long been a development, and an economic development, target for the City of Reynoldsburg. As it exists, the property is grossly underutilized, and its current development is totally inconsistent with a vibrant commercial corridor.

Today the property consists of thirteen (13) separate parcels, among six (6) different property owners. Kroger has contracts to purchase the properties, and has worked diligently in this complicated assemblage, which is critical for any unified redevelopment of this property to occur. The subject property is all zoned in the CC, Community Commerce District, and is also located within the Main Street Community Commercial Overlay District. Though zoned CC, the land uses across the thirteen (13) properties varies, and includes undeveloped property, a horse barn, single-family residential, office, general retail, and a trailer park - most of which are obviously inconsistent with the long-term planning and economic development goals of any commercial corridor, in any city.

Among the complicating factors with this redevelopment proposal is that the current zoning regulations in Reynoldsburg do not include a planned commercial district, which would allow an applicant to draft applicable zoning development standards, and to commit to and register a site plan consistent with those development standards, which are ultimately memorialized in zoning legislation for the property. Nevertheless, more often than not there are multiple means of addressing an issue, and fortunately an alternative method of achieving the necessary result is through a series of development standard variances from the BZBA.

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In mitigation of these requirements, the applicant commits to the attached landscape plan which reflects the appropriate combination of mounding, landscaping, and fencing along the entirety of the northern perimeter of the property. At the twenty (20') foot setback location for the pavement the applicant proposes the installation of a six (6') board on board fence for screening.

Attachment: Variances (1398 : 6630 E. Main St.; Application #173134; Applicant: Tony Fredenberg)

RZC Section 1196.05(a) – Site Orientation

This section requires the build-to-line for a building to be twenty (20') feet, with up to 50% allowed to be between fifteen (15') feet and thirty-five (35') feet. Here the applicant requests to have the building setback beyond the thirty-four (34') foot corridor setback, and beyond its parking field, as reflected on the attached Site Plan. Strict compliance with this regulation is not possible. Among the major grocers in this region, Kroger understands its customer base, and is dedicated to providing an exceptional service and the most "user-friendly" interface with its customers possible. The model, with store towards the back of the property, and the parking field in the front along the commercial corridor is a time-tested, proven model, that is preferred by customers.

RZC Section 1196.05(b) – Site Orientation

Like subsection (a) of 1196.05 discussed above, because this property has frontage on two rights-of-way, Rose Hill Road not being a primary street, this section requires a build-to-line of between ten (10') feet and twenty (20') feet, with certain encroachment allowances for items such as signage and porticos. Here, the intersection of Rose Hill Road and East Main Street is exceptionally important to the views into, and visibility of, the Kroger store and therefore Kroger cannot construct at these setbacks. This Phase 2 area for retail development is important to Kroger, both in terms of location of the future building and the end-user. The setback from Rose Hill Road will ultimately likely be between seventy-five (75') feet and one hundred (100') feet from the western property line.

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The RZC provides standards for the BZBA to consider in weighing variance requests. Those standards from RZC Section 1147.05 are hereafter stated in italics, and individually addressed.

(a) The variance is in accord with the general purpose and intent of the regulations imposed by this Code in the district in which it is located, and shall not be injurious to the area or otherwise detrimental to the public welfare.

With the exception of Section 1175.08 requiring screening and buffering between commercial uses, these are regulations that seek to achieve a certain aesthetic, and were never intended to be strictly applicable to a Main Street assemblage of nearly 16.5 acres, nor were they ever intended to prohibit, or be overly burdensome to, an important Main Street development and redevelopment. Overlay standards have their place, though implementation of such standards across a development of this size and scope is neither practical, nor in this instance economically or operationally feasible in terms of how a grocery store operates. Section 1175.08 provides an important buffering function, and with the applicant's proposal to buffer any of its perimeter that includes residential it meets the spirit, if not the letter, of the requirement. The applicant proposes a combination of mounding, fencing, and landscaping, to more than adequately buffer this perimeter. This request is in accord with the general purpose and intent of the RZC, and of this neighborhood in particular. When approved, these variances will in no way be injurious to this area, or otherwise be detrimental in any way to the public welfare. This is a Main Street commercial development and redevelopment, on property long desired for development within the City of Reynoldsburg. This development creates jobs in the community, and boosts the tax base for the City. This is a beneficial development.

(b) The variance will not permit the establishment of any use which is not otherwise listed as a permitted use or special exception in the district, or which is expressly or by implication prohibited by this Code.

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(c) *There exist special circumstances or conditions, fully described in the findings, applicable to the land or structures for which the variance is sought, which are peculiar to such land or structures and which do not apply generally to land or structures in the area, and which are such that the strict application of the provisions of this Code would deprive the property owner of the reasonable use of such land or structures. There must be deprivation of beneficial use of land, as opposed to mere loss in value as justification for the variance.*

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(d) *There is proof of hardship or practical difficulty created by the strict application of this Code, beyond simply a showing that greater profit will result if the variance is granted. Economic hardship is not grounds for the variance. Furthermore, the hardship complained is not self-created nor is it established on this basis by one who purchased with or without knowledge of the restrictions. The hardship results from the application of this Code and is suffered directly by the property in question.*

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(f) The variance will not impair an adequate supply of light and air to adjacent property, substantially increase the congestion of public streets, increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area.

When granted, these variances will not impair an adequate supply of light and air to any adjacent property, this development will not substantially increase the congestion of public streets – in proof of that a traffic study is submitted with the application, these variances will not increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area. Without a doubt this is an important development / redevelopment and furthers the land use and economic development goals of the City of Reynoldsburg. None of the variances requested are detrimental to the quality of life of surrounding owners, or the residents of the City of Reynoldsburg generally.

(g) The variance will not confer on the property owner any special privilege that is unduly denied by this Code to other land, structures, or buildings in the same district.

Every proposal is unique, every property is unique, and each must be considered on its own merits taking into consideration the totality of the circumstances. Here, we have a 16.5 acre assemblage across thirteen (13) properties and six (6)separate land owners, all done in furtherance of an opportunity for this applicant to improve its service to the City of Reynoldsburg, while at the same time meeting the long-term land use and economic development objectives of the City. The unusual circumstances here are compelling to allow this corporate citizen to implement a reasonable development that it believes is critical to providing the best possible experience to its customer base. Kroger's belief that the development it proposes is what is necessary comes from its extensive experience across this community and region. Every circumstance is different and unique, and if another entity comes forward with a significant property assemblage such as this, it ought to be judged on its own merit rather than a one-size-fits-all overlay, or any other land development regulation. No special privilege would be granted to this applicant should the variances be granted.

(h) No nonconforming use of neighboring land or structures in the same district and no permitted or nonconforming use of land or structures in other districts are considered as ground for approval of the variance.

Neither of those is claimed here by the applicant, though it is worth noting that the proposal does address an issue of existing legal non-conforming uses on this property. Neither the single-family residences, nor

the trailer park, are CC-Community Commerce District uses and this proposal introduces development consistent with that zoning classification.

(i) The variance is not a matter of convenience when other remedies are available within the provisions of this Code.

These variances are not a matter of convenience to the applicant, but are rather matters of necessity. These variances are necessary for the applicant to bring this important development to the community, and are the minimum necessary to do so. There are presently no other remedies available within the provisions of the RZC.

Having demonstrated that its variance requests meet or exceed the standards for variance as provided by RZC Section 1147.05, the applicant respectfully requests that each of its variance requests be granted.

Respectfully submitted,

The Kroger Co.

By: David Hoffman - attorney

Date: March 24, 2016

Attachment: Variances (1398 : 6630 E. Main St.; Application #173134; Applicant: Tony Fredenberg)

The Kroger Co.

Statement of Practical Difficutly

Reynoldsburg, Ohio

The Kroger Company ("Kroger"), the applicant in this City of Reynoldsburg Board of Zoning and Building Appeals (BZBA) request, seeks necessary entitlements to accommodate and foster the development and redevelopment of the subject property. The development proposal is for a new Kroger grocery and fuel center, and a future phase of new retail development, northwest of the intersection of East Main Street and Rosehill Road, on a total of 16.47+/- acres. The subject property has long been a development, and an economic development, target for the City of Reynoldsburg. As it exists, the property is grossly underutilized, and its current development is totally inconsistent with a vibrant commercial corridor.

Today the property consists of thirteen (13) separate parcels, among six (6) different property owners. Kroger has contracts to purchase the properties, and has worked diligently in this complicated assemblage, which is critical for any unified redevelopment of this property to occur. The subject property is all zoned in the CC, Community Commerce District, and is also located within the Main Street Community Commercial Overlay District. Though zoned CC, the land uses across the thirteen (13) properties varies, and includes undeveloped property, a horse barn, single-family residential, office, general retail, and a trailer park - most of which are obviously inconsistent with the long-term planning and economic development goals of any commercial corridor, in any city.

Among the complicating factors with this redevelopment proposal is that the current zoning regulations in Reynoldsburg do not include a planned commercial district, which would allow an applicant to draft applicable zoning development standards, and to commit to and register a site plan consistent with those development standards, which are ultimately memorialized in zoning legislation for the property. Nevertheless, more often than not there are multiple means of addressing an issue, and fortunately an alternative method of achieving the necessary result is through a series of development standard variances from the BZBA.

The following variances from the Reynoldsburg Zoning Code (RZC) are requested:

RZC Section 1175.08 – Side and Rear Yard Requirements for Non-Dwelling Uses Abutting Residential Districts

This section requires a fifty (50') foot pavement setback, and a one hundred twenty (120') foot building setback from adjacent residential districts for all commercial uses. Here, the applicant requests a reduction to a minimum of twenty (20') feet for the pavement setback, and a minimum of seventy-two (72') for the building setback.

In mitigation of these requirements, the applicant commits to the attached landscape plan which reflects the appropriate combination of mounding, landscaping, and fencing along the entirety of the northern perimeter of the property. At the twenty (20') foot setback location for the pavement the applicant proposes the installation of a six (6') board on board fence for screening.

Attachment: Variances (1399 : 6630 E. Main St.; Application #173135; Applicant: Tony Fredenberg)

RZC Section 1196.05(a) – Site Orientation

This section requires the build-to-line for a building to be twenty (20') feet, with up to 50% allowed to be between fifteen (15') feet and thirty-five (35') feet. Here the applicant requests to have the building setback beyond the thirty-four (34') foot corridor setback, and beyond its parking field, as reflected on the attached Site Plan. Strict compliance with this regulation is not possible. Among the major grocers in this region, Kroger understands its customer base, and is dedicated to providing an exceptional service and the most "user-friendly" interface with its customers possible. The model, with store towards the back of the property, and the parking field in the front along the commercial corridor is a time-tested, proven model, that is preferred by customers.

RZC Section 1196.05(b) – Site Orientation

Like subsection (a) of 1196.05 discussed above, because this property has frontage on two rights-of-way, Rose Hill Road not being a primary street, this section requires a build-to-line of between ten (10') feet and twenty (20') feet, with certain encroachment allowances for items such as signage and porticos. Here, the intersection of Rose Hill Road and East Main Street is exceptionally important to the views into, and visibility of, the Kroger store and therefore Kroger cannot construct at these setbacks. This Phase 2 area for retail development is important to Kroger, both in terms of location of the future building and the end-user. The setback from Rose Hill Road will ultimately likely be between seventy-five (75') feet and one hundred (100') feet from the western property line.

RZC Section 1196.07(e) – Design Standards

This section requires facades adjacent to the primary building frontage to continue the pattern of window glass a minimum of ten (10') feet. Here the applicant requests to not continue the window glass pattern on adjacent facades. This application typically lends itself to a different building type, however due to internal fixturing for a Kroger grocery, creates practical difficulties.

RZC Section 1196.09(c) – Design Standards

This section provides a maximum height of eighteen (18') feet for parking lot lighting. Here, the applicant requires forty (40') feet. These lights will be cut-off fixtures, directing light downward, and will not inappropriately spill light off-site or be detrimental to any surrounding property. A grocery this size requires a considerable parking field, and for customer safety must be well lit. This major grocer applicant understands how best to provide the type of lighting necessary while not having any impacts off-site.

RZC Section 1196.10(a) – Parking and Circulation

This section provides that parking is required to be on the side of a principal building. The applicant requests to have parking located between the principal building and the street, as reflected on the Site Plan.

RZC Section 1196.10(b) – Parking and Circulation

This section works in conjunction with subsection (a) immediately above, and provides specific guidance to that regulation. It provides that the parking is to be located in the rear of the building, but that half of

Attachment: Variances (1399 : 6630 E. Main St.; Application #173135; Applicant: Tony Fredenberg)

the parking may be located to the side of the building. Here, the primary parking field is located in front of the building.

The RZC provides standards for the BZBA to consider in weighing variance requests. Those standards from RZC Section 1147.05 are hereafter stated in italics, and individually addressed.

(a) The variance is in accord with the general purpose and intent of the regulations imposed by this Code in the district in which it is located, and shall not be injurious to the area or otherwise detrimental to the public welfare.

With the exception of Section 1175.08 requiring screening and buffering between commercial uses, these are regulations that seek to achieve a certain aesthetic, and were never intended to be strictly applicable to a Main Street assemblage of nearly 16.5 acres, nor were they ever intended to prohibit, or be overly burdensome to, an important Main Street development and redevelopment. Overlay standards have their place, though implementation of such standards across a development of this size and scope is neither practical, nor in this instance economically or operationally feasible in terms of how a grocery store operates. Section 1175.08 provides an important buffering function, and with the applicant's proposal to buffer any of its perimeter that includes residential it meets the spirit, if not the letter, of the requirement. The applicant proposes a combination of mounding, fencing, and landscaping, to more than adequately buffer this perimeter. This request is in accord with the general purpose and intent of the RZC, and of this neighborhood in particular. When approved, these variances will in no way be injurious to this area, or otherwise be detrimental in any way to the public welfare. This is a Main Street commercial development and redevelopment, on property long desired for development within the City of Reynoldsburg. This development creates jobs in the community, and boosts the tax base for the City. This is a beneficial development.

(b) The variance will not permit the establishment of any use which is not otherwise listed as a permitted use or special exception in the district, or which is expressly or by implication prohibited by this Code.

RZC Section 1175.04 – Permitted Uses and Special Exceptions specifically provides that retail stores are permitted. Further, RZC Section 1161.04 – Commercial Districts, provides in subsection (c) addressing the CC, Community Commerce District, "[t]he CC Community Commerce District provides land for the concentration of a wide variety of business establishments which are centrally located and provide adequate parking. Such district must also be located adjacent to major thoroughfares, have restricted points of access and be screened or fenced from surrounding residential areas. These variances <u>will not</u> permit the establishment of any use which is not expressly permitted in the existing CC, Community Commerce District.

Attachment: Variances (1399 : 6630 E. Main St.; Application #173135; Applicant: Tony Fredenberg)

(c) *There exist special circumstances or conditions, fully described in the findings, applicable to the land or structures for which the variance is sought, which are peculiar to such land or structures and which do not apply generally to land or structures in the area, and which are such that the strict application of the provisions of this Code would deprive the property owner of the reasonable use of such land or structures. There must be deprivation of beneficial use of land, as opposed to mere loss in value as justification for the variance.*

This entire development / redevelopment is a special circumstance and condition. As stated above, this is a very difficult 16.5+/- acre assemblage on Main Street, Reynoldsburg's primary commercial corridor, that consists of thirteen (13) different tax parcels and six (6) different property owners. This proposal affords the opportunity for this property – long deemed a development and redevelopment target – to develop in a way generally beneficial to the economic development objectives of the City of Reynoldsburg. This property is, and has been totally underdeveloped, it houses a mix of uses, most of which are inappropriate along any commercial corridor: single-family residential, a barn, a field, and a trailer park. This proposal brings jobs, and generally increases the tax base for the City. Kroger is in the grocery business. They are an effective and proven leader in their market, and the region generally. They know how to interface with their customer base, and how to deliver a quality product to the marketplace. Their proposal meets the spirit of the RZC generally, strict compliance with these mostly aesthetic requirements is practically difficult for this applicant to meet. It would decrease their ability to effectively serve the market. Its landscaping plan, attached hereto, will more than adequately buffer the commercial use from all surrounding residentially zoned and use properties, and it is imperative for a parking lot of this size that it be well lit for safety of ingress, egress, and circulation through the parking lot and aisles, and the light poles requested by Kroger are what the corporation believes is necessary to achieve this critical objective. These special circumstances and conditions warrant the grant of the requested variances.

(d) *There is proof of hardship or practical difficulty created by the strict application of this Code, beyond simply a showing that greater profit will result if the variance is granted. Economic hardship is not grounds for the variance. Furthermore, the hardship complained is not self-created nor is it established on this basis by one who purchased with or without knowledge of the restrictions. The hardship results from the application of this Code and is suffered directly by the property in question.*

These variance requests are neither about profit, nor economic hardship. Further the practical difficulties created by strict compliance with the regulations is not self-created, nor is there an effort to establish the warrant of these variances on the basis of knowledge, or lack thereof, of the restrictions. These difficulties occur from the application of certain provisions of the RZC and strict application prove practically difficult for this applicant, for this development / redevelopment proposal, to meet. Strict application of these regulations would deny this applicant its proven method of delivering its product to the marketplace. With the variances to the residential perimeter buffer and the light pole height, the proposal meets the spirit of the requirement. The perimeter is more than adequately buffered through a combination of mounding, landscaping, and fencing. The light pole height is what is required to adequately light the parking lot and drive aisles. This is all done in a way that does not detract from the overall aesthetic of the property. Overall this constitutes an improvement to the aesthetic of the property today, and a much better use of the property that it houses today.

Attachment: Variances (1399 : 6630 E. Main St.; Application #173135; Applicant: Tony Fredenberg)

(e) The variance is necessary for the reasonable use of the land or building, and the variance as granted is the minimum variance that will accomplish this purpose.

These variances are necessary for the reasonable use of the land and building, and they are the minimum necessary to accomplish this purpose. Strict application, which would require a radical revision to this applicant's typical development and course of business, would be unreasonable. These variances accommodate this important Main Street development / redevelopment. None of the variances requested are substantial, and none will be detrimental to any surrounding owner or the City of Reynoldsburg in general. Accommodating this proposal is in the City of Reynoldsburg's interest in terms of both land use for this property, and its economic development goals of job creation, and tax base increase, through collaboration with corporate entities that are proven, such as this applicant.

(f) The variance will not impair an adequate supply of light and air to adjacent property, substantially increase the congestion of public streets, increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area.

When granted, these variances will not impair an adequate supply of light and air to any adjacent property, this development will not substantially increase the congestion of public streets – in proof of that a traffic study is submitted with the application, these variances will not increase the danger of fire, endanger the public safety, or substantially diminish or impair property values of the adjacent area. Without a doubt this is an important development / redevelopment and furthers the land use and economic development goals of the City of Reynoldsburg. None of the variances requested are detrimental to the quality of life of surrounding owners, or the residents of the City of Reynoldsburg generally.

(g) The variance will not confer on the property owner any special privilege that is unduly denied by this Code to other land, structures, or buildings in the same district.

Every proposal is unique, every property is unique, and each must be considered on its own merits taking into consideration the totality of the circumstances. Here, we have a 16.5 acre assemblage across thirteen (13) properties and six (6)separate land owners, all done in furtherance of an opportunity for this applicant to improve its service to the City of Reynoldsburg, while at the same time meeting the long-term land use and economic development objectives of the City. The unusual circumstances here are compelling to allow this corporate citizen to implement a reasonable development that it believes is critical to providing the best possible experience to its customer base. Kroger's belief that the development it proposes is what is necessary comes from its extensive experience across this community and region. Every circumstance is different and unique, and if another entity comes forward with a significant property assemblage such as this, it ought to be judged on its own merit rather than a one-size-fits-all overlay, or any other land development regulation. No special privilege would be granted to this applicant should the variances be granted.

(h) No nonconforming use of neighboring land or structures in the same district and no permitted or nonconforming use of land or structures in other districts are considered as ground for approval of the variance.

Neither of those is claimed here by the applicant, though it is worth noting that the proposal does address an issue of existing legal non-conforming uses on this property. Neither the single-family residences, nor

the trailer park, are CC-Community Commerce District uses and this proposal introduces development consistent with that zoning classification.

(i) The variance is not a matter of convenience when other remedies are available within the provisions of this Code.

These variances are not a matter of convenience to the applicant, but are rather matters of necessity. These variances are necessary for the applicant to bring this important development to the community, and are the minimum necessary to do so. There are presently no other remedies available within the provisions of the RZC.

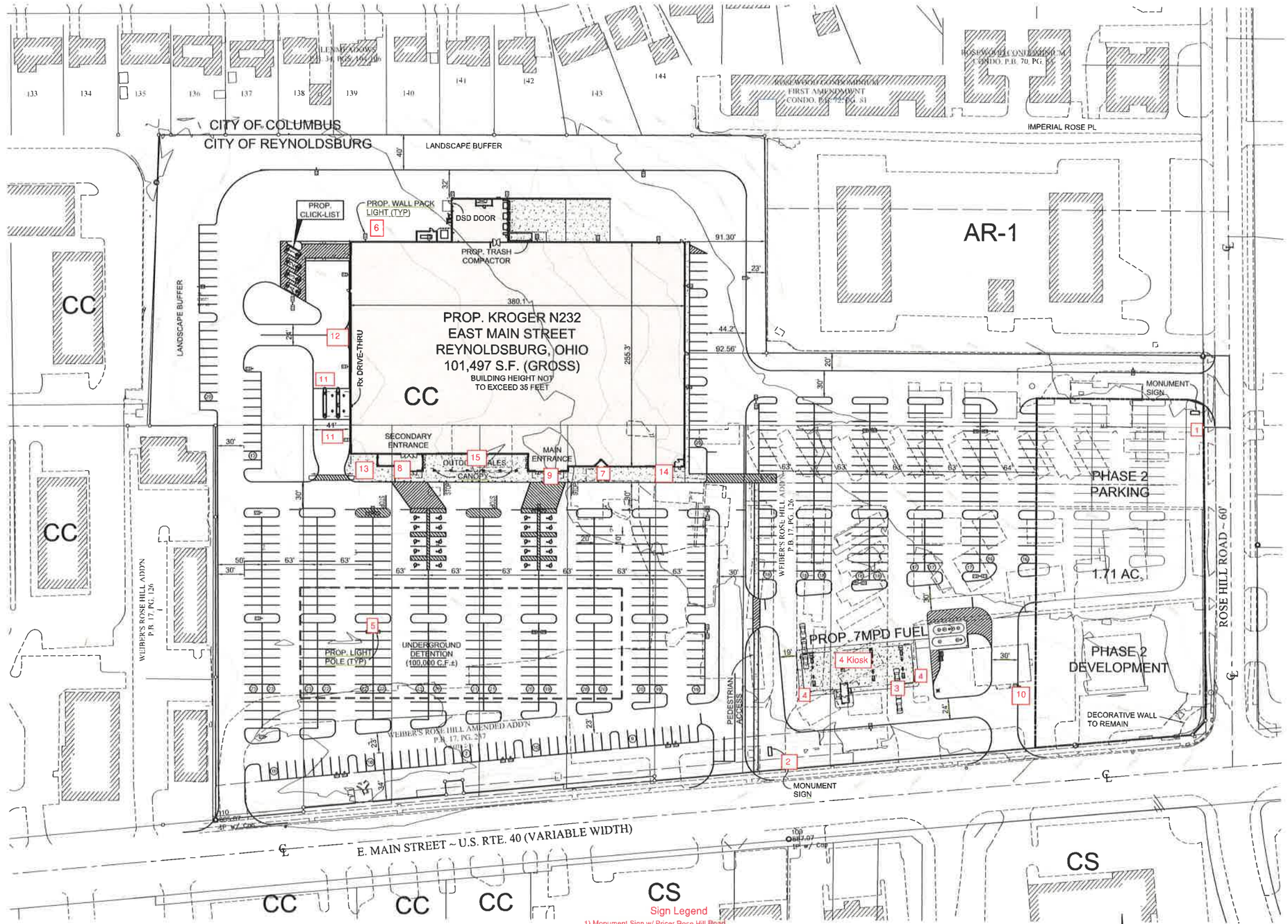
Having demonstrated that its variance requests meet or exceed the standards for variance as provided by RZC Section 1147.05, the applicant respectfully requests that each of its variance requests be granted.

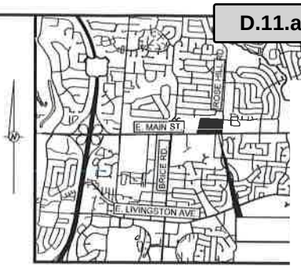
Respectfully submitted,

The Kroger Co.

By: David Hoffman - attorney

Date: March 24, 2016





LOCATION MAP
NO SCALE

DEVELOPER
THE KROGER CO.
4111 EXECUTIVE PARKWAY
WESTERVILLE, OHIO 43081
PHONE: 614-898-3200
CONTACT: JIM BROWN
E-MAIL: JIM.BROWN@KROGER.COM

ENGINEER/SURVEYOR
C.F. BIRD & R.J. BULL, INC.
2875 W. DUBLIN-GRANVILLE ROAD
COLUMBUS, OHIO 43235
PHONE: 614-761-1661
FAX: 614-761-1328
CONTACT: ANDREW GARDNER, P.E.
E-MAIL: AGARDNER@BIRDBULL.COM

SITE DATA TABLE

PROP.PROPERTY USE:	GROCERY STORE
EX. PROPERT USE:	RESIDENTIAL/TRAILER PARK
EXISTING ZONING:	CC
ADJACENT ZONING NORTH:	CITY OF COLUMBUS
ADJACENT ZONING SOUTH	CC
ADJACENT ZONING EAST	AR-1
ADJACENT ZONING WEST:	CC
OVERALL SITE AREA :	16.47 AC.
TRUCK TURNING TEMPLATE:	WB-67
PROPOSED DRIVE AISLE WIDTH:	23'
PROPOSED PARKING STALL:	10' x 20' (200 S.F.)

VARIANCES REQUESTED:

1) SECTION 1175.08
SIDE YARD PVMT. & BUILDING SETBACK FROM AR-1 ZONING:
ALLOWED = 50'/120', REQUESTED = 23'/91'

2) SECTION 1196.05a
SITE ORIENTATION - 50% OF THE BUILDING SHALL BE LOCATED IN ADVANCE OF THE BUILDING LINE.
REQUESTED: 0%

3) SECTION 1196.05b
BUILD TO LINE SHALL BE BETWEEN 10' AND 20'.
REQUESTED: 311'

4) SECTION 1196.07e
FOR FACADES ADJACENT TO THE BUILDING FRONTAGE, THE PATTEF OF WINDOW GLASS SHALL CONTINUE FROM THE PRIMARY BUILDING FRONTAGE A MIN. DISTANCE OF 10-FEET.
REQUESTED: 0'

5) SECTION 1196.09c
LIGHT POLE HEIGHT:
ALLOWED = 18', REQUESTED = 40'

6) SECTION 1196.10a
PARKING AND STACKING SPACES ARE NOT PERMITTED BETWEEN PRINCIPAL BUILDING AND PUBLIC STREET R/W LINE.
REQUEST THIS BE VARIED DUE TO THE NATURE OF A GROCERY STC

7) SECTION 1196.10b
PARKING SHALL BE LOCATED AT THE REAR OF THE PRINCIPAL BUILD
REQUEST PARKING BE PERMITTED IN FRONT OF THE KROGER STOR

8) SECTION 1197.07f
DRIVE THRU SHALL BE LOCATED ON THE REAR OF THE PRIMARY STRUCTURE.
REQUEST THE DRIVE THRU PHARMACY AND CLICK LIST MAY BE LOCATED ON THE SIDE OF THE BUILDING.

NOTE: PER FIRM MAP NUMBER 39049CO354K SITE IS LOCATED OUTSIDE OF ANY FLOODZONE.

CITY OF REYNOLDSBURG PARKING CRITERIA
1 PER 200 S.F FOR RETAIL/COMMERCIAL
1 PER 300 S.F. FOR GROCERY

PARKING TABLE

BUILDING FOOTPRINT	MIN. PARKING REQ.	PARKING PROVIDED	RATIO
PROP. KROGER = 101,497 S.F.	334	634	1/160 6.25 PER 1000

Sign Legend

1) Monument Sign w/ Pricer Rose Hill Road
2) Monument Sign w/ Pricer and store attributes along Main Street
3) Fuel Center Canopy Pricer
4) Fuel Center "Kroger" Logo
5) Store Site Light Fixture
6) Store Wall Light Fixture
7) "Starbucks" Logo
8) "Pharmacy" Logo
9) "Kroger" Logo
10) Fuel Center Light Fixture
11) Pharmacy Drive Thru "Enter", "Exit, "Open", and "Close" LED's
12) Pharmacy "Enter Only"
13) Large "Pharmacy Drive" Thru LED
14) "Cafe" LED
15) "The Little Clinic" LED

STATE OF OHIO ANDREW A. GARDNER E-68659 REGISTERED PROFESSIONAL ENGINEER

ANDREW GARDNER ~ OHIO ENGINEER NO. E-68659

Date

SCALE: 1" = 60'
0 60 120 180
GRAPHIC SCALE

Bird+Bull
Engineers & Surveyors
2875 W. Dublin-Granville Road
Columbus, Ohio 43235
Ph: (614) 761-1661
Fax: (614) 761-1328
WWW.BIRDBULL.COM

KROGER N232
EAST MAIN STREET
REYNOLDSBURG, OHIO

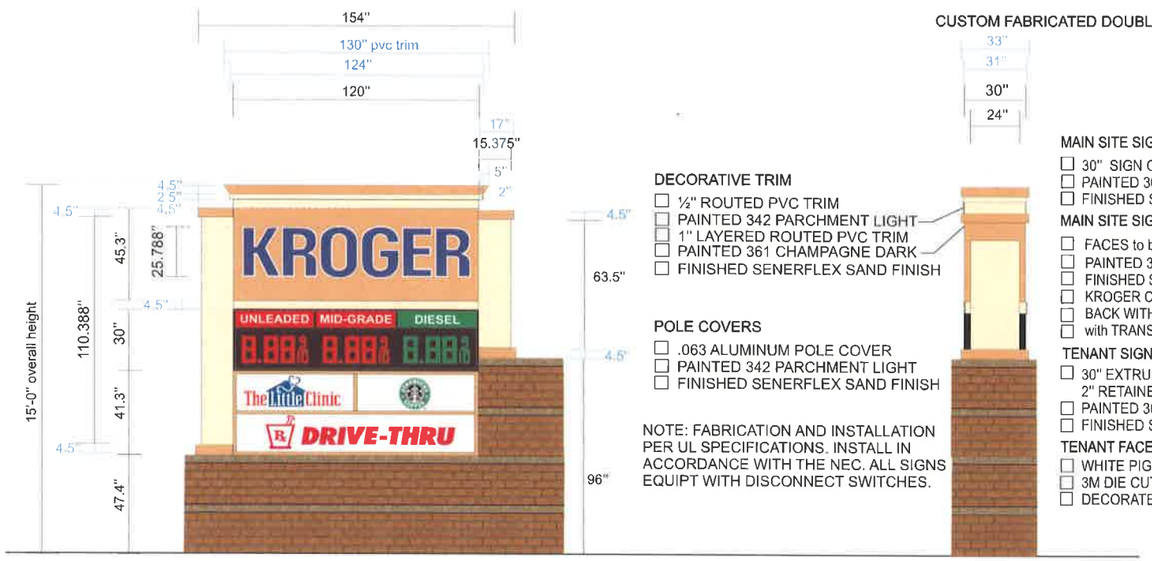
SITE PLAN

SCALE: 1" = 60'
DWN:DJH | CKD:AAG | DATE: 03/

C:\Users\agardner.BIRDBULL\appdata\local\temp\AcPublish_7724\14-122 N232 SITE PLAN 12.dwg 03/21/2016

ORIG. SHT. SIZE 22"x 34"

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)



CUSTOM FABRICATED DOUBLE FACED PYLON SIGN

SCALE 1/4" = 1'-0"

DECORATIVE TRIM
- ☐ ½" ROUTED PVC TRIM
- ☐ PAINTED 342 PARCHMENT LIGHT
- ☐ 1" LAYERED ROUTED PVC TRIM
- ☐ PAINTED 361 CHAMPAGNE DARK
- ☐ FINISHED SENERFLEX SAND FINISH

POLE COVERS
- ☐ .063 ALUMINUM POLE COVER
- ☐ PAINTED 342 PARCHMENT LIGHT
- ☐ FINISHED SENERFLEX SAND FINISH

NOTE: FABRICATION AND INSTALLATION PER UL SPECIFICATIONS. INSTALL IN ACCORDANCE WITH THE NEC. ALL SIGNS EQUIPT WITH DISCONNECT SWITCHES.

MAIN SITE SIGN CABINET
- ☐ 30" SIGN CABINET
- ☐ PAINTED 361 CHAMPAGNE
- ☐ FINISHED SENERFLEX SAND FINISH

MAIN SITE SIGN FACES
- ☐ FACES to be .063 ALUMINUM
- ☐ PAINTED 361 CHAMPAGNE
- ☐ FINISHED SENERFLEX SAND FINISH
- ☐ KROGER COPY to be COPED OUT
- ☐ BACK WITH PIGMENTED WHITE PLASTIC
- ☐ with TRANSLUCENT BLUE VINYL INLAY

TENANT SIGNS
- ☐ 30" EXTRUDED ALUMINUM SIGN BOX WITH 2" RETAINERS and DIVIDER BARS
- ☐ PAINTED 361 CHAMPAGNE
- ☐ FINISHED SENERFLEX SAND FINISH

TENANT FACES
- ☐ WHITE PIGMENTED PLASTIC FACES
- ☐ 3M DIE CUT VINYL GRAPHICS (Colors Noted Below)
- ☐ DECORATED FIRST SURFACE

- Fabricate a triple product S/F LED price sign;

CONSTRUCTION:
- Fabricate a triple product S/F LED price sign; using LED units, (2x) red & (1x) green.
- **Illumination:** 12VDC LED backlighting.
- **Cabinet:** .080" aluminum painted black.
- **Commodity panels:** .177" white acrylic decorated with 751 series oracal film 1st surface
  - 751-031 red oracal trans
  - 751-061 green oracal trans

2" x 2" x 1/8" Steel Angle Bolted to Back (Full Length)

10 1/2"

ELECTRICAL:
120 VAC, Total circuits 2, 10A recommended
Circuit 1 (LIGHTS) 1A
Circuit 2 (LED price) 3A

COLOR SPECIFICATIONS

ALUMINUM SIGN STRUCTURE
SENERFLEX SAND FINISH
AND PVC ACCENTS

361 Champagne

342 Parchment

KROGER
- WHITE
- ORACAL 751-49 KING BLUE

DRIVE-THRU
- ORACAL 751 028 CARDINAL RED

The Little Clinic
- ORACAL 751-051 GENTIAN BLUE
- ORACAL 751-326 SIGNAL RED

DIGITAL GRAPHIC

NOTE: FINAL MATERIALS AND COLORS TO MATCH BUILDING SPECIFICATIONS.

SIGN VISION

CORPORATE OFFICES:
987 CLAYCRAFT ROAD
COLUMBUS, OHIO 43230
PHONE: (614) 475-5161

JOB TITLE:
KROGER N-232
REYNOLDSBURG, OHIO

DATE: MARCH 16,2016
SALESMAN: DARRIN GRAY
DESIGNER: SANDI DANIEL
DRAWING #2016-88

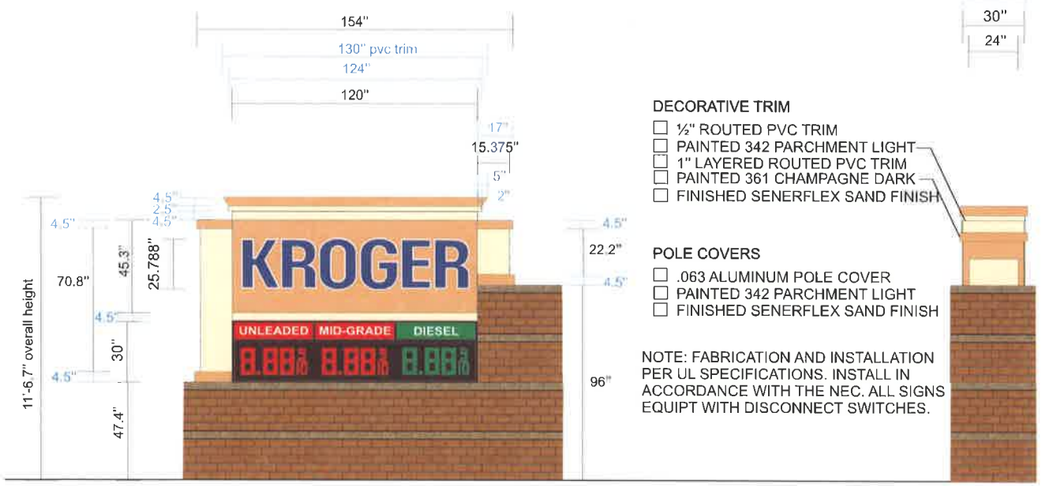
FILE: KROGER18868
REVISION: 3 22 16
REVISION:
REVISION:

APPROVED ☐
APPROVED WITH CORRECTIONS ☐
NOT APPROVED RESUBMIT ☐
SIGNATURE: _____

YOUR SIGNATURE REPRESENTS FINAL APPROVAL. PLEASE LOOK OVER CAREFULLY. CHECK ALL SPELLING AND GRAMMAR. SIGN VISION CAN NOT BE RESPONSIBLE FOR ANY ERRORS AFTER FINAL APPROVAL

CUSTOM FABRICATED DOUBLE FACED PYLON SIGN

SCALE 1/4" = 1'-0"



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  - 751-031 red oracal trans
  - 751-061 green oracal trans

2" x 2" x 1/8" Steel Angle Bolted to Back (Full Length)

10 1/2"

ELECTRICAL:
120 VAC, Total circuits 2, 10A recommended
Circuit 1 (LIGHTS) 1A
Circuit 2 (LED price) 3A

COLOR SPECIFICATIONS

ALUMINUM SIGN STRUCTURE
SENERFLEX SAND FINISH
AND PVC ACCENTS

361 Champagne **342** Parchment

KROGER ☐ WHITE ■ ORACAL 751-49 KING BLUE

DRIVE-THRU

The Little Clinic

ORACAL 751-051 GENTIAN BLUE

ORACAL 751-326 SIGNAL RED

STARBUCKS COFFEE

DIGITAL GRAPHIC

NOTE: FINAL MATERIALS AND COLORS TO MATCH BUILDING SPECIFICATIONS.

SIGN VISION

CORPORATE OFFICES:
987 CLAYCRAFT ROAD
COLUMBUS, OHIO 43230
PHONE: (614) 475-5161

JOB TITLE:
KROGER N-232
REYNOLDSBURG, OHIO

DATE: MARCH 16,2016
SALESMAN: DARRIN GRAY
DESIGNER: SAND DANIEL
DRAWING #2016-438

FILE: KROGER16088sg2
REVISION: 3 22 16
REVISION:
REVISION:

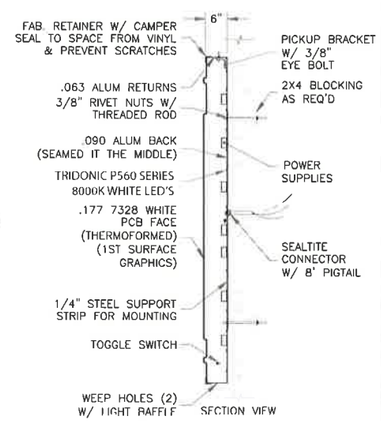
APPROVED ☐
APPROVED WITH CORRECTIONS ☐
NOT APPROVED RESUBMIT ☐
SIGNATURE: _____

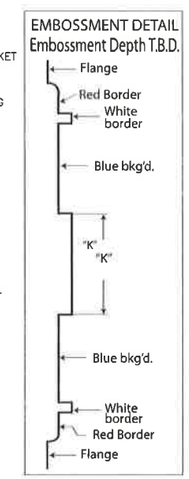
YOUR SIGNATURE REPRESENTS FINAL APPROVAL. PLEASE LOOK OVER CAREFULLY. CHECK ALL SPELLING AND GRAMMAR. SIGN VISION CAN NOT BE RESPONSIBLE FOR ANY ERRORS AFTER FINAL APPROVAL.

SINGLE FACE WALL SIGN

PAN FORMED POLYCARBONATE FACE
EMBOSSED GRAPHICS.
RED AND BLUE VINYL GRAPHICS

- 3630-157
- 3630-33
- WHITE
- RETURNS: AKZO TO MATCH MATTHEWS P&L 2530 CATTAIL GRAY (Gloss Level T.B.D.)





SCALE: 1" = 1'-0"

CUMMINGS

THIS DESIGN REMAINS OUR (CS) OWN PROPERTY AND CANNOT BE DUPLICATED WITHOUT WRITTEN CONSENT

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CUSTOMER APPROVAL: _____

DATE: _____

	DATE	BY		DATE	BY
Rev. #1			Rev. #4		
Rev. #2			Rev. #5		
Rev. #3			Rev. #6		

Kroger

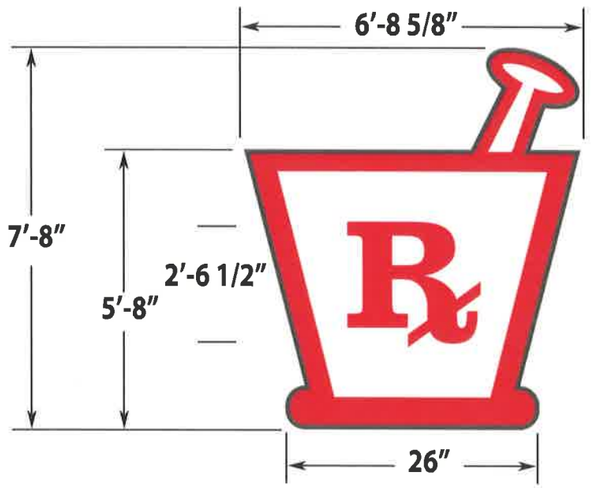
DRAWING NO: 80586.05A

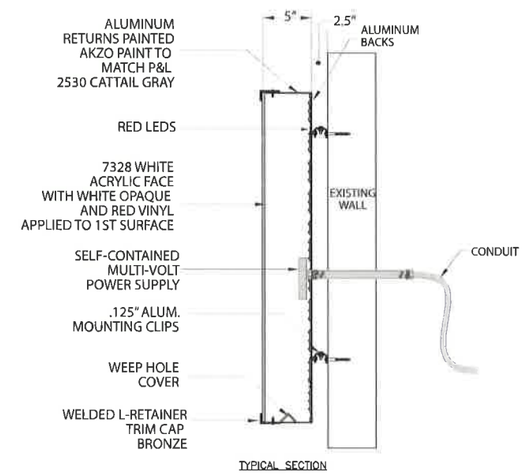
DATE: 9-10-2015

S. Hawke

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

CHANNEL LETTER SET





WHITE ACRYLIC FACE
WITH 3M 3630-73 DARK RED VINYL
APPLIED TO 1ST SURFACE

WELDED L-RETAINER
TRIMCAP BRONZE

FILLER:
AKZO TO MATCH
MATTHEWS P&L 2530
CATTAIL GRAY

403-CL92-RX-M&P-SC

CUMMINGS

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CUSTOMER APPROVAL:

DATE:

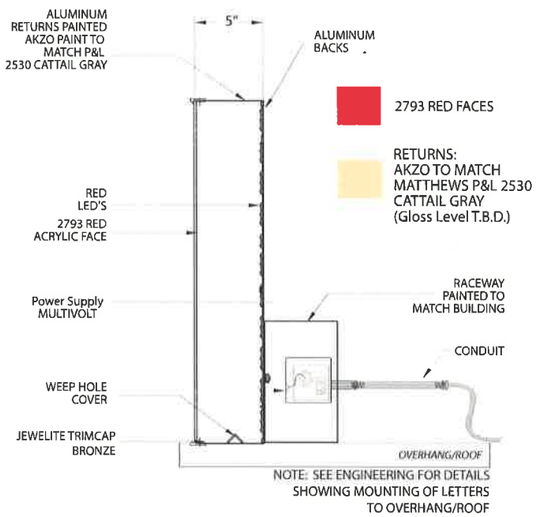
	DATE	BY		DATE	BY
Rev. #1			Rev. #4		
Rev. #2			Rev. #5		
Rev. #3			Rev. #6		

Kroger

DRAWING NO: 80586.09
DATE: 8-8-2015
S. Hawke

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

LED ILLUMINATED LETTER SET



CUMMINGS

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CUSTOMER APPROVAL: _____

DATE: _____

	DATE	BY		DATE	BY
Rev. #1			Rev. #4		
Rev. #2			Rev. #5		
Rev. #3			Rev. #6		

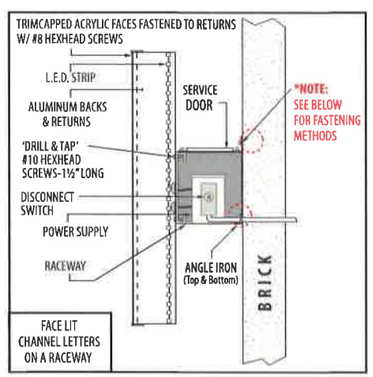
Kroger

DRAWING NO: 81876A

DATE: 1-28-2016

B. Hawke

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)



*BRICK FASCIA: 3/8" x 3" Lag & Shields x _____minimum req'd.

'The' 'Clinic' LETTER CHANNELS
- .040 alum. returns pre-finished Gloss Black; .050 alum. backs.
- Channel interiors pre-finished Reflective White.
- 3/16" Plexiglas® #7328 White acrylic faces.
- 1" Wagner-Zip Change® Jewelite™ Black trimcap.
- White L.E.D. illum.

LOGO CHANNEL
- .040 alum. returns pre-finished Gloss Black; .050 alum. back.
- Channel interior pre-finished Reflective White.
- 3/16" Plexiglas® #7328 White acrylic face w/ first surface 3M #3630-167 Bright Blue trans. vinyl.
- 1" Wagner-Zip Change® Jewelite™ New Intense Blue trimcap.
- White L.E.D. illum.

STETHESCOPE
- 1/2" thk. acrylic painted MP 30132 Jet Black (High Gloss).
- Epoxy/glued to back of trimcap and for added rigidity and depth.

RACEWAY
- .080 alum. formed 7.5" x 7.5" x 13'; painted MP 15720 Med. Bronze.
- 1" x .125 alum. spreader welded on 12"–18" centers continuous.
- 2" x .250 alum. mounting straps welded on 4' centers as req'd based on length.
- Top bolts exposed; bottom bolts hidden within raceway.
- Two (2) 2" x .250 flat lifting bars placed to balance lift load.
- Power supplies: as required.

ELECTRICAL
- U.L. listed and labeled.
- 2" x 4" weatherproof disconnect box/switch(es), painted to match raceway.

MULTI-VOLT TRANSFORMER

49.69 sq.ft.

CUMMINGS SIGNS
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CUSTOMER APPROVAL: _____

DATE: _____

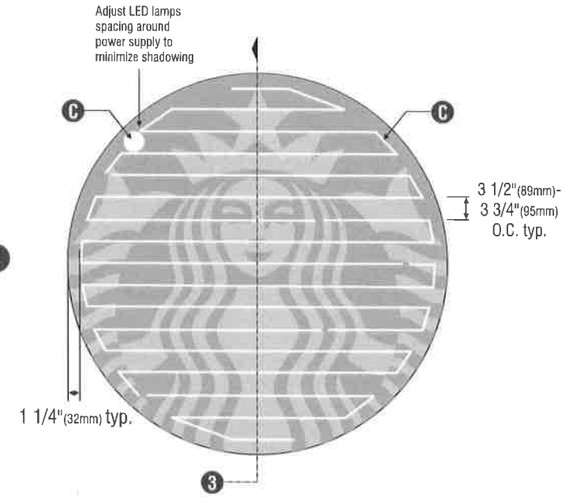
	DATE	BY
Rev. #1	5-16-2011	S.H.
Rev. #2		
Rev. #3		
Rev. #4		
Rev. #5		
Rev. #6		

Kroger

DRAWING NO: 65117.01
DATE: 5-13-2011
B. Hawke

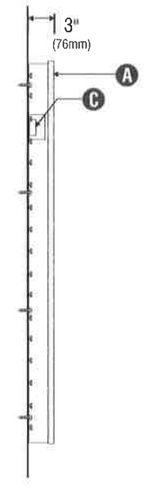
Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

1 **Front View**
Scale: 1/2" = 1'-0"



2 **LED Detail**
Scale: 1/2" = 1'-0"

LED's Provided By LUMificient



3 **Section View**
Scale: 1/2" = 1'-0"

4 **Side View**
Scale: 1/2" = 1'-0"

SPECIFICATIONS:

A 60"(1524mm) Single faced internally illuminated wall mount logo disk. Cabinet to be 3"(76mm) deep, fabricated aluminum sidewalls and back. Paint cabinet black polyurethane. Faces to be 3/16"(5mm) Acrylite 015-2GP. 1"(25mm) black trimcap with square head screws retainer edging.

B Graphics of logo to be 1st surface 3M Translucent Scotchcal vinyl- Holly Green #3630-76. Siren to show thru White.

C Internally illuminate logo disk with Lumificient™ white LED's installed to back of disk. Power with self-contained Lumificent™ power supply contained with an U.L. enclosure covered in white vinyl film. Fasten to wall with required fasteners.

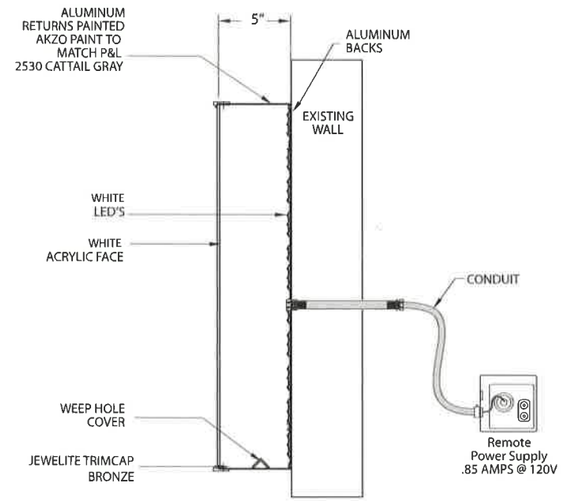
Sign must be approved by the National Electrical Code, Underwriters Laboratory, CUL, and all applicable local codes. Disconnect switch in primary to be within sight of sign (sign includes power supply enclosure) REF: NEC 110-3[B] 600-2, 600-4. Primary electrical source 1/2"(13mm) conduit minimum) REF: NEC 600-6, 600-21(provided by installer).

Disk 60in S/F Illuminated wall mount EVOLVED			
Size	Sq.Ft.	Sq.M.	Volts
60" (1524mm)	19.62	1.82	120

Design ID #13164

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

DRIVE THRU CANOPY SIGNAGE



LETTER DETAIL

WHITE ACRYLIC FACE

BRONZE JEWELITE

RETURNS:
AKZO TO MATCH
MATTHEWS P&L 2530
CATTAIL GRAY
(Gloss Level T.B.D.)

Actual Sq. Ft.: 2.63

CUMMINGS SIGNS
The International Sign Service
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CUSTOMER APPROVAL: _____

DATE: _____

	DATE	BY		DATE	BY
Rev #1			Rev #4		
Rev #2			Rev #5		
Rev #3			Rev #6		

Kroger

DRAWING NO: 54862 A
DATE: 4-29-09
S. Hawke

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

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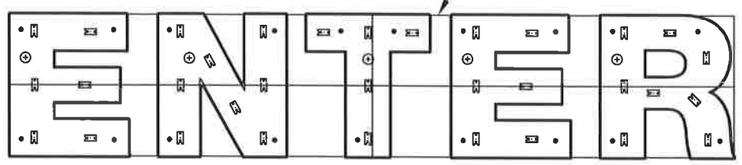
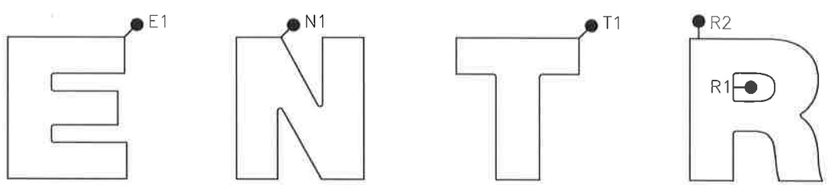
ECR	REV	REVISIONS	DATE	BY

INSTALL PATTERN : KR2051i.DXF/PLT



BOXED SQ. FT.: 5.13
ACTUAL SQ. FT.: 2.63

LED MODULE	PERMLIGHT TWISTER NITRO 777–WHT–A8 WHITE					
LETTERS	E	N	T	E	R	
LED TOTAL	6	8	5	6	8	33 TOTAL LEDS
LEDS PER CHANNEL	33					
POWER SUPPLIES	CHANNEL 1					
	(1) PERMLIGHT 60–12D 120V (0.65 AMPS) 40 LED MODULES MAX – 1 CHANNEL					0.65 TOTAL AMPS



KR2051P1.JOB
(2) REQUIRED
E1 – 70"

KR2051P2.JOB
(1) REQUIRED
N1 – 67"

KR2051P3.JOB
(1) REQUIRED
T1 – 47"

KR2051P4.JOB
(1) REQUIRED
R1 – 14"
R2 – 56"

.050 X 5.33 ALUMINUM COIL
ACCUBEND FILE : KR2051B.DXF
TOTAL RETURN LENGTH – 27 LF

NOTES:

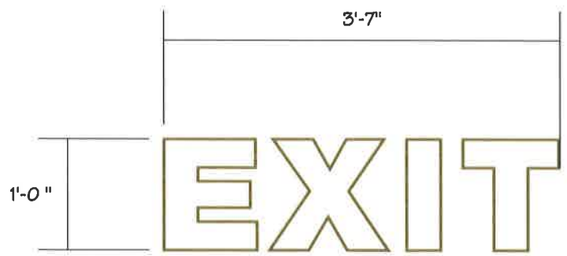
CUMMINGS SIGNS.
4255 NAPIER FIELD RD
DOTHAN, AL 36303
PHONE: (334) 983-8000
FAX: (334) 983-1379

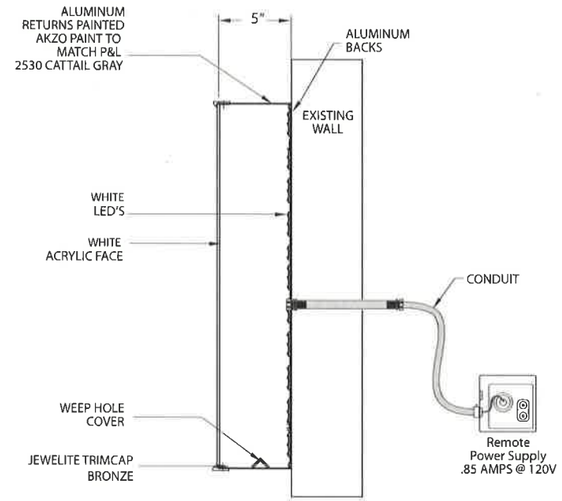
CUSTOMER: KROGER				ITEM NUMBER: KR205102
CODE	PAGE LAYOUT: ELECTRICAL			
ITEM DESCRIPTION: 1'–0" ENTER REMOTE CHNL LTRS FACE LIT WITH WHITE LEDS				
LOCATION: VARIOUS			DRAWN BY: ERIC ELLENBURG	
SCALE: 1:8	ENGINEER: JEFF WELLS		ACCOUNT REPRESENTATIVE	
SHEET: 2 OF 3	BOXED SQ FT: 5.1	ITEM NUMBER: KR205102		REV: –
WIND LOAD (MPH)	EST WEIGHT (LBS)			

DRAWING APPROVED BY
PROGRAM APPROVED BY
RELEASED FOR: PROTOTYPE BY; 1st RUN BY; PRODUCTION 05/04/2009 BY EE

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

DRIVE THRU CANOPY SIGNAGE





LETTER DETAIL

WHITE ACRYLIC FACE

BRONZE JEWELITE

RETURNS:
AKZO TO MATCH
MATTHEWS P&L 2530
CATTAIL GRAY
(Gloss Level T.B.D.)

Actual Sq. Ft.: 2.05

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CUSTOMER APPROVAL: _____

DATE: _____

	DATE	BY		DATE	BY
Rev. #1			Rev. #4		
Rev. #2			Rev. #5		
Rev. #3			Rev. #6		

Kroger

DRAWING NO: 54862 B
DATE: 4-29-09
S. Hawks

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

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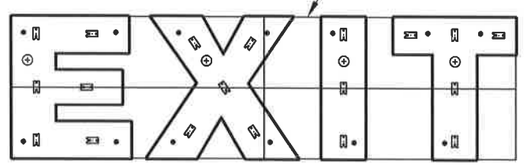
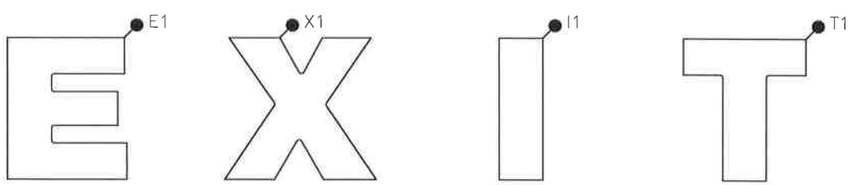
ECR	REV	REVISIONS	DATE	BY

INSTALL PATTERN : KR2052i.DXF/PLT



BOXED SQ. FT.: 3.57
ACTUAL SQ. FT.: 2.05

LED MODULE	PERMLIGHT TWISTER NITRO 777-WHT-A8 WHITE				
LETTERS	E	X	I	T	
LED TOTAL	6	5	3	5	19 TOTAL LEDS
LEDS PER CHANNEL	19				
POWER SUPPLIES	CHANNEL 1				
	(1) PERMLIGHT 60-12D 120V (0.65 AMPS) 40 LED MODULES MAX - 1 CHANNEL				0.65 TOTAL AMPS



KR2052P1.JOB
(1) REQUIRED
E1 - 70"

KR2052P2.JOB
(1) REQUIRED
X1 - 65"

KR2052P3.JOB
(1) REQUIRED
I1 - 34"

KR2052P4.JOB
(1) REQUIRED
T1 - 47"

.050 X 5.33 ALUMINUM COIL
ACCUBEND FILE : KR2052B.DXF
TOTAL RETURN LENGTH - 18 LF

NOTES:

CUMMINGS SIGNS.
4255 NAPIER FIELD RD
DOTHAN, AL 36303
PHONE: (334) 983-8000
FAX: (334) 983-1379

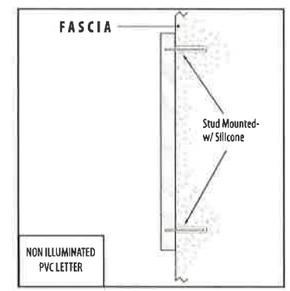
CUSTOMER: KROGER			ITEM NUMBER: KR205202
CODE	PAGE LAYOUT: ELECTRICAL		
ITEM DESCRIPTION: 1'-0" EXIT REMOTE CHNL LTRS FACE LIT WITH WHITE LEDS			
LOCATION: VARIOUS		DRAWN BY: ERIC ELLENBURG	
SCALE: 1:8	ENGINEER: JEFF WELLS	ACCOUNT REPRESENTATIVE	
SHEET: 2 OF 3	BOXED SQ FT: 5.1	ITEM NUMBER: KR205202	REV: —
WIND LOAD (MPH)	EST WEIGHT (LBS)		

RELEASED FOR		BY
DRAWING APPROVED		BY
PROGRAM APPROVED		BY
PROTOTYPE		BY
1st RUN		BY
PRODUCTION	05/04/2009	EE

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

MULTIPLE LANE DRIVE THRU CANOPY SIGNAGE

*INSTALLATION:
Centered top to bottom, left to right over canopy bay on flat portion of façade.



CUMMINGS SIGNS
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CUSTOMER APPROVAL: _____

DATE: _____

	DATE	BY		DATE	BY
Rev. #1			Rev. #4		
Rev. #2			Rev. #5		
Rev. #3			Rev. #6		

Kroger

DRAWING NO: 55109
DATE: 5-12-09
B. Hawke

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

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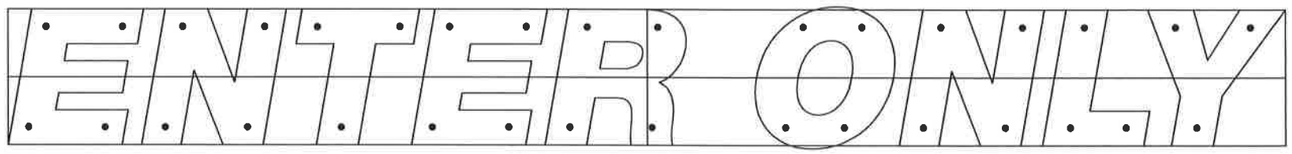
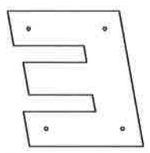
ECR	REV	REVISIONS	DATE	BY

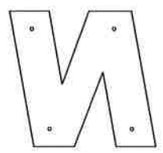


INSTALL PATTERN : KR2067i.DXF/PLT

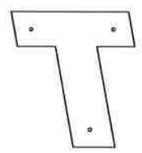
BOXED SQ. FT.: 2.17
ACTUAL SQ. FT.: 1.33



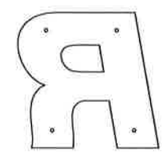
PARTNO: KR2067P0001
RAWMAT: PVCWHT500
ORDQTY: 2



PARTNO: KR2067P0002
RAWMAT: PVCWHT500
ORDQTY: 2



PARTNO: KR2067P0003
RAWMAT: PVCWHT500
ORDQTY: 1



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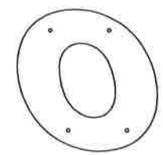

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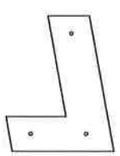

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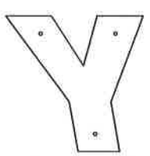


PARTNO: KR2067P0007
RAWMAT: PVCWHT500
ORDQTY: 1

NOTES:

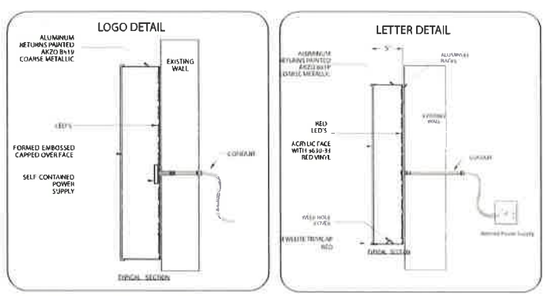
CUMMINGS SIGNS.
4255 NAFIER FIELD RD
DOTHAN, AL 36303
PHONE: (334) 983-8000
FAX: (334) 983-1379

CUSTOMER: KROGER				ITEM NUMBER: KR206702
CODE	PAGE LAYOUT: INSTALL / PROGRAMMING			
ITEM DESCRIPTION: 5 3/4" ENTER ONLY PVC RIGID PVC FOAM LTRS				
DRAWING APPROVED / BY				
PROGRAM APPROVED / BY	LOCATION: VARIOUS		DRAWN BY: ERIC ELLENBURG	
RELEASED FOR: PROTOTYPE / BY	SCALE: 1:4	ENGINEER: JEFF WELLS	ACCOUNT REPRESENTATIVE	
1st RUN / BY	SHEET: 2 OF 2	BOXED SQ FT: 0.84	ITEM NUMBER: KR206702	REV: —
PRODUCTION: 05/19/2009 / BY: EE	WIND LOAD (MPH)	EST WEIGHT (LBS)		

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

FUEL LAYOUTS FOR SUPERMARKET STORES

COPY	KROGER ITEM #	CUMMINGS PART #	
LOGO	K-0045784	403-LOGO-21.5X29-LED	
City Market	K-0045785	403-CL25-CM-RMT120	
Dillons	K-0045786	403-CL28-DILL-RMT120	
Food4Less	K-0045787	403-CL24-F4L-RMT120	
FoodsCo	K-0045788	403-CL18-FCO-RMT120	
FredMeyer	K-0045789	403-CL20-FRMY-RMT120	
Fry's	K-0045790	403-CL24-FRYS-RMT120	
Hilander	K-0045791	403-CL24-HILN-RMT120	
JayC	K-0045792	403-CL30-JAYC-RMT120	
KingScoopers	K-0045793	403-CL30-KING-RMT120	
Kroger	K-0045794	403-CL30-KRG-RMT120	
Owen's	K-0045795	403-CL30-OWN-RMT120	
PayLess	K-0045796	403-CL24-PAYL-RMT120	
QFC	K-0045797	403-CL30-QFC-RMT120	
Ralphs	K-0045798	403-CL30-RALP-RMT120	
Smith's	K-0045799	403-CL20-SMTH-RMT120	
Scotts	K-0045800	403-CL15-SCT-RMT120	
Baker's	K-0045802	403-CL30-BAK-RMT120	
Gerbes	K-0045801	403-CL30-GER-RMT120	



NOTE: INTERNAL WIRING COVERED BY CONDUIT.

COLORS

PANTONE 2726 C	PANTONE 485 C	PANTONE 3135 C	PANTONE 1375 C	PANTONE Cool Gray 4C

CUMMINGS

THIS IS AN ORIGINAL UNPUBLISHED DRAWING CREATED FOR YOUR PERSONAL USE IN CONNECTION WITH A PROJECT PLANNED FOR YOU BY CUMMINGS. IT IS NOT TO BE SHOWN OUTSIDE YOUR ORGANIZATION NOR USED, REPRODUCED, COPIED, OR EXHIBITED IN ANY FASHION UNLESS AUTHORIZED IN WRITING BY AN OFFICER OF CUMMINGS SIGNS.

CUSTOMER APPROVAL:

DATE:

	DATE	BY		DATE	BY
Rev. #1			Rev. #4		
Rev. #2			Rev. #5		
Rev. #3			Rev. #6		

The Kroger Co.

DRAWING NO: 74126.05

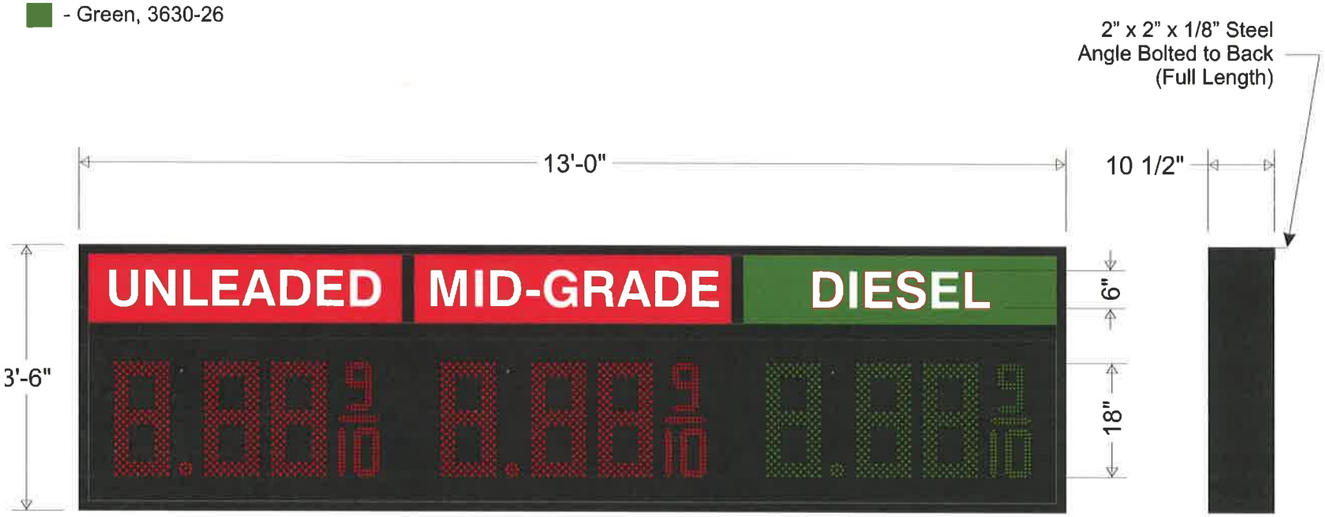
DATE: 1-23-2014

S. Hawke

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

CONSTRUCTION:
- Fabricate a triple product S/F LED price sign; using 18" LED units, (2x) red & (1x) green.
- **Illumination:** 12VDC LED backlighting.
- **Cabinet:** .080" aluminum painted black.
- **Commodity panels:**
  .177" white acrylic decorated with 3M 3630 scotchcal film 1st surface
  - Red, 3630-33
  - Green, 3630-26

ELECTRICAL:
120 VAC, Total circuits 2, 10A recommended
Circuit 1 (LIGHTS) 1A
Circuit 2 (LED price) 3A



ELEVATION
SCALE: 1/2" = 1'-0"

SIGN AREA: 45.5 sqft

LANDMARK
Sign Alliance, Inc
Working Together For You

Phone: **719.220.0075**

Client:

Date:
08/17/2014

Drawn by:
MLB

Revisions:
9/7/14; depth was 9"
10/7/14; depth was 12"
1/26/15; updated notes

Drawing Number:
140817.1

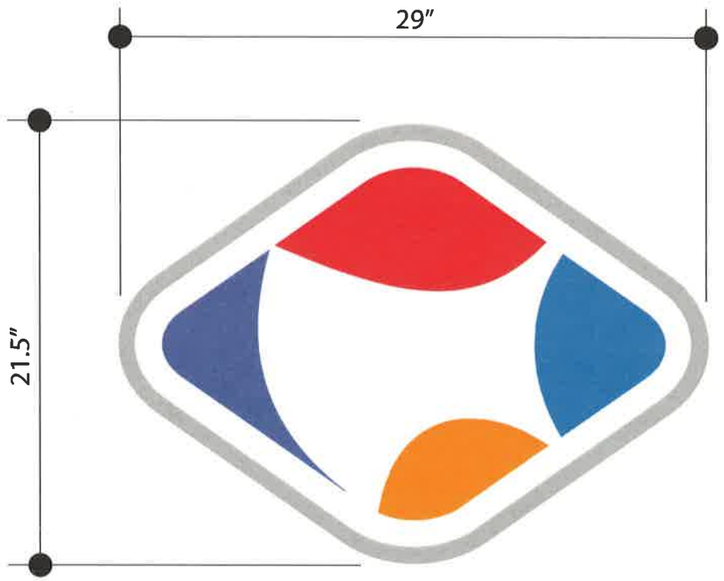
Sheet:
1 of 3

Approved:

Notes:

This is an original unpublished drawir created by LM Inc. It is submitted for yo personal use in conjunction with a proje being planned for you by LM Inc. It is not be shown to anyone outside yo organization, nor is it to be used, copie

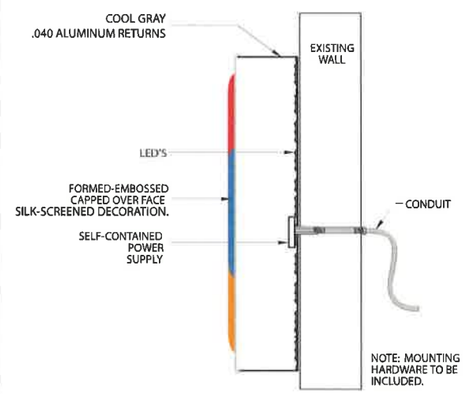
Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)



COLORS

PANTONE 2726 C	PANTONE 485 C	PANTONE 3135 C	PANTONE 1375 C	PANTONE Cool Gray 4C

INTERNALLY ILLUMINATED WALL SIGN.
ILLUMINATED LOGO ICON
WALL MOUNT



LOGO DETAIL

CUMMINGS

THIS IS AN ORIGINAL UNPUBLISHED DRAWING CREATED FOR YOUR PERSONAL USE IN CONNECTION WITH A PROJECT PLANNED FOR YOU BY CUMMINGS SIGNS. IT IS NOT TO BE SHOWN OUTSIDE YOUR ORGANIZATION NOR USED, REPRODUCED, COPIED, OR EXHIBITED IN ANY FASHION UNLESS AUTHORIZED IN WRITING BY AN OFFICER OF CUMMINGS SIGNS.

CUSTOMER APPROVAL:

DATE:

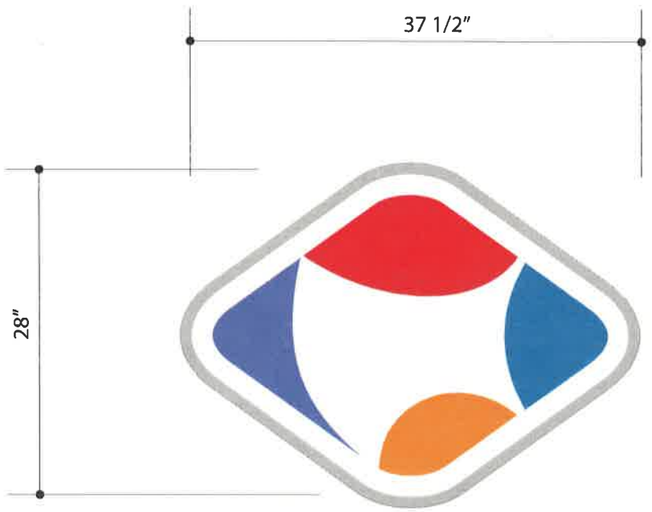
	DATE	BY		DATE	BY
Rev. #1			Rev. #4		
Rev. #2			Rev. #5		
Rev. #3			Rev. #6		

Kroger

DRAWING NO:
75140.02
DATE: 1-13-2014
S. Hawke

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)

060-00005018 WALL LOGO



NON-ILLUMINATED
LOGO ICON
WALL MOUNT

FORMED POLYCARBONATE FACE WITH
EMBOSSED GRAPHICS.

MOUNTING HARDWARE TO BE INCLUDED.

THIS SIGN TO BE USED ON KIOSK.

COLORS

PANTONE 2726 C	PANTONE 485 C	PANTONE 3135 C	PANTONE 1375 C	PANTONE Cool Gray 4C

403-LOGO28X37-PETRO

CUMMINGS SIGNS. The International Sign Service

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CUSTOMER APPROVAL:

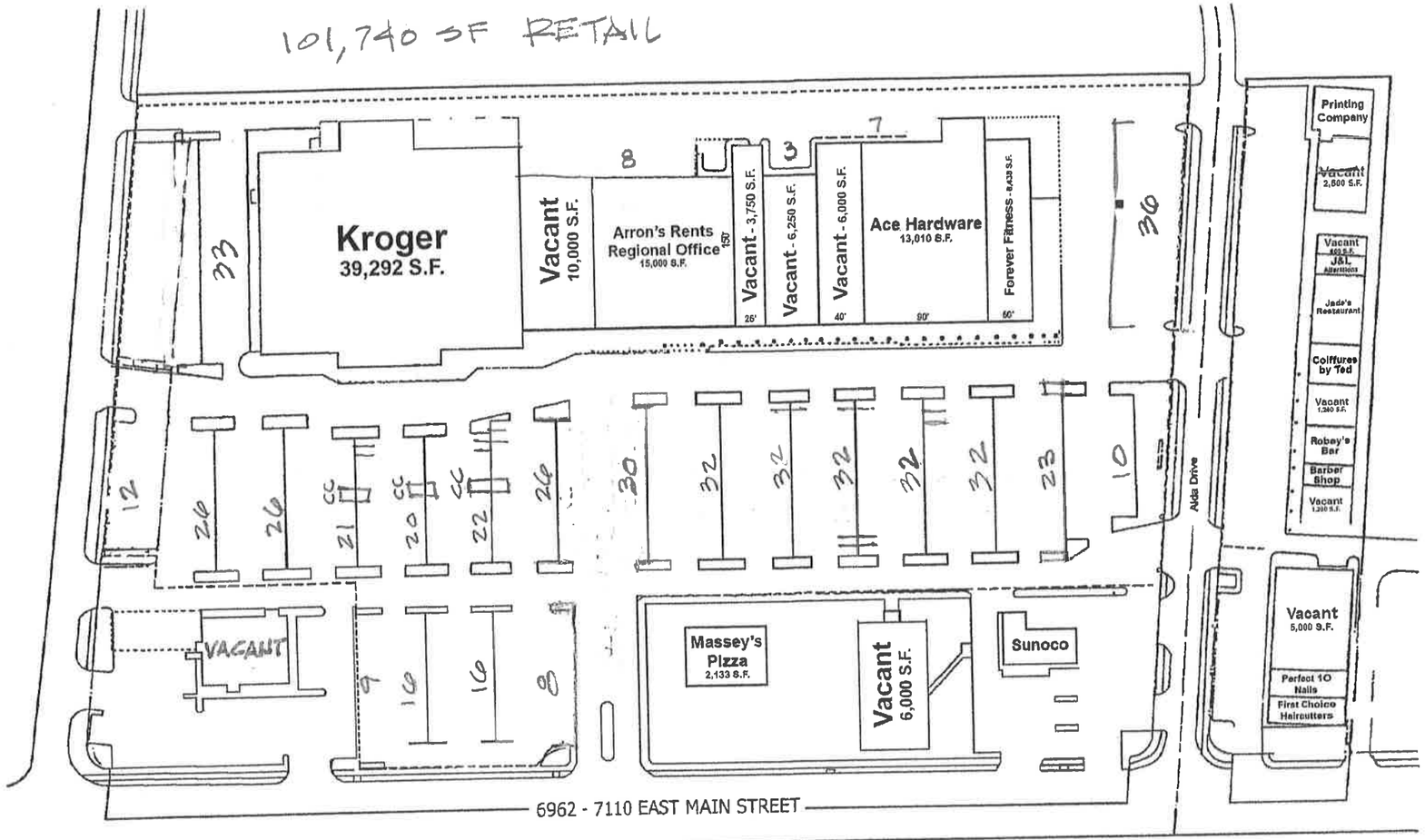
DATE:

	DATE	BY		DATE	BY
Rev. #1			Rev. #4		
Rev. #2			Rev. #5		
Rev. #3			Rev. #6		

Kroger

DRAWING NO:
53154.54
DATE: 2-9-09
S. Hawke

Attachment: Kroger Signs (1400 : 6630 E. Main St.; Application #173136; Applicant: Tony Fredenberg)



513 TL. SPCS

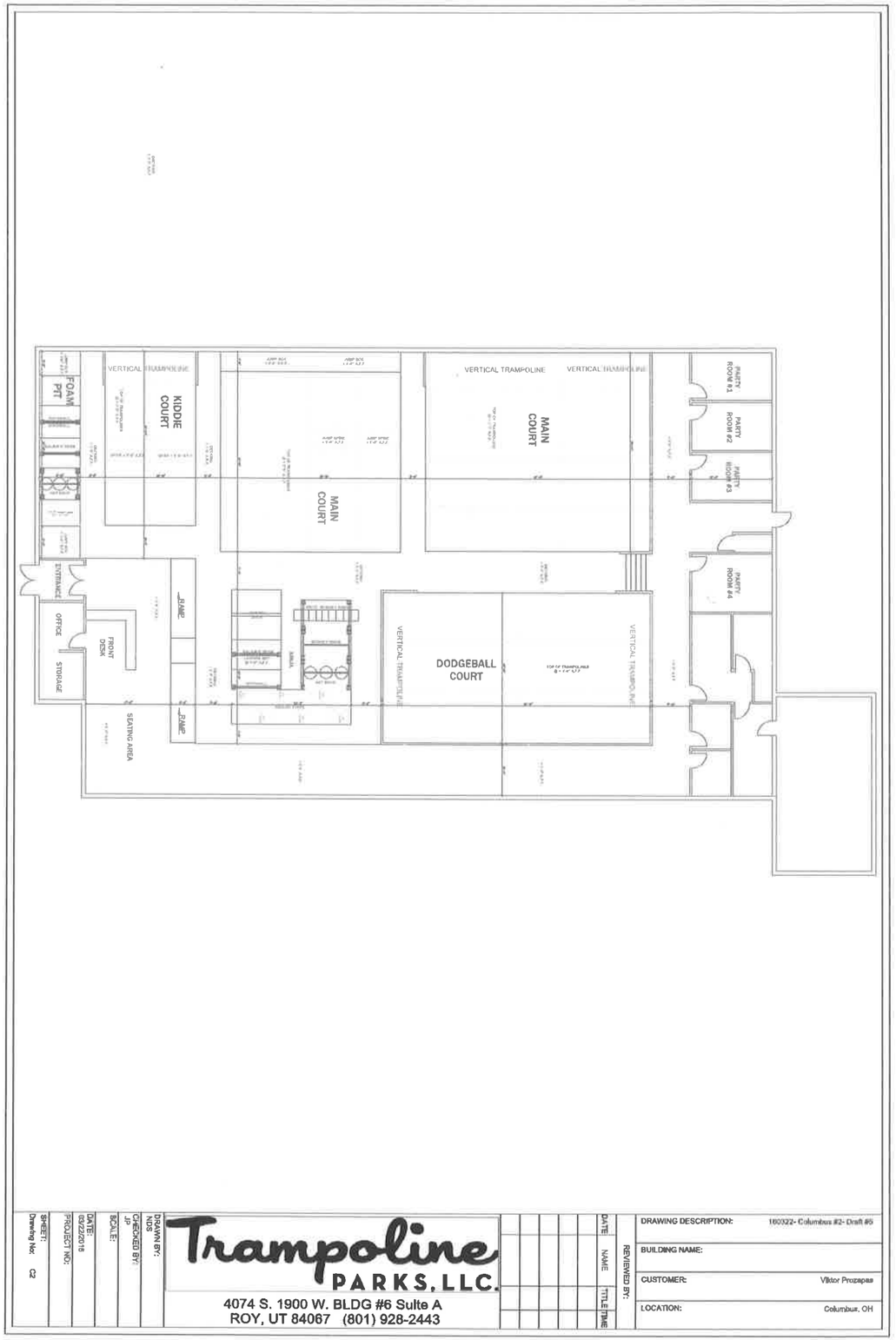
101,740 ÷ 1/200 SF.
= 509 SP. REQ'D.

Reynoldsburg Center

Reynoldsburg, Ohio

Attachment: 7088 E. Main St.; Application #173147 (1428 : 7088 E. Main St.; Application #173147: Applicant Viktor Prozapas)

Signature:
Email: gramkwop@hotmail.com



Trampoline PARKS, LLC.
4074 S. 1900 W. BLDG #6 Suite A
ROY, UT 84067 (801) 928-2443

DRAWN BY: NDS
CHECKED BY: JP
SCALE:
DATE: 03/22/2016
PROJECT NO:
SHEET: Drawing No: C2

REVIEWED BY:	DATE	NAME	TITLE/TIME

DRAWING DESCRIPTION:	160322- Columbus #2- Draft #5
BUILDING NAME:	
CUSTOMER:	Viktor Prozapas
LOCATION:	Columbus, OH

Attachment: 7088 E. Main St.; Application #173147 (1428 : 7088 E. Main St.; Application #173147: Applicant Viktor Prozapas)

Adrenalin Trampoline Park LLC
3708 Fishinger Boulevard
Hilliard, OH 43026
Phone (614) 537-9441

March 28, 2016

Subject: Adrenalin Trampoline Park – Description of Activities

Ace Hardware is currently located at 7088 E Main St. Reynoldsburg, Ohio. The Ace Hardware at this present location is set to be shut down by April 30, 2016.

The Ace Hardware is located in the Reynoldsburg Center, the 7000 block of East Main Street, which includes: Aaron's, Kroger, Forever Fitness and Masseys Pizza.

Behind the center, there are residential homes, separated by a steel fence. The front of the Center is all commercial use.

We are proposing to use the existing Ace Hardware to develop The Adrenalin Trampoline Park.

Attachment: 7088 E. Main St.; Application #173147: Applicant Viktor Prozapas) (1428 : 7088 E. Main St.; Application #173147: Applicant Viktor Prozapas)

Adrenalin Trampoline Park LLC
3708 Fishinger Boulevard
Hilliard, OH 43026
Phone (614) 537-9441

March 28, 2016

Subject: Adrenalin Trampoline Park – Description of Activities

Trampoline Parks have become incredibly popular in last 5 years. For the City of Reynoldsburg, Adrenalin would make a great addition as it offers a huge variety of activities for kids and adults such as: dodge ball, jumping, exercising for any age, birthday parties and local corporate events.

Hours of Operation: Monday - Thursday 11am-9pm
Friday - Saturday 11am- 11pm
Sunday 10am-8pm.

Anticipated number of employees: 25 people.

The main bulk of our staffing with High School Students, as it will offer our young students an opportunity to find a job nearby, close to their home.

The Adrenalin Trampoline Park is a sport/recreational activity, great for any age. It is a destination spot, a place for people from our Surrounding Reynoldsburg neighborhoods. We have seen in our other park, our guests tend to travel some distance to be part of the wholesome family fun.

On average over 2,000 people visit the Adrenalin Trampoline Park, in Hilliard every week. Adrenalin will more traffic to this Plaza which has 60% vacancy.

There is a strong possibility with the amount of people and attention the Trampoline Park brings, it may bring new businesses to the Plaza, thereby reducing the amount of open vacancies currently carried.

Attachment: 7088 E. Main St.; Application #173147 (1428 : 7088 E. Main St.; Application #173147: Applicant Viktor Prozapas)

Adrenalin Trampoline Park LLC
3708 Fishinger Boulevard
Hilliard, OH 43026
Phone (614) 537-9441

March 28, 2016

Subject: Adrenalin Trampoline Park – Narrative of Proposed Use.

The existing use of 7088 E Main St. Reynoldsburg, Ohio – is a retail store with a huge (frontal) parking lot, located in the Shopping Plaza.

Trampoline Parks provide a wholesome environment on the surrounding businesses and communities. Our Adrenalin Trampoline Park will revitalize the Shopping Plaza, which is currently 60% vacant. It is a wonderful place for kids and adults to exercise and have an overall fun family experience.

Layout and plans of existing space won't be changed and new trampoline park will go in same space. It will not have any effect on any adjacent lots or traffic because there is easy access and exit to the shopping plaza and a lot of the spaces are empty.

Attachment: 7088 E. Main St.; Application #173147 (1428 : 7088 E. Main St.; Application #173147: Applicant Viktor Prozapas)

Adrenalin Trampoline Park LLC
3708 Fishinger Boulevard
Hilliard, OH 43026
Phone (614) 537-9441

March 28, 2016

Subject: Adrenalin Trampoline Park
Section 1145.09 "Standards and Requirements for all special exceptions."

A. The Adrenalin Trampoline Park will be in harmony with the existing character of the district and the nearby affected districts and shall not change the essential character of the districts;

B. The Adrenalin Trampoline Park will not adversely affect the use of the adjacent property;

C. The Adrenalin Trampoline Park will not adversely affect the health, safety, morals or welfare of persons residing or working in the neighborhood;

D. The Adrenalin Trampoline Park will be served adequately by public facilities and services such as, but not limited to, roads, police, and fire protection, storm water facilities, water, sanitary sewer and schools;

E. The Adrenalin Trampoline Park shall not impose a traffic impact upon the public right-of-way significantly different from that anticipated from permitted uses of the district;

F. The Adrenalin Trampoline Park shall be in accord with the general and specific objectives, and the purpose and intent of this Zoning Code and the Land Use Plan and any other plans and ordinances of the City;

G. The Adrenalin Trampoline Park will comply with the applicable specific provisions and standards of this Code;

H. The Adrenalin Trampoline Park shall be found to meet the definition and intent of a use specifically listed as a special exception in the District in which it is proposed to be located, except as otherwise providing by this Zoning Code.

Attachment: 7088 E. Main St.; Application #173147 (1428 : 7088 E. Main St.; Application #173147: Applicant Viktor Prozapas)