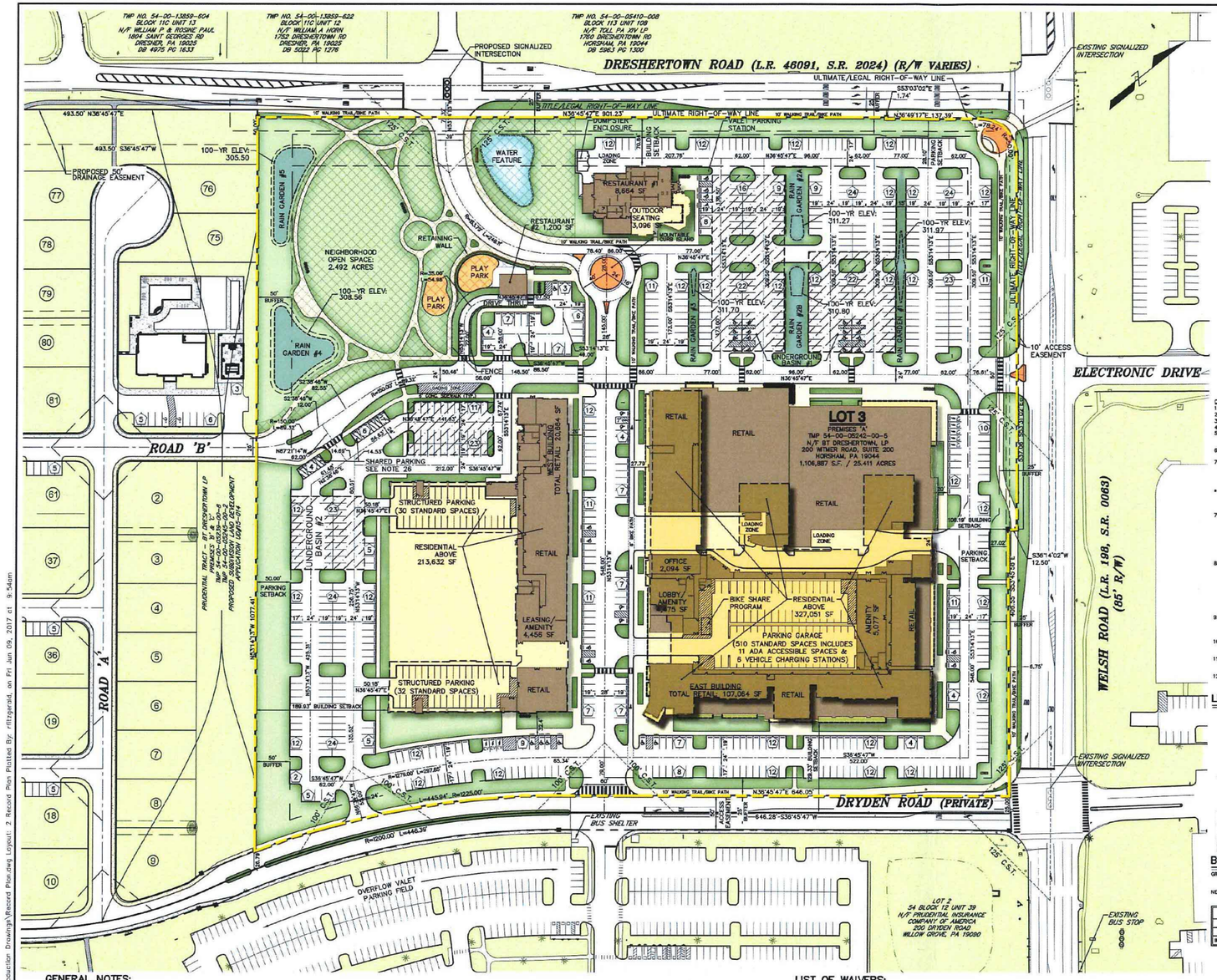
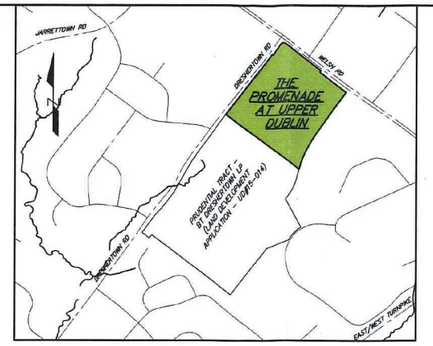
BT Dreshertown, LP
Conditional Use Hearing
Upper Dublin Township Board of Commissioners

Applicant Exhibits:

1. Power Point Presentation
   a. Aerial Map of the Property.
   b. Rendered Site Plan.
   c. Project Renderings.
   d. Traffic Improvement Aerial Map/Exhibits and Summary of Traffic Improvements.
2. Proposed Conditions for Grant of Conditional Use Approval.
3. CV of John Kennedy.
4. Record Plan, Sheet 2 of 52 of the Preliminary/Final Land Development Plan and Site Plan, prepared by Gilmore & Associates, dated February 10, 2017, last revised June 12, 2017.
5. Planning Report for the Promenade at Upper Dublin, prepared by John Kennedy, AICP, last revised June 12, 2017.
6. Transportation Impact Study for the Promenade at Upper Dublin, prepared by McMahon Associates, Inc., dated March 2016, last revised February 2017.

Google earth
© 2016 Google
1000 ft
N
Blair Mill Rd
Electronic Dr
Jarrettstown Rd
Saxon Ln
Devonshire Rd
Marylan Rd





LOCATION MAP

800 0 800 1600
SCALE IN FEET

SCALE: 1"=800'

ZONING DATA

DISTRICT CLASSIFICATION:
"OCC" – OFFICE CENTER DISTRICT
PROPOSED USE: MIXED USE DEVELOPMENT

CRITERIA:	REQUIRED:	PROVIDED:
1. GROSS LOT AREA (MINIMUM):	20 ACRES	25.411 ACRES
2. PRINCIPAL BUILDING HEIGHT (MAXIMUM):	65 FEET*	65 FEET*
3. LOT BUILDING COVERAGE (MAXIMUM):	40%	33.9% (PROPOSED)
4. LOT IMPERVIOUS SURFACE (MAXIMUM):	70%	69.5% (PROPOSED)
5. MINIMUM SETBACK TO ANY PUBLIC HIGHWAY OR ULTIMATE PUBLIC RIGHT-OF-WAY, OR TO ANY TOLL OR CONTROLLED PUBLIC HIGHWAY RIGHT-OF-WAY:	70 FEET	70.64 FEET
6. MINIMUM SETBACK TO ANY OTHER PROPERTY LINE OR THE CENTER LINE OF ANY EXISTING PRIVATE ROAD:	50 FEET	129.33 FEET
7. MINIMUM PARKING SETBACK TO ANY PUBLIC HIGHWAY OR ULTIMATE PUBLIC RIGHT-OF-WAY, OR TO ANY TOLL OR CONTROLLED PUBLIC HIGHWAY RIGHT-OF-WAY, OR ANY OTHER PROPERTY LINE.	25 FEET	25 FEET

* HEIGHT OF BUILDING – THE BUILDING'S VERTICAL MEASUREMENT FROM THE FIRST FLOOR GROUND ELEVATION (NOT BASEMENT) TO A POINT MIDWAY BETWEEN THE HIGHEST AND LOWEST POINTS OF THE ROOF. IN AREAS WHERE GROUND FLOOR RETAIL ARE PROPOSED, WITHOUT RESIDENTIAL ABOVE, MAXIMUM BUILDING HEIGHT SHALL BE 35 FEET.

7. DENSITY: THE MAXIMUM PERMITTED DENSITY SHALL BE 15 UNITS PER GROSS LOT ACRE (EXPANDABLE TO A MAXIMUM OF 20 UNITS PER GROSS LOT ACRE IF CERTAIN ZONING ORDINANCE CONDITIONS ARE MET).

15 UNITS PER GROSS LOT ACRE + 5.0 UNITS PER GROSS LOT ACRE (SEE BONUS DENSITY TABLE)
= 20.0 UNITS PER GROSS LOT ACRE; THEREFORE, PERMITTED DENSITY = 20 UNITS PER GROSS LOT ACRE.

PROVIDED DENSITY = 402 UNITS/25.411 ACRES = 15.8 UNITS PER GROSS LOT ACRE.

8. NEIGHBORHOOD OPEN SPACE: A MINIMUM OF 10% OF THE NET DEVELOPABLE ACREAGE SHALL BE DEVELOPED AS NEIGHBORHOOD OPEN SPACE. NEIGHBORHOOD OPEN SPACE SHALL CONSIST OF PARKS, PLAZAS, GARDENS, WATER FEATURES AND OTHER SIMILARLY IMPROVED COMMON AREAS AND AMENITIES, PROVIDED FOR THE BENEFIT OF THE RESIDENTS, TENANTS AND/OR CUSTOMERS OF THE MIXED USE DEVELOPMENT, AND THE GENERAL PUBLIC. A PUBLIC ACCESS EASEMENT SHALL BE GRANTED IN FAVOR OF THE TOWNSHIP TO PROVIDE PUBLIC ACCESS TO THE TRAILS AND TO CERTAIN PORTIONS OF THE NEIGHBORHOOD OPEN SPACE WITHIN A MIXED USE DEVELOPMENT THAT ARE APPROPRIATE FOR PUBLIC USE.

REQUIRED NEIGHBORHOOD OPEN SPACE: 0.10 x 24.438 = 2.444 ACRES.
PROVIDED NEIGHBORHOOD OPEN SPACE: 2.492 ACRES (10.20%).

9. BUFFERS: THERE SHALL BE A BUFFER AREA ALONG THE PROPERTY LINE OF A RESIDENTIAL ZONED DISTRICT OF AT LEAST FIFTY (50) FEET, WHICH BUFFER AREA SHALL INCLUDE PLANTING AND LANDSCAPING. THERE SHALL BE A BUFFER AREA OF AT LEAST TWENTY-FIVE (25) FEET WHERE PARKING IS LOCATED ALONG A STREET FRONTAGE, WHICH BUFFER AREA MAY INCLUDE A LOW WALL, FENCING AND/OR LANDSCAPING.

10. ROAD IMPROVEMENTS SHOWN ON THESE PLANS ARE CONCEPTUAL AND SUBJECT TO OBTAINING A HIGHWAY OCCUPANCY PERMIT FOR ALL PROPOSED IMPROVEMENTS.

11. ULTIMATE RIGHT-OF-WAY ALONG DRESHERTOWN ROAD AND WELSH ROAD, IF NOT PREVIOUSLY DEDICATED, IS HEREBY OFFERED FOR DEDICATION TO THE RESPECTIVE AUTHORITIES HAVING JURISDICTION.

12. PROPERTY SHALL BE SUBJECT TO A DECLARATION OF COVENANTS AND RESTRICTIONS TO BE RECORDED WITH, AND MADE A PART OF, THE FINAL LAND DEVELOPMENT PLAN FOR THE PROMENADE AT UPPER DUBLIN.

LEGEND:

- MONUMENT TO BE SET
- (4) PARKING COUNT
- ADA ACCESSIBLE PARKING SPACE
- EV ELECTRIC/HYBRID VEHICLE CHARGING STATION
- PROPOSED WHEEL STOP
- PROPOSED SIGN
- PROPOSED CLEAR SIGHT TRIANGLE (C.S.T.)
- PROPOSED STRIPED CROSSWALK (6' UNLESS OTHERWISE NOTED)
- PROPOSED BIKE PATH
- UNDERGROUND STORMWATER MANAGEMENT FACILITY
- NEIGHBORHOOD OPEN SPACE
- SHARED PARKING FOR NEIGHBORHOOD OPEN SPACE

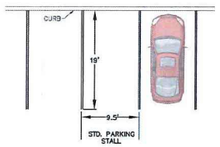
BULK SITE CALCULATIONS:

GROSS LOT AREA = 25.411 ACRES
– 0.346 ACRES (ULTIMATE RIGHT-OF-WAY)
– 0.627 ACRES (DRYDEN ROAD RIGHT-OF-WAY)
NET DEVELOPABLE AREA = 24.438 ACRES

BUILDING & IMPERVIOUS COVERAGE TABLE			
COVER	NET DEVELOPABLE AREA	MAX. PERMITTED	PROPOSED
BUILDING	24.438 ACRES	9.775 ACRES (40%)	5.851 ACRES (23.9%)
IMPERVIOUS	24.438 ACRES	17.107 ACRES (70%)	16.988 ACRES (69.5%)

USE TABLE		
USE	GROSS FLOOR AREA	% OF TOTAL USE
OFFICE	2,094 SF	0.3%
COMMERCIAL	137,062 SF	19.2%
RESIDENTIAL	554,681 SF	77.6%
BUILDING SERVICES	20,530 SF	2.9%
TOTAL:	714,907 SF	100%

MIX REQUIREMENTS: EVERY MIXED USE DEVELOPMENT SHALL PROVIDE A MIX OF OFFICE, COMMERCIAL AND RESIDENTIAL USES AND NO ONE USE MAY UTILIZE MORE THAN EIGHTY PERCENT (80%) OF THE GROSS BUILDING FLOOR AREA.



TYPICAL PARKING STALL DETAIL
NOT TO SCALE

SITE PARKING CALCULATIONS:

NONRESIDENTIAL USES:
4 SPACES PER 1000 SQUARE FEET OF GROSS BUILDING FLOOR AREA

RESIDENTIAL USES:
2.0 SPACES PER DWELLING UNIT

GROSS BUILDING FLOOR AREA	REQUIRED PARKING SPACES	DWELLING UNITS	REQUIRED PARKING SPACES
139,686 SF	559	402	804

TOTAL REQUIRED: 1,363 PARKING SPACES
PARKING PROVIDED:

SURFACE PARKING:		STRUCTURED PARKING:	
STANDARD: 750 SPACES		STANDARD: 555 SPACES	
ADA ACCESSIBLE: 37 SPACES		ADA ACCESSIBLE: 11 SPACES	
EV CHARGING STATIONS: 8 SPACES		EV CHARGING STATIONS: 8 SPACES	
TOTAL SURFACE PARKING: 805 SPACES	TOTAL STRUCTURED PARKING: 572 SPACES		

GRAND TOTAL: 1,377 PARKING SPACES PROVIDED

RECORDING ACKNOWLEDGEMENTS

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF:

ON THIS, THE _____ DAY OF _____, 20____ BEFORE ME, A NOTARY PUBLIC IN AND FOR THE ABOVE COUNTY AND COMMONWEALTH PERSONALLY APPEARED THE UNDERSIGNED OFFICER, _____ OF _____, WHO ACKNOWLEDGES HIMSELF TO BE THE _____ OF _____, A PENNSYLVANIA CORPORATION, THE SOLE GENERAL PARTNER OF _____ AND THAT HE AS SUCH OFFICER, BEING AUTHORIZED TO DO SO, EXECUTED THE FOREGOING INSTRUMENT FOR THE PURPOSES THEREIN CONTAINED BY SIGNING THE NAME OF THE CORPORATION BY HIMSELF, AS _____. IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND OFFICIAL SEAL.

_____
NOTARY PUBLIC

SEAL: _____

ACCEPTANCE OF PLAN

_____, A PENNSYLVANIA CORPORATION, ITS SOLE GENERAL PARTNER, HAVE LAID OUT UPON MY LAND, SITUATED IN THE TOWNSHIP OF UPPER DUBLIN, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA, CERTAIN LOTS AND STREETS (SITE IMPROVEMENTS) ACCORDING TO THE ACCOMPANYING PLAN WHICH IS INTENDED TO BE RECORDED. WITNESS MY HAND AND SEAL THIS _____ DAY OF _____, 20____.

_____

APPROVAL OF TOWNSHIP

APPROVED BY THE BOARD OF COMMISSIONERS OF UPPER DUBLIN TOWNSHIP, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA, ON THE _____ DAY OF _____, 20____, AS SUPPLEMENTED THE _____ DAY OF _____, 20____.

_____
PRESIDENT

_____
SECRETARY

PLANNING COMMISSION REVIEW

REVIEWED BY THE PLANNING COMMISSION OF THE TOWNSHIP OF UPPER DUBLIN ON THIS _____ DAY OF _____, 20____.

_____
CHAIRMAN

REVIEWED BY TOWNSHIP ENGINEER

_____ _____
DATE TOWNSHIP ENGINEER

MONTGOMERY COUNTY PLANNING COMMISSION

MCPC NO.:

PROCESSED AND REVIEWED. A REPORT HAS BEEN PREPARED BY THE MONTGOMERY COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE MUNICIPALITIES PLANNING CODE.

CERTIFIED THIS DATE:

_____
FOR THE DIRECTOR

MONTGOMERY COUNTY PLANNING COMMISSION

RECORDER OF DEEDS

RECORDED IN THE OFFICE FOR THE RECORDING OF DEEDS IN AND FOR THE COUNTY OF MONTGOMERY, AT NORRISTOWN, PA. IN PLAN BOOK NO. _____ PAGE NO. _____ ON _____, 20____.

_____ _____
DATE RECORDER OF DEEDS

BMP NOTE

THE BMP'S INSTALLED WITH THIS LAND DEVELOPMENT MAY NOT BE ALTERED OR REMOVED WITHOUT APPROVAL FROM THE TOWNSHIP.

_____
DATE

ENGINEER'S CERTIFICATION

I, ERIC S. CLASE, P.E., DO HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA; THAT THIS PLAN WAS PREPARED BY MYSELF OR UNDER MY SUPERVISION AND THAT SAID PLAN COMPLIES WITH ALL ORDINANCES AND REGULATIONS OF THE TOWNSHIP WITH THE EXCEPTION OF WAIVERS GRANTED BY THE BOARD OF COMMISSIONERS.

_____ _____
ERIC S. CLASE, P.E. LICENSE NO.

_____
DATE

SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A FIELD SURVEY MADE BY ME OR UNDER MY SUPERVISION, THAT ALL PROPERTY CORNERS ARE EXISTING OR SET AS SHOWN HEREON, THAT ALL GEOMETRIC DETAILS AS SHOWN ARE CORRECT, AND THAT ALL LOTS OR TRACTS HAVE A BOUNDARY CLOSURE ERROR OF 1:10,000 OR BETTER.

_____ _____
SIGNATURE LICENSE NO.

_____
DATE

GENERAL NOTES:

1. PROPERTY KNOWN AS BLOCK 12, UNIT 53 (LOT 3) AS SHOWN ON THE TAX MAP OF UPPER DUBLIN COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA AND BEING DESIGNATED AS LOT 3 AS SHOWN ON A MAP ENTITLED "RECORD PLAN A, B & C", PREPARED BY PAULIS SOKOLOWSKI AND SARTOR, CONSULTING ENGINEERS, DATED 12/18/98 AND LAST REVISED 5/01/01 AND FILED IN THE COUNTY OF MONTGOMERY RECORDER OF DEEDS OFFICE, PLAN BOOK LR, PAGE 364.
2. THE BOUNDARY AS SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY GILMORE & ASSOCIATES, INC. IN JULY, 2015 AND THE REFERENCED INFORMATION HEREON.
3. VERTICAL DATUM IS NAVD 88 AND WAS ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS. HORIZONTAL DATUM IS BASED ON THE 1983 STATE PLANE COORDINATE SYSTEM ESTABLISHED BY GPS, WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS.
4. WETLANDS WERE DELINEATED BY WATERSHED ECO, L.L.C., 158 COOPERS DRIVE, NEWARK, DE 19702, AND FIELD LOCATED BY GILMORE & ASSOCIATES, INC. IN JULY OF 2015. NO WETLANDS WERE ENCOUNTERED ON THE SUBJECT PROPERTY
5. THE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE GROUND OBSERVATION OF THE SITE DRAWINGS. THEREFORE, ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THESE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES.
6. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 853, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 8, 2008, PENNSYLVANIA ACT 121. GILMORE & ASSOCIATES, INC. HAS OBTAINED PA-ONE CALL SERIAL NUMBERS 20151771253, 20151771304, 20151771333 AND 20151771359 FOR DESIGN PURPOSES ONLY.
7. PER FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), SITE IS LOCATED IN FLOOD ZONE X – OTHER AREAS – AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AND FOUND ON FLOOD INSURANCE RATE MAP (FIRM) NUMBER 42091C0063G, EFFECTIVE DATE MARCH 2, 2016.
8. ANY DIMENSIONS SCALED FROM THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION WITHOUT PRIOR CONFIRMATION FROM GILMORE & ASSOCIATES, INC.
9. CONCRETE MONUMENTS SHALL BE SET ACCORDING TO THIS PLAN. ALL OTHER PROPERTY CORNERS SHALL BE MONUMENTED WITH IRON PINS UPON FINAL GRADING.
10. ULTIMATE RIGHT-OF-WAY ALONG DRESHERTOWN ROAD AND WELSH ROAD, IF NOT PREVIOUSLY DEDICATED, ARE HEREBY OFFERED FOR DEDICATION TO THE RESPECTIVE AUTHORITIES HAVING JURISDICTION.
11. THIS LOT SHALL BE SERVED BY PUBLIC WATER AND SEWER.
12. ALL CONSTRUCTION REQUIREMENTS, METHODS AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE UPPER DUBLIN TOWNSHIP ENGINEERING AND CONSTRUCTION STANDARDS, IMPROVEMENT PROCEDURES, DATED JANUARY 2010, LAST REVISED OCTOBER 2013, THE UPPER DUBLIN TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, PADEP AND/OR PENNDOT FORM 408, LATEST EDITION, AND PA-UCC WHERE APPLICABLE. IN THE CASE OF CONFLICTING STANDARDS, INTERPRETATION SHALL REST WITH THE TOWNSHIP ENGINEER OR THE TOWNSHIP ENGINEER'S REPRESENTATIVE IN THE FIELD.
13. NO BUILDING PERMIT WILL BE ISSUED UNTIL A WORKING HYDRANT IS LOCATED WITHIN 500 FEET OF THE BUILDING, WHICH IS THE SUBJECT OF THE PERMIT, AND UNTIL A PASSABLE ROADWAY CAPABLE OF SUPPORTING 40 TON FIRE EQUIPMENT.
14. ALL SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 5 FEET.
15. CONCRETE CURBS SHALL BE INSTALLED ALONG EACH SIDE OF ALL ACCESS DRIVES AND PARKING AREAS.
16. ALL DRIVEWAYS SHALL COMPLY WITH PA CODE CHAPTER 441 – ACCESS TO AND OCCUPANCY OF HIGHWAYS BY DRIVEWAYS AND LOCAL ROADS.
17. NO WALL, STRUCTURE, HEDGE, TREE, SHRUB OR OTHER GROWTH SHALL BE PLANTED OR MAINTAINED WITHIN A CLEAR SIGHT TRIANGLE (C.S.T.) WHICH INTERFERES WITH A FREE AND UNOBSTRUCTED VIEW WITHIN SUCH TRIANGLES UNLESS AUTHORIZED BY UPPER DUBLIN TOWNSHIP.
18. NO TOPSOIL SHALL BE REMOVED FROM THE SITE OR USED AS SPOIL. TOPSOIL MUST BE REDISTRIBUTED ONSITE UNIFORMLY. ALL AREA OF THE SITE SHALL BE STABILIZED BY SEEDING OR PLANTING ON SLOPES OF LESS THAN 25% AND SHALL BE STABILIZED BY SODDING ON SLOPED 25% TO 33%.
19. ALL NEW TELEPHONE, ELECTRIC AND COMMUNICATIONS SERVICES SHALL BE INSTALLED UNDERGROUND. PLANS SHOWING THE LOCATIONS OF TRANSFORMERS, SPLICE BOXES, ETC. SHALL BE PROVIDED TO THE TOWNSHIP ENGINEER PRIOR TO INSTALLATION OF THESE FACILITIES.
20. THE STORMWATER MANAGEMENT FACILITIES SHOWN ON THESE PLANS ARE A BASIC AND PERPETUAL PART OF THE STORM DRAINAGE SYSTEM OF THE TOWNSHIP OF UPPER DUBLIN AND AS SUCH ARE TO BE PROTECTED AND PRESERVED IN ACCORDANCE WITH THE APPROVED FINAL PLAN. A BLANKET EASEMENT IN FAVOR OF UPPER DUBLIN TOWNSHIP OVER THE PROPERTY PROVIDED SHALL BE RECORDED FOR PURPOSES TO ALL PRIVATE STORMWATER MANAGEMENT AND BMP FACILITIES WITHIN ALL PRIVATELY OWNED LAND SHOWN ON THESE PLANS. THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE EASEMENT. A DEED RESTRICTION TO THE SATISFACTION OF THE TOWNSHIP SOLICITOR SHALL BE SUBMITTED TO PROVIDE FOR MAINTENANCE, TO AUTHORIZE THE TOWNSHIP TO TAKE CORRECTIVE, MAINTENANCE MEASURES AND TO LIEN THE COST OF THE WORK AGAINST THE PROPERTY SHOULD CORRECTIVE MEASURES NOT BE PERFORMED BY THE OWNER OF THE PROPERTY.
21. AN OWNERSHIP AND MAINTENANCE PROGRAM, IN A RECORDABLE FORM, THAT SETS FORTH THE OWNERSHIP AND MAINTENANCE RESPONSIBILITY FOR ALL TEMPORARY AND PERMANENT STORMWATER MANAGEMENT FACILITIES AND COMMON FACILITIES AS THE RESPONSIBILITY OF THE PROPERTY OWNER SHALL BE PROVIDED AT TIME OF FINAL APPROVAL IN THE LAND DEVELOPMENT AGREEMENT.
22. WATER ORIGINATING FROM OTHER THAN NATURAL SOURCES, SUCH AS AIR-CONDITIONING UNITS, SUMP PUMPS, OR OTHER DRY WEATHER FLOW, WHEREVER APPLICABLE, SHALL BE CONNECTED TO THE STORM DRAINAGE SYSTEM OF THE TOWNSHIP OR DISCHARGED INTO WATERCOURSES ON THE PROPERTY, AT THE DIRECTION OF THE TOWNSHIP ENGINEER. THESE FACILITIES MAY NOT BE USED FOR POLLUTION MATTER, WATER FROM SWIMMING POOLS OR SIMILAR USES CONTAINING CHLORINE SHALL BE PRETREATED TO REMOVE CHLORINE TO ACCEPTABLE LIMITS PRIOR TO DISCHARGE TO A WATER COURSE OR A TOWNSHIP STORM SEWER SYSTEM.
23. SHOP DRAWINGS/LITERATURE SUBMITTALS FOR ALL ITEMS PERTAINING TO THE STORM SEWER SYSTEM (STORM STRUCTURES, PIPE, ETC.), CONCRETE (CURB, SIDEWALK, ETC.), ALL AGGREGATES, ALL ASPHALT DESIGN MIXES, RETAINING WALLS, ETC. SHALL BE SUBMITTED TO THE TOWNSHIP ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.
24. A BLANKET EASEMENT IN FAVOR OF THE TOWNSHIP IS HEREBY OFFERED FOR PUBLIC ACCESS TO THE NEIGHBORHOOD OPEN SPACE AREAS AND TRAILS ON THIS SITE.
25. NO ADDRESSES CREATED AS PART OF THIS DEVELOPMENT SHALL REFERENCE DRESHERTOWN ROAD.
26. SHARED PARKING FOR NEIGHBORHOOD OPEN SPACE. NO RESIDENT PARKING FROM 8:00 AM TO 6:00 PM DAILY.

LIST OF WAIVERS:

THE FOLLOWING WAIVERS ARE REQUESTED FROM THE UPPER DUBLIN TOWNSHIP SALDO, STORM WATER MANAGEMENT & ENGINEERING AND CONSTRUCTION STANDARDS, IMPROVEMENTS PROCEDURES:

A. FROM THE PROVISIONS OF §200-38.B WHICH REQUIRES THAT BMP'S BE DESIGNED TO INFILTRATE RETAINED RUNOFF WITHIN A 48 HOUR PERIOD AND BE DESIGNED USING A FACTOR OF SAFETY OF 3 WHEN COMPUTING INFILTRATION POTENTIAL OF A BMP FROM FIELD MEASUREMENTS OF INFILTRATION RATE.

THE APPLICANT PROPOSES USING A FACTOR OF SAFETY OF 2.

DENSITY BONUS TABLE					
BONUS FEATURE	BONUS FEATURE STANDARD	PERMITTED DENSITY BONUS	BONUS FEATURE PROVIDED	STANDARD MET	DENSITY BONUS
NEIGHBORHOOD OPEN SPACE	PRESERVE ADDITIONAL LAND AS NEIGHBORHOOD OPEN SPACE IN EXCESS OF THE REQUIRED 10%	0.5 UNITS PER GROSS LOT ACRE FOR EACH 5% ABOVE REQUIRED	2.444 ACRES (10%) REQUIRED; 2.492 ACRES PROVIDED; 2.492 ACRES (10.20%)	NO	0.0 UNITS PER GROSS LOT ACRE
STRUCTURED PARKING	MINIMUM OF 35% OF TOTAL REQUIRED PARKING PROVIDED IN STRUCTURED PARKING	2.0 UNITS PER GROSS LOT ACRE	TOTAL PARKING REQUIRED: 1,363 STRUCTURED PARKING PROVIDED: 572 (41.97%)	YES	2.0 UNITS PER GROSS LOT ACRE
GREEN ROOF	GREEN ROOF SHALL COVER AT LEAST 70% OF THE NET ROOF AREA OF A BUILDING WITH A FOOTPRINT OF AT LEAST 20,000 SQUARE FEET	2.0 UNITS PER GROSS LOT ACRE FOR THE FIRST BUILDING AND 0.5 UNITS PER GROSS LOT ACRE FOR EACH ADDITIONAL BUILDING	NET ROOF AREA (EAST BUILDING): 178,839 SF GREEN ROOF AREA: 22,513 SF (12.73%) (SEE SHEET 9 FOR AREA)	NO	0.0 UNITS PER GROSS LOT ACRE
ALTERNATIVE TRANSPORTATION	A) PROVIDE CHARGING STATIONS FOR ELECTRIC/HYBRID VEHICLES FOR 1% OF TOTAL REQUIRED PARKING	1.0 UNITS PER GROSS LOT ACRE	TOTAL PARKING REQUIRED: 1,363 CHARGING STATIONS PROVIDED: 14 (1%)	YES	1.0 UNITS PER GROSS LOT ACRE
	B) PROVIDE BIKE RACKS THROUGHOUT THE DEVELOPMENT	1.0 UNITS PER GROSS LOT ACRE	BIKE RACKS PROVIDED THROUGHOUT DEVELOPMENT	YES	1.0 UNITS PER GROSS LOT ACRE
	C) IMPLEMENT A BIKE-SHARE PROGRAM WITHIN THE DEVELOPMENT	1.0 UNITS PER GROSS LOT ACRE	BIKE-SHARE PROGRAM PROVIDED	YES	1.0 UNITS PER GROSS LOT ACRE
	D) PROVIDE A PUBLIC TRANSIT STOP	1.0 UNITS PER GROSS LOT ACRE	NOT PROPOSED	NO	0.0 UNITS PER GROSS LOT ACRE
ALTERNATIVE ENERGY SOURCES	INSTALL A SOLAR, GEOTHERMAL OR OTHER RENEWABLE ENERGY POWER-GENERATION FACILITY THAT IS DESIGNED TO PROVIDE AT LEAST 10% OF THE EXPECTED ANNUAL ENERGY USE FOR THE BUILDING	1.0 UNITS PER GROSS LOT ACRE	NOT PROPOSED	NO	0.0 UNITS PER GROSS LOT ACRE
			TOTAL BONUS DENSITY:		5.0 UNITS PER GROSS LOT ACRE

PENNSYLVANIA ONE CALL SYSTEM, INC.
925 Irwin Run Road
West Mifflin, Pennsylvania
15122 – 1076

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH.

SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

DATE: 4-13-17

REV.	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/09/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.:
XX

TAX MAP PARCEL NO.:
54-00-05242-00-5

TOTAL AREA: 25.411
TOTAL LOTS: 1

DATE: 2-10-17
SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN

RECORD PLAN
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC S. CLASE
ENGINEER
55713-E

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 • (215) 345-4330 • www.gilmore-assoc.com

80 0 80 160
SCALE IN FEET

JOB NO.: 2015-06014-02
SHEET NO.: 2 OF 54

DESIGNED BY: RBF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED.
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O:\LANDDEV\2015\2015060\14-02-The Promenade at Upper Dublin\DESIGN\CAD\Prosecutor Drawings\Record Plan.dwg Layout: 2 Record Plan Plotted By: rfitzgerald, on Fri Jan 09, 2017 at 9:54am

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THE PROMENADE AT UPPER DUBLIN
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Traffic Data

Project contemplates $2,850,000 of traffic related improvements to Welsh and Dreshertown Roads.

Applicant has funded a study of the potential traffic improvements at the Dresher Triangle for a cost of $61,000.

Upon completion of the traffic improvements including new traffic generated by the Promenade, the existing intersections of Welsh and Jarrettown, Welsh and Dresher and Welsh and Dreshertown will perform at the same level or at an improved level from conditions that existed prior to the development. The intersection of Welsh and Dryden will have a slight increase in delay as it is only currently used by the Montgomery Corporate Center office building but will be used in the future as the primary entrance and exit for the Promenade.

AGREED UPON TRAFFIC IMPROVEMENTS

TOTAL ESTIMATED COST $2,850,000

NOTES:

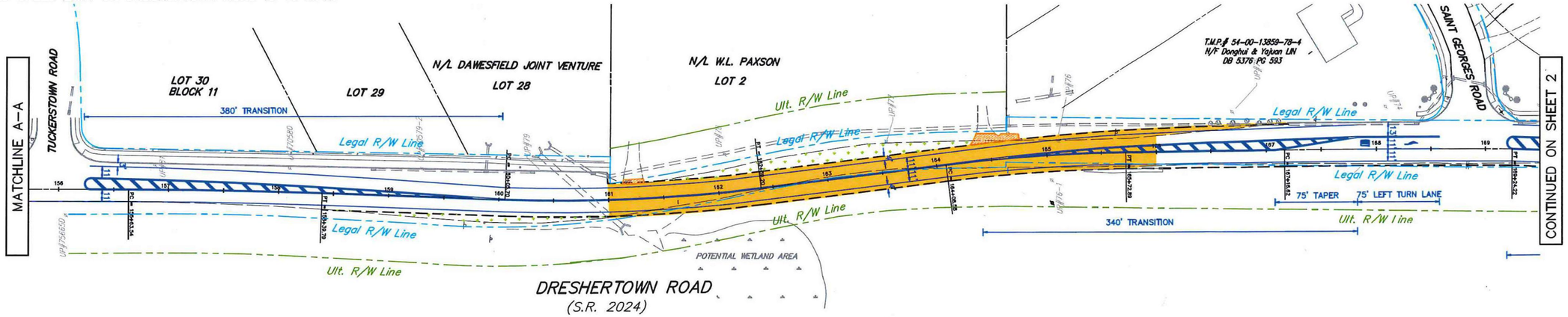
1. THE EXISTING TOPOGRAPHICAL SURVEY WAS PROVIDED BY TOLL BROTHERS ON 6/3/16.

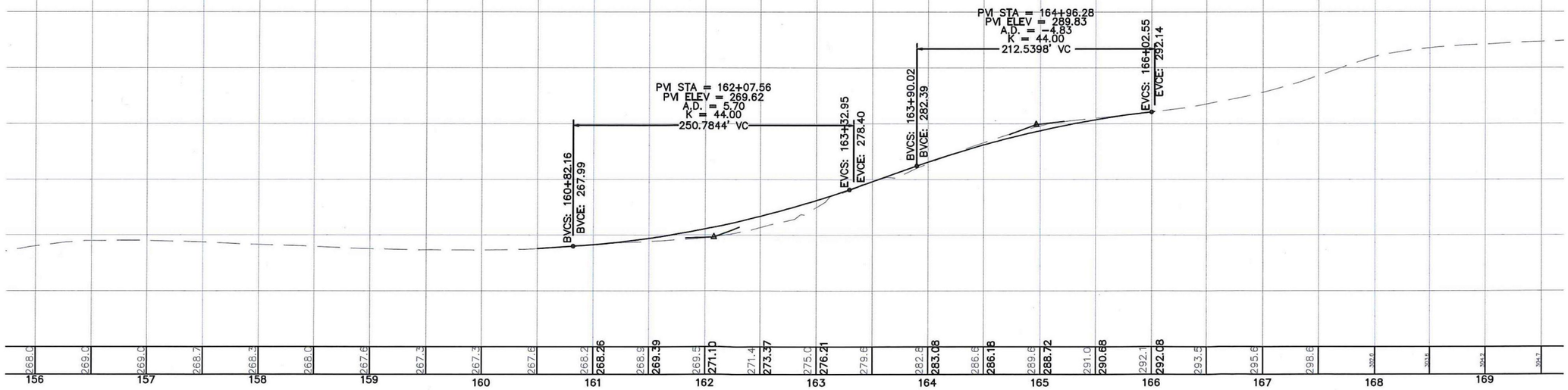
2. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. THE CONCEPTUAL DESIGN, INCLUDING ROADWAY GEOMETRY, TAPERS AND LANE SHIFT TRANSITIONS WERE BASED ON DESIGN SPEED OF 40 MPH.

3. THE POSTED SPEED LIMIT ON DRESHERTOWN ROAD IS 40 MPH.

LEGEND

- PROPOSED BITUMINOUS PAVEMENT – BET INVESTMENTS
- PROPOSED BITUMINOUS PAVEMENT – TOLL BROTHERS
- PAVEMENT MARKINGS TO BE INSTALLED BY TOLL BROTHERS
- PAVEMENT MARKINGS TO BE INSTALLED BY BET INVESTMENTS
- EXISTING PAVEMENT TO BE REMOVED
- PROPOSED BITUMINOUS DRIVEWAY ADJUSTMENT





SCALE

HORIZONTAL 50' 0 50'

VERTICAL 10' 0 10'

CONCEPTUAL ROADWAY PLAN

REVISION NUMBER	REVISIONS	DATE	BY

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

☒ 425 COMMERCE DRIVE
SUITE 200
FT. WASHINGTON, PA 19034
TELE: (215) 283-9444
FAX: (215) 283-9447

☐ 840 SPRINGDALE DRIVE
EXTON, PA 19341
TELE: (610) 594-9995
FAX: (610) 594-9565

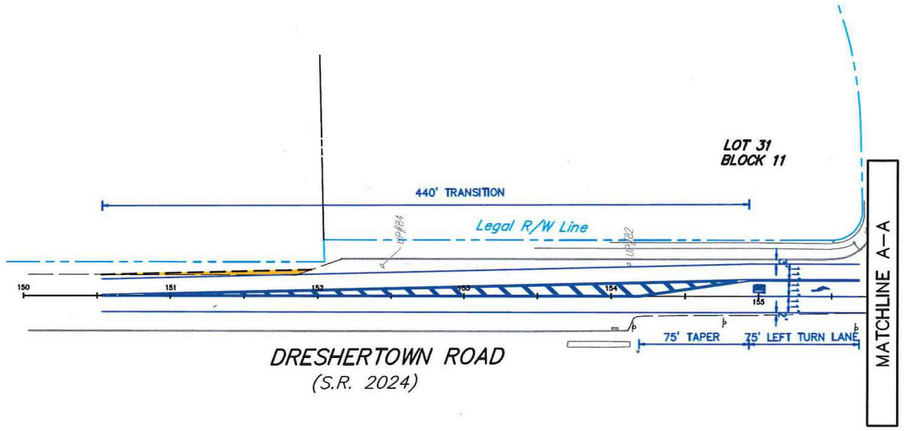
☐ 840 W. HAMILTON STREET
SUITE 622
ALLENTOWN, PA 18101
TELE: (610) 628-2994
FAX: (610) 628-3755

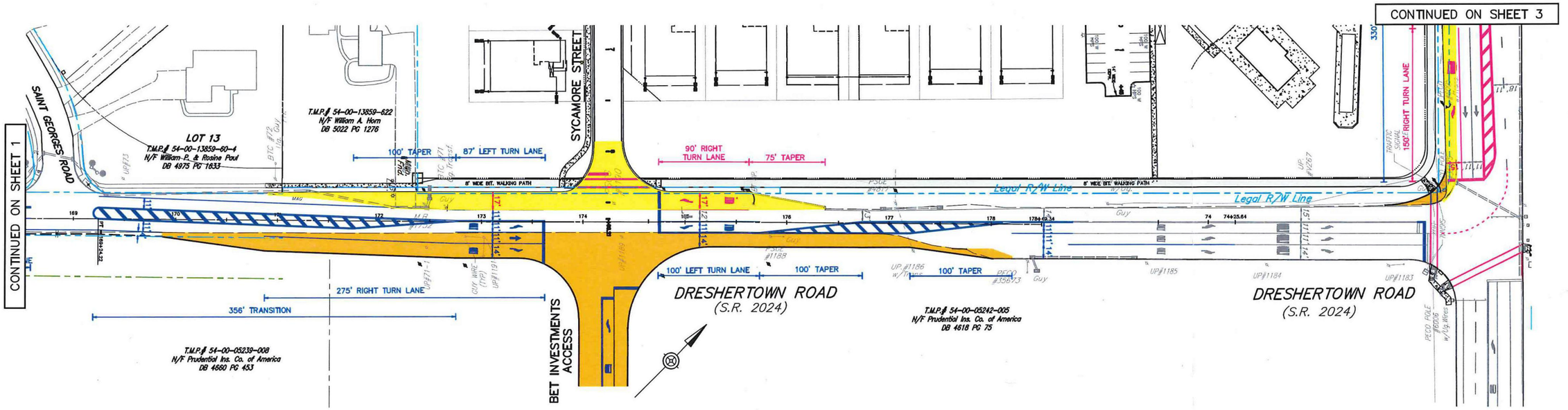
DESIGN BY: BDD
DRAWN BY: RAS
CHECKED BY: BDD

JOB NO: 815367.11
DWG: CONCEPT PLAN
DATE: 8/29/16

BET INVESTMENTS, INC.
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044

PROPOSED AGE-RESTRICTED HOUSING DEVELOPMENT
DRESHERTOWN ROAD (SR 2024)
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY





LEGEND

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- PAVEMENT MARKINGS TO BE INSTALLED BY TOLL BROTHERS
- PAVEMENT MARKINGS TO BE INSTALLED BY BET INVESTMENTS
- PROPOSED BITUMINOUS DRIVEWAY ADJUSTMENT
- EXISTING PAVEMENT TO BE REMOVED

SCALE
50' 0 50'

CONCEPTUAL ROADWAY PLAN

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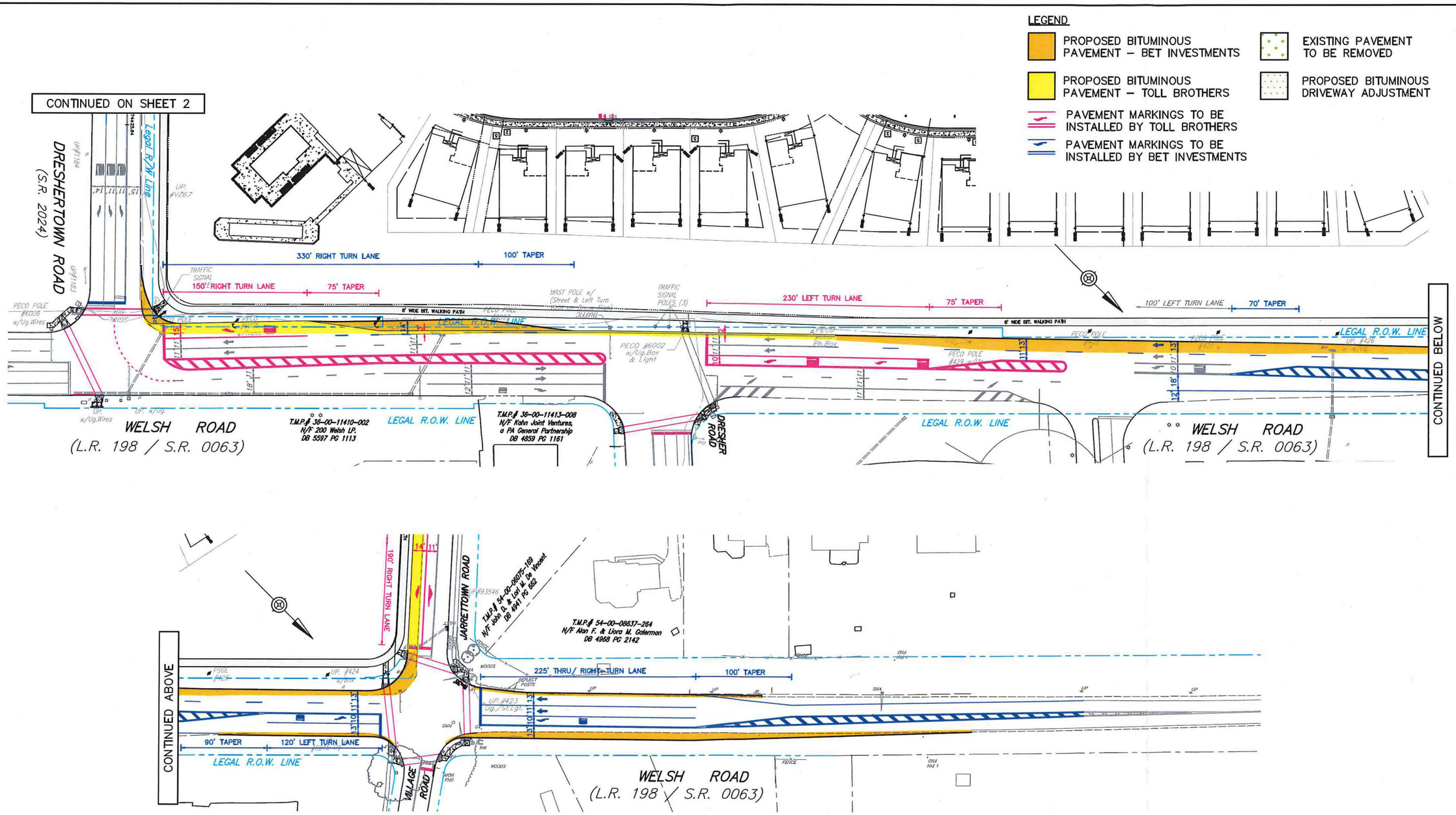
PROPOSED AGE-RESTRICTED HOUSING DEVELOPMENT
DRESHERTOWN ROAD (SR 2024)
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY



SCALE
50' 0 50'

CONCEPTUAL ROADWAY PLAN

REVISION NUMBER	REVISIONS	DATE	BY

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BET INVESTMENTS, INC.
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044

PROPOSED AGE-RESTRICTED HOUSING DEVELOPMENT
DRESHERTOWN ROAD (SR 2024)
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY

Proposed conditions on the Conditional Use Application #2219 for The Promenade at Upper Dublin by BT Dreshertown, LP:

1. Install a raised crosswalk as a traffic calming device where the pedestrian crosswalk is shown on the Boulevard between the residential buildings.

2. Provide striped crosswalks on Dryden Road crossing over to Montgomery Corporate Center at the entrance to the Boulevard.

3. Install a landscaped berm located adjacent to Restaurant No. 2 which shall be a minimum of 6 feet in height.

4. The Applicant shall construct the project generally in accordance with the renderings submitted at the Conditional Use hearing. Any material deviations from the renderings require approval by the Board of Commissioners as part of the land development approval process.

5. The dumpster for Restaurant No. 2 shall be emptied only between the daytime working hours of 8 am to 6 pm.

6. The green roof maintenance plan shall be made part of the post construction stormwater management plan.

7. Plans must comply with all Zoning and Subdivision regulations, as applicable, subject to Applicant's right to request relief therefrom (including waivers).

8. Applicant shall request from the U.S. Post Office to not use any Dreshertown Road addresses for the project.

9. No commercial truck access shall be permitted from Dreshertown Road.

10. Applicant shall provide a public access license agreement over the park and certain walkways and trails, subject to reasonable usage regulations published by the Owner.

The following conditions are included in a Declaration of Covenants and Restrictions, as amended, which has been recorded against the Property. Following acceptance of these conditions as part of conditional use approval by the Board of Commissioners, and the subsequent recording of the plans and posting of the required development escrows, the Declaration shall be removed of record.

A. Access.

   1. Full Welsh Road access via the existing signal at Dryden Road.
   2. Right in – right out access from a new driveway on Welsh Road, between Dryden Road and Dreshertown Road.
   3. Full Dreshertown Road access, to be aligned with the Regency at Upper Dublin's residential development driveway, with a new traffic signal.

B. Welsh Road Improvements.

1. Widen Welsh Road and extend the second eastbound through-lane from its current termination point east of Jarrettown Road to accommodate the 95% queue distance west of Jarrettown Road.
2. Extend the eastbound Welsh Road right-turn lane at Dreshertown Road to provide the maximum storage capacity available, with no impact to the trail system being installed at the Regency at Upper Dublin.
3. Reconfigure the southwest corner of the Welsh Road and Dreshertown Road intersection to accommodate a WB-50 truck turn, with a standard stop bar configuration on Dreshertown Road (i.e., four (4) feet from the cross walk).

C. Dreshertown Road Improvements.

1. Install a new traffic signal at the Dreshertown Road driveway location, with a southbound left-turn lane and a northbound right-turn lane on Dreshertown Road. The length of the turn lanes should accommodate the 95% queue distance.
2. Soften the curve of Dreshertown Road between St. George's Road and Tuckerstown Road, to comply with a minimum Design Speed of 40 MPH per PennDOT standards. This includes design elements for land width, horizontal radius, vertical sight distance and superelevation. The Applicant will ensure the pavement section is adequate for the traffic loads identified in the Transportation Impact Study prepared by McMahon Transportation Engineers and Planners, dated March, 2016, revised January, 2017 ("TIS"), for the 2023 Development Condition.
3. Install 75-foot minimum left-turn lanes on Dreshertown Road for access to St. Georges Road and Tuckerstown Road, in accordance with PennDOT design standards.

D. Traffic Signal Improvements.

1. Welsh Road & Jarrettown Road.

    a. Replace signal equipment and ADA ramps as required for the widening of Welsh Road.
    b. Re-establish volume density loops and install ground wire loop detection to replace video detection shown on the Traffic Signal Permit Plan.
    c. Replace existing pole mounted controller with a ground mounted controller cabinet and Econolite ASC/3-2100 controller and battery back-up, unless modified by the Township as a result of subparagraph F, below.
    d. Update signal timings, clearance intervals and pedestrian timing.
    e. Re-establish the Signal Ahead warning system located west of Jarrettown Road with a new mast arm and equipment to operate in accordance with the current Traffic Signal Permit. Replace the Fail-Safe device located on the existing mast arm.

2. Welsh Road & Dresher Road.

   a. Replace existing controller in the existing ground mounted cabinet with an Econolite ASC/3-2100 controller and battery back-up, unless modified by the Township as a result of subparagraph F below.
   b. Update signal timings, clearance intervals and pedestrian timing, without decreasing the amount of green time provided to Dresher Road.

3. Welsh Road & Dreshertown Road.

   a. Replace signal equipment and ADA ramps as required for the widening of Welsh Road.
   b. Replace ground wire detection loops on Dreshertown Road to reflect the new stop bar locations.
   c. Update signal timings, clearance intervals and pedestrian timing.

4. Welsh Road & Dryden Road.

   a. Install ADA compliant ramps and add pedestrian countdown timers and LED pushbuttons as determined through the PennDOT Highway Occupancy Permit process.
   b. Determine if a protected left turn phase is warranted, and, if necessary, replace the existing 35-foot mast arm on the northwest corner to allow for the phase.
   c. Add ground wire loop detection on the Welsh Road turn lanes and re-establish loops as necessary for the side street stop bar locations.
   d. Update signal timings, clearance intervals and pedestrian timing.

5. Welsh Road & Blair Mill Rd, Computer and Twining Roads.

   a. Update signal timings, clearance intervals and pedestrian timing.

6. New signal at Dreshertown Road & Driveway Entrance.

   a. Ensure the cabinet is ground mounted with an Econolite ASC/3-2100 controller and battery backup. Provide LED signals, countdown timers and pedestrian push buttons along with emergency preemption.
   b. Install traffic adaptive software with video detection. Supplement the video detection zones with ground wire loop detection on side streets and turn lanes.
   c. Determine if a Queue Detector is required for the southbound approach in consultation with PennDOT, as well as Dilemma Zone detection.
   d. Incorporate this signal into the Welsh Road Interconnect System, I-0998 and provide a 12-strand serial fiber optic connection from the 72-strand backbone.

7. Design to Township Standards.

a. All traffic signal improvements and new traffic signals shall be designed to Township standards and specifications, subject to review and approval by Penn DOT.

E. Fiber Optic Installation. The Applicant will install a 72-strand aerial fiber optic line along Welsh Road from Jarrettown Road to Blair Mill Road, as part of the existing signal interconnection system, unless modified by the Township as a result of Paragraph F below. This includes termination connections, software integration and ethernet switches at Jarrettown, Dresher, Dreshertown and Dryden Roads.

F. Cash Contributions.

1. Green Light Go Program. If Upper Dublin Township and neighboring municipalities are successful in obtaining an award through the PennDOT Green Light Go 2016 Program for Welsh Road Corridor Fiber Optic and Signal Upgrades from PA Route 309 to PA Route 611, then none of the traffic improvements noted in subparagraphs D.(1)(c), D.(2)(a) and E. above will be required to be installed by the Applicant; rather, the Applicant will make a cash contribution to the Township in an amount not to exceed Two Hundred, Thirty Five Thousand Dollars and No Cents ($235,000.00), to be used for the local match requirement. The cost-estimating method is consistent with the method utilized in the Green Light Go application and will be transmitted separately by the Applicant to the Township for concurrence.
2. Dresher Triangle Traffic Study. The Applicant will make a cash contribution to the Township in an amount not to exceed Sixty-One Thousand Dollars and No Cents ($61,000), to be used to prepare a "Limited Preliminary Engineering Effort – Dresher Triangle Improvement Concept," as more fully described in the letter dated October 19, 2016, from Boles, Smyth Associates.

G. The Applicant will perform an After Study Traffic Analysis of the Welsh Road and Dreshertown Road driveways six (6) months after full build-out of the Promenade at Upper Dublin project, to determine the actual number of new vehicle trips. If there are a substantial number of new trips above the TIS projections, then additional analysis will be required to determine if phasing/timing adjustments are warranted at the new intersection and at the Welsh Road intersections from Jarrettown Road to Twining Road. The Applicant agrees to complete any improvements recommended as a result of the After Study Traffic Analysis, up to a cost of Twenty-Five Thousand Dollars ($25,000). The Applicant shall have no obligation to fund any improvements in excess of this amount.

H. Mass Transit Services.

1. Bus Service. The Southeastern Pennsylvania Transportation Authority ("SEPTA") provides two routes along Welsh Road (Routes 80 and 310) and provides two (2) stops along Welsh Road at Blair Mill Road and Dryden Road. The Applicant will coordinate with SEPTA to determine if improvements to the existing stops should be made, and if additional stops or service is appropriate as a result of the Project.

2. GVFTMA. The Applicant agrees to provide for each major tenant to be members of the Greater Valley Forge Transportation Management Agency for an eighteen (18) month period from occupancy.

I. The Applicant will construct, or cause to be constructed, a minimum 10-foot wide bituminous trail, paved to Township specifications, along the Dreshertown Road and Welsh Road frontages of the Property.

J. The Applicant shall enter into an easement agreement with BT Dryden, L.P., a related entity who is the owner of the adjacent property known as Montgomery County Tax Parcel Number 54-00-16675-00-2, and upon which an office building and accessory parking is located (the "Dryden Property"), to allow the Applicant to use a portion of the Dryden Property for overflow parking for the Property during nights and weekends when such parking is not needed by the office building located on the Dryden Property. The terms of this easement agreement shall be finalized prior to the submission of a land development application for the Project.

K. In no event shall the Project exceed 402 apartment units.

L. The Applicant agrees to construct only one- and two-bedroom apartment units as part of the Project, and further, agrees that no less than 40% of the apartments be one (1) bedroom apartments. In no event will the Applicant construct apartments that have more than two (2) bedrooms.

John H. Kennedy, AICP

Professional Land Planner

EXPERIENCE

1990 – Present KENNEDY & ASSOCIATES

President/Owner. A land use consulting firm providing services in land use regulation and policy, land analysis and feasibility, site planning, subdivision and development approvals, estate planning, engineering coordination, specialized graphics and exhibits.

1987 – 1990 LAND ACQUISITION

(A Land Development Subsidiary of the Martin Organization). Vice President of Planning and Development. Responsible for analyzing property for potential land use. Hiring and coordinating consultants and managing design and approval process of land development projects.

1982 – 1987 THE MARTIN ORGANIZATION ARCHITECTS & PLANNERS

Senior Project Manager. Managed master planning, site planning and architectural projects throughout twelve States and two Provinces in Canada.

1980 – 1982 KINZLER & RITTER/LAND PLANNING

Junior Planner. Planned residential communities and commercial developments in New Jersey, Maryland and Virginia. Performed research for land use analysis and feasibility studies. Prepared submission documents, planning board exhibits and promotional graphics.

EDUCATION

Philadelphia College of Art, Philadelphia, PA
Bachelor of Science, Environmental Design, 1980.

University of Michigan, Ann Arbor, MI
Enrolled in College of Engineering, 1974-1976.

AFFILIATIONS

Memberships: American Institute of Certified Planners, American Planning Association, Pennsylvania Planning Association, The Urban Land Institute and 10,000 Friends of Pennsylvania.

APPOINTMENTS

Appointed member of the Lower Salford Township Planning Commission, February 2010 to present.

Appointed member of the Borough of Lansdale Planning Commission, March 1990 to July 2002. Served as Vice Chairman for the last 11 years.

Appointed member of the Lansdale Municipal Task Force, September 2000 to July 2002.
The Task Force was formed to obtain grant money from the Montgomery County Revitalization Board. The Task Force defined and proposed a series of public improvements and regulatory changes. As of the spring of 2002, $699,000 in grant money has been obtained for long-term revitalization plans. Proposed zoning changes were adopted in July of 2002.

Appointed member of the Lansdale Recreation Keystone Grant Committee, June 1997 to May 1998.
The Committee successfully obtained $1.2 million dollars to renovate and upgrade two swimming pool facilities located in the Borough. With matching funds from Borough Council, 2.4 million dollars worth of renovations were completed in 2000.

John H. Kennedy, AICP

A Partial List of Clients and Projects

Traditional Neighborhood Developments

Northgate
Upper Hanover Township, PA

T.H. Properties
Mixed use TND Community,
736 mixed dwelling types and 45,000 sf of commercial space on 189 acres.
Zoning Amendment, Master Plan, Site Plan.

Wynstone Village
New Hanover Township, PA

T.H. Properties
Mixed use TND Community,
761 mixed dwellings and 340,000 sf of commercial located along a new Main Street on 210 acres.
Zoning Amendment, Master Plan, Site Plan.

Biltmore Estates
Skippack Township, PA

T.H. Properties
Mixed use TND Community,
260 mixed dwellings, 52,000 sf of commercial and 42,000 sf of live/work units on 82 acres.
Zoning Amendment, Master Plan, Site Plan.

Fillmore Village
Borough of Phoenixville, PA

Hastings Investments
An infill TND Community,
170 mixed dwelling types and 20,000 sf of commercial on 22 acres. *Zoning Amendment, Master Plan, Site Plan.*

Residential Developments

The Crossings at Ambler
Borough of Ambler, PA

Westrum Development Company
Transit-Oriented Development on a former industrial site,
320 Units on 9.4 Acres.
TOD Overlay Ordinance Amendment, Site Plan.

Andale Green
Borough of Lansdale, PA

Moulton Builders
Mixed-Use Development on a former industrial site,
288 Age-Restricted Units and a 30,000 s.f. Regional Senior Center on 14.5 Acres.
Retirement Village Overlay District, Site Plan, Conditional Use.

Eagle Pointe
(Byberry State Hospital)
City of Philadelphia, PA

Westrum Development Company
Age-Restricted Community on former institutional site,
370 Units on 25 Acres.
Site Plan.

Orchard Ridge
Ontelaunee Township, PA

T.H. Properties
A clustered community of 1,300 mixed dwelling types and 55,000 sf of neighborhood commercial on 384 acres.
Zoning Amendment, Master Plan, Site Plan, Conditional Use.

Willow Shores II
Palmyra, NJ

The Korman Company
Rental Housing Community, 300 Units on 28 Acres.
Site Plan, Engineering Coordination, land Development Approvals, Promotional Graphics.

Lederach Golf Club **Lower Salford Township, PA**	Heritage Building Group Residential Golf Course Community, 250 Units on 488 Acres. *Zoning Amendment, Master Plan, Site Plan, Conditional Use.*
Ravens Claw Golf Club **Limerick and Lower** **Pottsgrove Townships, PA**	Heritage Building Group (original client) Residential Golf Course Community, Athletic Club Site, 250 Units on 225 Acres, 42,000 s.f. Athletic Club Site. *Zoning Amendment, Master Plan, Site Plan, Conditional Use.*
The Hills, Sections 3 and 5 **Bedminster Township, NJ**	Toll Brothers, Inc. Mixed Density residential Community, 529 Units on 476 Acres. *Revised Master Plan, Site Plan.*
Sunoco Property **Borough of Downingtown, PA**	Westrum Development Company Mixed-Use Development on a former industrial site, 500 Units and 162,000 s.f. of Commercial on 76 Acres. *Site Plan.*
Blue Bell Country Club **Whitpain Township, PA**	Toll Brothers, Inc. Residential Golf Course Community (Mixed Housing Types), 850 Units on 485 Acres. *Master Plan, Community Site Plans, Promotional Graphics.*
The Arbours at Washington Crossing **Upper Makefield Township, PA**	Westrum Development Co. Age Restricted Community (Mixed Housing Types), 225 Units on 70 Acres. *Community Site Plan, Conditional Use Approval, Impact Study.*
Orchard Hill **Hilltown Township, PA**	Heritage Building Group, Inc. High Density Residential Community (Mixed Housing Types), 350 Units on 85 Acres. *Master Plan, Site Plan*
Whiteland Oaks (formerly; **Church Farm Estates)** **West Whiteland Township, PA**	Toll Brothers, Inc. Residential Community, 192 units on 202 Acres. *Site Plan.*
Brandywine River Estates **East Bradford Township, PA**	Toll Brothers, Inc. Residential Community, 54 Units on 110 Acres. *Site Plan and Conditional Use Approval.*
The Greens at **Waynesborough** **Easttown Township, PA**	Toll Brothers, Inc. Residential Community, 170 units on 147 Acres. *Site Plan.*
Fairlane Woods **City of Dearborn, MI**	Ford Motor Land Development/Marquette Properties Mixed Density Residential Community, 715 Units on 120 Acres. *Community Site plans, Land Development Approvals, Promotional Graphics.*

The Colony at Brandywine Ridge
West Bradford Township, PA

Hillside Homes, Inc.
Residential; Community, 143 Units on 476 Acres.
Master Plan, Site Plan, Subdivision Approvals, Engineering Coordination.

Cedar Brook Farm
Northampton Township, PA

Elliot Building Group
Residential Community, 21 Units on 21 Acres.
Site Plan, Land Development Approvals, Promotional Graphics.

Church Farm School
East & West Whiteland Townships, PA

Rouse & Associates
Responsible for Residential Component,
1400 Units on 1400 Acres.
Residential Master Plan and Community Site Plans.

Thomas Meeting
West Whiteland Township, PA

Klein Realty
Rental Housing Community, 260 Units on 24 Acres.
Site Plan.

Nonresidential Developments

Franklin Commons
Borough of Phoenixville, PA

Hastings Investments
A brownfields site and adaptive re-use. The 8.5 acre project consists of converting over 205,000 sf of former industrial space into an educational campus.
Zoning Amendment, Master Plan, Site Plan, Landscape Concepts.

Heritage Montgomery Center
Montgomery Township, PA

Heritage Building Group
Executive Office Campus and Day Care, 34,200 s.f. on 5 acres.
Site Plan.

The Delaware County Christian School (Main Campus)
Newtown Square, PA

Delaware County Christian School Society Inc.
Renovations and improvements to the 16 acre campus.
Master Plan and Phase One Site Plan.

Brewers Bridge Shopping Center
Jackson Township, NJ

Union Valley Corporation
Neighborhood Shopping Center, 80,000 s.f. of retail space on 9.4 acres.
Site Planning, Land Development Approvals.

48th Executive Court
Myrtle Beach, SC

Landing Development Corporation
Office Campus Development, 65,000 s.f.
Site Planning.

Genesis Office Center
Concord Township, PA

T.V. Spano
Office Campus Development, 100,000 s.f. of office space on 8.6 acres.
Site Planning Land Development Approvals.

Beach Cove Inn
North Myrtle Beach, SC

Landing Development Corporation
260 Room, High Rise Hotel.
Site Planning.

Atlantic Shores Sheraton Hotel Myrtle Beach, SC	Atlantic Shores Association 250 Room, 15 Story High Rise Hotel. *Site Planning.*

Miscellaneous

Route 100 Mixed Use District Douglass Township, PA	Working for Douglass Township and two Route 100 corridor land owners presently developing a mixed use ordinance for the Route 100 corridor area.
Parking Action Plan Ambler Borough, PA	Participating in a planning collaboration to prepare a comprehensive parking study and action plan for the Borough's central business area.
"AQ" Overlay Zoning District Richland Township, PA	Working as a consultant for Richland Township developed an Age Restricted Development Amendment to the Zoning Ordinance.
"R-1c" Zoning District West Bradford Township, PA	Residential Open Space Cluster Amendment to the Zoning Ordinance.
Golf Course Residential Community Amendment Lower Salford Township, PA	An amendment to the R-1 District permitting golf course residential communities as a new use.
Past Speaker for the Lancaster County Planning Commission.	Speaker and Panel Member at a Seminar on Innovations in Housing.
Panelist at Design Round Table and Charette for Church Farm School.	Three Day, Inter-discipline Design Charette sponsored by Rouse & Associates to design a mixed use community on the Church Farm School Property.

John H Kennedy, AICP

Project Locations

Design And Planning Projects
Within The Following States and Provinces

Pennsylvania
New Jersey
Delaware
Maryland
New York
Virginia
Florida
Georgia
North Carolina
South Carolina
Tennessee
Michigan
Ohio
Indiana
Illinois
Maine
Texas
Vermont
Massachusetts
Rhode island
Connecticut

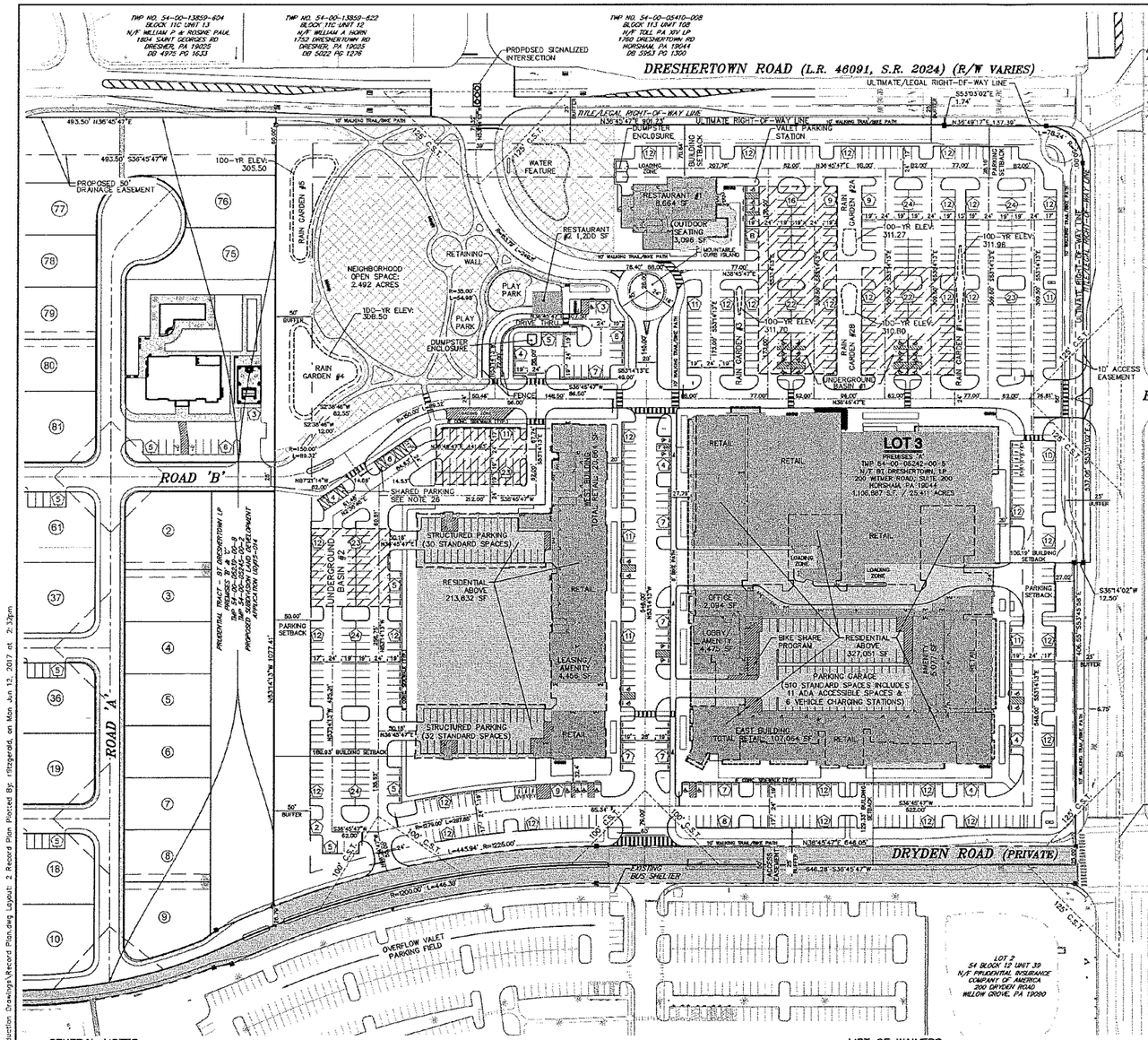
Ontario
Quebec

Client Presentations and Testimony
Before The Following Municipalities

Abington Township, PA
Ambler Borough, PA
Bethel Township, PA
Birmingham Township, PA
Bridgton Township, PA
Bristol Township, PA
Concord Township, PA
Douglass Township, (Mont. Co.) PA
Downingtown Borough, PA
Doylestown Township, PA
East Bradford Township, PA
East Pikeland Township, PA
East Vincent Township, PA
Franconia Township, PA
Hilltown Township, PA
Perkiomen Township, PA
Philadelphia, PA
Phoenixville Borough, PA
Plumstead Township, PA
Plymouth Township, PA
Red Hill Borough, PA
Richland Township, PA
Solebury Township, PA
Upper Dublin Township, PA
Upper Frederick Township, PA
Upper Hanover Township, PA
Upper Makefield Township, PA
Upper Merion Township, PA
Upper Salford Township, PA
Upper Uwchlan Township, PA

Lansdale Borough, PA
Limerick Township, PA
Lower Frederick Township, PA
Lower Providence Township, PA
Lower Salford Township, PA
New Britain Township, PA
New Hanover Township, PA
Newtown Township, (Bucks Co.) PA
Newtown Township, (Del. Co.) PA
Northampton Township, PA
Ontelaunee Township, PA
Pennsburg Borough, PA
Warrington Township, PA
Warwick Township, PA
West Bradford Township, PA
West Conshohocken Borough, PA
West Rockhill Township, PA
Whitpain Township, PA
Wrightstown Township, PA

Barrington, IL
Dearborn, MI
Palmyra, NJ
Jackson Township, NJ


DRESHERTOWN ROAD (L.R. 46091, S.R. 2024) (R/W VARIES)
PROPOSED SIGNALIZED INTERSECTION
EXISTING SIGNALIZED INTERSECTION
ULTIMATE/LEGAL RIGHT-OF-WAY LINE
ULTIMATE RIGHT-OF-WAY LINE
TITLE/LEGAL RIGHT-OF-WAY LINE
TWP NO. 54-00-13859-404 BLOCK 11C UNIT 13 N/F WILLIAM P & ROSARIE PAUL 1804 SAINT GEORGES RD DRESHER, PA 19025 DB 4975 PG 1633
TWP NO. 54-00-13859-622 BLOCK 11C UNIT 12 N/F WILLIAM A HORN 1752 DRESHERTOWN RD DRESHER, PA 19025 DB 5022 PG 1276
TWP NO. 54-00-05410-028 BLOCK 113 UNIT 108 N/F TOLL PA XIV LP 1760 DRESHERTOWN RD HORSHAM, PA 19044 DB 5963 PG 1350
PROPOSED 50' DRAINAGE EASEMENT
100-YR ELEV: 305.50
100-YR ELEV: 306.50
RESTAURANT #1 8,684 SF
OUTDOOR SEATING 3,096 SF
RESTAURANT #2 1,200 SF
WATER FEATURE
VALET PARKING STATION
DUMPSTER ENCLOSURE
RETAINING WALL
PLAY PARK
NEIGHBORHOOD OPEN SPACE: 2.492 ACRES
RAIN GARDEN #1
RAIN GARDEN #2
RAIN GARDEN #2A
RAIN GARDEN #2B
RAIN GARDEN #3
RAIN GARDEN #4
RAIN GARDEN #5
100-YR ELEV: 311.27
100-YR ELEV: 311.98
100-YR ELEV: 311.20
100-YR ELEV: 310.80
UNDERGROUND BASIN #1
UNDERGROUND BASIN #2
10' ACCESS EASEMENT
ELECTRONIC DRIVE
ROAD 'A'
ROAD 'B'
SHARED PARKING SEE NOTE 28
LOT 3
PREMISES "A"
TMP 54-00-05242-00-5
N/F BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
1,106,807 S.F. / 25.411 ACRES
RETAIL
OFFICE 2,094 SF
LOBBY AMENITY 4,475 SF
RESIDENTIAL ABOVE 327,001 SF
PARKING GARAGE (510 STANDARD SPACES INCLUDES 11 ADA ACCESSIBLE SPACES & 6 VEHICLE CHARGING STATIONS)
EAST BUILDING TOTAL RETAIL: 107,064 SF
RESIDENTIAL ABOVE 213,632 SF
STRUCTURED PARKING (310 STANDARD SPACES)
LEASING/ AMENITY 4,456 SF
BIKE SHARE PROGRAM
PARKING SETBACK
BUILDING SETBACK
LOADING ZONE
DRIVE THRU
DUMPSTER ENCLOSURE
FENCE
MOUNTABLE CURB ISLAND
10' WALKING TRAIL/BIKE PATH
5' SIDEWALK
50' BUFFER
DRYDEN ROAD (PRIVATE)
EXISTING BUS SHELTER
EXISTING BUS STOP
OVERFLOW VALET PARKING FIELD
LOT 2 54 BLOCK 12 UNIT 39 N/F PRUDENTIAL INSURANCE COMPANY OF AMERICA 2101 DISCOVERY ROAD WILLOW GROVE, PA 19090
WELSH ROAD (L.R. 199, S.R. 0063) (86' R/W)
PRUDENTIAL TRACT - BT DRESHERTOWN LP PREMISES 'A' & 'B' TMP 54-00-05242-00-5 & TMP 54-00-05245-00-2 PROPOSED SUBDIVISION AND LAND DEVELOPMENT
N35°45'47"E 637.41'
N38°45'47"E 648.06'
S36°45'47"W 646.28'
S53°14'02"W 12.50'
S53°03'02"E 1.74'
N35°48'17"E 157.39'
S36°14'02"W 106.19'
S36°45'47"W 65.34'
S36°45'47"W 63.00'
S36°45'47"W 63.50'
S36°45'47"W 82.50'
S36°45'47"W 86.50'
S36°45'47"W 148.50'
S36°45'47"W 491.62'
S36°45'47"W 491.62'
S36°45'47"W 491.62

Kennedy & Associates
Planners and Land Use Consultants

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Mainland, PA 19451
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fax 215-513-1721
www.Landplan.com

PLANNING REPORT

for the

THE PROMENADE AT UPPER DUBLIN

Prepared for:

BT Dreshertown, LP

February 10, 2017
Last Revised June 12, 2017

Prepared by:

John H. Kennedy, AICP
Kennedy & Associates LLC

Introduction

The Promenade at Upper Dublin is a mixed use development comprising 139,686 square feet of nonresidential office, commercial and restaurant uses and 402 dwelling units (the "Project"), located at the intersection of Welsh and Dreshertown Roads, known as Tax Map Parcel No. 54-00-05242-00-5 (the "Property"), proposed by BT Dreshertown, LP ("Applicant"). The Property currently consists of vacant land, as shown on the Existing Features Plan attached hereto as **Exhibit "A".**

The area surrounding the Project consists of both commercial office buildings and residential uses. Directly adjacent to the Property are two office buildings with parking. Across Welsh Road from the Property is a mix of commercial uses. Two separate age-restricted residential developments are being/will be constructed; one behind the Property, and another (Regency at Upper Dublin) across Dreshertown Road from the Property. An Aerial Plan showing the aerial view of the Property and the surrounding area is attached hereto as **Exhibit "B".**

The Property is located in the OC Office Center zoning district, which also includes the two office parks adjacent to the Property, as shown on the Zoning Map attached hereto as **Exhibit "C"**. The OC District permits the following uses by right: (1) Office Buildings, (2) Personal service/convenience facilities, and (3) Accessory Uses.

The Project consists of a mix of commercial office/retail/restaurant and residential uses, including 139,686 sf of nonresidential space and 402 residential dwelling units. The Project also includes neighborhood open space for public use, as well as an amenity courtyard for use by the residential tenants. There will also be two parking structures and surface parking, for a total of 1,378 parking spaces. The Project is shown in detail on the plans contained in the Conditional Use Plan Set, prepared by Gilmore and Associates, dated February 10, 2017, last revised April 13, 2017, which is attached hereto as **Exhibit "D"**. Renderings depicting what the Project is proposed to look like are attached hereto as **Exhibit "E"**.

Ordinance No. 17-1330, adopted by the Upper Dublin Township Board of Commissioners on March 27, 2017, amends the Township Zoning Code to allow a Mixed Use Development, like the Project, as a conditional use in the OC Office Center district. A copy of Ordinance No. 11-1330, which provides the requirements for conditional use approval, is attached hereto as **Exhibit "F".**

The Applicant executed a Declaration of Covenants and Restrictions (the "Declaration"), relating to the development of the Project, and recorded it against the Property. A copy of the Declaration of is attached hereto as **Exhibit "G"**.

The Project complies with all of the requirements for conditional use approval for a Mixed Use Development in the OC District, as follows:

OFFICE CENTER DISTRICT CONDITIONAL USE CRITERIA

§ 255-61.1 Use and Development Requirements for Mixed Use Developments.

A Mixed Use Development shall comply with the following requirements and criteria:

A. The development shall consist of a harmonious selection of uses and groupings of buildings, service and parking areas, circulation and green areas, planned and designed as an integrated unit, in such a manner as to constitute a safe, efficient and convenient center and encourage the use of green building technologies and sustainable design features.

The Promenade is an integrated development of residential and commercial uses, neighborhood open space and amenities, along with required parking and service areas. Retail, office and restaurant uses are mixed with residential apartments in two main buildings, designed with a common architectural theme and using design elements that minimize the overall scale with visual building breaks and step backs of the building facades. The site plan is configured to mitigate the visual impact of parking typically found in suburban developments. Commercial parking has been distributed around the buildings to provide safe and efficient access, while residential parking is centralized in internal parking garages. The parking fields are therefore small compared to other suburban centers. The development will incorporate numerous green building technologies and sustainable building practices, including green roofs, rain gardens, structured parking, electric vehicle charging stations, bike racks and a bike share program.

B. Permitted Uses. Any of the following uses may be permitted when included in a Mixed Use Development (see zoning amendment in the appendix for full list of permitted uses):

(1) Retail and commercial establishments
(2) Residential uses
(3) Accessory uses

The Promenade is composed of 139,686 square feet of retail, restaurant, and commercial/office space, along with 402 residential apartments.

C. Development Requirements. The general plan for a Mixed Use Development shall comply with the following requirements and criteria:

(1) Lot area. The minimum gross lot area shall be twenty (20) acres.

The Project is located on 25.411 acres.

(2) Road frontages. The site shall have frontage on and road access to at least two (2) public roads.

The Project has frontage on, and road access to, Welsh Road and Dreshertown Road, both of which are public roads. In addition, the Project has frontage on Dryden Road which is private. The Applicant has rights to access and use this road.

(3) Mix requirements. Every Mixed Use Development shall provide a mix of office, commercial and residential uses and no one use may utilize more than eighty percent (80%) of the overall gross building floor area. Accessory parking, including any parking garage, shall not be included as a separate use and its square footage shall not be counted in the calculation of the mix requirements. Apartment leasing area and multi-family common space may be included as residential space in calculating the mix requirements.

Based on the total square footage of the gross building floor areas, the Project contains 77.6% residential space and 22.4% of other non-residential uses. Therefore, no one use utilizes more than eighty percent (80%) of the overall gross building floor area.

(4) Site Plan. A site plan shall be required and shall include a unified architectural theme, preliminary stormwater management design and conceptual landscaping.

All buildings proposed on the site will have a unified architectural theme that includes building materials, colors, textures and distinctive architectural elements. The architectural theme is illustrated in the renderings attached as Exhibit "E" to this report.

(5) Neighborhood Open Space. A minimum of ten percent (10%) of the net developable area of the lot shall be developed as Neighborhood Open Space. Neighborhood Open Space shall consist of parks, plazas, gardens, water features and other similarly improved common areas and amenities provided for the benefit of the residents, tenants and/or customers of the Mixed Use Development, and the general public. Trail and sidewalk connections also shall be provided to connect Neighborhood Open Spaces. A public access easement shall be granted in favor of the Township to provide public access

to the trails and to certain portions of the Neighborhood Open Space within a Mixed Use Development that are appropriate for public access.

More than 10% of the net developable acreage of the lot (10.20%) is improved neighborhood open space in the proposed project, including a 2.5-acre neighborhood park located at the western end of the development (see conditional use plan set). The park includes landscaping, water features and seating areas and will provide areas for playgrounds, exercise and yoga, and other activities. This park will be open to the general public, as well as residents of the Promenade. The Project also includes public trails, which will connect to the surrounding neighborhoods and provide pedestrian and bike access to the shops at the Promenade. Several of these trail connections are listed on the Township's and/or Montgomery County's open space and trail plan. The extent of the neighborhood open space is shown on sheet 2 of the Conditional Use Plan (Exhibit "D").

(6) Stormwater Facilities. Naturalized stormwater facilities may occupy up to twenty-five percent (25%) of the Neighborhood Open Space if such facilities are designed and landscaped using Best Management Practices (BMPs), as published from time to time by the Pennsylvania Department of Environmental Protection and incorporated into the landscaped area. There shall be no limit on the area of underground stormwater facilities.

Much of the proposed stormwater system will be constructed underground to mitigate the visual impact of stormwater management facilities. However, there are several locations where landscaped rain gardens are proposed. These areas are located within the Neighborhood Open Space and in large islands within the parking field near the intersection of Welsh Road and Dreshertown Road. In these locations, the rain gardens will provide a more aesthetically pleasing stormwater facility, while managing runoff and providing groundwater recharge.

(7) Buffers. There shall be a buffer area along the property line of a residential zoned district of at least fifty (50) feet, which buffer area shall include planting and landscaping. There shall be a buffer area of at least twenty-five (25) feet where parking is located along a street frontage, which buffer area may include a low wall, fencing and/or landscaping.

A 50-foot landscape buffer is proposed along the southwestern boundary of the site, adjacent to the proposed active adult community. A 25-foot buffer is provided along the frontages of Welsh Road, Dreshertown Road and Dryden Road. Typical details for both of these buffers are shown on Sheet 23 of the Conditional Use Plan (Exhibit "D").

(8) Permitted Density. A Mixed Use Development may contain up to fifteen (15) dwelling units per gross acre of the lot area. To encourage the use of green building technology and sustainable design features, increases in the base density are permitted in accordance with the following table. These increases are cumulative and can be combined up to a maximum density of twenty (20) dwelling units per gross acre of the lot area.

The plan proposes 402 dwelling units on 25.411 acres, which is a density of 15.8 dwelling units per gross acre. The base density allowed under the OC District mixed-use option is 15.0 units per acre. Additional density is permitted by bonus provisions within the ordinance. In order to achieve the proposed 15.8 dwelling units per acre, the applicant will incorporate bonus features into the development, including: the use of structured parking; the provision of electric vehicle charging stations, bike racks, and a bike share program. As noted on sheet 2 of the Conditional Use Plan, the use of these bonus features provides an additional 5 dwelling units per acre maximum. However, the applicant has agreed to limit the density of the Project to 402 dwelling units.

D. Area and Bulk Requirements.

(1) Building coverage. The maximum building coverage shall not exceed forty percent (40%) of the net developable area of the lot.

The Project has 23.9% building coverage.

(2) Impervious coverage. The maximum impervious coverage shall not exceed seventy percent (70%) of the developable acreage of the lot.

The Project has 69.5% impervious coverage.

(3) Building Height. The maximum building height of any residential or mixed use building or structure within a Mixed Use Development shall be sixty-five (65) feet, in accordance with the requirements under § 255-61.F. except that the maximum height for portions of a building comprised of ground floor retail, without residential above, shall be thirty-five (35) feet.

The maximum height of the proposed mixed use buildings on the site is 65 feet. However, any areas of the building where residential is not located above retail, the maximum height does not exceed 35 feet. The two freestanding buildings shall be less than 35 feet in height.

(4) Building setbacks. No building may be located closer than:

(a) Seventy (70) feet to any public highway or ultimate public right-of-way, or to any toll or controlled public highway right-of-way.

(b) Fifty (50) feet to any other property line or the center line of any existing private road.

The proposed building setback from Dreshertown Road is 70.84 feet. The proposed building setback from Welsh Road is 106.19 feet. The proposed building setback from Dryden Road is 129.33 feet. The proposed building setback from the adjacent active adult community is 189.93 feet.

(5) Parking setbacks. No parking area may be located closer than twenty-five (25) feet to any public highway or ultimate public right-of-way, or to any toll or controlled public highway right-of-way, or any other property line.

The proposed parking setback from Dreshertown Road is 28.10 feet. The proposed parking setback from Welsh Road is 27.02 feet. The proposed parking setback from Dryden Road is 27 feet. The proposed parking setback from the adjacent active adult community is 50 feet.

(6) Parking requirements.

(a) Nonresidential uses: 4 spaces per 1,000 square feet of gross building floor area.

(b) Residential uses: 2.0 spaces per dwelling unit, provided that the applicant may place in reserve up to twenty-five percent (25%) of the required parking, subject to the approval of the Board of Commissioners.

Based on the requirement of 4 spaces per 1,000 square feet of building floor area and 2.0 spaces per dwelling unit, a total of 1,363 parking spaces are required. Including all surface and garage parking, a total of 1,378 parking spaces are provided. All spaces shall be built and no parking is proposed to be in reserve.

E. Design Standards. The intent of these standards is to ensure development contributes to a high-quality, mixed-use environment without limiting design flexibility and innovation. The applicant shall submit plans, elevations, renderings, reports, documents and samples as necessary in the form of proposed design guidelines to demonstrate compliance with the following standards:

(1) Building Design.

Bernardon Associates Architects has prepared a summary of the proposed building design and architectural elements used for the Project, which is attached to this report as Exhibit "H".

(2) Signage. The applicant for a Mixed Use Development shall submit a sign plan meeting the requirements of § 255-152.2.H.

Sign locations and conceptual sign design are located on Sheet 3 of the Conditional Use Plan (Exhibit "D").

(3) Landscape and Streetscape Standards.

(a) Sidewalks or multi-use trails shall be provided along all street frontages. Sidewalks along public and private street frontages shall be a minimum of six (6) feet wide. Trails shall be a minimum of ten (10) feet wide.

(b) A landscape plan prepared by a licensed landscape architect is required for all Mixed Use Developments. Landscaped areas include green areas, streetscapes, the interior and perimeter of surface parking areas, greenways, verges, stormwater basins, and natural areas.

(c) Within 100 feet of a residential zoning district the landscape plan shall include plantings, decorative fencing or a wall to shield headlights and soften the view of cars from the street and from adjacent residential areas.

A proposed conceptual landscape design and streetscape elements are located on Sheets 3 and 10 of the Conditional Use Plan (Exhibit "D").

(4) Standards for Neighborhood Open Space.

(a) The minimum width of any land area to be counted as Neighborhood Open Space shall be fifteen (15) feet.

(b) Neighborhood Open Space shall be landscaped and/or hardscaped with a mix of trees, shrubs, groundcover decorative paving or walls in accordance with the overall landscape plan prepared for the development by a registered landscape architect.

(c) Neighborhood Open Space shall be provided with benches, trash containers and/or lighting fixtures.

The area designated as neighborhood open space and conceptual design elements are depicted on Sheets 2 and 3 of the Conditional Use Plan (Exhibit "D").

(5) Public Transit. Transit facilities and shelters shall be provided in mutually agreeable location(s) and in accordance with the design standards established by the Southeastern Pennsylvania Transit Authority (SEPTA).

The Applicant has contacted SEPTA and will work with the agency to accommodate existing transit facilities.

GENERAL CONDITIONAL USE CRITERIA

§ 255-194 Standards and criteria for approval of use.

The Board of Commissioners may grant approval of a listed conditional use under any district, provided that the following standards and criteria are complied with by the applicant for the conditional use. The burden of proving compliance with such standards and criteria shall be on the applicant.

A. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval complies with the declaration of legislative intent that may appear at the beginning of the applicable district under which approval is sought.

The Project provides a diversity of uses, which include residential and nonresidential uses. These uses will complement the existing adjacent office uses by providing access to housing, goods and services in a walkable environment. The Project is located in an appropriate area with access to existing infrastructure. Furthermore, the proposed improvements will not only mitigate the impacts of the development in the immediate area but provide far-reaching benefits for all township residents, including neighborhood open space.

B. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval complies with the conditions enumerated in that section of this chapter which gives the applicant the right to seek a conditional use.

As noted above, the Project complies with the requisite minimum acreage, road frontage, mix of uses and all other requirements for conditional use approval of a Mixed Use Development in the OC District.

C. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval shall preserve the environmental and physical assets of the neighborhood, including but not limited to parking, traffic movement, noise, landscaping, buffering and lighting.

The Project will not have a negative impact on the parking or traffic of the surrounding neighborhood, and the proposed traffic improvements will remediate several existing traffic problems. The proposed buildings have been carefully located away from the existing residential neighbors and closer to adjacent office uses, with landscaping and buffering, including a minimum 6 feet tall berm near the Dreshertown Road entrance, that will mitigate any potential impacts from noise and lighting. In addition, lighting fixtures with cut-off shielding will prevent light leakage from the site in accordance with Township regulations.

D. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval shall be properly serviced by all existing public service systems.

The applicant has obtained "will serve" letters from the appropriate utilities. Copies of these letters are collectively attached hereto as Exhibit "I".

E. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval shall make accommodation for peak traffic generated by the proposed use.

The proposed traffic improvements will remedy a number of existing traffic problems. A summary of these improvements is contained in the Transportation Impact Study, prepared by McMahon and Associates, dated March 2016, last revised February 2017, a copy of which has been submitted to the Township.

F. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval is designed in accordance with the

Township Code with regard to internal traffic circulation, parking, buffering, grading, stormwater management, erosion control and all other elements of proper land planning

A description of internal circulation and parking is contained in the McMahon Transportation Impact Study. Conceptual buffering, grading, stormwater management, erosion control and other elements of proper land planning are contained in the conditional use plan set. All of these design considerations are in accordance with the Township Code.

G. The Board of Commissioners shall impose such reasonable conditions and safeguards as are advisable to ensure compliance with the purpose and intent of this chapter, which may include, without limitation, planting and buffers, special yards and spaces, construction of fences and walls, special parking and/or loading and drop-off provisions, together with control of vehicles' egress and ingress, harmonious design of buildings, protection of watercourses, the protection of environmental amenities and the elimination of noxious, offensive or hazardous elements.

Noted.

H. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval will not adversely affect the health, safety and welfare of the neighborhood and community.

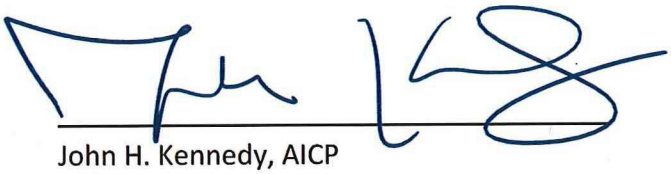
The Project will not have any adverse effect on the health, safety and welfare of the neighborhood and community. The Project will:

- ***Provide an economic benefit to both the Township and School District.***
- ***Provide an opportunity to live and work in close proximity to the site.***
- ***Implement critical portions of the Upper Dublin Trail Plan.***
- ***Provide Neighborhood Open Space for use by the general public and Project residents.***
- ***Diversify the housing stock of the Township.***
- ***Provide remediation for several existing traffic problems.***

OFFERED CONDITIONS OF APPROVAL

In addition to the above-listed requirements for obtaining Conditional Use approval, the Applicant is offering certain conditions to the grant of Conditional Use approval of the Project by the Board of Commissioners, which conditions are set forth in the Declaration attached hereto. If approval is granted, the Project will comply with these conditions.

Submitted by:

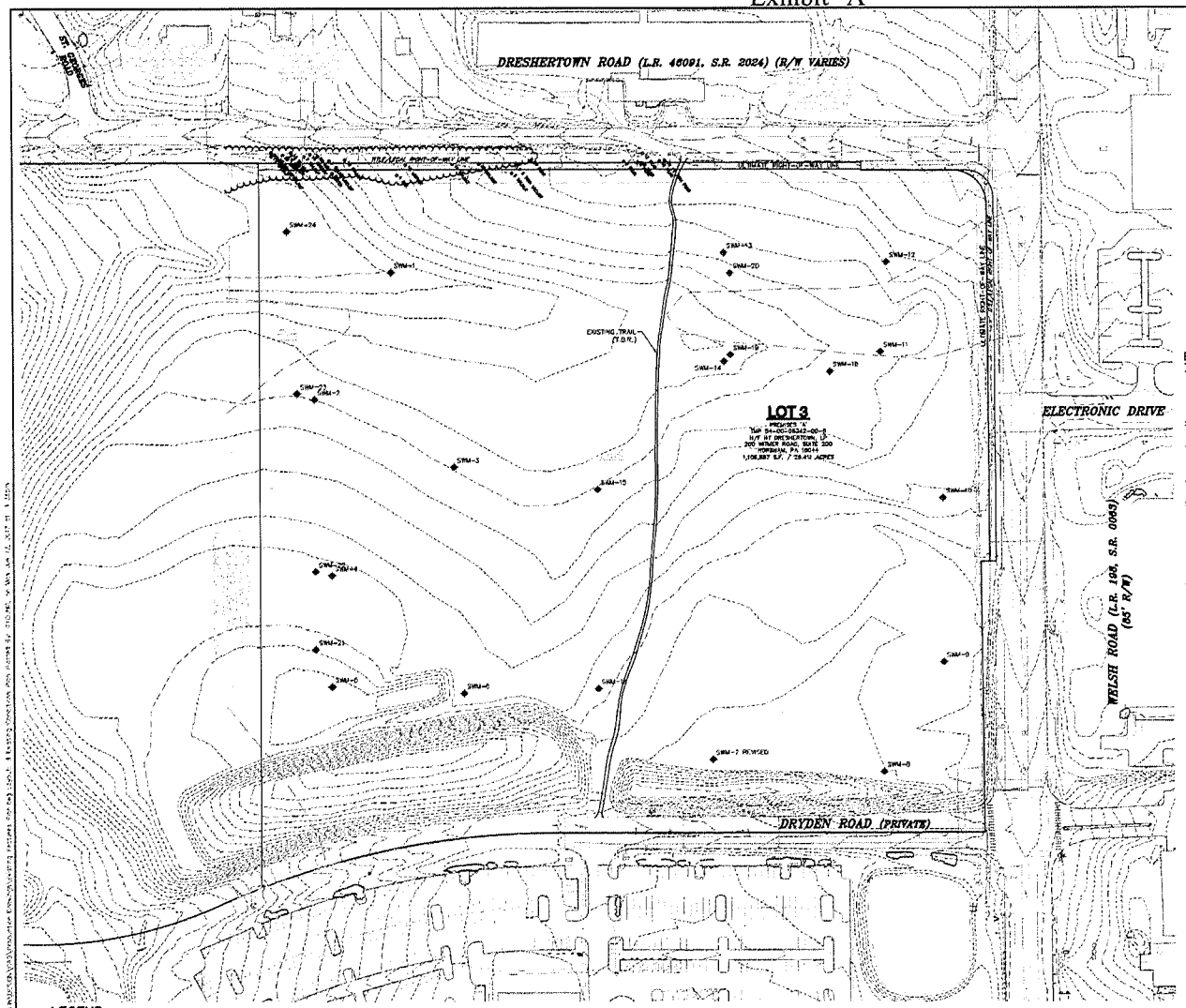


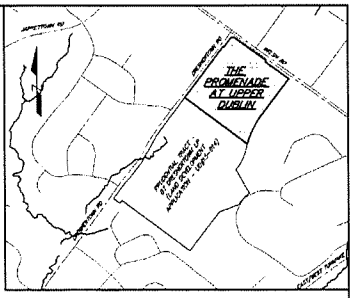
John H. Kennedy, AICP

APPENDIX

Exhibit "A"	Existing Features Plan
Exhibit "B"	Aerial Plan
Exhibit "C"	Zoning Map
Exhibit "D"	Conditional Use Plan Set
Exhibit "E"	Project Renderings
Exhibit "F"	Ordinance No. 17-1330
Exhibit "G"	Declaration of Covenants and Restrictions
Exhibit "H"	Architect Summary
Exhibit "I"	"Will Serve" Letters

Exhibit "A"





LOCATION MAP

SCALE: 1"=800'

EXISTING FEATURES NOTES:

1. PROPERTY KNOWN AS BLOCK 12, UNIT 33 (LOT 3) AS SHOWN ON THE TAX MAP OF UPPER DUBLIN, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA AND BEING DESIGNATED AS LOT 3 ON A MAP ENTITLED "RECORD PLAN A, B & C", PREPARED BY FAGLIS SOKOLOWSKI AND SARTOR, CONSULTING ENGINEERS, DATED 12/19/90 AND LAST REVISED 5/01/91 AND FILED IN THE COUNTY OF MONTGOMERY RECORDER OF DEEDS OFFICE PLAN BOOK A5, PAGE 264.
2. THE BOUNDARY AS SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY GILMORE & ASSOCIATES, INC. IN JULY, 2015 AND THE REFERENCED INFORMATION HEREON.
3. VERTICAL DATUM IS NAVD 88 AND WAS ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS. HORIZONTAL DATUM IS BASED ON THE 1983 STATE PLANE COORDINATE SYSTEM ESTABLISHED BY GPS, WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS.
4. SOILS INFORMATION TAKEN FROM USDA-NRCS WEB SOIL SURVEY OF MONTGOMERY COUNTY.
5. THE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE GROUND OBSERVATION OF THE SITE DRAWINGS. THEREFORE, ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THESE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES
6. PER FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), SITE IS LOCATED IN FLOOD ZONE X – OTHER AREAS – AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AND FOUND ON FLOOD INSURANCE RATE MAP (FIRM) 42091C-0292-G, EFFECTIVE DATE MARCH 2, 2016.
7. ANY DIMENSIONS SCALED FROM THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION WITHOUT PRIOR CONFIRMATION FROM GILMORE & ASSOCIATES, INC.
8. ALL CONSTRUCTION REQUIREMENTS, METHODS AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE UPPER DUBLIN TOWNSHIP ENGINEERING AND CONSTRUCTION STANDARDS, IMPROVEMENT PROCEDURES, DATED JANUARY 2010, LAST REVISED OCTOBER 2013, THE UPPER DUBLIN TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, PADEP AND/OR PENNDOT FORM 408, LATEST EDITION, AND PA-UCC WHERE APPLICABLE. IN THE CASE OF CONFLICTING STANDARDS, INTERPRETATION SHALL REST WITH THE TOWNSHIP ENGINEER OR THE TOWNSHIP ENGINEER'S REPRESENTATIVE IN THE FIELD
9. ALL CONTRACTORS WORKING ON THE PROJECT SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT ARE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION) STANDARDS.
10. SITE RUNOFF FLOWS INTO PINE RUN WHICH FLOWS IN TO SANDY RUN AND WISSAHICKON CREEK, PART OF THE DELAWARE RIVER SOUTH WATERSHED. PINE RUN IS CLASSIFIED AS TSF, MF IN CHAPTER 93 OF THE PA CODE
11. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION OF ALL UTILITIES ON SITE TO BE REMOVED.
12. ALL DEMOLITION TO BE PERFORMED BY A QUALIFIED LICENSED CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES AND REGULATIONS. ALL DEBRIS TO BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL UTILITIES SHALL BE DISCONNECTED, ABANDONED AND/OR REMOVED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
14. ANY UTILITIES DAMAGED DURING DEMOLITION SHALL BE REPAIRED AND/OR REPLACED IN KIND BY THE CONTRACTOR AT HIS OWN EXPENSE.

SOILS LEGEND AND TABLE OF LIMITATIONS BASED ON NRCS WEB SOIL SURVEY FOR MONTGOMERY COUNTY, PENNSYLVANIA

SYMBOL	NAME	SLOPE	HYDRO GROUP	DEPTH TO WATER	DEPTH TO BEDROCK	LIMITATIONS FOR CONSTRUCTION	RESOLUTION OF LIMITATIONS
CfA	CHALFONT SILT LOAM	0-3%	B	10"	72"	VERY LIMITED, DEPTH TO SATURATION ZONE	MAY BYPASS PERMITS & FILTER BASINS AVAILABLE SEE DETAIL
LeA	LAWRENCEVILLE SILT LOAM	3-8%	C	27"	80"	VERY LIMITED, DEPTH TO SATURATION ZONE	MAY BYPASS PERMITS & FILTER BASINS AVAILABLE SEE DETAIL
PlB	PENN-LANSDALE COMPLEX	0-8%	B	> 79"	79"	VERY LIMITED, DEPTH TO HARD BEDROCK	BYPASS, NOT-BLASTING AND/OR BLASTING OF ROCK MAY BE NEEDED, COMPLY WITH ALL REGULATIONS
UgB	URBAN LAND	0-15%	C	> 79"	> 79"	NOT LIMITED	NOT LIMITED
UuaB	URBAN LAND - LANSDALE COMPLEX	0-8%	C	> 79"	54"	NOT LIMITED	NOT LIMITED

LEGEND

- 1-FT CONTOURS
- 5-FT CONTOURS
- EXISTING TREELINE
- EXISTING BRUSHLINE
- EXISTING PROPERTY LINE WITH BEARING AND DISTANCE
- SOIL TYPE & BOUNDARY
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN
- EXISTING STORM SEWER/INLET
- EXISTING GAS
- EXISTING ELECTRIC
- EXISTING TELEPHONE
- EXISTING SANITARY
- EXISTING WATER
- TEST PITS PERFORMED BY GILMORE AND ASSOCIATES

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED.
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SUMMARY OF EXISTING TREES TO BE REMOVED

BOTANICAL NAME	COMMON NAME	DIAMETER	REMARKS
JUGLANS NIGRA	BLACK WALNUT	12 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	24 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	18 INCH	INVASIVE, IN SEVERE DECLINE
ACER PLATANOIDES	NORWAY MAPLE	30 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	15 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS PENNSYLVANICA	PIN CHERRY	10 INCH	IN SEVERE DECLINE
GLEDITSIA TRICANTHOS	HONEY LOCUST	12 INCH	IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	10 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	30 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	24 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	9 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	11 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	12 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	10 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	10 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	12 INCH	INVASIVE, IN SEVERE DECLINE

NOTE: TREES LABELED AS "IN SEVERE DECLINE" HAVE BEEN OMITTED FROM REPLACEMENT TREE CALCULATIONS PER SALDO 312-33.C(2)(a)

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 552, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121. GILMORE & ASSOCIATES, INC. HAS OBTAINED A PA-ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

OWNER:
BY DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

REV. | DESCRIPTION | DATE | BY

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

EXISTING CONDITIONS PLAN

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

REGISTERED PROFESSIONAL ENGINEER ERIC S. CLASE ENGINEER 55713-E

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
SUITE 1 | 1026 E. BALTIMORE PIKE | MEDIA, PA 19063 | 610.565.4105 | www.gilmore-assoc.com

JOB NO.: 2015-06014-02

SHEET NO.: 8 OF 52

DESIGNED BY: RDF | DRAWN BY: GCV | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION

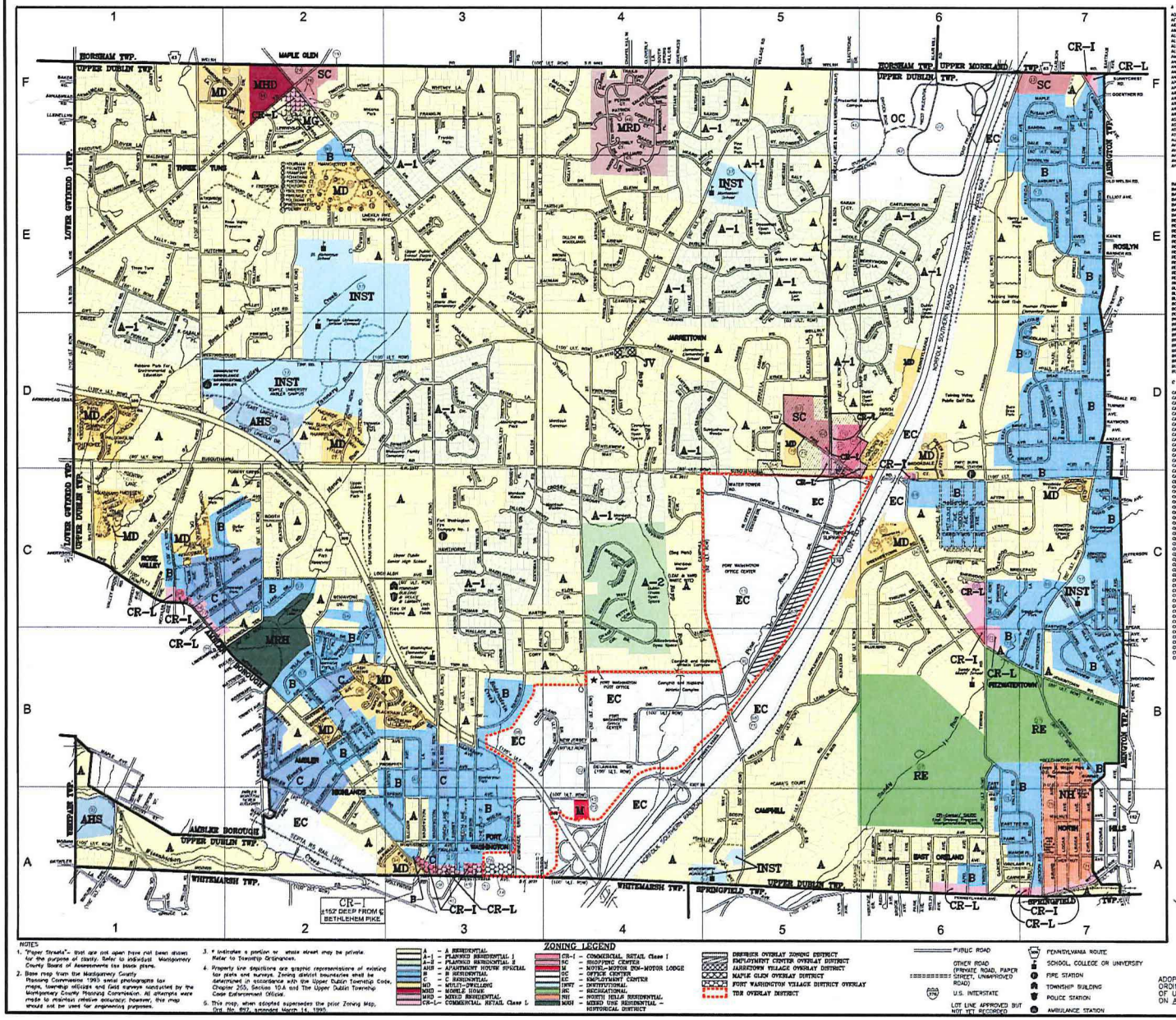
EXHIBIT "B"

EXHIBIT "C"

UPPER DUBLIN TOWNSHIP

ZONING MAP

MONTGOMERY COUNTY, PENNSYLVANIA



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One Inch Equals 1000 Feet

0 1000 2000 3000

SCALE IN FEET

ZONING MAP

ADOPTED BY TOWNSHIP OF UPPER DUBLIN ORDINANCE NO. 1086, AND APPROVED BY THE TOWNSHIP OF UPPER DUBLIN BOARD OF COMMISSIONERS ON APRIL 16, 2002

UPDT. ORD. #1273,1274,1276,1277&1293	12-09-14
UPDT. ORD. #968 & #1251	09-01-13
164 ZONING ADDED	09-27-11
REVISION	04-11-07
UPDT. ZONING PENNSYLVANIA AVE.	03-09-07
UPDT. ORD. 73	08-01-06
UPDT. ORD. #5, 72, 71 & 72	06-23-06
	07-28-05
	09-10-05
	03-09-04
	11-20-03
DATE OF ADOPTION	04-16-02

Metz Engineers

511 School House Road, Suite 200, Telford, PA 18969-1093
(215) 723-9225
Professional Engineers, Planners & Surveyors

Exhibit "D"

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN

&

CONDITIONAL USE PLAN

FOR

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

SITE INFORMATION

DISTRICT CLASSIFICATION:
"OC" – OFFICE CENTER DISTRICT
PROPOSED USE: MIXED USE DEVELOPMENT

1. SUBJECT TRACT MAY BE IDENTIFIED BY MONTGOMERY COUNTY TAX ASSESSMENT INFORMATION AS FOLLOWS:

   UPPER DUBLIN TOWNSHIP
   TAX MAP ID: #54-00-05242-00-6 (PREMISES A)

2. RECORDED DEED DATA IS AS FOLLOWS:

   AS RECORDED IN THE OFFICE FOR THE RECORDING OF DEEDS, ETC., IN AND FOR THE COUNTY OF MONTGOMERY AT NORRISTOWN, PA. IN
   PLAN BOOK L-5, PAGE 364

3. NAME AND ADDRESS OF THE OWNER OF THE SUBJECT TRACT:

   BT DRESHERTOWN, LP
   c/o BET INVESTMENTS, INC.
   200 WITMER ROAD, SUITE 200
   HORSHAM, PA 19044

4. AREA STATISTICS:

GROSS LOT AREA =	25.411 ACRES	
	– 0.348 ACRES	(ULTIMATE RIGHT-OF-WAY)
	– 0.827 ACRES	(DRYDEN ROAD RIGHT-OF-WAY)
NET DEVELOPABLE AREA =	24.438 ACRES	

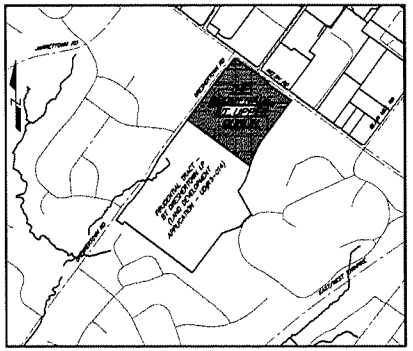
LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 802, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121. GILMORE & ASSOCIATES INC. HAS OBTAINED A PA ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359



LOCATION MAP

SCALE: 1"=800'

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
65 EAST BUTLER AVENUE, SUITE 100 NEW BRITAIN, PA 18901 • (215)345-4330 • www.gilmore-assoc.com

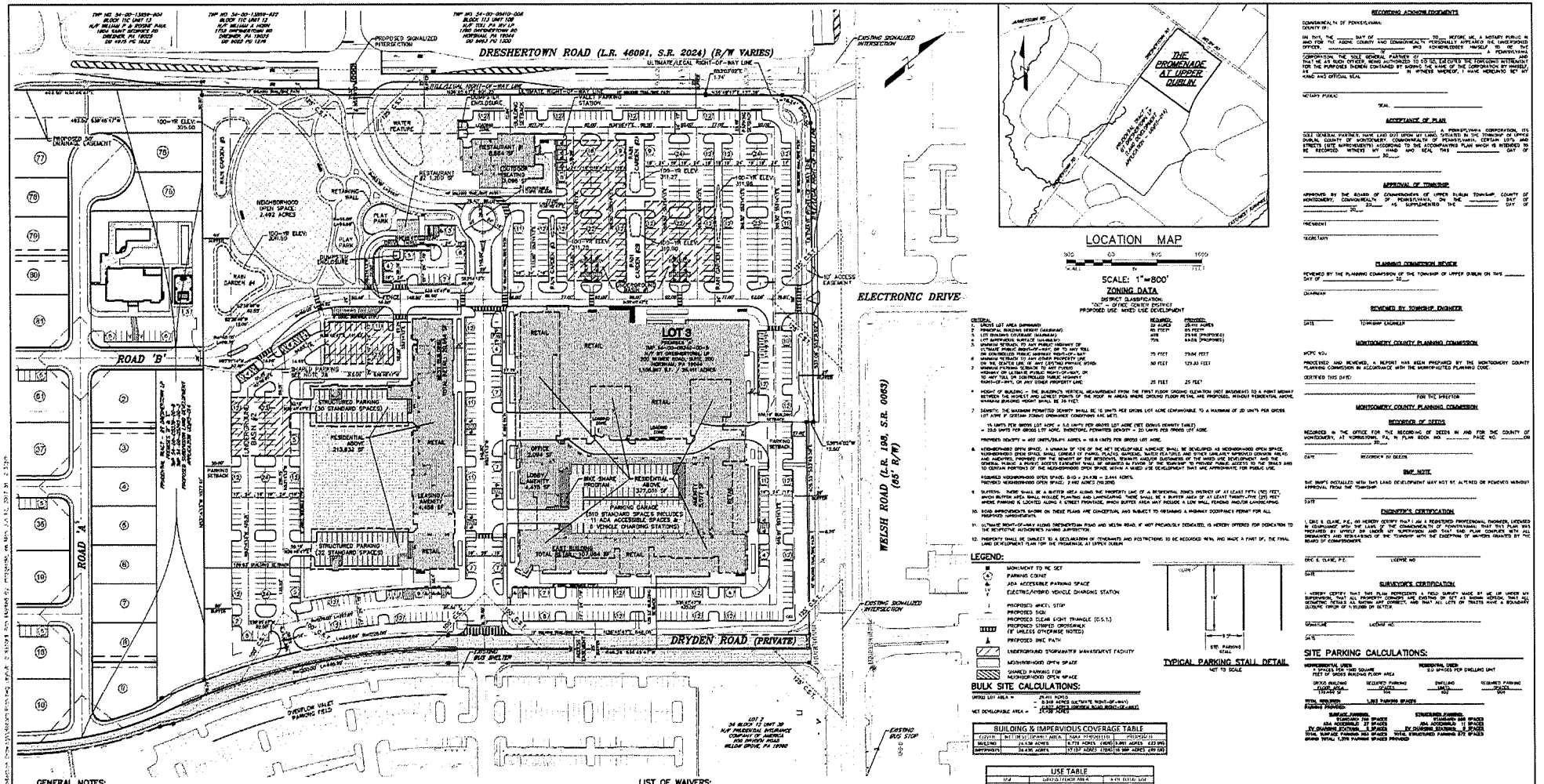
PLAN SHEET INDEX

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	RECORD PLAN
3	SITE SIGNAGE & AMMENITIES PLAN
4	SIGNAGE & STRIPING PLAN
5	OVERALL DEVELOPMENT PLAN
6	EAST BUILDING AREA PLANS
7	WEST BUILDING AREA PLANS
8	EXISTING CONDITIONS PLAN
9	GRADING & PCSM PLAN
10	GRADING & PCSM PLAN (NORTHEAST) (40 SCALE)
11	GRADING & PCSM PLAN (NORTHWEST) (40 SCALE)
12	GRADING & PCSM PLAN (SOUTHWEST) (40 SCALE)
13	GRADING & PCSM PLAN (SOUTHEAST) (40 SCALE)
14	UTILITY PLAN
15	LANDSCAPE PLAN
16	LANDSCAPE PLAN (NORTHEAST) (40 SCALE)
17	LANDSCAPE PLAN (NORTHWEST) (40 SCALE)
18	LANDSCAPE PLAN (SOUTHWEST) (40 SCALE)
19	LANDSCAPE PLAN (SOUTHEAST) (40 SCALE)
20	LIGHTING PLAN
21	EROSION & SEDIMENT CONTROL PLAN
22	EROSION & SEDIMENT CONTROL PLAN (NORTHEAST) (40 SCALE)
23	EROSION & SEDIMENT CONTROL PLAN (NORTHWEST) (40 SCALE)
24	EROSION & SEDIMENT CONTROL PLAN (SOUTHWEST) (40 SCALE)
25	EROSION & SEDIMENT CONTROL PLAN (SOUTHEAST) (40 SCALE)
26	DETAILS – E&S
27	DETAILS – E&S
28	CONSTRUCTION DETAILS – SITE
29	CONSTRUCTION DETAILS – SITE
30	CONSTRUCTION DETAILS – SITE
31	CONSTRUCTION DETAILS – SITE
32	CONSTRUCTION DETAILS – SITE
33	CONSTRUCTION DETAILS – PCSM
34	CONSTRUCTION DETAILS – PCSM
35	CONSTRUCTION DETAILS – PCSM
36	CONSTRUCTION DETAILS – PCSM
37	CONSTRUCTION DETAILS – PCSM
38	CONSTRUCTION DETAILS – PCSM
39	CONSTRUCTION DETAILS – PCSM
40	CONSTRUCTION DETAILS – PCSM
41	VEHICLE TURNING PLAN
42	VEHICLE TURNING PLAN
43	VEHICLE TURNING PLAN (FIRE TRUCK)
44	VEHICLE TURNING PLAN (FIRE TRUCK)
45	VEHICLE TURNING PLAN (FIRE TRUCK)
46	PLAN & PROFILE
47	STORM PROFILES
48	STORM PROFILES
49	STORM PROFILES
50	STORM PROFILES
51	SANITARY PROFILES
52	SANITARY PROFILES

PLAN DATE: February 10, 2017
LAST REVISED: June 12, 2017

SHEET NO.: 1 OF 52

NOT APPROVED FOR CONSTRUCTION



GENERAL NOTES:

1. PROPERTY KNOWN AS BLOCK 12, UNIT 1 & LOT 2 AS SHOWN ON THE TAX MAP OF UPPER DUBLIN, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA AND BEING DESIGNATED AS LOT 1 AS SHOWN ON A MAP ENTITLED "RECORD PLAN A, B & C", PREPARED BY PAWLING ENGINEERING AND CARTOON, CANNELTON, ENGINEERS, DATED 12/18/96 AND LAST REVISED 8/01/01, AND TITLED IN THE COUNTY OF MONTGOMERY RECORDER OF DEEDS WITH A PLAN BOOK 16, PAGE 244.
2. THE BOUNDARY AS SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY GILMORE & ASSOCIATES, INC. ON JULY, 2015 AND THE REFERENCED INFORMATION HEREON.
3. VERTICAL DATUM IS BASED ON NAD 83/91 ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE NETWORK. HORIZONTAL DATUM IS BASED ON THE NAD STATE PLANE COORDINATE SYSTEM ESTABLISHED BY GPS & TRIG OBSERVATIONS REFERENCED TO THE NETWORK.
4. WETLANDS WERE DELINEATED BY MARYFIELD ECO, L.L.C., 1100 ROBERTS DRIVE, WYNDMOOR, PA 19038, AND FIELD LOCATED BY GILMORE & ASSOCIATES, INC. IN JULY OF 2015 AND REMLANDS WERE ENVIRONMENT ON THE SUBJECT PROPERTY.
5. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE GROUND OBSERVATION OF THE SITE. DRAWINGS, PAINTINGS, ALL UTILITIES SHOWN HEREON ARE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THESE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES.
6. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF ACT 50, AS AMENDED BY ACT 181 OF 1974 AS LAST AMENDED ON OCTOBER 6, 2008, PENNSYLVANIA ACT 121 (GILMORE & ASSOCIATES, INC. HAS NOTIFIED PA-ONE CALL TICKET NUMBERS 20151771304, 20151771253 AND 20151771359 FOR DESIGN PURPOSES ONLY.
7. PER FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) DFIRM MAP NUMBER 42091C0212G, EFFECTIVE DATE MARCH 2, 2016.
8. ANY IMPROVEMENTS SHOWN FROM THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION WITHOUT PRIOR CONSTRUCTION FROM GILMORE & ASSOCIATES, INC.
9. CONCRETE MONUMENTS SHALL BE SET ACCORDING TO THIS PLAN. ALL OTHER PROPERTY CORNERS SHALL BE MONUMENTED WITH IRON PINS UPON FINAL GRADING.
10. ULTIMATE RIGHT-OF-WAY ALONG MONTGOMERY ROAD AND WELSH ROAD IF NOT PREVIOUSLY DEDICATED, ARE HEREBY OFFERED FOR DEDICATION TO THE RESPECTIVE AUTHORITIES HAVING JURISDICTION.
11. THIS LOT SHALL BE SERVED BY PUBLIC WATER AND SEWER.
12. ALL CONSTRUCTION REQUIREMENTS, METHODS AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE UPPER DUBLIN TOWNSHIP ENGINEERING AND CONSTRUCTION STANDARDS, IMPROVEMENT PROGRAMMED, DATED JANUARY 2010, LAST REVISED OCTOBER 2013, THE UPPER DUBLIN TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, PAVER AND/OR PENNDOT FORM 408, LATEST EDITION, AND PA-UCC MANUAL APPLICABLE, IN THE CASE OF CONFLICTING STANDARDS OR SPECIFICATIONS, SHALL REST WITH THE TOWNSHIP ENGINEER OR THE TOWNSHIP ENGINEER'S REPRESENTATIVE IN THE FIELD.
13. NO BUILDING PERMIT WILL BE ISSUED UNTIL A WORKING AVAILABILITY IS LOCATED WITHIN 500 FEET OF THE BUILDING WHICH IS THE SUBJECT OF THE PERMIT, AND UNTIL ALL REQUIREMENTS FOR PUBLIC UTILITIES HAVE BEEN MET TO THE TOWNSHIP ENGINEER'S SATISFACTION.
14. ALL SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 5 FEET.
15. CONCRETE CURBS SHALL BE INSTALLED ALONG EACH SIDE OF ALL ACCESS DRIVES AND PARKING AREAS.
16. ALL IMPROVEMENTS SHALL COMPLY WITH PA CODE CHAPTER 441 – ACCESS TO AND USE OF STATE HIGHWAYS AND UPPER DUBLIN TOWNSHIP.
17. NO WALL, FENCE, STRUCTURE, HEDGE, TREE, SHRUB OR OTHER GROWTH SHALL BE PLANTED OR MAINTAINED WITHIN A CLEAR SIGHT TRIANGLE (C.S.T.) WHICH INTERSECTS WITH A TRAFFIC AND UNOBSTRUCTED VIEW WITHIN SUCH TRIANGLES SHALL BE ESTABLISHED BY UPPER DUBLIN TOWNSHIP.
18. NO TOPSOIL SHALL BE REMOVED FROM THE SITE OR USED AS SPOIL. TOPSOIL MUST BE REDISTRIBUTED ONSITE UNIFORMLY. ALL AREAS OF THE SITE SHALL BE STABILIZED BY SEEDING OR PLANTING OR SURFACE OF LESS THAN 2UR AND SHALL BE STABILIZED BY SODDING OR SEEDED 2UR TO 2UR.
19. ALL NEW TELEPHONE, ELECTRIC AND COMMUNICATIONS SERVICES SHALL BE INSTALLED UNDERGROUND. PLANS SHOWING THE LOCATIONS OF TRANSFORMERS, SPACE BOXES, ETC. SHALL BE PROVIDED TO THE TOWNSHIP ENGINEER PRIOR TO INSTALLATION OF THESE FACILITIES.
20. THE STORMWATER MANAGEMENT FACILITIES SHOWN ON THESE PLANS ARE A BASIC AND PRELIMINARY DESIGN AND ARE SUBJECT TO REVISIONS AND REVIEW IN ACCORDANCE WITH THE APPROVED FINAL PLAN. A MAINTENANCE AGREEMENT IN FAVOR OF THE TOWNSHIP SHALL BE EXECUTED AND RECORDED FOR ALL STORMWATER FACILITIES PROVIDED TO SERVE THE DEVELOPMENT. THE AGREEMENT SHALL BE WITHIN THE RESPONSIBILITY FOR MAINTENANCE OF THE FACILITY. SHOULD MAINTENANCE BY THE OWNER BE DEEMED INADEQUATE BY THE TOWNSHIP SOLICITOR, SHALL BE SUBMITTED TO PROVIDE FOR MAINTENANCE BY THE TOWNSHIP TO SAID CORRECTIVE MAINTENANCE MEASURES AND TO USE THE ISSUE OF THE WORK AGAINST THE PROPERTY SHOULD CORRECTIVE MEASURES NOT BE PERFORMED BY THE OWNER OF THE PROPERTY.
21. AN OWNERSHIP AND MAINTENANCE PROGRAM IN A RECOGNIZABLE FORM, THAT SETS FORTH THE OWNERSHIP AND MAINTENANCE RESPONSIBILITY FOR ALL TEMPORARY AND PERMANENT STORMWATER MANAGEMENT FACILITIES AND COMMON FACILITIES AS THE RESPONSIBILITY OF THE PROPERTY OWNER SHALL BE PROVIDED AT TIME OF FINAL APPROVAL IN THE LAND DEVELOPMENT AGREEMENT.
22. WATER EMANATING FROM OTHER THAN NATURAL SOURCES, SUCH AS AIR-CONDITIONING UNITS, SUMP PUMPS, OR OTHER DRY WEATHER FLOW, WHETHER APPLICABLE, SHALL BE CONNECTED TO THE STORM DRAINAGE SYSTEM OF THE TOWNSHIP OR SHALL-HARDED INTO IMPERVIOUSNESS ON THE PROPERTY, AS THE TOWNSHIP MAY DIRECT. THE FACILITIES SHALL NOT BE DESIGNED FOR INFILTRATION OF GROUNDWATER. THE FOUNDATION DRAINS AND/OR SUMP PUMPS FOR BUILDING SHALL BE PREPARED TO PERMIT DISCHARGE TO ACCEPTABLE LIMITS. NOTE: A DISCHARGE TO THE VALLEY GUTTER OF A TOWNSHIP ROAD IS NOT ACCEPTABLE.
23. SHOP DRAWINGS/WITH-RISK GUARANTEE FOR ALL ITEMS PERTAINING TO THE STORM SEWER SYSTEM (STORM STRUCTURES, PIPES, ETC.), CONCRETE (CURB, SIDEWALK, ETC.), ALL MONUMENTS, ALL ASPHALT (DESIGN MIXES, WEARING COURSE, ETC.) SHALL BE SUBMITTED TO THE TOWNSHIP ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.
24. A BLANKET EASEMENT IN FAVORS OF THE TOWNSHIP IS HEREBY OFFERED FOR PUBLIC ACCESS TO THE NEIGHBORHOOD OPEN SPACE AREAS AND TRAILS ON THIS PLAN.
25. NO ADDRESSES CREATED AS PART OF THIS DEVELOPMENT SHALL REFERENCE ONDEN-DRYDEN ROAD.
26. WHERE PARKING FOR NEIGHBORHOOD OPEN SPACE, NO OVERNIGHT PARKING FROM 9:00 AM TO 6:00 PM DAILY.

LIST OF WAIVERS:

THE FOLLOWING WAIVERS ARE REQUESTED FROM THE UPPER DUBLIN TOWNSHIP SALDO, STORM WATER MANAGEMENT & ENGINEERING AND CONSTRUCTION STANDARDS, IMPROVEMENTS PROGRAMS:

A FROM THE PROVISIONS OF §306-34.D WHICH REQUIRES THAT SWPS BE DESIGNED TO INFILTRATE RETAINED RUNOFF WITHIN A 48 HOUR PERIOD AND BE DESIGNED USING A FACTOR OF SAFETY OF 2 WHEN COMPUTING INFILTRATION POTENTIAL OF A SWP FROM FIELD MEASUREMENTS OF INFILTRATION RATE. THE APPLICANT PROPOSES USING A FACTOR OF SAFETY OF 1.

DENSITY BONUS TABLE

ADMINISTRATION	PRESERVATION STANDARDS	DENSITY BONUS	HOUSE STRUCTURE PAYMENTS	FINANCIAL PAYMENT	DEVELOPMENT
NEIGHBORHOOD OPEN SPACE	PRESERVE ADDITIONAL LAND AS NEIGHBORHOOD OPEN SPACE IN EXCESS OF THE REQUIRED 10%	2.5 UNITS PER GROSS LOT ACRE FOR EVERY 1% ABOVE REQUIRED	AREA NEIGHBORHOOD OPEN SPACE: 10% REQUIRED 2.492 ACRES (10.23%)	NO	0.0 UNITS PER GROSS LOT ACRE
STRUCTURED PARKING	MINIMUM OF 25% OF TOTAL REQUIRED PARKING PROVIDED IN STRUCTURED PARKING	2.0 UNITS PER GROSS LOT ACRE	REQUIRED PARKING: 1,263 STRUCTURED PARKING PROVIDED: 673 (41.97%)	YES	7.0 UNITS PER GROSS LOT ACRE
GREEN ROOF	GREEN ROOF SHALL COVER AT LEAST 75% OF THE NET ROOF AREA OF A BUILDING WITH A FOOTPRINT OF AT LEAST 20,000 SQUARE FEET	2.0 UNITS PER GROSS LOT ACRE FOR THE FIRST BUILDING, 1.0 UNITS PER GROSS LOT ACRE FOR EACH ADDITIONAL BUILDING	NET ROOF AREA (EXCEPT FOR MECHANICAL EQUIPMENT): 76,826 SF GREEN ROOF AREA: 57,619 SF (75.00% AREA) TOTAL PARKING SPACES REQUIRED: 1,263 STRUCTURED PARKING SPACES PROVIDED: 673 (41.97%)	NO	0.0 UNITS PER GROSS LOT ACRE
ALTERNATIVE TRANSPORTATION	A) PROVIDE CHARGING STATIONS FOR ELECTRIC/HYBRID VEHICLES FOR 1% OF TOTAL REQUIRED PARKING	1.0 UNITS PER GROSS LOT ACRE	TOTAL PARKING SPACES REQUIRED: 1,263 PARKING STATIONS PROVIDED: 14 (1%)	YES	1.0 UNITS PER GROSS LOT ACRE
	B) PROVIDE BIKE RACKS THROUGHOUT THE DEVELOPMENT	1.0 UNITS PER GROSS LOT ACRE	BIKE RACKS PROVIDED: 16 BIKE RACKS	YES	1.0 UNITS PER GROSS LOT ACRE
	C) IMPLEMENT A BIKE-SHARE PROGRAM WITHIN THE DEVELOPMENT	1.0 UNITS PER GROSS LOT ACRE	BIKE-SHARE PROGRAM PROPOSED:	YES	1.0 UNITS PER GROSS LOT ACRE
	D) PROVIDE A PUBLIC TRANSIT STOP	1.0 UNITS PER GROSS LOT ACRE	BUS PROPOSED	NO	0.0 UNITS PER GROSS LOT ACRE
ALTERNATIVE ENERGY SOURCES	INSTALL A SOLAR, GEOTHERMAL OR OTHER RENEWABLE ENERGY POWER-GENERATION FACILITY THAT IS DESIGNED TO PROVIDE AT LEAST 10% OF THE PROJECTED ANNUAL ENERGY USE FOR THE BUILDING	1.0 UNITS PER GROSS LOT ACRE	NOT PROPOSED	NO	0.0 UNITS PER GROSS LOT ACRE
			TOTAL BONUS DENSITY:		8.0 UNITS PER GROSS LOT ACRE

BUILDING & IMPERVIOUS COVERAGE TABLE

COVER	NET DEVELOPMENT AREA	PROPOSED
BUILDING	24.438 ACRES	8.778 ACRES (.4040) 3.801 ACRES .422 IMS
IMPERVIOUS	24.438 ACRES	17.107 ACRES (.7040) 16.984 ACRES (.69 OR)

USE TABLE

USE	GROSS FLOOR AREA	% OF TOTAL USE
OFFICE	2,094 SF	5.3%
COMMERCIAL	137,183 SF	19.7%
RESIDENTIAL	554,691 SF	77.0%
BUILDING VARIANCE	25,870 SF	2.0%
TOTAL	719,837 SF	100%

NEIGHBORHOOD USES: 5 SPACES PER 1,000 SQUARE FEET OF GROSS BUILDING FLOOR AREA

RESIDENTIAL USES: 2.0 SPACES PER DWELLING UNIT

OFFICE/BUILDING FLOOR AREA	REQUIRED SPACES	DWELLING UNITS	REQUIRED PARKING SPACES
719,743 SF	1,263	452	904

TOTAL REQUIRED PARKING PROVIDED: 1,263 PARKING SPACES

SURFACE PARKING: STANDARD 567 SPACES; ADA ACCESSIBLE 27 SPACES; EV CHARGING STATIONS 14 SPACES; TOTAL SURFACE PARKING 673 SPACES

STRUCTURED PARKING: STANDARD 568 SPACES; ADA ACCESSIBLE 11 SPACES; EV CHARGING STATIONS 12 SPACES; TOTAL STRUCTURED PARKING 272 SPACES

GRAND TOTAL 1,399 PARKING SPACES PROVIDED

SITE PARKING CALCULATIONS:

TYPICAL PARKING STALL DETAIL
NOT TO SCALE

PENNSYLVANIA ONE CALL SYSTEM, INC.
1-800-242-1776
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE
SERIAL NO. 20151771253, 20151771304, 20151771153 & 20151771359

DATE: 6-12-17

NO.	REVISION DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF
REV.	DESCRIPTION	DATE	BY

OWNER: BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 939-7300

TAX MAP PARCEL NO.: 54-00-05242-00-5
MUNICIPAL FILE NO.: XX
TOTAL AREA: 25.411
TOTAL LOTS: 1
DATE: 2-10-17
SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN
RECORD PLAN
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CONTINENTAL BOULEVARD, SUITE 110, MALVERN, PA 19355 (610) 647-1900 FAX (610) 647-8908

JOB NO.: 2015-06014-02
SHEET NO.: 2 OF 52

DESIGNED BY: RBF | DRAWN BY: DCY | CHECKED BY: ESC

ERIC S. CLASE ENGINEER 55713-E REGISTERED PROFESSIONAL

NOT APPROVED FOR CONSTRUCTION

RECORDING ACKNOWLEDGMENTS

COMMONWEALTH OF PENNSYLVANIA:
COUNTY OF:

ON THIS, THE _____ DAY OF _____, 20__, BEFORE ME, A NOTARY PUBLIC IN AND FOR THE AFORE COUNTY AND COMMONWEALTH PERSONALLY APPEARED THE UNDERSIGNED OFFICER, _____ WHO ACKNOWLEDGED HIMSELF / HERSELF TO BE THE _____ OF _____, A PENNSYLVANIA CORPORATION, THE SOLE GENERAL PARTNER OF _____, A PENNSYLVANIA LIMITED PARTNERSHIP, AND THAT HE AS SUCH OFFICER, BEING AUTHORIZED TO DO SO, EXECUTED THE FOREGOING INSTRUMENT FOR THE PURPOSES THEREIN CONTAINED BY SIGNING THE NAME OF THE CORPORATION BY HIMSELF / HERSELF AS _____.

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND OFFICIAL SEAL.

_____
NOTARY PUBLIC

SEAL

ACCEPTANCE OF PLAN

BT DRESHERTOWN, LP, A PENNSYLVANIA CORPORATION, ITS SOLE GENERAL PARTNER, HAVE CAUSED THE LAND DESCRIBED IN THE SURVEYOR'S CERTIFICATE HEREON TO BE SURVEYED AND PLOTTED AS SHOWN ON THIS PLAN WHICH IS HEREBY ADOPTED AND THAT THE SAME SHALL HEREAFTER BE KNOWN AS "THE PROMENADE AT UPPER DUBLIN" SITUATE IN THE TOWNSHIP OF UPPER DUBLIN, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA, CERTAIN LOTS AND STREETS (LOT IMPROVEMENTS) ACCORDING TO THE ACCOMPANYING PLAN WHICH IS INTENDED TO BE RECORDED WITNESS MY HAND AND SEAL THIS _____ DAY OF _____, 20__.

_____

APPROVAL OF TOWNSHIP

APPROVED BY THE BOARD OF COMMISSIONERS OF UPPER DUBLIN TOWNSHIP, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA, ON THE _____ DAY OF _____, 20__, AS SUPPLEMENTED THE _____ DAY OF _____, 20__.

_____
PRESIDENT

_____
SECRETARY

PLANNING COMMISSION REVIEW

REVIEWED BY THE PLANNING COMMISSION OF THE TOWNSHIP OF UPPER DUBLIN ON THIS _____ DAY OF _____, 20__.

_____
CHAIRMAN

REVIEWED BY TOWNSHIP ENGINEER

_____ _____
DATE TOWNSHIP ENGINEER

MONTGOMERY COUNTY PLANNING COMMISSION

MCPC NO.

PROCESSED AND REVIEWED, A REPORT HAS BEEN PREPARED BY THE MONTGOMERY COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE MUNICIPALITIES PLANNING CODE.

CERTIFIED THIS DATE:

_____
FOR THE DIRECTOR
MONTGOMERY COUNTY PLANNING COMMISSION

RECORDER OF DEEDS

RECORDED IN THE OFFICE FOR THE RECORDING OF DEEDS IN AND FOR THE COUNTY OF MONTGOMERY, AT NORRISTOWN, PA, IN PLAN BOOK NO. _____ PAGE NO. _____ ON THE _____ DAY OF _____, 20__.

_____ _____
DATE RECORDER OF DEEDS

BMP NOTE

THE BMPS INSTALLED WITH THIS LAND DEVELOPMENT MAY NOT BE ALTERED OR REMOVED WITHOUT APPROVAL FROM THE TOWNSHIP

_____
DATE

ENGINEER'S CERTIFICATION

I, ERIC S. CLASE, P.E., DO HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA; THAT THIS PLAN WAS PREPARED BY MYSELF OR UNDER MY SUPERVISION AND THAT SAID PLAN COMPLIES WITH ALL ORDINANCES AND REGULATIONS OF THE TOWNSHIP WITH THE EXCEPTION OF WAIVERS GRANTED BY THE BOARD OF COMMISSIONERS.

_____ _____
ERIC S. CLASE, P.E. LICENSE NO.

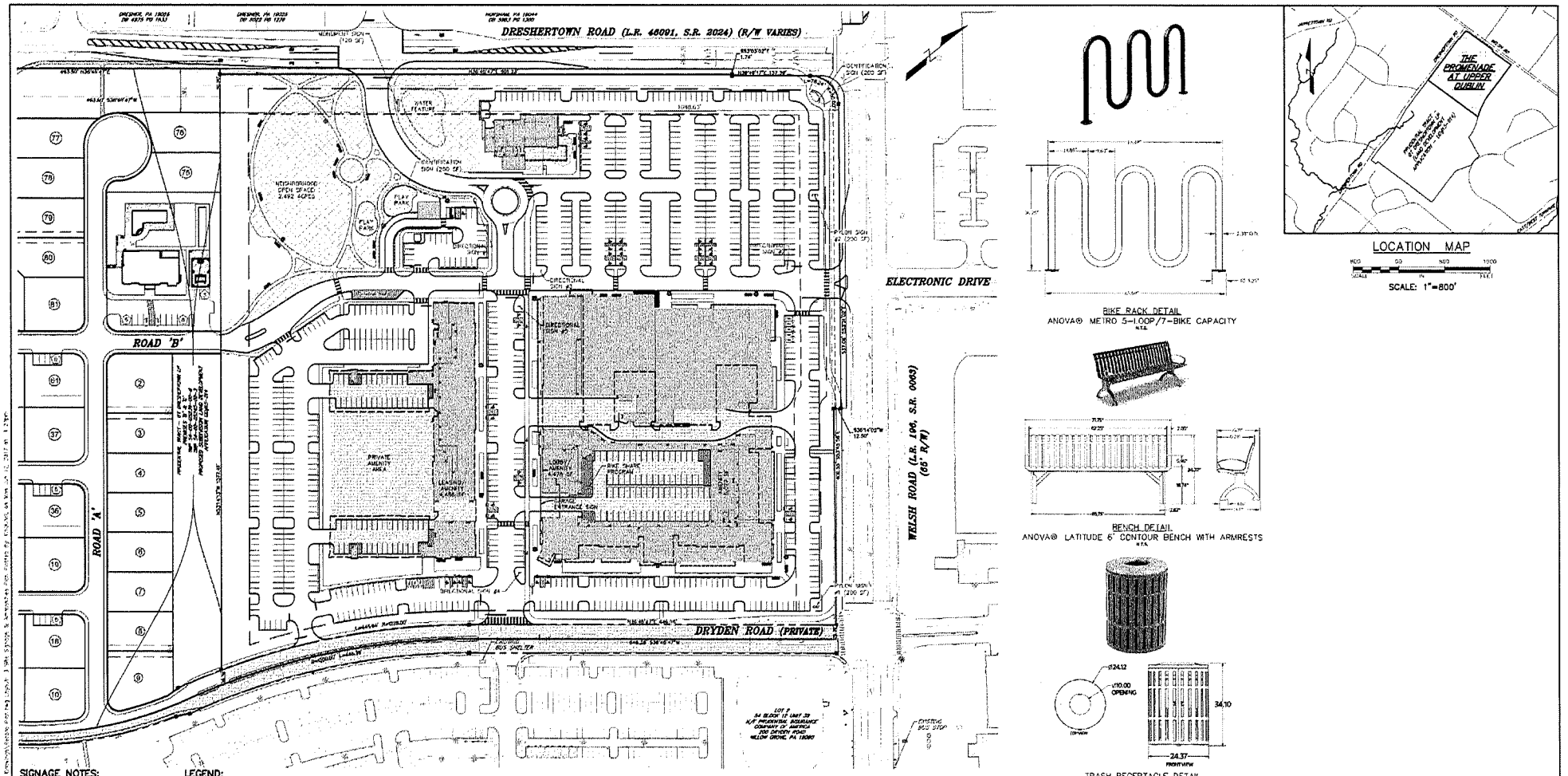
_____
DATE

SURVEYOR'S CERTIFICATION

I, _____, HEREBY CERTIFY THAT THIS PLAN REPRESENTS A FIELD SURVEY MADE BY ME OR UNDER MY SUPERVISION; THAT ALL PROPERTY CORNERS ARE EXISTING OR SET AS SHOWN HEREON; THAT ALL MONUMENTS DETAILS AS SHOWN ARE CORRECT; AND THAT ALL LOTS OR TRACTS HAVE A BOUNDARY CLOSURE ERROR OF 1:10,000 OR BETTER.

_____ _____
SIGNATURE LICENSE NO.

_____
DATE



BIKE RACK DETAIL
ANOVA® METRO 5-LOOP/7-BIKE CAPACITY
N.T.S.

BENCH DETAIL
ANOVA® LATITUDE 6' CONTOUR BENCH WITH ARMRESTS
N.T.S.

TRASH RECEPTACLE DETAIL
ANOVA® LATITUDE 40 GALLON RECEPTACLE

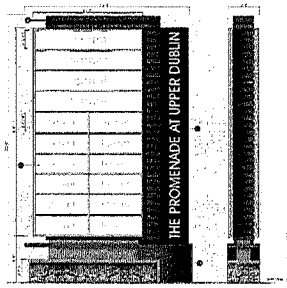
LOCATION MAP
SCALE: 1"=800'

SIGNAGE NOTES:

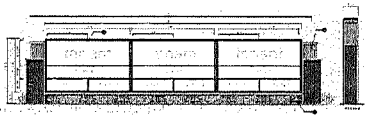
1. EACH INDIVIDUAL RETAIL OR COMMERCIAL TENANT SHALL BE ENTITLED TO A WALL SIGN OF 10% OF THE FACADE OF EACH EXTERIOR WALL UP TO 200 SQUARE FEET EACH.
2. NONCENTRAL IDENTIFICATION SIGNS SHALL BE PERMITTED ON EACH EXTERIOR WALL UP TO 200 SQUARE FEET PER FACADE.
3. SIGN DETAILS PROVIDED BY FORMAN SIGN COMPANY, 10447 DRUMMOND ROAD, PHILADELPHIA, PA 19154.

LEGEND:

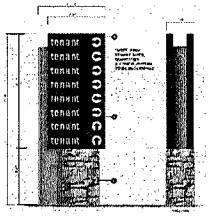
- BICYCLE RACK
- BENCH SEATING
- TRASH RECEPTACLE
- LIGHT STANDARD



TYPICAL PYLON SIGN DETAIL
N.T.S.



TYPICAL MONUMENT SIGN DETAIL
N.T.S.



TYPICAL DIRECTIONAL SIGN DETAIL
N.T.S.

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PENNSYLVANIA ONE CALL SYSTEM, INC.
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776
SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

ERIC S. CLASE
ENGINEER
25713-E
DATE: 6-12-17

REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7500

TAX MAP PARCEL NO.: 54-00-05242-00-5
MUNICIPAL FILE NO.: XX
TOTAL AREA: 25.411
TOTAL LOTS: 1
DATE: 2-10-17
SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

SITE SIGNAGE & AMMENITIES PLAN
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

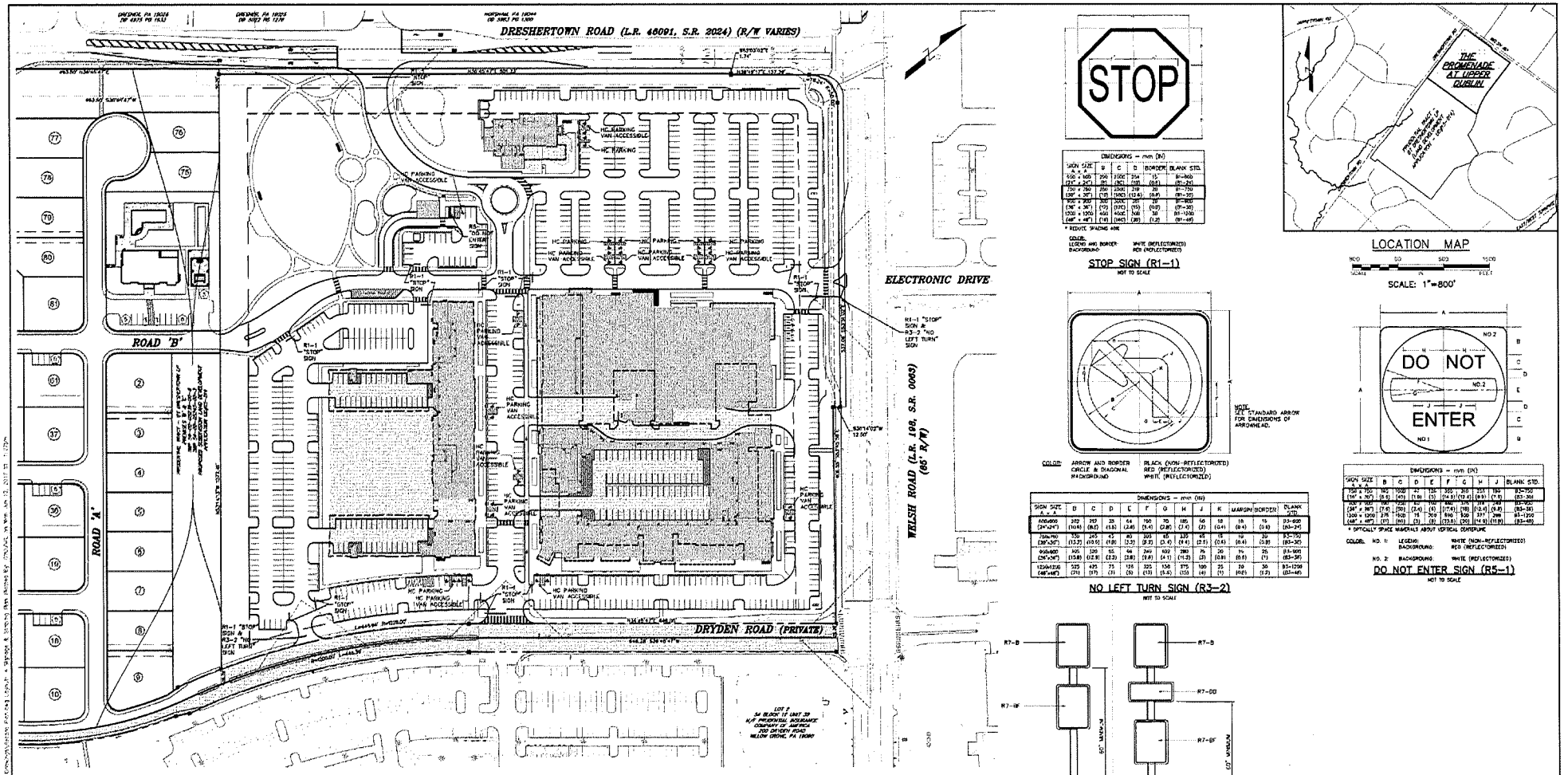
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 • (215) 345-4330 • www.gilmore-assoc.com

SCALE: 1" = 80'

JOB NO.: 2015-06014-02
SHEET NO.: 3 OF 52

DESIGNED BY: RBF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



DIMENSIONS – mm (IN)						
SIGN SIZE A x B	B	C	D	BORDER	BLANK STD.	
600 x 600 (24" x 24")	356 (14)	356 (14)	254 (10)	15 (0.6)	R1-1 (R1-20)	
750 x 750 (30" x 30")	356 (14)	356 (14)	254 (10)	20 (0.8)	R1-1 (R1-30)	
900 x 900 (36" x 36")	457 (18)	457 (18)	305 (12)	25 (1.0)	R1-1 (R1-36)	
1200 x 1200 (48" x 48")	610 (24)	610 (24)	406 (16)	30 (1.2)	R1-1 (R1-48)	

* REDUCE SPACING 40%

COLOR: LEGEND AND BORDER — WHITE (REFLECTORIZED); BACKGROUND — RED (REFLECTORIZED)

STOP SIGN (R1-1)
NOT TO SCALE

LOCATION MAP

SCALE: 1"=800'

NOTE: SEE STANDARD ARROW FOR DIMENSIONS OF ARROWHEAD.

COLOR: ARROW AND BORDER — BLACK (NON-REFLECTORIZED); CIRCLE & DIAGONAL — RED (REFLECTORIZED); BACKGROUND — WHITE (REFLECTORIZED)

DIMENSIONS – mm (IN)									
SIGN SIZE A x B	B	C	D	E	F	G	H	J	BLANK STD.
750 x 750 (30" x 30")	165 (6.5)	1060 (42)	47 (1.9)	125 (5)	355 (14.0)	203 (8.0)	203 (8.0)	184 (7.3)	R5-750 (R5-30)
900 x 900 (36" x 36")	190 (7.5)	1260 (50)	47 (2.4)	150 (6)	406 (17.4)	203 (8.0)	203 (8.0)	184 (9.8)	R5-900 (R5-36)
1200 x 1200 (48" x 48")	241 (9.5)	1600 (63)	47 (3)	190 (8)	508 (20.0)	203 (8.0)	203 (8.0)	184 (11.9)	R5-1200 (R5-48)

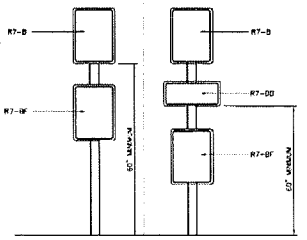
* OPTICALLY SPACE MNEMONICS ABOUT VERTICAL CENTERLINE

COLOR: NO. 1: LEGEND — WHITE (NON-REFLECTORIZED); BACKGROUND — RED (REFLECTORIZED)
NO. 2: BACKGROUND — WHITE (REFLECTORIZED)

DO NOT ENTER SIGN (R5-1)
NOT TO SCALE

DIMENSIONS – mm (IN)												
SIGN SIZE A x B	B	C	D	E	F	G	H	J	K	MARGIN	BORDER	BLANK STD.
600x600 (24"x24")	292 (10.48)	292 (8.62)	28 (1.58)	64 (2.48)	190 (7.41)	70 (2.28)	185 (7.41)	56 (2)	10 (0.4)	18 (0.4)	15 (0.6)	R3-600 (R3-24)
750x750 (30"x30")	330 (13.2)	267 (10.51)	28 (1.08)	80 (3.2)	203 (8.2)	70 (3.4)	330 (9.4)	56 (2.5)	10 (0.4)	18 (0.4)	20 (0.59)	R3-750 (R3-30)
900x900 (36"x36")	305 (12.8)	320 (12.8)	55 (2.2)	46 (2.2)	349 (13.8)	692 (4.1)	280 (11.2)	75 (3)	20 (0.8)	34 (0.8)	25 (1)	R3-900 (R3-36)
1200x1200 (48"x48")	525 (21)	425 (17)	75 (3)	126 (5)	325 (13)	150 (5.6)	375 (15)	100 (4)	25 (1)	39 (0.8)	30 (1.2)	R3-1200 (R3-48)

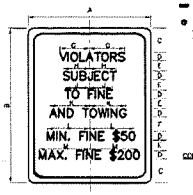
NO LEFT TURN SIGN (R3-2)
NOT TO SCALE



AT HANDICAPPED PARKING SPACE — AT VAN ACCESSIBLE HANDICAPPED PARKING SPACE

SIGNS TO BE POSTED FOR TITLE 67 OF THE PA CODE

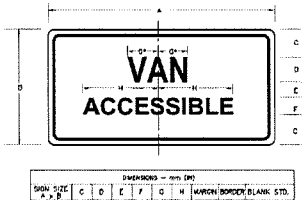
HANDICAPPED PARKING SIGN ELEVATION DETAIL
NOT TO SCALE



DIMENSIONS – mm (IN)												
SIGN SIZE A x B	C	D	E	F	G	H	J	K	L	MARGIN	BORDER	BLANK STD.
300 x 450 (12" x 18")	33 (1.4)	406 (16.00)	15 (0.5)	350 (10)	64 (2.5)	112 (4)	16 (0.4)	76 (0.4)	76 (0.4)			R3-300450 (R3-12118)

COLOR: LEGEND & BORDER — RED (REFLECTORIZED); BACKGROUND — WHITE (REFLECTORIZED)

RESERVED PARKING PENALTIES SIGN (R7-8F)
NOT TO SCALE

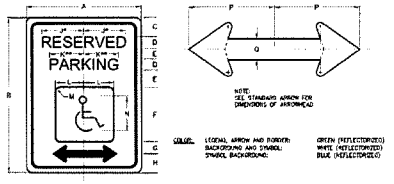


DIMENSIONS – mm (IN)									
SIGN SIZE A x B	C	D	E	F	G	H	MARGIN	BORDER	BLANK STD.
300 x 450 (12" x 18")	33 (1.4)	406 (16.00)	15 (0.5)	350 (10)	64 (2.5)	112 (4)	16 (0.4)	76 (0.4)	R3-300450 (R3-12118)

* INCREASE SPACING SIDE

COLOR: LEGEND AND BORDER (HANDICAPPED) — WHITE (NON-REFLECTORIZED); BLUE (REFLECTORIZED)

VAN ACCESSIBLE SIGN (R7-8B)
NOT TO SCALE



DIMENSIONS – mm (IN)																
SIGN SIZE A x B	C	D	E	F	G	H	J	K	L	M	N	P	Q	MARGIN	BORDER	BLANK STD.
300 x 450 (12" x 18")	50 (2)	406 (203)	25 (1)	150 (6)	40 (1.6)	60 (2.4)	175 (4.9)	108 (4.3)	253 (5)	16 (0.4)	100 (4)	45 (1.8)	20 (0.8)	15 (0.4)	10 (0.4)	R5-330450 (R5-12118)

* REDUCE SPACING SIDE ** REDUCE SPACING SIDE

COLOR: LEGEND, ARROW AND BORDER — GREEN (REFLECTORIZED); BACKGROUND AND SYMBOL — WHITE (REFLECTORIZED); SYMBOL BACKGROUND — BLUE (REFLECTORIZED)

RESERVED PARKING SIGN (R7-8)
NOT TO SCALE

NOTE: SEE STANDARD ARROW FOR DIMENSIONS OF ARROWHEAD

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY
SERIAL NO. 20151771253, 20151771130A, 20151771153 & 20151771358

REGISTERED PROFESSIONAL ENGINEER — COMMONWEALTH OF PENNSYLVANIA — ERIC S. CLASE — ENGINEER — 35713-E

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER: BT DRESHERTOWN, LP, 200 WITMER ROAD, SUITE 200, HORSHAM, PA 19044, (215) 938-7300

TAX MAP PARCEL NO.: 54-00-05242-00-5

MUNICIPAL FILE NO.: XX

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

SIGNAGE & STRIPING PLAN

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

80 0 80 160
SCALE IN FEET

JOB NO.: 2015-08014-02

SHEET NO.: 4 OF 52

DESIGNED BY: RBF | DRAWN BY: DCY | CHECKED BY: ESC

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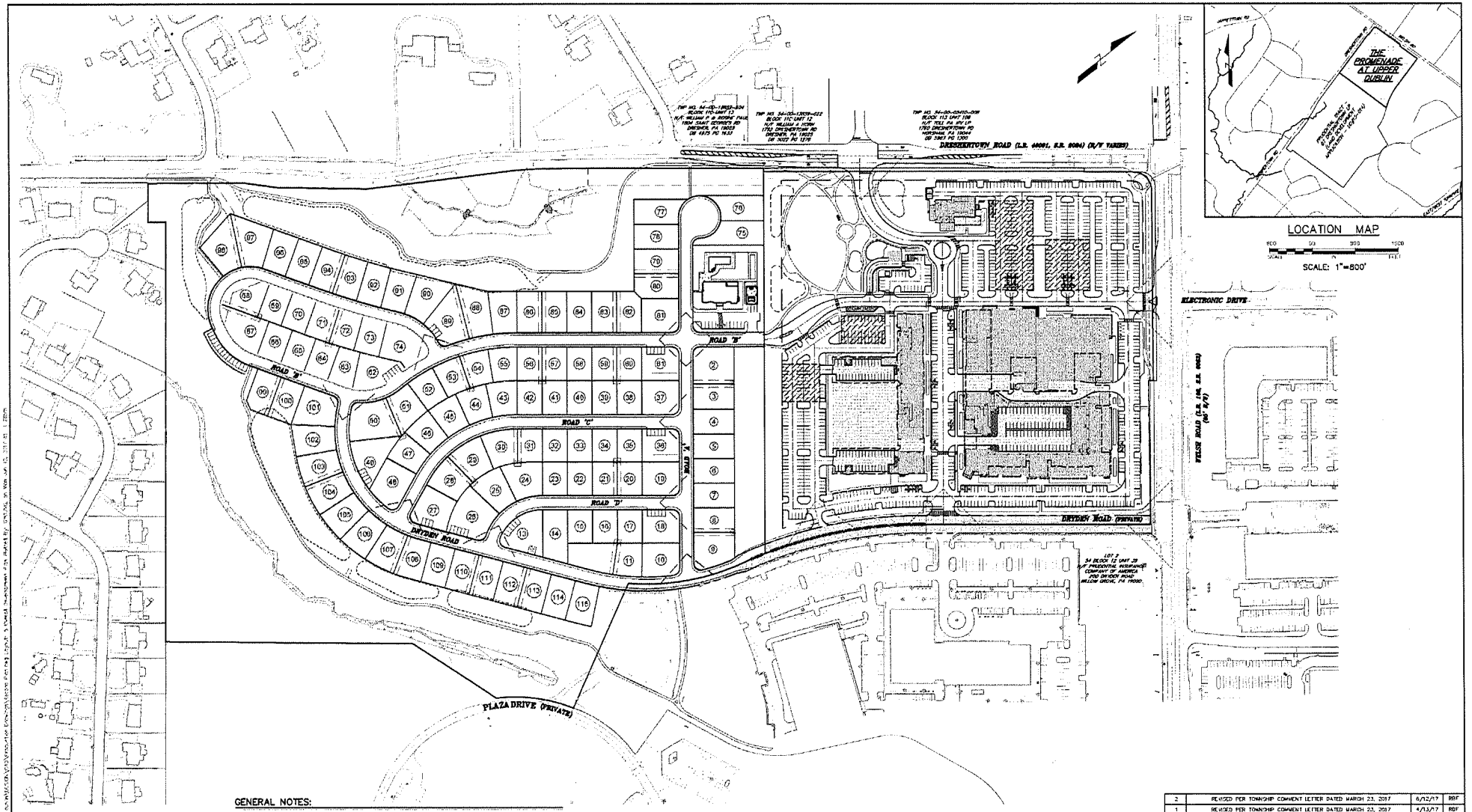
NOT APPROVED FOR CONSTRUCTION



GENERAL NOTES:

1. PROPERTY KNOWN AS BLOCK 12, UNIT 33 (LOT 3) AS SHOWN ON THE TAX MAP OF UPPER DUBLIN, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA AND BEING DESIGNATED AS LOT 3 AS SHOWN ON A MAP ENTITLED "RECORD PLAN A, B & C", PREPARED BY PAULUS SOKOLOWSKI AND SARTOR, CONSULTING ENGINEERS, DATED 12/18/84 AND LAST REVISED 3/31/01 AND FILED IN THE COUNTY OF MONTGOMERY RECORDER OF DEEDS OFFICE, PLAN BOOK 13, PAGE 364.
2. THE BOUNDARY AS SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY GILMORE & ASSOCIATES, INC. IN JULY, 2016 AND THE REFERENCED INFORMATION HEREON.
3. VERTICAL DATUM IS NAVD 88 AND WAS ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS. HORIZONTAL DATUM IS BASED ON THE 1983 STATE PLANE COORDINATE SYSTEM ESTABLISHED BY GPS, WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS.
4. WETLANDS WERE DELINEATED BY WATERSHED ECO, L.L.C., 108 COOPERS DRIVE, NEWARK, DE 19702, AND FIELD LOCATED BY GILMORE & ASSOCIATES, INC. IN JULY OF 2016. NO WETLANDS WERE ENCOUNTERED ON THE SUBJECT PROPERTY.
5. THE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE GROUND OBSERVATION OF THE SITE DRAWINGS. THEREFORE, ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THESE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES.
6. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 863, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121, GILMORE & ASSOCIATES, INC. HAS OBTAINED PA-ONE CALL SERIAL NUMBERS 20151771252, 20151771304, 20151771533 AND 20151771359 FOR DESIGN PURPOSES ONLY.
7. PER FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), SITE IS LOCATED IN FLOOD ZONE X – OTHER AREAS – AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AND FOUND ON FLOOD INSURANCE RATE MAP (FIRM) 42091C-0393-G, EFFECTIVE DATE MARCH 2, 2016

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

SERIAL NO. 20151771252, 20151771304, 20151771533 & 20151771359

DATE: 6-12-17

REV.	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RDF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RDF

OWNER:
BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7500

TAX MAP PARCEL NO.: 54-00-05242-00-5

MUNICIPAL FILE NO.: XX

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=120'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

OVERALL DEVELOPMENT PLAN

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

ERIC S. CLASE
ENGINEER
55713-E
REGISTERED PROFESSIONAL

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

120 0 120 240
SCALE: 1" = 120' FEET

JOB NO.: 2015-06014-02

SHEET NO.: 5 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

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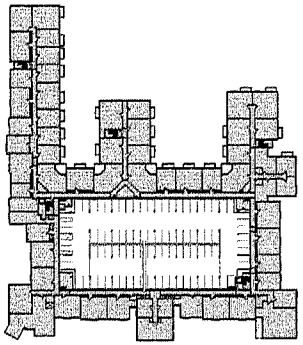


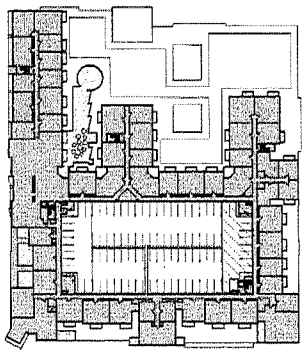
TOTAL FLOOR AREA 81,947 SF

RESIDENTIAL 81,947 SF

	WEST BUILDING	EAST BUILDING	RESTAURANT	COFFEE SHOP	TOTAL	% OF TOTAL GROSS BUILDING AREA
GROSS BUILDING AREA	245,875 SF	459,168 SF	7,570 SF	1,200 SF	713,813 SF	100%
RESIDENTIAL	218,088 SF	336,603 SF	-	-	554,691 SF	77.7%
RETAIL	20,664 SF	107,064 SF	7,570 SF	1,200 SF	136,498 SF	19.1%
OFFICE	-	2,094 SF	-	-	2,094 SF	0.3%
MISCELLANEOUS BUILDING SERVICES	7,123 SF	13,407 SF			20,530 SF	2.9%

3 EAST BUILDING - THIRD FLOOR AREA PLAN

SCALE: 1" = 80'-0"

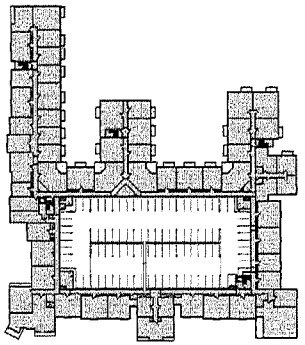


TOTAL FLOOR AREA 81,948 SF

RESIDENTIAL 81,948 SF

2 EAST BUILDING - SECOND FLOOR AREA PLAN

SCALE: 1" = 80'-0"

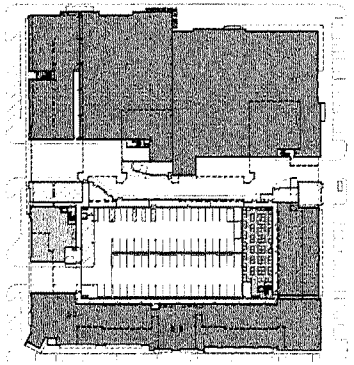


TOTAL FLOOR AREA 81,225 SF

RESIDENTIAL 81,225 SF

5 EAST BUILDING - FIFTH FLOOR AREA PLAN

SCALE: 1" = 80'-0"



TOTAL FLOOR AREA 132,117 SF

RESIDENTIAL 9,552 SF

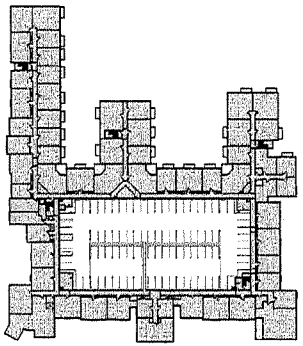
RETAIL 107,064 SF

OFFICE 2,094 SF

MISCELLANEOUS BUILDING SERVICES 13,407 SF

1 EAST BUILDING - FIRST FLOOR AREA PLAN

SCALE: 1" = 80'-0"



TOTAL FLOOR AREA 81,931 SF

RESIDENTIAL 81,931 SF

4 EAST BUILDING - FOURTH FLOOR AREA PLAN

SCALE: 1" = 80'-0"

BERNARDON

The Philadelphia Building
1315 Walnut Street, Suite 600
Philadelphia, Pennsylvania 19107
p. 215.569.4600

Newark, Upstate, Pennsylvania
Wilmington, Delaware

www.bernardon.com

Project:

PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

Owner:

BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044

Revision/Issue:

Drawn: KMS
Reviewed: MSM
Contact: McCLOSKEY, AIA
Project Number: 2054.00-16

Sheet Title:

EAST BUILDING AREA PLANS

Sheet Number:

6 OF 52

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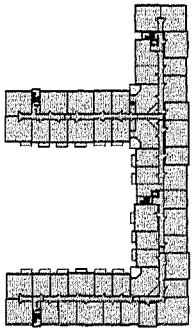
NOT APPROVED FOR CONSTRUCTION



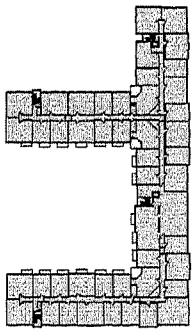
TOTAL FLOOR AREA 59,098 SF

RESIDENTIAL 59,098 SF

3 WEST BUILDING - THIRD FLOOR AREA PLAN

SCALE: 1" = 80'-0"

	WEST BUILDING	EAST BUILDING	RESTAURANT	COFFEE SHOP	TOTAL	% OF TOTAL GROSS BUILDING AREA
GROSS BUILDING AREA	245,875 SF	459,168 SF	7,570 SF	1,200 SF	713,813 SF	100%
RESIDENTIAL	218,088 SF	336,603 SF	-	-	554,691 SF	77.7%
RETAIL	20,664 SF	107,064 SF	7,570 SF	1,200 SF	136,498 SF	19.1%
OFFICE	-	2,094 SF	-	-	2,094 SF	0.3%
MISCELLANEOUS BUILDING SERVICES	7,123 SF	13,407 SF	-	-	20,530 SF	2.9%

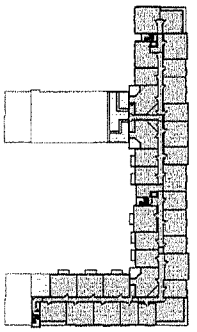


TOTAL FLOOR AREA 59,098 SF

RESIDENTIAL 59,098 SF

2 WEST BUILDING - SECOND FLOOR AREA PLAN

SCALE: 1" = 80'-0"

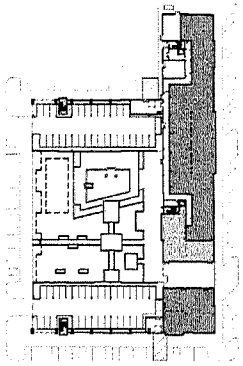


TOTAL FLOOR AREA 41,925 SF

RESIDENTIAL 41,925 SF

5 WEST BUILDING - FIFTH FLOOR AREA PLAN

SCALE: 1" = 80'-0"



TOTAL FLOOR AREA 32,243 SF

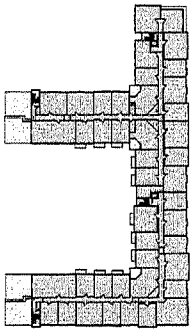
RESIDENTIAL 4,456 SF

RETAIL 20,664 SF

MISCELLANEOUS BUILDING SERVICES 7,123 SF

1 WEST BUILDING - FIRST FLOOR AREA PLAN

SCALE: 1" = 80'-0"



TOTAL FLOOR AREA 53,511 SF

RESIDENTIAL 53,511 SF

4 WEST BUILDING - FOURTH FLOOR AREA PLAN

SCALE: 1" = 80'-0"

BERNARDON

The Philadelphia Building
1315 Walnut Street, Suite 600
Philadelphia, Pennsylvania 19107
p. 215.569.4609

Kennett Square, Pennsylvania
Wilmington, Delaware

www.bernardon.com

Project:

PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

Owner:

BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044

Revision/Issue:

Drawn: KMS
Reviewed: MSM
Contact: McCLOSKEY, AIA
Project Number: 2054.00-16

Sheet Title:

WEST BUILDING AREA PLANS

Sheet Number:

7 OF 52

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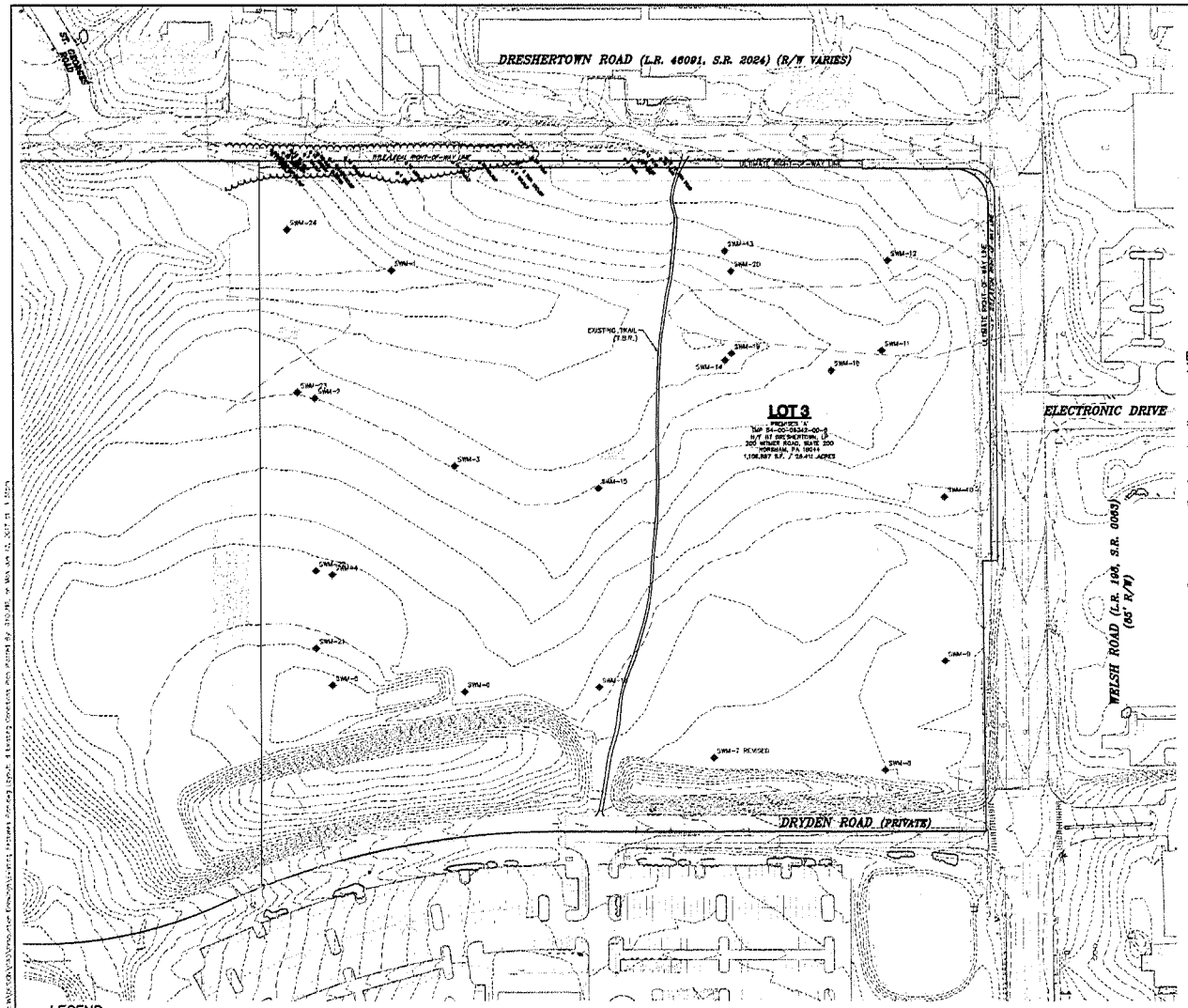

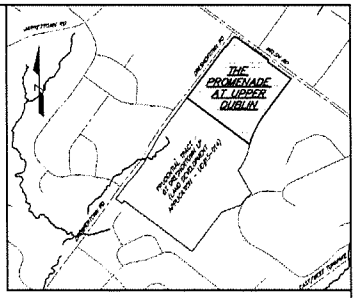

LOCATION MAP

SCALE: 1"=800'

EXISTING FEATURES NOTES:

1. PROPERTY KNOWN AS BLOCK 12, UNIT 53 (LOT 3) AS SHOWN ON THE TAX MAP OF UPPER DUBLIN, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA AND BEING DESIGNATED AS LOT 3 ON A MAP ENTITLED RECORD PLAN A, B & C, PREPARED BY PAULUS SOKOLOWSKI AND SARTOR, CONSULTING ENGINEERS, DATED 12/18/96 AND LAST REVISED 5/01/01 AND FILED IN THE COUNTY OF MONTGOMERY RECORDER OF DEEDS OFFICE PLAN BOOK LS, PAGE 364.
2. THE BOUNDARY AS SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY GILMORE & ASSOCIATES, INC. IN JULY, 2015 AND THE REFERENCED INFORMATION HEREON.
3. VERTICAL DATUM IS NAVD 88 AND WAS ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS. HORIZONTAL DATUM IS BASED ON THE 1983 STATE PLANE COORDINATE SYSTEM ESTABLISHED BY GPS, WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS.
4. SOILS INFORMATION TAKEN FROM USDA-NRCS WEB SOIL SURVEY OF MONTGOMERY COUNTY.
5. THE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE GROUND OBSERVATION OF THE SITE DRAWINGS, THEREFORE, ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THESE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES
6. PER FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), SITE IS LOCATED IN FLOOD ZONE X – OTHER AREAS – AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AND FOUND ON FLOOD INSURANCE RATE MAP (FIRM) 42091C-0292-C, EFFECTIVE DATE MARCH 2, 2016.
7. ANY DIMENSIONS SCALED FROM THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION WITHOUT PRIOR CONFIRMATION FROM GILMORE & ASSOCIATES, INC.
8. ALL CONSTRUCTION REQUIREMENTS, METHODS AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE UPPER DUBLIN TOWNSHIP ENGINEERING AND CONSTRUCTION STANDARDS, IMPROVEMENT PROCEDURES, DATED JANUARY 2010, LAST REVISED OCTOBER 2013, THE UPPER DUBLIN TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, PADEP AND/OR PENNDOT FORM 408, LATEST EDITION, AND PA-UCC WHERE APPLICABLE. IN THE CASE OF CONFLICTING STANDARDS, INTERPRETATION SHALL REST WITH THE TOWNSHIP ENGINEER OR THE TOWNSHIP ENGINEER'S REPRESENTATIVE IN THE FIELD.
9. ALL CONTRACTORS WORKING ON THE PROJECT SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT ARE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION) STANDARDS.
10. SITE RUNOFF FLOWS INTO PINE RUN WHICH FLOWS INTO SANDY RUN AND WISSAHICKON CREEK, PART OF THE DELAWARE RIVER SOUTH WATERSHED. PINE RUN IS CLASSIFIED AS TSF, WF IN CHAPTER 93 OF THE PA CODE.
11. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION OF ALL UTILITIES ON SITE TO BE REMOVED.
12. ALL DEMOLITION TO BE PERFORMED BY A QUALIFIED LICENSED CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES AND REGULATIONS. ALL DEBRIS TO BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
13. ALL UTILITIES SHALL BE DISCONNECTED, ABANDONED AND/OR REMOVED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
14. ANY UTILITIES DAMAGED DURING DEMOLITION SHALL BE REPAIRED AND/OR REPLACED IN KIND BY THE CONTRACTOR AT HIS OWN EXPENSE.

SOILS LEGEND AND TABLE OF LIMITATIONS BASED ON NRCS WEB SOIL SURVEY FOR MONTGOMERY COUNTY, PENNSYLVANIA

SYMBOL	NAME	SLOPE	HYDRO GROUP	DEPTH TO WATER	DEPTH TO BEDROCK	LIMITATIONS FOR CONSTRUCTION	RESOLUTION OF LIMITATIONS
CfA	CHALFONT SILT LOAM	0-3%	D	12"	72"	VERY LIMITED, DEPTH TO SATURATION ZONE	MAY BYPASS PERMITS A FILTER BASIN AVAILABLE. SEE DETAIL
LeA	LAWRENCEVILLE SILT LOAM	3-8%	C	27"	80"	VERY LIMITED, DEPTH TO SATURATION ZONE	MAY BYPASS PERMITS A FILTER BASIN AVAILABLE. SEE DETAIL
PlB	PENN-LANSDALE COMPLEX	0-8%	B	> 79"	79"	VERY LIMITED, DEPTH TO HARD BEDROCK	RIPPING, ROCK BLASTING AND/OR BLASTING OF ROCK MAY BE NEEDED DUPLY WITH ALL REGULATIONS
UgB	URBAN LAND	0-8%	C	> 79"	> 79"	NOT LIMITED	NOT LIMITED
UusB	URBAN LAND - DOCKTHEMTS	0-8%	C	> 79"	54"	NOT LIMITED	NOT LIMITED

LEGEND

- 1-FT CONTOURS
- 5-FT CONTOURS
- EXISTING TREELINE
- EXISTING BRUSHLINE
- EXISTING PROPERTY LINE WITH BEARING AND DISTANCE
- SOIL TYPE & BOUNDARY
- 17 WALNUT — EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN
- EXISTING STORM SEWER/INLET
- EXISTING GAS
- EXISTING ELECTRIC
- EXISTING TELEPHONE
- EXISTING SANITARY
- EXISTING WATER
- SWM-5 — TEST PITS PERFORMED BY GILMORE AND ASSOCIATES

SUMMARY OF EXISTING TREES TO BE REMOVED

BOTANICAL NAME	COMMON NAME	DIAMETER	REMARKS
JUGLANS NIGRA	BLACK WALNUT	12 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	12 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	18 INCH	INVASIVE, IN SEVERE DECLINE
ACER PLATANOIDES	NORWAY MAPLE	30 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	15 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS PENNSYLVANICA	PIN CHERRY	10 INCH	IN SEVERE DECLINE
GLEDITSIA TRICANTHOS	HONEY LOCUST	12 INCH	IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	18 INCH	INVASIVE, IN SEVERE DECLINE
GLEDITSIA TRICANTHOS	HONEY LOCUST	11 INCH	IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	10 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	20 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	24 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	8 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	9 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	12 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	10 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	10 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYANA	CALLERY PEAR	12 INCH	INVASIVE, IN SEVERE DECLINE

NOTE: TREES LABELED AS "IN SEVERE DECLINE" HAVE BEEN OMITTED FROM REPLACEMENT TREE CALCULATIONS PER SALDO 712-32.D(3)(a)

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR INC CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED.
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LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 852, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121 GILMORE & ASSOCIATES INC. HAS OBTAINED A PA-ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED INDIVIDUALLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE BEFORE YOU EXCAVATE
SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

DATE: 6-12-17

OWNER:	REV	DESCRIPTION	DATE	BY
BT DRESHERTOWN, LP 200 WITMER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 930-7300		PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN		
MUNICIPAL FILE NO.: XX	TAX MAP PARCEL NO.: 54-00-05242-00-3	EXISTING CONDITIONS PLAN *THE PROMENADE AT UPPER DUBLIN* UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA		
	TOTAL AREA: 25.411	TOTAL LOTS: 1		
	DATE: 2-10-17	SCALE: 1"=80'		

ERIC S. CLASE, ENGINEER, 55713-E

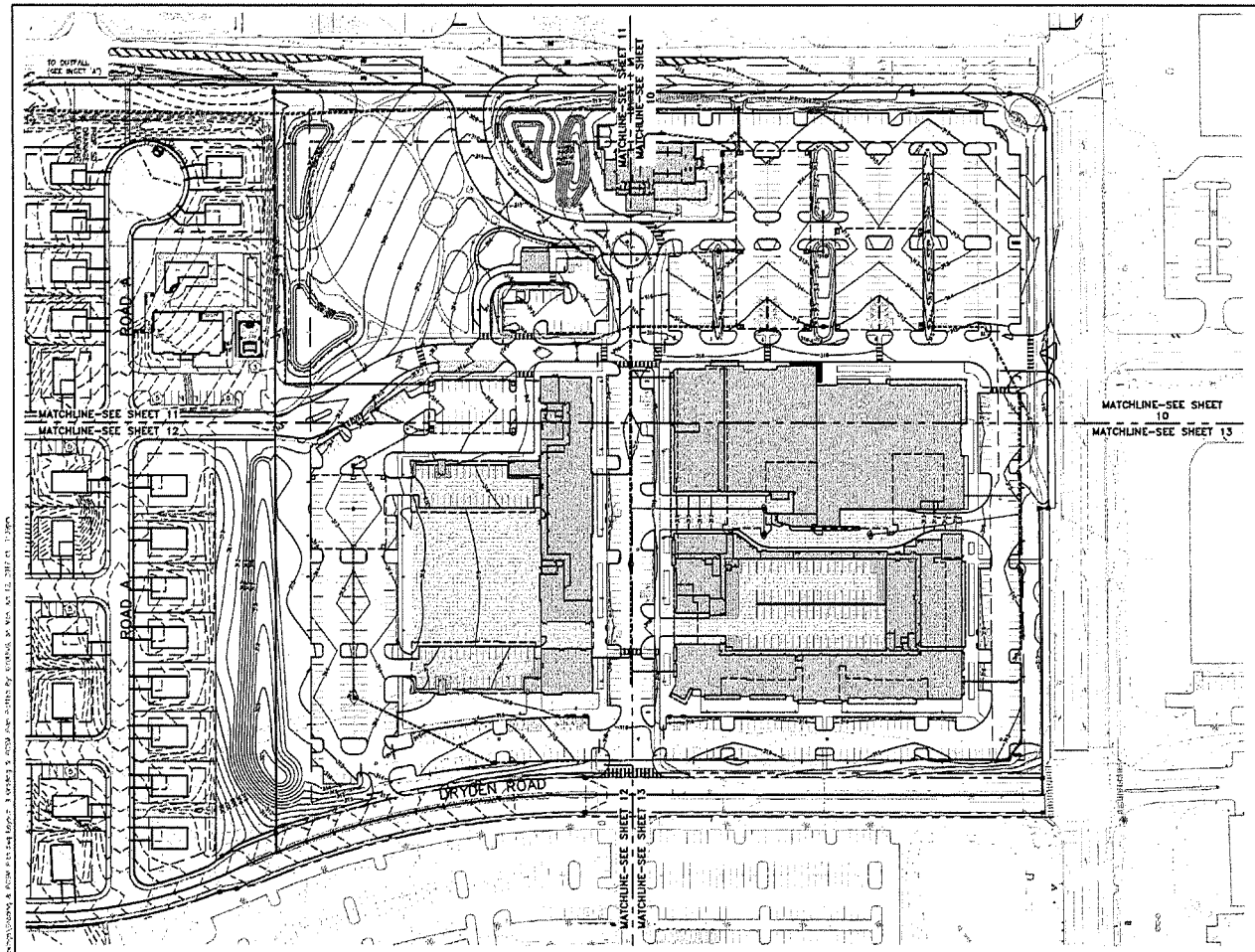
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 • (215) 345-4330 • FAX (215) 345-8606 • WWW.GILMORE-ASSOC.COM

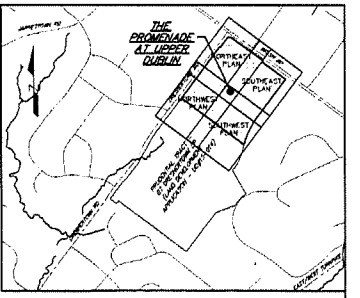
SCALE: 0 80 160 IN FEET

JOB NO.: 2015-06014-02
SHEET NO.: 8 OF 52

DESIGNED BY: RDF | DRAWN BY: DCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION





LOCATION MAP

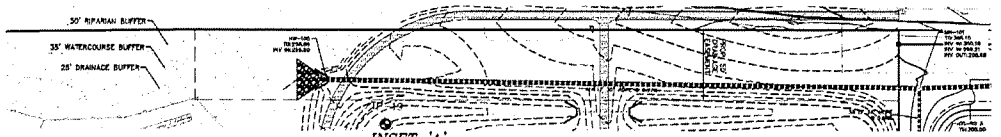
SCALE: 1"=800'

GRADING & DRAINAGE NOTES:

1. PROPERTIES KNOWN AS BLOCK 12, UNIT 53 (LOT 3) AS SHOWN ON THE TAX MAP OF UPPER DUBLIN, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA AND BEING DESIGNATED AS LOT 3 AS SHOWN ON A MAP ENTITLED RECORD PLAN A, B & C, PREPARED BY PAULUS SOKOLOWSKI AND SARTOR, CONSULTING ENGINEERS, DATED 12/10/09 AND LAST REVISED 5/01/01 AND FILED IN THE COUNTY OF MONTGOMERY RECORDER OF DEEDS OFFICE PLAN BOOK 15, PAGE 364.
2. THE BOUNDARY AS SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY GILMORE & ASSOCIATES, INC. IN JULY, 2015 AND THE REFERENCED INFORMATION HEREON.
3. VERTICAL DATUM IS NAVD 88 AND WAS ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS. HORIZONTAL DATUM IS BASED ON THE 1983 STATE PLANE COORDINATE SYSTEM ESTABLISHED BY GPS, WITH OBSERVATIONS REFERENCED TO THE KEYNETGPS
4. WETLANDS WERE DELINEATED BY WAKEFIELD EDS, L.L.C., 158 COOPERS DRIVE, NEWARK, DE 19702 AND FIELD LOCATED BY GILMORE & ASSOCIATES, INC. IN JULY OF 2015.
5. SOILS INFORMATION TAKEN FROM USDA-NRCS WEB SOIL SURVEY OF MONTGOMERY COUNTY.
6. THE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE GROUND OBSERVATION OF THE SITE DRAWINGS. THEREFORE, ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THESE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES.
7. SITE IS DESIGNATED AS FLOOD ZONE X AS AN AREA OUTSIDE OF THE 500-YEAR FLOODPLAIN PER FEMA FLOOD INSURANCE MAP OF MONTGOMERY COUNTY, COMMUNITY PANEL NO. 42091C-0292-G, EFFECTIVE DATE MARCH 2, 2016.
8. ANY DIMENSIONS SCALED FROM THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION WITHOUT PRIOR CONFIRMATION FROM GILMORE & ASSOCIATES, INC.
9. ALL CONSTRUCTION REQUIREMENTS, METHODS AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE UPPER DUBLIN TOWNSHIP ENGINEERING AND CONSTRUCTION STANDARDS, IMPROVEMENT PROCEDURES, DATED JANUARY 2010, LAST REVISED OCTOBER 2013, THE UPPER DUBLIN TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, PADOT AND/OR PENNDOT FORM 408, LATEST EDITION, AND PA-MUTCD WHERE APPLICABLE. IN THE CASE OF CONFLICTING STANDARDS, INTERPRETATION SHALL REST WITH THE TOWNSHIP ENGINEER OR THE TOWNSHIP ENGINEER'S REPRESENTATIVE IN THE FIELD.
10. ALL CONTRACTORS WORKING ON THE PROJECT SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT ARE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION) STANDARDS.
11. ANY AREAS OF WATERS/WETLANDS AS ARE DELINEATED UPON THIS PLAN MAY BE SUBJECT TO FEDERAL REGULATION. ANY DISTURBANCE OF THESE AREAS, INCLUDING THE DISCHARGE OF DREDGED OR FILL MATERIAL INTO THESE WATERS/WETLANDS MAY REQUIRE A DEPARTMENT OF THE ARMY PERMIT PURSUANT TO SECTION 404 OF THE CLEAN WATER ACT. ADDITIONAL INFORMATION MAY BE OBTAINED BY CONTACTING THE PA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND/OR THE OFFICES OF THE US ARMY CORPS OF ENGINEERS.
12. THE PROPOSED FINISHED GRADING SHOWN ON THIS PLAN HAS BEEN USED TO DESIGN THE STORMWATER MANAGEMENT FACILITIES. THE CONTRACTOR SHALL COMPLY WITH THE GENERAL GRADING SCHEME INDICATED UNLESS OTHERWISE APPROVED BY THE TOWNSHIP ENGINEER.
13. CONTRACTOR SHALL NOT ENCROACH ONTO ADJOINING PROPERTIES UNLESS A TEMPORARY CONSTRUCTION EASEMENT HAS BEEN GRANTED BY THE ADJOINING PROPERTY OWNER. CONTRACTOR SHALL HAVE PROPERTY LINES CLEARLY MARKED IN AREAS WHERE GRADING WILL ENCROACH WITHIN FIVE FEET OF THE PROPERTY LINE AND SHALL CONSTRUCT SUCH BARRIERS WHICH ARE NECESSARY TO PREVENT ENCROACHMENT ONTO ADJOINING PROPERTIES.
14. SEEPS OR SPRINGS ENCOUNTERED DURING ROADWAY, DRIVEWAY, PARKING LOT, OR OTHER CONSTRUCTION SHALL BE OUTLETTED BY UNDERDRAIN TO THE NEAREST STORM SEWER FACILITY OR WATERCOURSE. UNDERDRAIN PLACEMENT TO BE AT THE DISCRETION OF THE TOWNSHIP ENGINEER OR THE TOWNSHIP ENGINEER'S REPRESENTATIVE IN THE FIELD.
15. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT SATISFACTORY COMPACTION.
16. A MINIMUM OF 8" OF TOPSOIL SHALL BE REDISTRIBUTED OVER ALL DISTURBED AREAS OF THE SITE, WITH THE EXCEPTION OF PAVED AND PROPOSED BUILDING AREAS. SURFACE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 5 – 12" PRIOR TO SPREADING TOPSOIL.
17. BURYING OF CONSTRUCTION DEBRIS OR STUMPS ON THE SITE IS PROHIBITED.
18. PROJECT WASTES ON THE SITE INCLUDE MATERIALS ASSOCIATED WITH DEMOLITION, CONCRETE WASHOUT, AND OTHER CONSTRUCTION MATERIALS. THE CONTRACTOR SHALL REMOVE FROM THE SITE, RECYCLE OR DISPOSE OF ALL BUILDING MATERIAL AND WASTES IN ACCORDANCE WITH PA DEP'S SOLID WASTE MANAGEMENT REGULATIONS, AND/OR ANY ADDITIONAL LOCAL, STATE AND FEDERAL REGULATIONS. NO BUILDING MATERIALS (USED OR UNUSED) OR WASTE MATERIALS SHALL BE BURNED, BURIED, DUMPED OR DISCHARGED AT THE SITE.
19. DRAINAGE EASEMENTS, WHERE NOTED, SHALL BE ENACTED TO PROHIBIT ALTERATION OF GRADES OR INSTALLATION OF IMPROVEMENTS OR STRUCTURES WHICH WOULD PREVENT THE FLOW OF STORM DRAINAGE.
20. THE STORMWATER MANAGEMENT FACILITIES SHALL BE CONSTRUCTED AND FUNCTIONING PRIOR TO THE CREATION OF ANY NEW IMPERVIOUS SURFACE WITHIN ITS CONTRIBUTORY AREA.
21. ALL STORMWATER INLETS SHALL COMPLY WITH PENNDOT STANDARDS RC-45 AND RC-46.
22. STORM SEWER PIPES SHALL ENTER THE SIDES OF INLET BOXES AND SHALL NOT ENCROACH INTO CORNERS. EXPANDED INLET BOXES SHALL BE UTILIZED AS NECESSARY.
23. INLETS EXCEEDING 5' IN DEPTH SHALL BE EQUIPPED WITH STEPS CAST INTO THE WALL OF THE INLET BOX IN ACCORDANCE WITH PENNDOT SPECIFICATIONS.
24. ALL INLETS SHALL HAVE BICYCLE-SAFE, STRUCTURAL STEEL GRATES.
25. ALL STORMWATER PIPING SHALL BE SMOOTH CORE, CORRUGATED POLYETHYLENE PIPE (SCCPP) UNLESS OTHERWISE INDICATED ON THE PLAN.
26. THE STORMWATER MANAGEMENT FACILITIES SHOWN ON THESE PLANS ARE A BASIC AND PERPETUAL PART OF THE STORM DRAINAGE SYSTEM OF THE TOWNSHIP OF UPPER DUBLIN AND AS SUCH ARE TO BE PROTECTED AND PRESERVED IN ACCORDANCE WITH THE APPROVED FINAL PLAN. A BLANKET EASEMENT IN FAVOR OF UPPER DUBLIN TOWNSHIP IS HEREBY PROVIDED FOR ACCESS AND MAINTENANCE PURPOSES TO ALL PRIVATE STORMWATER MANAGEMENT AND BMP FACILITIES WITHIN ALL PRIVATELY OWNED LANDS SHOWN ON THESE PLANS. THE OWNER OF THE PROPERTY SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE EASEMENT. A DEED RESTRICTION TO THE SATISFACTION OF THE TOWNSHIP SOLICITOR SHALL BE SUBMITTED TO PROVIDE FOR MAINTENANCE, TO AUTHORIZE THE TOWNSHIP TO TAKE CORRECTIVE MAINTENANCE MEASURES AND TO LIEN THE COST OF THE WORK AGAINST THE PROPERTY SHOULD CORRECTIVE MEASURES NOT BE PERFORMED BY THE PROPERTY OWNER.
27. ALL EXTERIOR CONCRETE TO BE CLASS AA, AIR ENTRAINED 6% 4" SLUMP (MAX.) UNLESS A HIGHER STRENGTH CONCRETE IS REQUIRED PER THE PLANS OR DETAILS
28. ALL DRIVEWAYS SHALL COMPLY WITH PA CODE CHAPTER 441 – ACCESS TO AND OCCUPANCY OF HIGHWAYS BY DRIVEWAYS AND LOCAL ROADS.
29. THE BOTTOM EDGE OF SLOPES SHALL BE A MINIMUM OF 5' FROM THE PROPERTY LINE
30. ALL STORM SEWER PIPE AND ROOF DRAIN PIPE SHALL HAVE A MINIMUM OF 24" OF COVER OVER THE BELL OF THE PIPE (UNLESS WAIVED BY B.O.C.)
31. ALL SPOT ELEVATIONS SHOWN ON THESE PLANS REPRESENT TOP OF PAVEMENT TREATMENT

LEGEND:

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER
- EXISTING STORM SEWER INLET
- EXISTING STORM SEWER MANHOLE
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR (AGE RESTRICTED SUBD)
- PROPOSED MAJOR CONTOUR (AGE RESTRICTED SUBD)
- PROPOSED SPOT ELEVATION
- PROPOSED HDPE STORM SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER MANHOLE



INSET 'A'

SCALE: 1" = 40'

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LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

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PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

OWNER:
BT CRECHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: xx

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 23.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=80'

ERIC S. CLASE — ENGINEER — 55713-E — COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

GRADING & PCSM PLAN

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 (215) 345-4330 www.gilmore-assoc.com

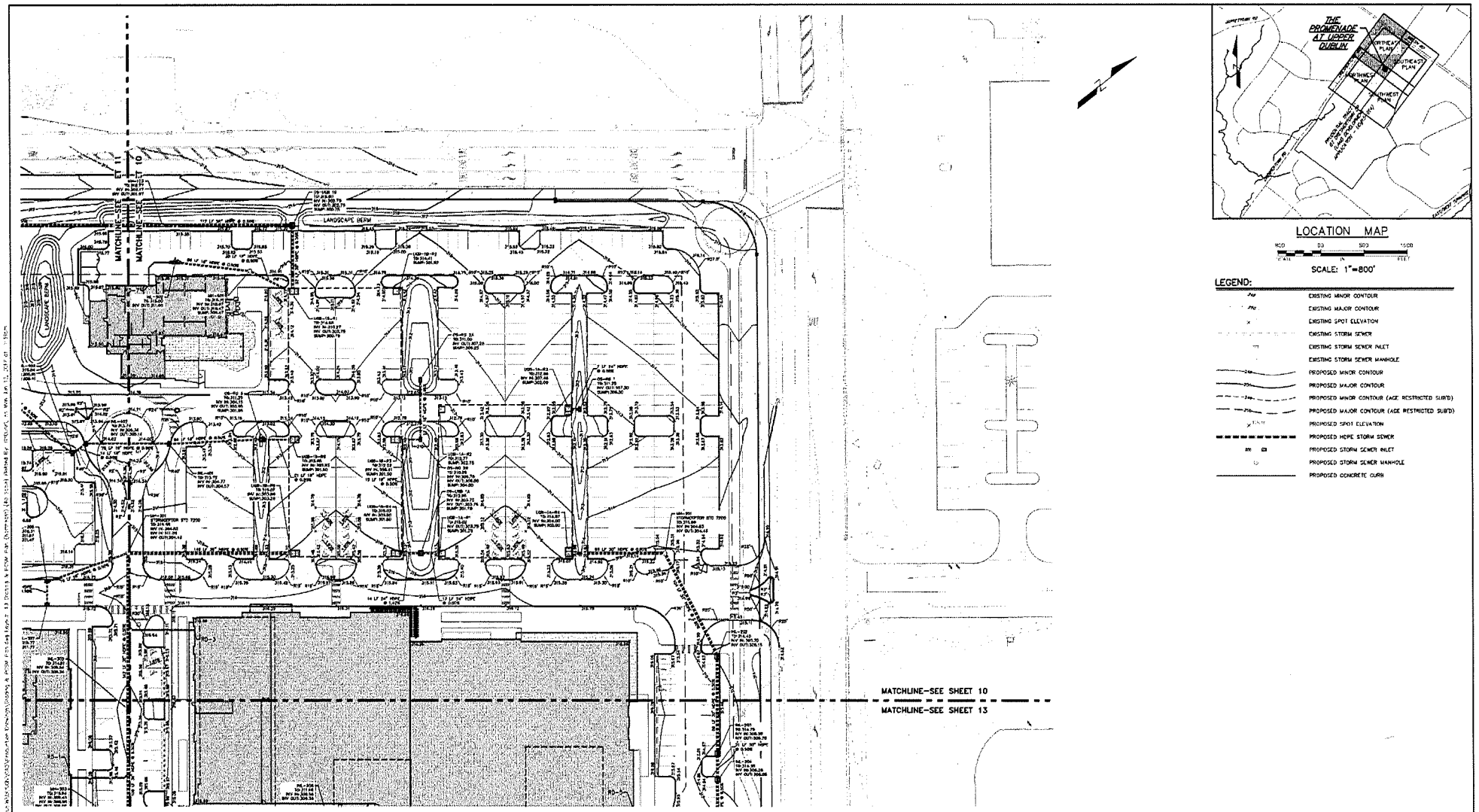
SCALE: 0 40 80 160 IN FEET

JOB NO.: 2015-06014-02

SHEET NO.: 9 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



LOCATION MAP

SCALE: 1"=800'

LEGEND:

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER
- EXISTING STORM SEWER INLET
- EXISTING STORM SEWER MANHOLE
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR (AGE RESTRICTED SUBD)
- PROPOSED MAJOR CONTOUR (AGE RESTRICTED SUBD)
- PROPOSED SPOT ELEVATION
- PROPOSED HDPE STORM SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER MANHOLE
- PROPOSED CONCRETE CURB

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SERIAL NO. 20151771255, 20151771304, 20151771153 & 20151771359

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OWNER:
BT DRESHERTOWN, LP
200 INTNER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7500

MUNICIPAL FILE NO.: XX

ERIC S. CLASE
ENGINEER
55713-E
COMMONWEALTH OF PENNSYLVANIA

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411 | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: 1"=40'

CONDITIONAL USE PLAN
GRADING & PCSM PLAN (NORTHEAST) (40 SCALE)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

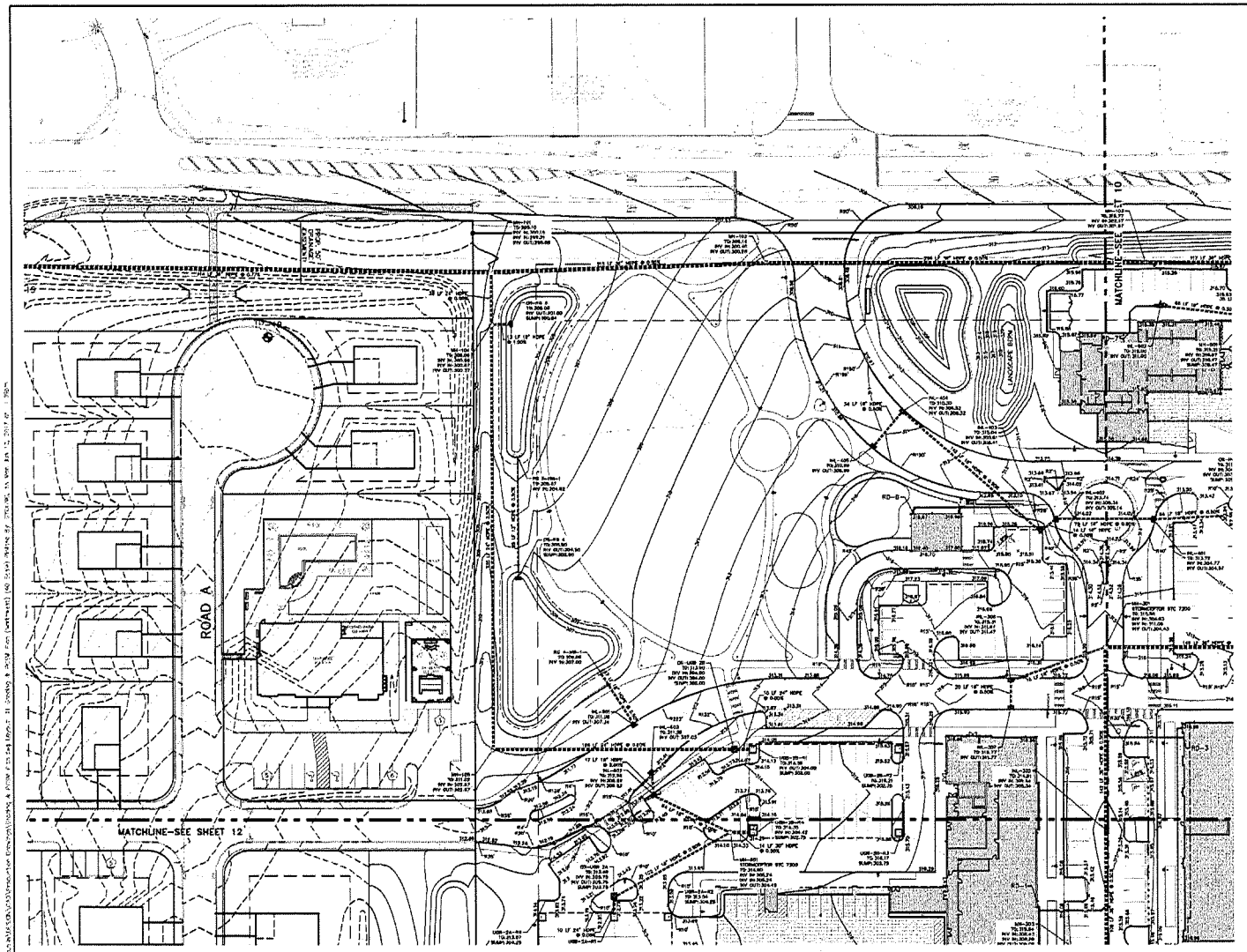
SCALE: 40 0 40 80 IN / FEET

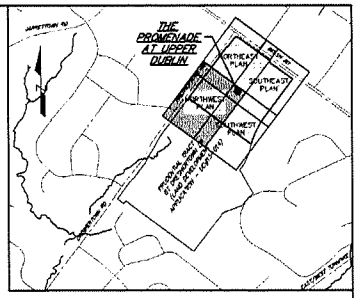
JOB NO.: 2015-06014-02

SHEET NO.: 10 OF 52

DESIGNED BY: RDF | DRAWN BY: DCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION





LOCATION MAP

SCALE: 1"=800'

LEGEND:

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER
- EXISTING STORM SEWER INLET
- EXISTING STORM SEWER MANHOLE
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR (ACE RESTRICTED SUBD)
- PROPOSED MAJOR CONTOUR (ACE RESTRICTED SUBD)
- PROPOSED SPOT ELEVATION
- PROPOSED HDPE STORM SEWER
- PROPOSED STORM SEWER INLET
- PROPOSED STORM SEWER MANHOLE
- PROPOSED CONCRETE CURB

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SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

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OWNER:
BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 930-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=40'

ERIC S. CLASE, ENGINEER 55713-E, REGISTERED PROFESSIONAL

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

CONDITIONAL USE PLAN
GRADING & PCSM PLAN (NORTHWEST) (40 SCALE)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

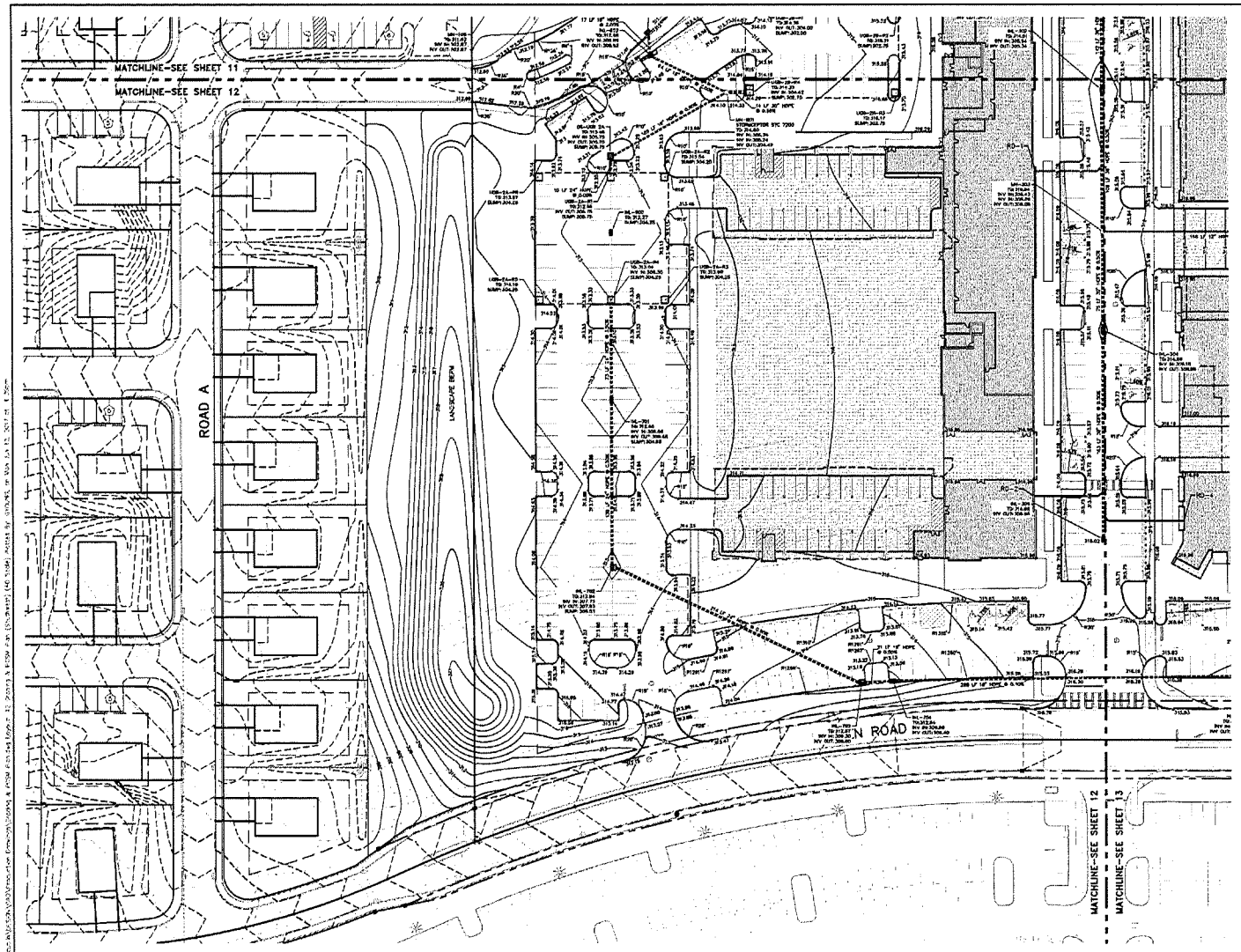
SCALE: 1" = 40'

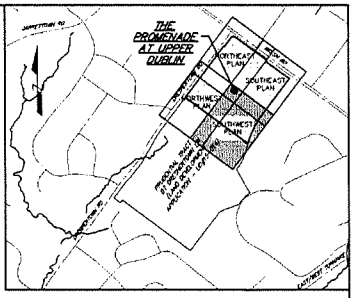
JOB NO.: 2015-06014-02

SHEET NO.: 11 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION





LOCATION MAP

SCALE: 1"=800'

LEGEND:

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER
- EXISTING STORM SEWER INLET
- EXISTING STORM SEWER MANHOLE
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR (AGE RESTRICTED SUBD)
- PROPOSED MAJOR CONTOUR (AGE RESTRICTED SUBD)
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PENNSYLVANIA ONE CALL SYSTEM, INC.

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NON-MEMBERS MUST BE CONTACTED DIRECTLY

SERIAL NO. 20151771253, 20151771304 20151771353 & 20151771359

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OWNER:
DT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7500

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.481

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=40'

ERIC S. CLASE ENGINEER 55713-E PROFESSIONAL REGISTERED

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

CONDITIONAL USE PLAN
GRADING & PCSM PLAN (SOUTHWEST) (40 SCALE)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CONTINENTAL CROSSROADS

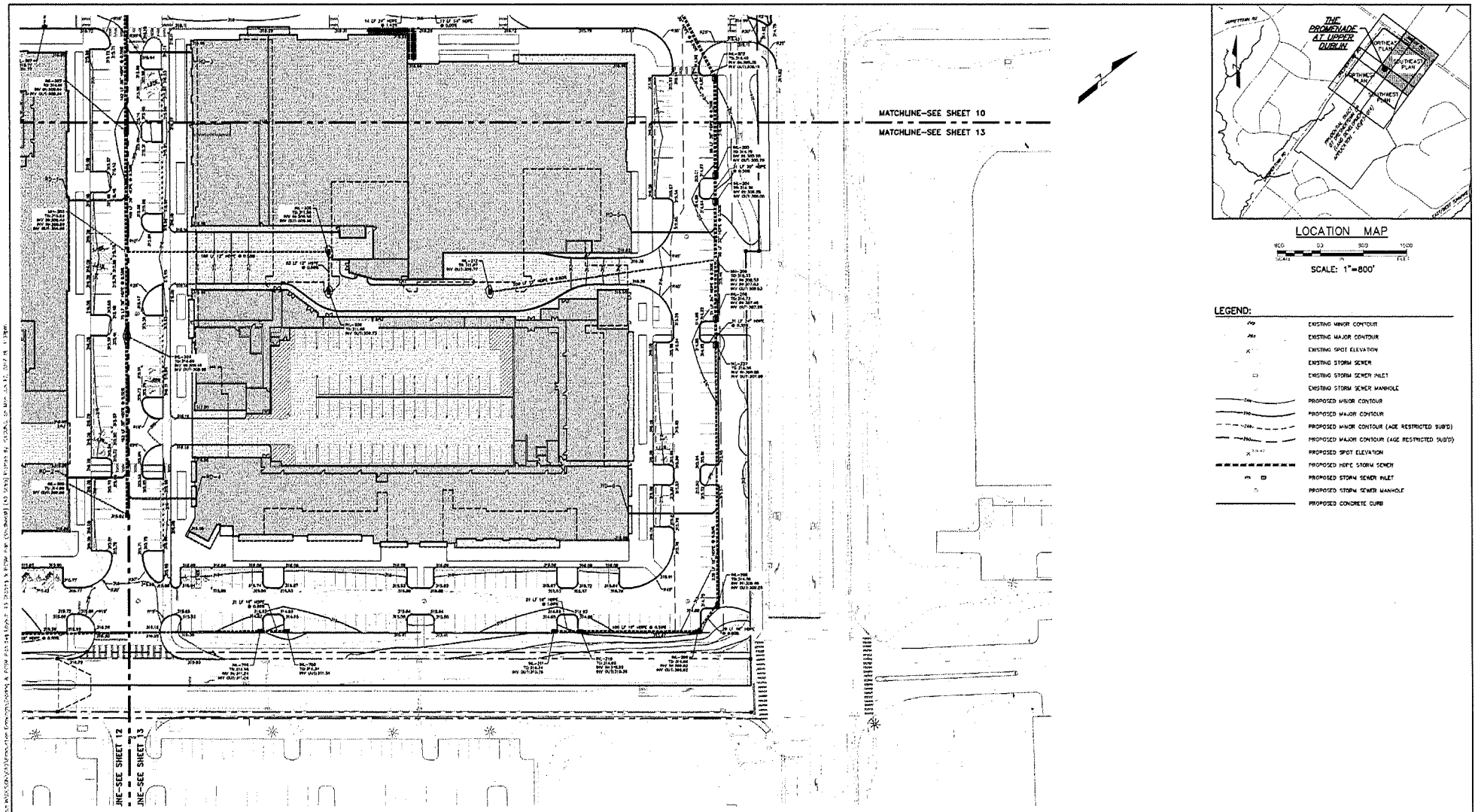
SCALE: 40 0 40 80 IN FEET

JOB NO.: 2015-06014-02

SHEET NO.: 12 OF 52

DESIGNED BY: RBF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



LOCATION MAP

SCALE: 1"=800'

LEGEND:

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER
- EXISTING STORM SEWER INLET
- EXISTING STORM SEWER MANHOLE
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR (AGE RESTRICTED SUBD)
- PROPOSED MAJOR CONTOUR (AGE RESTRICTED SUBD)
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- PROPOSED HDPE STORM SEWER
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SERIAL NO. 20151771253, 20151771130A 20151771153 & 20151771359

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OWNER:
BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=40'

ERIC S. CLASE — ENGINEER — 55713-E — REGISTERED PROFESSIONAL — COMMONWEALTH OF PENNSYLVANIA

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

CONDITIONAL USE PLAN
GRADING & PCSM PLAN (SOUTHEAST) (40 SCALE)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

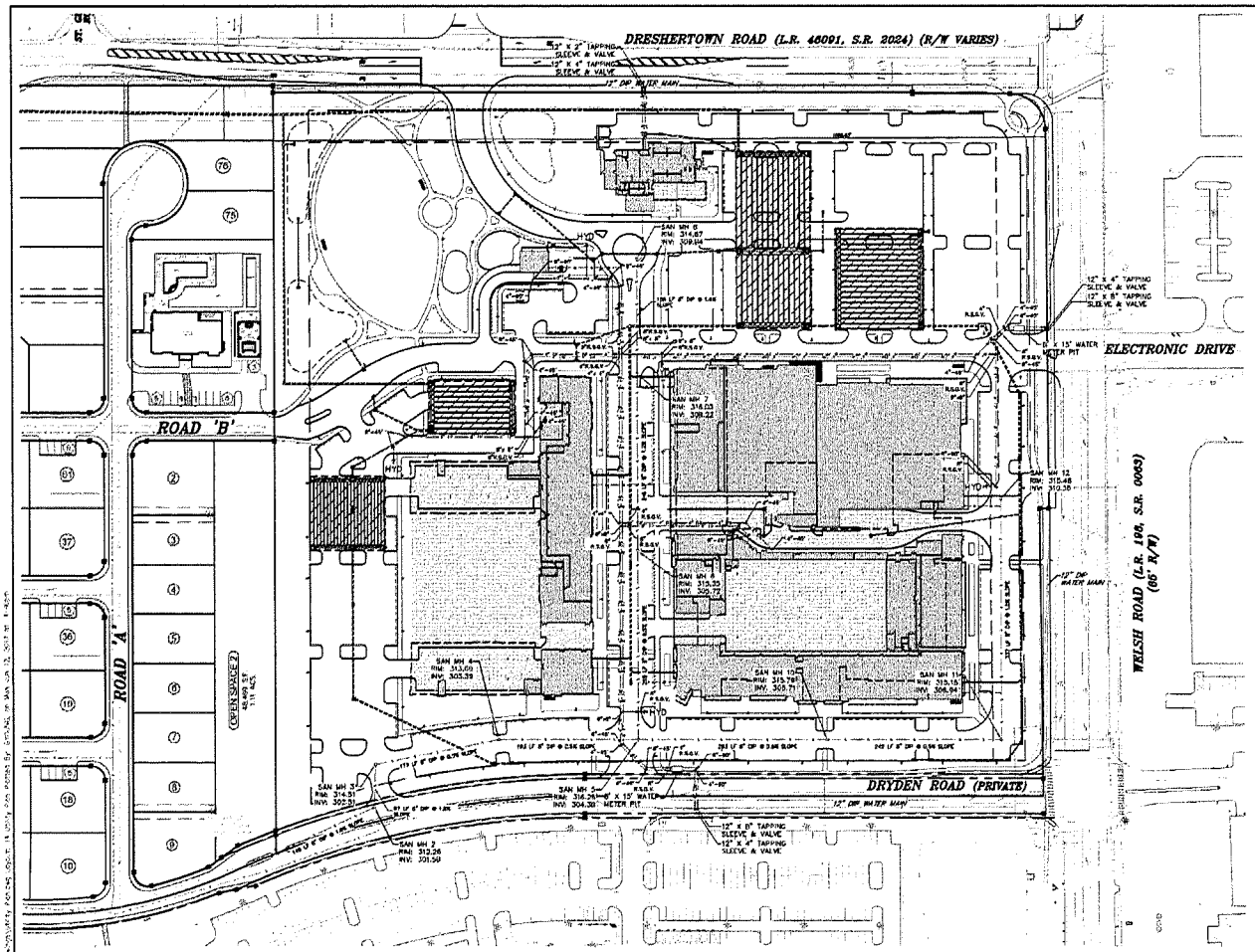
SCALE: 40 0 40 80 IN / FEET

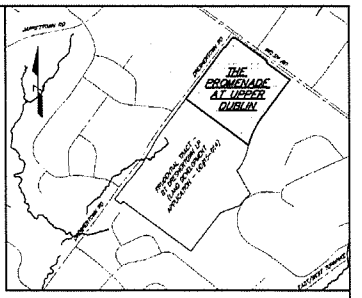
JOB NO.: 2015-06014-02

SHEET NO.: 13 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION





LOCATION MAP

SCALE: 1"=800'

UTILITY NOTES:

1. PROPERTY KNOWN AS BLOCK 12, UNIT 53 (LOT 3) AS SHOWN ON THE TAX MAP OF UPPER DUBLIN, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA AND BEING DESIGNATED AS LOT 3 AS SHOWN ON A MAP ENTITLED RECORD PLAN A, B & C, PREPARED BY FAILUS SOKOLOWSKI AND SARTOR, CONSULTING ENGINEERS, DATED 12/1/80/08 AND LAST REVISED 5/01/01 AND FILED IN THE COUNTY OF MONTGOMERY RECORDER OF DEEDS OFFICE PLAN BOOK 15, PAGE 384.
2. THE BOUNDARY AS SHOWN IS BASED ON A FIELD SURVEY PERFORMED BY GILMORE & ASSOCIATES, INC. IN JULY, 2015 AND THE REFERENCED INFORMATION HEREON.
3. VERTICAL DATUM IS NAVD 88' AND WAS ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) ASTM OBSERVATIONS REFERENCED TO THE KEYSTONE. HORIZONTAL DATUM IS BASED ON THE 1983 STATE PLANE COORDINATE SYSTEM ESTABLISHED BY GPS, WITH OBSERVATIONS REFERENCED TO THE KEYSTONE.
4. THE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE GROUND OBSERVATION OF THE SITE DRAWINGS. THEREFORE, ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THESE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF THE FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES.
5. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 1853, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2000, PENNSYLVANIA ACT 121. GILMORE & ASSOCIATES, INC. HAS OBTAINED PA-ONE CALL SERIAL NUMBERS 20151771253, 20151771304, 20151771333 AND 20151771359 FOR DESIGN PURPOSES ONLY.
6. SITE IS DESIGNATED AS FLOOD ZONE X AS AN AREA OUTSIDE OF THE 500-YEAR FLOODPLAIN PER FEMA FLOOD INSURANCE MAP OF MONTGOMERY COUNTY, COMMUNITY PANEL NO. 42091C-0282-G, EFFECTIVE DATE MARCH 2, 2014.
7. THE SUBJECT PROPERTY IS ZONED OC – OFFICE CENTER.
8. ANY DIMENSIONS SCALED FROM THESE PLANS SHALL NOT BE USED FOR CONSTRUCTION WITHOUT PRIOR CONFIRMATION FROM GILMORE & ASSOCIATES, INC.
9. ALL CONSTRUCTION REQUIREMENTS, METHODS AND MATERIAL SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE UPPER DUBLIN TOWNSHIP ENGINEERING AND CONSTRUCTION STANDARDS, IMPROVEMENT PROCEDURES, DATED JANUARY 2010, LAST REVISED OCTOBER 2013, THE UPPER DUBLIN TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, PADEP AND/OR PENNDOT FORM 408, LATEST EDITION, AND PA-1000 WHERE APPLICABLE. IN THE CASE OF CONFLICTING STANDARDS, INTERPRETATION SHALL REST WITH THE TOWNSHIP ENGINEER OR THE TOWNSHIP ENGINEER'S REPRESENTATIVE IN THE FIELD.
10. ALL NEW TELEPHONE, ELECTRIC AND COMMUNICATIONS SERVICES SHALL BE INSTALLED UNDERGROUND. PLANS SHOWING THE LOCATIONS OF TRANSFORMERS, SPLICE BOXES, ETC. SHALL BE PROVIDED TO THE TOWNSHIP ENGINEER PRIOR TO INSTALLATION OF THOSE FACILITIES.
11. DEVELOPMENT SHALL BE SERVED BY PUBLIC WATER AND SEWER.
12. MINIMUM COVER OF 4 FEET SHALL BE MAINTAINED OVER ALL WATER AND SANITARY MAINS.
13. WATER AND SANITARY LATERAL DEPTH SHALL BE 5 FEET AT ALL CROSSINGS OF UTILITY TRENCHES (ELECTRIC, GAS, ETC.)
17. CONTRACTOR SHALL LIMIT EXCAVATION TO THAT LENGTH OF UTILITY TRENCH THAT CAN BE INSTALLED AND BACKFILLED IN ONE DAYS' WORK.
18. ALL TRENCHES SHALL BE SHORED IN ACCORDANCE WITH OSHA STANDARDS.
19. STABILIZE TRENCH COMMENSURATE WITH FINAL SURFACE MATERIALS, I.E., SEEDING AND MULCHING FOR LAWN AREAS, CRUSHED STONE FOR ROAD AREAS.
20. WATER CURB STOPS TO BE LOCATED OUTSIDE OF SIDEWALK AND RIGHT-OF-WAY AREAS.

SANITARY SEWER NOTES:

1. ALL SANITARY SEWER CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH BUCKS COUNTY WATER AND SEWER AUTHORITY SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT BUCKS COUNTY WATER AND SEWER AUTHORITY ONE WEEK PRIOR TO SANITARY SEWER CONSTRUCTION AND 72 HOURS PRIOR TO EXCAVATING NEAR AND CONNECTING INTO THE EXISTING SANITARY SEWER.
3. PROPOSED SANITARY SEWER EASEMENTS SHALL BE DEDICATED TO THE BUCKS COUNTY WATER AND SEWER AUTHORITY.
4. HORIZONTAL SEPARATION – WHENEVER POSSIBLE, SEWERS SHOULD BE LAID AT LEAST 10 FEET, HORIZONTALLY, FROM ANY EXISTING OR PROPOSED WATER MAIN. SHOULD LOCAL CONDITIONS PREVENT A HORIZONTAL SEPARATION OF 10 FEET, A SEWER MAY BE LAID CLOSER THAN 10 FEET IF:
   A. IT IS LAID IN A SEPARATE TRENCH; OR IF
   B. IT IS LAID IN THE SAME TRENCH, WITH THE WATER MAIN LOCATED AT ONE SIDE OF A BENCH OF UNDISTURBED EARTH; AND IF
   C. IN EITHER CASE, THE ELEVATION OF THE TOP (CROWN) OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM (INVERT) OF THE WATER MAIN.
18. VERTICAL SEPARATION – WHENEVER SEWERS MUST CROSS UNDER WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP (CROWN) OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM (INVERT) OF THE WATER MAIN. WHEN THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THE ABOVE REQUIREMENT, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION FOR A DISTANCE OF 10 FEET EXTENDING ON EACH SIDE OF THE SEWER. IF POSSIBLE, ONE LENGTH OF THE WATER MAIN SHOULD BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. THE WATER MAIN SHOULD BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT DUCTILE IRON PIPE OR PVC PIPE. BOTH SERVICES SHALL BE PRESSURE TESTED TO ASSURE WATER-TIGHTNESS PRIOR TO BACKFILLING. WHERE LESS THAN 18-INCH VERTICAL SEPARATION EXISTS BETWEEN THE WATER AND SEWER LINE, THE SEWER LINE MAY BE CONCRETE ENCASED 10 FEET, MEASURED PERPENDICULARLY FROM THE WATER MAIN, TO EITHER SIDE OF THE WATER MAIN.
19. ALL GRAVITY SANITARY SEWER MAINS SHALL BE SDR-35 PVC UNLESS DEPTH OF COVER EXCEEDS 15 FEET, WHEREVER DEPTH OF COVER EXCEEDS 15 FEET, SANITARY SEWER MAINS SHALL BE DUCTILE IRON PIPE.
20. METALLIC DETECTOR TAPE SHALL BE PROVIDED OVER ALL PVC PIPE.
21. SANITARY SEWER LATERAL CLEANOUTS TO BE LOCATED FIVE (5) FEET FROM BUILDING FOOTING.

WATER DISTRIBUTION NOTES:

1. CONNECTIONS OF NEW MAINS TO EXISTING WATER MAIN SERVICES SHALL BE WITH TAPPING TEES AND VALVES. CONNECTIONS SHALL BE MADE DURING OFF-PEAK HOURS TO MINIMIZE DISRUPTION IN SERVICE.
2. ¾" TO 2" DIAMETER SERVICE PIPES SHALL BE "K"-COPPER, MEETING ASTM B88. 3" AND LARGER DIAMETER SERVICE PIPES SHALL BE CLASS 50 DUCTILE IRON, CEMENT LINED WITH TAR COATING IN ACCORDANCE WITH ANSI/AWWA C115/A21.15.
3. FLANGED FITTINGS SHALL BE DUCTILE IRON, CEMENT LINED WITH TAR COATING, AND CONFORM TO THE APPLICABLE REQUIREMENTS FOR DUCTILE IRON FITTINGS SPECIFIED IN ANSI/AWWA C110/A21.10.
4. FLANGES OF BOTH DUCTILE IRON AND FLANGED PIPE AND FITTINGS SHALL BE ASSEMBLED FOR WATER SERVICE OF 175 PSI WORKING PRESSURE, OR HIGHER DEPENDING ON STREET PRESSURE, THE BOLT CIRCLE AND HOLES OF THE FLANGES SHALL MATCH THOSE OF THE CLASS 125 FLANGES SHOWN IN ANSI B16.1.
5. NUTS AND BOLTS SHALL BE IN ACCORDANCE WITH ASTM STD. A193-B7 AND A194, GRADE 4.
6. VALVES 3" AND LARGER, SHALL BE RATED 200 PSI WORKING PRESSURE, OR HIGHER DEPENDING ON STREET PRESSURE, AND SHALL BE IN ACCORDANCE WITH AWWA C500. VALVES TO OPEN LEFT, HAVE RESILIENT SEATS (RS), AND HAVE OUTSIDE SCREW AND YOKE.
7. ALL METERS AND METER STRAINERS TO BE SUPPLIED, MAINTAINED, AND OWNED BY AQUA PA.
8. ALL METERS MUST BE SET LEVEL IN A HORIZONTAL PLANE.
9. PRE-CAST METER PITS/VAULTS SHALL BE DESIGNED FOR H-20 LOADING. SEGMENTS SHALL BE KEYED, AND THEIR JOINTS AND ALL PENETRATIONS WATERTIGHT. CONCRETE SHALL CONSIST OF PORTLAND CEMENT THAT CONFORMS TO ASTM C150, AND AGGREGATES THAT CONFORM TO ASTM C33. THE MINIMUM COMPRESSIVE STRENGTH SHALL BE 4000 PSI. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 FOR BARS OR ASTM A185 FOR WELDED WIRE FABRIC. SUMP NOT LESS THAN 12 IN. X 4 IN. DEEP, TO BE PROVIDED.
10. METER PIT LOCATIONS MUST BE APPROVED BY AQUA PA PRIOR TO INSTALLATION.
11. ALL ACCESS DOORS TO BE BILCO ALUMINUM, SINGLE OR DOUBLE-LEAF TYPE J-44AL, CHANNEL FRAME W/ STAINLESS STEEL HARDWARE THROUGHOUT, OR EQUAL. ALL DOORS TO BE CENTERED OVER THE METER.
12. METER PIT IS TO BE SET BETWEEN 1 IN. AND 4 IN. ABOVE FINISHED GRADE IN GRASS AREA AND GRADE TO BE SLOPED TO DIVERT WATER AWAY FROM PIT/VAULT.
13. ANY ALTERATIONS TO PIT (NEW OR EXISTING) MUST BE APPROVED PRIOR TO CONSTRUCTION OR CHANGE.
14. REDUCED PRESSURE BACKFLOW DEVICES SHALL NOT BE PERMITTED BELOW GRADE.
15. BUCKS COUNTY MINIMUM ALLOWABLE DEFLECTION FOR 8" AND 12" MAINS, NOT EXCEED 5° AND 7°, RESPECTIVELY IN SITUATIONS WHERE THIS LIMIT IS EXCEEDED, FITTINGS SHALL BE USED.
16. MEGA-LUG JOINT RESTRAINTS SHALL BE INSTALLED ON VALVES, FIRE HYDRANTS, BENDS, AND JOINTS WITHIN 20 FEET OF CHANGES IN ALIGNMENT. FITTINGS AND PIPE TO BE RESTRAINED WITH MEGA-LUGS REQUIRE MECHANICAL JOINTS.
17. NO WATER VALVES OR CURB STOPS SHALL BE INSTALLED IN ANY SIDEWALK, APRON, ETC.
18. ALL SPRINKLER INTAKE SYSTEM CONNECTIONS SHALL BE FWS-INCH STORZ FITTINGS.
19. ALL FIRE HYDRANTS SHALL ADHERE TO UPPER DUBLIN TOWNSHIP SPECIFICATIONS "HYDRANT HOSE CONNECTION STANDARD" DATED JULY 23, 1975, DRAWING NO. S-5.
20. FIRE DEPARTMENT CONNECTIONS SHALL BE FURNISHED WITH THREE-INCH NATIONAL STANDARD FIRE HOSE THREAD (3-0 N H) FEMALE CONNECTION ON SIAMESE WITH CAPS OR PLUGS AND CHAINS.

LEGEND:

EXISTING WATER FORCE MAIN	PROPOSED 8" CLDIP FIRE PROTECTION MAIN
EXISTING SANITARY SEWER GRAVITY MAIN	PROPOSED 4" CLDIP FIRE PROTECTION MAIN
EXISTING STORM SEWER	PROPOSED 4" CLDIP DOMESTIC WATER MAIN
EXISTING TELECOMMUNICATIONS LINE	PROPOSED 2" COPPER DOMESTIC WATER SERVICE
EXISTING FIRE HYDRANT	PROPOSED 8" DIP SANITARY SEWER MAIN
EXISTING WATER MANHOLE	PROPOSED HDPE STORM SEWER
EXISTING WATER VALVE	PROPOSED FIRE HYDRANT
EXISTING SANITARY SEWER MANHOLE	PROPOSED BENDS (M.J.) W/ THRUST BLOCK
EXISTING STORM SEWER INLET	PROPOSED TEE/CROSS (M.J.) W/ THRUST BLOCK
EXISTING ELECTRIC VAULT	PROPOSED VALVE (M.J.)
EXISTING TELECOMMUNICATIONS VAULT	PROPOSED THRUST BLOCK
EXISTING UTILITY POLE	PROPOSED SANITARY SEWER MANHOLE
EXISTING LIGHT STANDARD	PROPOSED STORM SEWER INLET
EXISTING TRAFFIC SIGNAL MAST ARM	PROPOSED STORM SEWER MANHOLE
	PROPOSED LIGHT STANDARD

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LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS ON ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 852, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2000. PENNSYLVANIA ACT 121. GILMORE & ASSOCIATES INC. HAS OBTAINED A PA-ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

PENNSYLVANIA ONE CALL SYSTEM, INC.

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NON-MEMBERS MUST BE CONTACTED DIRECTLY

SERIAL NO. 20151771253, 20151771304, 20151771333 & 20151771359

OWNER:	REV	DESCRIPTION	DATE	BY
DT DRESHERTOWN, LP 200 WITMER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 938-7500				
MUNICIPAL FILE NO.: XX	TAX MAP PARCEL NO.: 54-00-05242-00-5			
	TOTAL AREA: 23.411	TOTAL LOTS: 1		
	DATE: 2-10-17	SCALE: 1"=80'		

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

UTILITY PLAN

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

ERIC S. CLASE, ENGINEER, 55713-E, REGISTERED PROFESSIONAL

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

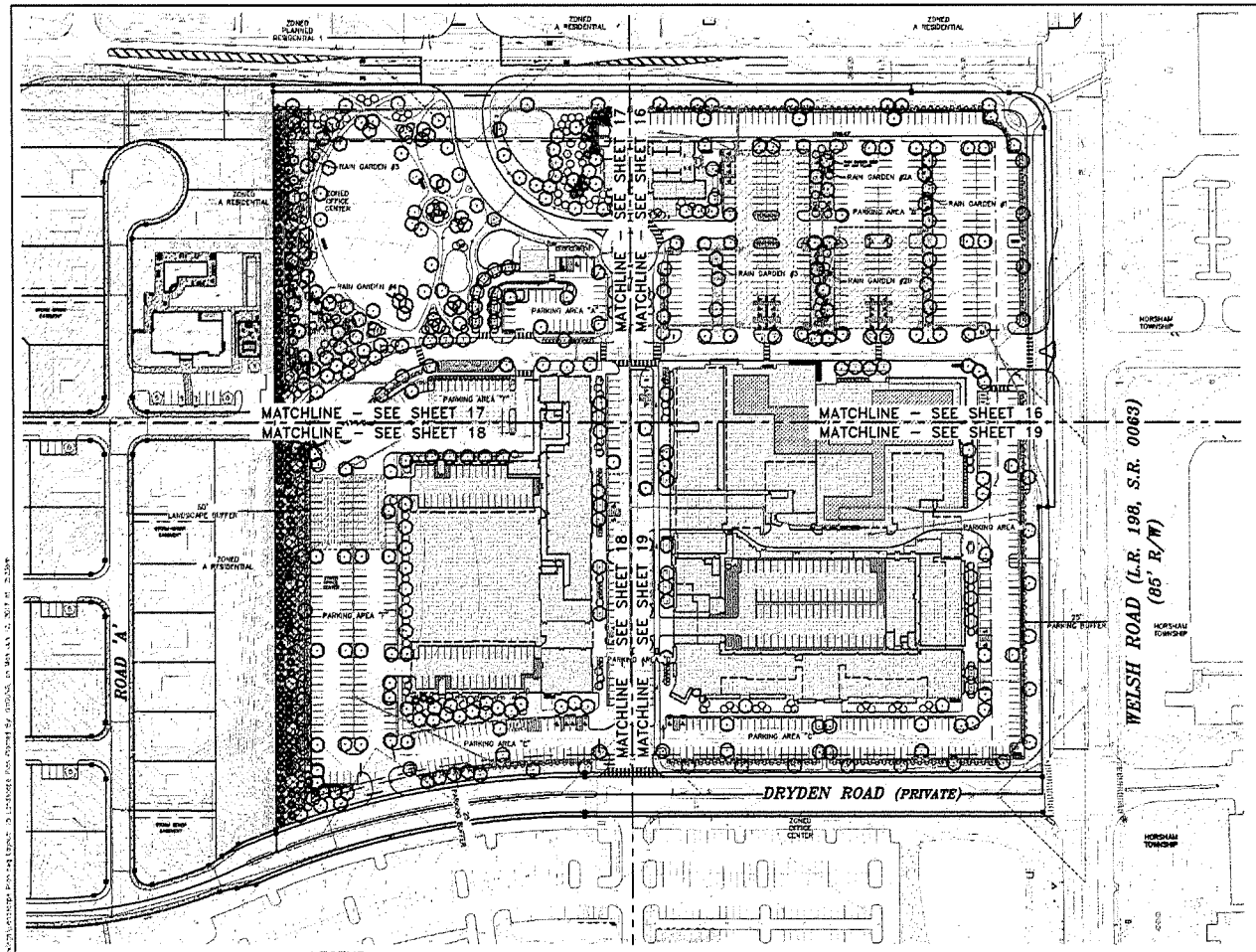
SCALE	0	40	80	160
IN				
FEET				

JOB NO.: 2015-06014-02

SHEET NO.: 14 OF 52

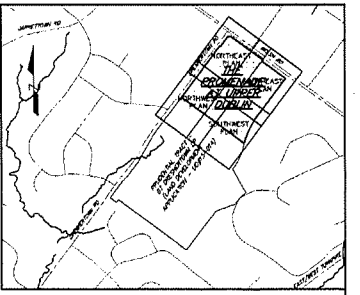
DESIGNED BY: RBF	DRAWN BY: DCY	CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



GENERAL LANDSCAPING NOTES:

1. PLANT MATERIAL SHALL BE FURNISHED AND INSTALLED AS INDICATED INCLUDING ALL LABOR, MATERIALS, PLANTS EQUIPMENT, INCIDENTALS AND CLEAN UP.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT.
3. PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, HAVE NORMAL GROWTH HABITS, WELL DEVELOPED BRANCHES, BE DUNDLY EQUATED, HAVE VIGOROUS ROOT SYSTEMS AND BE FREE OF DEFECTS AND INJURIES.
4. ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE OF THE PLANT MATERIAL, SHALL BE REPORTED TO THE CONSULTING ENGINEERS PRIOR TO INSTALLATION OF PLANT MATERIAL.
5. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN VIGOROUS GROWING CONDITION. PROVISIONS SHALL BE MADE FOR A GUARANTEE OF AT LEAST EIGHTEEN (18) MONTHS FOR TREES AND SHRUBS FOLLOWING FINAL APPROVAL BY THE TOWNSHIP. REPLACEMENT SHALL BE MADE AT THE BEGINNING OF THE FIRST SUCCEEDING PLANTING SEASON. ALL REPLACEMENTS SHALL HAVE A GUARANTEE EQUAL TO THAT STATED ABOVE, AND/OR AS IT IS PRACTICABLE.
6. PLANT MATERIALS SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL PROTECT STOCK NOT PLANTED. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE (3) DAY PERIOD AFTER DELIVERY.
7. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE TOWNSHIP'S PLANTING STANDARDS AND SPECIFICATIONS.
8. QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1–2004) AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION (ANLA), APPROVED MAY 12, 2004 OR LATEST EDITION.
9. ALL PLANTS SHALL BE PLANTED IN TOPSOIL THAT IS THOROUGHLY WATERED AND TAMPED AS BACK FILLING PROGRESSES.
10. NOTHING BUT SUITABLE TOPSOIL, FREE OF DRY SOD, STIFF CLAY, LITTER, ETC., SHALL BE USED FOR PLANTING.
11. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WHEN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE.
12. SET ALL PLANTS PLUMB AND STRAIGHT. SET AT SUCH A LEVEL THAT AFTER SETTLEMENT, A NORMAL OR NATURAL RELATIONSHIP TO THE CROWN OF THE PLANT WITH THE GROUND SURFACE WILL BE ESTABLISHED. LOCATE PLANT IN THE CENTER OF THE PLANTING PIT.
13. EACH TREE AND SHRUB SHALL BE PRUNED IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICE TO PRESERVE NATURAL CHARACTER OF THE PLANT. PRUNING SHALL BE DONE WITH CLEAN, SHARP TOOLS.
14. LANDSCAPING CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO PLACEMENT OF LANDSCAPE MATERIAL. CONTRACTOR SHALL NOT PLACE LANDSCAPING MATERIAL ON TOP OF UTILITY PIPING.
15. PLAN QUANTITIES SUPERSEDE PLANT LIST
14. THE LANDSCAPE PLAN IS INTENDED FOR LANDSCAPE PURPOSES ONLY



LOCATION MAP

SCALE: 1"=800'

LANDSCAPE COMPLIANCE CALCULATIONS

THE FOLLOWING CHART REPRESENTS THE MINIMUM QUANTITIES OF REQUIRED PLANT MATERIAL ACCORDING TO THE UPPER DUBLIN TOWNSHIP ZONING AND SUBDIVISION AND LAND DEVELOPMENT ORDINANCES, AND TO DEMONSTRATE COMPLIANCE WITH THE SAME.

STREET TREES

	REQUIREMENT*	REQUIRED	EXISTING	PROPOSED
DRESHERTOWN ROAD (1,014 L.F.)**	50' TO 75' ON	14	0	14
ENTRY STREET (488 L.F.)	CENTER EACH SIDE	14	0	14
CROSS STREET (1,099 L.F.)	OF STREET, UP TO	30	0	30
WELSH ROAD (MAJOR STREET) (821 L.F.)	100' ON CENTER	23	0	23
DRYDEN ROAD (909 L.F.)	ALONG MAJOR STREETS	25	0	25
	TOTAL	TOTAL 106	TOTAL 0	TOTAL 106

*DOES NOT INCLUDE RIGHT-OF-WAY INTERSECTIONS AND UTILITY EASEMENTS
**STREET TREES ALONG DRESHERTOWN ROAD HAVE BEEN PLACED FURTHER THAN 15' FROM THE R.O.W. DUE TO CONFLICT WITH EXISTING WATER EASEMENT

PARKING AREA LANDSCAPING

REQUIREMENT
1 SHADE TREE PER EVERY 10 PARKING SPACES

	REQUIRED	EXISTING	PROPOSED
PARKING AREA "A" (27 PARKING SPACES)	3	0	3
PARKING AREA "B" (337 PARKING SPACES)	34	0	34
PARKING AREA "C" (152 PARKING SPACES)	15	0	15
PARKING AREA "D" (66 PARKING SPACES)	7	0	7
PARKING AREA "E" (45 PARKING SPACES)	5	0	5
PARKING AREA "F" (180 PARKING SPACES)	18	0	18
	TOTAL 82	TOTAL 0	TOTAL 82

PARKING LOT GREEN SPACE CALCULATIONS

REQUIREMENT	TOTAL GREEN SPACE	PARKING LOT AREA	PERCENT OF PARKING LOT DEVOTED TO GREEN SPACE
PARKING LOTS LARGER THAN 5,000 SQUARE FEET SHALL HAVE A MINIMUM LANDSCAPE AREA OF 10%			
PARKING AREA "A"	1,867.18	11,825.18	16%
PARKING AREA "B"	22,910.02	143,075.80	16%
PARKING AREA "C"	5,888.15	58,075.70	10%
PARKING AREA "D"	3,119.44	31,013.31	10%
PARKING AREA "E"	2,078.46	17,774.09	12%
PARKING AREA "F"	9,582.28	76,747.26	12%
	TOTAL 45,450.04	TOTAL 342,515.95	TOTAL 13%

INDIVIDUAL LOT LANDSCAPING

REQUIREMENT*	REQUIRED	EXISTING	PROPOSED
1 SHADE TREE PER 2,000 SQUARE FEET OF GROSS FLOOR AREA			
OFFICE GROSS FLOOR AREA: 2,094 SF	1	0	AN EQUIVALENT NUMBER OF SHADE TREES, FLOWERING TREES, EVERGREENS AND SHRUBS ARE PROPOSED (SEE PLANTING SCHEDULE)
COMMERCIAL GROSS FLOOR AREA: 137,592 SF	69	0	
RESIDENTIAL FLOOR AREA: 554,691 SF	277	0	
MISCELLANEOUS BLDG SVCS: 20,530 SF	10	0	
	TOTAL= 357		

*UP TO FIFTY PERCENT (50%) OF SHADE TREES MAY BE SUBSTITUTED WITH FLOWERING TREES OR SHRUBS AT THE RATE OF TWO FLOWERING TREES OR TWO EVERGREEN TREES FOR EVERY SHADE TREE OR TEN SHRUBS FOR EVERY SHADE TREE

BUFFER PLANTINGS

	REQUIRED	EXISTING	PROPOSED
SOFTENING BUFFER REQUIREMENT* 2 TREES AND 4 SHRUBS PER 100 FEET OF PROPERTY PERIMETER (3,153.14 L.F. TOTAL)	64 TREES, 192 SHRUBS	0	AN EQUIVALENT NUMBER OF SHADE TREES, FLOWERING TREES, EVERGREENS AND SHRUBS HAVE BEEN PROVIDED (SEE PLANTING SCHEDULES)
SCREEN BUFFER REQUIREMENT EVERGREEN TREES IN DOUBLE ROWS, STAGGERED FIVE FEET TO FIFTEEN FEET ON CENTER, DEPENDING ON SPECIES	MINIMUM BOX EVERGREEN VARIETIES		9 SHADE TREES, 24 FLOWERING TREES, 109 EVERGREEN TREES AND 134 SHRUBS HAVE BEEN PROVIDED

*SOFTENING BUFFER NOT REQUIRED WHERE A SCREEN BUFFER IS PROVIDED

LEGEND

EXISTING		PROPOSED
348	1FT CONTOURS	348
352.6	SPOT ELEVATION	352.6
CBA	TREE LINE	
	SOIL TYPE BOUNDARY & LABEL	
	UTILITY POLE	
	TRAFFIC SIGN	
	STORM SEWER/INLET	
	UNDERGROUND BASIN	
	SHADE TREE	
	FLOWERING TREE	
	EVERGREEN TREE	
	SHRUB	
	SITE LIGHTING	

SUMMARY OF EXISTING TREES TO BE REMOVED

BOTANICAL NAME	COMMON NAME	DIAMETER	REMARKS
JUGLANS NIGRA	BLACK WALNUT	12 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	11 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	18 INCH	INVASIVE, IN SEVERE DECLINE
ACER PLATANOIDES	NORWAY MAPLE	20 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	15 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS PENNSYLVANICA	PIN CHERRY	16 INCH	IN SEVERE DECLINE
GLEDITSIA TRICANTHOS	HONEY LOCUST	13 INCH	IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	18 INCH	INVASIVE, IN SEVERE DECLINE
GLEDITSIA TRICANTHOS	HONEY LOCUST	15 INCH	IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	10 INCH	INVASIVE, IN SEVERE DECLINE
JUGLANS NIGRA	BLACK WALNUT	20 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYRIANA	CALLERY PEAR	24 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYRIANA	CALLERY PEAR	8 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYRIANA	CALLERY PEAR	8 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYRIANA	CALLERY PEAR	13 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYRIANA	CALLERY PEAR	10 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYRIANA	CALLERY PEAR	10 INCH	INVASIVE, IN SEVERE DECLINE
PRUNUS CALLEYRIANA	CALLERY PEAR	12 INCH	INVASIVE, IN SEVERE DECLINE

NOTE: TREES LABELED AS "IN SEVERE DECLINE" HAVE BEEN OMITTED FROM REPLACEMENT TREE CALCULATIONS PER SALDO 212-32.G(2)(a)

LOT 3, 4 & 5
PREMISES 'A', 'B' & 'C'
TMP 54-00-05242-00-5
TMP 54-00-05239-00-8
TMP 54-00-05243-00-2
N/F PRUDENTIAL INSURANCE COMPANY OF AMERICA
DRESHERTOWN ROAD
3.290,108 S.F. / 75.530 ACRES

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS; THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

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NON-MEMBERS MUST BE CONTACTED DIRECTLY
SERIAL NO. 20151771253, 20151771304 20151771353 & 20151771359

DATE: 6-12-17

REV.	DESCRIPTION	DATE	BY

OWNER: BY DRESHERTOWN, LP, 200 OTTER ROAD, SUITE 200, HORSHAM, PA 19044, (215) 938-7500

TAX MAP PARCEL NO.: 54-00-05242-00-5

MUNICIPAL FILE NO.: XX

TOTAL AREA: 25.411 | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

LANDSCAPE PLAN

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02

SHEET NO.: 15 OF 52

DESIGNED BY: XX | DRAWN BY: XX | CHECKED BY: XX

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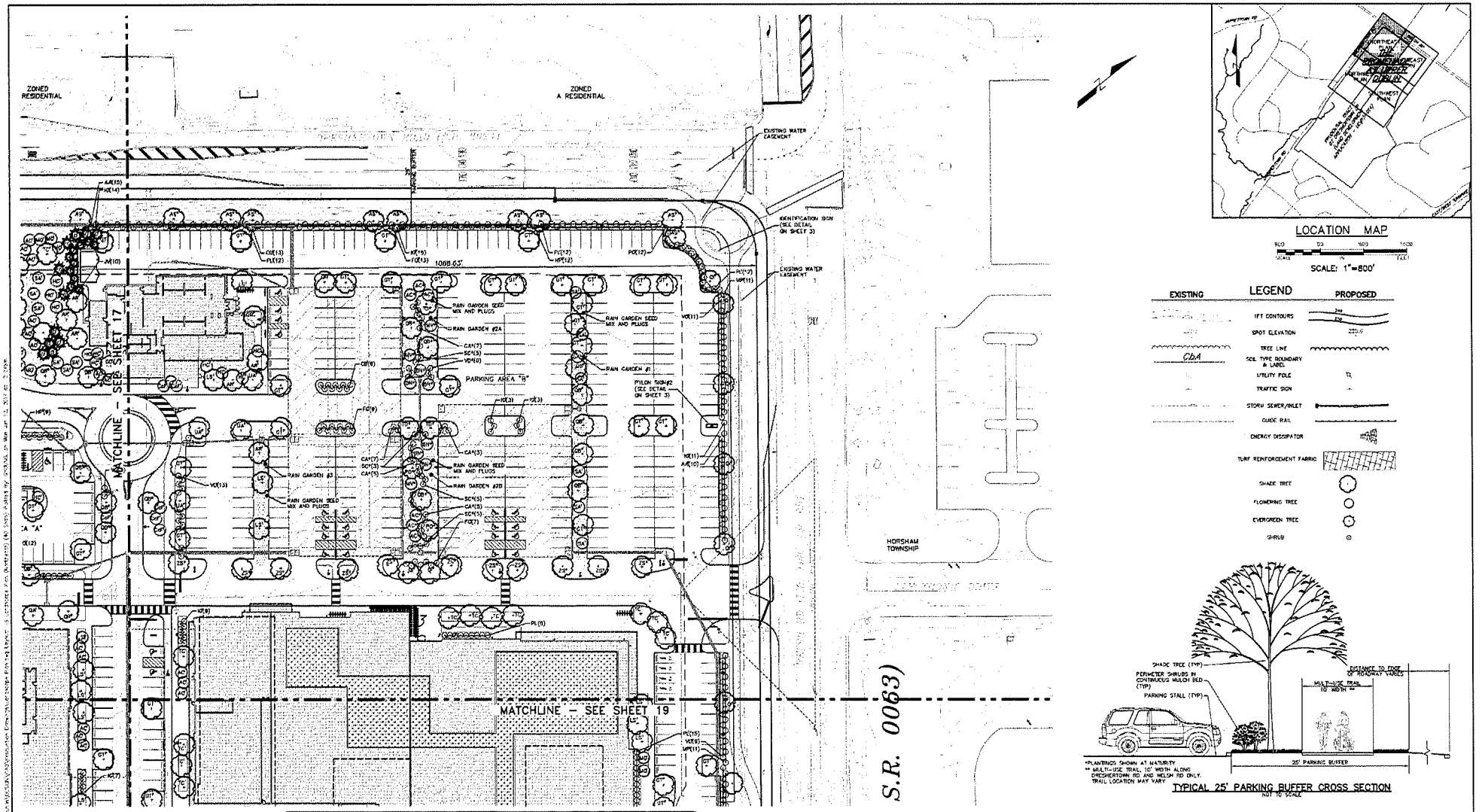

LEGEND

EXISTING		PROPOSED
	1FT CONTOURS	
	SPOT ELEVATION	
	TREE LINE	
CbA	SOIL TYPE BOUNDARY & LABEL	
	UTILITY POLE	
	TRAFFIC SIGN	
	STORM SEWER/INLET	
	GUIDE RAIL	
	ENERGY DISSIPATOR	
	TURF REINFORCEMENT FABRIC	
	SHADE TREE	
	FLOWERING TREE	
	EVERGREEN TREE	
	SHRUB	

TYPICAL 25' PARKING BUFFER CROSS SECTION
NOT TO SCALE

PLANT SCHEDULE – PARKING AREA TREES

KEY	SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	REMARKS
SHADE TREES			2.5" CAL MIN.			
GT*		59	12-14' HEIGHT @ SPREAD	GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEYLOCUST	B & B FULL BRANCHING
PA*		13	12-14' HEIGHT @ SPREAD	PLATANUS X ACERIFOLIA	LONDON PLANETREE	B & B FULL BRANCHING
QP*		6	12-14' HEIGHT @ SPREAD	QUERCUS PALUSTRIS	SWAMP WHITE OAK	B & B FULL BRANCHING
UA*		4	12-14' HEIGHT @ SPREAD	ULMUS AMERICANA 'VALLEY FORGE'	VALLEY FORGE AMERICAN ELM	B & B FULL BRANCHING
TOTAL		82				

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS; THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

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PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304, 20151771153 & 20151771359

DATE: 6-12-17

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED.
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OWNER:
ST DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.:
XX

TAX MAP PARCEL NO.:
54-00-09242-00-5

TOTAL AREA: 29.411 | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: 1"=40'

REV.	DESCRIPTION	DATE	BY

CONDITIONAL USE PLAN

LANDSCAPE PLAN (NORTHEAST) (40 SCALE)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

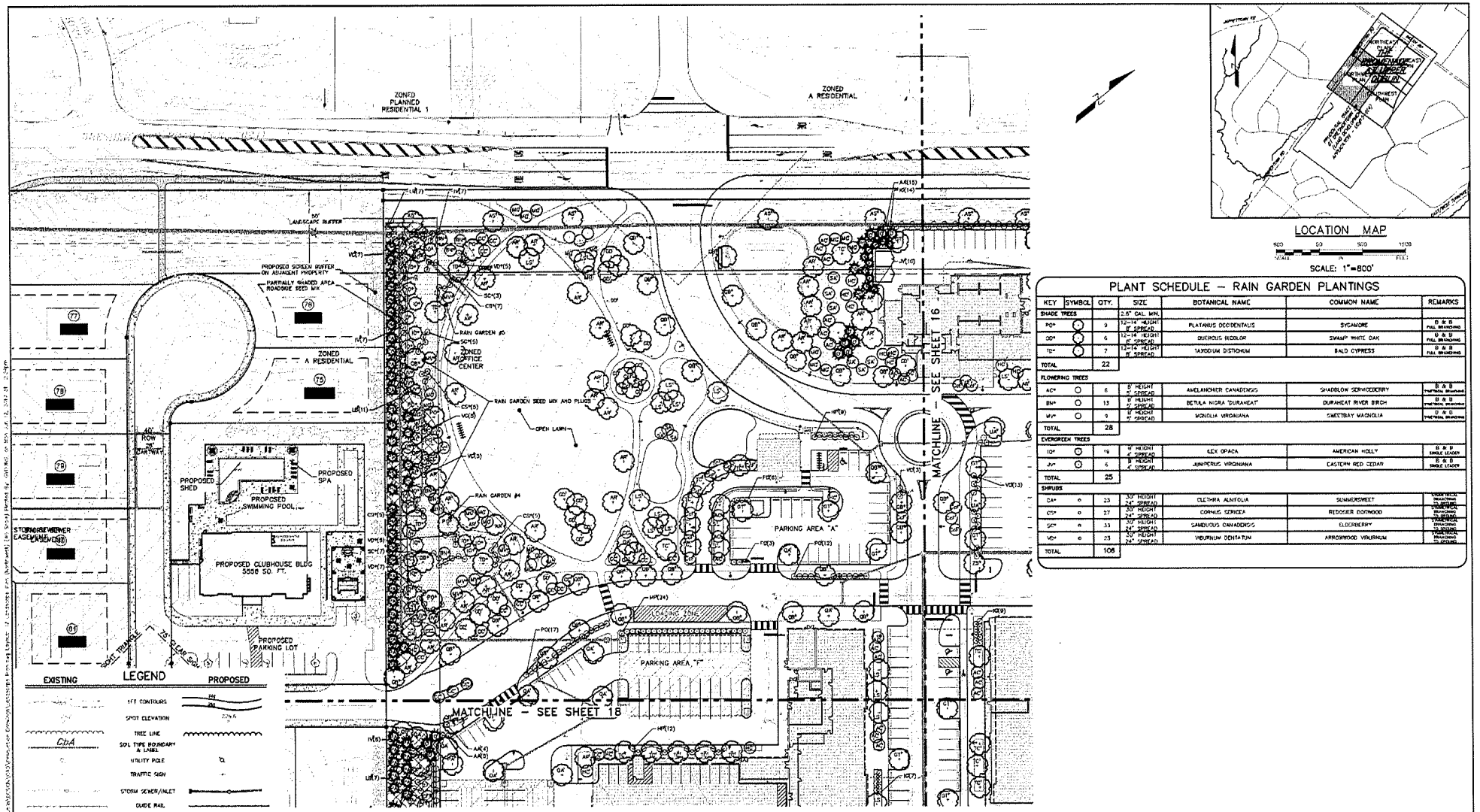
SCALE: 1" = 40' FEET

JOB NO.: 2015-06014-02

SHEET NO.: 16 OF 52

DESIGNED BY: RDF | DRAWN BY: GCV | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



PLANT SCHEDULE – RAIN GARDEN PLANTINGS

KEY	SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	REMARKS
SHADE TREES			2.5" CAL. MIN.			
PO*		9	12-14' HEIGHT 8' SPREAD	PLATANUS OCCIDENTALIS	SYCAMORE	B & B FULL BRANCHING
QB*		6	12-14' HEIGHT 8' SPREAD	QUERCUS BICOLOR	SWAMP WHITE OAK	B & B FULL BRANCHING
TD*		7	12-14' HEIGHT 8' SPREAD	TAXODIUM DISTICHUM	BALD CYPRESS	B & B FULL BRANCHING
TOTAL		22				
FLOWERING TREES						
AC*		6	8' HEIGHT 4' SPREAD	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY	B & B MULTIPLE BRANCHING
BN*		13	8' HEIGHT 4' SPREAD	BETULA NIGRA 'DURAHEAT'	DURAHEAT RIVER BIRCH	B & B MULTIPLE BRANCHING
MV*		9	8' HEIGHT 4' SPREAD	MONOLIA VIRGINIANA	SWEETBAY MAGNOLIA	B & B MULTIPLE BRANCHING
TOTAL		28				
EVERGREEN TREES						
ID*		19	8' HEIGHT 4' SPREAD	ILEX OPACA	AMERICAN HOLLY	B & B SINGLE LEADER
JV*		6	8' HEIGHT 4' SPREAD	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	B & B SINGLE LEADER
TOTAL		25				
SHRUBS						
CA*		23	30" HEIGHT 24" SPREAD	CLETHRA ALNIFOLIA	SUMMERSWEET	CONTAINER MULTIPLE BRANCHING
CS*		27	30" HEIGHT 24" SPREAD	CORNUS SERICEA	REDOSIER DOGWOOD	CONTAINER MULTIPLE BRANCHING
SC*		33	30" HEIGHT 24" SPREAD	SAMBUCUS CANADENSIS	ELDERBERRY	CONTAINER MULTIPLE BRANCHING
VD*		23	30" HEIGHT 24" SPREAD	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	CONTAINER MULTIPLE BRANCHING
TOTAL		106				

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PENNSYLVANIA ONE CALL SYSTEM, INC.
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776
SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

OWNER:
BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.:
XX

TAX MAP PARCEL NO.: 54-00-05242-00-5
TOTAL AREA: 25.411
TOTAL LOTS: 1
DATE: 2-10-17
SCALE: 1"=40'

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

CONDITIONAL USE PLAN

LANDSCAPE PLAN (NORTHWEST) (40 SCALE)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

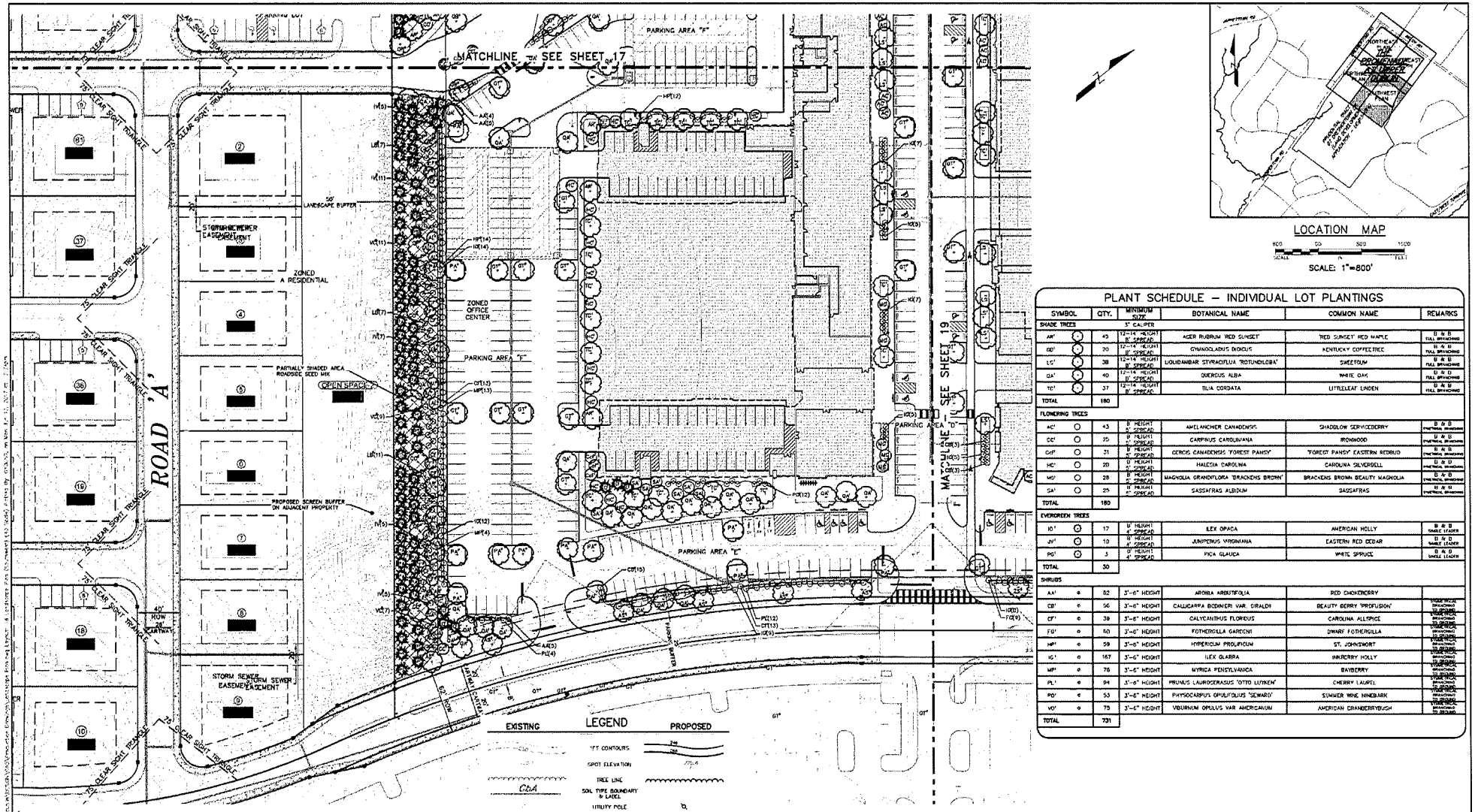
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 • (215) 345-4330 • www.gilmore-assoc.com

SCALE: 1" = 40'

JOB NO.: 2015-06014-02
SHEET NO.: 17 OF 52

DESIGNED BY: RDF
DRAWN BY: GCY
CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



PLANT SCHEDULE – INDIVIDUAL LOT PLANTINGS

SYMBOL	QTY.	MINIMUM SIZE	BOTANICAL NAME	COMMON NAME	REMARKS
SHADE TREES		3" CALIPER			
AR'	45	12-14' HEIGHT 8' SPREAD	ACER RUBRUM 'RED SUNSET'	'RED SUNSET' RED MAPLE	B & B FULL BRANCHING
GD'	20	12-14' HEIGHT 8' SPREAD	GYMNOCLADUS DIOICUS	KENTUCKY COFFEETREE	B & B FULL BRANCHING
LS'	38	12-14' HEIGHT 8' SPREAD	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	SWEETGUM	B & B FULL BRANCHING
QA'	40	12-14' HEIGHT 8' SPREAD	QUERCUS ALBA	WHITE OAK	B & B FULL BRANCHING
TC'	37	12-14' HEIGHT 8' SPREAD	TILIA CORDATA	LITTLELEAF LINDEN	B & B FULL BRANCHING
TOTAL	180				
FLOWERING TREES					
AC'	43	8' HEIGHT 5' SPREAD	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY	B & B MULTIPLE BRANCHES
CC'	25	8' HEIGHT 5' SPREAD	CARPINUS CAROLINIANA	IRONWOOD	B & B MULTIPLE BRANCHES
CerF'	31	8' HEIGHT 5' SPREAD	CERCIS CANADENSIS 'FOREST PANSY'	'FOREST PANSY' EASTERN REDBUD	B & B MULTIPLE BRANCHES
HC'	20	8' HEIGHT 5' SPREAD	HALESIA CAROLINA	CAROLINA SILVERBELL	B & B MULTIPLE BRANCHES
MG'	28	8' HEIGHT 5' SPREAD	MAGNOLIA GRANDIFLORA 'BRACKENS BROWN'	BRACKENS BROWN BEAUTY MAGNOLIA	B & B MULTIPLE BRANCHES
SA'	25	11' HEIGHT 5' SPREAD	SASSAFRAS ALBIDUM	SASSAFRAS	B & B MULTIPLE BRANCHES
TOTAL	180				
EVERGREEN TREES					
IO'	17	8' HEIGHT 4' SPREAD	ILEX OPACA	AMERICAN HOLLY	B & B SINGLE LEADER
JV'	10	8' HEIGHT 4' SPREAD	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	B & B SINGLE LEADER
PG'	3	8' HEIGHT 4' SPREAD	PICA GLAUCA	WHITE SPRUCE	B & B SINGLE LEADER
TOTAL	30				
SHRUBS					
AA'	82	3'-6' HEIGHT	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	4'-5' O.C. SPACING 10' ON CENTER
CB'	56	3'-6' HEIGHT	CALLICARPA BODINIERI VAR. GIRALDII	BEAUTY BERRY 'PROFUSION'	4'-5' O.C. SPACING 10' ON CENTER
CF'	38	3'-6' HEIGHT	CALYCANTHUS FLORIDUS	CAROLINA ALLSPICE	4'-5' O.C. SPACING 10' ON CENTER
FG'	60	3'-6' HEIGHT	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	4'-5' O.C. SPACING 10' ON CENTER
HP'	59	3'-6' HEIGHT	HYPERICUM PROLIFICUM	ST. JOHNSWORT	4'-5' O.C. SPACING 10' ON CENTER
IG'	167	3'-6' HEIGHT	ILEX GLABRA	INKBERRY HOLLY	4'-5' O.C. SPACING 10' ON CENTER
MP'	76	3'-6' HEIGHT	MYRICA PENSYLVANICA	BAYBERRY	4'-5' O.C. SPACING 10' ON CENTER
PL'	94	3'-6' HEIGHT	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	CHERRY LAUREL	4'-5' O.C. SPACING 10' ON CENTER
PO'	53	3'-6' HEIGHT	PHYSOCARPUS OPULIFOLIUS 'SEWARD'	SUMMER WINE NINEBARK	4'-5' O.C. SPACING 10' ON CENTER
VO'	75	3'-6' HEIGHT	VIBURNUM OPULUS VAR AMERICANUM	AMERICAN CRANBERRYBUSH	4'-5' O.C. SPACING 10' ON CENTER
TOTAL	731				

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SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

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OWNER:
BT CRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 23.411 ACRES

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=40'

DATE: 6-12-17

REV.	DESCRIPTION	DATE	BY

CONDITIONAL USE PLAN

LANDSCAPE PLAN (SOUTHWEST) (40 SCALE)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

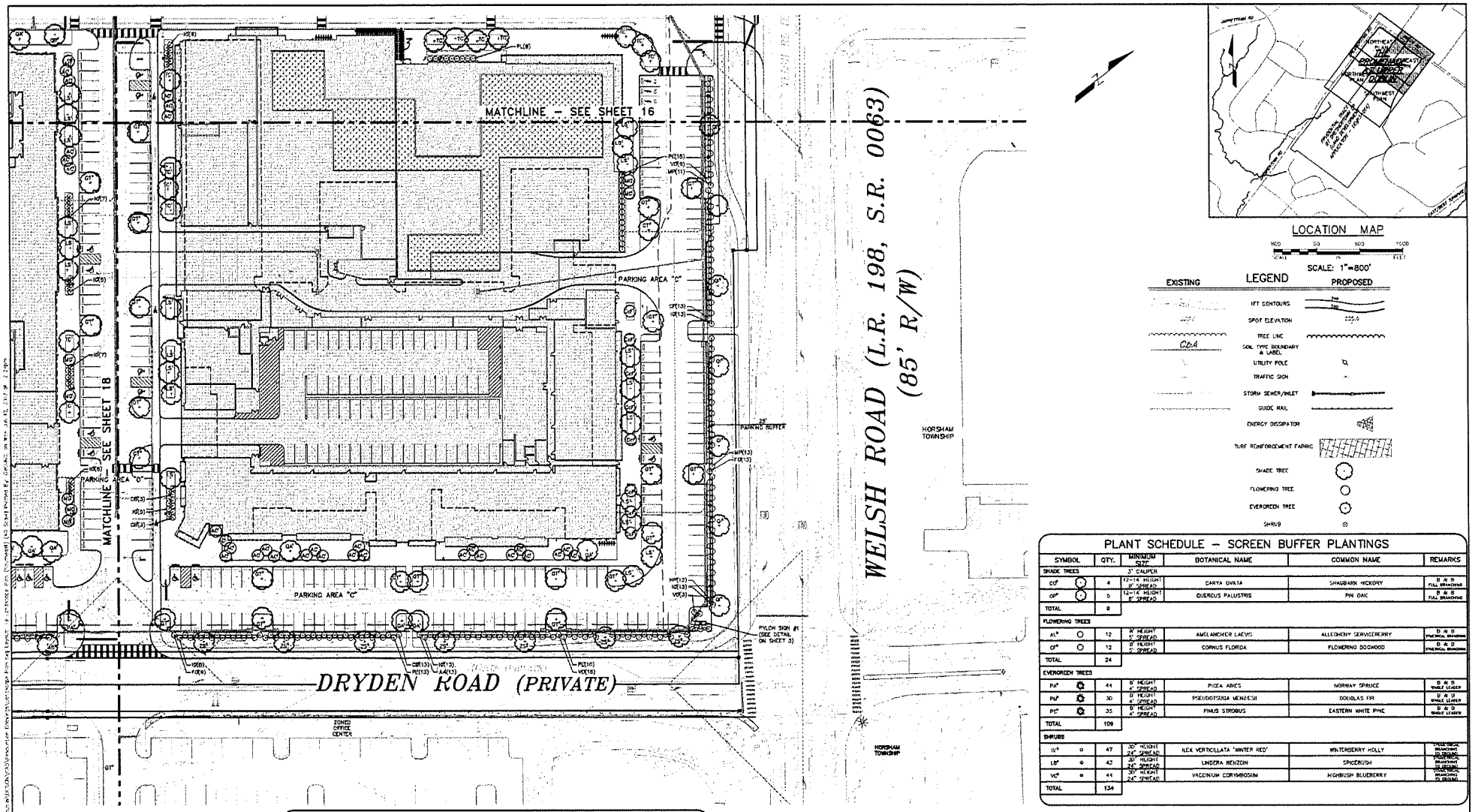
SCALE: 1" = 40'

JOB NO.: 2015-06014-02

SHEET NO.: 18 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



LEGEND

EXISTING		PROPOSED
	1FT CONTOURS	
	SPOT ELEVATION	235.0
	TREE LINE	
CbA	SOIL TYPE BOUNDARY & LABEL	
	UTILITY POLE	
	TRAFFIC SIGN	
	STORM SEWER/INLET	
	GUIDE RAIL	
	ENERGY DISSIPATOR	
	TURF REINFORCEMENT FABRIC	
	SHADE TREE	
	FLOWERING TREE	
	EVERGREEN TREE	
	SHRUB	

PLANT SCHEDULE – SCREEN BUFFER PLANTINGS

SYMBOL	QTY.	MINIMUM SIZE	BOTANICAL NAME	COMMON NAME	REMARKS
SHADE TREES		3" CALIPER			
CO	4	12'-14' HEIGHT 8' SPREAD	CARYA OVATA	SHAGBARK HICKORY	B & B FULL BRANCHING
QP	5	12'-14' HEIGHT 8' SPREAD	QUERCUS PALUSTRIS	PIN OAK	B & B FULL BRANCHING
TOTAL	9				
FLOWERING TREES					
AL	12	8' HEIGHT 5' SPREAD	AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY	B & B MULTIPLE BRANCHING
CF	12	8' HEIGHT 5' SPREAD	CORNUS FLORIDA	FLOWERING DOGWOOD	B & B MULTIPLE BRANCHING
TOTAL	24				
EVERGREEN TREES					
PA	44	8' HEIGHT 4' SPREAD	PICEA ABIES	NORWAY SPRUCE	B & B SINGLE LEADER
PM	30	8' HEIGHT 4' SPREAD	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	B & B SINGLE LEADER
PS	35	8' HEIGHT 4' SPREAD	PINUS STROBUS	EASTERN WHITE PINE	B & B SINGLE LEADER
TOTAL	109				
SHRUBS					
IV	9	30" HEIGHT 24" SPREAD	ILEX VERTICILLATA 'WINTER RED'	WINTERBERRY HOLLY	MULTIPLE BRANCHING TO GROUND
LB	6	30" HEIGHT 24" SPREAD	LINDERA BENZOIN	SPICEBUSH	MULTIPLE BRANCHING TO GROUND
VC	8	30" HEIGHT 24" SPREAD	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	MULTIPLE BRANCHING TO GROUND
TOTAL	134				

PLANT SCHEDULE – STREET TREES

KEY	SYMBOL	QTY.	SIZE	BOTANICAL NAME	COMMON NAME	REMARKS
SHADE TREES			2.5" CAL. MIN.			
AS		20	12'-14' HEIGHT 8' SPREAD	ACER SACCHARUM 'LEGACY'	'LEGACY' SUGAR MAPLE	B & B FULL BRANCHING
QB		31	12'-14' HEIGHT 8' SPREAD	QUERCUS BICOLOR	SWAMP WHITE OAK	B & B FULL BRANCHING
QI		14	12'-14' HEIGHT 8' SPREAD	QUERCUS IMBRICARIA	SHINGLE OAK	B & B FULL BRANCHING
ZS		10	12'-14' HEIGHT 8' SPREAD	ZELKOVA SERRATA	ZELKOVA	B & B FULL BRANCHING
TOTAL		83				

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SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

OWNER:
BT CHESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

REV.	DESCRIPTION	DATE	BY

TAX MAP PARCEL NO.: 54-00-05242-00-5
MUNICIPAL FILE NO.: XX
TOTAL AREA: 20.411
TOTAL LOTS: 1
DATE: 2-10-17
SCALE: 1"=40'

CONDITIONAL USE PLAN

LANDSCAPE PLAN (SOUTHEAST) (40 SCALE)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

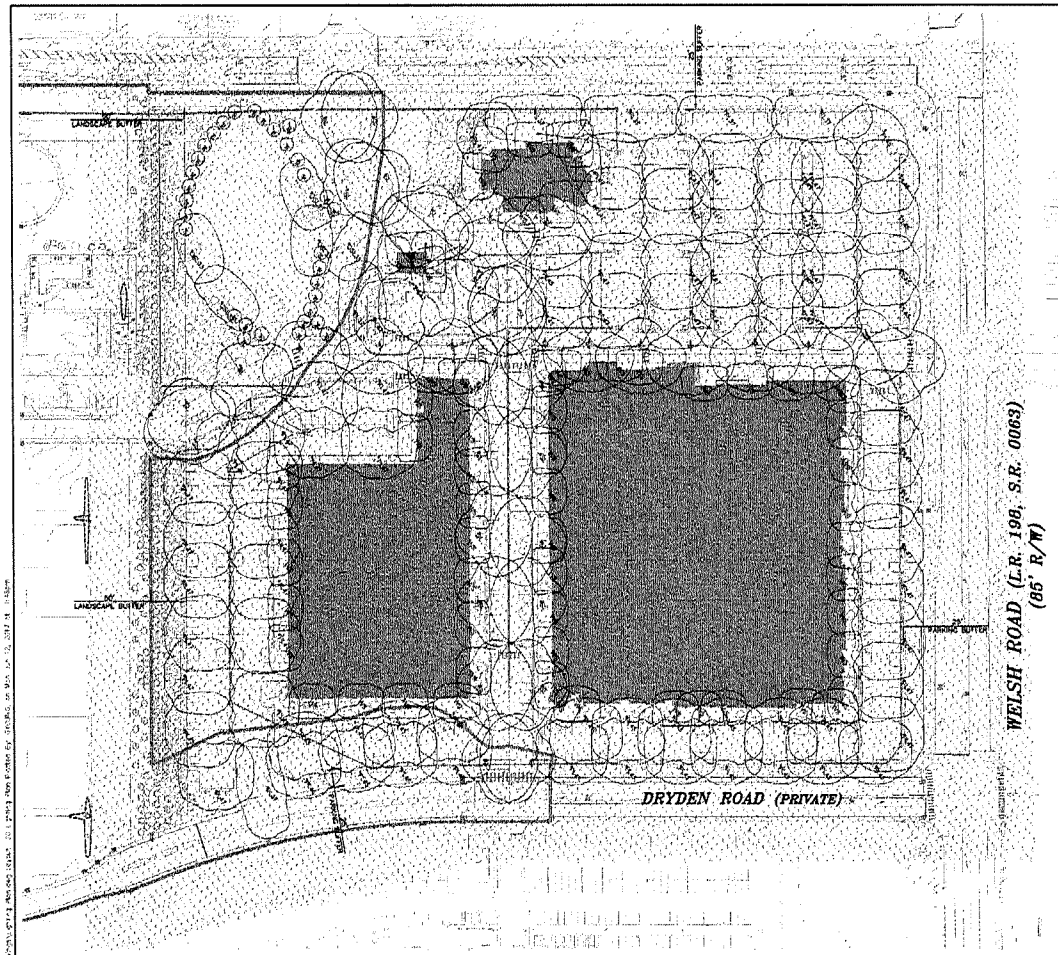
DATE: 6-12-17

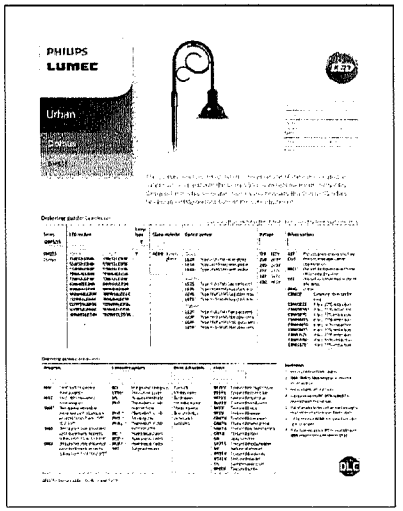
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

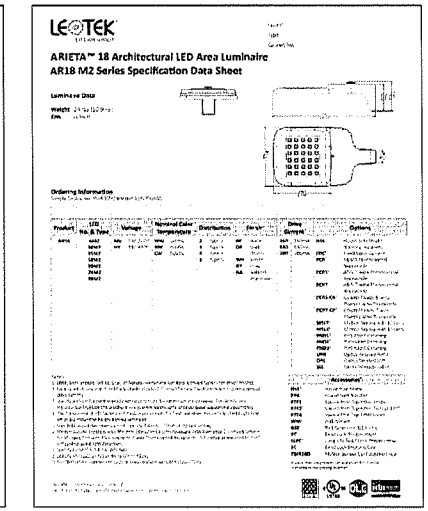
JOB NO.: 2015-06014-02
SHEET NO.: 19 OF 52

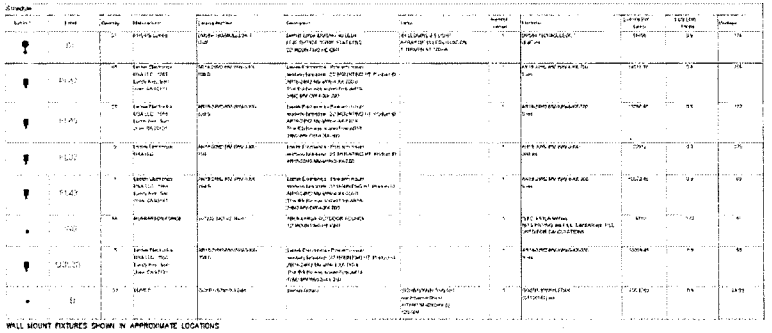
DESIGNED BY: RDF | DRAWN BY: DCY | CHECKED BY: DSC

NOT APPROVED FOR CONSTRUCTION









WALL MOUNT FIXTURES SHOWN IN APPROXIMATE LOCATIONS

Statistics

	Symbol	Avg	Max	Min	Avg/Min
Overall	+	1.7 fc	13.8 fc	0.0 fc	N/A
MAIN DRIVEWAY/ENTRY	X	3.8 fc	5.5 fc	0.6 fc	6.3:1
POTENTIAL PARKING AND DRIVEWAYS	X	2.2 fc	10.8 fc	0.6 fc	3.7:1
POTENTIAL WALKWAYS	X	4.1 fc	10.8 fc	0.6 fc	6.8:1
ANGLED PARK	X	3.8 fc	7.4 fc	1.0 fc	3.8:1
OPEN SPACE WALKWAYS	X	1.9 fc	9.0 fc	0.1 fc	19.0:1

LEGEND

EXISTING		PROPOSED
	1FT CONTOURS	340 / 330
	SPOT ELEVATION	335.6
	TREE LINE	
CbA	SOIL TYPE BOUNDARY & LABEL	
	UTILITY POLE	
	TRAFFIC SIGN	
	STORM SEWER/INLET	
	UNDERGROUND BASIN	
	SHADE TREE	
	FLOWERING TREE	
	EVERGREEN TREE	
	SHRUB	
	SITE LIGHTING	

LIGHTING NOTES

1. POST-APPROVAL ALTERATIONS TO LIGHTING PLANS OR INTENDED SUBSTITUTIONS FOR LIGHTING EQUIPMENT ON APPROVED LIGHTING PLANS SHALL BE SUBMITTED TO UPPER DUBLIN TOWNSHIP FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
2. UPPER DUBLIN TOWNSHIP RESERVES THE RIGHT TO CONDUCT A POST-INSTALLATION NIGHTTIME SITE INSPECTION TO VERIFY COMPLIANCE WITH LIGHTING ORDINANCE REQUIREMENTS AND IF APPROPRIATE, TO REQUIRE REMEDIAL ACTION AT NO EXPENSE TO TOWNSHIP.
3. OUTDOOR LIGHTING SHALL BE CONTROLLED BY AUTOMATIC SWITCHING DEVICES SUCH AS TIME CLOCKS OR COMBINATION MOTION DETECTORS AND PHOTOCELLS THAT WILL EXTINGUISH SUCH LIGHTING BETWEEN 11:00 P.M. AND DAWN TO REDUCE ENERGY WASTE AND NITROUS NUISANCE GLARE AND SKY-LIGHTING CONSEQUENCES, EXCEPT AS SPECIFICALLY OTHERWISE PERMITTED HEREIN.
4. LIGHTING PROPOSED FOR USE AFTER 11:00 P.M. OR AFTER NORMAL HOURS OF OPERATION, WHICH EVER IS EARLIER, FOR COMMERCIAL, INDUSTRIAL OR INSTITUTIONAL SAFETY APPLICATIONS SHALL BE REDUCED BY 75% FROM THE PERMITTED ILLUMINATION LEVELS SET FORTH ABOVE FROM THEN UNTIL DAWN.
5. ALL ILLUMINATION FOR ADVERTISING SIGNS, BUILDINGS AND/OR SURROUNDING LANDSCAPING FOR DECORATIVE, ADVERTISING OR AESTHETIC PURPOSES IS PROHIBITED BETWEEN 11:00 P.M. AND SUNRISE, EXCEPT THAT SUCH LIGHTING SITUATED ON THE PREMISES OF A COMMERCIAL ESTABLISHMENT MAY REMAIN ILLUMINATED WHILE THE ESTABLISHMENT IS ACTUALLY OPEN FOR BUSINESS AND UNTIL ONE HOUR AFTER CLOSING.

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE UNDERTAKEN IN THE PREPARATION OF THESE DRAWINGS; THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 802, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 11, 2000. PENNSYLVANIA ACT 121. GILMORE & ASSOCIATES INC. HAS OBTAINED A PA-ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, NOT INCLUDING THE DAY YOU CALL
SERIAL NO. 20151771253, 20151771304 20151771353 & 20151771358

DATE: 6-12-17

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESCRIBED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED. ©COPYRIGHT 2015 GILMORE & ASSOCIATES, INC. ALL RIGHTS RESERVED

OWNER:
BT DRESHERTOWN, LP
200 INTNER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7500

MUNICIPAL FILE NO.:
XX

TAX MAP PARCEL NO.:
54-00-05242-00-5

TOTAL AREA: 22.411 | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: 1"=80'

REV	DESCRIPTION	DATE	BY

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN

LIGHTING PLAN

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CONTINUED INCORPORATION

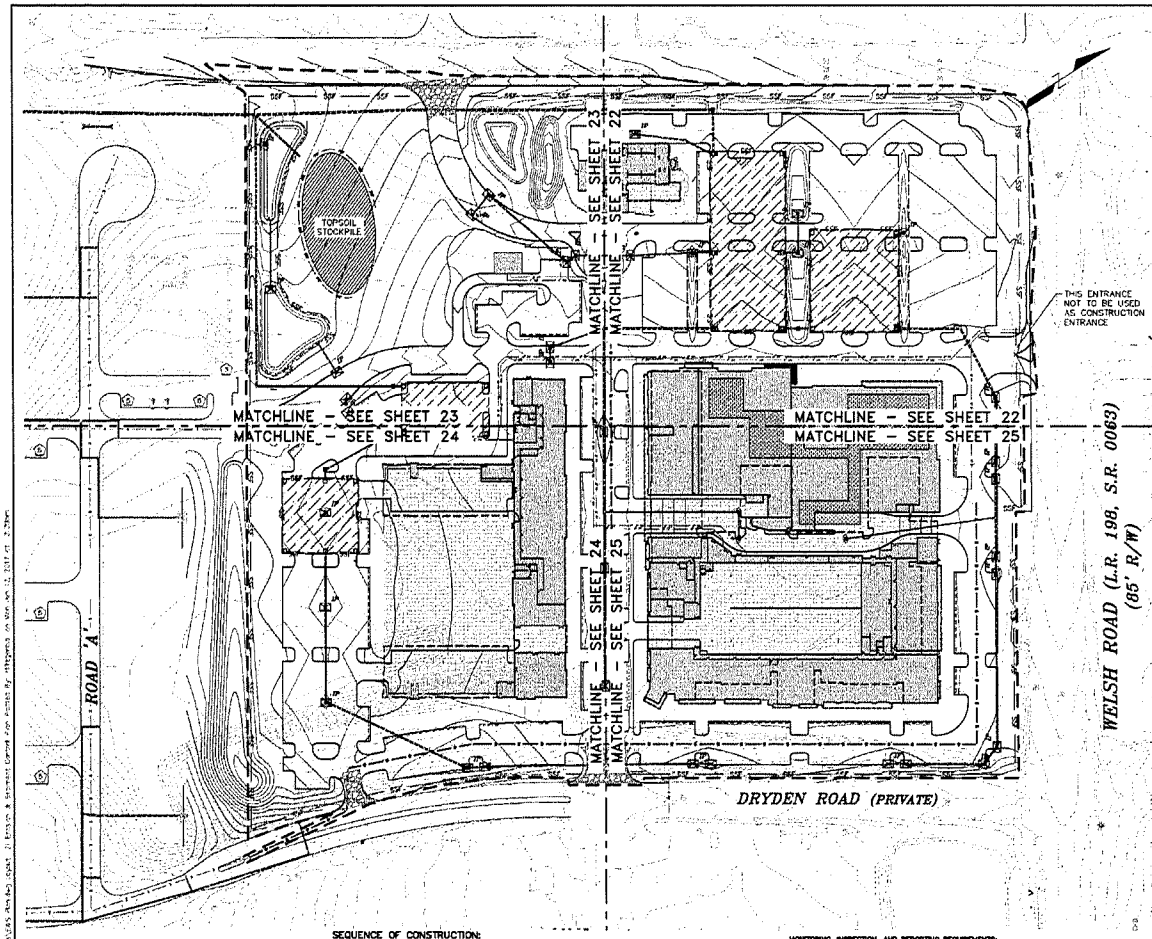
80 0 80 160
SCALE IN FEET

JOB NO.: 2015-06014-02

SHEET NO.: 20 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



MONTGOMERY CO. CONS. DIST. STANDARD EROSION & SEDIMENT CONTROL NOTES:

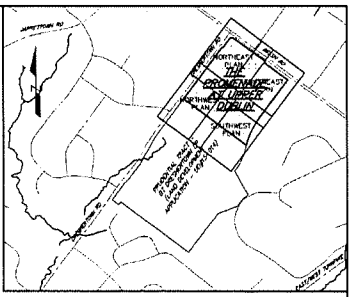
1. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SIDE SLOPES MUST BE 2:1 OR FLATTER.
2. THE OPERATOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
3. UNTIL SITE ACHIEVES FINAL STABILIZATION, THE PERMITTEE AND OPERATOR(S) SHALL ASSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, MAINTAINED AND MONITORED PROPERLY AND COMPLETELY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL BEST MANAGEMENT PRACTICE FACILITIES AND SHALL INCLUDE COMPLETE, WRITTEN LOGS OF THOSE INSPECTIONS WHICH SHALL BE MADE AVAILABLE TO THE MONTGOMERY COUNTY CONSERVATION DISTRICT. ALL MAINTENANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, REGRADING, RESEEDING, AND REMANTLEATION SHALL BE PERFORMED IMMEDIATELY.
4. IMMEDIATELY UPON DISCOVERING UNFORESEEN POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
5. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE EROSION AND SEDIMENT CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE CONSERVATION DISTRICT.
6. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE APPROPRIATE CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL BOR, AND/OR PUSH SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
7. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.
8. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF PA. EROSION CONTROL RULES AND 15 QUALIFYING SITE, 25, PART I, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, AIR RESOURCES, CHAPTER 102, EROSION CONTROL.
9. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
10. ONLY LIMITED DISTURBANCE WILL BE PERMITTED TO PROVIDE ACCESS TO THE PROJECT SITE FOR GRADING AND ACQUIRING BORROW TO CONSTRUCT THOSE BMP'S. EROSION AND SEDIMENT BMP'S MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMP'S.
11. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMP'S MUST BE STABILIZED IMMEDIATELY.
12. THE PERMITTEE OR CO-PERMITTEE SHALL CONTACT THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT AT LEAST SEVEN DAYS BEFORE CONSTRUCTION IS TO BEGIN TO DETERMINE IF A PRECONSTRUCTION CONFERENCE IS REQUIRED. THE PERMITTEE, CO-PERMITTEE, AND DISTRICT UNDERTAKING THE EARTH DISTURBANCE ACTIVITY MUST ATTEND A PRECONSTRUCTION CONFERENCE, WHICH IS CONVENED BY THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE PERMITTEE OR CO-PERMITTEE MUST INVITE A COPY OF THEIR NPDES PERMIT, AND THE DISTRICT UNDERTAKING THE EARTH DISTURBANCE ACTIVITY MUST INVITE A COPY OF THEIR EROSION AND SEDIMENT PLAN.
13. A COPY OF THE NPDES PERMIT AND THE EROSION AND SEDIMENT CONTROL PLAN WITH ANY APPROVED REVISIONS MUST BE AVAILABLE AT THE CONFERENCE UPON REQUEST. ALSO, AT LEAST ONE COPY OF THE PLAN AND ANY REVISIONS MUST BE AVAILABLE AT THE SITE DURING ACTIVITIES. ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR MARKED UTILITIES LOCATIONS.
14. UPON THE INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMPS AND AT LEAST 3 DAYS PRIOR TO PROCEEDING INTO THE SINGLE EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT.
15. EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE.
16. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE OR SHOULD A TEMPORARY CESSATION OF ACTIVITY OCCUR WHICH WILL LAST LONGER THAN 4 DAYS, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GROWTHING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY/INTERIM STABILIZATION SPECIFICATIONS FOR SEEDING. MULCH, AND NETTING. DISTURBED AREAS WHICH WILL BE REDISTURBED MORE THAN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS FOR SEEDING, MULCH, AND NETTING.
17. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
18. PERMITTEES AND CO-PERMITTEES ARE RESPONSIBLE FOR INSURING THAT A LICENSED PROFESSIONAL HAS OVERSIGHT RESPONSIBILITIES FOR THE DESIGN AND PROPER INSTALLATION OF BMPS IDENTIFIED IN THE ROW PLAN PRIOR TO THE SUBMISSION OF THE NOTICE OF TERMINATION FOR THIS PERMIT. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE BMPS IDENTIFIED IN THE PLAN HAVE BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLAN. THE INSTALLATION SCHEDULE OF ROW BMPS AND MAINTENANCE REQUIREMENTS SHALL BE INCLUDED IN THE ROW PLAN. FAILURE BY THE PERMITTEE OR CO-PERMITTEE TO COMPLY WITH THE INSTALLATION SCHEDULE IS A VIOLATION OF THIS PERMIT, THE CLEAN STREAMS LAW, AND THE CLEAN WATER ACT.

SEDIMENT BASINS

1. APPROVAL OF THE USE OF TRAINERS DOES NOT APPROVE USE OF ANY TRAINERS IN VIOLATION OF ANY FEDERAL PATENT RIGHTS AND/OR PATENT LAWS.
2. RISERS MUST BE INSTALLED TO ALLOW BASIN MAINTENANCE AND CLEAN OUT.
3. UPON INSTALLATION OF THE TEMPORARY SEDIMENT BASIN RISER(S), AN IMMEDIATE INSPECTION SHALL BE DONE BY A QUALIFIED SITE REPRESENTATIVE AND THE MONTGOMERY COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING THAT THE RISER IS SEALED.
4. SEDIMENT BASINS MUST BE STRUCTURALLY SOUND AND PROTECTED FROM UNAUTHORIZED ACTS OF THIRD PARTIES.

OTHER BMPS

1. SEDIMENT MUST BE REMOVED FROM STORM WATER INLET PROTECTION AFTER EACH RUNOFF EVENT.
2. AT SPECIAL OPPORTUNITY, SOIL BARRIER AREAS SHOULD BE MAINTAINED, ON BUFFERS, CLEARING, SOIL DISTURBANCES, EXCAVATION, AND EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITIES SUCH AS STAGING LOTS, BRUSHING CLEARED BRUSH, STOCKPILING BACKWATER FROM BRANCHES, WELDING PIPE, WELDING, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE ACCOMPLISHED OUTSIDE OF BUFFERS.



LOCATION MAP

SCALE: 1"=800'

LEGEND:

- SSF — SUPER SILT FENCE
- SSF — SSF — SSF — WSJ CONSTRUCTION FENCE
- IP — INLET PROTECTION
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET (NAG T5 OR EQUAL)
- LIMIT OF DISTURBANCE

LIMIT OF DISTURBANCE FOR CONSTRUCTION: 25.04 ACRES
NPDES LIMIT SHALL BE 5' OUTSIDE L.O.D.: 25.50 ACRES.

MATERIAL RECYCLING/DISPOSAL REQUIREMENTS:

1. PROCEDURES WHICH ENSURE THAT THE PROPER MEASURES FOR THE RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THE PROJECT SITE WILL BE UNDERTAKEN IN ACCORDANCE WITH DEP'S SOLID WASTE MANAGEMENT REGULATIONS, AND/OR ANY ADDITIONAL LOCAL, STATE OR FEDERAL REGULATIONS. NO BUILDING MATERIALS (USED OR UNUSED) OR WASTE MATERIALS SHALL BE BURNED, BURIED, DUMPED OR ABANDONED AT THE SITE.
2. THE OPERATOR SHALL REMOVE FROM THIS SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ. 271.1 ET SEQ. 287.1 ET SEQ. THE CONTRACTOR SHALL NOT LOCALLY BURY, DUMP, OR DISPOSE ANY BUILDING MATERIAL OR WASTES AT THIS SITE.
3. THE FOLLOWING MATERIALS ARE ANTICIPATED TO BE CONSTRUCTION WASTE: ASPHALT PAVING AND CONCRETE PAVING/SPOILS. SITE IS VACANT THEREFORE ALL OTHER WASTES ARE NATURAL ROCK, VEGETATION, EARTH

THERMAL IMPACT CONSIDERATIONS:

POTENTIAL THERMAL IMPACTS OF STORMWATER RUNOFF FOR THIS SITE ARE MINIMIZED THROUGH THE USE OF SEVERAL STORMWATER BEST MANAGEMENT PRACTICES WHICH PROMOTE INFILTRATION AND EVAPORATION AS WELL AS INCREASE THE TIME OF CONCENTRATION GIVING THE RUNOFF MORE TIME TO REACH AMBIENT TEMPERATURE.

SEQUENCE OF CONSTRUCTION:

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED, UNLESS NOTED OTHERWISE. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE. NOTED. CESSATION OF CONSTRUCTION ACTIVITIES FOR 4 DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION.

AT LEAST 7 DAYS PRIOR TO START OF WORK ON EARTH DISTURBANCE ACTIVITIES, A PRECONSTRUCTION MEETING SHALL BE HELD INCLUDING THE OWNER, SITE CONTRACTOR, TOWNSHIP ENGINEER, MONTGOMERY COUNTY CONSERVATION DISTRICT, AND A LICENSED PROFESSIONAL.

1. INSTALL ORANGE SAFETY FENCE ALONG PROPOSED LIMIT OF DISTURBANCE PRIOR TO DISTURBANCE ACTIVITIES.
2. INSTALL ROCK CONSTRUCTION ENTRANCES WHERE INDICATED ON PLAN.
3. INSTALL INLET PROTECTION WHERE SHOWN PRIOR TO ANY EARTH DISTURBANCE
4. INSTALL SUPER SILT FENCE PER PLAN
   A. EXISTING VEGETATION SHALL BE CUT TO GROUND AS NECESSARY PRIOR TO INSTALLATION OF SUPER SILT FENCE TO ASSURE CONTACT WITH EARTH. LOOSE COMPOST OR EARTHEN MATERIAL SHALL BE PLOWN OR PLACED INTO UPHILL SIDE TO MINIMIZE UNDERMINING.
5. INSTALL EROSION CONTROL BLANKETS PER PLAN
6. CLEAR AND GRUB PROPOSED ROADWAY AND DRIVEWAY EASEMENTS.
7. INSTALL SANITARY SEWER IN A CONVENTIONAL TO UPSTREAM MANNER.
8. INSTALL STORM SEWER SYSTEM IN A DOWNSTREAM TO UPSTREAM MANNER. INLET PROTECTION SHALL BE INSTALLED AT STORM INLET AS THEY ARE COMPLETED.
9. COMPLETE REMAINING IMPROVEMENTS AS PER STANDARD CONSTRUCTION TECHNIQUES.
   A. DEMOLISH EXISTING IMPROVEMENTS AND CLEAR AND GRUB REMAINDER OF THE CONSTRUCTION AREA AS NOTED ON THE PLANS AND PER ACCEPTABLE CONSTRUCTION TECHNIQUES. DEVIATION MAY PROVED CONCURRENTLY WITH ROUGH GRADING OF ROADWAY
   B. ROUGH GRADE ROADWAY INSTALLING UTILITIES AS WORK PROGRESSES. IMMEDIATELY UPON REACHING SUBGRADE ELEVATION, ROADWAY SHALL RECEIVE STONE SUBBASE TO STABILIZE. INSTALL INLET PROTECTION IN ALL INLETS INSTALLED IN THIS STEP.
   C. ROUGH GRADE LOCATIONS OF ALL BUILDINGS.
   D. ALL CUT SLOPES SHALL BE INSPECTED AND MAINTAINED BY CONTRACTOR AT THE END OF EACH WORK DAY.
10. CONSTRUCTION OF BUILDINGS MAY NOT BEGIN UNTIL THE BASE COURSE HAS BEEN INSTALLED.
11. ONCE BINDER/BASE AREA IS STABILIZED, INSTALL AMENDED CURB IN RAIN GARDENS ALONG WITH ALL RAIN GARDEN PLANTINGS
12. FINAL GRADE RAIN GARDENS, INSTALL EROSION AND SEDIMENT CONTROL BLANKET ON SLOPES 3:1 OR GREATER, AND INSTALL PERMANENT SEEDING
13. COMPLETE CONSTRUCTION OF ALL BUILDINGS, CONNECTING UTILITY LATERALS.
14. AS LAWN AREAS ARE BROUGHT TO GRADE, THEY SHALL BE FERTILIZED WITH A MINIMUM OF 91 LB/ AMENDED SOIL AND SEEDED IMMEDIATELY. ALL VEGETATED AREAS SHALL BE STABILIZED WITH VEGETATION AND MULCH AS SOON AS POSSIBLE. NOTE: NO MORE THAN 15,000 SF OF DISTURBED AREA TO REACH FINAL GRADE BEFORE STARTING SEEDING AND MULCHING OPERATION.
15. FINE GRADE SITE, SPREAD TOPSOIL AND SEAMLESS IMMEDIATELY.
16. AFTER THE SITE HAS BEEN STABILIZED WITH THE APPROVAL OF THE CONSERVATION DISTRICT, ALL TEMPORARY E&S CONTROLS SHALL BE REMOVED.
17. ALL ACCUMULATED SEDIMENTS SHALL BE DISPOSED OF IN APPROVED UPLAND AREAS
18. STABILIZATION SHALL BE ENHANCED BY THE PLACEMENT OF BLANC COURSE IN PAVED AREAS OR BY THE USE OF MORE VEGETATION. UNIFORM COVERAGE, IN LAWN AREAS OR BY OTHER PERMANENT MEANS WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
19. AFTER COMPLETING ALL PUNCHLIST ITEMS TO THE SATISFACTION OF THE TOWNSHIP AND TOWNSHIP ENGINEER, INSTALL WEARING COURSE, CURBING, AND GRANGE.

MONITORING, INSPECTION AND REPORTING REQUIREMENTS:

VISUAL INSPECTIONS:

THE PERMITTEE / CO-PERMITTEE(S) MUST ENSURE THAT VISUAL SITE INSPECTIONS ARE CONDUCTED WEEKLY, AND WITHIN 24 HOURS AFTER EACH MEASURABLE RUNOFF EVENT THROUGHOUT THE DURATION OF CONSTRUCTION AND UNTIL THE NOTICE OF TERMINATION IS SUBMITTED BY THE PERMITTEE OR CO-PERMITTEE(S). ALL INSPECTIONS SHALL BE CONDUCTED BY THE PERMITTEE OR CO-PERMITTEE(S) OR QUALIFIED PERSONNEL PROVIDED BY THE PERMITTEE OR CO-PERMITTEE(S). ALL EROSION AND SEDIMENT CONTROL BMPS IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. A REPRESENTATIVE FROM EACH OF THE PERMITTEE(S) AND CO-PERMITTEE(S) SHALL BE RESPONSIBLE FOR THE REVIEW AND ENDORSEMENT OF THE VISUAL SITE INSPECTION REPORTS. AT LEAST ONE INDIVIDUAL FROM EACH OF THE PERMITTEE(S) AND CO-PERMITTEE(S) SHALL BE RESPONSIBLE FOR CONDUCTING THE SITE INSPECTIONS.

1. A SUMMARY OF SITE INSPECTIONS, EARTH DISTURBANCE ACTIVITIES COMPLETED, AND ANY BMPS REQUIRING REPAIR OR MAINTENANCE;
2. THE DATE, TIME, NAME, AND SIGNATURE OF THE PERSON CONDUCTING THE INSPECTIONS.

NONCOMPLIANCE INSPECTIONS:

WHERE BMPS, EITHER ON-SITE BMPS AND OFF-SITE BMPS REQUIRED BY THE PERMITTEE OR CO-PERMITTEE(S) OR ANY AGENCY THAT THE PERMITTEE / CO-PERMITTEE(S) SHALL REPAIR OR REMOVE, DEPENDING ON THE CIRCUMSTANCES TO BE AUTHORIZED UNDER/REMOVED DISTRICT, BY-PASSED, OR PERSONNEL CONTACT, FAILURES BY THE CONTRACTOR OF A WRITTEN REPORT WITHIN 3 DAYS OF THE INITIAL INSPECTION. THE WRITTEN REPORT SHALL INCLUDE THE FOLLOWING INFORMATION:

1. ANY DEVIATION ON THE PROJECT SITE FROM ANY EXISTING PUBLIC HEALTH, SAFETY, OR THE ENVIRONMENT, OR IMMINENT HAZARDS WHICH CAUSE OR THREATEN POLLUTION;
2. THE PERIOD OF NONCOMPLIANCE, INCLUDING EXACT DATES AND TIMES AND/OR ANTICIPATED TIME WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE;
3. STEPS BEING TAKEN TO REMOVE, ELIMINATE, AND PREVENT RECURRENCE OF THE NONCOMPLIANCE; AND
4. THE BMPS OR SCHEDULE OF DATES AND DESCRIPTIVE REMEDIES FOR CORRECTING NONCOMPLIANCE CONDITIONS.

REMEDIAL LOSS OR FAILURE OF BMPS:

UPON REMEDIATION, LOSS, OR FAILURE OF THE BMPS, THE PERMITTEE / CO-PERMITTEE(S) SHALL TAKE IMMEDIATE ACTION TO RESTORE THE BMPS OR PROVIDE AN ALTERNATIVE METHOD OF TREATMENT. SUCH RESTORED BMPS ARE TO BE OPERATIONAL WITHIN 24 HOURS OF DISCOVERY WHERE IT IS LEAST 48 HOURS PRIOR TO THE NEXT PREDICTED RAINFALL OR 7 DAYS OF DISCOVERY, IN THE GENERAL AREA.

TERMINATION OF STORMWATER:

NOTE: UPON PERMANENT STABILIZATION OF EARTH DISTURBANCE ACTIVITIES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT ARE AUTHORIZED BY THIS PERMIT AND WHEN BMPS IDENTIFIED IN THE ROW PLAN HAVE BEEN PROPERLY INSTALLED, THE PERMITTEE AND/OR CO-PERMITTEE OF THE FACILITY MUST SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE PERMITTEE AND/OR CO-PERMITTEE OF THE FACILITY MUST SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE PERMITTEE AND/OR CO-PERMITTEE OF THE FACILITY MUST SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE PERMITTEE AND/OR CO-PERMITTEE OF THE FACILITY MUST SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE PERMITTEE AND/OR CO-PERMITTEE OF THE FACILITY MUST SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT.

COMPLETION, CESSATION AND FINAL CLEANUP:

WHEN ALL EARTH DISTURBANCE ACTIVITIES ARE COMPLETED, ALL TEMPORARY BMPS SHALL BE REMOVED AND ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE APPROVED ROW PLAN. AT THE TIME OF COMPLETION OF THE EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE(S) SHALL NOTIFY THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT A TRAINING SIGNED BY A LICENSED PROFESSIONAL, AND BY THE PERMITTEE OR CO-PERMITTEE THAT THE ROW PLAN WAS FULLY IMPLEMENTED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS PERMIT AND THE APPROVED ROW PLAN.

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS; THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK, AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 852, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121.

GILMORE & ASSOCIATES INC. HAS OBTAINED A PA-ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED.
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PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776

NON-MEMBERS MUST BE CONTACTED DIRECTLY

SERIAL NO. 20151771253, 20151771134, 20151771153 & 20151771359

DATE: 6-12-17

OWNER:	REV	DESCRIPTION	DATE	BY
BY DRESHERTOWN, LP 200 INTNER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 938-7700	TAX MAP PARCEL NO.: 54-00-05242-00-5	PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN EROSION & SEDIMENT CONTROL PLAN *THE PROMENADE AT UPPER DUBLIN* UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA		
MUNICIPAL FILE NO.: XX	TOTAL AREA: 23.411	TOTAL LOTS: 1		
	DATE: 2-10-17	SCALE: 1"=80'		

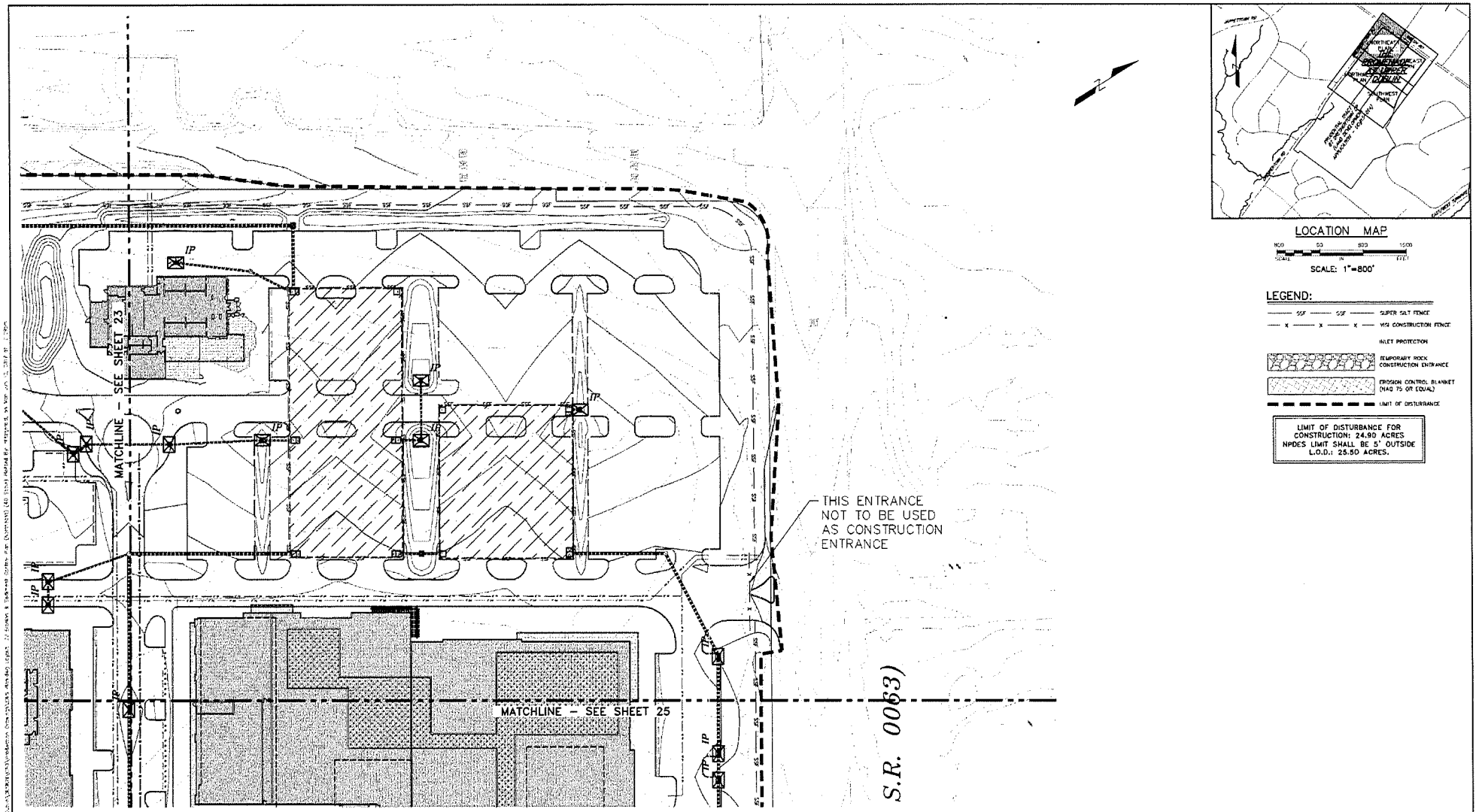
ERIC S. CLASE — ENGINEER — 65713-E — REGISTERED PROFESSIONAL

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02
SHEET NO.: 21 OF 52

DESIGNED BY: RDF | DRAWN BY: DCV | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



LOCATION MAP

SCALE: 1"=800'

LEGEND:

- SSF SUPER SILT FENCE
- VSC CONSTRUCTION FENCE
- INLET PROTECTION
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET (NAG S75 OR EQUAL)
- LIMIT OF DISTURBANCE

LIMIT OF DISTURBANCE FOR CONSTRUCTION: 24.90 ACRES
NPDES LIMIT SHALL BE 5' OUTSIDE L.O.D.: 25.50 ACRES.

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS. THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

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PENNSYLVANIA ONE CALL SYSTEM, INC.

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SERIAL NO. 20151771253, 20151771304 20151771153 & 20151771359

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OWNER:
BT DRESHERTOWN, LP
200 RITNER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411 | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: 1"=40'

ERIC S. CLASE, ENGINEER, 45713-E, REGISTERED PROFESSIONAL

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

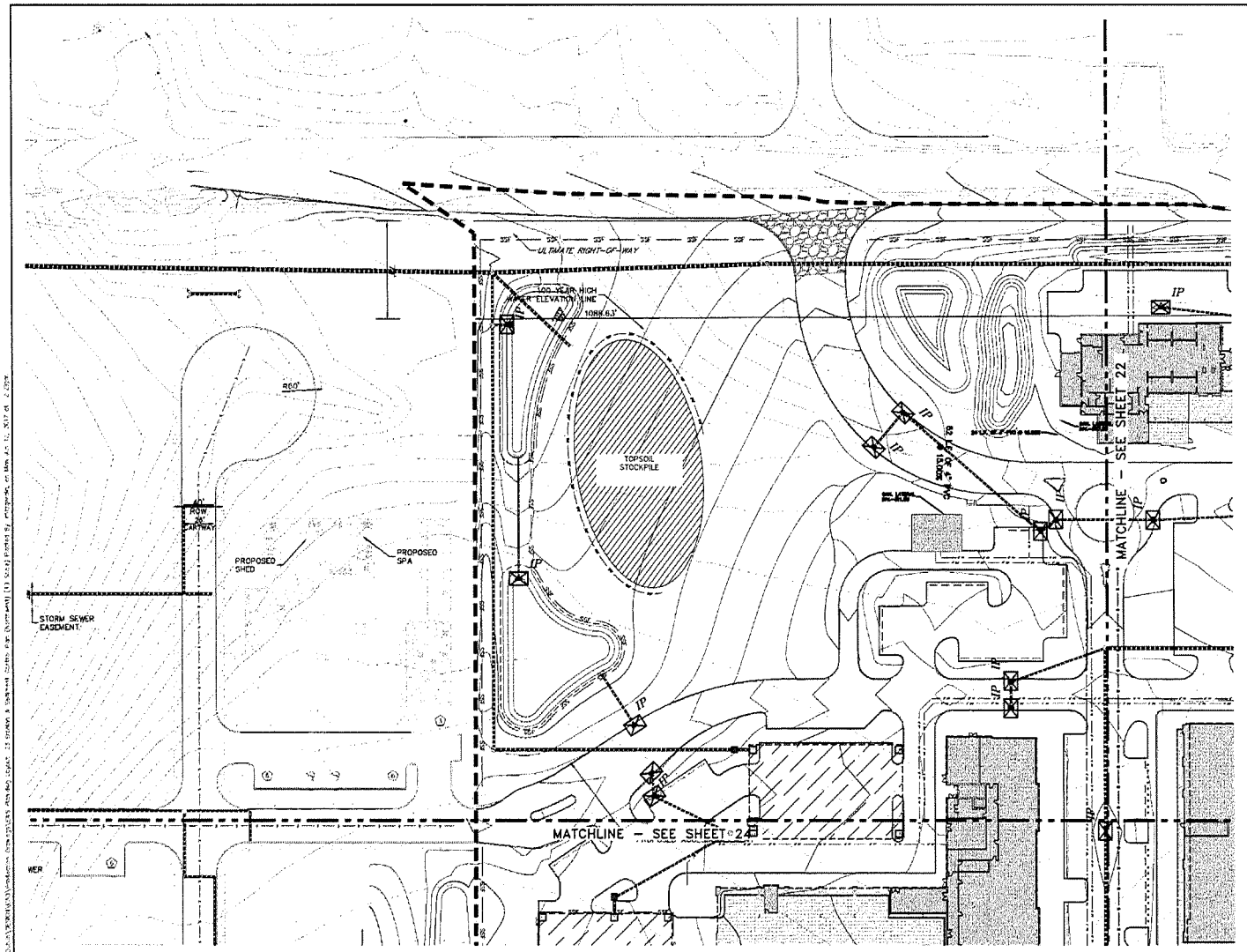
CONDITIONAL USE PLAN
EROSION & SEDIMENT CONTROL PLAN (NORTHEAST) (40 SCALE)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

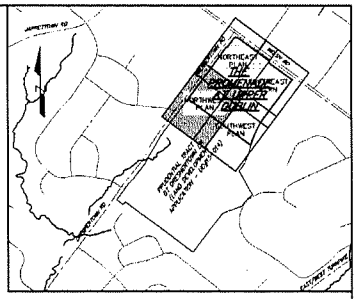
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02
SHEET NO.: 22 OF 52

DESIGNED BY: RDF | DRAWN BY: GCV | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION





LEGEND:

- SSF — SUPER SILT FENCE
- X — MSX CONSTRUCTION FENCE
- INLET PROTECTION
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET (NAG 75 OR EQUAL)
- LIMIT OF DISTURBANCE

LIMIT OF DISTURBANCE FOR CONSTRUCTION: 24.90 ACRES
NPDES LIMIT SHALL BE 5' OUTSIDE L.O.D.: 25.50 ACRES.

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION BY THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS; THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

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SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

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OWNER:
BT CRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7500

REV	DESCRIPTION	DATE	BY

TAX MAP PARCEL NO.: 54-00-05242-00-5
MUNICIPAL FILE NO.: XX
TOTAL AREA: 25.441
TOTAL LOTS: 1
DATE: 2-10-17
SCALE: 1"=40'

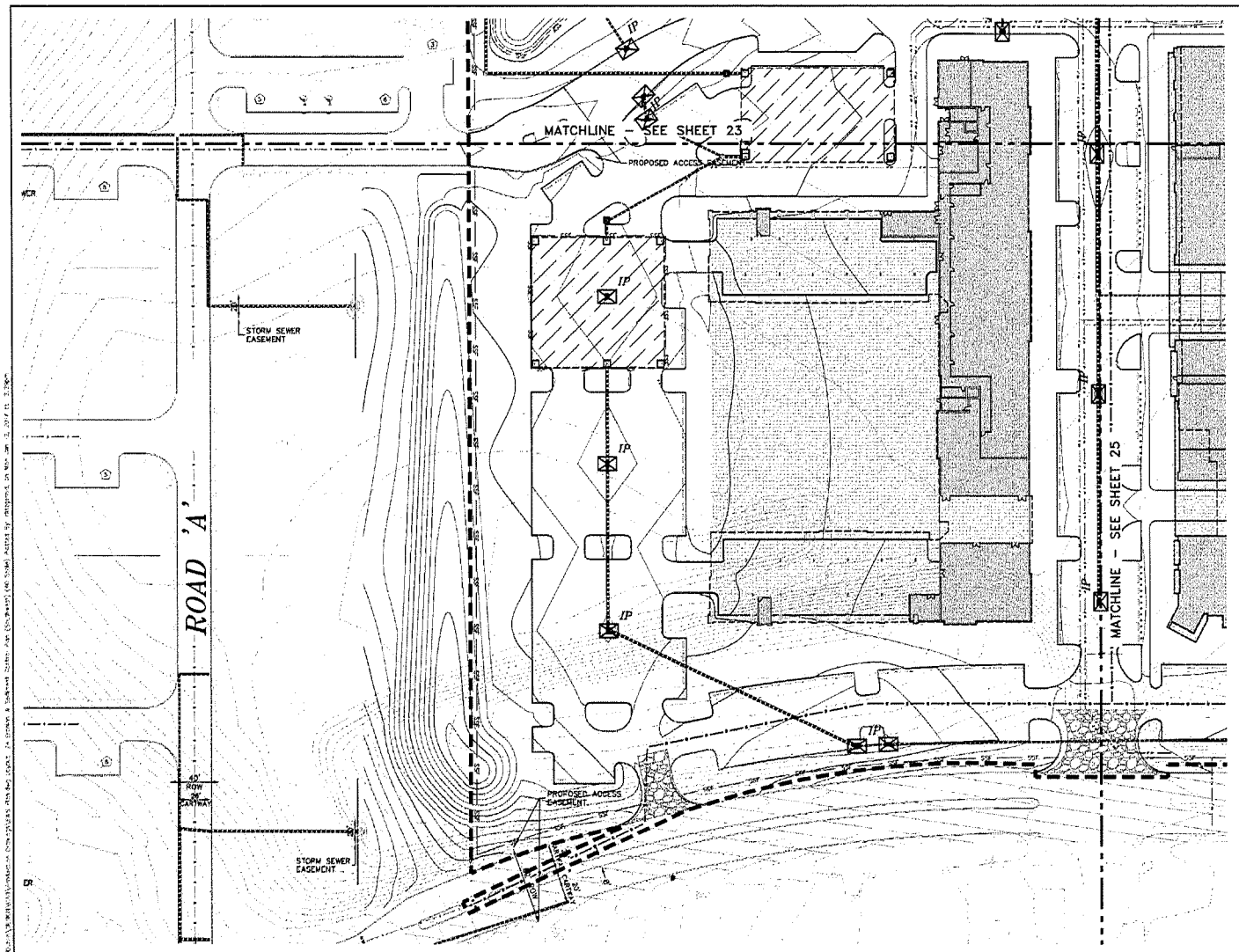
CONDITIONAL USE PLAN
EROSION & SEDIMENT CONTROL PLAN (NORTHWEST) (40 SCALE)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

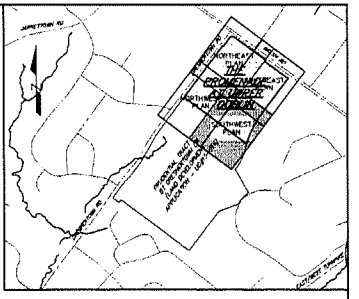
ERIC S. CLASE
ENGINEER
25713-E
DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

SCALE: 40 0 40 80 IN FEET
JOB NO.: 2015-06014-02
SHEET NO.: 23 OF 52
DESIGNED BY: RDF
DRAWN BY: GCY
CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION





SCALE: 1"=800'

LEGEND:

SSF SSF SUPER SILT FENCE

X X X WSF CONSTRUCTION FENCE

INLET PROTECTION

TEMPORARY ROCK CONSTRUCTION ENTRANCE

EROSION CONTROL BLANKET (NAG S75 OR EQUAL)

LIMIT OF DISTURBANCE

LIMIT OF DISTURBANCE FOR CONSTRUCTION: 24.90 ACRES
NPDES LIMIT SHALL BE 5' OUTSIDE L.O.D.: 25.50 ACRES.

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BT CROSSHORTOWN, LP
200 FATHER ROAD, SUITE 200
HOPSHAM, PA 19044
(215) 938-7500

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=40'

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ERIC S. CLASE ENGINEER 45713-E

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

CONDITIONAL USE PLAN
EROSION & SEDIMENT CONTROL PLAN (SOUTHWEST) (40 SCALE)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

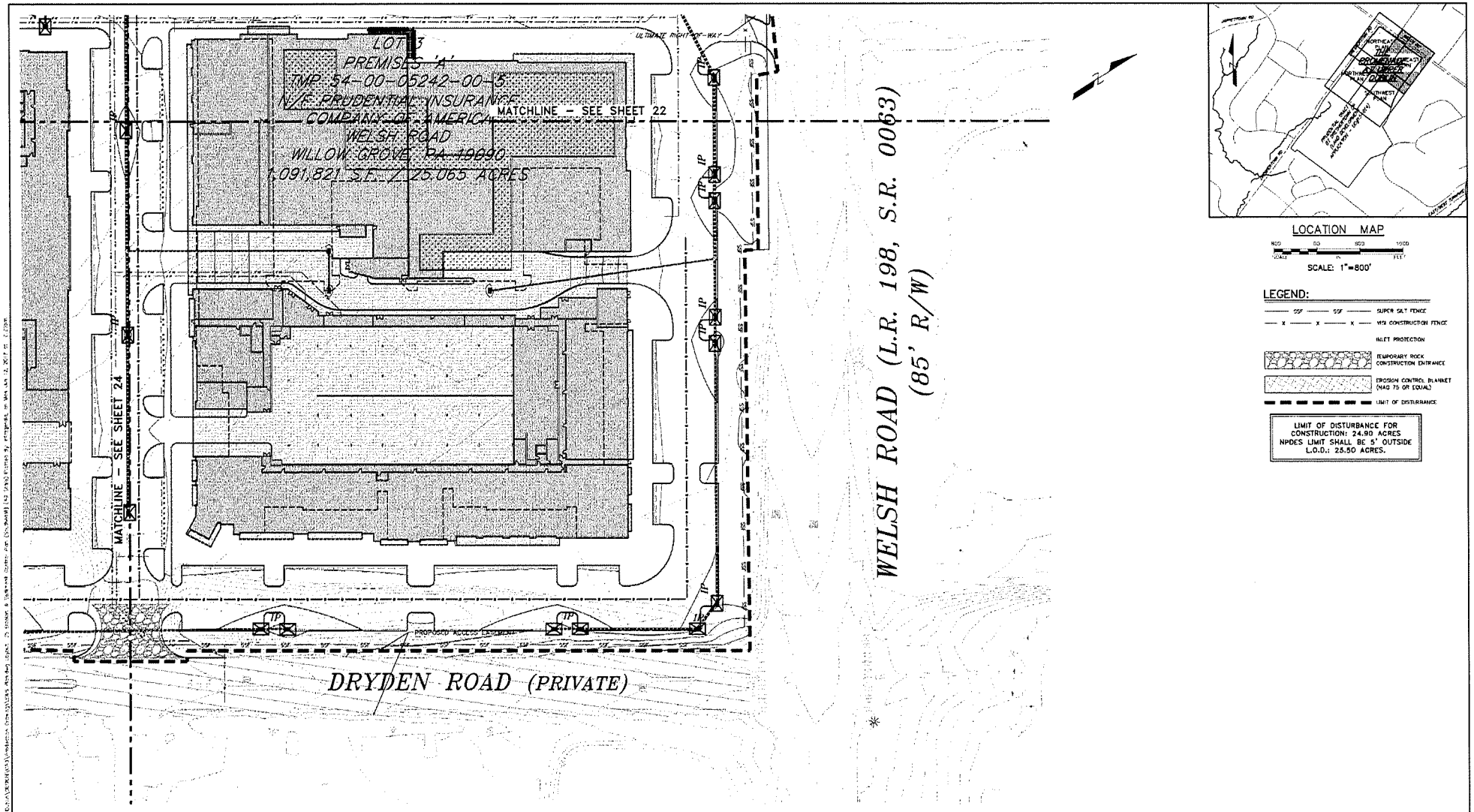
SCALE: 40 0 40 80 IN FEET

JOB NO.: 2015-08014-02

SHEET NO.: 24 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



LOCATION MAP

SCALE: 1"=800'

LEGEND:

- SSF — SSF — SUPER SILT FENCE
- X — X — X — WSF CONSTRUCTION FENCE
- INLET PROTECTION
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET (NAG T5 OR EQUAL)
- LIMIT OF DISTURBANCE

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DT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 956-7500

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411 | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: 1"=40'

ENGINEER 55713-E — DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

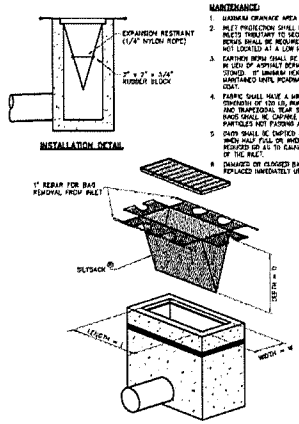
CONDITIONAL USE PLAN
EROSION & SEDIMENT CONTROL PLAN
(SOUTHEAST) (40 SCALE)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02
SHEET NO.: 25 OF 52

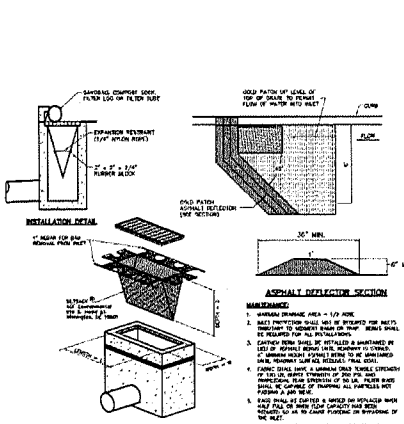
DESIGNED BY: RDF | DRAWN BY: DCV | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



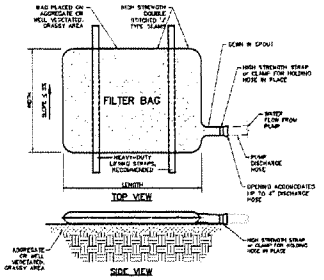
SILTSACK YARD DRAIN/TYPE 'M' INLET PROTECTION DETAIL

NOT TO SCALE



SILTSACK TYPE 'C' INLET PROTECTION DETAIL

NOT TO SCALE



FILTER BAG TO BE USED WHEN/IF WATER PONDS IN EXCAVATIONS.

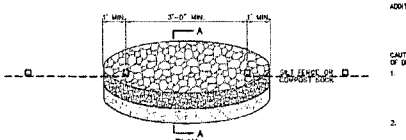
1. LOW VOLUME FILTER BAGS SHALL BE MADE OF NON-WOVEN GEOTEXTILE WHICH RETAINS ALL SEDIMENT PARTICLES LARGER THAN 100 MICRONS. WITH VOLUME GAINS SHALL BE MADE FROM WOVEN GEOTEXTILES MEETING THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDTH STRENGTH	ASTM D-4884	89 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	NO SIEVE

2. FLOC FILTER BAGS ON STABLE OR WELL-VEGETATED AREAS WHERE ARE FLATTER THAN 5% SLOPE AND SHALL DISCHARGE ONTO STABLE, EROSION RESISTANT GROUND. WHERE THIS IS NOT POSSIBLE, CLOSER VELOCITY AND FLOW PATH SHALL BE PROVIDED.
3. PUMP DISCHARGE HOSE SHALL BE SECURED INTO BAG TO MANNER SPECIFIED BY MANUFACTURER AND SECURELY CLAMPED INTO FILTER BAG. A PIECE OF PVC PIPE IS RECOMMENDED FOR BAG PURPOSES.
4. LIMIT PUMPING TO 750 GPM OR 1/2 THE MANUFACTURER'S MAXIMUM PUMPING RATE, WHICHEVER IS LESS. PUMP RATING SHALL BE FLOW-TRIED AND TESTED.
5. FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PATTERN IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL PROBLEM IS CORRECTED.
6. A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY IS REQUIRED FOR DISPOSAL PURPOSES. WHEN SEDIMENT FILLS 1/3 THE VOLUME OF A FILTER BAG, IMMEDIATELY REMOVE THAT BAG FROM SERVICE AND REPLACE WITH NEW BAG IMMEDIATELY. PROPERLY DISPOSE OF SPENT BAGS WITH THEIR SEDIMENTS.
7. THE DISCHARGE FROM THE FILTER BAG SHOULD NOT PASS THROUGH A DISTURBED AREA OR CAUSE AN EROSION PROBLEM DOWN SLOPE.

SEDIMENT FILTER BAG FOR PUMPED WATER

NOT TO SCALE



ROCK FILTER OUTLET DETAIL

NOT TO SCALE

NOTES:

1. ROCK FILTER OUTLETS TO BE PROVIDED AT ALL EXISTING OR PROPOSED LOW POINTS AND ALL AREAS OF CONCENTRATED FLOWS.
2. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLETS.
3. COMPOST LAYER IS REQUIRED IN ALL HQ AND EV WATERSHEDS.

INSTALLATION INSTRUCTIONS:

ADDITIONAL ITEMS NEEDED FOR INSTALLATION:
- GRASS SEED
- FERTILIZER
- RUBBER MALLET
- SCISSORS OR SHEARS
- SAFETY GLASSES/GOGGLES

CAUTION: ALWAYS WEAR EYE AND HAND PROTECTION DURING INSTALLATION OF BIOSTAKES.

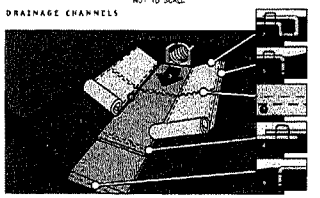
1. PREPARE THE AREA TO BE PROTECTED BY RAKING THE SOIL TO A DEPTH OF 1-2 INCHES AND REMOVING LARGE DIRT CLODS, STICKS AND OTHER OBSTRUCTIONS. APPLY SEED AND FERTILIZER AND LIGHTLY RAKE INTO THE SOIL. (NOTE: THIS PRODUCT DOES NOT INCLUDE SEED OR FERTILIZER. FOR SEEDING AND FERTILIZER SEE THE SEEDING & MULCHING SCHEDULE.)
2. BEGIN INSTALLATION AT THE TOP OF THE SWALE, ANCHORING THE BLANKET IN A 6"x6" TRENCH. TRIM THE FABRIC INTO THE BOTTOM OF THE TRENCH WITH BIODEGRADABLE PLASTIC BIOSTAKES AT 12" INTERVAL. BACKFILL AND COMPACT THE TRENCH.
3. ROLL CENTER BLANKET OVER THE PREPARED BOTTOM OF THE SWALE IN THE DIRECTION OF WATER FLOW. SECURE BLANKET WITH BIOSTAKES IN APPROPRIATE PATTERN PER FIGURE 2 OR USING DOT SYSTEM PROVIDED ON BLANKET BY MANUFACTURER. A RUBBER MALLET IS RECOMMENDED FOR DRIVING THE BIOSTAKES INTO THE GROUND. CARTRIDGE BIOSTAKES MAY SHATTER IF BROKEN, THEREFORE, ALWAYS WEAR EYE AND HAND PROTECTION DURING INSTALLATION.
4. PLACE SUBSEQUENT BLANKETS END OVER END, SHINGLE STYLE, WITH MINIMUM 6" OVERLAP. SECURE WITH DOUBLE ROW OF STAPLES/STAKES 4" APART AND 6" ON CENTER ACROSS FULL WIDTH OF BLANKET.
5. FULL LENGTH OF BLANKET ALONG SIDE SLOPES SHALL BE ANCHORED WITH STAPLES/STAKES AT 12" INTERVALS IN 6"x6" TRENCH. BACKFILL AND COMPACT TRENCH.
6. ADJACENT BLANKETS ON SIDE SLOPES, IF NEEDED, SHALL BE OVERLAPPED A MINIMUM OF 6" AND SECURED WITH STAPLES/STAKES AT 12" INTERVALS.
7. IN HIGH FLOW CHANNELS, CHECK SLOT SHALL BE INSTALLED 30 FEET ON CENTER ALONG CHANNEL. SLOT SHALL BE A DOUBLE ROW OF STAPLES/STAKES 4" APART AND 6" ON CENTER ACROSS THE FULL WIDTH OF THE CHANNEL.
8. TERMINAL END OF THE BLANKET SHALL BE ANCHORED IN 6"x6" TRENCH WITH STAPLES/STAKES AT 12" INTERVAL. TRENCH SHALL BE BACKFILLED AND COMPACTED AFTER ANCHORING.
9. IMMEDIATELY FOLLOWING INSTALLATION, GENTLY WATER ENTIRE AREA, THOROUGHLY WETTING BOTH THE BLANKET AND UNDERLYING SOIL. FOR BEST RESULTS, KEEP SOIL MOIST FOR THE FIRST 30 TO 60 DAYS OR UNTIL UNIFORM GRASS ESTABLISHMENT IS ACHIEVED.

STAKE PATTERN

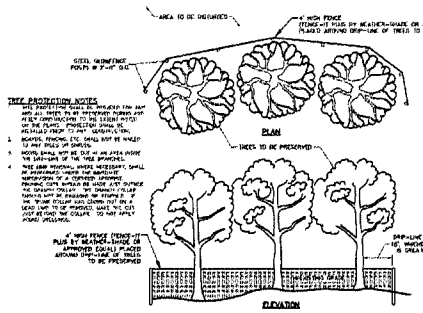
Figure 2

NORTH AMERICAN GREEN SWALE INSTALLATION

NOT TO SCALE

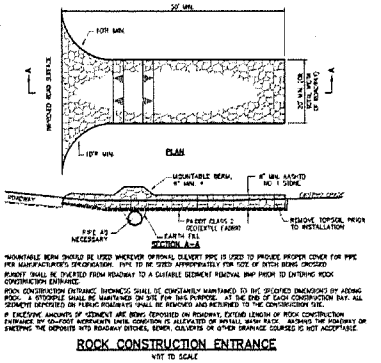


CONTRACTOR SHALL USE NORTH AMERICAN GREEN (OR EQUAL) EROSION CONTROL FABRICS WITH THE MANUFACTURER'S RECOMMENDED STAPLE PATTERN. CLASS OF FABRIC SHALL BE AS NOTED ELSEWHERE IN THE PLANS.



TREE PROTECTION DETAIL

NOT TO SCALE



*MOUNTABLE BERM SHOULD BE USED WHEREVER OPTIONAL ELEMENT PIPE IS USED TO PRODUCE PROPER COVER FOR PIPE PER MANUFACTURER'S SPECIFICATION. PIPE TO BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED

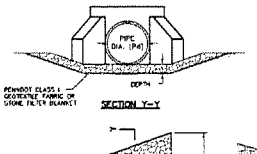
RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING STONE. A STONEPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

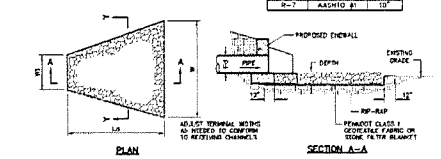
IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50-FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, BENDS, CULVERTS OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE

ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



STONE FILTER BLANKET SHALL BE USED IN LIEU OF GEOTEXTILE AS PER THE FOLLOWING:		
RIP-RAP	STONE #	DEPTH
R-3	AASHTO #1	8"
R-4	AASHTO #1	8"
R-7	AASHTO #1	10"

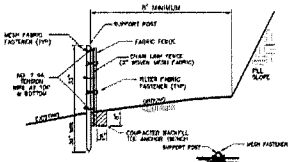


ENERGY DISSIPATER AT PIPE ENDWALL

NOT TO SCALE

ENERGY DISSIPATER SCHEDULE						
NO.	La	W1	W	DEPTH	ROCK SIZE
MH-3	5.0'	3.0'	8.0'	4.0'	R-3
MH-10R	20.0'	8.0'	29.0'	12.0'	R-5

ENERGY DISSIPATERS SHALL BE EXTENDED TO TOE OF SLOPE IN ALL BASINS AS SHOWN ON THE PLANS. WHERE DISCHARGE IS TO A CHANNEL OR SWALE, THE ENERGY DISSIPATER SHALL BE ADJUSTED TO CONFORM TO THE SWALE DIMENSIONS.



1. POSTS SPACED 10 FT. MAX., USE 2x1½" DIA. HEAVY DUTY GALVANIZED OR ALUMINUM POSTS. POSTS SHALL BE INSTALLED USING POSTHOLE DIG.
2. CHAIN LINK SHALL BE FABRICATED NO. 11½ GAUGE WIRE, MINE WITH 2-1/4 OPENINGS, NO. 11 GAUGE ALUMINUM COATED STEEL WIRE OR ALUMINUM WITH 2-1/4 OPENINGS, NO. 9 GAUGE GALVANIZED STEEL WIRE OR ALUMINUM WITH 2-1/4 OPENINGS, OR NO. 9 GAUGE VINYL COATED STEEL WIRE WITH 2-1/4 OPENINGS. ALL WIRE TO BE GALVANIZED HORIZONTALLY THROUGH FABRIC AT TOP & BOTTOM OF FENCE. USE FENCE OF ATTACHED WITH AND MADE OF 9" MAX CENTERS.
3. CHAIN LINK TO POST FASTENERS SPACED @ 14" MAX. USE TIE OF 9 GA. ALUMINUM WIRE OR NO. 9 GALVANIZED STEEL WIRE. FABRIC TO CHAIN LINK FASTENERS SPACED @ 24" MAX. ON CENTER.
4. FILTER FABRIC SHALL BE AS PLACED AT LEVEL GRADE. SLOW CHAIN OF THE SHAPED WIRE BE EXTENDED AT LEAST 8 FEET OF SLOPE AT 90 TO THE MAIN BARRIER ALIGNMENT.
5. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
6. THE LIFESPAN OF FILTER FABRIC FENCE SHALL NOT EXCEED 6 MONTHS UNDERGROUND OR EXPOSED SHALL BE REPLACED IMMEDIATELY WITH A MORE STURDY VARIETY OF FENCE.

SUPER-SILT FENCE (33" HIGH) DETAIL

NOT TO SCALE

SOILS LEGEND AND TABLE OF LIMITATIONS BASED ON NRCS WEB SOIL SURVEY FOR MONTGOMERY COUNTY, PENNSYLVANIA

SYMBOL	NAME	SLOPE	HYDRO GROUP	DEPTH TO WATER	DEPTH TO BEDROCK	LIMITATIONS FOR CONSTRUCTION	RESOLUTION OF LIMITATIONS
CfA	CHALFONT SILT LOAM	0-3%	D	12"	72"	VERY LIMITED: DEPTH TO SATURATION ZONE	HAVE BYPASS PUMP(S) & FILTER BAG(S) AVAILABLE SEE DETAIL
LaA	LAWRENCEVILLE SILT LOAM	0-3%	C	27"	60"	VERY LIMITED: DEPTH TO SATURATION ZONE	HAVE BYPASS PUMP(S) & FILTER BAG(S) AVAILABLE SEE DETAIL
PfB	PENN-LANSDALES COMPLEX	0-8%	B	> 79"	28"	VERY LIMITED: DEPTH TO HARD BEDROCK	RIPPING, ROCK-PLANNING, AND/OR BLASTING OF ROCK MAY BE NEEDED. COMPLY WITH ALL REGULATIONS.
UgB	URBAN LAND	0-8%	B	> 79"	> 79"	NOT LIMITED	NOT LIMITED
UuaB	URBAN LAND - UDORTHENTS	0-8%	C	> 79"	34"	NOT LIMITED	NOT LIMITED

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY COMPANIES, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS; THEREFORE ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF PA. ACT NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121.

GILMORE & ASSOCIATES INC. HAS OBTAINED A PA-ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

PENNSYLVANIA ONE CALL SYSTEM, INC.

SERIAL NO. 20151771253, 20151771130, 20151771153 & 20151771359

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

NON-MEMBERS MUST BE CONTACTED DIRECTLY

PA LAW REQUIRES THREE WORKING DAYS NOTICE BY UTILITIES BEFORE EXCAVATION BEGINS, EXCLUDING SATURDAY, SUNDAY AND HOLIDAYS

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC IS PROHIBITED.
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OWNER:
81 DRESHERTOWN, LP
200 INTNER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 29.411

TOTAL LOTS:

DATE: 2-10-17

SCALE: AS NOTED

REGISTERED PROFESSIONAL ENGINEER ERIC G. CLASE 65713-E

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

DETAILS - E&S

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CONTINUING INCORPORATED
SCOTT ADAM BARLEY, CERTIFIED PLANNER & PROFESSIONAL ENGINEER

JOB NO.: 2015-06014-02

SHEET NO.: 26 OF 52

DESIGNED BY: RDF | DRAWN BY: DCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION

GENERAL EROSION & SEDIMENT CONTROL NOTES:

1. THE CONTRACTOR SHALL ASSURE THAT AN APPROVED EROSION & SEDIMENT CONTROL PLAN IS BEING IMPLEMENTED AND MAINTAINED FOR ALL OFFSITE BORROW OR SPOIL SITES.
   1.1. ALL FILL MATERIALS TO BE USED ON THIS SITE SHALL BE CLEAN FILL UNLESS OTHERWISE APPROVED BY THE MUNICIPALITY AND THE CONSERVATION DISTRICT. THE CONTRACTOR SHALL BE RESPONSIBLE TO PERFORM DUE DILIGENCE IN DETERMINING THAT FILL IS CLEAN.
   1.2. INVESTIGATIVE TECHNIQUES SHALL INCLUDE, BUT ARE NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS.
2. FOR PROJECTS THAT REQUIRE SEWER PERMIT, LANDOWNER OR HIS DESIGNATED REPRESENTATIVE SHALL MAINTAIN, AND MAKE AVAILABLE TO THE MONTGOMERY COUNTY CONSERVATION DISTRICT, COMPLETE WRITTEN INSPECTION LOGS OF THE INSPECTION AND MAINTENANCE OF ALL EROSION-SEDIMENT CONTROL BMPS.
3. SEEDING, MULCHING AND FERTILIZING SHALL BE IN ACCORDANCE WITH THE SEEDING AND MULCHING SCHEDULE NOTED UNDER TEMPORARY AND PERMANENT STABILIZATION.
4. ANY SEDIMENT OR MUD THAT IS TRACKED ONTO THE PUBLIC ROADWAYS MUST BE CLEANED OFF IMMEDIATELY BY BROOMING AND/OR SHOVELING TO THE SATISFACTION OF THE TOWNSHIP AT THE EXPENSE OF THE DEVELOPER AND/OR RESPONSIBLE CONTRACTOR. USE OF A BACKHOE BUCKET TO SCRAPE ROADWAY SURFACE IS PROHIBITED. WHERE SAND AND/OR SEDIMENT IS CAUSING ICING OR HAZARDOUS CONDITIONS, ROADWAY SURFACE SHALL BE PRESSURE WASHED TO REMOVE THE CONDITION. ALL SEDIMENT LADEN WATER MUST BE FILTERED IN A MANNER SATISFACTORY TO THE MONTGOMERY COUNTY CONSERVATION DISTRICT BEFORE ENTERING STORM SEWERS AND/OR DRAINAGE CHANNELS
5. NO SEDIMENT OR SEDIMENT LADEN WATER MUST BE ALLOWED TO LEAVE THE SITE WITHOUT FIRST BEING FILTERED TO THE SATISFACTION OF MONTGOMERY COUNTY CONSERVATION DISTRICT. ANY PUMPED WATER MUST BE DIRECTED TO A FILTER BAG DEVICE DISCHARGING OVER NON-DISTURBED AREAS.
6. THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN ON THIS PLAN HAVE BEEN PREPARED IN ACCORDANCE WITH REQUIREMENTS OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT. GILMORE AND ASSOCIATES DOES NOT TAKE ANY RESPONSIBILITY IN OBSERVING AND CERTIFYING THE CONSTRUCTION OF THESE FACILITIES UNLESS REQUESTED SPECIFICALLY BY THE OWNER AND/OR CONTRACTOR. THEREFORE GILMORE AND ASSOCIATES DOES NOT ACCEPT ANY RESPONSIBILITY FOR DAMAGES AS A RESULT OF IMPROPER CONSTRUCTION AND/OR MAINTENANCE OF FACILITIES DURING CONSTRUCTION.
   6.1. THE APPLICANT AND HIS DESIGNATED REPRESENTATIVE ARE RESPONSIBLE FOR INSURING THAT A LICENSED PROFESSIONAL HAS OVERSIGHT RESPONSIBILITIES FOR THE DESIGN AND PROPER INSTALLATION OF STORMWATER BMPs IDENTIFIED IN THESE PLANS (IF ANY) PRIOR TO SUBMISSION OF A "NOTICE OF TERMINATION" FOR THE PROJECT. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE STORMWATER BMPs IDENTIFIED IN THE PLAN HAVE BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLAN.
   6.2. THE INSTALLATION SCHEDULE AND MAINTENANCE REQUIREMENTS FOR ANY AND ALL IDENTIFIED STORMWATER MANAGEMENT BMPs INCLUDED IN THESE PLANS MUST BE FOLLOWED. FAILURE TO COMPLY WITH PLAN SPECIFICATIONS IS A VIOLATION OF THE CLEAN STREAM LAW AND CLEAN WATER ACT.
7. ACCUMULATED SEDIMENTS REMOVED FROM ANY AND ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES. REPLACED SOILS SHALL BE SEEDED AND MULCHED IMMEDIATELY.
8. UPON COMPLETION OR ANY TEMPORARY CESSATION LONGER THAN 4 DAYS OF THE EARTH DISTURBANCE ACTIVITY, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL (E&S MANUAL), COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION NO. 363-2134-008, MARCH 2012, AS AMENDED AND UPDATED. EROSION AND SEDIMENT CONTROL BMPS SHALL BE IMPLEMENTED AND MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED AND POST BMPS ARE OPERATIONAL.
9. CONTRACTOR SHALL FOLLOW THE PROCEDURES OUTLINED BY THIS APPROVED EROSION & SEDIMENT CONTROL PLAN AND THE SEQUENCE OF CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE TOWNSHIP ENGINEER AND THE MONTGOMERY COUNTY CONSERVATION DISTRICT.

TYPICAL UTILITY TRENCHING NOTES:

1. LIMIT ADVANCED CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE DAY.
2. WORK CREWS AND EQUIPMENT FOR TRENCHING, PLACEMENT OF PIPE, PLUG CONSTRUCTION, AND BACKFILLING WILL BE SELF CONTAINED AND SEPARATE FROM WORK CREWS FOR CLEARING-GRUBBING AND SITE RESTORATION-FINALIZATION OPERATIONS.
3. PLACE SILTER FENCE OR COMPOST SOCK DOWN-SLOPE OF THE PROPOSED TRENCHING ACTIVITIES. PLACE EXCAVATED MATERIALS ON THE UP-SLOPE SIDE OF THE TRENCH.
4. TOPSOIL SHALL BE REMOVED AND STOCKPILED SEPARATELY FROM SUBSOIL. TOPSOIL SHALL BE REPLACED UPON FINAL GRADING FOR STABILIZATION.
5. LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
6. WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING BEFORE PIPE PLACEMENT AND/OR BACKFILLING BEGINS. WATER REMOVED FROM THE TRENCH SHALL BE PUMPED THROUGH A FILTRATION DEVICE.
7. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND STABILIZED IMMEDIATELY IN ACCORDANCE WITH "SEEDING & MULCHING SCHEDULE".
8. REMOVE FILTER FENCE AND OTHER ESC MEASURES AFTER AREA IS STABILIZED. ANY AREAS DISTURBED DURING THE REMOVAL OF ESC MEASURES SHALL BE RESTABILIZED IMMEDIATELY.

E&S CONTROL MEASURES:

WEEP PROTECTION — IS PROPOSED AT ALL PROPOSED STORM SEWER INLETS.

FILTER FENCES — ARE PROPOSED FOR THIS PROJECT TO PREVENT SEDIMENT LADEN STORMWATER RUNOFF FROM LEAVING THE VICINITY OF THE PROJECT.

SOIL STOCKPILES — ARE TO USED LINEARLY AT APPROXIMATE LOCATIONS & SIZES SHOWN ON PLANS. STOCKPILES ARE TO BE REVISED AS BEING THE DISTURBED AREAS BACK TO GRADE.

ROCK CONSTRUCTION ENTRANCES — ARE PROPOSED FOR THIS PROJECT TO HELP PREVENT MUD/DIRT AND DEBRIS FROM LEAVING THE SITE AREA.

MATERIAL RECYCLING/DISPOSAL REQUIREMENTS:

1. PROCEDURES WHICH ENSURE THAT THE PROPER MEASURES FOR THE RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THE PROJECT SITE WILL BE UNDERTAKEN IN ACCORDANCE WITH DEP'S SOLID WASTE MANAGEMENT REGULATIONS, AND/OR ANY ADDITIONAL LOCAL, STATE OR FEDERAL REGULATIONS. NO BUILDING MATERIALS (USED OR UNUSED) OR WASTE MATERIALS SHALL BE BURNED, BURIED, DUMPED OR DISCHARGED AT THE SITE.
2. THE OPERATOR SHALL REMOVE FROM THIS SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THIS SITE.
3. THE FOLLOWING MATERIALS ARE ANTICIPATED TO BE CONSTRUCTION WASTE: ASPHALT PAVING AND CONCRETE PAVING/SPOILS. SITE IS VACANT THEREFORE ALL OTHER WASTES ARE NATURAL: ROCK, VEGETATION, EARTH

THERMAL IMPACT CONSIDERATIONS:

POTENTIAL THERMAL IMPACTS OF STORMWATER RUNOFF FROM THIS SITE ARE MITIGATED THROUGH THE USE OF SEVERAL STORMWATER BEST MANAGEMENT PRACTICES WHICH PROMOTE INFILTRATION AND EVAPOTRANSPIRATION AS WELL AS INCREASE THE TIME OF CONCENTRATION GIVING THE RUNOFF MORE TIME TO REACH AMBIENT TEMPERATURE

SEQUENCE OF CONSTRUCTION:

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED, UNLESS NOTED OTHERWISE. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE. NOTE: CESSATION OF CONSTRUCTION ACTIVITIES FOR 4 DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION.

AT LEAST 7 DAYS PRIOR TO START OF WORK OR EARTH DISTURBANCE ACTIVITIES, A PRECONSTRUCTION MEETING SHALL BE HELD INCLUDING THE OWNER, SITE CONTRACTOR, TOWNSHIP ENGINEER, MONTGOMERY COUNTY CONSERVATION DISTRICT, AND A LICENSED PROFESSIONAL.

1. INSTALL ORANGE SAFETY FENCE ALONG PROPOSED LIMIT OF DISTURBANCE PRIOR TO DISTURBANCE ACTIVITIES.
2. INSTALL ROCK CONSTRUCTION ENTRANCES WHERE INDICATED ON PLAN
3. INSTALL INLET PROTECTION WHERE SHOWN PRIOR TO ANY EARTH DISTURBANCE.
4. INSTALL SUPER SILT FENCE PER PLAN.
   A. EXISTING VEGETATION SHALL BE CUT TO GROUND AS NECESSARY PRIOR TO INSTALLATION OF SUPER SILT FENCE TO INSURE CONTACT WITH EARTH. LOOSE COMPOST OR EARTHEN MATERIAL SHALL BE BLOWN OR PLACED INTO UPSTREAM SIDE TO MINIMIZE UNDERMINING.
5. INSTALL EROSION CONTROL BLANKETS PER PLAN
6. CLEAR AND GRUB PROPOSED ROADWAY AND DRAINAGE EASEMENTS.
7. INSTALL SANITARY SEWER IN A DOWNSTREAM TO UPSTREAM MANNER.
8. INSTALL STORM SEWER SYSTEM IN A DOWNSTREAM TO UPSTREAM MANNER. INLET PROTECTION SHALL BE INSTALLED AT STORM INLET AS THEY ARE COMPLETED.
9. COMPLETE REMAINING IMPROVEMENTS AS PER STANDARD CONSTRUCTION TECHNIQUES:
   A. DEMOLISH EXISTING IMPROVEMENTS AND CLEAR AND GRUB REMAINDER OF THE CONSTRUCTION AREA AS NOTED ON THE PLANS AND PER ACCEPTABLE CONSTRUCTION TECHNIQUES. DEMOLITION MAY PROCEED CONCURRENTLY WITH ROUGH GRADING OF ROADWAY
   B. ROUGH GRADE ROADWAY INSTALLING UTILITIES AS WORK PROGRESSES. IMMEDIATELY UPON REACHING SUBGRADE ELEVATION, ROADWAY SHALL RECEIVE STONE SUBBASE TO STABILIZE. INSTALL INLET PROTECTION IN ALL INLETS INSTALLED IN THIS STEP.
   C. ROUGH GRADE LOCATIONS OF ALL BUILDINGS.
   D. ALL E&S BMPs SHALL BE INSPECTED AND MAINTAINED BY CONTRACTOR AT THE END OF EACH WORK DAY.
   E. CONSTRUCTION OF BUILDINGS MAY NOT BEGIN UNTIL THE BASE COURSE HAS BEEN INSTALLED.
11. ONCE TRIBUTARY AREA IS STABILIZED, INSTALL AMENDED SOILS IN RAIN GARDENS ALONG WITH ALL RAIN GARDEN PLANTINGS.
12. FINAL GRADE RAIN GARDENS, INSTALL EROSION AND SEDIMENT CONTROL BLANKET ON SLOPES 3:1 OR GREATER, AND INSTALL PERMANENT SEEDING.
13. COMPLETE CONSTRUCTION OF ALL BUILDINGS, CONNECTING UTILITY LATERALS.
14. AS LAWN AREAS ARE BROUGHT TO GRADE, THEY SHALL BE PROVIDED WITH A MINIMUM OF 6" OF AMENDED SOIL AND SEEDED IMMEDIATELY ALL VEGETATED AREAS SHALL BE STABILIZED WITH VEGETATION AND MULCH AS SOON AS POSSIBLE. NOTE: NO MORE THAN 15,000 SF OF DISTURBED AREA TO REACH FINAL GRADE BEFORE INITIATING SEEDING AND MULCHING OPERATION
15. FINE GRADE SITE, SPREAD TOPSOIL AND STABILIZE IMMEDIATELY
16. AFTER THE SITE HAS BEEN STABILIZED WITH THE APPROVAL OF THE CONSERVATION DISTRICT, ALL TEMPORARY E&S CONTROLS SHALL BE REMOVED
17. ALL ACCUMULATED SEDIMENTS SHALL BE DISPOSED OF IN APPROVED UPLAND AREAS.
18. STABILIZATION SHALL BE CONSIDERED THE PLACEMENT OF BASE COURSE IN PAVED AREAS OR BY 70% OR MORE VEGETATION, UNIFORM COVERAGE, IN LAWN AREAS OR BY OTHER PERMANENT MEANS WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
19. AFTER COMPLETING ALL PUNCHLIST ITEMS TO THE SATISFACTION OF THE TOWNSHIP AND TOWNSHIP ENGINEER, INSTALL WEARING COURSE, STRIPING, AND SIGNAGE.

MONITORING, INSPECTION, AND REPORTING REQUIREMENTS:

ROUTINE INSPECTIONS

THE PERMITTEE / CO-PERMITTEE(S) MUST ENSURE THAT QUALIFIED SITE INSPECTIONS ARE CONDUCTED WEEKLY, AND WITHIN 24 HOURS AFTER EACH MEASURABLE RUNOFF EVENT THROUGHOUT THE DURATION OF THE EARTH DISTURBANCE ACTIVITIES. THE PERMITTEE OR CO-PERMITTEE(S) MUST BE IN VIOLATION OF THE TERMS AND CONDITIONS OF THE NOTICE OF TERMINATION BY THE DEPARTMENT, AND COMMENCE AUTHORIZED CONSERVATION DISTRICT. THE VISUAL SITE INSPECTIONS AND REPORTS SHALL BE COMPLETED IN A FORMAT PROVIDED BY THE DEPARTMENT, AND COMPLETED BY QUALIFIED PERSONNEL TRAINED AND EXPERIENCED IN THE INSTALLATION AND MAINTENANCE OF E&S BMPS AND POST-CONSTRUCTION STORMWATER BMPS. ALL BMPS AND POST-CONSTRUCTION STORMWATER BMPS SHALL BE OPERATED AND MAINTAINED TO EFFECTIVELY MINIMIZE POLLUTION TO THE WATERS OF THE COMMONWEALTH. A WRITTEN REPORT OF EACH INSPECTION SHALL BE KEPT AND INCLUDE AT A MINIMUM:

1. A SUMMARY OF SITE CONDITIONS, E&S BMP AND POST-CONSTRUCTION STORMWATER BMP IMPLEMENTATION AND MAINTENANCE, AND COMPLIANCE ACTIONS; AND
2. THE DATE, TIME, NAME, AND SIGNATURE OF THE PERSON CONDUCTING THE INSPECTION

NONCOMPLIANCE REPORTING

WHERE E&S, POST-CONSTRUCTION STORMWATER BMPS, OR POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR OPERATION AND MAINTENANCE ARE FOUND TO BE INADEQUATE OR INEFFECTIVE DURING AN INSPECTION, OR ANY OTHER TIME, THE PERMITTEE / CO-PERMITTEE(S) SHALL WITHIN 24 HOURS, CONTACT THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT BY PHONE OR PERSONAL CONTACT, FOLLOWED BY THE SUBMISSION OF A WRITTEN REPORT WITHIN 5 DAYS OF THE INITIAL CONTACT. NONCOMPLIANCE REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:

1. ANY CONDITION ON THE PROJECT SITE WHICH MAY ENDANGER PUBLIC HEALTH, SAFETY, OR THE ENVIRONMENT, OR INVOLVE INCIDENTS WHICH CAUSE OR THREATEN POLLUTION.
2. THE PERIOD OF NONCOMPLIANCE, INCLUDING EXACT DATES AND TIMES AND/OR ANTICIPATED TIME WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.
3. STEPS BEING TAKEN TO REMEDY, CLEANUP, AND PREVENT RECURRENCE OF THE NONCOMPLIANCE, AND
4. THE DATE OR SCHEDULE OF DATES, AND IDENTIFYING MEASURES FOR CORRECTING NONCOMPLIANCE CONDITIONS

REDUCTION, LOSS, OR FAILURE OF THE BMPS

UPON REDUCTION, LOSS, OR FAILURE OF THE BMPS, THE PERMITTEE / CO-PERMITTEE SHALL TAKE IMMEDIATE ACTION TO RESTORE THE BMPS OR PROVIDE AN ALTERNATIVE METHOD OF EQUIVALENT OR GREATER BMPS. SUCH RESTORED BMPS OR ALTERNATIVE TREATMENT SHALL BE AT LEAST AS EFFECTIVE AS THE ORIGINAL BMPS.

TERMINATION OF COVERAGE

NOTE: UPON FINAL STABILIZATION OF EARTH DISTURBANCE ACTIVITIES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT ARE AUTHORIZED BY THIS PERMIT AND WHEN BMPS DESCRIBED IN THE PCSM PLAN HAVE BEEN PROPERLY INSTALLED, THE PERMITTEE AND/OR CO-PERMITTEE OF THE FACILITY MUST SUBMIT A NOTICE OF TERMINATION (N.O.T.) FORM THAT IS SIGNED IN ACCORDANCE WITH PART B, SECTION I.C. SIGNATORY REQUIREMENTS. IF THIS PERMIT ALL LETTERS CERTIFYING DISCHARGE TERMINATION ARE TO BE SENT TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE N.O.T. MUST CONTAIN THE FOLLOWING INFORMATION: FACILITY NAME, ADDRESS, AND LOCATION, OPERATOR NAME AND ADDRESS, PERMIT NUMBER, IDENTIFICATION AND PROOF OF ACKNOWLEDGMENT FROM THE PERSON(S) WHO WILL BE RESPONSIBLE FOR OPERATION AND MAINTENANCE OF THE PCSM BMPS IN ACCORDANCE WITH THE APPROVED PCSM PLAN, AND THE REASON FOR PERMIT TERMINATION. UNTIL THE PERMITTEE HAS RECEIVED WRITTEN ACKNOWLEDGMENT OF THE N.O.T., THE PERMITTEE WILL REMAIN RESPONSIBLE FOR OPERATING AND MAINTAINING ALL E&S BMPS AND PCSM BMPS ON THE PROJECT SITE AND WILL BE RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE.

COMPLETION CERTIFICATE AND FINAL PLANS

WITHIN 30 DAYS AFTER THE COMPLETION OF EARTH DISTURBANCE ACTIVITIES AUTHORIZED BY THIS PERMIT, INCLUDING THE PERMANENT STABILIZATION OF THE SITE AND PROPER INSTALLATION OF PCSM BMPS IN ACCORDANCE WITH THE APPROVED PCSM PLAN AN UPON SUBMISSION OF THE N.O.T. BY BOTHER, THE PERMITTEE SHALL FILE WITH THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT A STATEMENT SIGNED BY A LICENSED PROFESSIONAL AND BY THE PERMITTEE CERTIFYING THAT WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS PERMIT AND THE APPROVED E&S AND PCSM PLANS.

MAINTENANCE OF FACILITIES:

1. SILT FENCE SHOULD BE INSPECTED AND MAINTAINED ON A DAILY BASIS.
2. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROLS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND NETTING MUST BE PERFORMED IMMEDIATELY. IF E&S CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS OR MODIFICATIONS OF INSTALLED MEASURES WILL BE REQUIRED.
3. SHOULD THE SILT PROTECTION FENCING BE DISTURBED AT ANY POINT, IT SHALL BE REPLACED IMMEDIATELY.
4. SEDIMENT MUST BE REMOVED FROM SILT PROTECTION FENCING BEFORE EACH RUNOFF EVENT
5. THE CONTRACTOR SHALL HAVE AVAILABLE WATER TRUCKS OR OTHER MEANS OF CONTROLLING EXCESSIVE DUST AND AIRBORNE DEBRIS.
6. ALL AREAS OF CONCENTRATED SURFACE DRAINAGE SHALL BE SEEDED AND MULCHED, AND PROTECTED WITH TEMPORARY TURF REINFORCEMENT MAT, NORTH AMERICAN GREEN S150 (OR EQUAL). IF AREAS ARE TO BE SODDED, TURF REINFORCEMENT IS NOT REQUIRED.
7. SEEDED AREAS THAT HAVE WASHED AWAY SHALL BE FILLED AND GRADED AS NECESSARY AND THEN RESEEDED. A BURLAP OR STRAW COVER WILL BE APPLIED TO RETAIN THE SEED UNTIL IT HAS A CHANCE TO ROOT PROPERLY.
8. THE ABOVE PROCEDURE SHALL BE REPEATED AFTER EACH STABLE STORM UNTIL NO MORE SIGNS OF EROSION ARE EVIDENT. AT MONTHLY INTERVALS THEREAFTER, INSPECTIONS AND NECESSARY CLEANING WILL BE DONE. TRASH THAT IS REMOVED FROM ANY OF THE CONTROL DEVICES SHALL BE DISPOSED OF AT AN APPROVED DISPOSAL AREA. "SILT TRAP" THAT HAS ACCUMULATED SEDIMENT SHALL BE REMOVED AND ADJUSTED TO DRY AND USED AS FILL WHENEVER NEEDED ON THE SITE.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

MONTGOMERY CO. CONS. DIST. STANDARD EROSION & SEDIMENT CONTROL NOTES:

1. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SIDE SLOPES MUST BE 2:1 OR FLATTER.
2. THE OPERATOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
3. UNTIL THE SITE ACHIEVES FINAL STABILIZATION, THE PERMITTEE AND COPERMITTEE SHALL ASSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, OPERATED, AND MAINTAINED PROPERLY AND COMPLETELY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL BEST MANAGEMENT PRACTICE FACILITIES AND SHALL INCLUDE COMPLETE, WRITTEN LOGS OF THOSE INSPECTIONS WHICH SHALL BE MADE AVAILABLE TO THE MONTGOMERY COUNTY CONSERVATION DISTRICT. ALL MAINTENANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, REGRADING, RESEEDING, AND REMULCHING SHALL BE PERFORMED IMMEDIATELY.
4. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
5. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE MONTGOMERY COUNTY CONSERVATION DISTRICT.
6. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE APPROPRIATE CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
7. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.
8. THE CONTRACTOR IS REQUIRED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART I, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.
9. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
10. ONLY LIMITED DISTURBANCE WILL BE PERMITTED TO PROVIDE ACCESS TO THE PROJECT SITE FOR GRADING AND ACQUIRING BORROW TO CONSTRUCT THE PROJECT. EROSION AND SEDIMENT CONTROL BMPS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS.
11. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.
12. THE PERMITTEE OR CO-PERMITTEE SHALL CONTACT THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT AT LEAST SEVEN DAYS BEFORE COMMENCING ANY EARTH DISTURBANCE ACTIVITIES TO DETERMINE IF A PRECONSTRUCTION CONFERENCE IS REQUIRED. THE PERMITTEE, CO-PERMITTEE, AND OTHERS UNDERTAKING THE EARTH DISTURBANCE ACTIVITY MUST ATTEND A PRECONSTRUCTION CONFERENCE WHEN REQUESTED BY THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE PERMITTEE OR CO-PERMITTEE MUST BRING A COPY OF THEIR NPDES PERMIT; A COPY OF THE STAMPED PLAN FROM THE CONSERVATION DISTRICT, AND ALL ASSOCIATED DEPARTMENT APPROVALS/PERMITS WHICH MUST BE AVAILABLE AT THE CONFERENCE UPON REQUEST. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR MARKING OF BURIED UTILITIES LOCATIONS.
13. UPON THE INSTALLATION OR STABILIZATION OF ALL PERMITTEE SEDIMENT CONTROL BMPS AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT.
14. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED, UNLESS NOTED OTHERWISE. CLEARING AND GRUBBING SHALL BE LIMITED TO THOSE ARE DESCRIBED IN EACH STAGE.
15. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE OR SHOULD A TEMPORARY CESSATION OF ACTIVITY OCCUR WHICH WILL LAST LONGER THAN 4 DAYS, THE OPERATOR SHALL STABILIZE ANY AREAS (STRUCTURE) IN THE AFFECTED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
16. THE PERMITTEE SHALL BE RESPONSIBLE TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
17. PERMITTEES AND CO-PERMITTEES ARE RESPONSIBLE FOR ENSURING THAT A LICENSED PROFESSIONAL HAS OVERSIGHT RESPONSIBILITIES FOR THE DESIGN AND PROPER INSTALLATION OF BMPS IDENTIFIED IN THE PCSM PLAN PRIOR TO THE SUBMISSION OF THE NOTICE OF TERMINATION FOR THIS PERMIT. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE BMPS IDENTIFIED IN THE PLAN HAVE BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLAN. THE INSTALLATION SCHEDULE OF PCSM BMPS AND MAINTENANCE REQUIREMENTS CONTAINED IN THE APPROVED PCSM PLANS MUST BE FOLLOWED. FAILURE TO COMPLY WITH THE INSTALLATION SCHEDULE IS A VIOLATION OF THIS PERMIT, THE CLEAN STREAMS LAW, AND THE CLEAN WATER ACT.

SEDIMENT BASINS

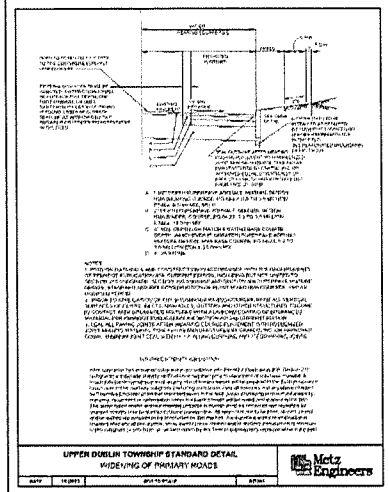
1. APPROVAL OF THIS USE OF SKIMMERS DOES NOT APPROVE USE OF ANY SKIMMERS IN VIOLATION OF ANY PATENT, PATENT RIGHTS, AND/OR PATENT LAWS.
2. BAFFLES MUST BE INSTALLED TO ALLOW BASIN MAINTENANCE AND CLEAN OUT.
3. UPON INSTALLATION OF THE TEMPORARY SEDIMENT BASIN RISER(S), AN INADEQUATE INSPECTION SHALL BE DONE BY A QUALIFIED SITE REPRESENTATIVE AND THE MANUFACTURER'S DIRECTIONS SHALL BE FOLLOWED TO ENSURE THAT THE RISER IS SEALED.
4. SEDIMENT BASINS MUST BE STRUCTURALLY SOUND AND PROTECTED FROM UNAUTHORIZED ACTS OF THIRD PARTIES.

OTHER BMP'S

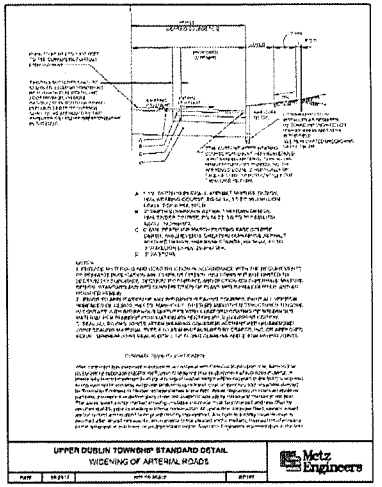
1. SEDIMENT MUST BE REMOVED FROM STORM WATER INLET PROTECTION AFTER EACH RUNOFF EVENT.
2. AT STREAM CROSSINGS, NO BUFFER AREAS SHOULD BE MAINTAINED ON BUFFERS, CLEARING, SOD DISTURBANCES, EXCAVATION, AND EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITIES SUCH AS STACKING LOGS, BURNING CLEARED BRUSH, DISCHARGING RAINWATER FROM TRENCHES, WELDING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE ACCOMPLISHED OUTSIDE OF BUFFERS.

CLEAN FILL REQUIREMENTS

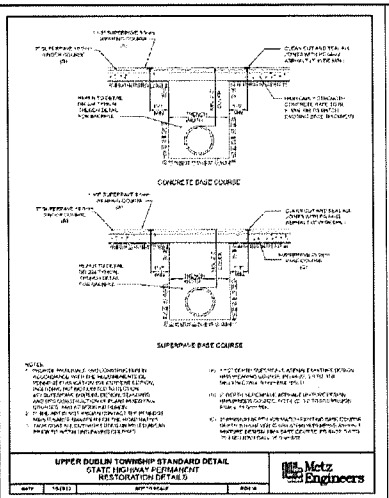
1. THE OPERATOR MUST USE ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT ANY NECESSARY FILL MATERIAL ASSOCIATED WITH THIS PROJECT QUALIFIES AS CLEAN FILL. ALL FILL MATERIAL MUST BE USED IN ACCORDANCE WITH PADEP'S POLICY "M



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
WIDENING OF PRIMARY ROADS
Metz Engineers



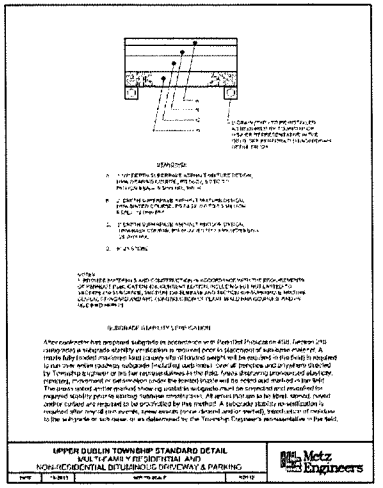
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
WIDENING OF ARTERIAL ROADS
Metz Engineers



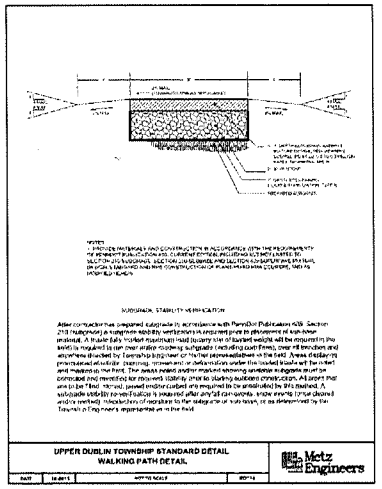
CONCRETE BASE COURSE

SUPERPAVE BASE COURSE

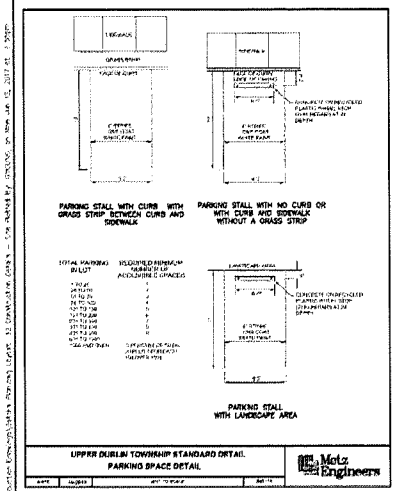
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
STATIC HIGHWAY PERMANENT
RESTORATION DETAILS
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
MULTI-FAMILY RESIDENTIAL AND
NON-RESIDENTIAL BITUMINOUS DRIVEWAY & PARKING
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
WALKING PATH DETAIL
Metz Engineers

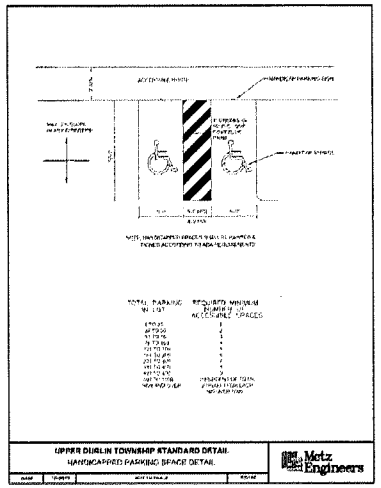


PARKING STALL WITH CURB WITH GRASS STRIP BETWEEN CURB AND SIDEWALK

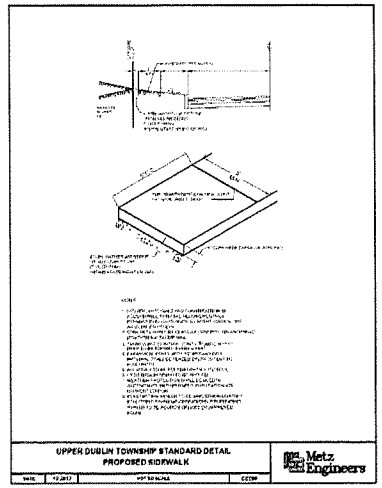
PARKING STALL WITH NO CURB OR WITH CURB AND SIDEWALK WITHOUT A GRASS STRIP

PARKING STALL WITH LANDSCAPE AREA

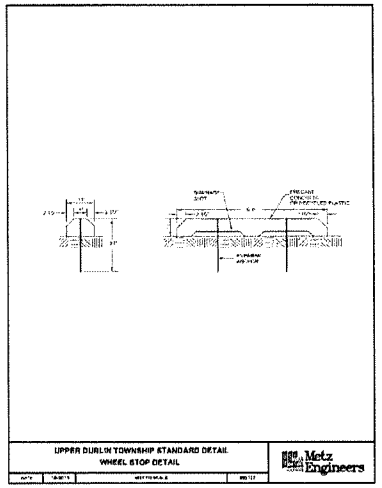
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
PARKING SPACE DETAIL
Metz Engineers



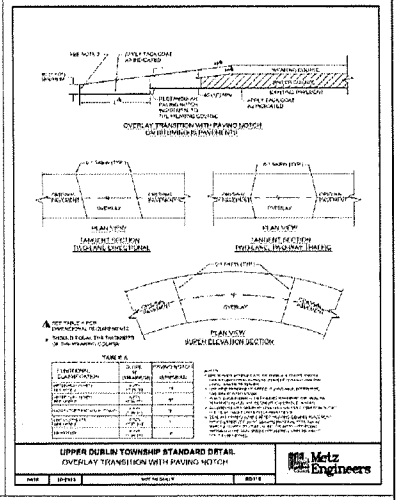
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
HANDICAPPED PARKING SPACE DETAIL
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
PROPOSED SIDEWALK
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
WHEEL STOP DETAIL
Metz Engineers



OVERLAY TRANSITION WITH PAVING NOTCH
ON UNBINDER PAVEMENTS

PLAN VIEW
TANGENT SECTION
INVOLVING CROSS FLOW

PLAN VIEW
TANGENT SECTION
INVOLVING LONGITUDINAL THRUST

PLAN VIEW
SUPER ELEVATION SECTION

UPPER DUBLIN TOWNSHIP STANDARD DETAIL
OVERLAY TRANSITION WITH PAVING NOTCH
Metz Engineers

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OWNER:
DT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.:
XX

TAX MAP PARCEL NO.:
54-00-05242-00-5

TOTAL AREA: 23.411
TOTAL LOTS: 1

DATE: 2-10-17
SCALE: AS NOTED

REVISIONS

DESCRIPTION	DATE	BY

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – SITE
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC S. CLASE
ENGINEER
45713-E

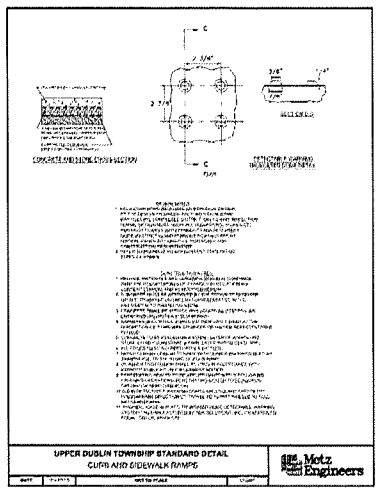
DATE 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 (215) 345-4330 FAX (215) 345-8606 www.gilmore-assoc.com

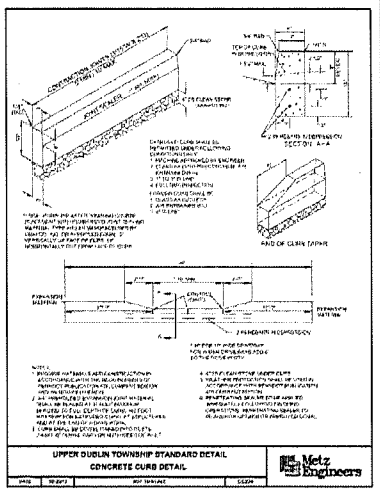
JOB NO.: 2015-06014-02
SHEET NO.: 28 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

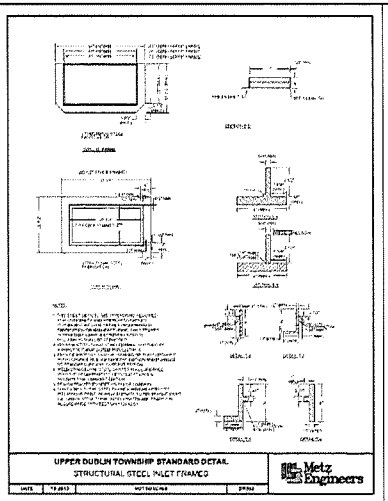
NOT APPROVED FOR CONSTRUCTION



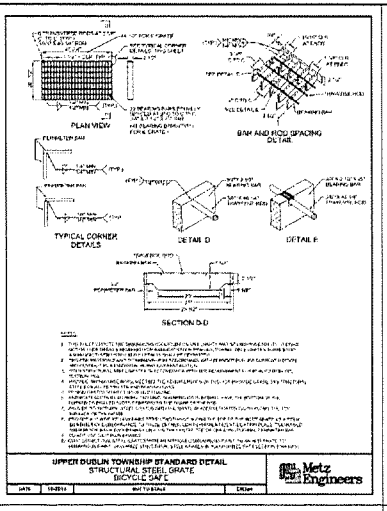
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
CURB AND SIDEWALK RAMPS
Metz Engineers



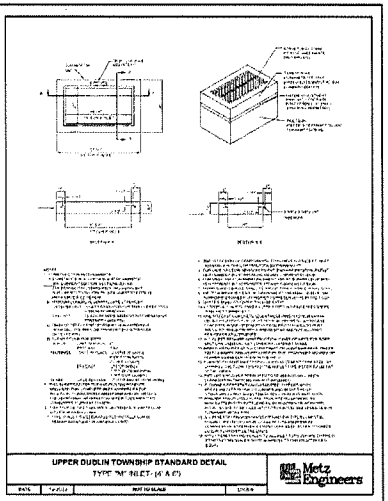
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
CONCRETE CURB DETAIL
Metz Engineers



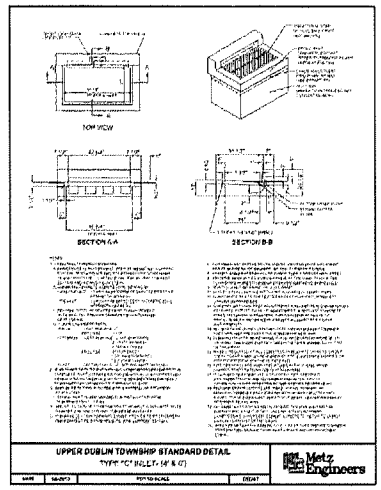
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
STRUCTURAL STEEL INLET FRAMES
Metz Engineers



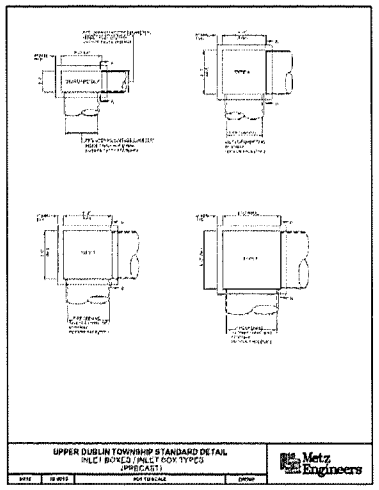
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
STRUCTURAL STEEL GRATE
BICYCLE SAFE
Metz Engineers



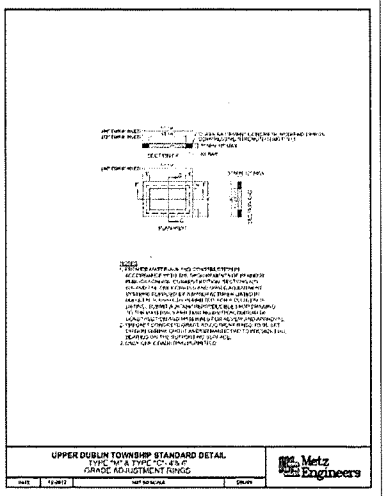
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPE "M" INLET - (4' & 6')
Metz Engineers



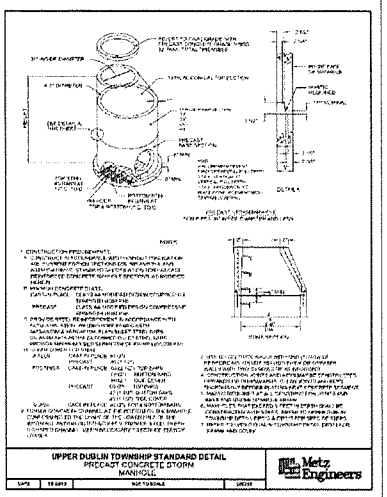
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPE "C" INLET - (4' & 6')
Metz Engineers



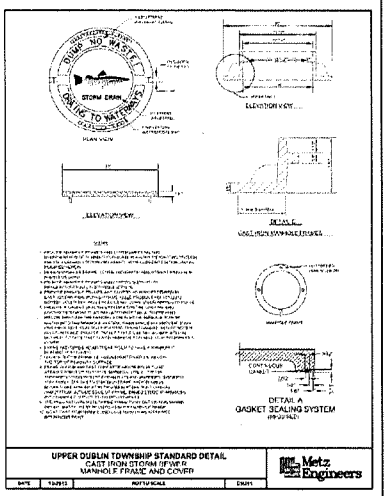
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
INLET BOXES / INLET BOX TOPPERS
(PRECAST)
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPE "M" & TYPE "C" - 45.0"
GRADE ADJUSTMENT RINGS
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
PRECAST CONCRETE STORM
MANHOLE
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
CAST IRON STORM INLET &
MANHOLE FRAME AND COVER
Metz Engineers

OWNER:	REV	DESCRIPTION	DATE	BY
ST CROSSHORTOWN, LP 200 WITMER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 938-7300				
MUNICIPAL FILE NO.:	TAX MAP PARCEL NO.:			
XX	54-00-05242-00-5			
	TOTAL AREA:	TOTAL LOTS:		
	23.411	1		
	DATE:	SCALE:		
	3-10-17	AS NOTED		

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – SITE

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC S. CLASE
ENGINEER
55713-E

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.:	SHEET NO.:
2015-06014-02	28 OF 52

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RDF	DCY	ESC

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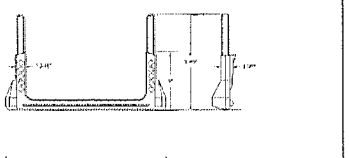
NOT APPROVED FOR CONSTRUCTION



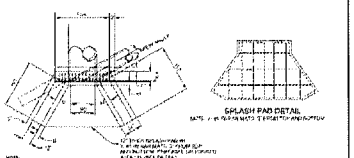
COPOLYMER POLYPROPYLENE MANHOLE STEP (ASTM C-478)

PLASTIC

STEEL REINFORCING BAR

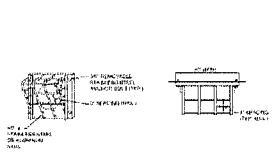
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
COPOLYMER POLYPROPYLENE
MANHOLE STEP

Metz Engineers



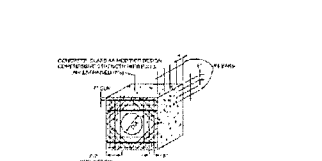
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPE D W ENDWALL
3:1 SLOPE

Metz Engineers



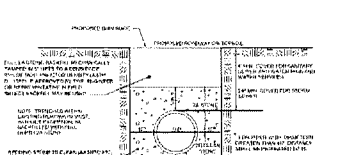
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
PERMANENT TRASH RACK DETAIL

Metz Engineers



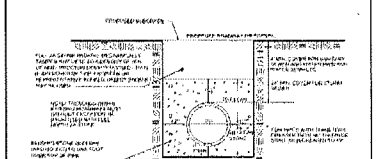
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
REINFORCED PRECAST
CONCRETE ANTI-SEEP COLLAR

Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPICAL TRENCH DETAIL

Metz Engineers

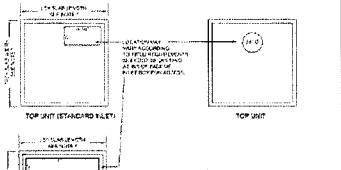


UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPICAL TRENCH DETAIL CIRCULAR
H.D.P.E. STORM SEWER

Metz Engineers

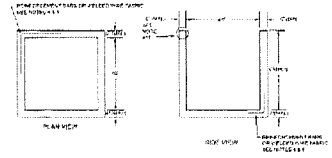
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
PERFORATED UNDER-DRAIN

Metz Engineers



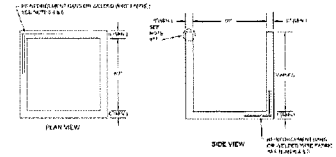
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TOP SLAB
STANDARD AND 8' INLET AND MANHOLE OPENING

Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPE 4 (4'X4') INLET BOX

Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPE 5 (5'X5') INLET BOX

Metz Engineers

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OWNER:
DT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 23.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: AS NOTED

REVISIONS

REV	DESCRIPTION	DATE	BY

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – SITE

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED
PROFESSIONAL
ERIC S. CLASE
ENGINEER
45713-E

DATE 6-12-17

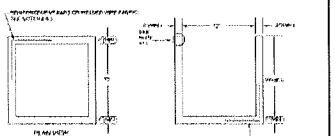
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-08014-02

SHEET NO.: 29 OF 52

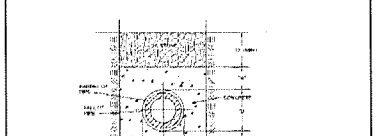
DESIGNED BY: RDF | DRAWN BY: DCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION

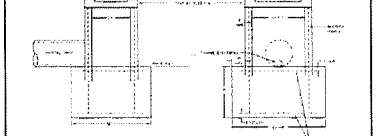


UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPE C (6X6) INLET BOX
Metz Engineers

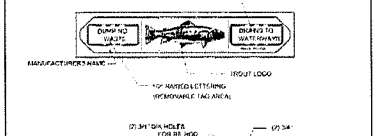
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
SAFETY GRATE DETAIL
Metz Engineers



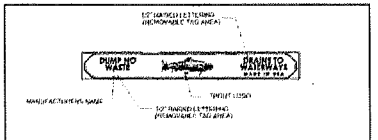
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TYPICAL CONCRETE ENCASEMENT DETAIL
Metz Engineers



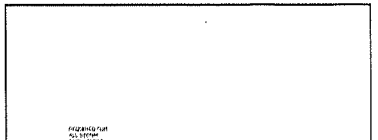
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
PRECAST OUTLET STRUCTURE
Metz Engineers



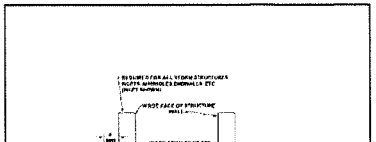
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TROUT LOGO PLATE
(FOR TYPE C, A AND S SPECIAL INLETS)
Metz Engineers



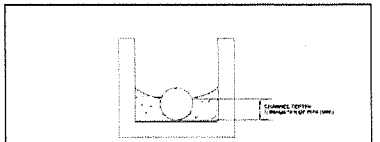
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
TROUT LOGO PLATE
(FOR TYPE 'M' INLETS)
Metz Engineers



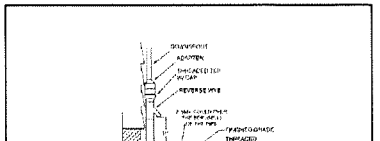
UPPER DUBLIN TOWNSHIP STANDARD DETAIL
MINIMUM PIPE LENGTH FOR STORM TIE IN TO STRUCTURES
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
REALIGN OF PENETRATION/OPENINGS
AROUND PIPE(S)
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
INLET CHANNELS
Metz Engineers



UPPER DUBLIN TOWNSHIP STANDARD DETAIL
DOWNSPOUT AND ROOF DRAIN DETAIL
Metz Engineers

OWNER: BT CRESHERTOWN, LP 200 MITNER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 938-7500	REV / DESCRIPTION / DATE / BY
MUNICIPAL FILE NO.: XX	TAX MAP PARCEL NO.: 54-00-05242-00-5
	TOTAL AREA: 29.411 / TOTAL LOTS: 1
	DATE: 2-10-17 / SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – SITE

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED
PROFESSIONAL
ERIC S. CLASE
ENGINEER
45713-E

DATE 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 | (215) 345-4330 | www.gilmore-assoc.com

JOB NO.: 2015-06014-02
SHEET NO.: 30 OF 52

DESIGNED BY: RDF | DRAWN BY: GCV | CHECKED BY: ESC

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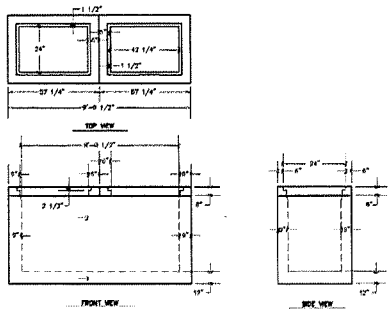
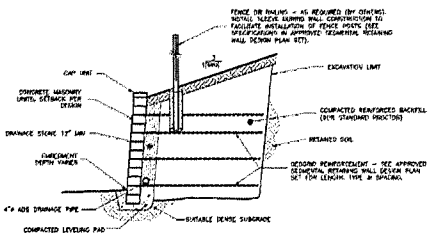
NOT APPROVED FOR CONSTRUCTION



DOUBLE INLET DETAIL
NOT TO SCALE



NOTE:
THE CONTRACTOR SHALL SUBMIT RETAINING WALL DESIGN PLANS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, FOR APPROVAL PRIOR TO CONSTRUCTION OF ANY RETAINING WALLS.

TYPICAL SEGMENTAL RETAINING WALL SECTION IS PROVIDED TO SHOW VARIOUS CONSTRUCTION ELEMENTS ASSOCIATED WITH THE RETAINING WALLS.

WALL CONSTRUCTION MUST ALSO UTILIZE THE GRADES, DIMENSIONS AND COMPONENTS SHOWN ON THE WALL PROFILES INCLUDED IN THE APPROVED SEGMENTAL RETAINING WALL DESIGN PLAN SET.

TYPICAL SEGMENTAL RETAINING WALL CROSS-SECTION
NOT TO SCALE

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED.
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OWNER:
DT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.:
XX

REV	DESCRIPTION	DATE	BY

TAX MAP PARCEL NO.:
54-00-05242-00-5

TOTAL AREA: 23.411
TOTAL LOTS: 1

DATE: 2-10-17
SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS - SITE

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC S. CLASE
ENGINEER
65713-E

DATE: 6-12-17

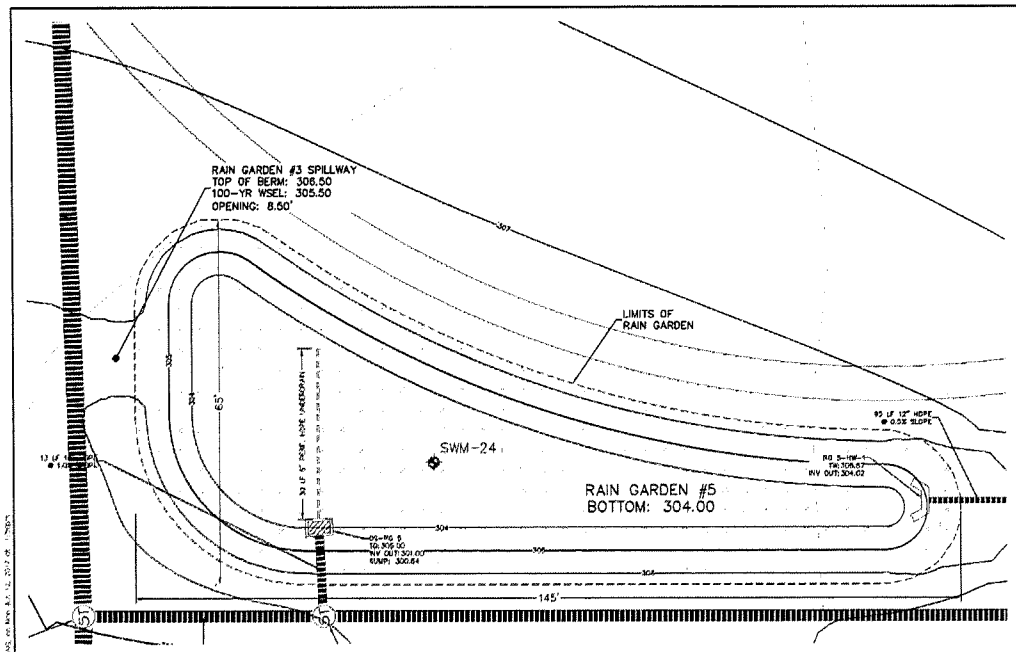
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02

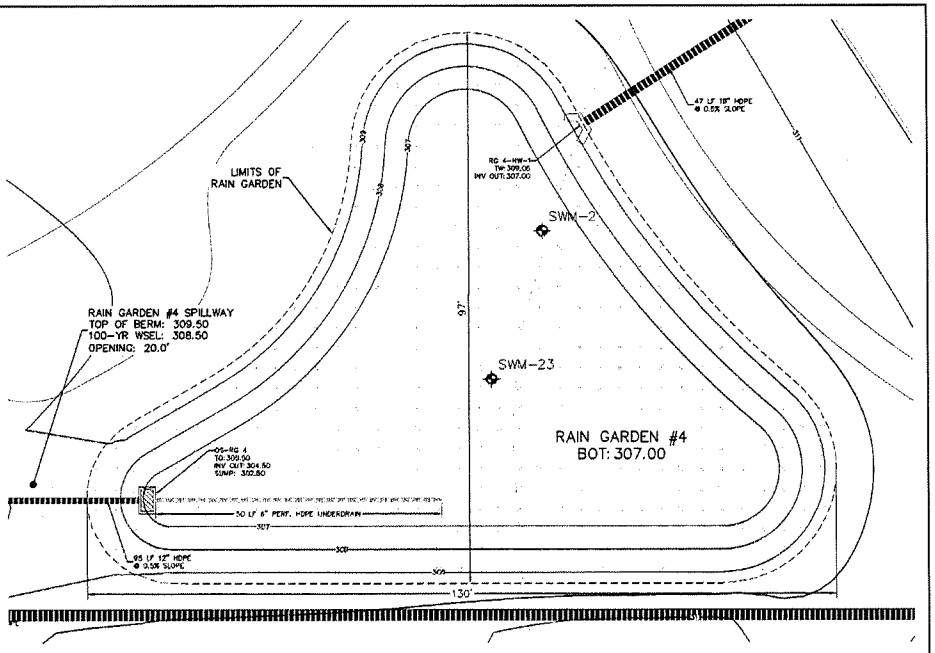
SHEET NO.: 31 OF 52

DESIGNED BY: ROF | DRAWN BY: DCY | CHECKED BY: ESC

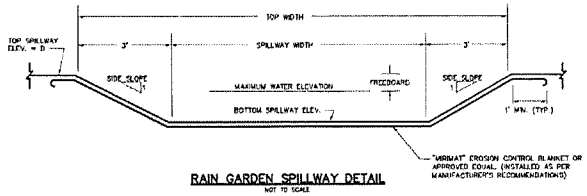
NOT APPROVED FOR CONSTRUCTION



RAIN GARDEN 5 DETAIL
1" = 10'

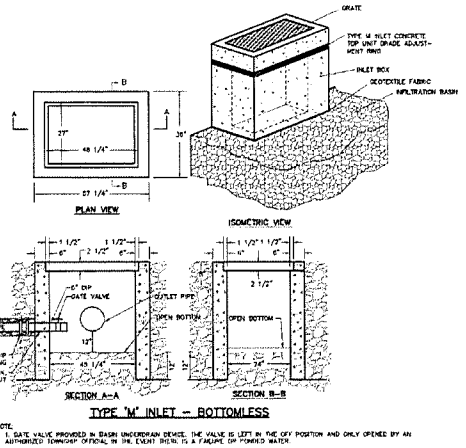


RAIN GARDEN 4 DETAIL
1" = 10'



RAIN GARDEN SPILLWAY DETAIL
NOT TO SCALE

BASIN	100-YR DWE	TOP OF BERM ELEVATION	EMER. SPILLWAY ELEVATION	EMER. SPILLWAY WIDTH (FT.)	TOP WIDTH (FT.)	100-YR Q(IN) (CFS)	H (FT.)	MAX WATER ELEVATION	FREEBOARD (FT.)
RG-4	308.50	309.50	309.00	20.00	25.00	8.29	0.27	309.27	0.23
RG-5	305.50	306.50	305.50	8.50	14.50	10.08	0.69	306.19	0.31



TYPE 'M' INLET - BOTTOMLESS

NOTE:
1. GATE VALVE PROVIDED IN BASIN UNDERDRAIN DEVICE. THE VALVE IS LEFT IN THE OPEN POSITION AND ONLY OPENED BY AN AUTHORIZED TOWNSHIP OFFICIAL IN THE EVENT THERE IS A FAILURE OF PONDED WATER.

NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN LINER 3' BELOW SPILLWAY ON INSIDE OF BASIN BY ANCHORING THE BLANKET IN A 12" DEEP BY 8" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW OVER THE SPILLWAY AND TO THE TOE OF THE EMBANKMENT. PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES, 4" APART, TO SECURE BLANKETS.
4. STAPLE LINING PER MANUFACTURER'S RECOMMENDED STAPLE PATTERN OVER ENTIRE WIDTH/LENGTH OF THE SPILLWAY.
5. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 12" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. HEAVY EQUIPMENT SHALL NOT CROSS OVER SPILLWAY WITHOUT PRECAUTIONS TAKEN TO PROTECT EROSION CONTROL LINING.
7. DISPLACED LINER WITHIN THE SPILLWAY AND/OR ON THE EMBANKMENTS SHALL BE REPLACED IMMEDIATELY.
8. RIPRAP AT TOE OF EMBANKMENT SHALL BE EXTENDED A SUFFICIENT LENGTH IN BOTH DIRECTIONS TO PREVENT SCOUR.
9. THE DOWNSTREAM SLOPE OF THE SPILLWAY SHALL, AS A MINIMUM, EXTEND TO THE TOE OF THE BERM EMBANKMENT.

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REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
DT DRESHERTOWN, LP
200 NYMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411 AC

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS - PCSM

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ERIC S. CLASE ENGINEER 55713-E

DATE: 6-12-17

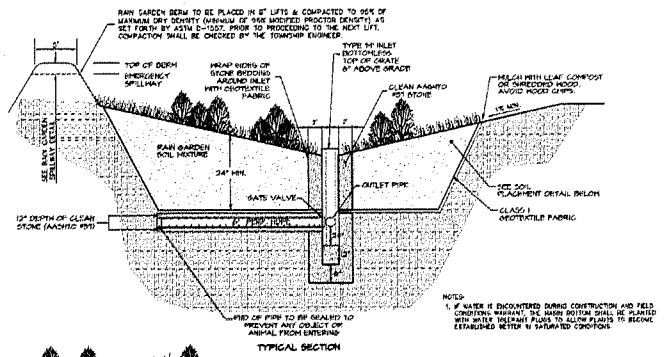
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CONSHOHOCKEN, PA

JOB NO.: 2015-06014-02

SHEET NO.: 33 OF 52

DESIGNED BY: RBF | DRAWN BY: GCY | CHECKED BY: ESC

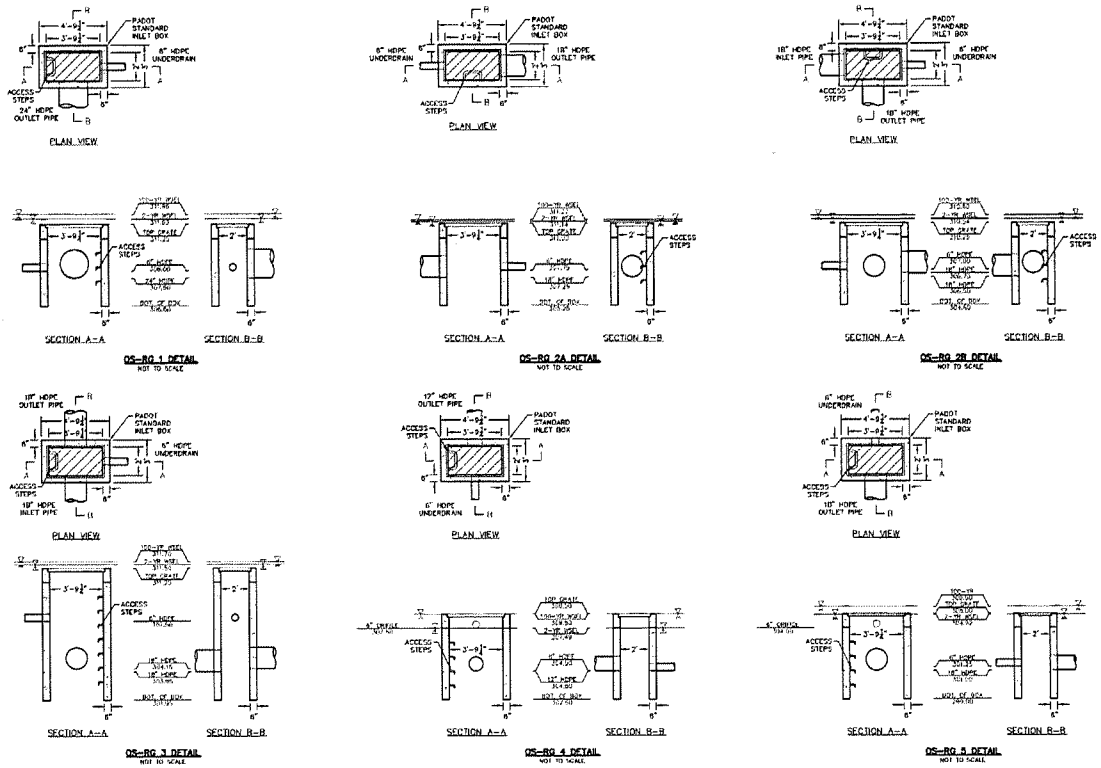
NOT APPROVED FOR CONSTRUCTION

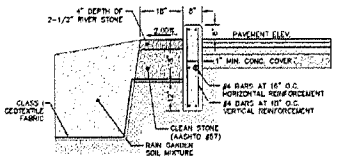


RAIN GARDEN / BIORETENTION DETAIL

NOT TO SCALE

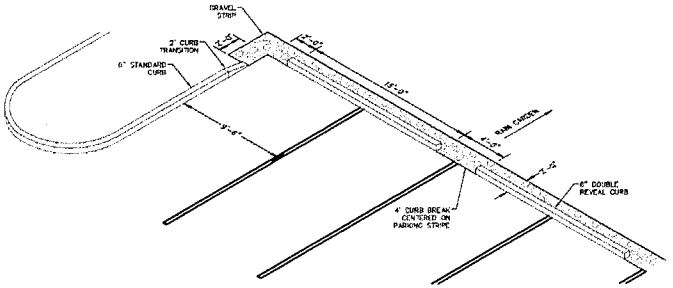
RAINGARDEN	TOP ELEV.	BOTTOM ELEV.	OUTLET PIPE INV.	LENGTH	SLOPE	DIA.	100 YR. ELEV.	TW	INLET ID. #
1	312.04	310.75	307.00	6'	0.57%	24"	311.41	311.25	OS-RG 1
2A	313.15	310.50	307.25	52'	0.48%	18"	311.21	311.00	OS-RG 2A
2B	312.59	309.75	306.50	15'	0.66%	18"	310.80	310.25	OS-RG 2B
3	312.04	310.75	309.45	21'	0.60%	18"	311.10	311.25	OS-RG 3
4	309.50	307.00	304.50	48'	0.50%	12"	308.86	309.50	OS-RG 4
5	309.50	304.00	301.00	73'	1.00%	18"	309.04	309.00	OS-RG 5





DOUBLE REVEAL CURB DETAIL

SCALE: 1" = 2'-0"



CURB BREAK DETAIL

NOT TO SCALE

NO.	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
BT ORCHESTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 930-7300

MUNICIPAL FILE NO.:
XX

TAX MAP PARCEL NO.: 54-00-05240-00-5

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – PCSM

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

REGISTERED PROFESSIONAL ENGINEER
ERIC S. CLASK
ENGINEER
55713-E

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02

SHEET NO.: 34 OF 52

DESIGNED BY: RBF | DRAWN BY: DCY | CHECKED BY: ESC

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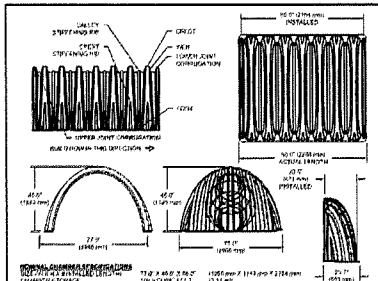
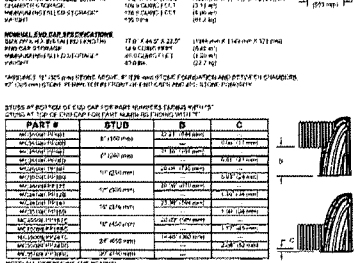
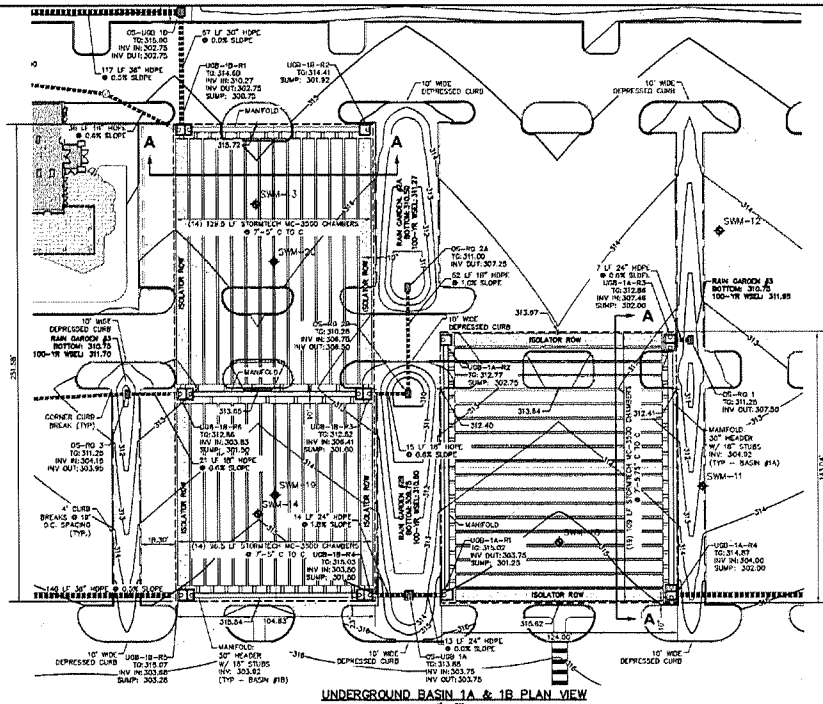
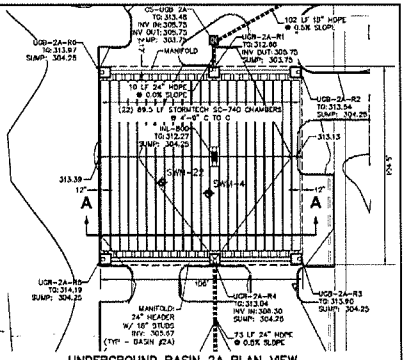
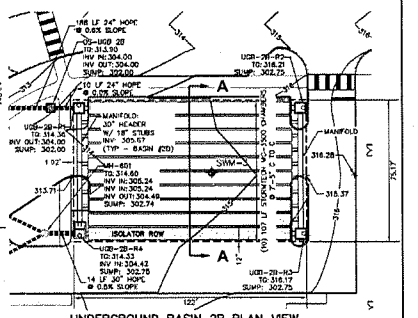
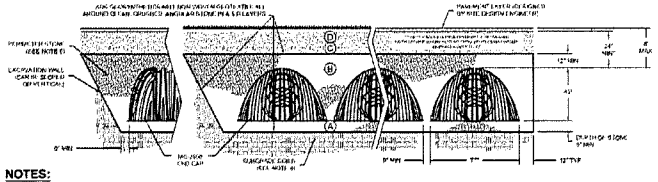


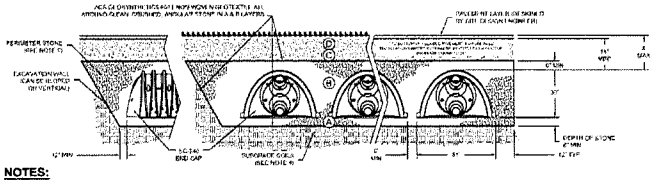


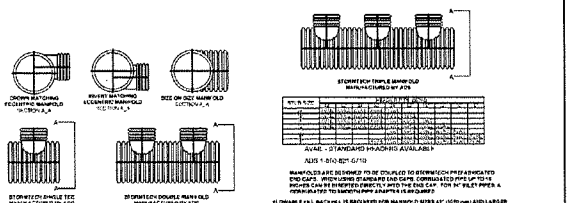












STORMTECH MC-3500 TECHNICAL SPECIFICATIONS

SCALE N.T.S.

NOTES:

1. THE INSTALLATION OF STORMTECH CHAMBERS SHALL BE IN ACCORDANCE WITH THE LATEST STORMTECH INSTALLATION INSTRUCTIONS.
2. THE CONTRACTOR IS ADVISED TO REVIEW AND UNDERSTAND THE INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION. CALL 1-888-892-2694 OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF THE LATEST STORMTECH INSTALLATION INSTRUCTIONS.

STORMTECH SC-740 TECHNICAL SPECIFICATIONS

SCALE N.T.S.

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER D STARTS FROM THE TOP OF THE C LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE D LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. TYPICAL INSTALLATIONS MAY HAVE SLIGHTLY MORE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS
C	INITIAL FILL: FILL MATERIAL FOR LAYER C STARTS FROM THE TOP OF THE EMBEDMENT STONE (B) TO THE BOTTOM OF LAYER D (OR AROUND THE TOP OF THE CHAMBER IF NONE THAT PAVEMENT SUBBASE MAY BE A PART OF THE C LAYER	GRANULAR WELL GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER	AASHTO M145: A-1, A-2-4, A-3 OR AASHTO M43: 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. POWER VIBRATORY COMPACTION EQUIPMENT IS RECOMMENDED. PROOF ROLL WITH HEAVY EQUIPMENT. NOT TO EXCEED 12" IN UNCONSOLIDATED LIFTS
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE C LAYER ABOVE	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43: 3, 4	NO COMPACTION REQUIRED
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBERS	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43: 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE

PLEASE NOTE:
1. THE LISTED (AASHTO) DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE "CLEAN, CRUSHED, ANGULAR NO. 4 AASHTO M43 STONE."
2. REFER TO EITHER THE STORMTECH MC-3500 OR MC-4500 CONSTRUCTION GUIDE FOR ADDITIONAL DETAILS AND NOTES REGARDING PLACEMENT OF STONE AND FILL MATERIALS.
3. THE USE OF GEOTEXTILE MATERIALS WITH WOVEN SLIT FILMS (COMMONLY KNOWN AS GEOTEXTILE FABRICS) SHOULD BE AVOIDED.
4. THE USE OF GEOTEXTILE MATERIALS OVER FINE GRAINED SOILS, OR IN SITUATIONS WHERE FINE GRAINED SOILS MAY MIGRATE INTO CLEAN STONE LAYERS SHOULD BE EVALUATED BY THE SITE DESIGN ENGINEER.
5. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

NOTES:

1. MC-3500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL" MATERIALS, TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PLUMBING IS TO BE INSPECTED AND CLEANED PRIOR TO THE PLACEMENT OF STONE.
6. THE USE OF GEOTEXTILE MATERIALS OVER FINE GRAINED SOILS OR IN SITUATIONS WHERE FINE GRAINED SOILS MAY MIGRATE INTO CLEAN STONE LAYERS SHOULD BE EVALUATED BY THE SITE DESIGN ENGINEER.
7. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

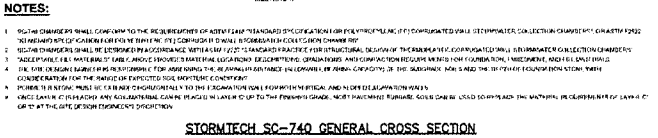
STORMTECH MC-3500 GENERAL CROSS SECTION

SCALE N.T.S.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER D STARTS FROM THE TOP OF THE C LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE D LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. TYPICAL INSTALLATIONS MAY HAVE SLIGHTLY MORE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS
C	INITIAL FILL: FILL MATERIAL FOR LAYER C STARTS FROM THE TOP OF THE EMBEDMENT STONE (B) TO THE BOTTOM OF LAYER D (OR AROUND THE TOP OF THE CHAMBER IF NONE THAT PAVEMENT SUBBASE MAY BE A PART OF THE C LAYER	GRANULAR WELL GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER	AASHTO M145: A-1, A-2-4, A-3 OR AASHTO M43: 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. POWER VIBRATORY COMPACTION EQUIPMENT IS RECOMMENDED. PROOF ROLL WITH HEAVY EQUIPMENT. NOT TO EXCEED 12" IN UNCONSOLIDATED LIFTS
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE C LAYER ABOVE	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43: 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBERS	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43: 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. (1)

PLEASE NOTE:
1. THE USE OF AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE "CLEAN, CRUSHED, ANGULAR NO. 4 AASHTO M43 STONE."
2. REFER TO EITHER THE STORMTECH MC-3500 OR MC-4500 CONSTRUCTION GUIDE FOR ADDITIONAL DETAILS AND NOTES REGARDING PLACEMENT OF STONE AND FILL MATERIALS.
3. THE USE OF GEOTEXTILE MATERIALS WITH WOVEN SLIT FILMS (COMMONLY KNOWN AS GEOTEXTILE FABRICS) SHOULD BE AVOIDED.
4. THE USE OF GEOTEXTILE MATERIALS OVER FINE GRAINED SOILS, OR IN SITUATIONS WHERE FINE GRAINED SOILS MAY MIGRATE INTO CLEAN STONE LAYERS SHOULD BE EVALUATED BY THE SITE DESIGN ENGINEER.
5. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
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5. PLUMBING IS TO BE INSPECTED AND CLEANED PRIOR TO THE PLACEMENT OF STONE.
6. ONCE LAYER C IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER D UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER C OR D AT THE SITE DESIGN ENGINEER'S DISCRETION.

STORMTECH SC-740 GENERAL CROSS SECTION

SCALE N.T.S.

UNDERGROUND BASIN 1A & 1B PLAN VIEW

1" = 30'

UNDERGROUND BASIN 2A PLAN VIEW

1" = 30'

UNDERGROUND BASIN 2B PLAN VIEW

1" = 30'

MANIFOLD DETAIL

SCALE N.T.S.

2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF
REV	DESCRIPTION	DATE	BY

OWNER:
DT DIECHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 930-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 34-00-05242-00-5

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – PCSM

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC S. CLASE
ENGINEER
55713-E

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS
SCOTT PLAZA 1, SUITE 200, INDUSTRIAL HIGHWAY & PROVIDENCE ROAD, SOUTHAMPTON, PA 18966 (215) 396-8480 www.gilmore-assoc.com

JOB NO.: 2015-06014-02

SHEET NO.: 35 OF 52

DESIGNED BY: RBF | DRAWN BY: DCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED.
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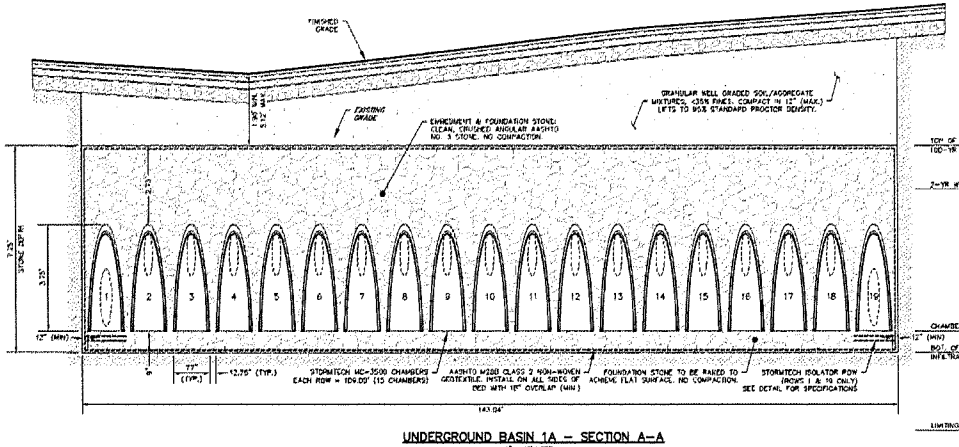
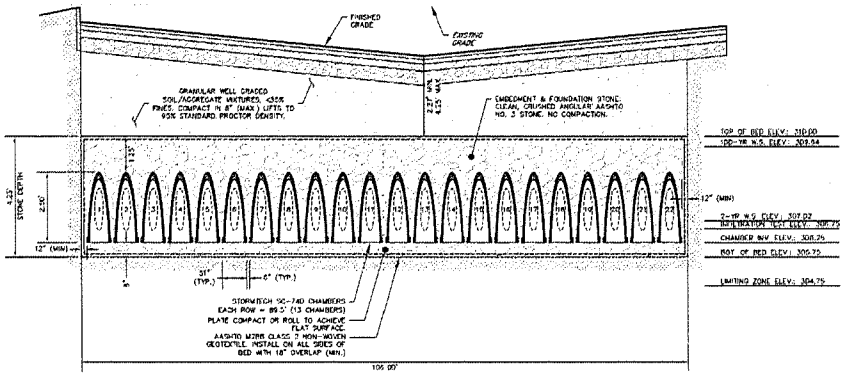


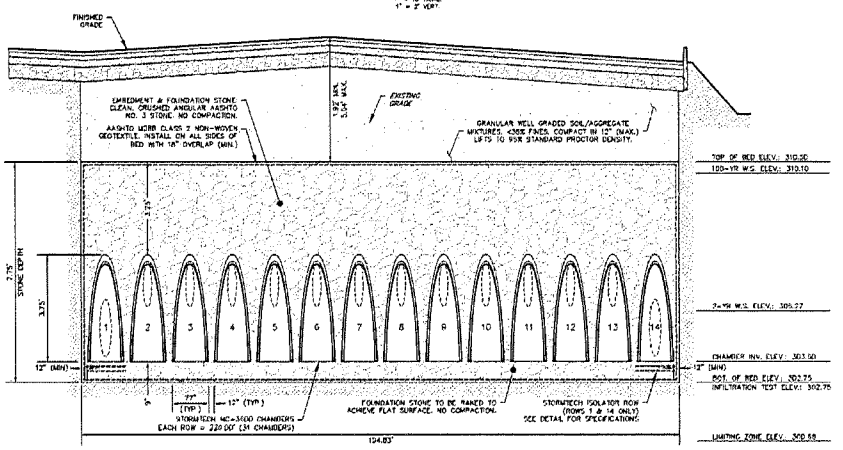
UNDERGROUND BASIN 1A – SECTION A–A

1" = 10' HORZ.
1" = 3' VERT.



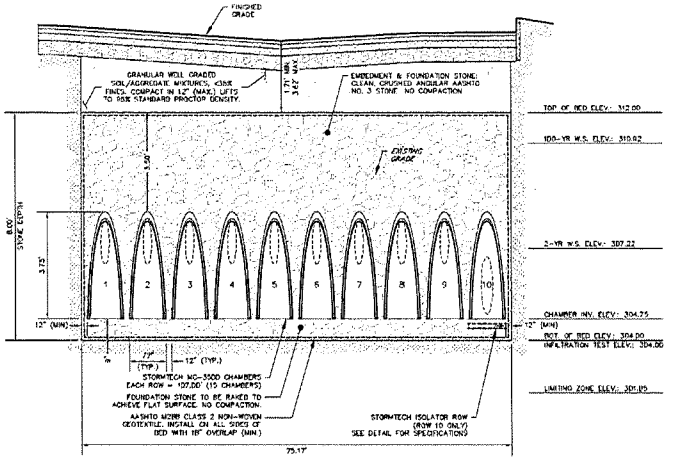
UNDERGROUND BASIN 2A – SECTION A–A

1" = 10' HORZ.
1" = 3' VERT.



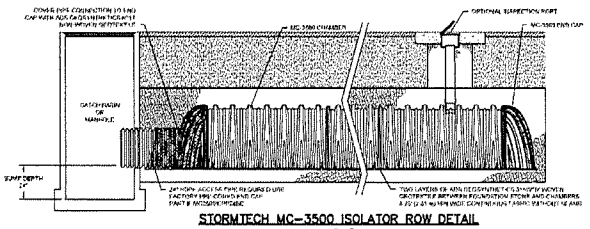
UNDERGROUND BASIN 1B – SECTION A–A

1" = 10' HORZ.
1" = 3' VERT.



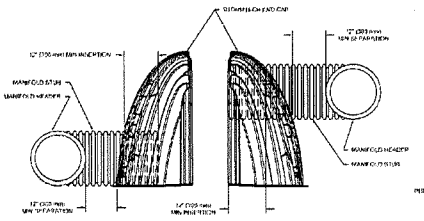
UNDERGROUND BASIN 2B – SECTION A–A

1" = 10' HORZ.
1" = 3' VERT.



STORMTECH MC-3500 ISOLATOR ROW DETAIL

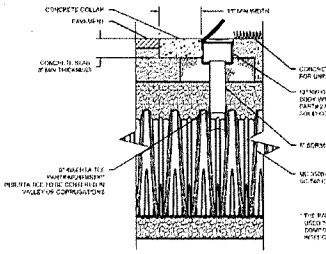
SCALE N.T.S.



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN FIELD CUT OPENING

STORMTECH MC-3500 END CAP INSERTION DETAIL

SCALE N.T.S.



STORMTECH INSPECTION PORT DETAIL

SCALE N.T.S.

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REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
BT CRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 930-7300

TAX MAP PARCEL NO.: 54-00-05242-00-5

MUNICIPAL FILE NO.: XX

TOTAL AREA: 25.411 | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – PCSM

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

REGISTERED PROFESSIONAL ENGINEER ERIC S. CLASE 55713-E

DATE: 6-12-17

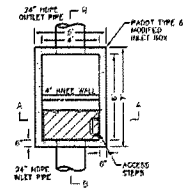
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
CORPORATE HEADQUARTERS:
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 | 215-345-4330 | www.gilmore-assoc.com

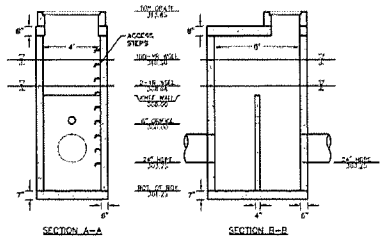
JOB NO.: 2015-06014-02

SHEET NO.: 36 OF 52

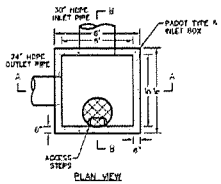
DESIGNED BY: RBF | DRAWN BY: GCV | CHECKED BY: ESC

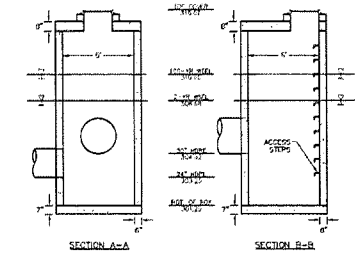
NOT APPROVED FOR CONSTRUCTION



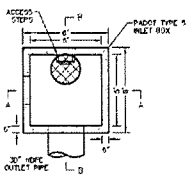


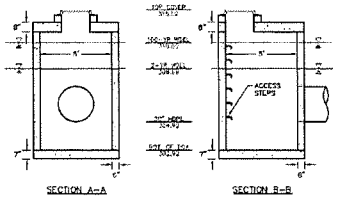
OS-UGB 1A DETAIL
NOT TO SCALE





UGB-1A-R1 DETAIL
NOT TO SCALE





UGB-1A-R2 DETAIL
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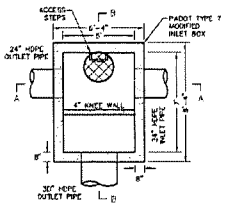
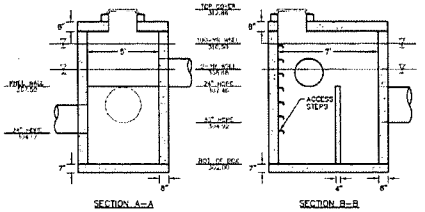
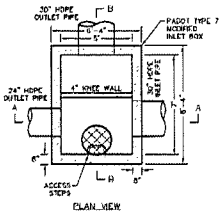
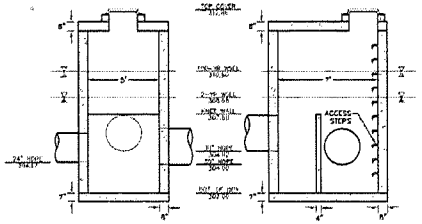


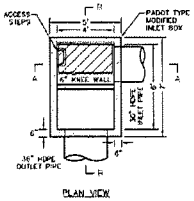


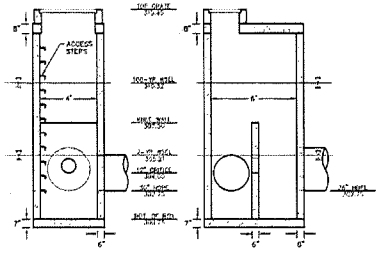
UGB-1A-R3 DETAIL
NOT TO SCALE



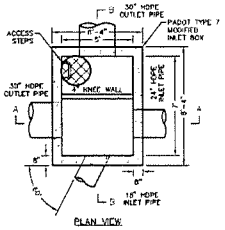


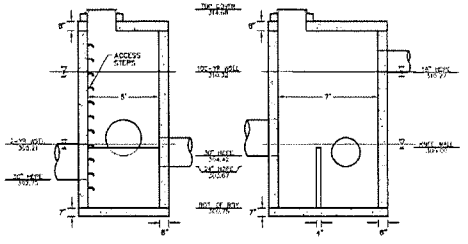
UGB-1A-R4 DETAIL
NOT TO SCALE





OS-UGB 1B DETAIL
NOT TO SCALE





UGB-1B-R1 DETAIL
NOT TO SCALE

NO.	REV	DESCRIPTION	DATE	BY
2		REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1		REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
ST ORESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7500

MUNICIPAL FILE NO.:
XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – PCSM

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

REGISTERED PROFESSIONAL ENGINEER
ERIC S. CLASE
ENGINEER 55713-E
COMMONWEALTH OF PENNSYLVANIA

DATE 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02

SHEET NO.: 37 OF 52

DESIGNED BY: RBF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION

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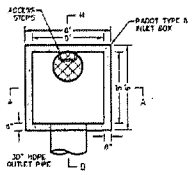
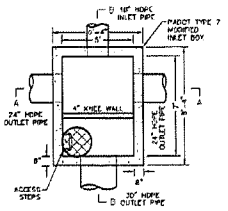
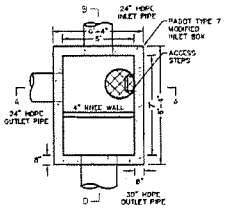


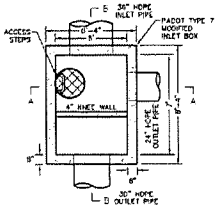
PLAN VIEW



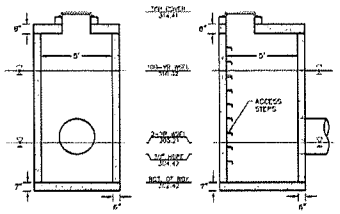
PLAN VIEW



PLAN VIEW

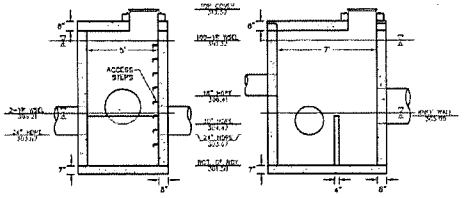


PLAN VIEW



SECTION A-A SECTION B-B

UGR-1B-R2 DETAIL
NOT TO SCALE



SECTION A-A SECTION B-B

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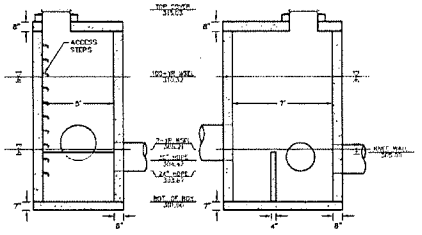

SECTION A-A SECTION B-B

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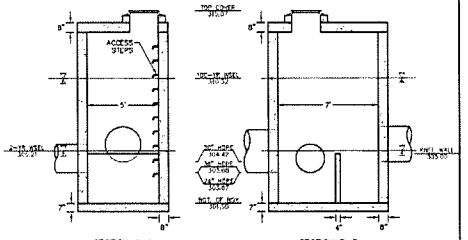
NOT TO SCALE



SECTION A-A SECTION B-B

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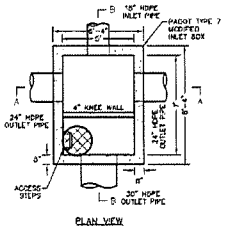
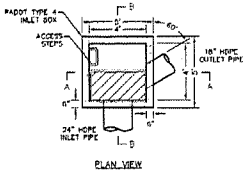
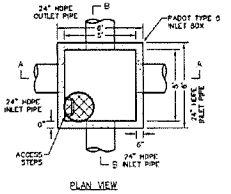
NOT TO SCALE



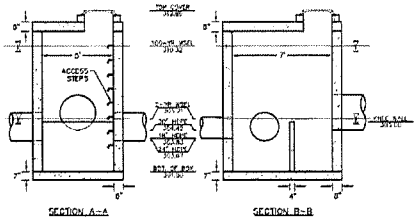
PLAN VIEW



PLAN VIEW



PLAN VIEW



SECTION A-A SECTION B-B

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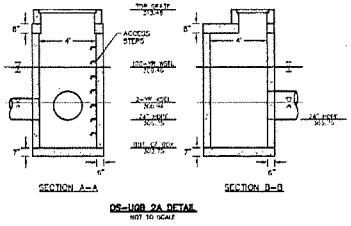
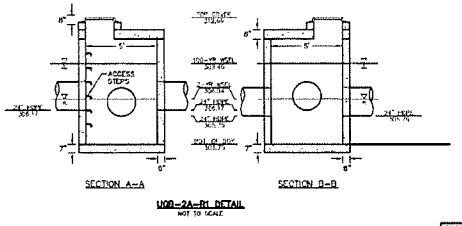


SECTION A-A SECTION B-B

DS-UGR 2A DETAIL
NOT TO SCALE



SECTION A-A SECTION B-B

UGR-2A-R1 DETAIL
NOT TO SCALE

REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
ST ONESHERTOWN, LP
200 WINER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 930-7700

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 23.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – PCSM

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ERIC S. CLASE ENGINEER 25713-E

DATE 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02

SHEET NO.: 37 OF 52

DESIGNED BY: RBF | DRAWN BY: DCY | CHECKED BY: ESC

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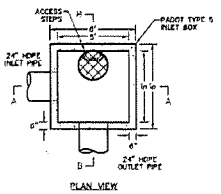
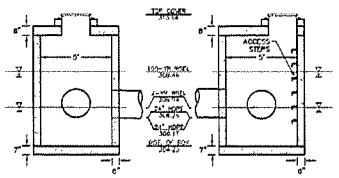
NOT APPROVED FOR CONSTRUCTION



PLAN VIEW



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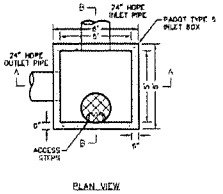
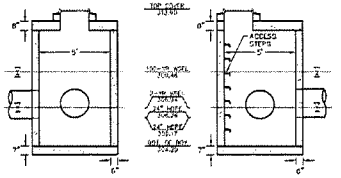


PLAN VIEW



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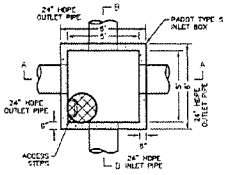
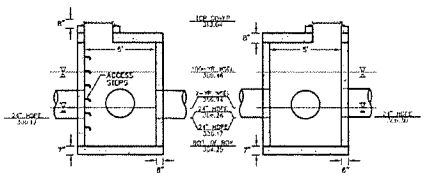


PLAN VIEW



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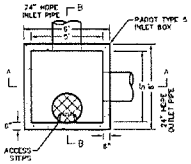
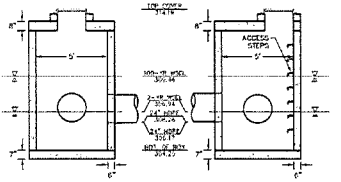


PLAN VIEW



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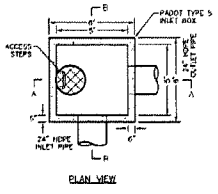
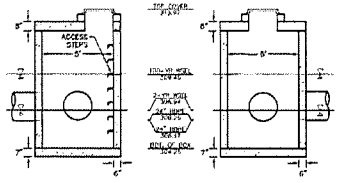


PLAN VIEW



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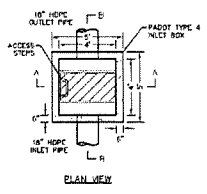
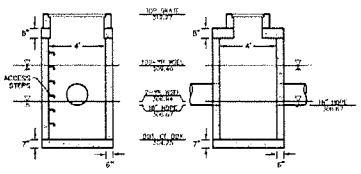


PLAN VIEW



INL-R00 DETAIL
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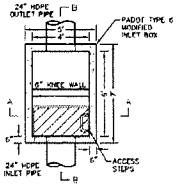
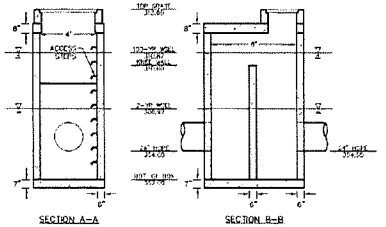


PLAN VIEW



OS-UGB 2B DETAIL
NOT TO SCALE

REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
BT DRESHERTOWN, LP
200 PRIMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 956-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 25.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – PCSM

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ERIC S. CLASE ENGINEER 65713-E

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-04014-02

SHEET NO.: 38 OF 52

DESIGNED BY: RBF | DRAWN BY: GCY | CHECKED BY: ESC

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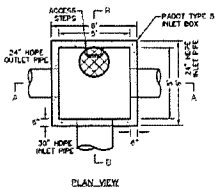
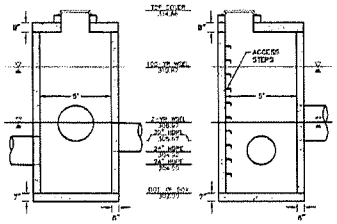
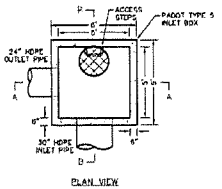


PLAN VIEW



SECTION A-A SECTION B-B

UGB-28-R1 DETAIL
NOT TO SCALE



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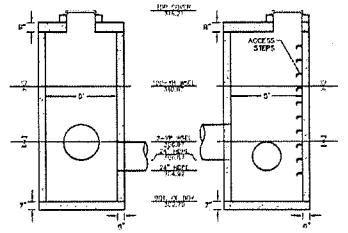

SECTION A-A SECTION B-B

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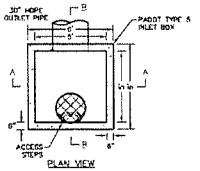
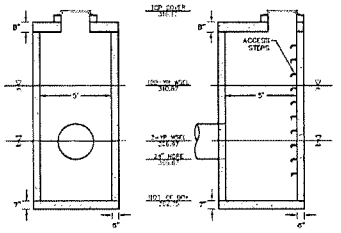


PLAN VIEW



SECTION A-A SECTION B-B

UGB-28-R3 DETAIL
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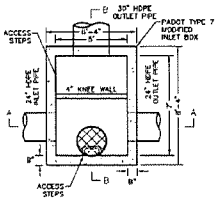
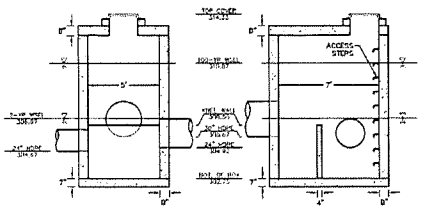


PLAN VIEW



SECTION A-A SECTION B-B

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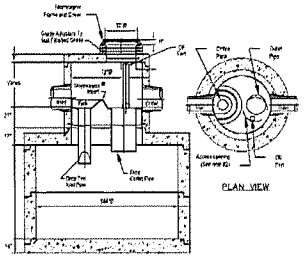

PLAN VIEW

SECTION THROUGH CHAMBER

STC 7200 PRECAST CONCRETE STORMCEPTOR®
NOT TO SCALE

NOTES:

1. STC 7200 PRECAST CONCRETE STORMCEPTOR®, AS MANUFACTURED BY IMBRIUM SYSTEMS, INC., SHALL BE INSTALLED AT MH-201, MH-301 AND MH-601.

PCSM OPERATIONS & MAINTENANCE MANUAL

I. FACILITY MAINTENANCE

IT IS THE SOLE RESPONSIBILITY OF THE PROPERTY OWNER TO COMPLETE ALL MAINTENANCE ITEMS AND TASKS DESCRIBED HEREIN.

I.1 AREAS OF REQUIRED MAINTENANCE

A. UNDERGROUND INFILTRATION BASINS – THE SYSTEM CONSISTS OF A SERIES OF PARALLEL CHAMBERS CONNECTED WITH TOGETHER WITH A MANIFOLD PIPE AT EACH END. VARIOUS ACCESS STRUCTURES ARE PROVIDED TO VIEW PERFORMANCE OF THE INFILTRATION SYSTEM.

1. ISOLATOR ROWS – THE DESIGNATED ISOLATOR ROWS SHALL BE INSPECTED AND MAINTAINED IN STRICT ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATIONS AND ACCORDING TO THE FOLLOWING GENERAL SCHEDULE:
   a. INSPECT EVERY 6 MONTHS IN THE FIRST YEAR. INSPECTION SCHEDULE THEREAFTER SHALL BE ADJUSTED BASED ON MEASUREMENTS MADE IN THE FIRST YEAR OF SERVICE.
   b. ONCE 3" OF SEDIMENT HAS ACCUMULATED, ISOLATOR ROW SHALL BE JETTED AND SUMPED BASIN STRUCTURES VACUUMED.
   c. INSPECT AND CLEAN ALL UPSTREAM STORMWATER INLETS AND MANHOLES.
2. GENERAL MAINTENANCE – INSPECT OUTLET STRUCTURES FOR DEBRIS AND REMOVE AS NECESSARY.

B. STORMCEPTOR OIL/GRIT SEPARATORS – THE DESIGNED STORMCEPTOR STRUCTURES SHALL BE INSPECTED AND MAINTAINED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, USING THE MANUFACTURER PROVIDED EQUIPMENT AND ACCORDING TO THE FOLLOWING GENERAL SCHEDULE:
   a. INSPECT EVERY 6 MONTHS IN THE FIRST YEAR. INSPECTION SCHEDULE THEREAFTER SHALL BE ADJUSTED BASED ON MEASUREMENTS MADE IN THE FIRST YEAR OF SERVICE.
   b. IMMEDIATELY INSPECT STORMCEPTOR SYSTEMS AFTER ANY OIL, FUEL OR CHEMICAL SPILL.
   c. ONCE SEDIMENT REACHES 15% OF TOTAL STORAGE CAPACITY, THE STORMCEPTOR CHAMBER SHALL BE VACUUMED.
   d. REMOVAL AND DISPOSAL OF OIL AND SEDIMENT SHALL BE PERFORMED BY A LICENSED WASTE MANAGEMENT AND IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.

C. RAIN GARDENS – REGULAR MAINTENANCE SHALL BE CONDUCTED ON AN 'AS NEEDED' BASIS INCLUDING, BUT NOT LIMITED TO, MOWING OF VEGETATION, TRASH AND DEBRIS REMOVAL, WEEDING REMOVAL AND REPAIRS OF PHYSICAL DAMAGE. TRASH, LEAF AND DEBRIS REMOVAL SHALL OCCUR IMMEDIATELY FOLLOWING ALL MEASUREABLE RAIN EVENTS OR WHEN SUCH MATERIALS ARE OBSERVED. DURING THE FALL SEASON, ANY YARD DRAINS OR INLETS CONNECTED TO THE FACILITY SHALL BE CHECKED AND CLEARED A MINIMUM OF ONE (1) TIME PER MONTH FOR LEAF LITTER AND OTHER DEBRIS WHICH MAY CLOG PIPES. ROUTINE MAINTENANCE SHALL BE PERFORMED ACCORDING TO THE FOLLOWING SCHEDULE:
   a. TWO (2) ROUTINE MAINTENANCE EVENTS SHALL BE CONDUCTED ANNUALLY BY THE OWNER/OPERATOR. THE FIRST EVENT WILL OCCUR IN MARCH OR APRIL AFTER THE SNOW PACK HAS COMPLETELY MELTED, AND THE SECOND WILL OCCUR IN OCTOBER OR NOVEMBER AFTER ALL LEAVES HAVE FALLEN FROM THE TREES BUT PRIOR TO THE ONSET OF WINTER WEATHER CONDITIONS. ALL MAINTENANCE EVENTS SHALL BE CONDUCTED BY THE OWNER/OPERATOR. ANY PROBLEMS NOTED DURING THE MAINTENANCE EVENTS SHALL BE IMMEDIATELY CORRECTED.
   b. TWO (2) ANNUAL INSPECTIONS WILL BE CONDUCTED BY THE OWNER/OPERATOR FOR THE LIFE OF THE FACILITIES. THESE INSPECTIONS WILL BE FOR ALL ITEMS AS LISTED FOR THE ROUTINE MAINTENANCE EVENTS. ALL BASIN INSPECTIONS WILL ADHERE TO THE SPECIFIC CRITERIA NOTED ABOVE. ANY PROBLEMS NOTED DURING INSPECTION SHALL BE IMMEDIATELY CORRECTED INCLUDING ANY AND ALL ROUTINE MAINTENANCE ITEMS. A CONSULTING ENGINEER WILL BE CONTACTED IF THERE ARE ANY STRUCTURAL PROBLEMS BEYOND THE SCOPE OF ROUTINE MAINTENANCE.
   c. FOR RAIN GARDENS WITH EARTHEN BERMS:
      i. 100% VEGETATIVE COVERAGE BY HERBACEOUS SPECIES MUST BE MAINTAINED THROUGHOUT ALL AREAS OF THE BERM AND ALL OTHER AREAS OF DIRECT DRAINAGE TO THE BERM. ANY AREAS THAT BECOME VOID OF VEGETATION MUST BE IMMEDIATELY CORRECTED BY REPLANTING OR OTHER ADEQUATE MEASURES NECESSARY TO PREVENT EROSION THAT MAY JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE FACILITY.
      ii. ALL VEGETATION THROUGHOUT ALL AREAS OF THE FACILITY MUST BE MOWED AT A MINIMUM OF TWO TO THREE TIMES PER YEAR. NO TREES ARE TO BE PLANTED OR MAINTAINED WITHIN THE FACILITY SUCH THAT THEY OBSTRUCT THE DRAINAGE OR FLOW PATTERNS TO THE OUTLET STRUCTURE. MINIMUM HEIGHT OF VEGETATION WHEN MOWN SHALL BE FOUR (4) INCHES.
      iii. ANY EROSION, SLUMPING OR OTHER SOIL DISTURBANCES WITHIN THE FACILITY THAT ARE NOTED DURING ROUTINE MAINTENANCE SHALL BE IMMEDIATELY REPAIRED. ADDITIONAL MATERIALS, AS SPECIFIED BY A REGISTERED PROFESSIONAL ENGINEER, SHALL BE ADDED WHERE NECESSARY TO RETURN ERODED AREAS TO GRADE. ALL REPAIRED AREAS SHALL BE EITHER ROCK-LINED OR IMMEDIATELY RE-VEGETATED WITH RECOMMENDED HERBACEOUS SPECIES.
   d. THE BASIN SHALL BE VEGETATED AND MULCHED BY A QUALIFIED LANDSCAPER IN ACCORDANCE WITH THE DESIGN PLANS.
   e. VEGETATION SHALL BE INSPECTED AT THE BEGINNING OF EACH GROWING SEASON AND REPLACED AS NEEDED.

REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	5/12/17	RDF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RDF

OWNER:
DT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 23.441

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: AS NOTED

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

CONSTRUCTION DETAILS – PCSM

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ERIC S. CLASE ENGINEER 55713-E

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02

SHEET NO.: 39 OF 52

DESIGNED BY: RDF | DRAWN BY: GCV | CHECKED BY: ESC

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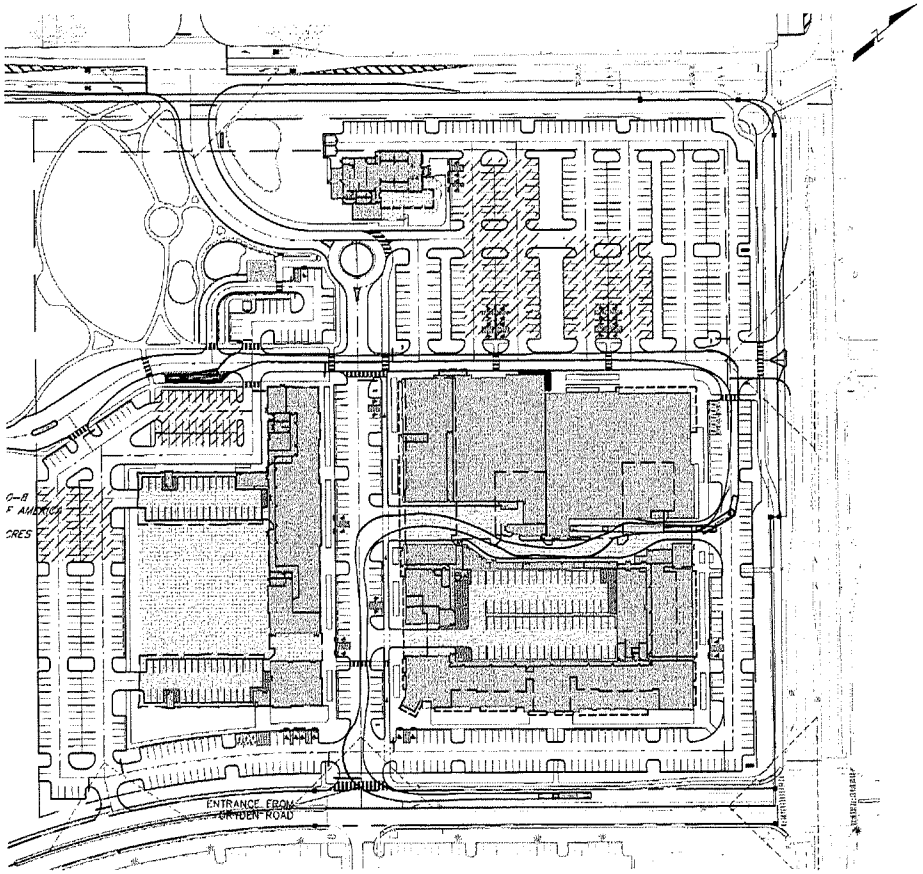
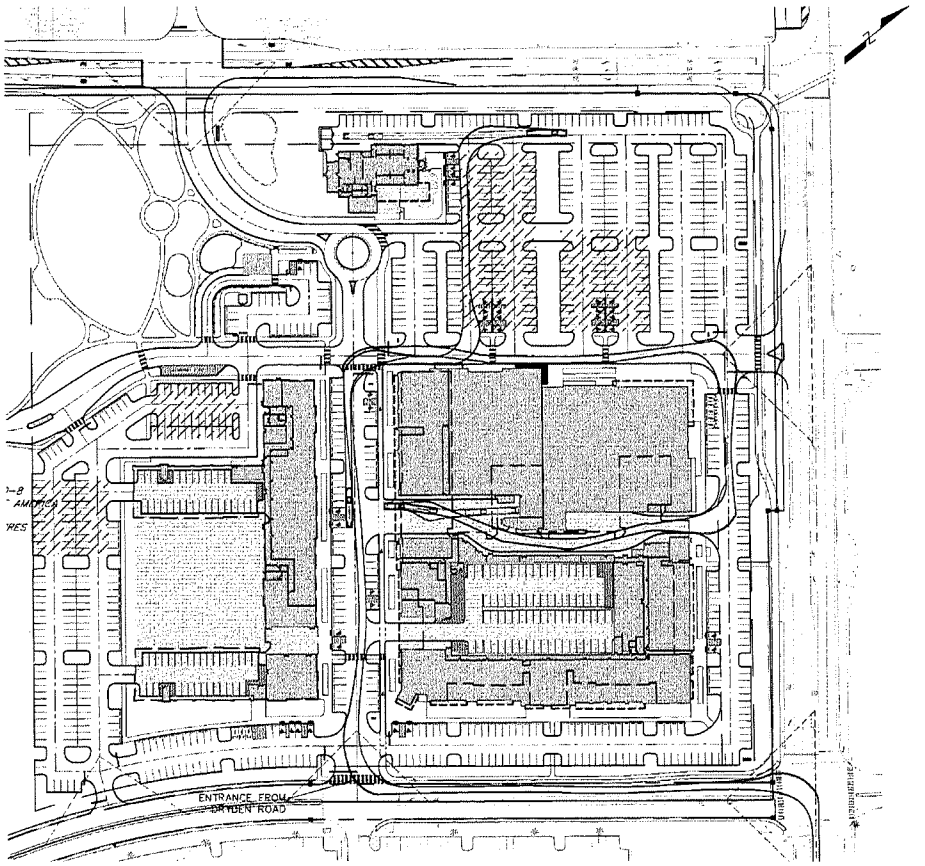
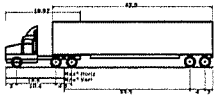
NOT APPROVED FOR CONSTRUCTION



VEHICLE INGRESS TO LOADING AREA
SCALE: 1" = 80'



VEHICLE INGRESS TO LOADING AREA
SCALE: 1" = 80'



WB-50 - Intermediate Semi-Trailer	
Overall Length	55.000ft
Overall Width	8.500ft
Overall Body Height	12.052ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.0s
Curb to Curb Turning Radius	45.000ft

WB-50 TRUCK INFORMATION

WB-65 - Interstate Semi-Trailer	
Overall Length	73.500ft
Overall Width	8.500ft
Overall Body Height	12.052ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.0s
Curb to Curb Turning Radius	45.000ft

WB-65 TRUCK INFORMATION

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776.
NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST
SERIAL NO. 20151771253, 20151771304 20151771353 & 20151771359

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RDF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RDF

OWNER:
BT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7200

TAX MAP PARCEL NO.: 54-00-05242-00-5
MUNICIPAL FILE NO.: XX
TOTAL AREA: 25.411
TOTAL LOTS: 1
DATE: 2-10-17
SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN
VEHICLE TURNING PLAN
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

ERIC S. CLASE
PROFESSIONAL ENGINEER
55713-E

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

SCALE: IN FEET 0 80 160

JOB NO.: 2015-06014-02
SHEET NO.: 41 OF 52

DESIGNED BY: RDF | DRAWN BY: GCV | CHECKED BY: ESC

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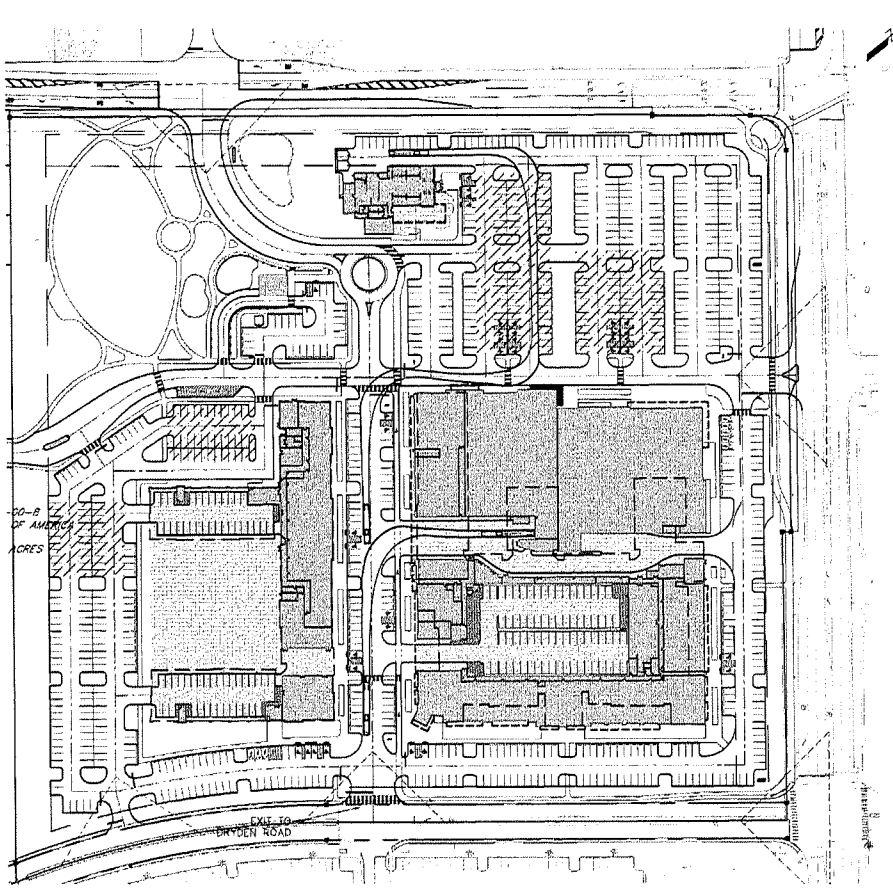
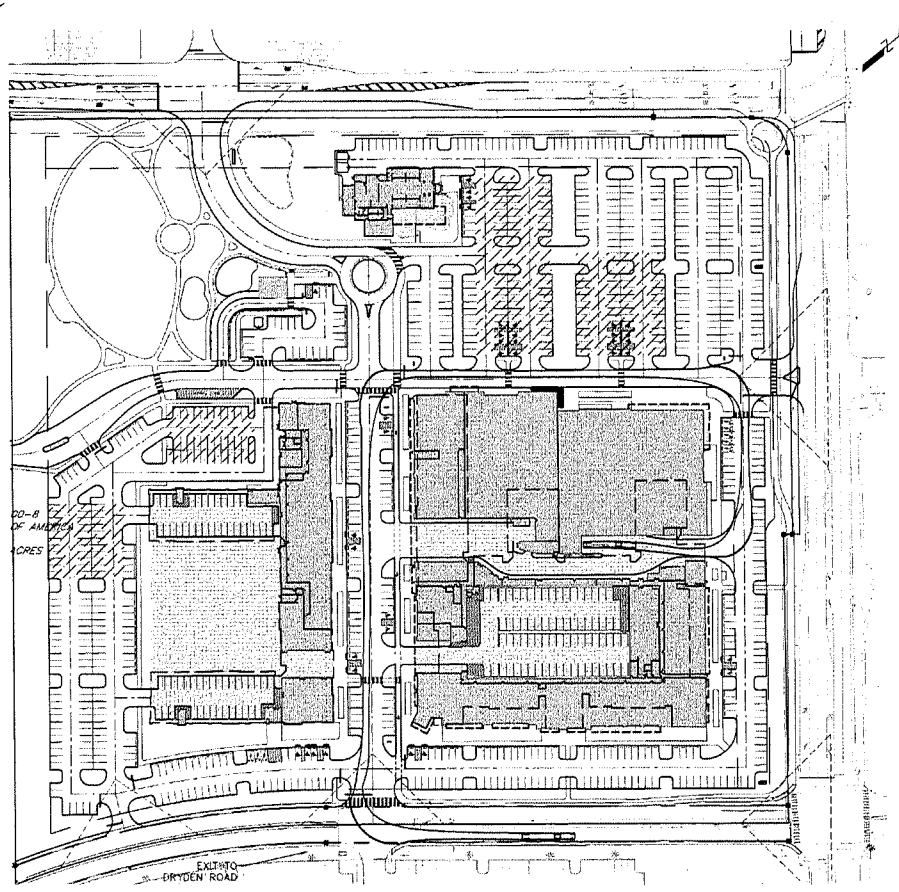


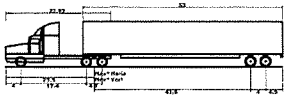
VEHICLE EGRESS FROM LOADING AREA
SCALE: 1" = 80'



VEHICLE EGRESS FROM LOADING AREA
SCALE: 1" = 80'

WB-50 - Intermediate Semi-Trailer	
Overall Length	55.000ft
Overall Width	8.500ft
Overall Body Height	12.052ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	45.000ft

WB-50 TRUCK INFORMATION



WB-65 - Interstate Semi-Trailer	
Overall Length	73.500ft
Overall Width	8.500ft
Overall Body Height	12.052ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	45.000ft

WB-65 TRUCK INFORMATION

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PENNSYLVANIA ONE CALL SYSTEM, INC.

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SERIAL NO. 20151771253, 20151771304 20151771353 & 20151771359

REV.	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RDF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RDF

OWNER:
RT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

TAX MAP PARCEL NO.: 54-00-05242-00-5

MUNICIPAL FILE NO.: XX

TOTAL AREA: 23.411 ACRES

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

VEHICLE TURNING PLAN

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

ERIC S. CLASE
ENGINEER
45715-E
REGISTERED PROFESSIONAL
COMMONWEALTH OF PENNSYLVANIA

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

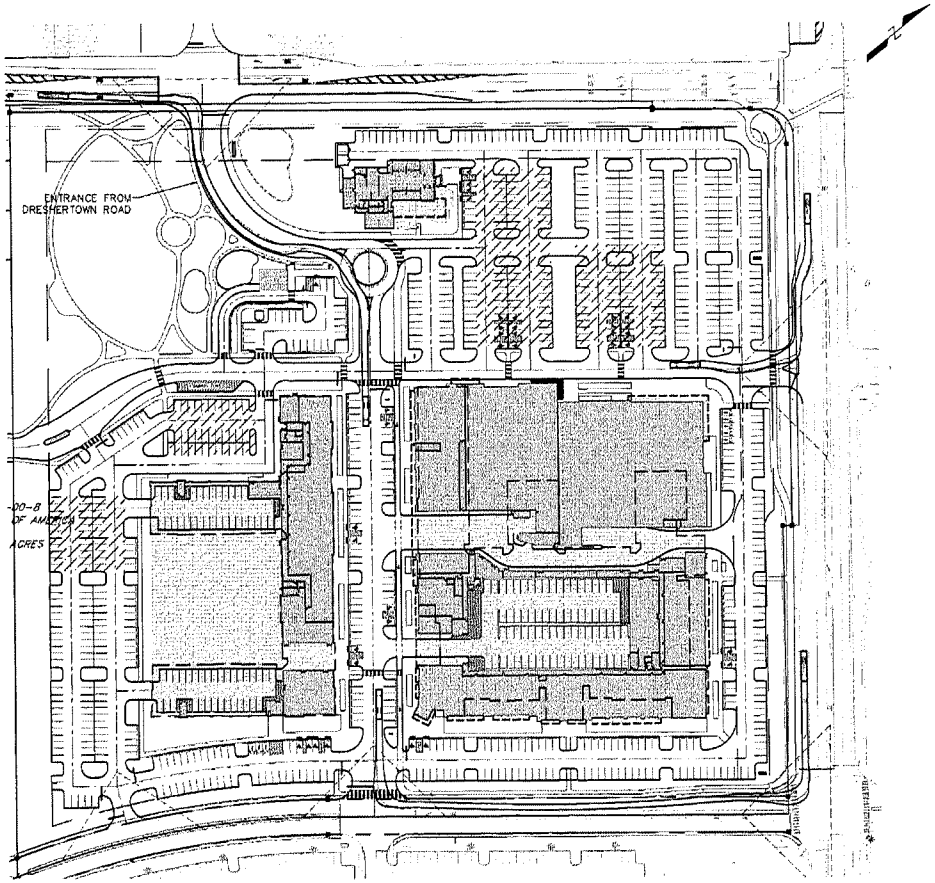
80 0 80 160
SCALE IN FEET

JOB NO.: 2015-06014-02

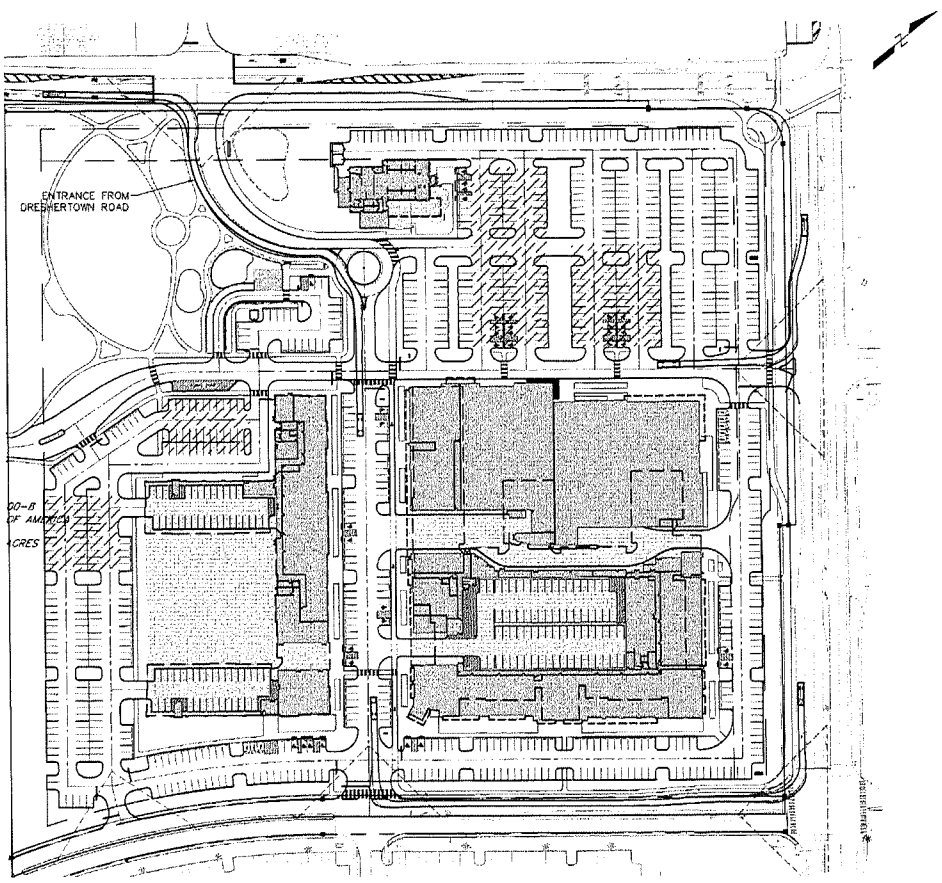
SHEET NO.: 41 OF 52

DESIGNED BY: RDF | DRAWN BY: GCV | CHECKED BY: ESC

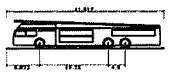
NOT APPROVED FOR CONSTRUCTION



AERIAL FIRE TRUCK ENTRANCE
SCALE: 1" = 80'

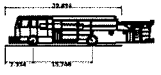


PUMPER FIRE TRUCK ENTRANCE
SCALE: 1" = 80'



Upper Dublin Aerial Fire Truck	
Overall Length	41.917ft
Overall Width	8.000ft
Overall Body Height	7.471ft
Min Body Ground Clearance	0.723ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

AERIAL FIRE TRUCK INFORMATION



Upper Dublin Engine Truck	
Overall Length	30.806ft
Overall Width	8.000ft
Overall Body Height	7.715ft
Min Body Ground Clearance	0.627ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

PUMPER FIRE TRUCK INFORMATION

PENNSYLVANIA ONE CALL SYSTEM, INC.

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SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

REV.	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RDF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RDF

OWNER:
RT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7200

TAX MAP PARCEL NO.: 54-00-05242-00-5
MUNICIPAL FILE NO.: XX
TOTAL AREA: 25.411
TOTAL LOTS: 1
DATE: 2-10-17
SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN

VEHICLE TURNING PLAN (FIRE TRUCK)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

REGISTERED PROFESSIONAL ENGINEER
ERIC S. GLASS
ENGINEER
55711-E

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

80 0 80 160
SCALE: IN FEET

DESIGNED BY: RDF
DRAWN BY: DCY
CHECKED BY: ESC

JOB NO.: 2015-06014-02
SHEET NO.: 43 OF 52

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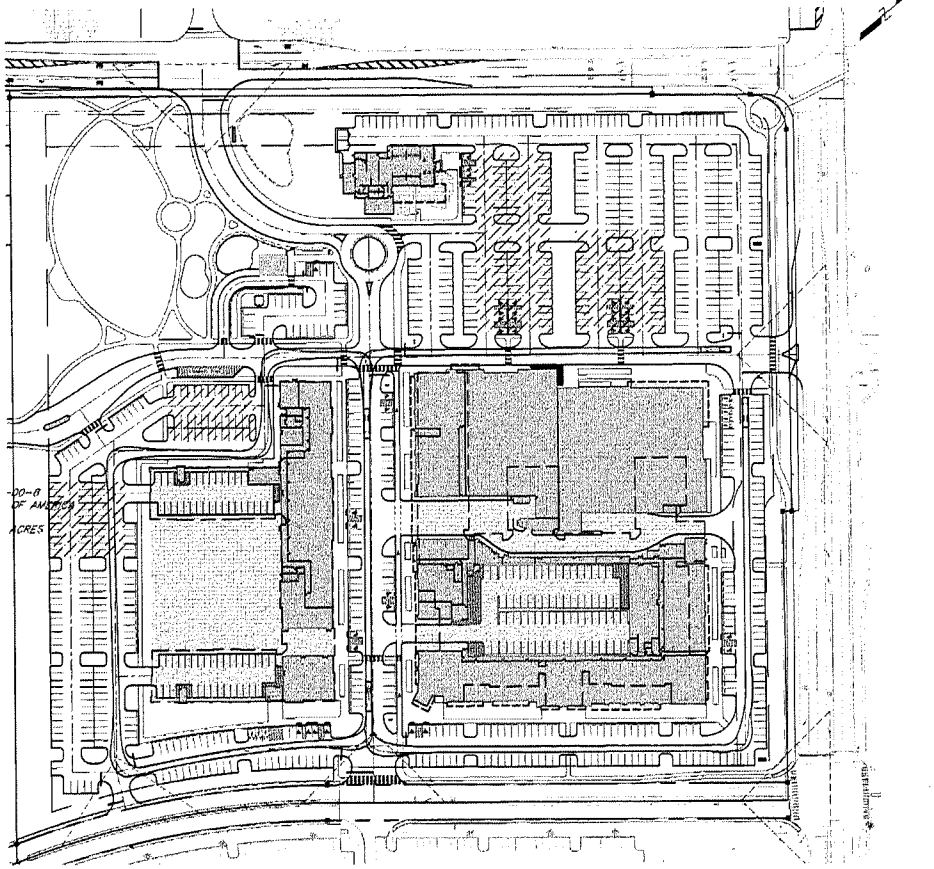
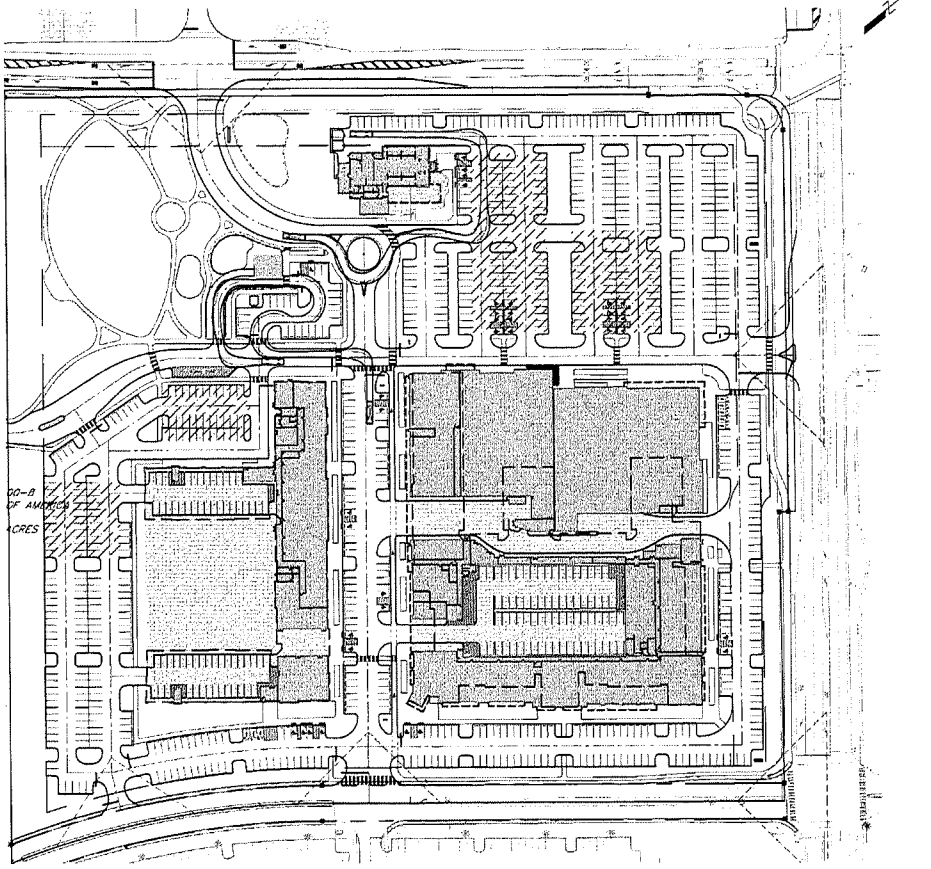
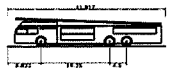


AERIAL FIRETRUCK CIRCULATION
SCALE: 1" = 80'

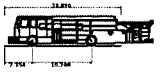


PUMPER FIRETRUCK CIRCULATION
SCALE: 1" = 80'



Upper Dublin Aerial Fire Truck	
Overall Length	41.917ft
Overall Width	8.000ft
Overall Body Height	7.471ft
Min Body Ground Clearance	0.721ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

AERIAL FIRE TRUCK INFORMATION



Upper Dublin Engine Truck	
Overall Length	30.886ft
Overall Width	8.000ft
Overall Body Height	7.515ft
Min Body Ground Clearance	0.527ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

PUMPER FIRE TRUCK INFORMATION

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PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RDF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RDF

OWNER:
DT CHESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7200

TAX MAP PARCEL NO.: 54-00-05242-00-5

MUNICIPAL FILE NO.: XX

TOTAL AREA: 25.41

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

VEHICLE TURNING PLAN (FIRE TRUCK)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

ERIC S. CLASE
ENGINEER
6571-E

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

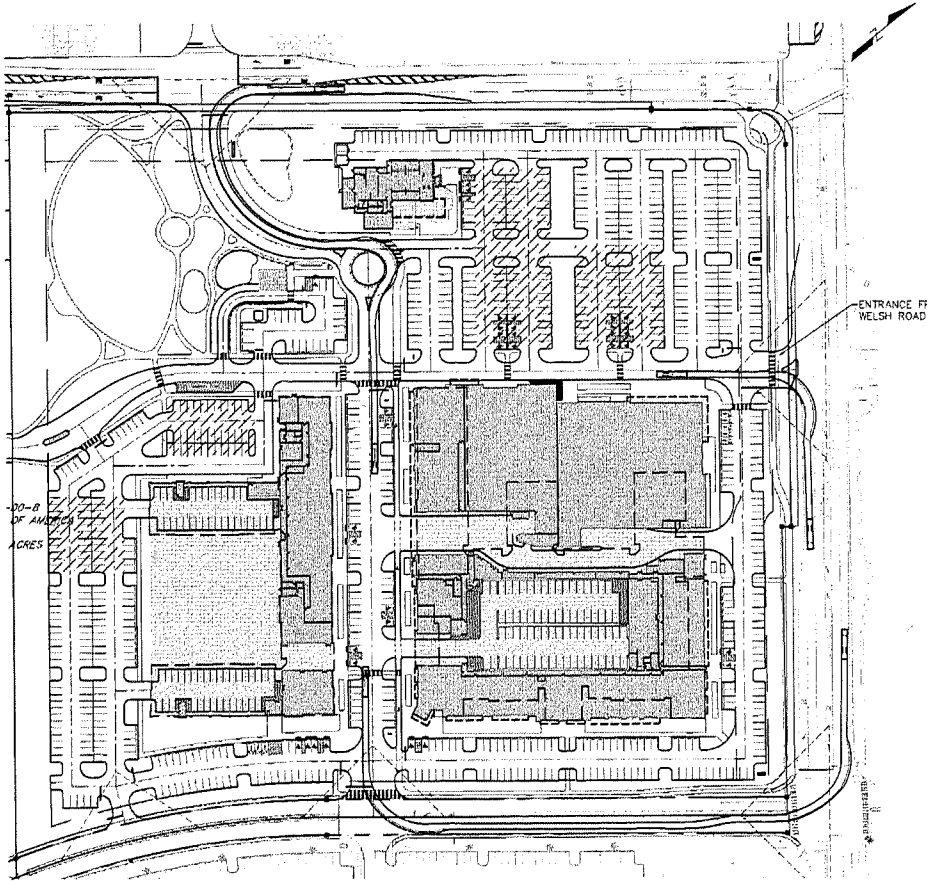
SCALE: IN 0 40 80 160 FEET

JOB NO.: 2015-06014-02

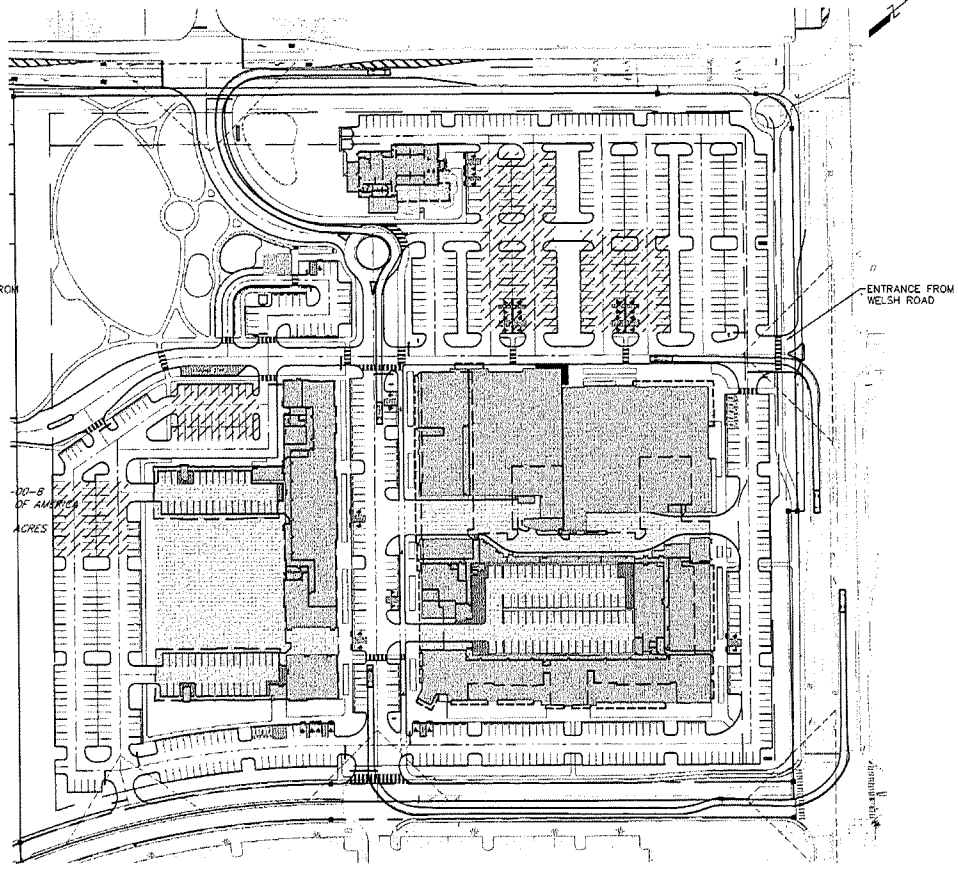
SHEET NO.: 43 OF 52

DESIGNED BY: RDF | DRAWN BY: DCY | CHECKED BY: ESC

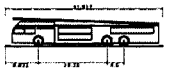
NOT APPROVED FOR CONSTRUCTION



AERIAL FIRETRUCK EXIT
SCALE: 1" = 80'

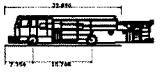


PUMPER FIRETRUCK EXIT
SCALE: 1" = 80'



Upper Dublin Aerial Fire Truck	
Overall Length	41.837ft
Overall Width	8.000ft
Overall Body Height	7.471ft
Min Body Ground Clearance	0.721ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

AERIAL FIRE TRUCK INFORMATION



Upper Dublin Engine Truck	
Overall Length	30.806ft
Overall Width	8.000ft
Overall Body Height	7.215ft
Min Body Ground Clearance	0.627ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

PUMPER FIRE TRUCK INFORMATION

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PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304 20151771353 & 20151771359

ERIC S. CLASE ENGINEER 057144-E

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY
2	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	6/12/17	RBF
1	REVISED PER TOWNSHIP COMMENT LETTER DATED MARCH 23, 2017	4/13/17	RBF

OWNER:
DT PRECHERTONAL LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7200

TAX MAP PARCEL NO.: 54-00-05242-00-5

MUNICIPAL FILE NO.: N/A

TOTAL AREA: 25.41± | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: 1"=80'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

VEHICLE TURNING PLAN (FIRE TRUCK)
THE PROMENADE AT UPPER DUBLIN
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

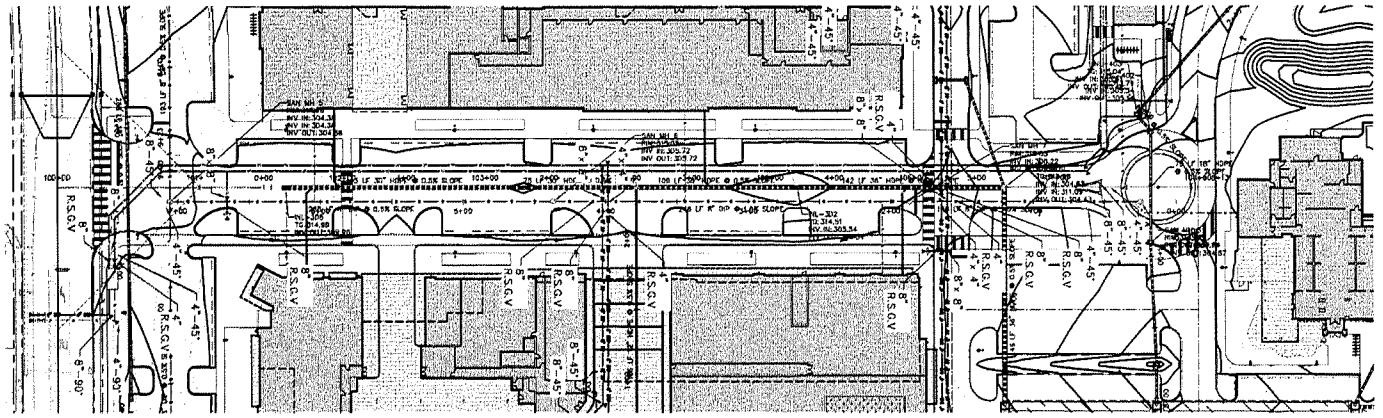
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 (215) 345-4330 www.gilmore-assoc.com

SCALE: 1" = 80' | JOB NO.: 2015-06014-02

DESIGNED BY: RBF | DRAWN BY: GEV | CHECKED BY: ESC

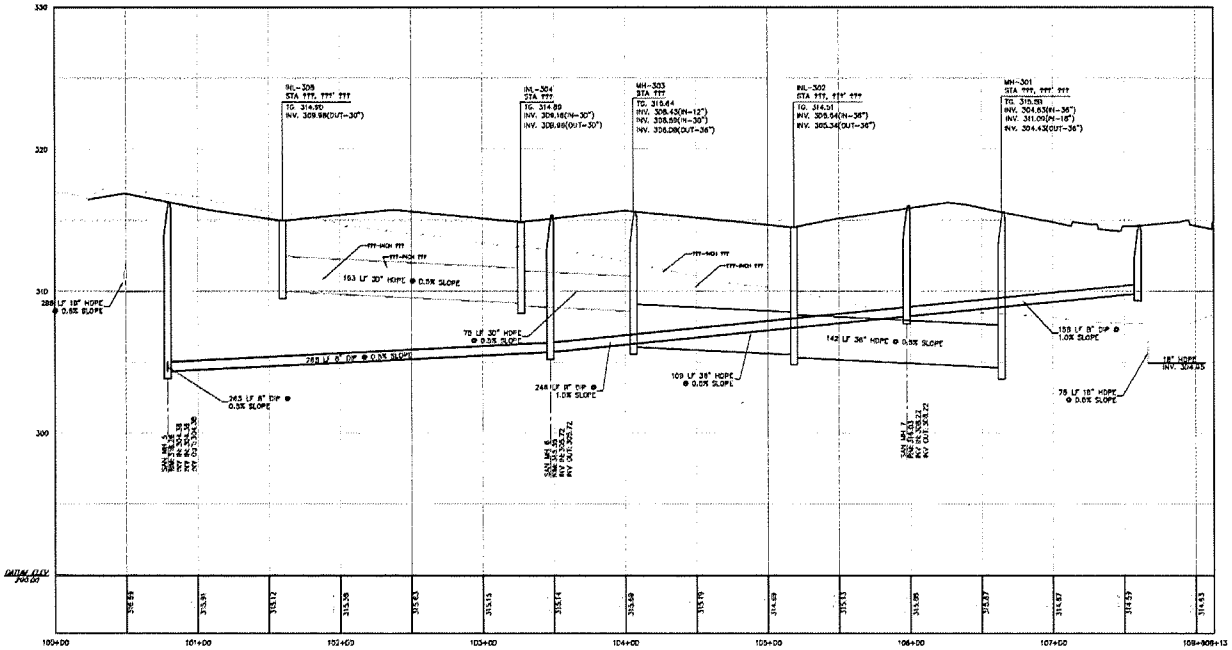
SHEET NO.: 44 OF 52

NOT APPROVED FOR CONSTRUCTION



PLAN VIEW

SCALE: HORIZ. 1" = 40'



ENTRANCE BLVD

STATION 100+00.00 TO 108+12.67

SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'

LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY OWNERS, AND/OR ABOVE-GROUND OBSERVATION OF THE SITE. NO EXCAVATIONS WERE PERFORMED IN THE PREPARATION OF THESE DRAWINGS. THEREFORE, ALL UTILITIES SHOWN SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES/FACILITIES TO BE PRESENT WHICH ARE NOT SHOWN ON THE DRAWINGS. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES/FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TRUE AND ACCURATE. COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES/FACILITIES ARE NOT GUARANTEED BY GILMORE & ASSOCIATES INC.

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BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304, 20151771153 & 20151771359

DATE: 6-12-17

OWNER:	REV	DESCRIPTION	DATE	BY
BT DRESHERTOWN, LP 200 WYNER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 939-7500		PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN		
MUNICIPAL FILE NO.: XX	TAX MAP PARCEL NO.: 54-00-05242-00-5	TOTAL AREA: 25.461	TOTAL LOTS: 1	
	DATE: 2-10-17	SCALE: 1"=40'		

PLAN & PROFILE

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.: 2015-06014-02

SHEET NO.: 46 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

ONLY THOSE PLANS INCORPORATING THE PROFESSIONAL SEAL SHOULD BE CONSIDERED OFFICIAL AND RELIED UPON BY USER. THIS PLAN IS PREPARED SPECIFICALLY FOR THE CLIENT AND PROJECT DESIGNATED HEREON. MODIFICATION, REVISION, DUPLICATION OR USE WITHOUT THE CONSENT OF GILMORE & ASSOCIATES, INC. IS PROHIBITED.
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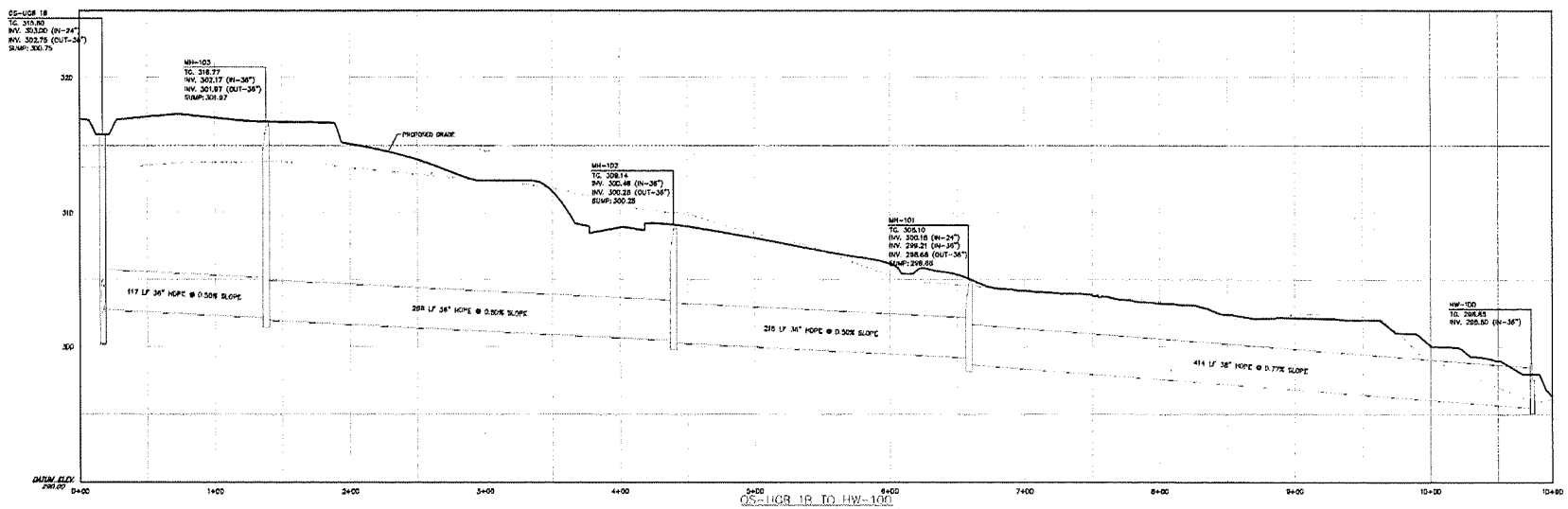
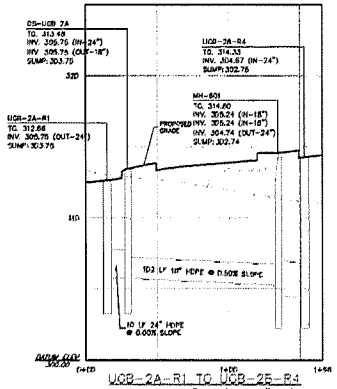


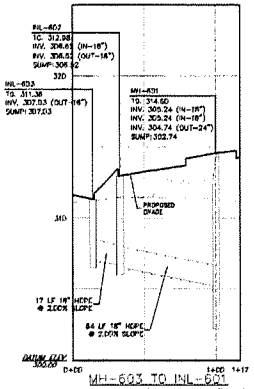
OS-UGB 1B TO HW-100

SCALE: H: 1"=40' V: 1"=4'



UGB-2A-R1 TO UGB-2B-R4

SCALE: H: 1"=40' V: 1"=4'



MH-603 TO INL-601

SCALE: H: 1"=40' V: 1"=4'

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PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

NON-MEMBERS MUST BE CONTACTED DIRECTLY

PA LAW REQUIRES THREE WORKING DAYS NOTICE (EXCLUDES WEEKENDS, HOLIDAYS AND EMERGENCIES)

SERIAL NO. 20151771253, 20151771304, 20151771153 & 20151771359

OWNER: BT DRESHERTOWN, LP 200 WITMER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 938-7700	REV	DESCRIPTION	DATE	BY
	TAX MAP PARCEL NO.: 54-00-09242-00-5			
MUNICIPAL FILE NO.: XX	TOTAL AREA: 29.461	TOTAL LOTS: 1		
	DATE: 2-10-17	SCALE: 1"=40'		

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

STORM PROFILES

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

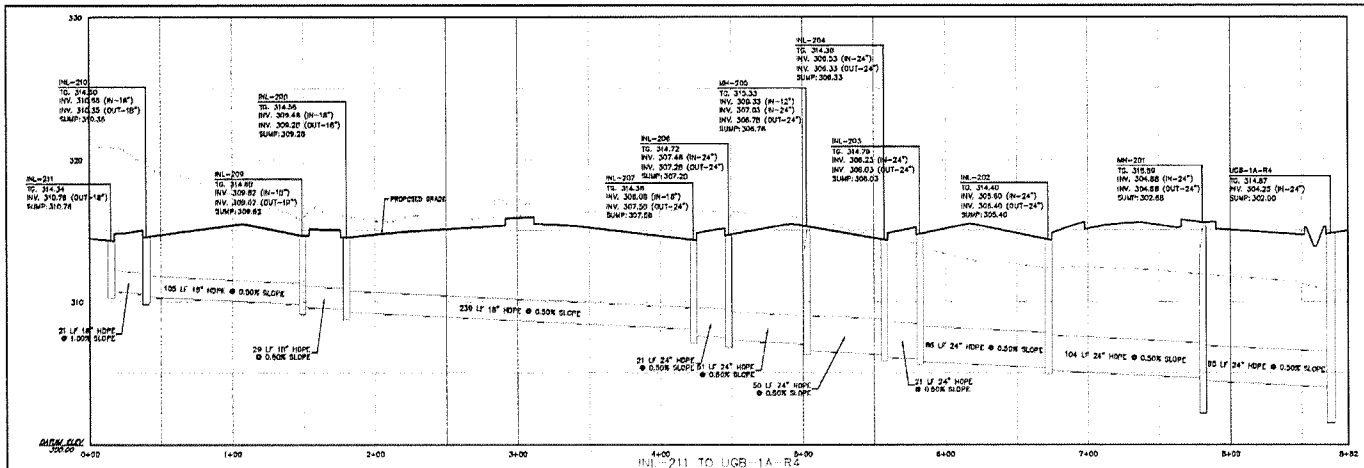
COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — ERIC S. CLASE — ENGINEER — 55713-E

DATE: 6-12-17

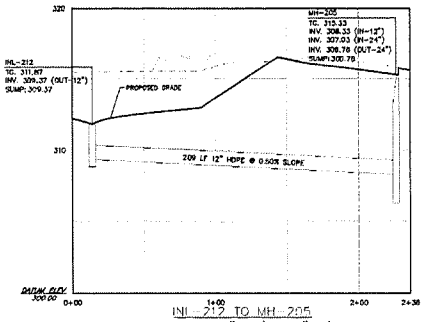
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

SCALE: 40 0 40 80 IN FEET			JOB NO.: 2015-06014-02
DESIGNED BY: RBF	DRAWN BY: GCY	CHECKED BY: CSC	SHEET NO.: 47 OF 52

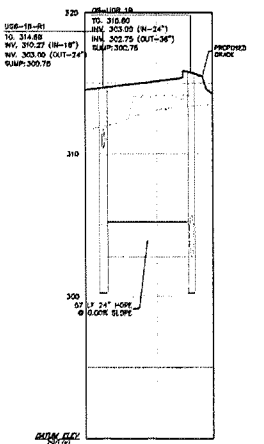
NOT APPROVED FOR CONSTRUCTION



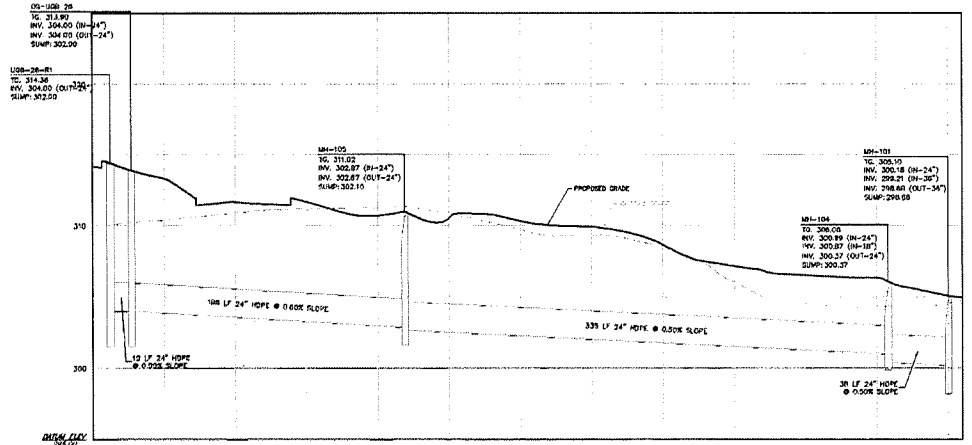
INL-211 TO UGB-1A-R4
SCALE: H:1"=40' V: 1"=4'



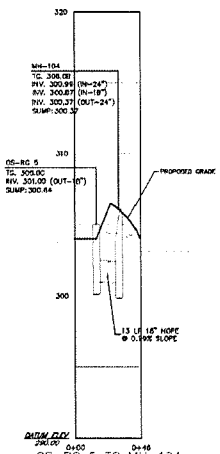
INL-212 TO MH-205
SCALE: H:1"=40' V: 1"=4'



UGB-1B-R1 TO DS-UGB 1B
SCALE: H:1"=40' V: 1"=4'



UGB-2B-R1 TO MH-101
SCALE: H:1"=40' V: 1"=4'



QS-RG 5 TO MH-104
SCALE: H:1"=40' V: 1"=4'

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PENNSYLVANIA ONE CALL SYSTEM, INC.

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SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

OWNER:
DT DRESHERTOWN, LP
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7500

TAX MAP PARCEL NO.: 54-00-05242-00-5

MUNICIPAL FILE NO.: XX

TOTAL AREA: 29.411 | TOTAL LOTS: 1

DATE: 2-10-17 | SCALE: 1"=40'

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

STORM PROFILES

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC S. CLASE
ENGINEER
55713-E

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

SCALE: IN FEET 40 0 40 80

JOB NO.: 2015-06014-02

SHEET NO.: 48 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

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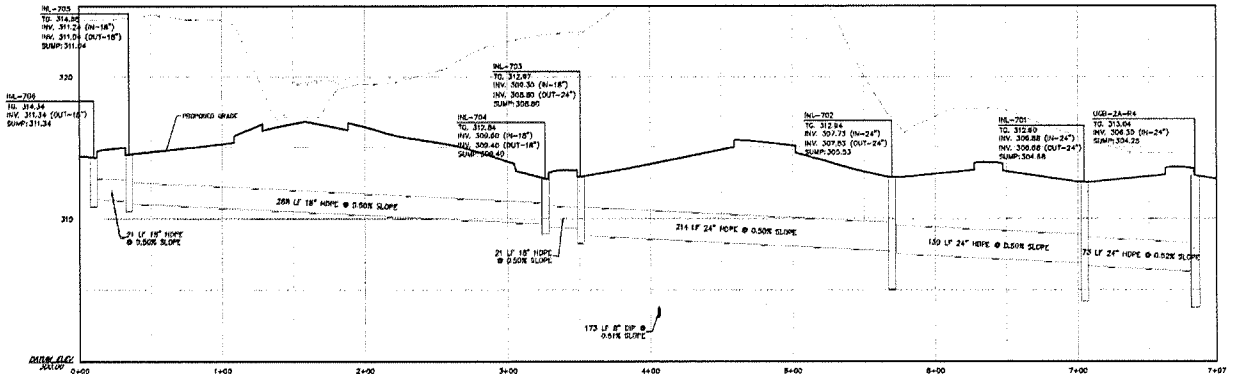

INL-706 TO UGB-2A-R4
SCALE: H: 1"=40' V: 1"=4'

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SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

DATE: 6-12-17

OWNER: BT DRESHERTOWN, LP 200 WITMER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 938-7500	REV	DESCRIPTION	DATE	BY
	TAX MAP/PARCEL NO.: 54-00-05242-00-5			
MUNICIPAL FILE NO.: XX	TOTAL AREA: 25.441	TOTAL LOTS: 1		
	DATE: 2-10-17	SCALE: 1"=40'		

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

STORM PROFILES

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

ERIC S. CLASE, PROFESSIONAL ENGINEER, 55713-E

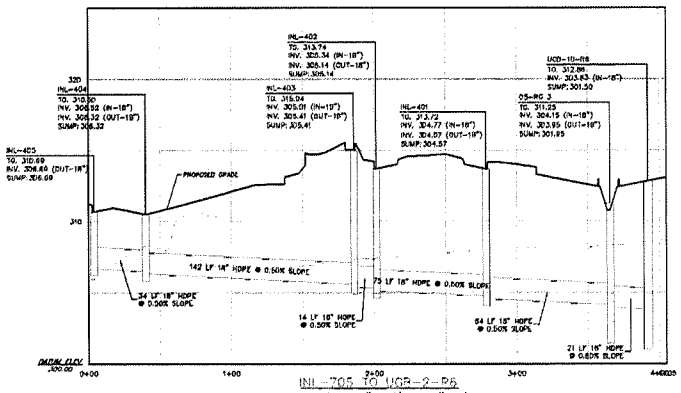
GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

DESIGNED BY: RDF	DRAWN BY: GCY	CHECKED BY: ESC

JOB NO.: 2015-06014-02

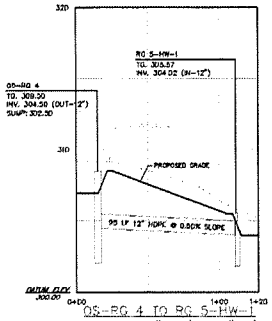
SHEET NO.: 49 OF 52

NOT APPROVED FOR CONSTRUCTION



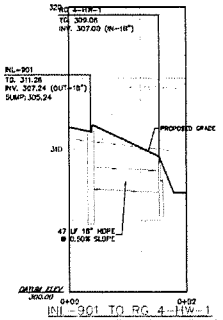
INL-705 TO UGR-2-R6

SCALE: H:1"=40' V: 1"=4'



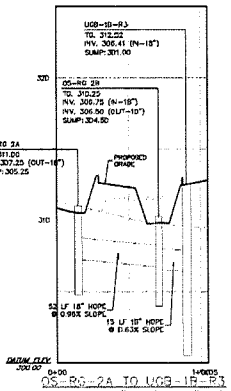
OS-RG 4 TO RG 5-HW-1

SCALE: H:1"=40' V: 1"=4'



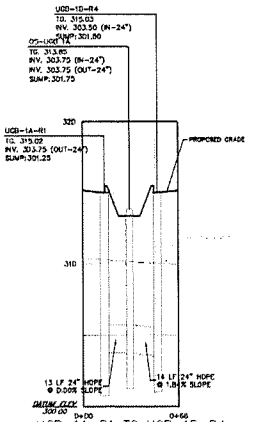
INL-901 TO RG 4-HW-1

SCALE: H:1"=40' V: 1"=4'



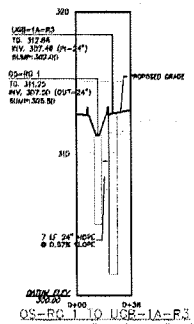
OS-RG 2A TO UGB-1B-R3

SCALE: H:1"=40' V: 1"=4'



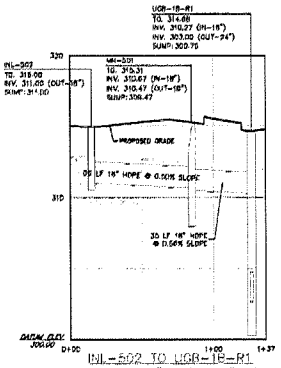
UGB-1A-R1 TO UGB-1B-R4

SCALE: H:1"=40' V: 1"=4'



OS-RG 1 TO UGR-1A-R3

SCALE: H:1"=40' V: 1"=4'



INL-502 TO UGR-1B-R1

SCALE: H:1"=40' V: 1"=4'

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PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771359

OWNER:	REV	DESCRIPTION	DATE	BY
BT DRESHERTOWN, LP 200 WITMER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 938-7500		PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN		
TAX MAP PARCEL NO.: 54-00-05242-00-5				
MUNICIPAL FILE NO.:	TOTAL AREA: 25.411	TOTAL LOTS: 1		
	DATE: 2-10-17	SCALE: 1"=40'		

STORM PROFILES

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

ERIC S. CLASE — REGISTERED PROFESSIONAL — ENGINEER — 55713-E

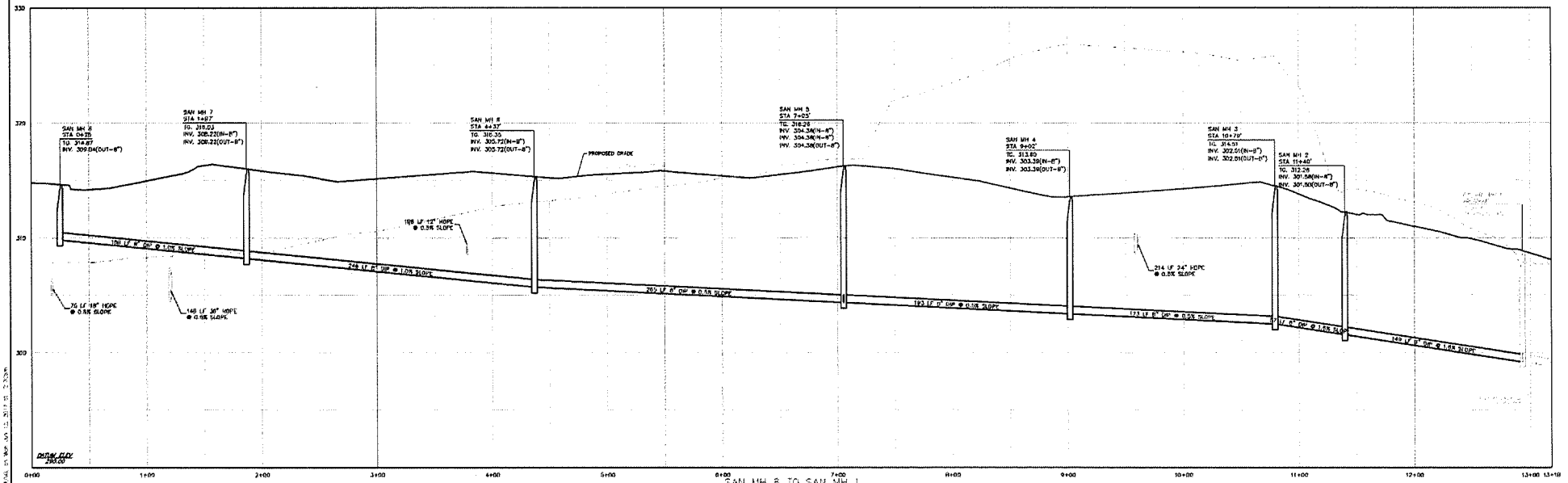
DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

JOB NO.:	SHEET NO.:
2015-06014-02	50 OF 52

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RDF	GCY	ESC

NOT APPROVED FOR CONSTRUCTION



SAN MH 8 TO SAN MH 1
SCALE: H:1"=40' V: 1"=4'

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ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 650, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2000, PENNSYLVANIA ACT 121. GILMORE & ASSOCIATES INC. HAS OBTAINED A PA-ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304 20151771353 & 20151771359

OWNER:
DT DRESHERTOWN LP
200 INTNER ROAD, SUITE 200
HORSHAM, PA 19044
(215) 938-7300

MUNICIPAL FILE NO.: XX

TAX MAP PARCEL NO.: 54-00-05242-00-5

TOTAL AREA: 23.411

TOTAL LOTS: 1

DATE: 2-10-17

SCALE: 1"=40'

ERIC S. CLASE
ENGINEER
35713-E
COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL

DATE: 6-12-17

REV	DESCRIPTION	DATE	BY

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
AND CONDITIONAL USE PLAN

SANITARY PROFILES

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

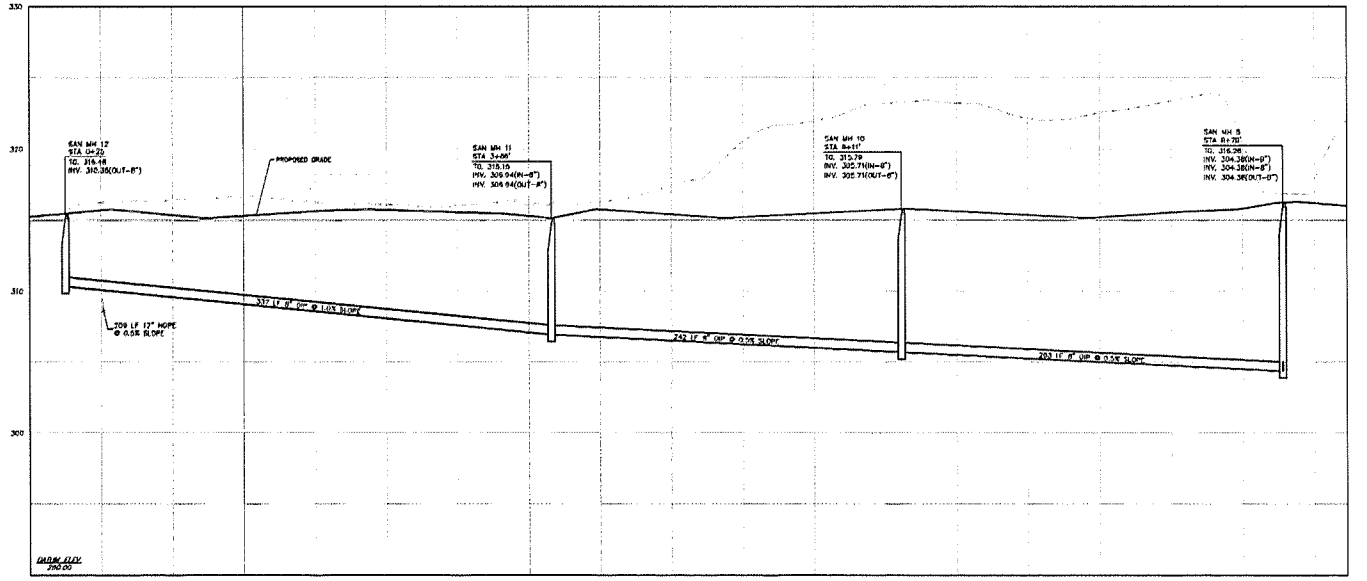
SCALE: 40 0 40 80 IN FEET

JOB NO.: 2015-06014-02

SHEET NO.: 51 OF 52

DESIGNED BY: RDF | DRAWN BY: GCY | CHECKED BY: ESC

NOT APPROVED FOR CONSTRUCTION



SAN MH 12 TO SAN MH 5
SCALE: H:1"=40' V: 1"=4'

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ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 852, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2000, PENNSYLVANIA ACT 121. GILMORE & ASSOCIATES INC. HAS OBTAINED A PA-ONE CALL SERIAL NUMBER AS NOTED HEREON FOR DESIGN PURPOSES ONLY.

PENNSYLVANIA ONE CALL SYSTEM, INC.

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776

SERIAL NO. 20151771253, 20151771304, 20151771353 & 20151771358

OWNER:	REV	DESCRIPTION	DATE	BY
ST DREHERTOWN, LP 200 WITMER ROAD, SUITE 200 HORSHAM, PA 19044 (215) 956-7500				
MUNICIPAL FILE NO.: XX	TAX MAP PARCEL NO.: 54-00-05242-00-5	TOTAL AREA: 23.441	TOTAL LOTS: 1	
	DATE: 2-10-17	SCALE: 1"=40'		

PRELIMINARY/FINAL LAND DEVELOPMENT PLAN AND CONDITIONAL USE PLAN

SANITARY PROFILES

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA

REGISTERED PROFESSIONAL ENGINEER
ERIC S. CLASL
ENGINEER
45713-E
COMMONWEALTH OF PENNSYLVANIA

DATE: 6-12-17

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

SCALE:	40	0	40	80
	IN			FEET

JOB NO.: 2015-06014-02

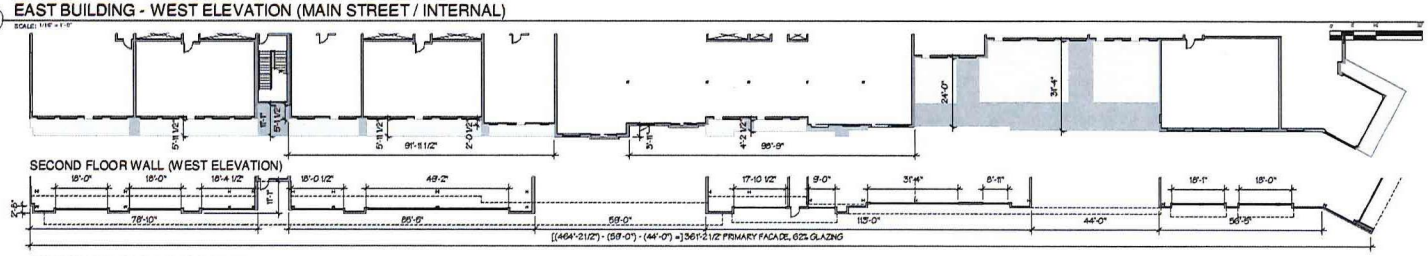
SHEET NO.: 52 OF 52

DESIGNED BY:	DRAWN BY:	CHECKED BY:
RDF	DCY	ESC

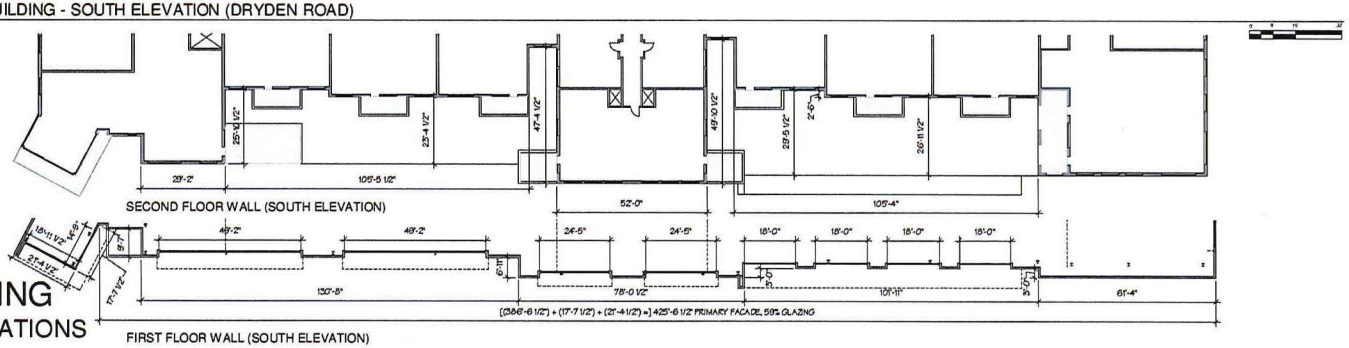
NOT APPROVED FOR CONSTRUCTION

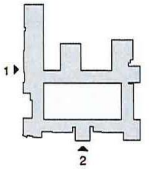
EXHIBIT "E"

1 EAST BUILDING - WEST ELEVATION (MAIN STREET / INTERNAL)



2 EAST BUILDING - SOUTH ELEVATION (DRYDEN ROAD)





EAST BUILDING
EXTERIOR ELEVATIONS

SCALE: 1/16" = 1'-0"

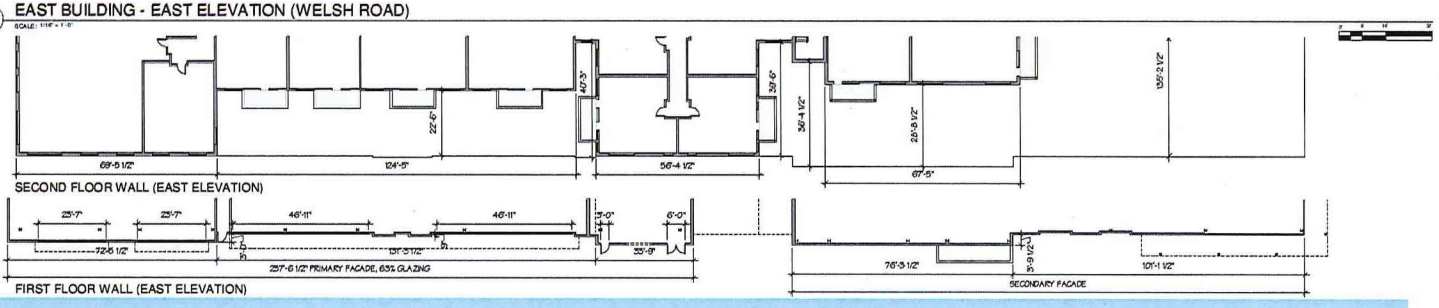
2054.00-16 FEBRUARY 7, 2017

BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044

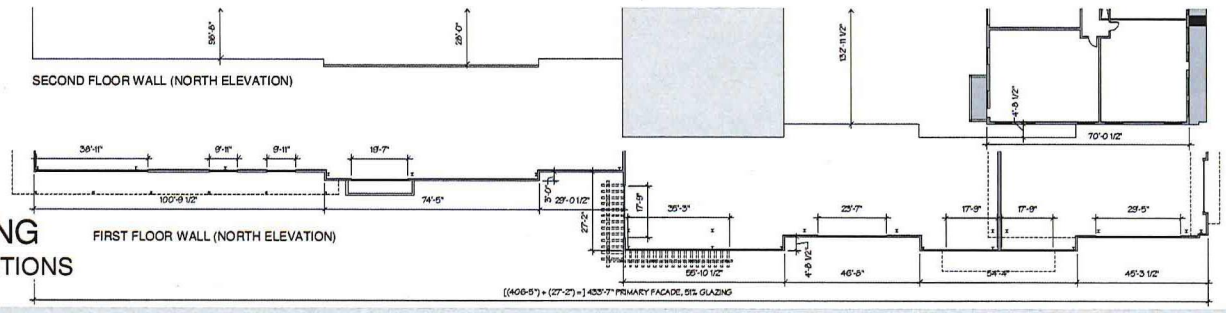
PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

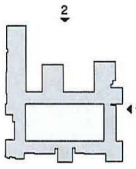
BERNARDON
ARCHITECTURE
INTERIOR DESIGN
LANDSCAPE ARCHITECTURE
The Philadelphia Building | 1315 Walnut Street, Suite 600
Philadelphia, PA 19107 p. 215.609.4609 www.bernardon.com

1 EAST BUILDING - EAST ELEVATION (WELSH ROAD)



2 EAST BUILDING - NORTH ELEVATION (DRESHERTOWN ROAD)





KEY PLAN

EAST BUILDING
EXTERIOR ELEVATIONS

SCALE: 1/16" = 1'-0"

2054.00-16 FEBRUARY 7, 2017

BET Investments, Inc.
200 Witmer Road
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Horsham, PA 19044

PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

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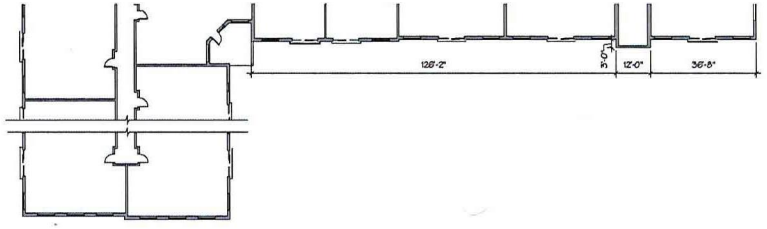
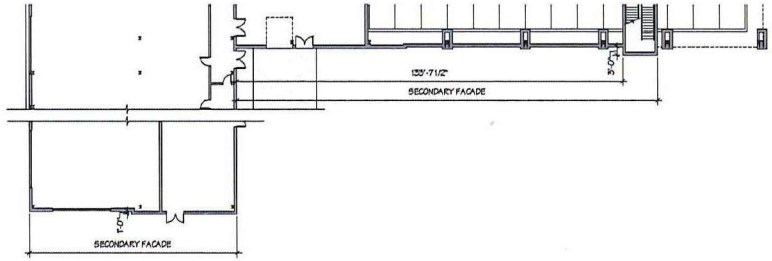
Philadelphia, PA 19107 p. 215.609.4609 www.bernardon.com

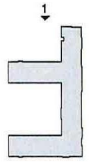
1 WEST BUILDING - NORTH ELEVATION (DRESHERTOWN ROAD)



SECOND FLOOR WALL (NORTH ELEVATION)



FIRST FLOOR WALL (NORTH ELEVATION)



KEY PLAN

WEST BUILDING
EXTERIOR ELEVATION
SCALE: 1/16" = 1'-0"

2054.00-16 FEBRUARY 7, 2017

BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044

PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

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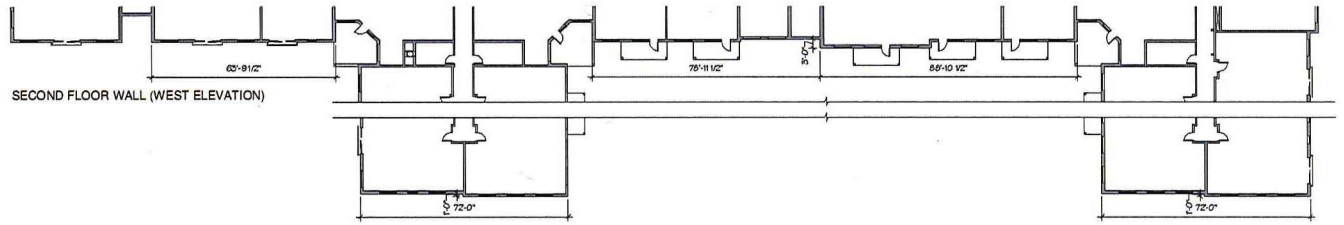
Philadelphia, PA 19107 p: 215 609 4609 www.bernardon.com

1 WEST BUILDING - WEST ELEVATION (AGE QUALIFIED SIDE / INTERNAL)



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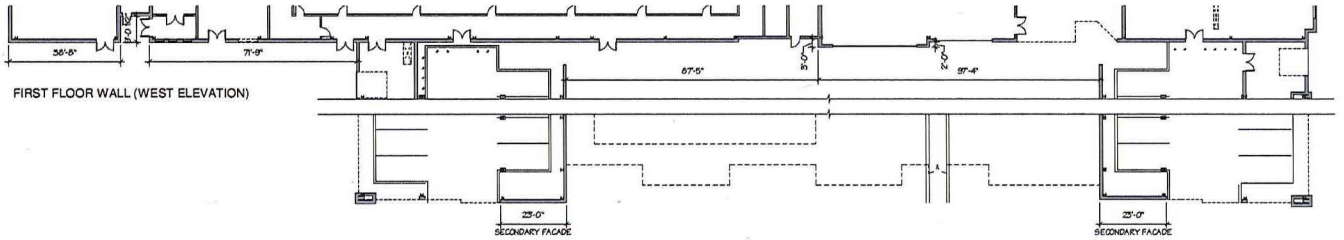
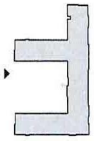


FIRST FLOOR WALL (WEST ELEVATION)



KEY PLAN

WEST BUILDING
EXTERIOR ELEVATION
SCALE: 1/16" = 1'-0"

2054.00-16 FEBRUARY 7, 2017

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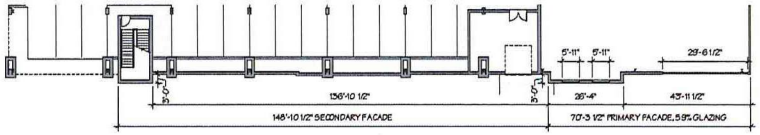
Philadelphia, PA 19107 p. 215 609 4609 www.bernardon.com

1 WEST BUILDING - SOUTH ELEVATION (DRYDEN ROAD)

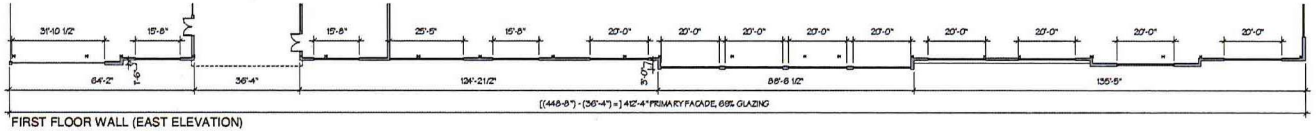
SECOND FLOOR WALL (SOUTH ELEVATION)



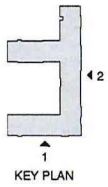
FIRST FLOOR WALL (SOUTH ELEVATION)

2 WEST BUILDING - EAST ELEVATION (MAIN STREET / INTERNAL)

SECOND FLOOR WALL (EAST ELEVATION)



FIRST FLOOR WALL (EAST ELEVATION)



KEY PLAN

WEST BUILDING
EXTERIOR ELEVATIONS

SCALE: 1/16" = 1'-0"

2054.00-16 FEBRUARY 7, 2017

BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044

PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

BERNARDON
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Exhibit "F"

UPPER DUBLIN TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 17-1330

AN ORDINANCE AMENDING CHAPTER 255 (ZONING) OF THE UPPER DUBLIN TOWNSHIP CODE OF ORDINANCES TO ALLOW A MIXED USE DEVELOPMENT AS A CONDITIONAL USE IN THE OC OFFICE CENTER DISTRICT AND ADDING SIGNAGE STANDARDS FOR MIXED USE DEVELOPMENTS IN THE OC OFFICE CENTER DISTRICT

WHEREAS, the Code of Upper Dublin Township, Chapter 255, Zoning Article XXVII, Section 255-200 of the Upper Dublin Township Zoning Ordinance and Section 609 of the Pennsylvania Municipalities Planning Code, 53 P.S. § 10609, authorize the Board of Commissioners of Upper Dublin Township to enact amendments to the Upper Dublin Township Zoning Ordinance;

WHEREAS, the Board of Commissioners has determined that it is in the best interests of the municipality to adopt this ordinance amending the Upper Dublin Township Zoning Ordinance;

WHEREAS, the Board of Commissioners has determined that this Ordinance is generally consistent with the Upper Dublin Township Comprehensive Plan;

WHEREAS, a public hearing was held, following notice, for the purpose of considering this amendment to the Upper Dublin Township Zoning Ordinance; and;

WHEREAS, the Board of Commissioners after the public hearing held pursuant to public notice, and after receipt of recommendations from the Upper Dublin Township Planning Commission and the Montgomery County Planning Commission, deems it appropriate and proper that the Zoning Ordinance be amended to allow a Mixed Use Development as a conditional use in the OC Office Center District, subject to certain conditions and requirements, and that such amendment is in accordance with the spirit and the intent of the Upper Dublin Township Zoning Ordinance and Comprehensive Plan.

NOW, THEREFORE, the Board of Commissioners of the Township of Upper Dublin Township hereby ordains:

SECTION 1. The Code of Upper Dublin Township, Chapter 255, Zoning, Article IX, OC Office Center District, § 255-60, Use Regulations, shall be amended to allow a Mixed Use Development, consisting of a mix of nonresidential and residential uses, as a conditional use in the OC Office Center District, by the addition of Subsection D, as follows:

Section 255-60. Use Regulations

D. Mixed Use Development. A Mixed Use Development, as defined in § 255-7, when approved by the Board of Commissioners as a conditional use, subject to the requirements and criteria of § 255.61.1.

SECTION 2. The Code of Upper Dublin Township, Chapter 255, Zoning, Article IX, OC Office Center District, shall be amended by adding a new Section § 255-61.1, setting forth the development requirements for Mixed Use Developments in the OC Office Center District, as follows:

§255-61.1. Use and Development Requirements for Mixed Use Developments.

A Mixed Use Development shall comply with the following requirements and criteria:

A. The development shall consist of a harmonious selection of uses and groupings of buildings, service and parking areas, circulation and green areas, planned and designed as an integrated unit, in such a manner as to constitute a safe, efficient and convenient center and encourage the use of green building technologies and sustainable design features.

B. Permitted Uses. Any of the following uses may be permitted when included in a Mixed Use Development:

(1) Retail and commercial establishments to include the following:

(a) Retail sale of household merchandise, food and beverage products, and personal effects, such as dry goods, variety and general merchandise, clothing, prepared and packaged food, grocery items, deli products, flowers, beverages, pharmaceuticals and medical supplies, household supplies and furnishings, jewelry, optical goods, musical items, and antiques.

(b) Personal care, to include barber shop, hairdresser, clothes cleaning, tailoring, nail care and spa.

(c) Personal fitness center.

(d) Child and/or adult daycare facility.

(e) Restaurant, coffeehouse, tea room, café, confectionary or similar establishment serving food or beverage, provided that the establishment shall not be open for business between the hours of 1:00 a.m. and 6:00 a.m. daily and on weekends.

(f) Bank or financial institution.

(g) Business, medical or professional office.

(2) Residential uses:

(a) Apartment Buildings.

(b) Townhouse Dwellings.

(3) Accessory uses:

(a) Parking garage.

(b) Clubhouse, pool or other amenity uses, as an accessory use to a permitted residential use.

(c) Drive-thru service, as an accessory use to a coffeehouse/tea room, bank or financial institution, provided the drive-thru is internal to the site with no direct access onto a public street or highway and, provided further, that that no more than two (2) drive-thru facilities shall be permitted within a Mixed Use Development.

(d) Outdoor seating and/or dining areas, limited to at grade or ground floor, provided that no outdoor seating or dining shall occur after 11:00 p.m., daily and on weekends.

C. Development Requirements. The general plan for a Mixed Use Development shall comply with the following requirements and criteria:

(1) Lot area. The minimum gross lot area shall be twenty (20) acres.

(2) Road frontages. The site shall have frontage on and road access to at least two (2) public roads.

(3) Mix requirements. Every Mixed Use Development shall provide a mix of office, commercial and residential uses and no one use may utilize more than eighty percent (80%) of the gross building floor area. Accessory parking, including any parking garage, shall not be included as a separate use and its square footage shall not be counted in the calculation of the mix requirements. Apartment leasing area and multi-family common space may be included as residential space in calculating the mix requirements.

(4) Site Plan. A site plan shall be required and shall include a unified architectural theme, preliminary stormwater management design and conceptual landscaping.

(5) Neighborhood Open Space. A minimum of ten percent (10%) of the net developable area of the lot shall be developed as Neighborhood Open Space. Neighborhood Open Space shall consist of parks, plazas, gardens, water features and other similarly improved common areas and amenities

provided for the benefit of the residents, tenants and/or customers of the Mixed Use Development, and the general public. Trail and sidewalk connections also shall be provided to connect Neighborhood Open Spaces. A public access easement shall be granted in favor of the Township to provide public access to the trails and to certain portions of the Neighborhood Open Space within a Mixed Use Development that are appropriate for public access.

(6) Stormwater Facilities. Naturalized stormwater facilities may occupy up to twenty-five percent (25%) of the Neighborhood Open Space if such facilities are designed and landscaped using Best Management Practices (BMPs), as published from time to time by the Pennsylvania Department of Environmental Protection and incorporated into the landscaped area. There shall be no limit on the area of underground stormwater facilities.

(7) Buffers. There shall be a buffer area along the property line of a residential zoned district of at least fifty (50) feet, which buffer area shall include planting and landscaping. There shall be a buffer area of at least twenty-five (25) feet where parking is located along a street frontage, which buffer area may include a low wall, fencing and/or landscaping.

(8) Permitted Density. A Mixed Use Development may contain up to fifteen (15) dwelling units per gross acre of the lot area. To encourage the use of green building technology and sustainable design features, increases in the base density are permitted in accordance with the following table. These increases are cumulative and can be combined up to a maximum density of twenty (20) dwelling units per gross acre of the lot area.

Bonus Feature	**Bonus Feature Standard**	**Density Bonus**
Neighborhood Open Space	Preserve additional land as Neighborhood Open Space in excess of the required 10%.	For each additional 5% of net developable area preserved, permitted density may be increased by 0.5 dwelling units per gross acre.
Structured parking	A minimum of 35% of the total required number of parking spaces is provided in structured parking.	2.0 dwelling unit per gross acre
Green Roof	The green roof shall cover at least 70% of the net roof area (the total gross area minus areas covered by mechanical equipment) of a building with a footprint of at least 20,000 square feet. Green roofs shall be designed and installed under the direction of a professional with demonstrated expertise in green roof design and construction. Vegetation must be maintained for the life of the building.	2.0 dwelling unit per gross acre for the first building with a qualifying green roof and another 0.5 dwelling unit per acre for each additional building with a qualifying green roof.

	The green roof shall conform to the best available technology standards, such as those published by LEED.	
Alternative transportation	Qualifying features: a) Provide electric plug-in charging stations for electric/hybrid vehicles for 1% of total required parking. b) Provide bike racks throughout development. c) Implement a bike-share program within the development. d) Provide a public transit stop.	For each qualifying feature, density may be increased by 1.0 dwelling units per gross acre.
Alternative energy sources	Install a solar, geothermal or other renewable energy power-generation facility that is designed to provide at least 10% of the expected annual energy use for the building. The facility shall be designed and installed under the direction of a professional with demonstrated expertise in the design and construction of such facilities.	1.0 dwelling unit per gross acre

D. Area and Bulk Requirements.

(1) Building coverage. The maximum building coverage shall not exceed forty percent (40%) of the net developable area of the lot.

(2) Impervious coverage. The maximum impervious coverage shall not exceed seventy percent (70%) of the developable acreage of the lot.

(3) Building Height. The maximum building height of any residential or mixed use building or structure within a Mixed Use Development shall be sixty-five (65) feet, in accordance with the requirements under § 255-61.F. except that the maximum height for portions of a building comprised of ground floor retail, without residential above, shall be thirty-five (35) feet.

(4) Building setbacks. No building may be located closer than:

(a) Seventy (70) feet to any public highway or ultimate public right-of-way, or to any toll or controlled public highway right-of-way.

(b) Fifty (50) feet to any other property line or the center line of any existing private road.

(5) Parking setbacks. No parking area may be located closer than twenty-five (25) feet to any public highway or ultimate public right-of-way, or to any toll or controlled public highway right-of-way, or any other property line.

(6) Parking requirements.

(a) Nonresidential uses: 4 spaces per 1,000 square feet of gross building floor area.

(b) Residential uses: 2.0 spaces per dwelling unit, provided that the applicant may place in reserve up to twenty-five percent (25%) of the required parking, subject to the approval of the Board of Commissioners.

E. Design Standards. The intent of these standards is to ensure development contributes to a high-quality, mixed-use environment without limiting design flexibility and innovation. The applicant shall submit plans, elevations, renderings, reports, documents and samples as necessary in the form of proposed design guidelines to demonstrate compliance with the following standards:

(1) Building Design.

(a) Coherent Architectural Theme. Mixed Use Developments shall have a common and coherent architectural theme throughout the development.

(b) Primary Façade. Any building façade with a customer or visitor entrance shall be treated as a primary façade. At least fifty percent (50%) of the length of the ground floor of primary façades shall consist of windows, glass doors, or other transparent or semi-transparent building surfaces. Mirrored glass is prohibited. Walls or portions of walls where windows are not provided shall have architectural treatments and details, such as a change in building material or color, lighting fixtures, decorative tiles, hanging planters, awnings and/or similar features.

(c) Secondary façade. All other building façades shall be treated as a secondary façade. Secondary façades must have architectural treatments and building materials that are complimentary to the primary façade.

(d) Building entrances. All building entrances on primary facades shall be accentuated. Permitted entrance accents include: recessed, protruding, canopy, portico, overhang and/or similar feature.

(e) Parapets, etc. Buildings shall be designed with parapets, mansards, or other architectural treatment along all roof edges to conceal large vents, HVAC and other rooftop equipment and structures.

(f) Building breaks.

[1] Buildings must have at least a three (3) foot break in depth, for the full height of the building, every 150 feet of continuous primary façade.

[2] For buildings greater than four (4) stories tall, the façade of the building shall step back a minimum of three (3) feet above the first floor of the building.

(g) Balconies. Balconies or Juliette style balconies shall be provided for every residential unit.

(2) Signage. The applicant for a Mixed Use Development shall submit a sign plan meeting the requirements of § 255-152.2.H.

(3) Landscape and Streetscape Standards.

a) Sidewalks or multi-use trails shall be provided along all street frontages. Sidewalks along public and private street frontages shall be a minimum of six (6) feet wide. Trails shall be a minimum of ten (10) feet wide.

b) A landscape plan prepared by a licensed landscape architect is required for all Mixed Use Developments. Landscaped areas include green areas, streetscapes, the interior and perimeter of surface parking areas, greenways, verges, stormwater basins, and natural areas.

c) Within 100 feet of a residential zoning district the landscape plan shall include plantings, decorative fencing or a wall to shield headlights and soften the view of cars from the street and from adjacent residential areas.

(4) Standards for Neighborhood Open Space.

(a) The minimum width of any land area to be counted as Neighborhood Open Space shall be fifteen (15) feet.

(b) Neighborhood Open Space shall be landscaped and/or hardscaped with a mix of trees, shrubs, groundcover decorative paving or walls in accordance with the overall landscape plan prepared for the development by a registered landscape architect.

(c) Neighborhood Open Space shall be provided with benches, trash containers and/or lighting fixtures.

(5) Public Transit. Transit facilities and shelters shall be provided in mutually agreeable location(s) and in accordance with the design standards established by the Southeastern Pennsylvania Transit Authority (SEPTA).

SECTION 3. The Code of the Township of Upper Dublin, Chapter 255, Zoning, Article XXI, Signs, shall be amended by the addition of a new subsection H to § 255-155.2 to provide for signage related to a Mixed Use Development, as follows:

§ 255-155.2. OC Office Center District.

H. In conjunction with a Mixed Use Development any combination of the following types of signs shall be permitted:

(1) Freestanding Signs. One freestanding sign shall be permitted for every four hundred and fifty feet (450') of property frontage along Welsh Road. Such freestanding signs shall be of a complimentary architectural style to the buildings of the Mixed Use Development, shall not exceed twenty-five feet (25') in height, nor contain more than two hundred square feet (200 sq. ft.) of sign area per side (maximum two (2) sides).

(2) Monument Signs. One monument sign shall be permitted for every five hundred feet (500') of property frontage along Dreshertown Road. Such monument signs shall be of a complimentary architectural style to the buildings of the Mixed Use Development, shall not exceed six feet (6') in height, nor contain more than one hundred twenty square feet (120 sq.ft.) of sign area per side (maximum two (2) sides).

(3) Wall Signs.

(a) Individual retail or commercial establishments within a Mixed Use Development shall be permitted signs on each exterior wall facing a public street or a private street or driveway. Such signs shall not exceed ten percent (10%) of the façade on which the signs are located or two hundred square feet (200 sq. ft.), whichever is less.

(b) Residential identification signage shall be permitted on each exterior wall facing a public street or private street or driveway. Such identification signage shall not exceed two hundred square feet (200 sq.ft.) per façade.

(4) Directional Signs. Directional signs within the Mixed Use Development shall be permitted, either freestanding or building mounted. Such signs may contain the names of specific tenants as well as other public information to direct both pedestrians and motorists through the site to the location of various uses including but not limited to general tenant parking areas, residential parking structures, parks, exits and entrances to the development. Signs shall be sized appropriately to be visible to pedestrians, motorist or both depending on location, but in no event shall

any one sign be larger than thirty-two square feet (32 sq.ft.) in area. The total number of directional signs and their location shall be determined by the Board of Commissioners.

(5) Project Identification Signs. Project identification signs containing the project name or other identifying feature, but no other tenant advertising shall be permitted within the development which also may be visible outside the development. Such signage shall be of a complimentary style to the development and shall be no larger than two hundred square feet (200 sq.ft.) in area. The total number of project identification signs and their location shall be determined by the Board of Commissioners.

SECTION 4. To the extent that the provisions of this Ordinance are inconsistent or conflict with any other provision of Chapter 255, the Upper Dublin Township Zoning Ordinance, the specific regulations contained in § 255-61.1 shall control and take precedence over such other regulations.

SECTION 5. The provisions of this Ordinance are severable, and if any sentence, clause, section or part of the ordinance is for any reason found to be unconstitutional, illegal, or invalid, such unconstitutionality, or invalidity shall not affect or impair any of the remaining provisions, sentences, or parts of this ordinance. It is hereby declared to be the express intent of the Board of Commissioners that this Ordinance would have been adopted had such unconstitutional, illegal, or invalid sentence, clause, section, or parts thereof had not been included herein.

SECTION 6. This Ordinance repeals and replaces Ordinance 16-1326.

SECTION 7. This Ordinance shall take effect and be in force from and after its approval as required by law. ENACTED by the Board of Commissioners of Upper Dublin Township, this 28th day of March, 2017.

ATTEST:

Paul Leonard, Secretary and
Township Manager

BOARD OF COMMISSIONERS OF THE
TOWNSHIP OF UPPER DUBLIN

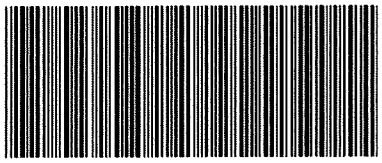
Ira S. Tackel, President

EXHIBIT "G"

RECORDER OF DEEDS
MONTGOMERY COUNTY
Jeanne Sorg

One Montgomery Plaza
Swede and Airy Streets ~ Suite 303
P.O. Box 311 ~ Norristown, PA 19404
Office: (610) 278-3289 ~ Fax: (610) 278-3869

DEED BK 6026 PG 00140 to 00162
INSTRUMENT # : 2016094936
RECORDED DATE: 12/06/2016 01:47:42 PM



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MONTGOMERY COUNTY ROD

OFFICIAL RECORDING COVER PAGE Page 1 of 23

Document Type:	Deed Miscellaneous	**Transaction #:**	3485379 - 1 Doc(s)
Document Date:	12/05/2016	**Document Page Count:**	22
Reference Info:		**Operator Id:**	sford

RETURN TO: (Simplifile)
Land Services USA
1835 Market St., Suite 420
Philadelphia, PA 19103
(215) 563-5468

PAID BY:
LAND SERVICES USA

*** PROPERTY DATA:**

Parcel ID #:	54-00-05242-00-5
Address:	0 WELSH RD
	PA
Municipality:	Upper Dublin Township (100%)
School District:	Upper Dublin

*** ASSOCIATED DOCUMENT(S):**

FEES / TAXES:

Recording Fee:Deed Miscellaneous	$69.00
Additional Pages Fee	$36.00
Total:	$105.00

DEED BK 6026 PG 00140 to 00162
Recorded Date: 12/06/2016 01:47:42 PM

I hereby CERTIFY that this document is recorded in the Recorder of Deeds Office in Montgomery County, Pennsylvania.

Jeanne Sorg
Recorder of Deeds

Rev1 2016-01-29

PLEASE DO NOT DETACH

THIS PAGE IS NOW PART OF THIS LEGAL DOCUMENT

NOTE: If document data differs from cover sheet, document data always supersedes.
***COVER PAGE DOES NOT INCLUDE ALL DATA, PLEASE SEE INDEX AND DOCUMENT FOR ANY ADDITIONAL INFORMATION**

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
54-00-05242-00-5 UPPER DUBLIN TOWNSHIP
0 WELSH RD
BT DRESHERTOWN LP $15.00
B 012 L 3 U 053 2211 12/06/2016 JG

Prepared by: Robert W. Gundlach, Jr.
Fox Rothschild LLP
2700 Kelly Road, Suite 300
Warrington, PA 18976
Telephone: 215-345-7500

Return to: Land Services USA, Inc.
1835 Market Street, Suite 420
Philadelphia, PA 19103
Attn: Jenna Lampe, Commercial Title Officer
Telephone: 215-964-6613

Tax Parcel: 54-00-05242-00-5

DECLARATION OF COVENANTS AND RESTRICTIONS

THIS DECLARATION, made this 5TH day of DECEMBER, 2016, by BT Dreshertown, LP, a Pennsylvania limited partnership ("Declarant"), on its behalf, as well as for all successors or assigns, and for the sole benefit of Upper Dublin Township.

WITNESSETH:

WHEREAS, Declarant owns that certain parcel of real property containing 25.411 acres, more or less, situate with frontage on Dreshertown and Welsh Roads in Upper Dublin Township, Montgomery County, Pennsylvania, being Tax Parcel #54-00-05242-00-5 (the "Property"); and

WHEREAS, the Declarant has determined to impose specific restrictions, as well as specific obligations with regard to any future development of the Property for a "Mixed Use Development," all as more specifically set forth hereinbelow (collectively, the "Limitations"); and

WHEREAS, the Declarant acknowledges that the Limitations must run with the land and, therefore, it is necessary that the Declarant create and impose covenants and restrictions setting forth the Limitations for the development of the Property; and

WHEREAS, the Declarant, for itself, as well as its successors and assigns, by this Declaration hereby establishes as specific covenants running with the Property, in perpetuity, the Limitations as set forth below herein.

NOW, THEREFORE, intending to be legally bound hereby, Declarant hereby declares as follows:

1. WHEREAS Clauses. The WHEREAS clauses are incorporated by reference as if set forth in full in the body of Declaration.

2. Mixed Use Zoning Ordinance Amendment. It is the intention of the Declarant that the Property be developed in accordance with a Zoning Ordinance amendment currently under consideration by the Board of Commissioners ("Board") of Upper Dublin Township ("Township") allowing for a "Mixed Use Development" (the "Community"). The development criteria for the Community is set forth in Exhibit "A," attached hereto and incorporated herein as if set forth in full. If the Board enacts an Ordinance containing the provisions substantially as set forth on Exhibit "A," and upon expiration of the time period for the filing of an appeal from the enactment, or in the event of an appeal, following the ultimate sustaining of the enactment of said Ordinance by the appropriate court of competent jurisdiction, all terms and provisions of this Declaration shall be deemed fully binding upon the Declarant, its successors and assigns, in regard to any development of the Community on the Property. If the Board does not adopt an Ordinance before January 31, 2017 allowing for development of the Community, or in the event of an appeal from enactment of the Ordinance which appeal is ultimately sustained, then this Declaration shall automatically be deemed null, void and have no further force or effect

(retroactive to the date of recording of this Declaration, if this Declaration has, in fact, been recorded) without any further documentation or the recording of any termination agreement or document.

3. The Declarant shall make or cause to be made the traffic improvements set forth in this paragraph 3, subject to permits issued by the Pennsylvania Department of Transportation ("PennDOT"):

A. Access.

(1) Full Welsh Road access via the existing signal at Dryden Road.

(2) Right in – right out access from a new driveway on Welsh Road between Dryden Road and Dreshertown Road.

(3) Full Dreshertown Road access, to be aligned with the Regency at Upper Dublin's residential development driveway, with a new traffic signal.

B. Welsh Road Improvements:

(1) Widen Welsh Road and extend the second eastbound through lane from its current termination point east of Jarrettown Road to accommodate the 95% queue distance west of Jarrettown Road.

(2) Extend the eastbound Welsh Road right turn lane at Dreshertown Road to provide the maximum storage capacity available with no impact to the trail system being installed at the Regency at Upper Dublin.

(3) Reconfigure the southwest corner of the Welsh Road and Dreshertown Road intersection to accommodate a WB-50 truck turn

with a standard stop bar configuration on Dreshertown Road (i.e., four feet from the crosswalk).

C. Dreshertown Road Improvements.

(1) Install a new traffic signal at the driveway location with a southbound left turn lane and a northbound right turn lane on Dreshertown Road. The length of the turn lanes should accommodate the 95% queue distance.

(2) Soften the curve between St. Georges Road and Tuckerstown Road to comply with a minimum Design Speed of 40 MPH per PennDOT standards. This includes design elements for lane width, horizontal radius, vertical sight distance and superelevation. Declarant will ensure the pavement section is adequate for the traffic loads identified in the Transportation Impact Study prepared by McMahon Transportation Engineers and Planners, dated March, 2016 ("TIS"), for the 2023 Development Condition.

(3) Install 75 foot minimum left turn lanes on Dreshertown Road for access to St. Georges Road and Tuckerstown Road in accordance with PennDOT design standards.

D. Traffic Signal Improvements.

(1) Welsh Road & Jarrettown Road.

(a) Replace signal equipment and ADA ramps as required for the widening of Welsh Road.

(b) Re-establish volume density loops and install ground wire loop detection to replace video detection shown on the Traffic Signal Permit Plan.

(c) Replace existing pole mounted controller with a ground mounted controller cabinet and Econolite ASC/3-2100 controller and battery back-up, unless modified by the Township as a result of subparagraph 3F, below.

(d) Update signal timings, clearance intervals and pedestrian timing.

(e) Re-establish the Signal Ahead warning system located west of Jarrettown Road with a new mast arm and equipment to operate in accordance with the current Traffic Signal Permit. Replace the Fail-Safe device located on the existing mast arm.

(2) Welsh Road & Dresher Road.

(a) Replace existing controller in the existing ground mounted cabinet with an Econolite ASC/3-2100 controller and battery back-up, unless modified by the Township as a result of subparagraph 3F, below.

(b) Update signal timings, clearance intervals and pedestrian timing, without decreasing the amount of green time provided to Dresher Road.

(3) Welsh Road & Dreshertown Road.

(a) Replace signal equipment and ADA ramps as required for the widening of Welsh Road.

(b) Replace ground wire detection loops on Dreshertown Road to reflect the new stop bar locations.

(c) Update signal timings, clearance intervals and pedestrian timing.

(4) Welsh Road & Dryden Road.

(a) Install ADA compliant ramps and add pedestrian countdown timers and LED pushbuttons as determined through the PennDOT Highway Occupancy Permit process.

(b) Determine if a protected left turn phase is warranted, and, if necessary, replace the existing 35 foot mast arm on the northwest corner to allow for the phase.

(c) Add ground wire loop detection on the Welsh Road turn lanes and re-establish loops as necessary for the side street stop bar locations.

(d) Update signal timings, clearance intervals and pedestrian timing.

(5) Welsh Road & Blair Mill Rd; Computer and Twining Roads.

(a) Update signal timings, clearance intervals and pedestrian timing.

(6) New signal at Dreshertown Road & Driveway Entrance.

(a) Ensure the cabinet is ground mounted with an Econolite ASC/3-2100 controller and battery backup. Provide LED signals, countdown timers and pedestrian push buttons along with emergency preemption.

(b) Install traffic adaptive software with video detection. Supplement the video detection zones with ground wire loop detection on side streets and turn lanes.

(c) Determine if a Queue Detector is required for the southbound approach in consultation with PennDOT, as well as Dilemma Zone detection.

(d) Incorporate this signal into the Welsh Road Interconnect System, I-0998 and provide a 12 strand serial fiber optic connection from the 72 strand backbone.

(7) Design to Township Standards. All traffic signal improvements and new traffic signals shall be designed to Township standards and specifications, subject to review and approval by Penn DOT,

E. Fiber Optic Installation. Declarant will install a 72 strand aerial fiber optic line along Welsh Road from Jarrettown Road to Blair Mill Road as part of the existing signal interconnection system, unless modified by the Township as a result of subparagraph 3F, below. This includes termination connections, software integration and ethernet switches at Jarrettown, Dresher, Dreshertown and Dryden Roads.

F. Cash Contributions.

(1) Green Light Go Program. If Upper Dublin Township and neighboring municipalities are successful in obtaining an award through the PennDOT Green Light Go 2016 Program for Welsh Road Corridor Fiber Optic and Signal Upgrades from PA Route 309 to PA Route 611, then none of the traffic improvements noted in subparagraphs 3.D.(1)(c), 3.D.(2)(a) and 3.E. will be required to be installed by the Declarant; rather, the Declarant will make a cash contribution to the Township in an amount not to exceed Two Hundred, Thirty Five Thousand Dollars and No Cents ($235,000.00), to be used for the local match requirement. The cost estimating method is consistent with the method utilized in the Green Light Go application and will be transmitted separately by Declarant to the Township for concurrence.

(2) Dresher Triangle Traffic Study. Declarant will make a cash contribution to the Township in an amount not to exceed Sixty One Thousand Dollars and No Cents ($61,000) to be used to prepare a "Limited Preliminary Engineering Effort – Dresher Triangle Improvement Concept," as more fully described in the letter dated October 19, 2016 from Boles, Smyth Associates, which letter is attached as Exhibit B and incorporated herein as if set forth in full.

G. Modification. The above outlined traffic improvements are subject to revision and/or modification as part of the Highway Occupancy Permit (HOP) process.

4. Post Development Traffic Analysis. Declarant will perform an After Study Traffic Analysis of the Welsh Road and Dreshertown Road driveways six (6) months after full build-out

of the Community to determine the actual number of new trips. If there are a substantial number of new trips above the TIS projections, then additional analysis will be required to determine if phasing/timing adjustments are warranted at the new intersection and at the Welsh Road intersections from Jarrettown Road to Twining Road. Declarant agrees to complete any improvements recommended as a result of the After Study Traffic Analysis up to a cost of Twenty-Five Thousand Dollars ($25,000.00). Declarant shall have no obligation to fund any improvements in excess of this amount.

5. Mass Transit Services.

(a) Bus Service. The Southeastern Pennsylvania Transportation Authority ("SEPTA") provides two routes along Welsh Road (Routes 80 and 310) and provides two (2) stops at Blair Mill Road and Dryden Road. Declarant will coordinate with SEPTA to determine if improvements to the existing stops should be made, and if additional stops or service is appropriate as a result of the Community.

(b) GVFTMA. Declarant agrees to provide for each major tenant to be members of the Greater Valley Forge Transportation Management Agency for an eighteen (18) month period from occupancy.

6. Recreational Trails. Declarant will construct or cause to be constructed a minimum 10 foot wide bituminous trail, paved to Township specifications, along the Dreshertown Road and Welsh Road frontages of the Property.

7. Overflow Parking. BT Dryden, LP, who is the owner of the adjacent property known as Montgomery County Tax Parcel Number 54-00-16675-00-2, and upon which an office building and accessory parking is located (the "Dryden Property"), shall grant an easement to the Declarant to allow the Declarant to use a portion of the Dryden Property for overflow parking for

the Property during nights and weekends when such parking is not needed by the office building located on the Dryden Property. The terms of this easement shall be finalized prior to the submission of a land development application for the project proposed for the Property.

8. Apartment Units.

(a) Declarant contemplates the construction of approximately 402 apartment units as part of the Community, together with the other improvements proposed as part of the Community. In no event shall the Community exceed 402 apartment units.

(b) Declarant covenants to construct only one and two bedroom apartment units as part of the Community, and further, covenants that no less than 40% of the apartments be one (1) bedroom apartments. In no event will Declarant construct apartments that have more than two (2) bedrooms.

9. Miscellaneous.

(a) This Declaration shall be a covenant running with the land and shall be binding upon and inure to the parties hereto and their respective successors and assigns. Notwithstanding the foregoing, the Board of Commissioners of Upper Dublin Township shall have the right to amend, waive, modify and/or remove any of the terms contained herein at any time in its sole discretion and without having to obtain approval of any party other than the then current owner of the Property.

(b) The restrictions contained in the Declaration shall inure to the sole benefit of the municipality of Upper Dublin Township, and shall be only enforceable by the municipality of Upper Dublin Township. This Declaration is not intended to benefit any other parties.

(c) All of the Declarant's obligations hereunder are contingent upon the Property being developed as a Mixed Use Development under the proposed Ordinance, Exhibit

A to this Declaration. If the Property is developed for any other use currently permitted under the Upper Dublin Township Zoning Ordinance, then the developer for such other permitted use (i.e., such as offices), shall not be subject to the terms of this Declaration.

(d) This Declaration shall be recorded in the Office of the Recorder of Deeds of Montgomery County, Pennsylvania, and shall constitute a covenant running with the Property, and shall be binding on the Declarant, its administrators, executors, assigns, heirs and all other successors in interest, in perpetuity.

IN WITNESS WHEREOF, the below Declarant has executed this Declaration on this 5th day of December, 2016

Attest:

BT Dreshertown, LP
By Its General Partner
BT Dreshertown GP, LLC

By: _____ (Seal)
Michael P. Markman, Manager

COMMONWEALTH OF PENNSYLVANIA :

COUNTY OF MONTGOMERY :

On this, the 16th day of December, 2016, before me, a Notary Public, the undersigned officer, personally appeared Michael Markman, who acknowledged himself to be the Manager of BT Dreshertown GP, LLC and Pennsylvania limited liability company, and that he as such officer, being authorized to do so, executed the foregoing instrument for the purposes therein contained, by signing the name of the limited liability company by himself as Manager.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

Lydia Williams (Seal)
Notary Public

Commonwealth of Pennsylvania
NOTARIAL SEAL
LYDIA WILLIAMS, NOTARY PUBLIC
Horsham Twp, Montgomery County
My Commission Expires January 14, 2017

Exhibit A

Development Criteria for the Community

1. Use Regulations.

A. A Mixed Use Development, as defined in § 255-7, when approved by the Board of Commissioners as a conditional use, subject to the requirements and criteria of § 255.61.1.

2. Use and Development Requirements for Mixed Use Developments.

A Mixed Use Development shall comply with the following requirements and criteria:

A. The development shall consist of a harmonious selection of uses and groupings of buildings, service and parking areas, circulation and green areas, planned and designed as an integrated unit, in such a manner as to constitute a safe, efficient and convenient center and encourage the use of green building technologies and sustainable design features.

B. Permitted Uses. Any of the following uses may be permitted when included in a Mixed Use Development:

(1) Retail and commercial establishments to include the following:

(a) Retail sale of household merchandise, food and beverage products, and personal effects, such as dry goods, variety and general merchandise, clothing, prepared and packaged food, grocery items, deli products, flowers, beverages, pharmaceuticals and medical supplies, household supplies and furnishings, jewelry, optical goods, musical items, and antiques.

(b) Personal care, to include barber shop, hairdresser, clothes cleaning, tailoring, nail care and spa.

(c) Personal fitness center.

(d) Child and/or adult daycare facility.

(e) Restaurant, coffeehouse, tea room, café, confectionary or similar establishment serving food or beverage, provided that the establishment shall not be open for business between the hours of 1:00 a.m. and 6:00 a.m. daily and on weekends.

(f) Bank or financial institution.

(g) Business, medical or professional office.

(2) Residential uses:

(a) Apartment Buildings.

(b) Townhouse Dwellings.

(3) Accessory uses:

(a) Parking garage.

(b) Clubhouse, pool or other amenity uses, as an accessory use to a permitted residential use.

(c) Drive-thru service, as an accessory use to a coffeehouse/tea room, bank or financial institution, provided the drive-thru is internal to the site with no direct access onto a public street or highway and, provided further, that that no more than two (2) drive-thru facilities shall be permitted within a Mixed Use Development.

(d) Outdoor seating and/or dining areas, limited to at grade or ground floor, provided that no outdoor seating or dining shall occur after 11:00 p.m., daily and on weekends.

C. Development Requirements. The general plan for a Mixed Use Development shall comply with the following requirements and criteria:

(1) Lot area. The minimum gross lot area shall be twenty (20) acres.

(2) Road frontages. The site shall have frontage on and road access to at least two (2) public roads.

(3) Mix requirements. Every Mixed Use Development shall provide a mix of office, commercial and residential uses and no one use may utilize more than eighty percent (80%) of the gross building floor area. Accessory parking, including any parking garage, shall not be included as a separate use and its square footage shall not be counted in the calculation of the mix requirements. Apartment leasing area and multi-family common space may be included as residential space in calculating the mix requirements.

(4) Site Plan. A site plan shall be required and shall include a unified architectural theme, preliminary stormwater management design and conceptual landscaping

(5) Neighborhood Open Space. A minimum of ten percent (10%) of the net developable area of the lot shall be developed as Neighborhood Open Space. Neighborhood Open Space shall consist of parks, plazas, gardens, water features and other similarly improved common areas and amenities provided for the benefit of the residents, tenants and/or customers of the Mixed Use Development, and the general public. Trail and sidewalk connections also shall be provided to connect Neighborhood Open Spaces. A public access easement shall be granted in favor of the Township to provide public access to the trails and to certain portions of the Neighborhood Open Space within a Mixed Use Development that are appropriate for public access.

(6) Stormwater Facilities. Naturalized stormwater facilities may occupy up to twenty-five percent (25%) of the Neighborhood Open Space if such facilities are designed and

landscaped using Best Management Practices (BMPs), as published from time to time by the Pennsylvania Department of Environmental Protection and incorporated into the landscaped area. There shall be no limit on the area of underground stormwater facilities.

(7) Buffers. There shall be a buffer area along the property line of a residential zoned district of at least fifty (50) feet, which buffer area shall include planting and landscaping. There shall be a buffer area of at least twenty-five (25) feet where parking is located along a street frontage, which buffer area may include a low wall, fencing and/or landscaping.

(8) Permitted Density. A Mixed Use Development may contain up to fifteen (15) dwelling units per gross acre of the lot area. To encourage the use of green building technology and sustainable design features, increases in the base density are permitted in accordance with the following table. These increases are cumulative and can be combined up to a maximum density of twenty (20) dwelling units per gross acre of the lot area.

Bonus Feature	Bonus Feature Standard	Density Bonus
Neighborhood Open Space	Preserve additional land as Neighborhood Open Space in excess of the required 10%.	For each additional 5% of net developable area preserved, permitted density may be increased by 0.5 dwelling units per gross acre.
Structured parking	A minimum of 35% of the total required number of parking spaces is provided in structured parking.	2.0 dwelling unit per gross acre
Green Roof	The green roof shall cover at least 70% of the net roof area (the total gross area minus areas covered by mechanical equipment) of a building with a footprint of at least 20,000 square feet. Green roofs shall be designed and installed under the direction of a professional with demonstrated expertise in green roof design and construction. Vegetation must be maintained for the life of the building. The green roof shall conform to the best available technology standards, such as those published by LEED.	2.0 dwelling unit per gross acre for the first building with a qualifying green roof and another 0.5 dwelling unit per acre for each additional building with a qualifying green roof.
Alternative transportation	Qualifying features: a) Provide electric plug-in charging stations for electric/hybrid vehicles for 1% of total required parking. b) Provide bike racks throughout development. c) Implement a bike-share program within the development. d) Provide a public transit stop.	For each qualifying feature, density may be increased by 1.0 dwelling units per gross acre.

Alternative energy sources	Install a solar, geothermal or other renewable energy power-generation facility that is designed to provide at least 10% of the expected annual energy use for the building. The facility shall be designed and installed under the direction of a professional with demonstrated expertise in the design and construction of such facilities.	1.0 dwelling unit per gross acre

D. Area and Bulk Requirements.

(1) Building coverage. The maximum building coverage shall not exceed forty percent (40%) of the net developable area of the lot.

(2) Impervious coverage. The maximum impervious coverage shall not exceed seventy percent (70%) of the developable acreage of the lot.

(3) Building Height. The maximum building height of any residential or mixed use building or structure within a Mixed Use Development shall be sixty-five (65) feet, in accordance with the requirements under § 255-61(F), except that the maximum height for portions of a building comprised of ground floor retail, without residential above, shall be thirty-five (35) feet.

(4) Building setbacks. No building may be located closer than:

(a) Seventy (70) feet to any public highway or ultimate public right-of-way, or to any toll or controlled public highway right-of-way.

(b) Fifty (50) feet to any other property line or the center line of any existing private road.

(5) Parking setbacks. No parking area may be located closer than twenty-five (25) feet to any public highway or ultimate public right-of-way, or to any toll or controlled public highway right-of-way, or any other property line.

(6) Parking requirements.

(a) Nonresidential uses: 4 spaces per 1,000 square feet of gross building floor area.

(b) Residential uses: 2.0 spaces per dwelling unit, provided that the applicant may place in reserve up to twenty-five percent (25%) of the required parking, subject to the approval of the Board of Commissioners.

E. Design Standards. The intent of these standards is to ensure development contributes to a high-quality, mixed-use environment without limiting design flexibility and innovation. The applicant shall submit plans, elevations, renderings, reports, documents and

samples as necessary in the form of proposed design guidelines to demonstrate compliance with the following standards:

(1) Building Design.

(a) Coherent Architectural Theme. Mixed Use Developments shall have a common and coherent architectural theme throughout the development.

(b) Primary Façade. Any building façade with a customer or visitor entrance shall be treated as a primary façade. At least fifty percent (50%) of the length of the ground floor of primary façades shall consist of windows, glass doors, or other transparent or semi-transparent building surfaces. Mirrored glass is prohibited. Walls or portions of walls where windows are not provided shall have architectural treatments and details, such as a change in building material or color, lighting fixtures, decorative tiles, hanging planters, awnings and/or similar features.

(c) Secondary façade. All other building façades shall be treated as a secondary façade. Secondary façades must have architectural treatments and building materials that are complementary to the primary façade.

(d) Building entrances. All building entrances on primary facades shall be accentuated. Permitted entrance accents include: recessed, protruding, canopy, portico, overhang and/or similar feature.

(e) Parapets, etc. Buildings shall be designed with parapets, mansards, or other architectural treatment along all roof edges to conceal large vents, HVAC and other rooftop equipment and structures.

(f) Building breaks.

[1] Buildings must have at least a three (3) foot break in depth, for the full height of the building, every 150 feet of continuous primary façade.

[2] For buildings greater than four (4) stories tall, the façade of the building shall step back a minimum of three (3) feet above the first floor of the building.

(g) Balconies. Balconies or Juliette style balconies shall be provided for every residential unit.

(2) Signage. The applicant for a Mixed Use Development shall submit a sign plan meeting the requirements of § 255-152.2.H.

(3) Landscape and Streetscape Standards.

(a) Sidewalks or multi-use trails shall be provided along all street frontages. Sidewalks along public and private street frontages shall be a minimum of six (6) feet wide. Trails shall be a minimum of ten (10) feet wide.

(b) A landscape plan prepared by a licensed landscape architect is required for all Mixed Use Developments. Landscaped areas include green areas, streetscapes, the interior and perimeter of surface parking areas, greenways, verges, stormwater basins, and natural areas.

(c) Within 100 feet of a residential zoning districtthe landscape plan shall include plantings, decorative fencing or a wall to shield headlights and soften the view of cars from the street and from adjacent residential areas.

(4) Standards for Neighborhood Open Space.

(a) The minimum width of any land area to be counted as Neighborhood Open Space shall be fifteen (15) feet.

(b) Neighborhood Open Space shall be landscaped and/or hardscaped with a mix of trees, shrubs, groundcover decorative paving or walls in accordance with the overall landscape plan prepared for the development by a registered landscape architect.

(c) Neighborhood Open Space shall be provided with benches, trash containers and/or lighting fixtures.

(5) Public Transit. Transit facilities and shelters shall be provided in mutually agreeable location(s) and accordance with the design standards established by the Southeastern Pennsylvania Transit Authority (SEPTA).

3. OC Office Center District.

A. In conjunction with a Mixed Use Development any combination of the following types of signs shall be permitted:

(1) Freestanding Signs. One freestanding sign shall be permitted for every four hundred and fifty feet (450') of property frontage along Welsh Road. Such freestanding signs shall be of a complimentary architectural style to the buildings of the Mixed Use Development, shall not exceed twenty-five feet (25') in height, nor contain more than two hundred square feet (200 sq. ft.) of sign area per side (maximum two (2) sides)

(2) Monument Signs. One monument sign shall be permitted for every five hundred feet (500') of property frontage along Dreshertown Road. Such monument signs shall be of a complimentary architectural style to the buildings of the Mixed Use Development, shall not exceed six feet (6') in height, nor contain more than one hundred twenty square feet (120 sq.ft.) of sign area per side (maximum two (2) sides).

(3) Wall Signs.

(a) Individual retail or commercial establishments within a Mixed Use Development shall be permitted signs on each exterior wall facing a public street or a private street or driveway. Such signs shall not exceed ten percent (10%) of the façade on which the signs are located or two hundred square feet (200 sq. ft.), whichever is less.

(b) Residential identification signage shall be permitted on each exterior wall facing a public street or private street or driveway. Such identification signage shall not exceed two hundred square feet (200 sq.ft.) per façade.

(4) Directional Signs. Directional signs within the Mixed Use Development shall be permitted, either freestanding or building mounted. Such signs may contain the names of specific tenants as well as other public information to direct both pedestrians and motorist through the site to the location of various uses including but not limited to general tenant parking areas, residential parking structures, parks, exits and entrances to the development. Signs shall be sized appropriately to be visible to pedestrians, motorist or both depending on location, but in no event shall any one sign be larger than thirty-two square feet (32 sq.ft.) in area. The total number of directional signs and their location shall be determined by the Board of Commissioners.

(5) Project Identification Signs. Project identification signs containing the project name or other identifying feature, but no other tenant advertising shall be permitted within the development which also may be visible outside the development. Such signage shall be of a complimentary style to the development and shall be no larger than two hundred square feet (200 sq.ft.) in area. The total number of project identification signs and their location shall be determined by the Board of Commissioners.

EXHIBIT B

Boles, Smyth Associates, Inc.
Consulting Civil Engineers Since 1972

October 19, 2016

Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034

Attn: Mr. Paul Leonard
Township Manager

Ref: Limited Preliminary Engineering Efforts - Dresher Triangle Improvement Concept

Dear Mr. Leonard:

Boles, Smyth Associates (BSA) is appreciative in submitting this Technical & Price Proposal for tasks to perform limited Preliminary Engineering services on the Dresher Triangle Improvement Concept. See the attached figures for the anticipated project limits. We have prepared the following proposal based on an expected duration of three (3) months. This phase is tasked with defining the overall improvement program, performing traffic analysis services, cost estimating and identifying Right of Way requirements.

We are transmitting a Price Proposal in the total amount not to exceed **$60,963.00**. Below is a summary of work activities for each firm.

Prime Consultant: Boles, Smyth Associates
Billing Amount: $54,963.00
Sub Consultant - TEI, Inc (Survey, Professional Land Surveyor)
Billing Amount: $6,000.00

The following are a list of tasks and deliverables:

Aerial Base Mapping Coordination and Property Plot Plan Preparation

1. This proposal will utilize Final Design level base mapping obtained by Upper Dublin Township via a flight in April, 2016. Therefore, this effort includes three (3) field survey days to supplement the flight effort and establish Control Points/Benchmark. These services are performed by TEI, Inc.
2. BSA will prepare a Property Plot Plan for 1668 Susquehanna Road (Wells Fargo property) based on the Required Right of Way determined for this property. This includes inputting property lines into the AutoCad environment based on the metes and bounds shown on the ALTA/ASCM Title Survey Plan dated 12/10/2010 supplied by BET Investments.
3. TEI, Inc. will review and provide a Professional Land Surveyor seal on the Plot Plan which will provide the basis for executing a Right of Way Agreement.

Traffic Analysis

1. This effort will utilize pre-existing peak hour traffic count information previously obtained by BSA and McMahon Associates and does not include obtaining any updated traffic counts.
2. This task includes the construction of AM/PM peak period Synchro 8.0 models for the Existing Condition, No Build 2040 Condition, Build Condition with Existing Volumes and Build Condition with 2040 Volumes. The No Build 2040 and Build 2040 Conditions will utilize percentages projected by the Delaware Valley Regional Planning Commission (DVRPC) for the PA Turnpike Corridor Reinvestment Study.

3. This task includes presenting the Preferred Build Concept at one (1) meeting.

Preliminary Engineering, Cost Estimate and Right of Way Requirements

1. Establish a Civil 3D Existing Contours and surface based on the aerial flight AutoCad base mapping in order to develop design.
2. Prepare Preliminary Engineering Plans including:
    a. Title Sheet, Index Sheet and General Notes
    b. Typical Sections
    c. Roadway Plans
    d. Profile
    e. Cross Sections every 50 feet
3. Drainage inlet/pipe sizes will be developed based on general PennDOT design standards and engineering judgment. A formal Drainage Analysis is included in this effort.
4. A PA One Call will be placed and underground utilities will be incorporated into the base mapping based on the response from affected utilities. Overhead utilities will be incorporated into the base mapping based on PA One Call response and field identification. Utility Verification Plans and coordination with utility companies beyond the PA One Call is not included in this effort.
5. Determine Required Right-of-Way requirements based on the accepted Preferred Concept. Determine a preliminary analysis of Temporary Construction Easement (TCE) requirements for inclusion on the plans. It is noted that additional TCE's may be required based on evolution of design (ie. drainage/E&S requirements).
6. Develop a Preliminary Engineering Cost Estimate with 20% Contingency which utilizes PennDOT's Item Price History database.

Thank you for the opportunity to submit this proposal and potentially become a part of this critical initiative.

Sincerely,

Jack Smyth Jr., P.E.
Vice President

EXHIBIT "H"

BERNARDON

ARCHITECTURE
INTERIOR DESIGN
LANDSCAPE ARCHITECTURE

February 10, 2017

Mr. Michael Markman
BET Investments, Inc.
200 Witmer Road
Horsham, PA 19044

RE: Promenade at Upper Dublin
Bernardon Project No. 2054.00-16

Dear Michael:

The proposed design meets or exceeds the design standards outlined in the adopted amended zoning ordinance dated December 6 2016. The architectural exterior elevations, included within the conditional use submission, represent a coherent architectural theme and include a variety of coordinated building materials that add color and visual interest to the overall development. Architectural features, such as building entrances on primary facades are accentuated, parapets are designed to conceal all rooftop equipment, and balconies or Juliette balconies are provided on all residential units. Vertical breaks within the plane of the building are provided to reduce the visual mass of the building and horizontal breaks are provided to provide a varied streetscape and provide an abundance of light to the street and residential units. All primary facades include a minimum of 50% glazing on the ground floor and the secondary facades include architectural treatments that are complimentary to the primary facades.

If you have any additional questions or concerns, please do not hesitate to contact me.

Sincerely,

Michael S. McCloskey, AIA, LEED AP BD+C | Principal
Bernardon
A Professional Corporation

MSM/dlg

15-06014-02

EXHIBIT "I"

AQUA

December 8, 2016

Erik Garton, P.E.
Gilmore & Associates, Inc.
65 E. Butler Avenue, Suite 100
New Britain, PA 18901

Re: Water Availability
Promenade @ Upper Dublin - Dreshertown & Welsh Roads
Upper Dublin Township, Montgomery County, Pennsylvania

Dear Mr. Garton:

This letter will serve as confirmation that the above referenced property is situated within Aqua Pennsylvania Inc.'s service territory. Service would be provided in accordance with Aqua Pennsylvania Inc.'s Rules and Regulations.

Please contact Deanne L. Ciotti, Aqua Pennsylvania Inc.'s New Service Representative at 610-541-4160 for further information on service alternatives that will meet your domestic and fire service needs. Ms. Ciotti will provide you with the appropriate service applications.

Please note that if any additional hydrants are required, or any need to be relocated, for this project that it will be handled separately by me with the issuance of a Fire Hydrant Agreement or Relocation Agreement for execution. If required, please forward a drawing with the hydrant dimensioned in both directions showing any utilities that could be encountered by us in running the hydrant lead pipe. Similarly this also applies to the existing mains on this parcel, except that your firm would be required to prepare a main relocation drawing for us.

Flow data information may be obtained from our Production Department so that you may determine the adequacy of our supply for your project needs. Please fax a written request to Lisa Thomas Oliva at 610-645-1162 containing the address, street, cross street and municipality and all pertinent contact information.

If I can be of further assistance, you may contact me at (610) 645-4230.

Sincerely,

Gary J. Horne
New Business Representative

BCWSA

December 12, 2016

Erik Garton, PE
Gilmore & Associates, Inc.
65 East Butler Avenue
New Britain, PA 18901

RE: Promenade at Upper Dublin
Dreshertown & Welsh Roads
Upper Dublin Township

Dear Mr. Garton:

BCWSA has available collection, conveyance and treatment capacity to connect the above referenced property to public sewer.

Be advised that prior to connection to the sanitary sewer system, the property owner will need to obtain DEP Planning approval, purchase the sewer capacity and execute all the necessary Agreements for the project.

Sincerely,

James Napoleon, Manager
Engineering/AMS/SCADA Ops

cc: John W. Butler, COO, BCWSA
file

BCWSA
1275 Almshouse Road, Warrington, PA 18976
Phone: 215.343.2538
Fax: 267.200.0324
www.bcwsa.net

100% RECYCLED

PROVEN BCWSA

Transportation Impact Study
for
The Promenade at Upper Dublin

Upper Dublin Township, Montgomery County, PA

Kenneth D. O'Brien, P.E.
PA PE License Number PE54272

Prepared by

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Fort Washington Office
425 Commerce Drive, Suite 200
Fort Washington, PA 19034
Phone: 215-283-9444
www.mcmahonassociates.com

Prepared for

BET Investments, Inc.

March 2016
Revised February 2017

McMahon Project Number: 815367.11

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APPENDIX C - *Study Area Sketches and Signal Permit Plans*

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Executive Summary

McMahon Associates, Inc. has completed a Traffic Impact Study for the proposed development to be located to the southeast of the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) in Upper Dublin Township, Montgomery County, Pennsylvania. This development is proposed to be located on Lots 3, 4, and 5 of the Montgomery Corporate Center and will occur in two phases. Phase 1 will consist of 115 age-restricted units and Phase 2 will consist of a mixed-use development, including 402 apartment units, an 9,070 square foot high turnover sit down restaurant with outdoor seating, a 1,200 square foot coffee shop with drive through, 127,728 square feet of non-residential/commercial space, and a 2,094 square foot office. These lots were previously approved for 692,000 square feet of office space. Phase 1 of the development is expected to be constructed by 2018 while Phase 2 is also expected to be constructed in 2018. Access to Phase 1 of this development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063) as well as a full-movement unsignalized driveway to Dreshertown Road (S.R. 2024). With development of Phase 2, the unsignalized Dreshertown Road (S.R. 2024) access will be signalized and improved with separate turn lanes provided on Dreshertown Road (S.R. 2024). Additionally, a right-in/right-out only driveway to Welsh Road (S.R. 0063) will be provided in Phase 2.

The purpose of this study is to determine the impact of traffic on the adjacent roadways and intersections due to the proposed development. This study focuses on the existing (2015) conditions along with the projected future opening year (2018) conditions and PennDOT design year (2023) conditions, which is five years beyond the opening in accordance with PennDOT criteria, at the following intersections:

- Welsh Road (S.R. 0063) and Jarrettown Road
- Welsh Road (S.R. 0063) and Dresher Road
- Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024)
- Welsh Road (S.R. 0063) and Dryden Road

The evaluation of traffic conditions associated with the proposed development project reveals the following findings and conclusions:

- **Trip Generation** – Given the proposed Phase 1 use, age-restricted residential units, the traffic generation of Phase 1 is expected to be minimal. Based on trip generation data contained in the Institute of Transportation Engineers (ITE) publication entitled, *Trip Generation Manual, Ninth Edition,* Phase 1 the proposed development is expected to generate a total of approximately 50 new trips during the weekday morning peak hour, 50 new trips during the weekday afternoon peak hour, and 26 new trips during the Saturday midday peak hour. With full build of the site, the proposed development will generate approximately 405 new trips during the weekday morning peak hour, 642 new trips during the weekday afternoon peak hour, and 1,021 new trips during the Saturday midday peak hour.

  It should be noted that Lots 3, 4 and 5 of the Montgomery Corporate Center were previously approved for 692,000 square feet of office space which would generate approximately 882 new trips during the weekday morning peak hour, 854 new trips during the weekday afternoon peak

hour, and approximately 298 new trips during the Saturday midday peak hour. The total proposed development will generate fewer new peak hour trips during the weekday morning and weekday afternoon peak hours when area traffic volumes peak and more new trips during the Saturday midday peak hour, when area traffic volumes are lower.

- **Capacity/Level-of-Service Results for Off-Site Intersections** – The study intersections were evaluated to determine the operational characteristics under existing and future without- and with-development conditions. A review of the levels-of-service indicates that the study intersections will operate at similar or better levels-of-service overall during the future build-out year (2018) and PennDOT design year (2023).

- **Site Access** – Access to the development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063), as well as a full-movement, unsignalized driveway to Dreshertown Road (S.R. 2024). The Dreshertown Road (S.R. 2024) access will be constructed as part of Phase 1 of the development. With the addition of the development proposed in Phase 2, it is expected that this intersection will be signalized. Additionally, Dreshertown Road (S.R. 2024) will be widened to provide a northbound right-turn lane and southbound left-turn lane at the access driveway. Additionally, as part of Phase 2 of the development, an additional right-in/right-out only driveway will be provided along Welsh Road (S.R. 0063).

- **Proposed Improvements** – The following improvements are proposed in conjunction with this development:

  Phase 1
  - Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) – traffic signal timing modifications.
  - Welsh Road (S.R. 0063) and Dryden Road – traffic signal timing modifications.
  - Dreshertown Road (S.R. 2024) Site Frontage – soften the existing horizontal and vertical curves along the site frontage of Dreshertown Road (S.R. 2024).

  Phase 2
  - Welsh Road (S.R. 0063) and Jarrettown Road – install an additional eastbound through lane on Welsh Road (S.R. 0063) and traffic signal timing modifications.
  - Welsh Road (S.R. 0063) and Dresher Road (S.R. 2024) – traffic signal timing modifications.
  - Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) – traffic signal timing modifications.
  - Welsh Road (S.R. 0063) and Dryden Road – traffic signal timing modifications.
  - Dreshertown Road (S.R. 2024) and Site Access – install a southbound left-turn lane and northbound right-turn lane on Dreshertown Road (S.R. 2024) and install a traffic signal.

Additionally, through the Township review of the zoning amendment process, the Township's Traffic Engineer, Boles, Smyth Associates, Inc. recommended additional improvements that they believed should be completed by the developer in conjunction with this development. These improvements are summarized in the September 21, 2016 letter from Jack Smyth, Jr., P.E., of Boles, Smyth Associates, Inc.,

to Richard D. Barton, the Upper Dublin Township Community Planning and Zoning Officer. This letter is provided in **Appendix A** of this traffic study. The applicant has agreed to implement these recommendations, subject to the review and approval of PennDOT.

While the improvement details are provided in that letter, listed below is a summary of some of the additional improvements that the developer will complete in conjunction with the mixed-use portion of the development:

- Provision of separate left-turn lanes on Dreshertown Road (S.R. 2024) at both Tuckerstown Road and St. Georges Road, through restriping and minor widening.
- Update and/or provide additional signal equipment and ADA ramps at various intersections, as needed and as outlined in the Boles, Smyth letter.
- Update traffic signal timing, clearance intervals, and pedestrian timing at the following intersections:
    1. Welsh Road (S.R. 0063) and Blair Mill Road (S.R. 2026)
    2. Welsh Road (S.R. 0063) and Computer Avenue
    3. Welsh Road (S.R. 0063) and Twining Road
- Install fiber optic cable along Welsh Road (S.R. 0063) from Jarrettown Road to Blair Mill Road (S.R. 2026). If Upper Dublin Township is successful in obtaining a Green Light Go grant providing this connection, the applicant will instead provide a cash contribution to be used as a local match for the grant.
- Provide a ten-foot trail along portions of the site.

The traffic analyses contained herein reveals that safe and efficient access to and from the proposed development can be provided and that the adjacent roadways and intersections can accommodate the projected site-generated traffic. Level-of-service and queue matrix tables are provided in **Appendix B** for the study area intersections and/or site accesses.

Introduction

McMahon Associates, Inc. has completed a Traffic Impact Study for the proposed development to be located to the southeast of the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) in Upper Dublin Township, Montgomery County, Pennsylvania **(Figure 1)**. This development is proposed to be located on Lots 3, 4, and 5 of the Montgomery Corporate Center and will occur in two phases. Phase 1 will consist of 115 age-restricted units and Phase 2 will consist of a mixed-use development, including 402 apartment units, an 9,070 square foot high turnover sit down restaurant with outdoor seating, a 1,200 square foot coffee shop with drive through, 127,728 square feet of non-residential/commercial space, and a 2,094 square foot office. These lots were previously approved for 692,000 square feet of office space. Phase 1 of the development is expected to be constructed by 2018 while Phase 2 is also expected to be constructed in 2018. Access to Phase 1 of this development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063) as well as a full-movement unsignalized driveway to Dreshertown Road (S.R. 2024). With development of Phase 2, the unsignalized Dreshertown Road (S.R. 2024) access will be signalized and improved with separate turn lanes provided on Dreshertown Road (S.R. 2024). Additionally, a right-in/right-out only driveway to Welsh Road (S.R. 0063) will be provided in Phase 2. A copy of the development site plans for Phase 1 and Phase 2 are provided in **Figures 2 and 2A**, respectively.

The purpose of this traffic study is to present an evaluation of the incremental traffic impacts of the phased proposed development within the study area in Upper Dublin Township, as well as to provide design recommendations regarding the site driveways in order to provide efficient access to the site.

Manual turning movement traffic counts were completed at the study intersections during the weekday morning peak period (7:00 AM to 9:00 AM), weekday afternoon peak period (4:00 PM to 6:00 PM), and Saturday midday peak period (11:00 AM to 2:00 PM). In order to assess the existing traffic conditions, these existing traffic volumes were subjected to detailed capacity/level-of-service analysis, in accordance with accepted methodologies, for the highest peak hour during each peak period, which serves as the basis for this evaluation.

Next, future traffic volumes without the development were projected utilizing an annual traffic growth rate to account for regional traffic growth, as well as known development projects in the area. The future traffic volumes were projected for the future opening year (2018) and PennDOT design year (2023), which is five years beyond the opening, in accordance with PennDOT criteria, at the study intersections. The future traffic volumes without the proposed development were then subjected to detailed capacity/level-of-service and queuing analysis.

Finally, the traffic generated by the proposed phases of the development was established based on accepted methodologies, and assigned to the roadway network and site accesses, as necessary. The site-generated traffic volumes were then added to the future without-development traffic volumes, and subjected to detailed capacity/level-of-service and queuing analysis to assess the future traffic conditions with development.

Existing Transportation Setting

The proposed development will be located in the southeast corner of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) in Upper Dublin Township, Montgomery County, Pennsylvania. The existing roadways and intersections in the vicinity of the site, which comprise the study area roadway network, are described in this section.

Roadway Characteristics

The characteristics of the study roadways surrounding the development project are described below in **Table 1**.

Table 1 - Existing Roadway Characteristics

Roadway	Roadway Classification		Travel Lanes (per direction)	Speed Limit (mph)
	Smart Transportation (1)	PennDOT (2)		
Welsh Road (S.R. 0063)	Suburban, Regional Arterial	Other, Principal Arterial	2	45
Dreshertown Road (S.R. 2024)	Suburban, Community Arterial	Minor Arterial	1	40
Dresher Road	Suburban, Community Arterial	Minor Arterial	2	35
Dryden Road	Suburban, Local	Local Road	1	25
Jarrettown Road	Suburban, Community Arterial	Minor Arterial	1	35

(1) Based on Table 5.1 – Roadway Categories in the PennDOT publication, *Smart Transportation Guidebook.*
(2) Based on the roadway classifications provided on PennDOT's internet Traffic Monitoring System (iTMS) website.

The following key intersections in the vicinity of the site comprise the study area:

- Welsh Road (S.R. 0063) and Jarrettown Road
- Welsh Road (S.R. 0063) and Dresher Road
- Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024)
- Welsh Road (S.R. 0063) and Dryden Road

The existing characteristics of the study intersections, including field sketches, signal plans, and photographs are summarized in **Appendix C**.

Transit Services

SEPTA bus routes 80 and 310 provide stops along Welsh Road (S.R. 0063) at Blair Mill Road (S.R. 2026) and Dryden Road. There is no regional rail station provided along the roadways surrounding the proposed development.

Pedestrian Facilities

There is an existing sidewalk system provided from Electronic Drive eastward along the northern side of Welsh Road (S.R. 0063) and along the western side of Dreshertown Road (S.R. 2024) near the intersections with Tuckerstown Road and St. Georges Road. There is no sidewalk provided along the site side of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) in the vicinity of the site.

Existing Traffic Conditions

This section provides a summary of the existing (2015) daily and peak hour traffic conditions on the study area roadways and intersections surrounding the proposed development.

Traffic Count Data

Manual turning movement traffic counts were conducted at the study intersections during the weekday morning peak period (7:00 AM to 9:00 PM), weekday afternoon peak period (4:00 PM to 6:00 PM), and Saturday midday peak period (11:00 AM to 2:00 PM). The results of these traffic counts are tabulated by 15-minute intervals in **Appendix D**. The four highest consecutive 15-minute peak intervals during these traffic count periods constitute the peak hours that are the basis of this traffic analysis. The resultant 2015 existing weekday morning, weekday afternoon, and Saturday midday peak hours are depicted in **Figure 3A**.

Capacity/Level of Service Analysis

The peak hour traffic volumes were analyzed to determine the existing and future operating conditions, both without and with the proposed development, in accordance with the standard techniques contained in the current *Highway Capacity Manual (2010)*. These standard capacity/level-of-service analysis techniques, which calculate total control delay, are more thoroughly described in **Appendix E** for both signalized and unsignalized intersections, as well as the correlation between average total control delay and the respective level-of-service (LOS) criteria for each intersection type.

The results of the capacity/level-of-service analyses are illustrated in **Figure 3B** for the existing peak hour traffic conditions, and detailed capacity/level-of-service analysis worksheets are contained in **Appendix F**. Specific details regarding the analysis results and traffic operations for each intersection are contained in the "Capacity/Level-of-Service Results" section of this study.

Site Characteristics

This section presents the details of the proposed site, including the incremental increase in traffic volumes generated by the development during the peak hours and distribution of this site traffic to the study area roadways, as well as the proposed site access configuration, and traffic control.

Trip Generation

Traffic volumes generated by the proposed development were prepared based on trip generation data compiled from numerous studies contained in the Institute of Transportation Engineers (ITE) publication, *Trip Generation, 9th Edition.* **Table 2** present the anticipated vehicular trip generation for Phase 1 of the proposed development.

Table 2 - Vehicular Trip Generation (Phase 1) [1]

Land Use	Size	Weekday Morning			Weekday Afternoon			Saturday Midday		
		In	Out	Total	In	Out	Total	In	Out	Total
Age-Restricted Housing[2]	**115 units**	**18**	**32**	**50**	**31**	**19**	**50**	**12**	**14**	**26**
Previously Approved Development[3]	440,000 s.f.	430	59	489	84	409	493	102	87	189[4]
Difference		**-412**	**-27**	**-439**	**-53**	**-390**	**-443**	**-90**	**-73**	**-163**

(1) Based on ITE's *Trip Generation Manual, Ninth Edition.*
(2) Based on equations for ITE Land Use Code 251 – Senior Adult Housing Detached.
(3) From *Traffic Impact Study* for the Montgomery Corporate Center prepared by McMahon Associates, Inc. dated December 2010.
(4) Since not included in December 2010 traffic impact study, the rates for ITE Land Use Code 710 contained in ITE publication, *Trip Generation, 9th Edition,* 2012 were utilized.

Table 2 also shows a comparison of Phase 1 of the proposed development to the previously approved office development on Lots 4 and 5 of the Montgomery Corporate Center. This comparison shows the proposed Phase 1 of this development is expected to generate significantly fewer trips than the approved Lots 4 and 5 office use, approximately 439 fewer total new trips during the weekday morning peak hour, approximately 443 fewer total new trips during the weekday afternoon peak hour, and approximately 163 fewer total new trips during the Saturday midday peak hour.

Table 3 presents the anticipated vehicular trip generation for Phases 1 and 2 of the proposed development.

Table 3 - Vehicular Trip Generation (Phases 1 and 2) [1]

Land Use	Size	Weekday Morning			Weekday Afternoon			Saturday Midday		
		In	Out	Total	In	Out	Total	In	Out	Total
Age-Restricted Housing[2]	115 units	18	32	50	31	19	50	12	14	26
-Internalization[3]		-2	-12	-14	-16	-12	-28	-4	-4	-8
"New" Trips		16	20	36	15	7	22	8	10	18
Apartment[4]	402 units	40	161	201	155	84	239	92	92	184
-Internalization[3]		-5	-25	-30	-42	-28	-70	-10	-10	-20
"New" Trips		35	136	171	113	56	169	82	82	164
Restaurant[5]	9,070 s.f.	54	44	98	53	36	89	68	60	128
-Internalization[3]		-26	-9	-35	-22	-18	-40	-15	-13	-28
-Pass-by[6]		-9	-12	-21	-13	-8	-21	-17	-16	-33
New" Trips		19	23	42	18	10	28	36	31	67
Coffee Shop W/Drive Through[7]	1,200 s.f.	62	59	121	26	25	51	51	50	101
-Internalization[3]		-27	-11	-38	-13	-15	-28	-12	-11	-23
-Pass-by[8]		-17	-24	-41	-6	-6	-12	-16	-15	-31
New" Trips		18	24	42	7	4	11	23	24	47
Retail[9]	127,728 s.f.	112	69	181	339	367	706	533	492	1,025
-Internalization[3]		-16	-19	-35	-33	-53	-86	-22	-25	-47
-Pass-by[10]		-23	-12	-35	-104	-107	-211	-133	-121	-254
New" Trips		73	38	111	202	207	409	378	346	724
Office [11]	2,094 s.f.	3	0	3	1	2	3	1	0	1
-Internalization[3]		-0	-0	-0	-0	-0	-0	-0	-0	-0
New" Trips		3	0	3	1	2	3	1	0	1
Total		**289**	**365**	**654**	**605**	**533**	**1,138**	**757**	**708**	**1,465**
-Internalization		**-76**	**-76**	**-152**	**-126**	**-126**	**-252**	**-63**	**-63**	**-126**
-Pass-by		**-49**	**-48**	**-97**	**-123**	**-121**	**-244**	**-166**	**-152**	**-318**
New" Trips		**164**	**241**	**405**	**356**	**286**	**642**	**528**	**493**	**1,021**

(1) Based on ITE's *Trip Generation Manual, Ninth Edition.*
(2) Based on equations for ITE Land Use Code 251 – Senior Adult Housing Detached.
(3) Based on rates contained in ITE publication, *Trip Generation Manual.*
(4) Based on equations for ITE Land Use Code 220 – Apartment.
(5) Based on rates for ITE Land Use Code 932 – High Turnover Sit-Down Restaurant, including an additional 1,500 square feet for outdoor seating.
(6) According to *Trip Generation Manual* for Land Use Code 932, approximately 43% of total trips during the PM peak hour are pass-by trips. Assumed 33% for AM and SAT peak hours.
(7) Based on rates for ITE Land Use Code 937 – Coffee Shop with Drive Through Window.
(8) Used pass-by data for Land Use Code 934 since no pass-by data provided for Land Use Code 937. According to *Trip Generation Manual* for Land Use Code 934, approximately 49% and 50% of total trips during the AM and PM peak hours are pass-by trips, respectively. Assumed 40% for SAT peak hour.
(9) Based on equations for ITE Land Use Code 820 – Shopping Center.
(10) According to *Trip Generation Manual* for Land Use Code 820, approximately 34% and 26% of total trips during the PM and SAT peak hours are pass-by trips, respectively. Assumed 24% for AM peak hour.
(11) Based on rates for ITE Land Use Code 710 – General Office

It should be noted that some level of interaction or internalization is also expected on the site between the various uses of this development once Phase 2 is constructed, as drivers will, at times, visit more than one portion of the site on a given visit, such as a driver visiting the coffee shop and then going to a retail store. As a result, the total development traffic was reduced to account for this interaction based on methodologies contained in ITE's publication, *Trip Generation Manual.*

Phase 2 of the development will include pass-by traffic, which are vehicles that are already on the roadway network that will divert to the site as an interim stop on the way to their ultimate destination. Since pass-by traffic is already on the adjacent roadways, this portion of the total development traffic on the roadway/intersection network is part of future without-development traffic volumes, and does not represent additional traffic added to the roadway network. Therefore, the total traffic associated with Phase 2 of the development was reduced by the pass-by traffic to estimate the "new," or primary, site traffic generated by Phase 2 of the development, that traffic which will be added to the study area's streets and intersections, and is shown in Table 3.

Table 4 shows a comparison of the trip generation of Phases 1 and 2 of this development and the previously approved 692,000 square feet of office space on Lots 3, 4, and 5 of the Montgomery Corporate Center.

Table 4 - Vehicular Trip Generation Comparison

Land Use	Size	Weekday Morning			Weekday Afternoon			Saturday Midday		
		In	Out	Total	In	Out	Total	In	Out	Total
Total Development Phases 1 and 2 (New Trips)	---	**164**	**241**	**405**	**356**	**286**	**642**	**528**	**493**	**1,021**
Previously Approved Development[1]	692,000 s.f.	776	106	882	145	709	854	161	137	298[2]
Difference		**-612**	**135**	**-477**	**211**	**-423**	**-212**	**367**	**356**	**723**

(1) From *Traffic Impact Study* for the Montgomery Corporate Center prepared by McMahon Associates, Inc. dated December 2010.

(1) Since not included in December 2010 traffic impact study, the rates for ITE Land Use Code 710 contained in ITE publication, *Trip Generation, 9th Edition,* 2012 were utilized.

A comparison of the proposed full build (Phases 1 and 2) of the development to the previously approved office development on Lots 3, 4 and 5 of the Montgomery Corporate Center shows the proposed development is expected to generate approximately 477 fewer total new trips during the weekday morning peak hour, approximately 212 fewer total new trips during the weekday afternoon peak hour, and approximately 723 more total new trips during the Saturday midday peak hour than the previously approved 692,000 square feet of office space on Lots 3, 4 and 5 of the Montgomery Corporate Center. It should be noted that while the proposed development will generate more total new trips during the Saturday midday peak hour than the previously approved use of the site, area traffic volumes during the Saturday midday peak hour are considerably lower than the weekday morning and weekday afternoon peak hours.

Trip Distribution and Assignment

Site-generated traffic will approach and depart the site via different routes depending on factors such as the existing traffic patterns, location of major roadways, and the location of the development's site accesses. The overall distribution percentages for the anticipated directions of approach and departure are illustrated in **Figures 4A and 4C** for the "new" site trips for Phase 1 and Phase 2 of the development, respectively. The net "new" trip assignment for the development is then illustrated in **Figures 4B and 4D** for the weekday morning, weekday afternoon, and Saturday midday peak hours. Phase 2 "pass-by trip" assignment for the three peak hours is illustrated in **Figure 4E**. The net total "new" and "pass-by" trip assignment for phases one and two is then illustrated in **Figure 4F**.

Site Access Configuration and Traffic Control

Access to Phase 1 of the development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063) as well as a full-movement unsignalized driveway to Dreshertown Road (S.R. 2024). It is recommended to maintain the existing lane configurations at the intersection of Welsh Road (S.R. 0063) and Dryden Road under both Phases 1 and 2 of this development.

Under Phase 2 of this development it is proposed to signalize the intersection of Dreshertown Road (S.R. 2024) and site access and provide a 225-foot northbound right-turn lane and 175-foot southbound left-turn lane on Dreshertown Road (S.R. 2024). Once this intersection is signalized, it is expected that Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) traffic will divert to this access to bypass the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024). In addition to the accesses provided in Phase 1 of this development, Phase 2 of the development will include an additional right-in/right-out only driveway to Welsh Road (S.R. 0063).

Since Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) are State roads, any modifications to the intersection of Welsh Road (S.R. 0063) and Dryden Road and the proposed site access to Dreshertown Road (S.R. 2024) will be subject to the review and approval of PennDOT for issuance of a Highway Occupancy Permit.

Future Build-Out Year (2018) and PennDOT Design Year (2023) Traffic Conditions

This section presents the future build-out year and PennDOT design year (five years after build-out) traffic conditions, both without and with the proposed development, which is anticipated to be complete by 2018. The future 2018 build-out year and PennDOT design year (2023) without-development traffic volumes were estimated by increasing the existing 2015 traffic volumes to account for regional and local growth, as described below. The incremental increase due to the anticipated trip generation for the site was then added, resulting in the 2018 and 2023 future build-out year with-development traffic volumes.

Regional Growth

According to the traffic growth rates complied by PennDOT's Bureau of Planning and Research *Growth Factors for August 2015 to July 2016*, the anticipated growth for similar urban, non-interstate roadway in Montgomery County is 0.64 percent per year. To account for regional traffic growth, the existing (2015) peak hour traffic volumes were increased by the annual traffic growth rate of 0.64 percent per year, compounded for three years, or 1.93 percent total for the build-out year (2018) and for eight years, or 5.24 percent for the PennDOT design year (2023).

Local Growth

In addition to the regional growth, traffic volumes associated with the following proposed developments in the vicinity of the site were included:

- FW Triangle Development – mixed-use development located along Susquehanna Road north of Dreshertown Road (S.R. 2024). The pharmacy portion of the development was open at the time of the counts so only the proposed 6,400 square foot office, 5,670 square foot restaurant, and 24 townhomes were included as background growth.
- Zieger Rose Farm Development – residential development to be located on the southwestern corner of the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024). The development will consist of 105 age-restricted units.
- Horsham Retail Development – proposed retail development to be located on the northern side of Blair Mill Road to the west of New Road. The development will consist of a 5,585 square foot Wawa convenience store with 16 fueling positions, a 12,900 square foot pharmacy with drive through, and three high turnover sit down restaurants totaling 17,200 square feet.
- Residential Development – proposed residential development to be located along Witmer Road to the west of Dresher Road. The development will consist of 15 single family homes.
- Residential Development – proposed residential development to be located in the northeast corner of the intersection of Dresher Road and Witmer Road. The development will consist of 250 apartment units.

Information on these proposed area developments is provided in **Appendix G.**

Future without Development Traffic Volumes

The total background growth was then added to the existing 2015 traffic volumes along with the traffic anticipated for the five proposed developments noted above. The resultant future 2018 build-out year peak hour traffic volumes are illustrated in **Figure 5A** for the weekday morning, weekday afternoon, and Saturday midday peak hours. The resultant future 2023 PennDOT design year peak hour traffic volumes are illustrated in **Figure 6A** for the weekday morning, weekday afternoon, and Saturday midday peak hours.

Planned Roadway Improvements

Through discussions with the Township, three intersection improvements were identified as potentially being completed by other developments in the area which are expected to be completed in the spring of 2017. These improvements include:

- An eastbound left-turn lane on Welsh Road (S.R. 0063) at its intersection with Dresher Road.
- An eastbound right-turn lane on Welsh Road (S.R. 0063) at its intersection with Dreshertown Road (S.R. 2024). It should be noted that, as agreed upon by the Township and PennDOT, this turn lane will be shorter than desirable and will include a tight turning radius, which prohibits a right-turn overlap for the movement.
- A northbound right-turn lane on Jarrettown Road at its intersection with Welsh Road (S.R. 0063).

These improvements are proposed in conjunction with the age-restricted residential development (Zieger Rose Farm) located on the southwestern corner of the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024).

Future with Development Traffic Volumes

The site generated traffic volumes, as shown in Figure 4B, were then added to the future 2018 without-development traffic volumes (Figure 5A). The resultant future 2018 with-development peak hour traffic volumes are illustrated in **Figure 5B** for the weekday morning, weekday afternoon, and Saturday midday peak hours. Detailed spreadsheets summarizing the traffic volumes are provided in **Appendix H**.

The site generated traffic volumes, as shown in Figure 4F, were also added to the future 2023 without-development traffic volumes (Figure 6A). The resultant future 2023 with-development peak hour traffic volumes are illustrated in **Figure 6B** for the weekday morning, weekday afternoon, and Saturday midday peak hours. Detailed spreadsheets summarizing the traffic volumes are provided in Appendix H.

The future 2018 peak hour traffic volumes for the build-out year, as illustrated in Figures 5A and 5B, were then subjected to detailed capacity/level-of-service analysis. The results of the traffic analyses are illustrated in **Figures 5C and 5D**, and the detailed capacity/level-of-service analysis worksheets are provided in **Appendices I and J.** Specific details regarding the analysis results and traffic operations are provided later in this report.

The future 2023 peak hour traffic volumes for the build-out year, as illustrated in Figures 6A and 6B, were then subjected to detailed capacity/level-of-service analysis. The results of the traffic analyses are illustrated in **Figures 6C and 6D**, and the detailed capacity/level-of-service analysis worksheets are provided in **Appendices K and L**. Specific details regarding the analysis results and traffic operations are provided later in this report.

Capacity/Level-of-Service Results

This section presents a detailed summary of the traffic analysis results for the existing and future build-out year (2018) and PennDOT design year (2023) traffic conditions, both without and with the proposed development, for the peak hours at the study area intersections and site accesses.

According to PennDOT's *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permit Plans,* no mitigation requirements are required for an overall level-of-service drop from without- to with development conditions (i.e. LOS D to LOS E), if the increase in overall delay per vehicle is less than 10 seconds (i.e., 48.2 to 56.5 seconds per vehicle); however, PennDOT reserves the right to look at individual lane groups where level-of-service drops may occur.

Welsh Road (S.R. 0063) and Dresher Road

Under existing conditions, this signalized intersection operates at acceptable conditions overall (LOS D or better) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours with exception of the southbound Dresher Road left-turn lane (LOS F) during the weekday afternoon peak hour. Under future build-out year (2018) and future PennDOT design year (2023) without-development conditions, with the installation of an eastbound left-turn lane along Welsh Road (S.R. 0063), this signalized intersection will operate at acceptable conditions overall (LOS C or better) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours with exception of the southbound Dresher Road left-turn lane (LOS E) during the weekday afternoon peak hour under 2023 without-development conditions.

With development of the site, similar levels-of-service will exist at this intersection overall during all three peak hours as observed under without-development conditions.

Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024)

Under existing conditions, this signalized intersection operates at overall LOS B during the weekday morning peak hour, overall LOS E during the weekday afternoon peak hour, and overall LOS A during the Saturday midday peak hour with the eastbound Welsh Road (S.R. 0063) approach operating at LOS F during the weekday afternoon peak hour. Under future build-out year (2018) and future PennDOT design year (2023) without-development conditions, and the installation of an eastbound right-turn lane along Welsh Road (S.R. 0063), this signalized intersection will operate at acceptable conditions overall (LOS C or better) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours with exception of the northbound Dreshertown Road (S.R. 2024) left-turn lane and eastbound Welsh Road (S.R. 0063) right-turn lane (LOS E) during the weekday afternoon peak hour under 2023 future without-development conditions, due largely to the tight turning radius and the inability to allow a right-turn overlap phase.

With development of the site, and the proposed improvements, all movements will improve to operate at LOS D or better during all three peak hours.

Welsh Road (S.R. 0063) and Dryden Road

Under existing conditions, future build-out year (2018), and future PennDOT design year (2023) without-development conditions, this signalized intersection operates at highly acceptable conditions overall (LOS A) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours with exception of the northbound and southbound left-turn lanes (LOS E) during the weekday morning peak hour.

With development of the site, all movements will improve to operate at LOS D or better during all three peak hours.

Welsh Road (S.R. 0063) and Jarrettown Road

Under existing conditions, this signalized intersection operates at acceptable conditions overall (LOS D or better) during all three peak hours with delay (LOS E and F) experienced on several movements during the weekday morning and weekday afternoon peak hours. Under future build-out year (2018) and future PennDOT design year (2023) without-development conditions, with the installation of a northbound right-turn lane along Jarrettown Road, this signalized intersection will operate at acceptable conditions overall (LOS D or better) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours.

With development of the site it is recommended to provide an additional eastbound through lane, extending the two eastbound through lanes that currently exist east of Jarrettown Road, further west. With this improvement, the overall intersection operation will improve significantly. Under 2023 future conditions, the overall LOS of D, C, and B during the weekday morning, weekday afternoon, and Saturday midday peak hours, will improve to LOS B, C, and A with the development and with the proposed improvements.

Dreshertown Road (S.R. 2024) and Site Access

Under 2018 future with-development conditions, this unsignalized intersection will operate at overall LOS A during the weekday morning, weekday afternoon, and Saturday midday peak hours with all movements operating at LOS D or better during all three peak hours.

Under 2023 future with-development conditions, this signalized intersection will operate at overall LOS B during the weekday morning, weekday afternoon, and Saturday midday peak hours with all movements operating at LOS D or better during all three peak hours.

Welsh Road (S.R. 0063) and Site Access

Under 2023 future with-development conditions, this unsignalized intersection will operate at overall LOS A during the weekday morning, weekday afternoon, and Saturday midday peak hours with all movements operating at LOS C during all three peak hours.

Proposed Roadway Improvements

The following improvements are recommended in conjunction with this development:

Phase 1

- Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) – traffic signal timing modifications.
- Welsh Road (S.R. 0063) and Dryden Road – traffic signal timing modifications.
- Dreshertown Road (S.R. 2024) Site Frontage - soften the existing horizontal and vertical curves along the site frontage of Dreshertown Road (S.R. 2024).

Phase 2

- Welsh Road (S.R. 0063) and Jarrettown Road – install an additional eastbound through lane on Welsh Road (S.R. 0063) and traffic signal timing modifications.
- Welsh Road (S.R. 0063) and Dresher Road (S.R. 2024) – traffic signal timing modifications.
- Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) – traffic signal timing modifications.
- Welsh Road (S.R. 0063) and Dryden Road – traffic signal timing modifications.
- Dreshertown Road (S.R. 2024) and Site Access – install a southbound left-turn lane and northbound right-turn lane on Dreshertown Road (S.R. 2024) and install a traffic signal.

Additionally, through the Township review of the zoning amendment process, the Township's Traffic Engineer, Boles, Smyth Associates, Inc. recommended additional improvements that they believed should be completed by the developer in conjunction with this development. These improvements are summarized in the September 21, 2016 letter from Jack Smyth, Jr., P.E., of Boles, Smyth Associates, Inc., to Richard D. Barton, the Upper Dublin Township Community Planning and Zoning Officer. The applicant has agreed to implement these recommendations, subject to the review and approval of PennDOT.

While the improvement details are provided in that letter, listed below is a summary of some of the additional improvements that the developer will complete in conjunction with the mixed-use portion of the development:

- Provision of separate left-turn lanes on Dreshertown Road (S.R. 2024) at both Tuckerstown Road and St. Georges Road, through restriping and minor widening.
- Update and/or provide additional signal equipment and ADA ramps at various intersections, as needed and as outlined in the Boles, Smyth letter.

- Update traffic signal timing, clearance intervals, and pedestrian timing at the following intersections:
    1. Welsh Road (S.R. 0063) and Blair Mill Road (S.R. 2026)
    2. Welsh Road (S.R. 0063) and Computer Avenue
    3. Welsh Road (S.R. 0063) and Twining Road
- Install fiber optic cable along Welsh Road (S.R. 0063) from Jarrettown Road to Blair Mill Road (S.R. 2026). If Upper Dublin Township is successful in obtaining a Green Light Go grant providing this connection, the applicant will instead provide a cash contribution to be used as a local match for the grant.
- Provide a ten-foot trail along portions of the site.

Concept plans depicting these improvements are provided in **Appendix M.**

95th Percentile Queue Analysis

95th percentile queue analyses were conducted at the study intersections using Synchro 8 software. The queue analysis is summarized in Appendix A. Based on the analyses, in most cases the 2018 and 2023 future with-development queues are similar to the 2018 and 2023 future without-development queues increasing minimally with the proposed development.

Summary and Conclusions

Access to Phase 1 of this development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063) as well as a full-movement unsignalized driveway to Dreshertown Road (S.R. 2024). With development of Phase 2, the unsignalized Dreshertown Road (S.R. 2024) access will be signalized and improved with separate turn lanes provided on Dreshertown Road (S.R. 2024). Additionally, a right-in/right-out only driveway to Welsh Road (S.R. 0063) will be provided in Phase 2. Since Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) are State roads, any modifications to the intersection of Welsh Road (S.R. 0063) and Dryden Road and the proposed site access to Dreshertown Road (S.R. 2024) will be subject to the review and approval of PennDOT for issuance of a Highway Occupancy Permit. In conjunction with this development, it is proposed to soften the existing horizontal and vertical curves along the site frontage of Dreshertown Road (S.R. 2024) as well as install an additional eastbound through lane on Welsh Road (S.R. 0063) at its intersection with Jarrettown Road.

The traffic analyses contained herein reveals that safe and efficient access to and from the proposed development can be provided and that the adjacent roadways and intersections can accommodate the projected site-generated traffic.

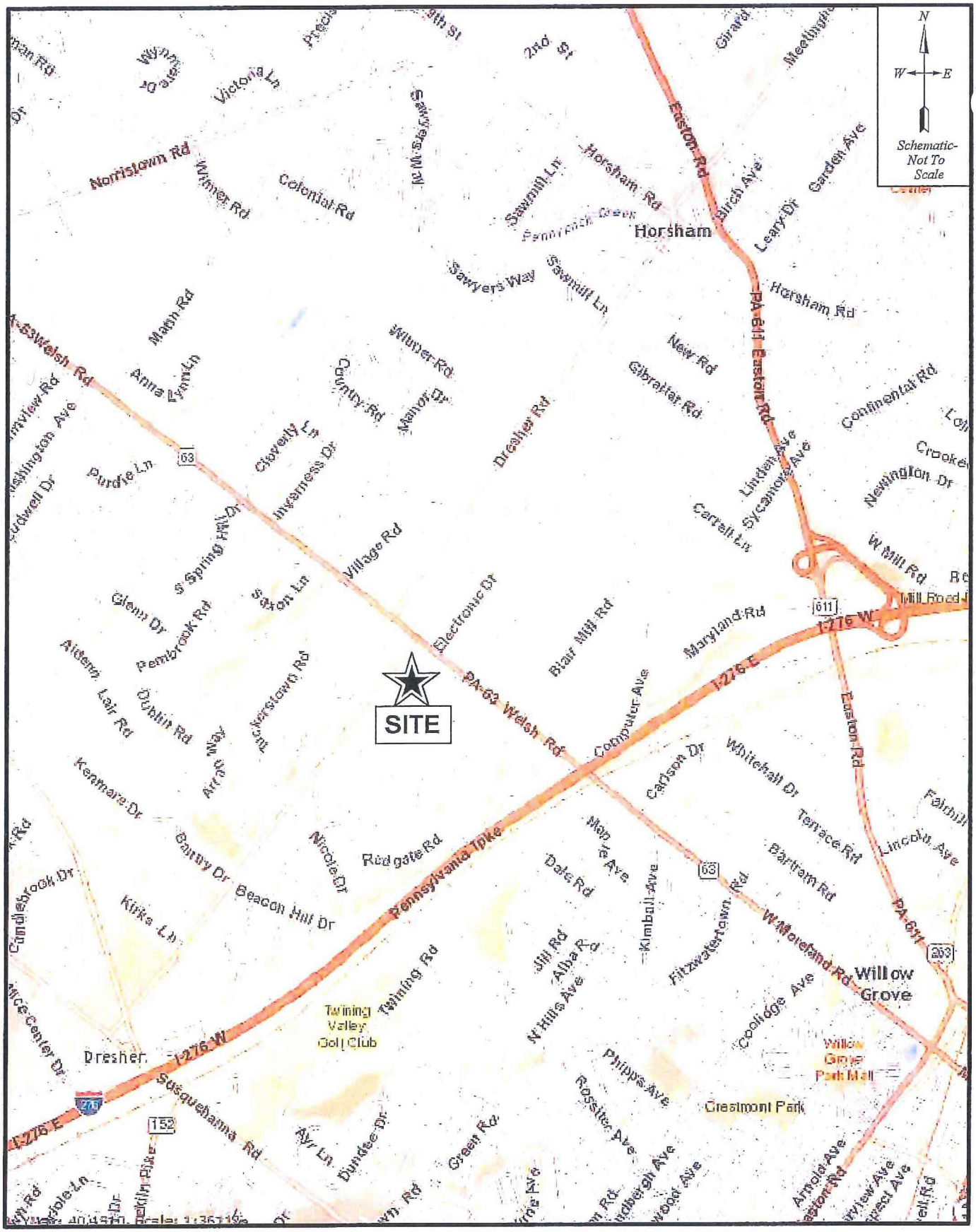

FIGURE 1

Site Location Map

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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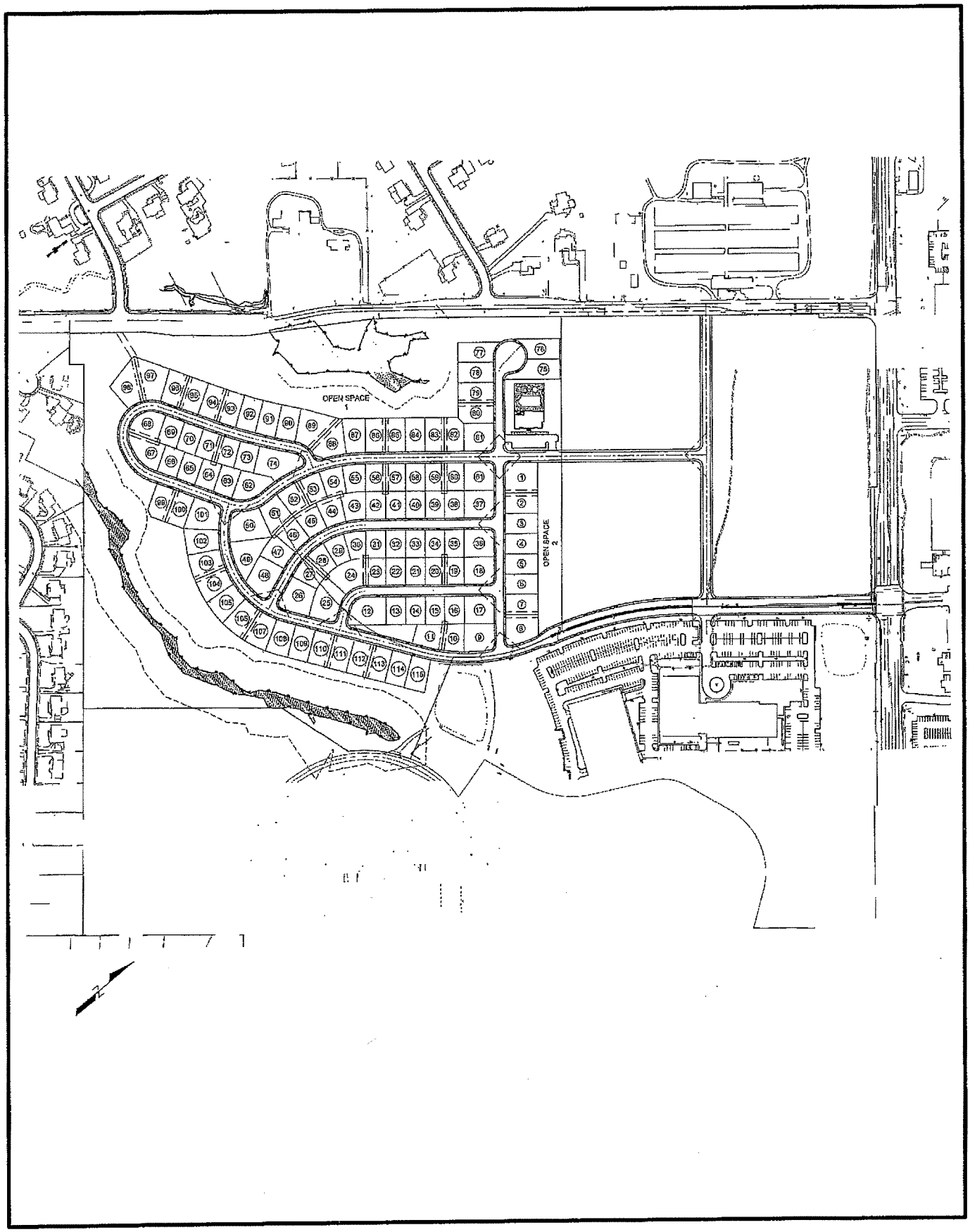

FIGURE 2

Site Plan - Phase 1 (prepared by Gilmore & Associates, Inc.)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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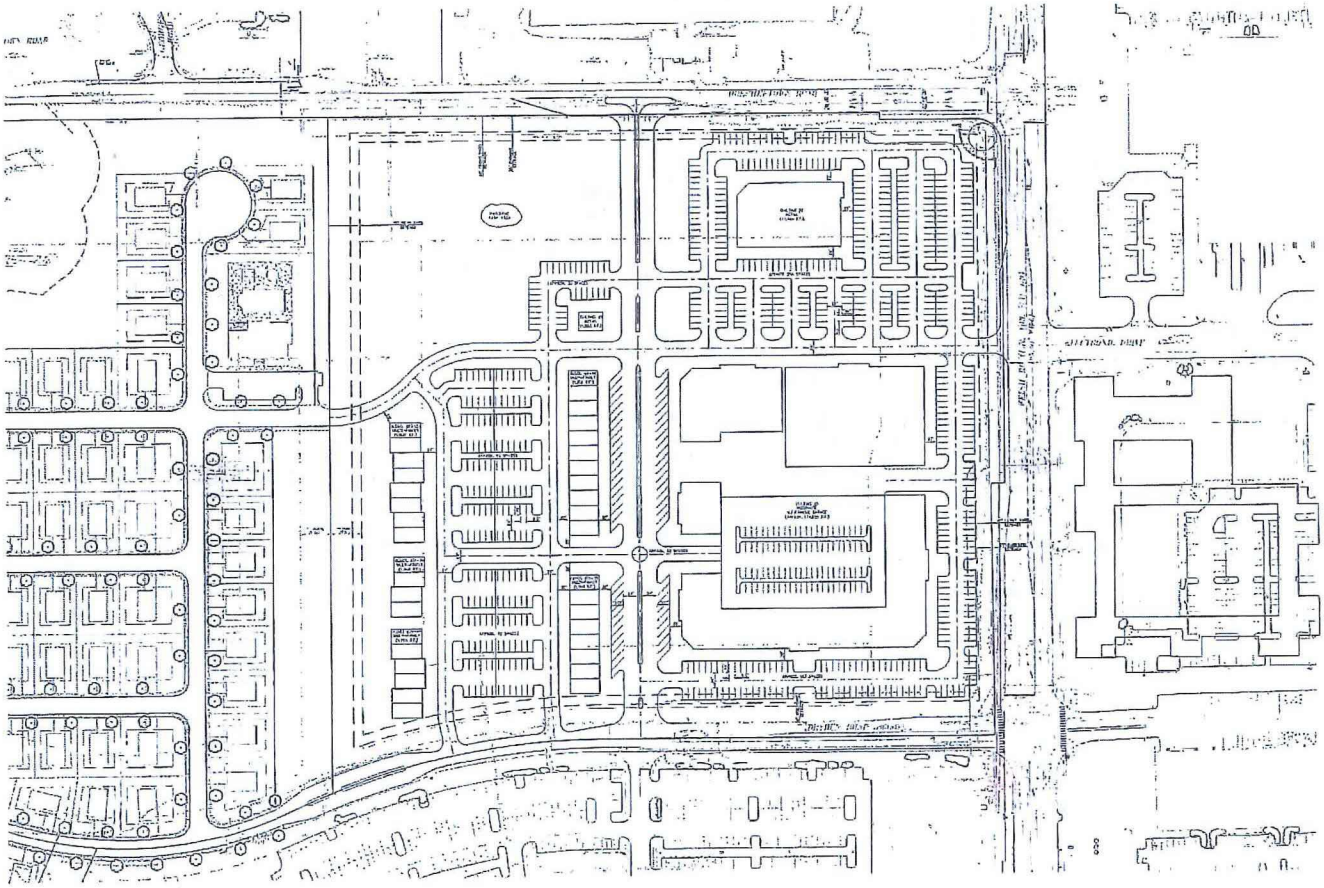

FIGURE 2A

Site Plan - Phase 1 & 2 (prepared by Gilmore & Associates, Inc.)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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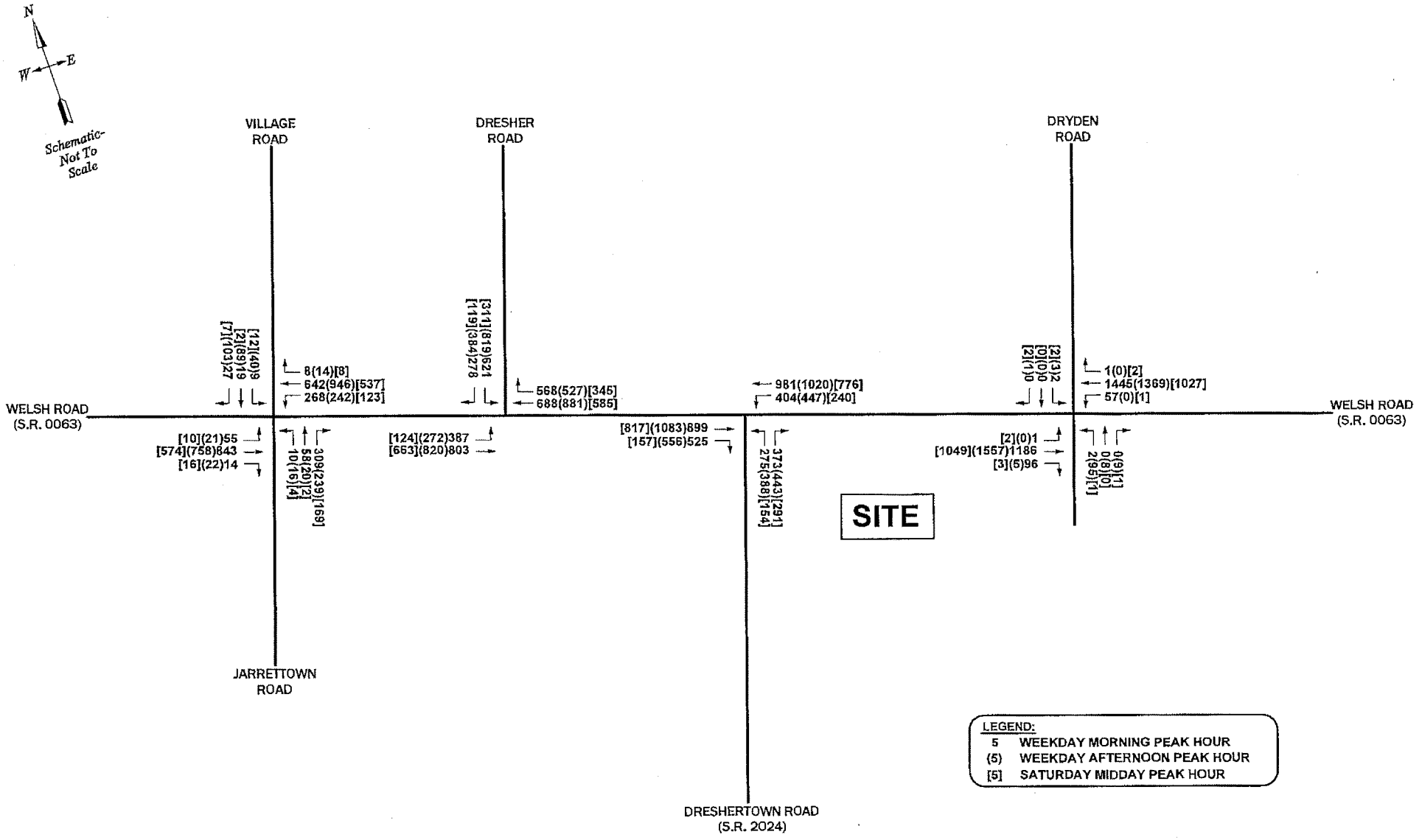

FIGURE 3A

2015 Existing Peak Hour Traffic Volumes

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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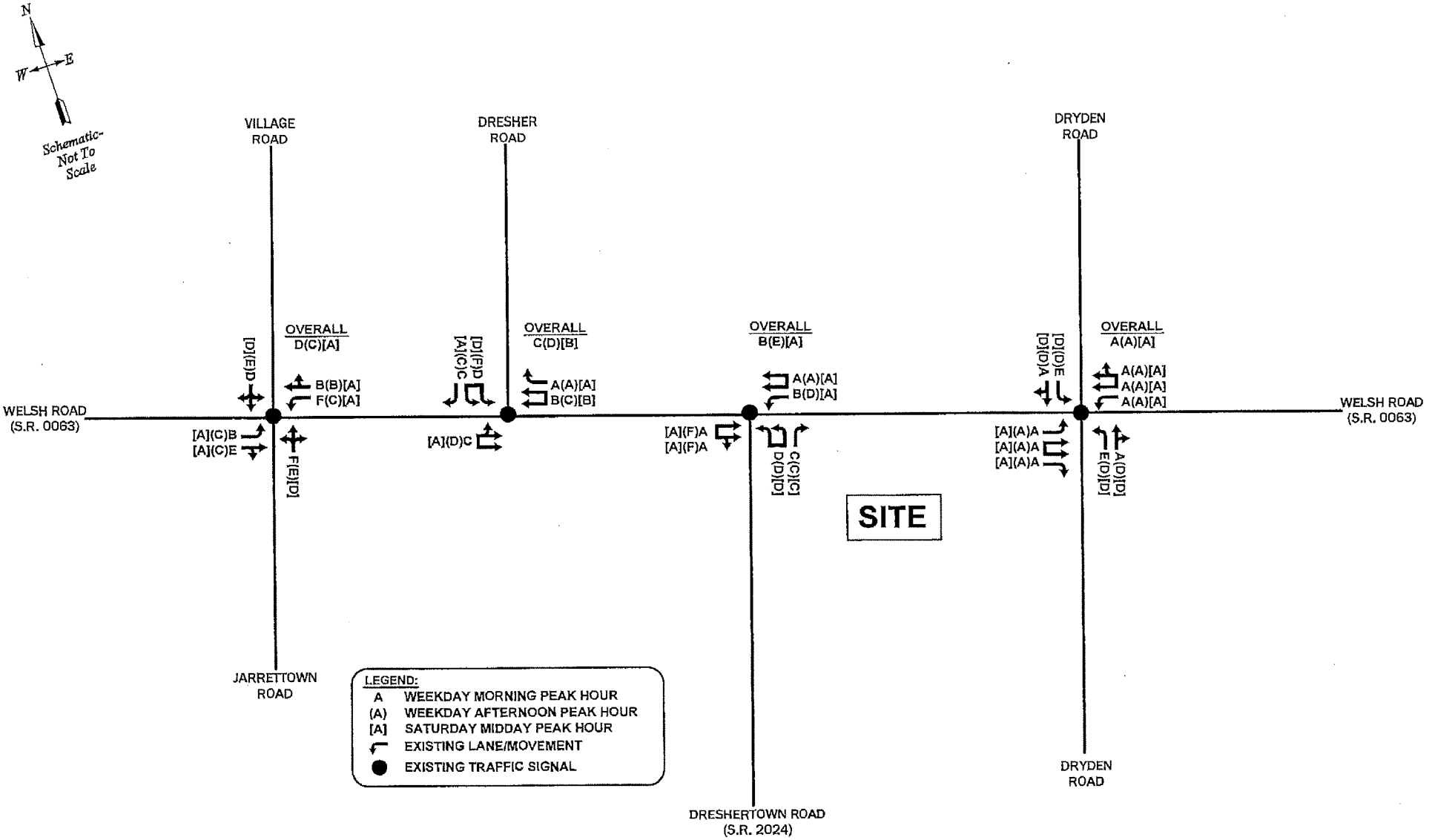

FIGURE 3B

2015 Existing Levels of Service

THE PROMENADE AT UPPER DUBLIN

UPPER [illegible]BLIN TOWNSHIP, MONTGOMERY COUNT[illegible] PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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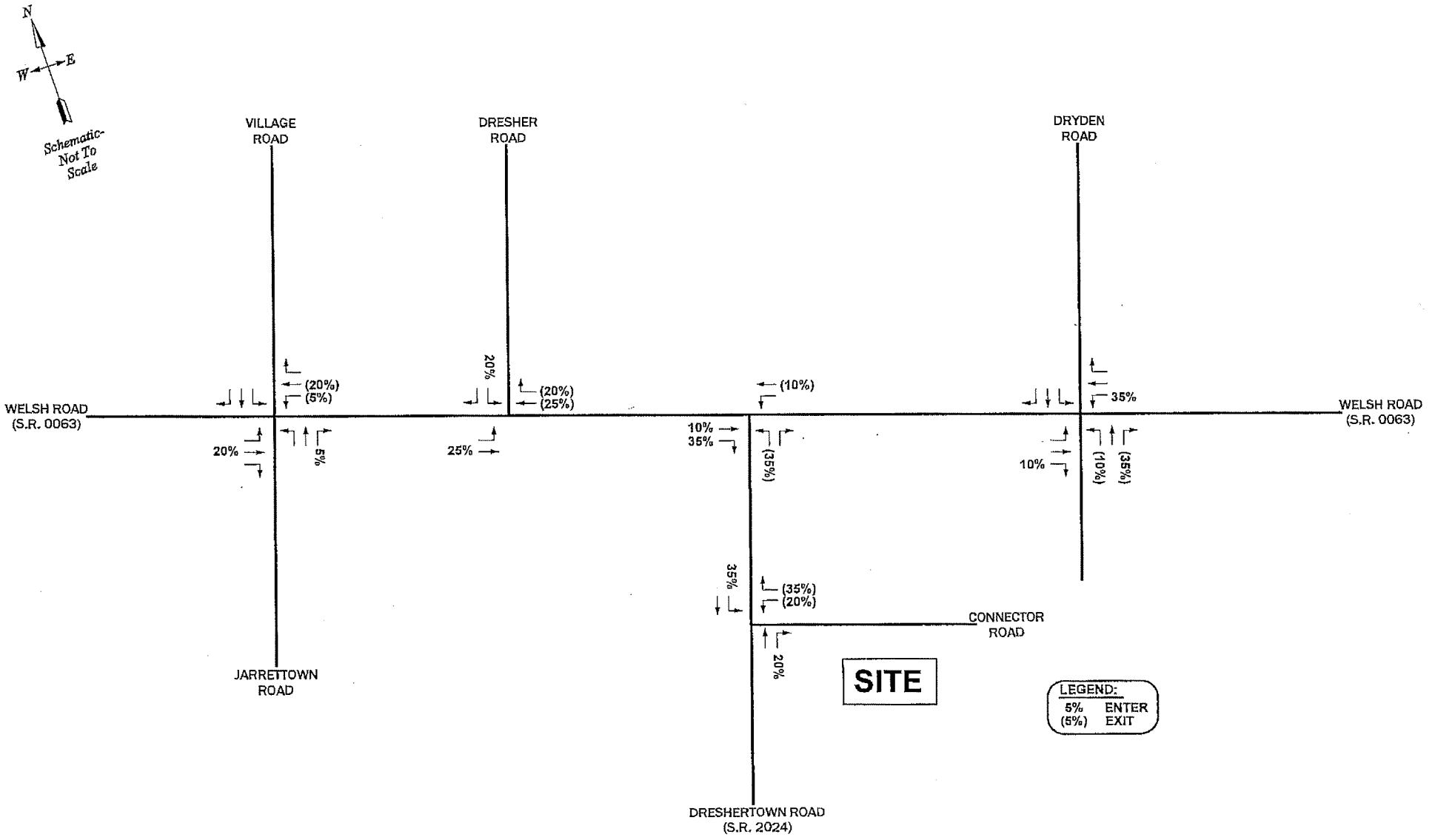

FIGURE 4A

"New" Trip Distribution (Phase 1)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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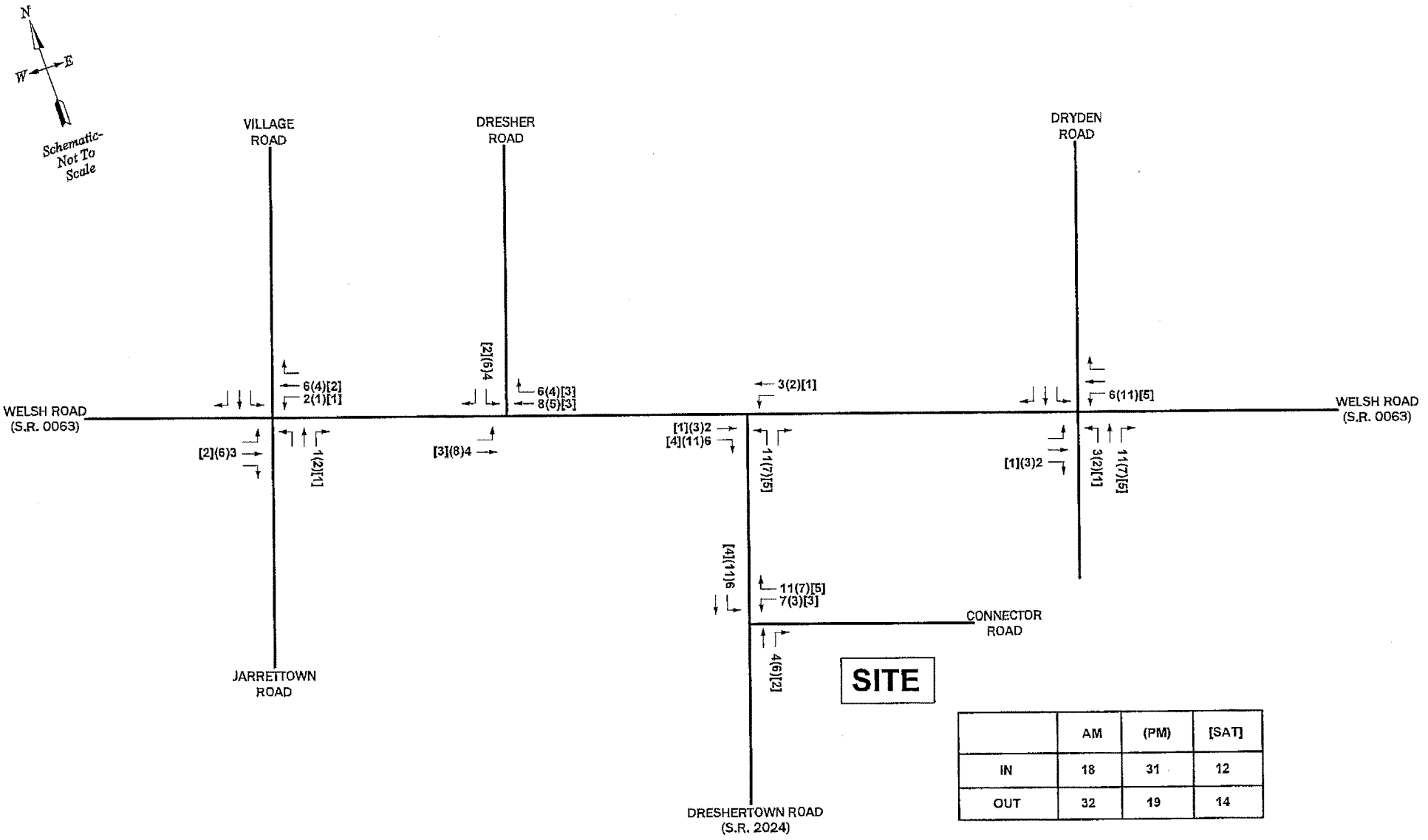


	AM	(PM)	[SAT]
IN	18	31	12
OUT	32	19	14

FIGURE 4B

"New" Trip Assignment (Phase 1)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

J:\eng\815367\dwg\Figures\Figure 4B.dwg

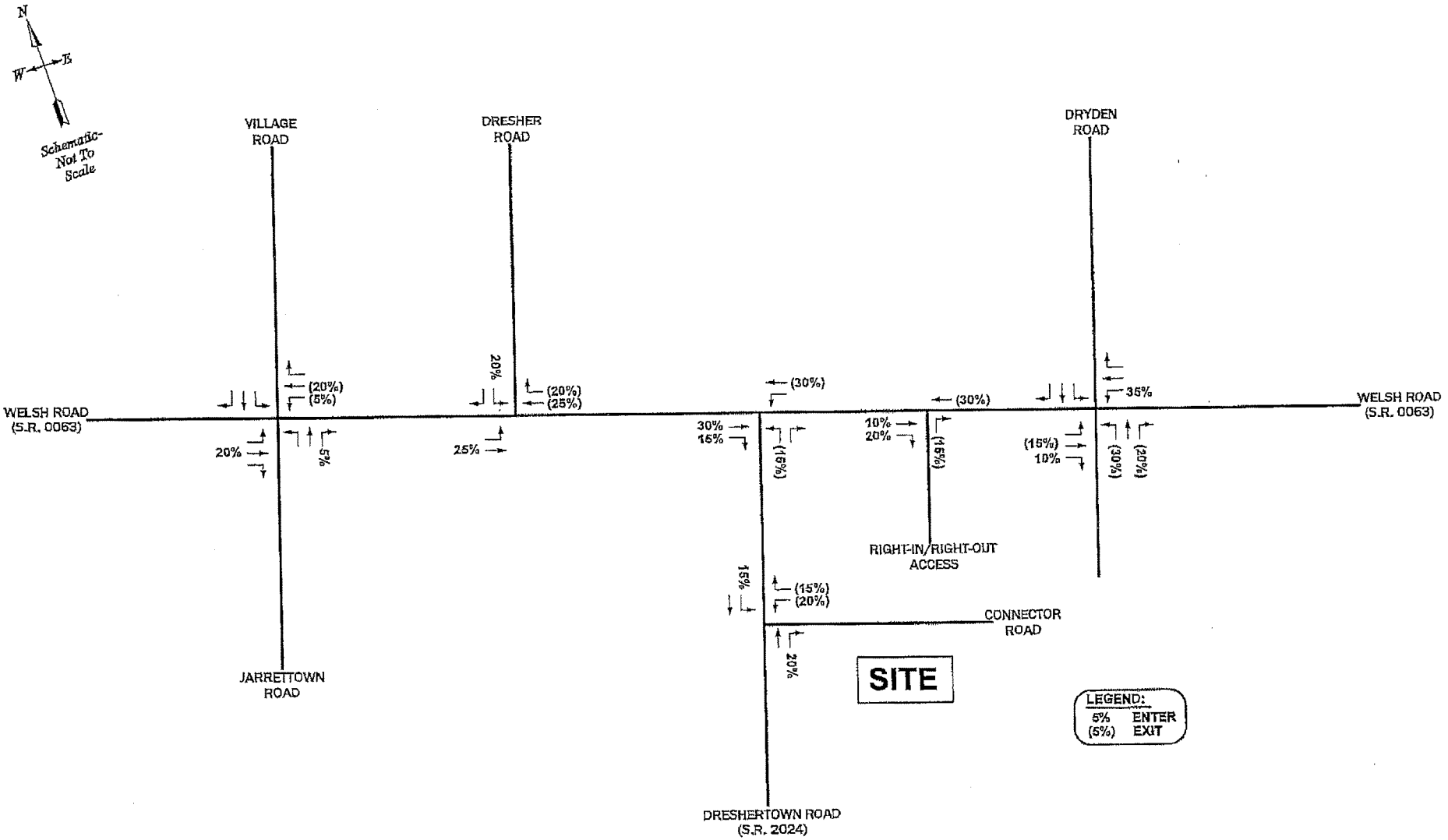


FIGURE 4C

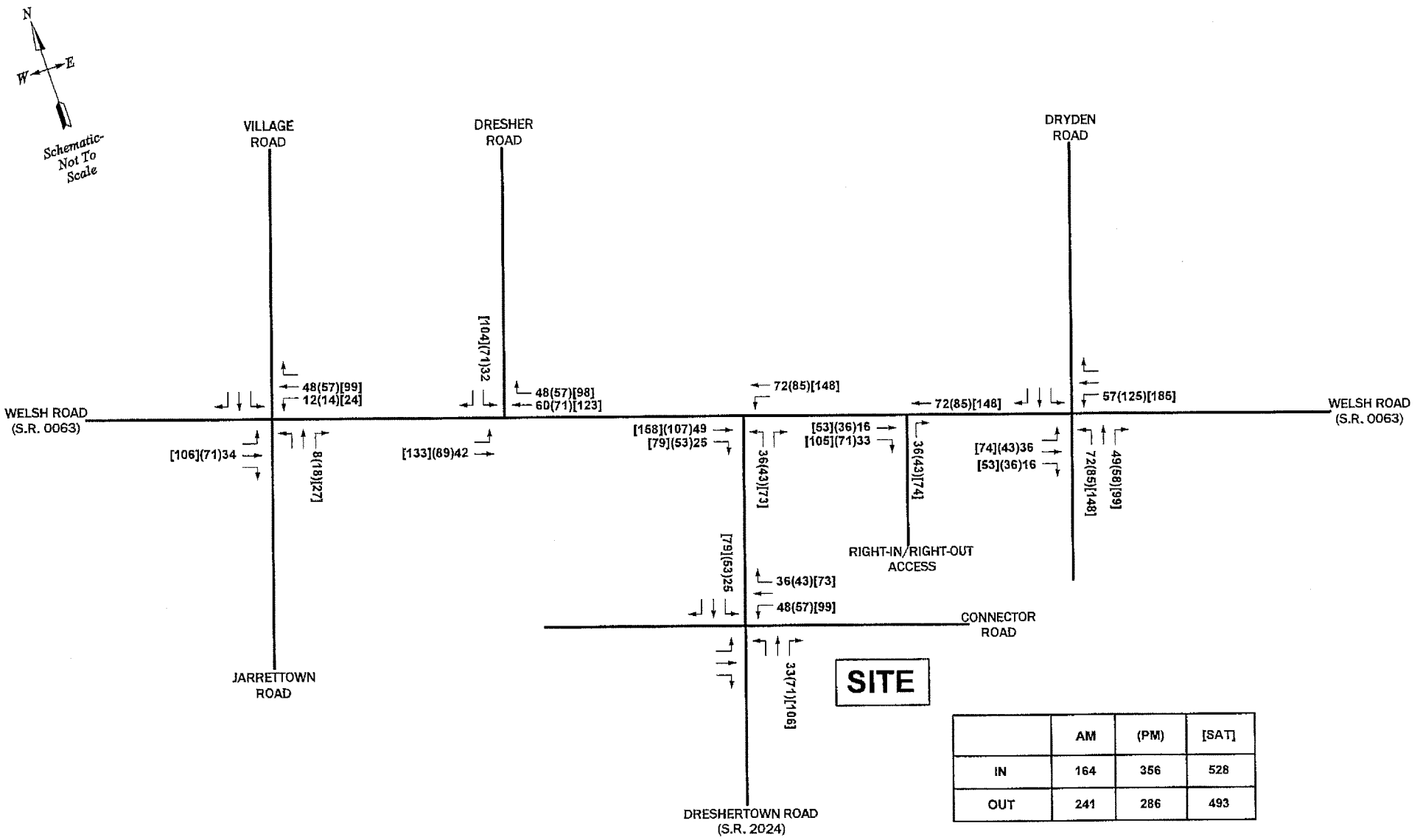
"New" Trip Distribution (Phase 2)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815367\dwg\Figures\Figure 4C.dwg



	AM	(PM)	[SAT]
IN	164	356	528
OUT	241	286	493

FIGURE 4D

"New" Trip Assignment (Phases 1 and 2)

THE PROMENADE AT UPPER DUBLIN

UPPER ' IBLIN TOWNSHIP, MONTGOMERY COUNT PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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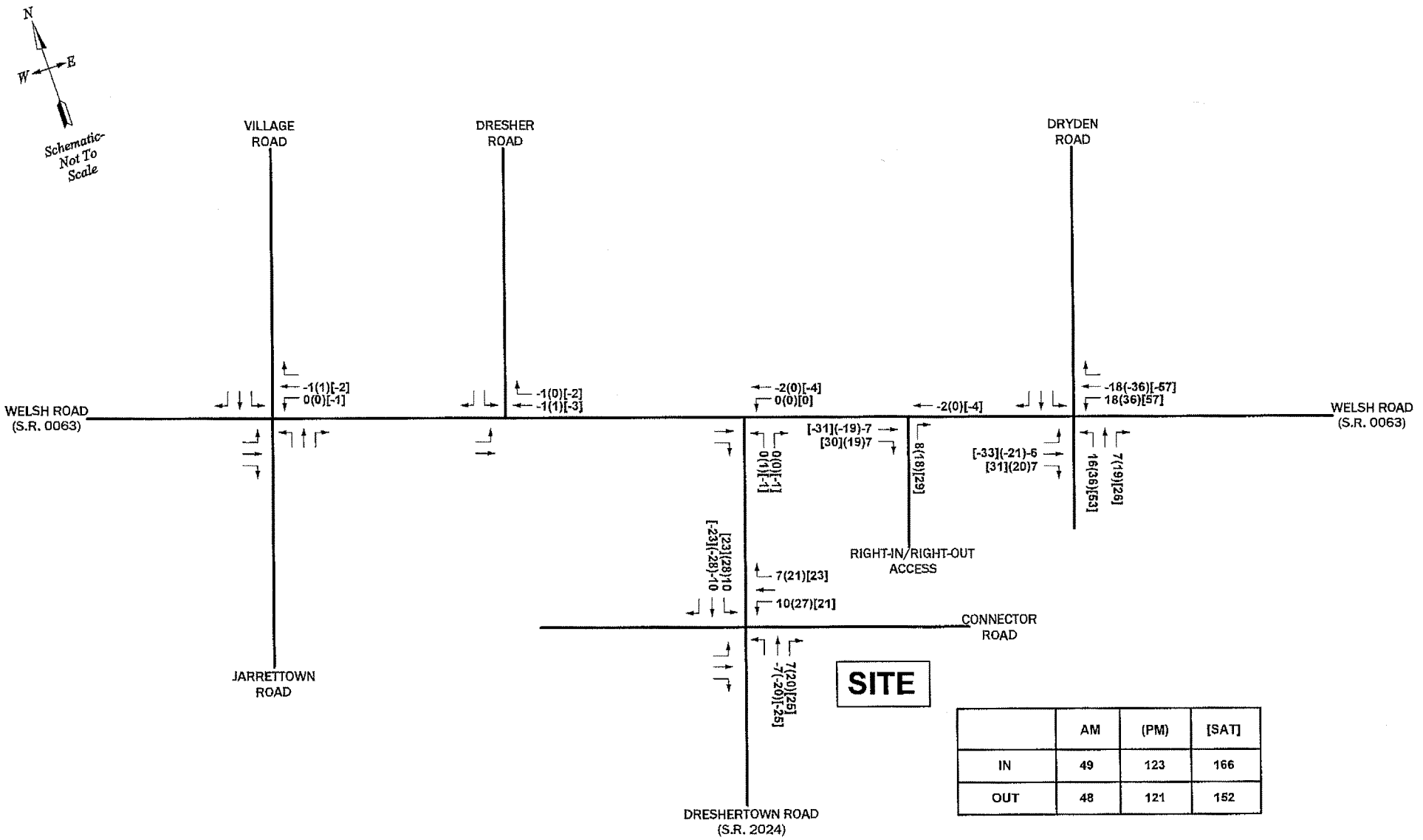


	AM	(PM)	[SAT]
IN	49	123	166
OUT	48	121	152

FIGURE 4E

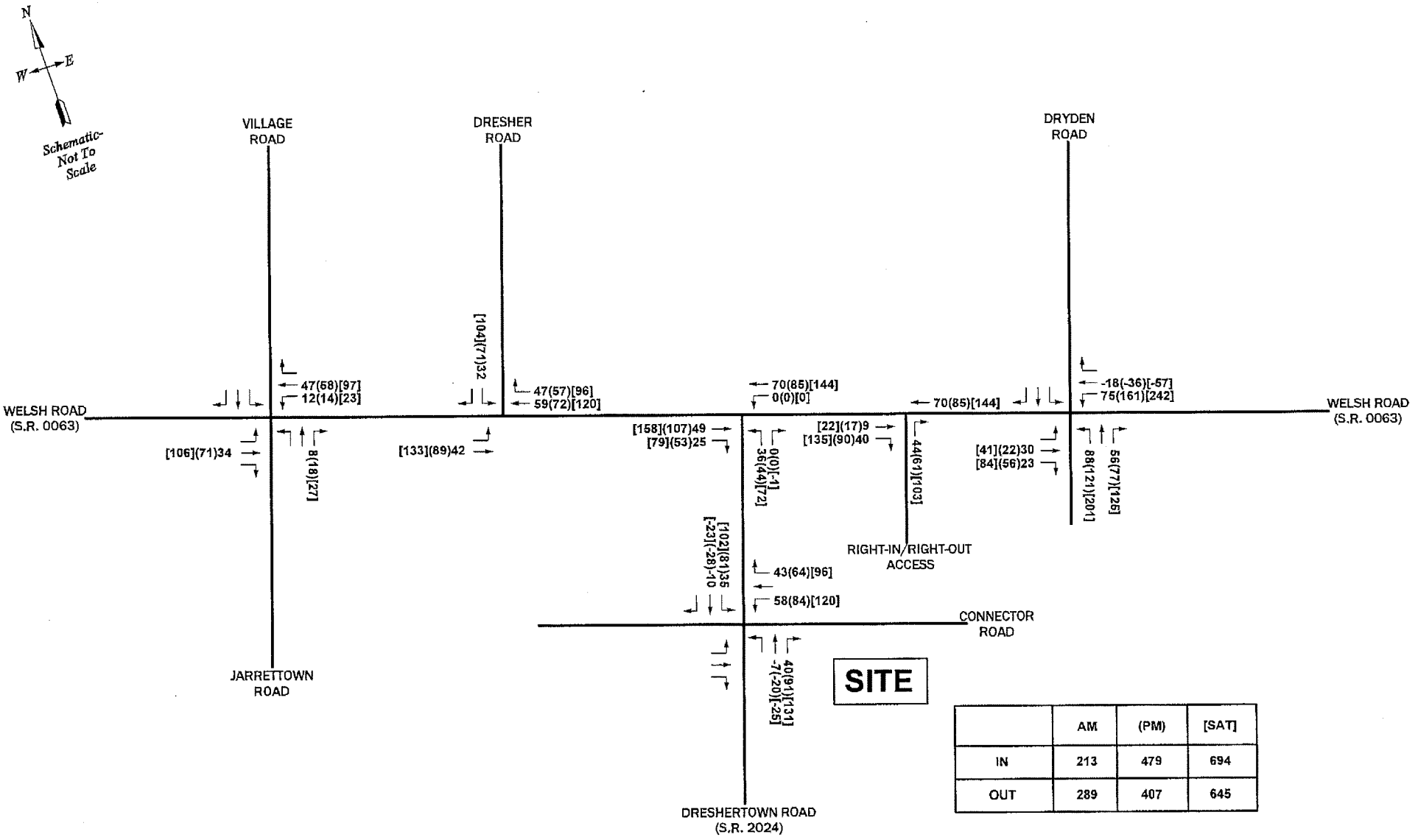
Pass-by Trips (Phases 1 and 2)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815367\dwg\Figures\January 2017\Figure 4E.dwg



	AM	(PM)	[SAT]
IN	213	479	694
OUT	289	407	645

FIGURE 4F

Net "New" and Pass-by Trips (Phases 1 and 2)

THE PROMENADE AT UPPER DUBLIN

UPPER [illegible]BLIN TOWNSHIP, MONTGOMERY COUNT[illegible] PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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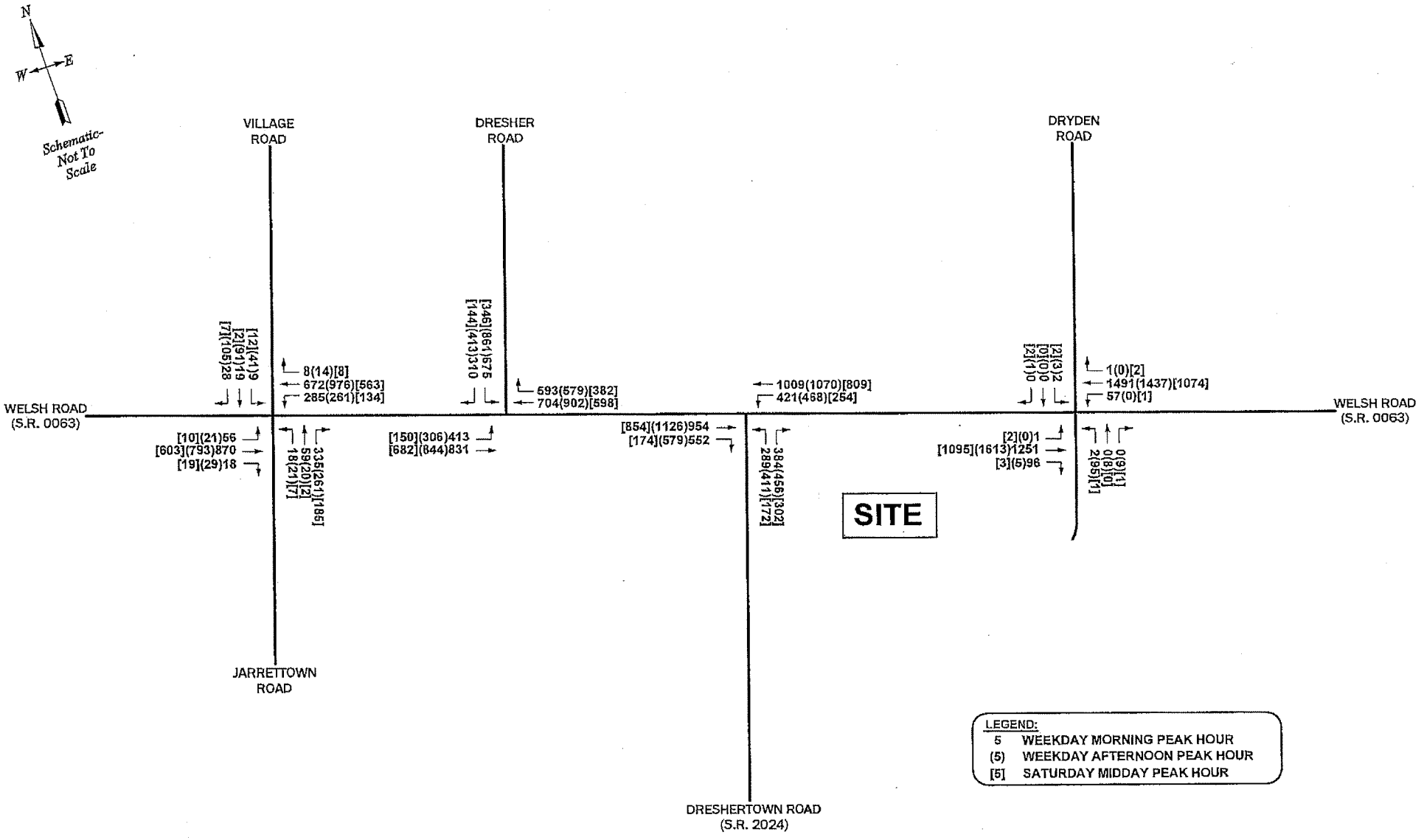

FIGURE 5A

2018 Future Peak Hour Traffic Volumes Without Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815367\dwg\Figures\Figure 5A.dwg

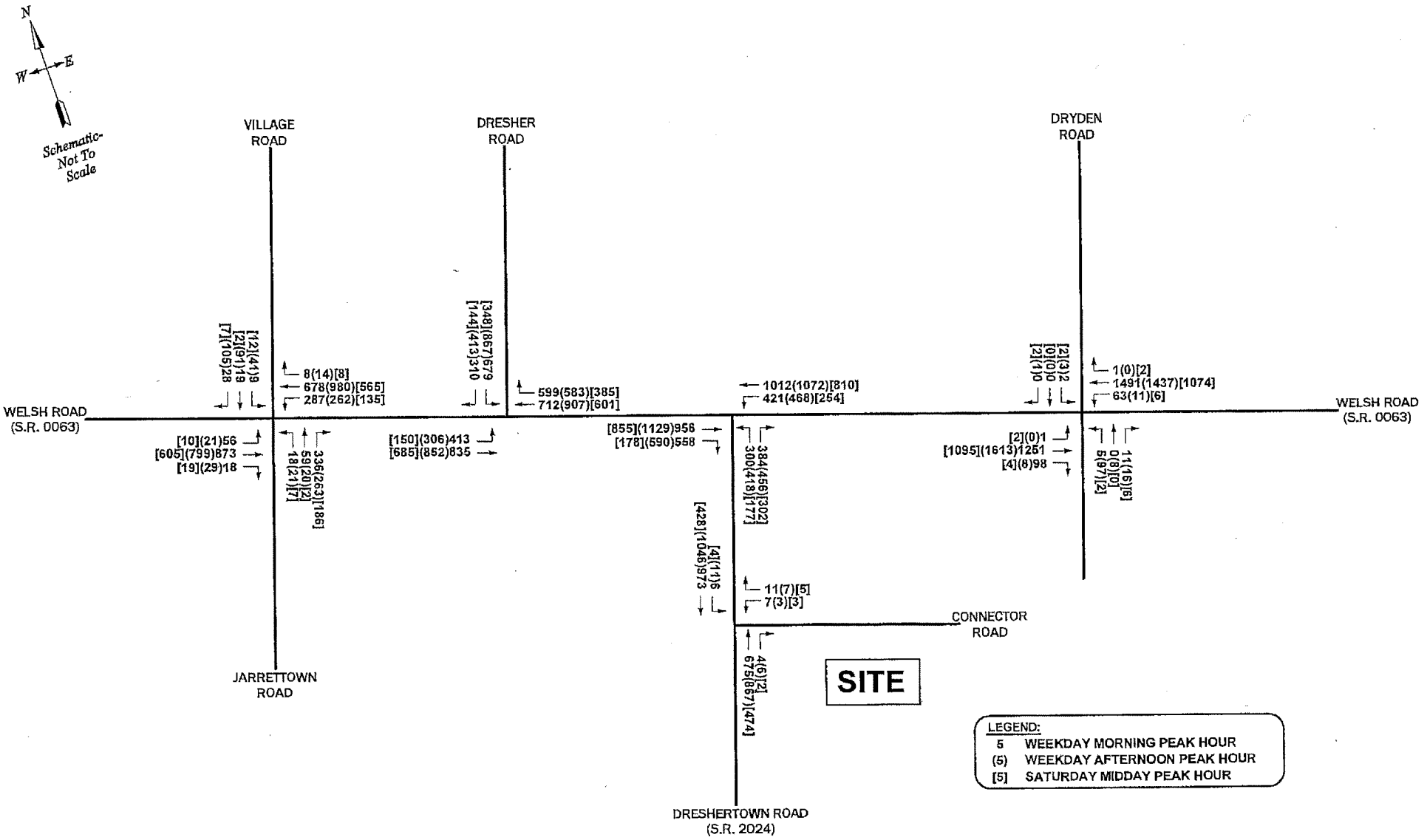

FIGURE 5B

2018 Future Peak Hour Traffic Volumes With Development

THE PROMENADE AT UPPER DUBLIN

UPPER ' 'BLIN TOWNSHIP, MONTGOMERY COUN' PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

I:\engl815367\dwg\Figures\Figure 5B.dwg

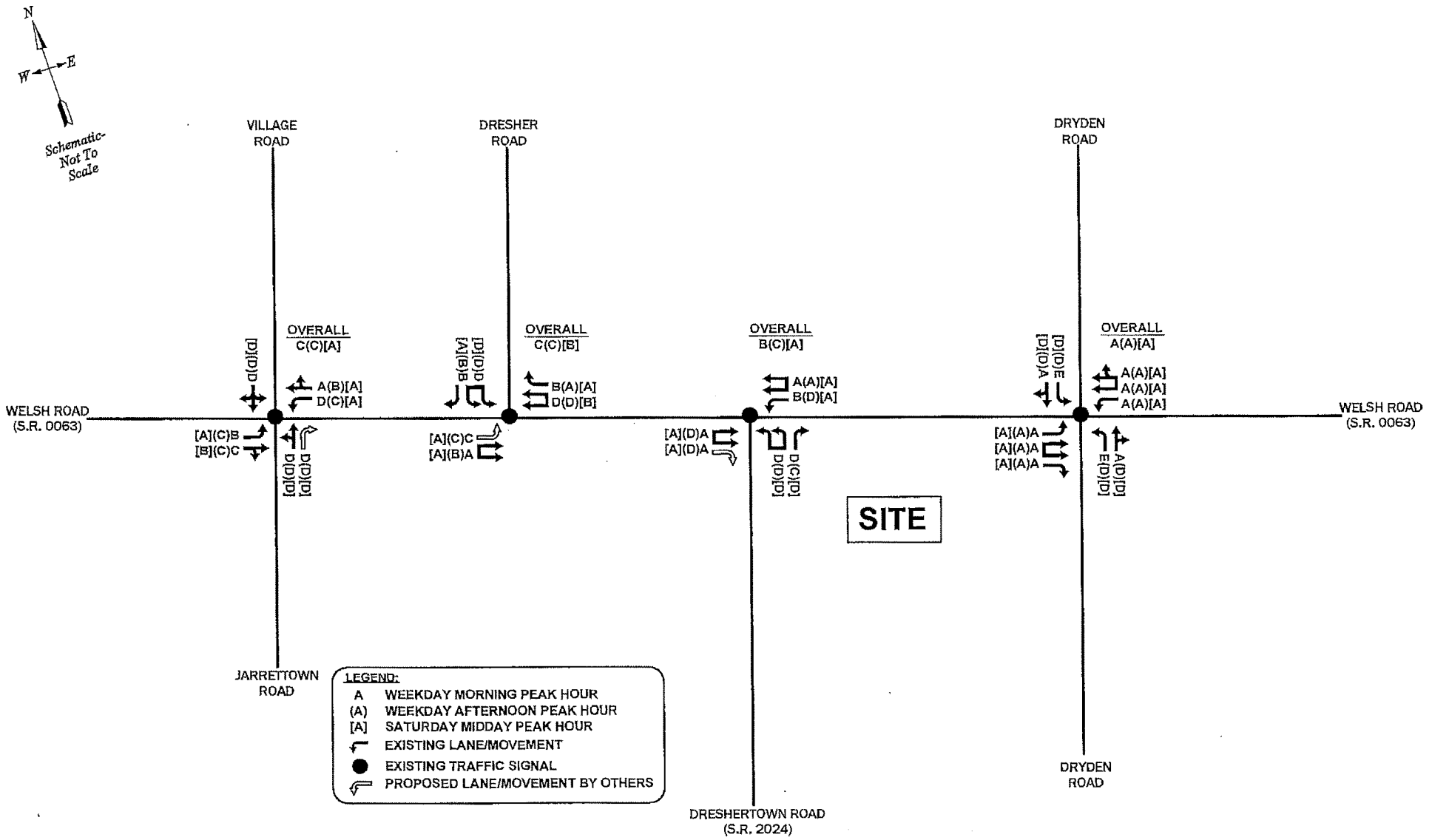

FIGURE 5C

2018 Future Levels of Service without Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815367\dwg\Figures\Figure 5C.dwg

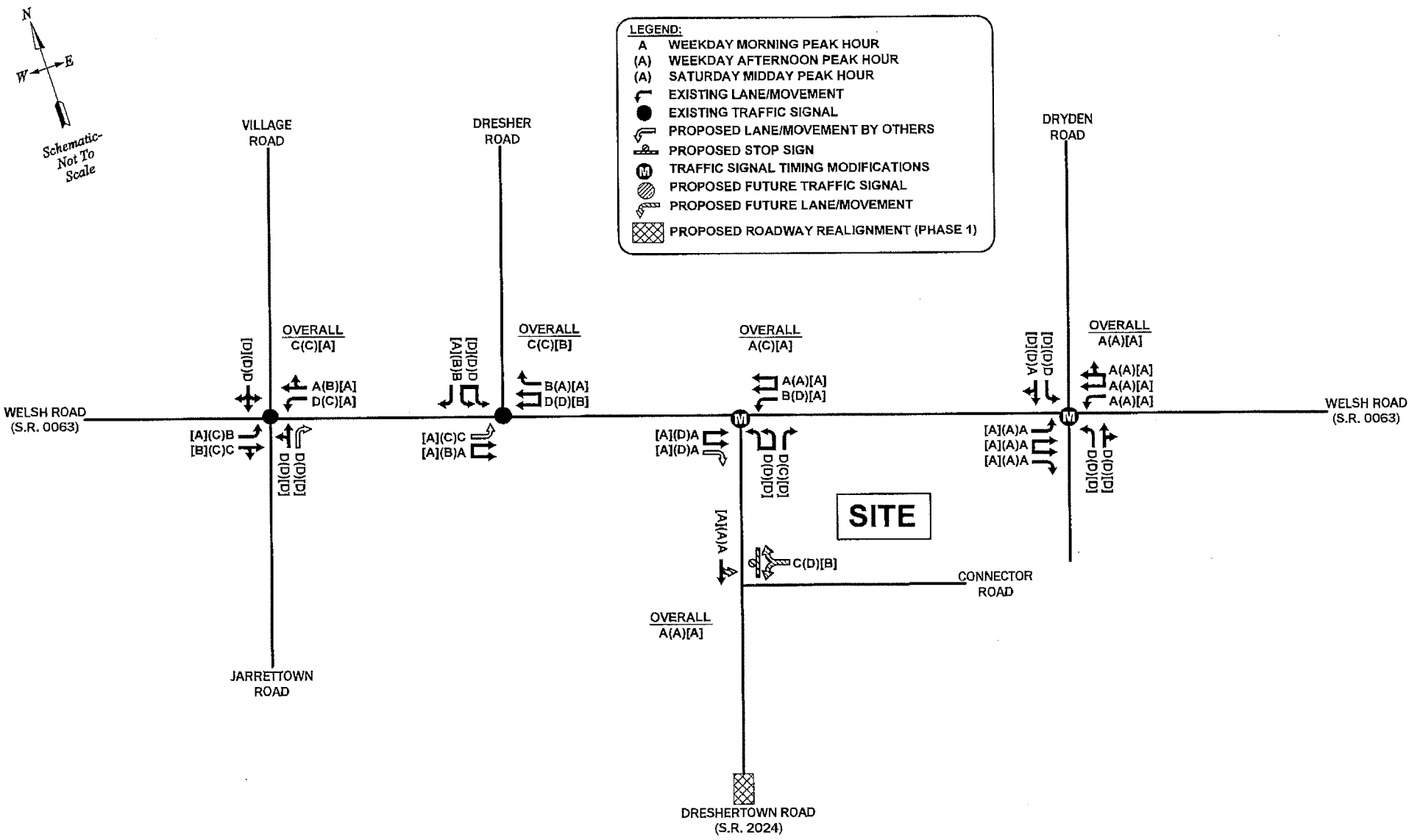

FIGURE 5D

2018 Future Levels of Service with Development

THE PROMENADE AT UPPER DUBLIN

UPPER BLIN TOWNSHIP, MONTGOMERY COUN PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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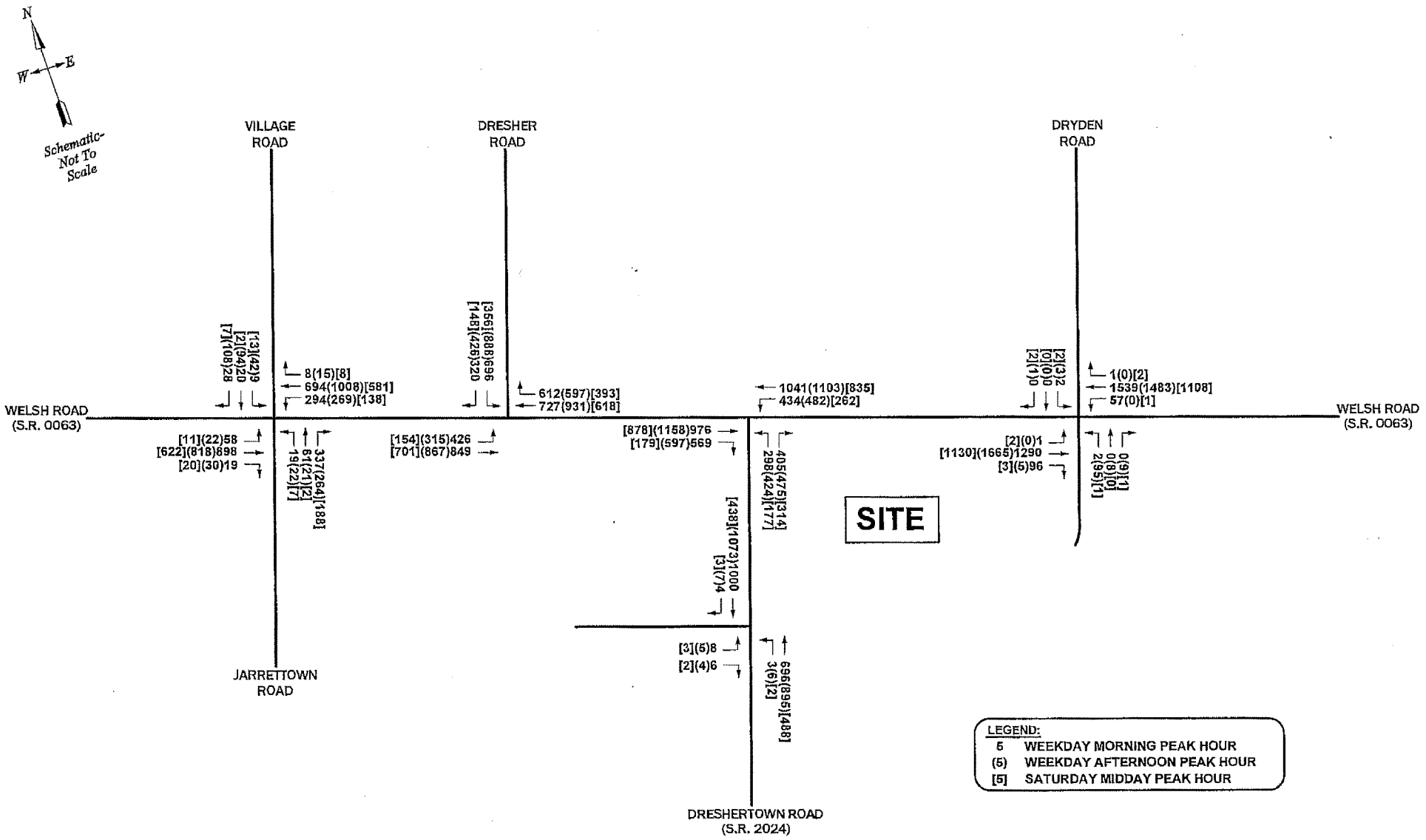

FIGURE 6A

2023 Future Peak Hour Traffic Volumes Without Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815367\dwg\Figures\January 2017\Figure 6A.dwg

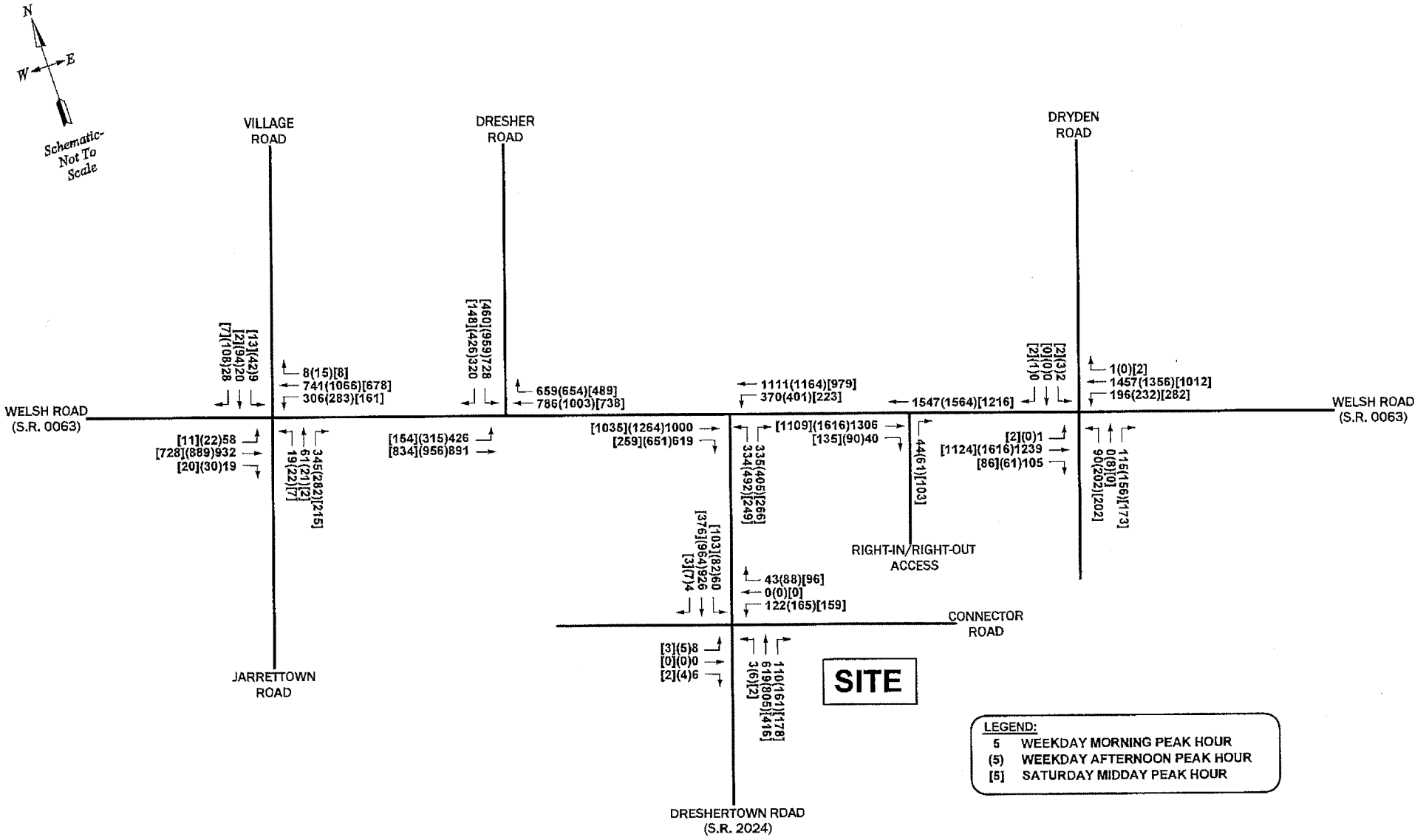

FIGURE 6B

2023 Future Peak Hour Traffic Volumes With Development (Phases 1 and 2)

THE PROMENADE AT UPPER DUBLIN

UPPER IBLIN TOWNSHIP, MONTGOMERY COUN PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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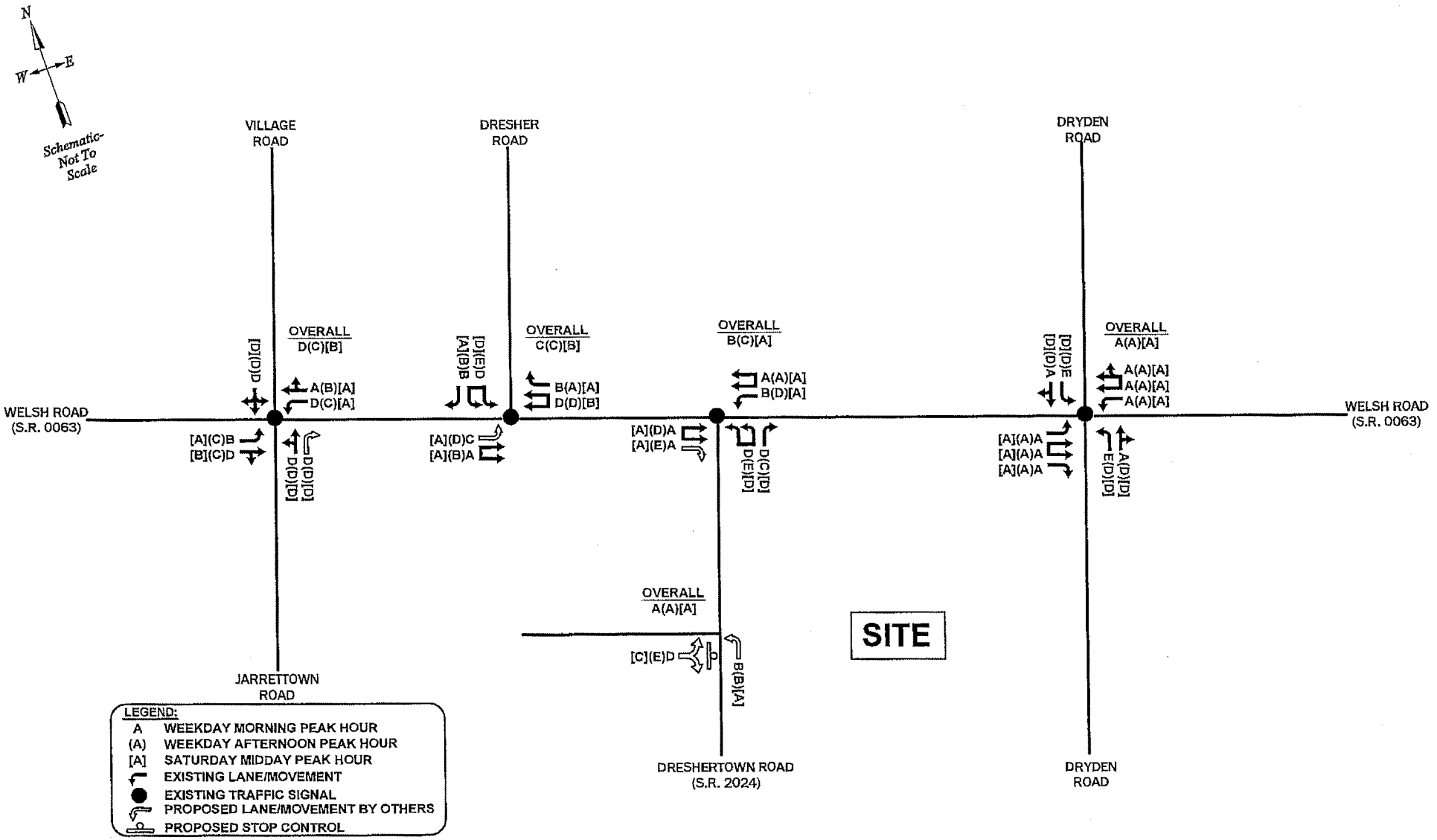

FIGURE 6C

2023 Future Levels of Service without Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815367\dwg\Figures\January 2017\Figure 6C.dwg

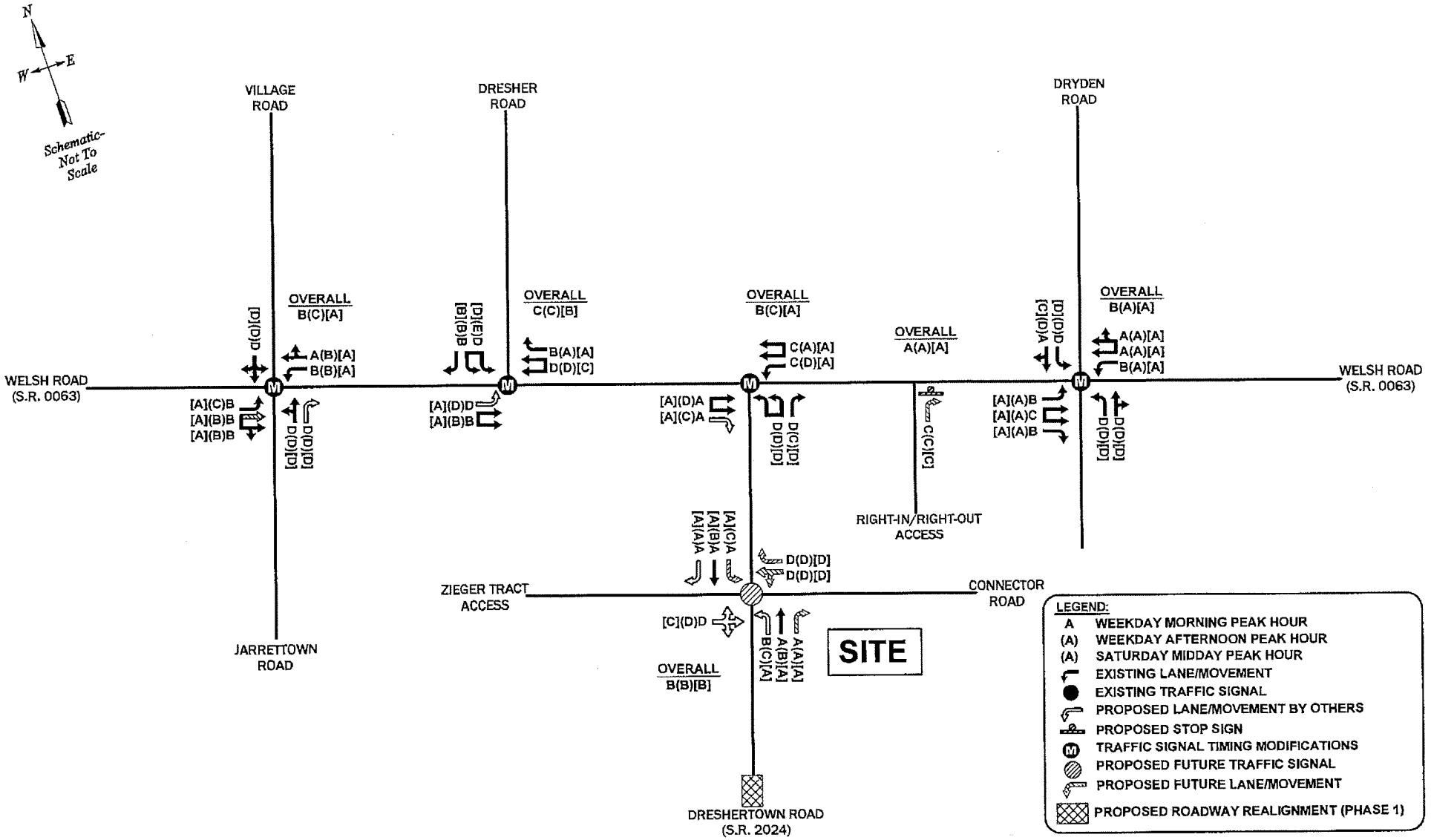

FIGURE 6D

2023 Future Levels of Service with Development

THE PROMENADE AT UPPER DUBLIN

UPPER 'BLIN TOWNSHIP, MONTGOMERY COUN' PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

I:\eng\815367\dwg\Figures\January 2017\Figure

Upper Dublin Township Exhibit List - Conditional Use #2219 – BT Dreshertown, LP, Promenade

Hearing Date	Exhibit #	Description
6/13/2017	T1	Notice of Public Hearing sent to Ambler Gazette to run on May 28 and June 4, 2017.
6/13/2017	T2	Application for Conditional Use dated February 14, 2017.
6/13/2017	T3	Payment receipt for conditional use hearing fees dated February 14, 2017.
6/13/2017	T4	Special Warranty Deed between Prudential Insurance Company of America and BT Dreshertown, LP dated January 5, 2016.
6/13/2017	T5	Letter from Robert Gundlach, Jr to Paul Leonard dated February 14, 2017.
6/13/2017	T6	Letter from Jennifer Wunder to Rick Barton dated February 28, 2017.
6/13/2017	T7	Planning Report by Kennedy and Associates dated February 10, 2017.
6/13/2017	T8	Site-Lighting review letter by C. Stanley Stubbe dated March 10, 2017.
6/13/2017	T9	Review letter by Timothy P. Schuck dated March 14, 2017.
6/13/2017	T10	Memo from Rick Barton to Tom Fountain and Michael Markman dated March 17, 2017.
6/13/2017	T11	Review letter from Tom Fountain, Township Engineer, dated March 17, 2017.
6/13/2017	T12	Landscape review letter from Richard Collier, Jr., LandConcepts, dated March 17, 2017.
6/13/2017	T13	Review letter from Derek Dureka dated March 20, 2017.
6/13/2017	T14	Letter from Boles, Smyth to Rick Barton regarding traffic and the traffic impact study. Letter dated March 21, 2017.
6/13/2017	T15	Review letter from the Montgomery County Planning Commission dated March 21, 2017.
6/13/2017	T16	Letter from Eric C. Frey to David J. Brooman dated March 30, 2017.
6/13/2017	T17	Letter and attachments with conditional use site plan from Peter J. Clelland dated April 13, 2017.
6/13/2017	T18	Resolution of the Upper Dublin Planning Commission dated April 20, 2017.
6/13/2017	T19	Email from Peter Clelland to David Brooman with a draft agreement to provide for public access to planned park and pedestrian trails dated April 21, 2017.
6/13/2017	T20	Memo from Rick Barton to nearby property owners with notice of the hearing. Memo dated May 26, 2017.
6/13/2017	T21	Photos of signs posted at the subject property with notice of the Conditional Use Hearing. Signs posted on June 1, 2017.
6/13/2017	T22	Transportation Impact Study prepared by McMahon Transportation Engineers and Planners dated March 2016 and revised February 2017.

NOTICE OF PUBLIC HEARING
UPPER DUBLIN TOWNSHIP

The Board of Commissioners of Upper Dublin Township will hold the following public hearing on Tuesday, June 13, 2017 beginning at 6:30 PM at the Upper Dublin Township Building, 801 Loch Alsh Avenue, Fort Washington, PA 19034:

Application #2219: *BT Dreshertown, L.P. of 200 Witmer Road, Suite 200, Horsham, PA 19044* requests conditional use approval under Zoning Code Section 255-60.D to construct a Mixed Use Development in the OC Office Center District, subject to the requirements and criteria of Section 255-61.1 (Ordinance No. 17-1330, adopted 03/28/2017). The subject property is located at the corner of Dreshertown and Welsh Roads and has an area of 25.41 acres. The general standards and criteria for conditional use approval are found in Zoning Code Section 255-194.

All residents of Upper Dublin Township interested in the above application may appear and be heard. If you are a person with a disability and wish to attend the hearing scheduled for this date and require an auxiliary aid, service or other accommodation to participate in the proceedings, phone (215) 643-1600 to discuss how Upper Dublin Township may best accommodate your needs.

BOARD OF COMMISSIONERS OF UPPER DUBLIN TOWNSHIP

BY: Paul A. Leonard
Township Manager

Advertisement: May 28 and June 4, 2017 - The Ambler Gazette

Barton, Rick

To: legal@montgomerynews.com
Cc: David Brooman (DBrooman@highswartz.com); Wunder, Jennifer L.
Subject: Legal notice from Upper Dublin for Gazette on 5/28 and 6/4
Attachments: 2219.CU.hrgnotice.Promenade.6.13.17..doc

Importance: High

5/24/17

Hello Maureen,

Please run the attached legal ad in the Ambler Gazette on May 28 and June 4, and send proof of publication. Thanks as always for confirming this request.
Sincerely,

Richard D. Barton, AICP
Community Planner / Zoning Officer
Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034

rbarton@upperdublin.net
(215) 643-1600, ext. 3213

UPPER DUBLIN TOWNSHIP, 801 LOCH ALSH AVENUE, FORT WASHINGTON PA 19034-1697
215-643-1600

UPPER DUBLIN TOWNSHIP
Received
FEB 14 2017
CODE ENFORCEMENT DEPT.

APPLICATION FOR CONDITIONAL USE

Application No. 2219 Date Hearing Advertised 6-13-17
Date 2-14-17 Fee Paid $1,000.00
Escrow Fee Paid

I/We, BT Dreshertown, L.P.

of 200 Witmer Road, Suite 200, Horsham, PA 19044
(mailing address)

make the following Application for a Conditional Use Permit; in accordance with: Article IX, Section 255, Subsection 60, Paragraph D, of the Zoning Ordinance.

The description of the property involved in this appeal is as follows:

Location: Corner of Welsh and Dreshertown Roads
Parcel No.: 54-00-05242-00-5 **Block/Unit No.:**
Lot Size: 25.411 acres **Present Use:** vacant land
Zoning District OC Office Center District

I/We believe that the Board Of Commissioners should approve this request because (include reasons both with respect to the law and fact for granting the conditional Use Permit):
The Applicant meets all of the requirements and criteria for obtaining conditional use approval to construct a Mixed Use Development in the OC Office Center District, as provided in Ordinance No. 16-1326, adopted by the Board of Commissioners on December 6, 2016, and the Township Code. The Applicant agrees to accept all of the proposed conditions to the grant of Conditional Use approval as set forth on the attached addendum.

Has any previous Application for Conditional Use Permit been filed in connection with these premises? ☐ Yes ☒ No

What is the applicant's interest in the affected premises? Owner
(owner or lessee)

(If neither owner nor lessee, attach proof of authority or have owner join in this Application.)

What is the approximate cost of the work involved? $

I/We hereby certify that all of the above statements and statements contained in any papers or plans submitted herewith are true to the best of my/our knowledge and belief.

Michael Markman, President of BT Dreshertown, L.P. — Same as Applicant
Applicant (s) — **Owner(s)**

Name and address of attorney:

Robert W. Gundlach, Jr., Esquire, Fox Rothschild LLP

2700 Kelly Road, Suite 300, Warrington, PA 18976 rgundlach@foxrothschild.com

See Other Side

NOTE: This application must be filled out in five (5) copies, all copies signed by owner, and filed with the Zoning Officer. Twenty-one (21) copies of the plan of real estate affected showing the location and size of the lot, location and dimensions of improvements now erected and proposed, parking spaces, all dimensional requirements of the Zoning Ordinance, the building envelope (if applicable), rights of way and easements, together with any other information required by the Board of Commissioners. The plan must be prepared and sealed by a Registered Land Surveyor, or a Professional Engineer. If more space is required, attach a separate sheet to each copy of the application and make specific reference to the question being answered.

Following commencement of hearings, and until final decision on a conditional use application, neither any Board member nor the hearing officer shall communicate, directly or indirectly, with any party or his representatives in connection with any issue involved, nor shall any party or his representative communicate with any Board member or the hearing officer, except upon notice and opportunity for all parties and all Board members to participate. The Board of Commissioners shall not take notice of any communication, reports, memoranda, or other materials presented after commencement of the hearings, except advice from their solicitor, unless the parties are afforded an opportunity to contest the material so noticed and shall not inspect the site or its surroundings after the commencement of hearings with any party or his representative unless all parties and all Board members are given an opportunity to be present. Communication with any Board member by an applicant or an applicant's representative in violation of the restrictions of this paragraph shall be the basis for dismissing the conditional use application (Township Code, Sec. 255-191)..

DO NOT WRITE IN THIS SPACE

Date: _____ Application Granted _____ Application Denied _____

The following special conditions are imposed:

_____

_____

_____

_____

By Order

_____

President

_____

Township Secretary

#2219

Upper Dublin Township

Code Enforcement Department
801 Loch Alsh Avenue
Fort Washington, PA 19034
Phone # 215-643-1600
Fax # 215-643-8843
http://www.upperdublin.net

Payment Receipt

Date	Receipt No.
2/14/2017	22291

Received From:

BT Dreshertown ,LP
200 Witmer Road,Suite 200
Horsham,PA. 19044

Check No.	Payment Method	Property Location
5145	Check	Welsh & Dreshertown Roads

Item	Description	Qty	Rate	Amount
01-361-3300	Zoning Hearing Board Fees-Conditional Use		1,000.00	1,000.00

PLEASE NOTE: Payment of the permit fee does not constitute issuance of a permit. After the Permit Application has been reviewed, approved, and processed, the permit will be either mailed or emailed to Homeowner and Contractor. Thank you.

Geri Bauer, (215) 643-1600 ext. 3205

TOTAL AMOUNT PAID $1,000.00

RECORDER OF DEEDS
MONTGOMERY COUNTY
Jeanne Sorg

One Montgomery Plaza
Swede and Airy Streets ~ Suite 303
P.O. Box 311 ~ Norristown, PA 19404
Office: (610) 278-3289 ~ Fax: (610) 278-3869

DEED BK 5985 PG 01076 to 01084
INSTRUMENT # : 2016003068
RECORDED DATE: 01/14/2016 08:46:05 AM

3292733-0016T

MONTGOMERY COUNTY ROD

OFFICIAL RECORDING COVER PAGE

Document Type:	Deed	**Transaction #:**	3319940 - 5 Doc(s)
Document Date:	01/05/2016	**Document Page Count:**	8
Reference Info:		**Operator Id:**	dcane

RETURN TO: (Simplifile)
Land Services USA
1835 Market St., Suite 420
Philadelphia, PA 19103
(215) 563-5468

PAID BY:
LAND SERVICES USA

*** PROPERTY DATA:**

Parcel ID #:	54-00-05242-00-5	54-00-05239-00-8	54-00-05245-00-2
Address:	0 WELSH RD PA	0 DRESHERTOWN RD PA	0 DRESHERTOWN RD PA
Municipality:	Upper Dublin Township (100%)	Upper Dublin Township (0%)	Upper Dublin Township (0%)
School District:	Upper Dublin	Upper Dublin	Upper Dublin

*** ASSOCIATED DOCUMENT(S):**

CONSIDERATION/SECURED AMT:
$12,000,000.00
TAXABLE AMOUNT:
$12,000,000.00

FEES / TAXES:

Recording Fee:Deed	$95.00
Additional Pages Fee	$8.00
Additional Parcels Fee	$30.00
Affordable Housing Pages	$16.00
Affordable Housing Parcels	$2.00
State RTT	$120,000.00
Upper Dublin Township RTT	$60,000.00
Upper Dublin School District RTT	$60,000.00
Total:	$240,151.00

DEED BK 5985 PG 01076 to 01084
Recorded Date: 01/14/2016 08:46:05 AM

I hereby CERTIFY that this document is recorded in the Recorder of Deeds Office in Montgomery County, Pennsylvania.

Jeanne Sorg
Recorder of Deeds

PLEASE DO NOT DETACH

THIS PAGE IS NOW PART OF THIS LEGAL DOCUMENT

NOTE: If document data differs from cover sheet, document data always supersedes.
***COVER PAGE DOES NOT INCLUDE ALL DATA, PLEASE SEE INDEX AND DOCUMENT FOR ANY ADDITIONAL INFORMATION.**

Prepared by:

BET INVESTMENTS, INC.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044
Attn: Gregory F. Gambel, Jr., General Counsel
Tel: (215) 938-7300

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
54-00-05242-00-5 UPPER DUBLIN TOWNSHIP
0 WELSH RD
PRUDENTIAL INSURANCE COMPANY OF AMERICA $15.00
B 012 L 3 U 053 2211 01/14/2016 ND

Return to:

LAND SERVICES USA, INC.
1835 Market Street, Suite 420
Philadelphia, Pennsylvania 19103
Attention: Jenna Lampe, Commercial Title Paralegal
Tel: (215) 964-6613

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
54-00-05239-00-8 UPPER DUBLIN TOWNSHIP
0 DRESHERTOWN RD
PRUDENTIAL INSURANCE COMPANY OF AMERICA $15.00
B 012 L 4 U 001 2211 01/14/2016 ND

Tax Map Parcel Nos.: 54-00-05242-00-5
54-00-05239-00-8
54-00-05245-00-2

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
54-00-05245-00-2 UPPER DUBLIN TOWNSHIP
0 DRESHERTOWN RD
PRUDENTIAL INSURANCE COMPANY OF AMERICA $15.00
B 012 L 5 U 052 2211 01/14/2016 ND

SPECIAL WARRANTY DEED

THIS INDENTURE as executed this 5TH day of January in the year 2016 but made effective the _____ day of _____ in the year 2016 between **THE PRUDENTIAL INSURANCE COMPANY OF AMERICA,** a New Jersey Corporation ("**Grantor**"), and **BT DRESHERTOWN, LP,** a Pennsylvania limited partnership ("**Grantee**").

WITNESSETH, that the said Grantor, in consideration of Twelve Million Dollars and 00/100 ($12,000,000.00) lawful money of the United States of America, unto it well and truly paid by the said Grantee, at or before the sealing and delivery hereof, the receipt whereof is hereby acknowledged, has granted, bargained and sold, aliened, enfeoffed, released and confirmed, and by these presents does, grant, bargain and sell, alien, enfeoff, release and confirm to the said Grantee, its successors and assigns, with the intent to be legally bound,

ALL THAT CERTAIN tract of land situated in the Township of Upper Dublin, County of Montgomery, Commonwealth of Pennsylvania, as bounded and described in those certain Deeds dated September 21, 1981, recorded among the land records of the County of Montgomery in Record Book 4660, Page 453 *et seq.* and dated April 13, 1981, recorded among the land records of the County of Montgomery in Record Book 4618, Page 75 *et seq.* and as legally described on **Exhibit A** attached hereto and made a part hereof, wherein Grantor was granted its interest, **LESS ANY AND ALL**, if any, conveyances of portions thereof subsequent to the date said Deed was recorded in the land records.

UNDER AND SUBJECT to easements, restrictions, conditions, and agreements of record insofar as they may lawfully affect the property.

TOGETHER with all and singular the buildings and improvements, ways, streets, alleys, driveways, passages, waters, water-courses, rights, liberties, privileges, hereditaments and appurtenances, whatsoever unto the hereby granted premises belonging, or in any wise appertaining, and the revisions and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, property, claim and demand whatsoever of the said Grantor, as well at law as in equity, of, in, and to the same.

TO HAVE AND TO HOLD the said tracts of land above described with the buildings and improvements thereon erected, hereditaments and premises hereby granted, or mentioned and intended so to be, with the appurtenances, unto the said Grantee, its successors and assigns, to and for the only property use and behoof of the said Grantee, its successors and assigns, forever.

UNDER AND SUBJECT AS AFORESAID.

AND the said Grantor, for itself, its successors and/or assigns does by these presents, covenant, grant and agree, to and with the Grantee, its successors and assigns that it, the said Grantor, its successors and/or assigns, all and singular the hereditaments and premises herein above described and granted, or mentioned and intended so to be, with the appurtenances, unto the said Grantee, its successors and assigns, against it, the said Grantor, its successors and/or assigns and against all and every person or persons whomsoever lawfully claiming or to claim the same or any part hereof, by, from or under him, her, them or any of them shall and will **WARRANT** and **DEFEND**.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the said Grantor has caused these presents to be duly executed and made effective the day and year above written.

THE PRUDENTIAL INSURANCE COMPANY OF AMERICA, a New Jersey corporation

By: _____
Name: Gregory M. Gauthier
Title: Vice President, Corporate Real Estate

CERTIFICATE OF ADDRESS

Grantee hereby certifies that its precise address is:

c/o BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

Date: January 5, 2016

BT DRESHERTOWN, LP,
a Pennsylvania limited partnership

By: BT Dreshertown GP, LLC,
a Pennsylvania limited liability company,
its General Partner

By: MM
Michael P. Markman, Manager

STATE OF NEW JERSEY)
) ss:
COUNTY OF ESSEX)

On this, the 5th day of January, 2016, before me, the undersigned officer, personally appeared, GREGORY M. GAUTHIER, who acknowledged himself to be VICE PRESIDENT, CORPORATE REAL ESTATE of The Prudential Insurance Company of America, a New Jersey corporation, the Grantor herein, and in that capacity, being authorized to do so, executed the foregoing instrument for the purposes therein contained.

Karen Powers
Notary Public

Karen J. Powers
Notary Public
State of New Jersey
Commission #2324096
Commission Expires 1/18/2020

Exhibit A

PREMISES "A"

ALL THAT CERTAIN lot or piece of ground situate in Upper Dublin Township, Montgomery County, Pennsylvania as shown on a Plan prepared by Kimberli A. Holzworth dated 12/18/1996 and recorded in Plan Book L-5 page 364 and being described as follows:

BEGINNING at a point, said point being a concrete monument and located South 53 degrees 31 minutes 02 seconds East a distance of 91.70 feet the approximate centerline of Dreshertown Road with its intersection with the westerly sideline of Welsh Road and running thence;

1) THENCE, along the southerly sideline of Dreshertown Road the following four (4) courses, on a curve to the left having a radius of 40.00 feet, a length of 62.60 feet and whose chord bears South 81 degrees 39 minutes 07 seconds West a distance of 56.40 feet to a concrete monument to be set;

2) THENCE, South 36 degrees 49 minutes 17 seconds West a distance of 157.33 feet to a concrete monument to be set;

3) THENCE, North 53 degrees 03 minutes 02 seconds West a distance of 11.74 feet to a concrete monument to be set;

4) THENCE, South 36 degrees 45 minutes 47 seconds West a distance of 901.26 feet to a point;

5) THENCE, along a common line between Block 12, Lots 3 and 4, South 53 degrees 14 minutes 13 seconds East a distance of 1087.41 feet to a point;

6) THENCE, along a common line between Block 12, Lots 3 and 2 as it follow the approximate centerline of Prudential Road (private), on a curve to the right having a radius of 1200.00 feet, a length of 446.39 feet and whose chord bears North 26 degrees 06 minutes 23 seconds East a distance of 443.82 feet to a point;

7) THENCE, still along the same North 36 degrees 45 minutes 47 seconds East a distance of 646.29 feet to a point;

8) THENCE, along the westerly sideline of Welsh Road the following four (4) courses, North 53 degrees 45 minutes 58 seconds West a distance of 406.58 feet to a concrete monument to be set;

9) THENCE, North 36 degrees 14 minutes 02 seconds East a distance of 22.50 feet to a point;

10) THENCE, still along the same, North 53 degrees 31 minutes 02 seconds West a distance of 546.90 feet to the point and place of beginning.

CONTAINING an area of 25.411 acres or 1,106,902 square feet, more or less.

BEING Lot No. 3 on said plan.

BEING Assessed as Welsh Road.

BEING Tax Parcel #54-00-05242-00-5 .

PREMISES "B"

ALL THAT CERTAIN lot or piece of ground situate in Upper Dublin Township, Montgomery County, Pennsylvania as shown on a Plan prepared by Kimberli A. Holzworth dated 12/18/1996 and recorded in Plan Book L-5 page 364 and being described as follows:

BEGINNING at a point, said point being a common corner between Block 12, Lots 3 and 4 at its intersection with the southerly sideline of Dreshertown Road and running thence;

1) THENCE, along the southerly sideline of Dreshertown Road the following four (4) courses, South 36 degrees 45 minutes 47 seconds West a distance of 493.50 feet to a concrete monument to be set;

2) THENCE South 36 degrees 05 minutes 32 seconds West a distance of 107.16 feet to a concrete monument to be set;

3) THENCE on a curve to the left having a radius of 1150.00 feet, a length of 130.10 feet and whose chord bears South 32 degrees 51 minutes 05 seconds West a distance of 130.03 feet to a concrete monument to be set;

4) THENCE South 29 degrees 36 minutes 37 seconds West a distance of 353.02 feet to a point;

5) THENCE, along a common line between Block 12, Lots 4 and 5 as it follow the approximate centerline of prudential Road (private), South 53 degrees 14 minutes 13 seconds East a distance of 228.03 feet to a point;

6) THENCE, still along the same, on a curve to the left having a radius of 1000.00 feet, a length of 760.53 feet and whose chord bears South 75 degrees 01 minute 28 seconds East a distance of 742.33 feet to a point of compound curve;

7) THENCE, along a common line between Block 12, Lots 4 and 5 at first then Lot 2 as it follow the approximate centerline of Prudential Road (private), on a curve to the left having a radius of 650.00 feet, a length of 805.86 feet and whose chord bears North 47 degrees 40 minutes 16 seconds East a distance of 755.23 feet to a point of reverse curve;

8) THENCE, along a common line between Block 12, Lots 4 and 2 as it follow the approximate centerline of Prudential Road (private), on a curve to the right having a radius of 1200.00 feet, a length of 69.02 feet and whose chord bears North 13 degrees 48 minutes 07 seconds East a distance of 69.01 feet to a point;

9) THENCE, along a common line between Block 12, Lots 4 and 3, North 53 degrees 14 minutes 13 seconds West a distance of 1087.41 feet to the point and place of beginning.

CONTAINING an area of 25.295 acres or 1,101,847 square feet, more or less.

BEING Lot No. 4 on said plan.

BEING Tax Parcel #54-00-05239-00-8.

PREMISES "C"

ALL THAT CERTAIN lot or piece of ground situate in Upper Dublin Township, Montgomery County, Pennsylvania as shown on a Plan prepared by Kimberli A. Holzworth dated 12/18/1996 and recorded in Plan Book L-5 page 364 and being described as follows:

BEGINNING at a point in the southerly right of way line of Dreshertown Road (variable width) said being northwesterly corner of Lot 5, Block 12, and running thence;

1) THENCE North 36 degrees 32 minutes 47 seconds East a distance of 269.50 feet to a point;

2) THENCE North 44 degrees 35 minutes 18 seconds East a distance of 96.59 feet to a point;

3) THENCE North 37 degrees 41 minutes 49 seconds East a distance of 251.81 feet to a point;

4) THENCE North 29 degrees 36 minutes 37 seconds East a distance of 32.93 feet to a point;

5) THENCE South 53 degrees 14 minutes 13 seconds East a distance of 228.03 feet to a point;

6) THENCE along a curve to the left, having a radius of 1,000.00 feet, a chord bearing of South 75 degrees 01 minute 28 seconds East and distance of 742.33 feet, an arc distance of 760.53 feet to a point of compound curvature;

7) THENCE along a curve to the left, having a radius of 650.00 feet, a chord bearing of North 62 degrees 12 minutes 08 seconds East and distance of 465.58 feet, an arc distance of 476.16 feet to a point of cusp;

8) THENCE South 29 degrees 16 minutes 23 seconds East a distance of 384.06 feet to a point of cusp;

9) THENCE along a curve to the left, having a radius of 432.00 feet, a chord bearing of South 44 degrees 15 minutes 09 seconds West and distance of 218.67 feet, an arc distance of 221.08 feet to a point of cusp;

10) THENCE South 69 degrees 57 minutes 26 seconds West a distance of 279.67 feet to a point;

11) THENCE South 37 degrees 12 minutes 48 seconds West a distance of 695.32 feet to a point;

12) THENCE North 52 degrees 58 minutes 12 seconds West a distance of 1,184.32 feet to a point;

13) THENCE South 36 degrees 39 minutes 48 seconds West a distance of 49.50 feet to a point;

14) THENCE North 52 degrees 58 minutes 12 seconds West a distance of 109.11 feet to the point or place of beginning.

CONTAINING an area of 25.170 acres or 1,096,440 square feet, more or less.

BEING Lot No. 5 on said plan.

BEING Tax Parcel #54-00-05245-00-2.

PREMISES "B" AND "C" TOGETHER BEING assessed as Dreshertown Road.

T5

Fox Rothschild LLP
ATTORNEYS AT LAW

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UPPER DUBLIN TOWNSHIP
Received
FEB 14 2017
CODE ENFORCEMENT DEPT.

February 14, 2017

Via Federal Express
Paul Leonard, Township Manager
Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034

Re: The Promenade at Upper Dublin: BT Dreshertown, LP; Parcel No. 05-00-05242-00-5; Upper Dublin Township, Montgomery County, PA

Dear Mr. Leonard:

This office represents BT Dreshertown, LP (the "Applicant"), the legal owner of Tax Map Parcel No. 05-0-05242-00-5 (the "Property"), in connection with its proposed development of the Property.

The Applicant is proposing to construct a Mixed Use Development on the Property (the "Proposed Project"), which is located in the OC Office Center District. In order to do so, the Applicant must obtain (i) conditional use approval, and (ii) preliminary/final land development approval from the Township Board of Commissioners. As such, I am enclosing the following items:

1. One (1) original and five (5) copies of a completed Conditional Use Application, along with the offered conditions from the recorded Declaration of Covenants and Restrictions as referenced below.

2. One (1) original and five (5) copies of a completed Preliminary Plan Approval Application.

3. Thirty-Six (36) copies of a plan titled Preliminary/Final Land Development Plan & Conditional Use Plan for The Promenade at Upper Dublin, dated February 10, 2017,

prepared by Gilmore and Associates, Inc., depicting how the Property is proposed to be developed if the conditional use approval is granted (the "Plans").

4. Twenty-one (21) copies of a set of building elevations/renderings, depicting the Proposed Project.

5. A copy of the Deed for the Property, confirming the Applicant's ownership thereof.

6. Five (5) copies of a Planning Report for the Promenade at Upper Dublin, dated February 10, 2017, prepared by John H. Kennedy, AICP, of Kennedy & Associates, providing his opinion that the Proposed Project meets all of the requirements for obtaining conditional use approval for a Mixed Use Development in the OC Office Center District.

7. Five (5) complete copies of a Transportation Impact Study, dated March 2016, last revised February 2017, prepared by McMahon Associates, Inc, and ten (10) copies of a Transportation Impact Study Summary. Plans showing the proposed off-site road improvements are included in the addendum of this study.

8. Five (5) copies of a Post-Construction Stormwater Management (PCSM) Narrative, dated February 10, 2017, prepared by Gilmore and Associates.

9. A check in the amount of $1,000, as the fee to file the Conditional Use Application.

10. A check in the amount of $14,858.77, as the fee to file the Preliminary Plan Approval Application.

11. A check in the amount of $12,164.00, as the required escrow for the filing of the Preliminary Plan Approval Application.

12. A copy of an email correspondence from Mark Cassel, AICP, from the Southeastern Pennsylvania Transportation Authority ("SEPTA"), confirming that (i) no additional improvements are required to the existing SEPTA bus stops across from the Property, and (ii) no additional bus stops are required, as a result of the Proposed Project.

13. A draft copy of a Declaration of Shared Parking Easement, to be executed by BT Dryden, LP, for the benefit of BT Dreshertown, LP, and recorded against the BT Dryden Property, known as Tax Map Parcel No. 54-00-16675-00-2, which is located adjacent to the Property.

14. A copy of an application for review by the Montgomery County Planning Commission, to be submitted separately by the Applicant along with any required filing fees.

With respect to the requirements for obtaining conditional use approval for a Mixed Use Development in the OC Office Center District, in accordance with Ordinance No. 16-1326, adopted by the Board of Commissioners on December 6, 2016 (the "Ordinance Amendment"), please note the following:

a) See Page 3 of the Planning Report and Sheet 2 of the Plans to show compliance with Section 255-61.1(A) and (B) of the Ordinance Amendment, relating to use requirements.

b) See Pages 4-6 of the Planning Report and Sheet 2 of the Plans to show compliance with Section 255-61.1(C) of the Ordinance Amendment, relating to development requirements.

c) See Pages 6-7 of the Planning Report and Sheet 2 of the Plans to show compliance with Section 255-61.1(D) of the Ordinance Amendment, relating to area and bulk requirements.

d) See Pages 7-8 and Exhibit "H" of the Planning Report and the Building Elevations/Renderings to show compliance with Section 255.61.1(E)(1) of the Ordinance Amendment, relating to building design.

e) See Page 8 of the Planning Report and Sheet 3 of the Plans to show compliance with Section 255-61.1(E)(2) of the Ordinance Amendment, relating to signage.

f) See Page 8 of the Planning Report and Sheets 3 and 10 of the Plans to show compliance with Section 255-61.1(E)(3) of the Ordinance Amendment, relating to landscape and streetscape standards.

g) See Pages 8-9 of the Planning Report and Sheets 2 and 3 of the Plans to show compliance with Section 255-61.1(E)(4) of the Ordinance Amendment, relating to neighborhood open space standards.

h) See Page 9 of the Planning Report and the SEPTA correspondence to show compliance with Section 255-61.1(E)(5) of the Ordinance Amendment, relating to public transit.

i) See Sheet 3 of the Plans to show compliance with Section 255-155.2 of the Ordinance Amendment, relating to permitted signage.

Additionally, as you are aware, the Applicant has executed a Declaration of Covenants and Restrictions (the "Declaration"), which has been recorded against the Property. The Applicant is offering conditions to the requested conditional use approval which are consistent with the Declaration and which are attached to the enclosed Conditional Use Application (the "Offered Conditions"). With respect to the Offered Conditions, please note the following:

a) See Pages 17-18 and Appendix M of the Transportation Impact Study to show compliance with Section 1(A)-(F) of the Offered Conditions.

b) See the SEPTA correspondence to show compliance with Section 3(A) of the Offered Conditions.

c) See Sheet 23 of the Plans to show compliance with Section 4 of the Offered Conditions.

d) See the Declaration of Parking Easement to show compliance with Section 5 of the Offered Conditions.

e) See Sheet 2 of the Plans to show compliance with Sections 6 and 7 of the Offered Conditions.

I am requesting that the enclosed Conditional Use Application and Preliminary Plan Approval Application be placed on the agenda for review by the Township Planning Commission at their next meeting; and a hearing then be scheduled before the Board of Commissioners after the Planning Commission makes its recommendation.

Please feel free to contact me should you have any questions.

Very truly yours,

Robert W. Gundlach, Jr.

Enclosures

cc: Rick Barton, Township Zoning Officer *(w/Encls.) (Via E-Mail rbarton@upperdublin.net)*
David Brooman, Esq. *(w/Encls.) (Via E-Mail dbrooman@highswartz.com)*
Jennifer L. Wunder, Esq. *(w/Encls.)(Via E-Mail jwunder@foxrothschild.com)*
Michael Markman *(w/Encls.)(Via E-Mail mmarkman@betinvestments.com)*
Peter Clelland *(w/Encls.)(Via E-Mail pclelland@betinvestments.com)*
John Kennedy, AICP *(w/Encls.)(Via E-Mail john.kennedy@landplan.com)*
Erik Garton, PE *(w/Encls.)(Via E-Mail egarton@gilmore-assoc.com)*
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JENNIFER L. WUNDER
Direct Dial: 215-918-3570
Email Address: JWunder@FoxRothschild.com

February 28, 2017

Via Email
Rick Barton, Zoning Officer
Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034

Re: BT Dreshertown, LP – Promenade at Upper Dublin – Conditional Use and Land Development Submissions

Dear Rich:

As you are aware, this office represents BT Dreshertown, LP (the "Applicant"), in connection with its pending Conditional Use application and Preliminary/Final Land Development application for the above-referenced project.

This letter will confirm that the Applicant hereby waives the requirement for the Township to hold the first hearing within sixty (60) days from receipt of a conditional use application, as required by Section 255-192 of the Township Code and Section 908(1.2) of the Pennsylvania Municipalities Planning Code. We do ask that the Township agree to schedule the first hearing within sixty (60) days of receipt of a written request by the Applicant to do so.

Please feel free to contact me should you have any questions or require additional information.

Sincerely,

Jennifer L. Wunder

cc: Robert W. Gundlach, Jr., Esq. (via email)
Michael Markman (via email)
Peter Clelland (via email)
David Brooman, Esquire (via email)

Kennedy & Associates
Planners and Land Use Consultants

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tel 215-513-1720
fax 215-513-1721
www.Landplan.com

PLANNING REPORT

for the

THE PROMENADE AT UPPER DUBLIN

Prepared for:

BT Dreshertown, LP

February 10, 2017

Prepared by:

John H. Kennedy, AICP
Kennedy & Associates LLC

UPPER DUBLIN TOWNSHIP
Received
FEB 1 4 2017
CODE ENFORCEMENT DEPT.

Introduction

The Promenade at Upper Dublin is a mixed use development comprising 138,592 square feet of nonresidential retail uses and 402 dwelling units (the "Project"), located at the intersection of Welsh and Dreshertown Roads, known as Tax Map Parcel No. 54-00-05242-00-5 (the "Property"), proposed by BT Dreshertown, LP ("Applicant"). The Property currently consists of vacant land, as shown on the Existing Features Plan attached hereto as **Exhibit "A".**

The area surrounding the Project consists of both commercial office buildings and residential uses. Directly adjacent to the Property are two office buildings with parking. Across Welsh Road from the Property is a mix of commercial uses. Two separate age-restricted residential developments are being/will be constructed; one behind the Property, and another (Regency at Upper Dublin) across Dreshertown Road from the Property. An Aerial Plan showing the aerial view of the Property and the surrounding area is attached hereto as **Exhibit "B".**

The Property is located in the OC Office Center zoning district, along with the two office parks adjacent to the Property, as shown on the Zoning Map attached hereto as **Exhibit "C"**. The OC District permits the following uses by right: (1) Office Buildings, (2) Personal service/convenience facilities, and (3) Accessory Uses.

The Project consists of a mix of commercial retail and residential uses, including 138,592 sf of nonresidential retail space and 402 residential dwelling units. The Project also includes neighborhood open space for public use, as well as an amenity courtyard for use by the residential tenants. There will also be two parking structures and surface parking, for a total of 1,370 parking spaces. The Project is shown in detail on the plans contained in the Conditional Use Plan Set, prepared by Gilmore and Associates, dated February 10, 2017, which is attached hereto as **Exhibit "D"**. Renderings depicting what the Project is proposed to look like are attached hereto as **Exhibit "E"**.

Ordinance No. 16-1326, adopted by the Upper Dublin Township Board of Commissioners on December 6, 2016, amends the Township Zoning Code to allow a Mixed Use Development, like the Project, as a conditional use in the OC Office Center district. A copy of Ordinance No. 16-1326, which provides the requirements for conditional use approval, is attached hereto as **Exhibit "F"**.

The Applicant executed a Declaration of Covenants and Restrictions (the "Declaration"), relating to the development of the Project, and recorded it against the Property. A copy of the Declaration of is attached hereto as **Exhibit "G"**.

The Project complies with all of the requirements for conditional use approval for a Mixed Use Development in the OC District, as follows:

OFFICE CENTER DISTRICT CONDITIONAL USE CRITERIA

§ 255-61.1 Use and Development Requirements for Mixed Use Developments.

A Mixed Use Development shall comply with the following requirements and criteria:

A. The development shall consist of a harmonious selection of uses and groupings of buildings, service and parking areas, circulation and green areas, planned and designed as an integrated unit, in such a manner as to constitute a safe, efficient and convenient center and encourage the use of green building technologies and sustainable design features.

The Promenade is an integrated development of residential and commercial uses, neighborhood open space and amenities, along with required parking and service areas. Retail and restaurant uses are mixed with apartments in two main buildings designed with a common architectural theme and using design elements that minimize the overall scale with visual building breaks and step backs of the building facades. The site plan is configured to mitigate the visual impact of parking typically found in suburban developments. Commercial parking has been distributed around the buildings to provide safe and efficient access, while residential parking is centralized in internal parking garages. The parking fields are therefore small compared to other suburban centers. The development will incorporate numerous green building technologies and sustainable building practices, including green roofs, rain gardens, structured parking, electric vehicle charging stations, bike racks and a bike share program.

B. Permitted Uses. Any of the following uses may be permitted when included in a Mixed Use Development (see zoning amendment in the appendix for full list of permitted uses):

(1) Retail and commercial establishments
(2) Residential uses
(3) Accessory uses

The Promenade is composed of 138,592 s.f. retail, restaurant, and commercial space along with 402 apartments.

C. Development Requirements. The general plan for a Mixed Use Development shall comply with the following requirements and criteria:

(1) Lot area. The minimum gross lot area shall be twenty (20) acres.

The Project is located on 25.411 acres.

(2) Road frontages. The site shall have frontage on and road access to at least two (2) public roads.

The Project has frontage on, and road access to, Welsh Road and Dreshertown Road, both of which are public roads. In addition, the Project has frontage on Dryden Road which is private. The Applicant has rights to access and use this road.

(3) Mix requirements. Every Mixed Use Development shall provide a mix of office, commercial and residential uses and no one use may utilize more than eighty percent (80%) of the overall gross building floor area. Accessory parking, including any parking garage, shall not be included as a separate use and its square footage shall not be counted in the calculation of the mix requirements. Apartment leasing area and multi-family common space may be included as residential space in calculating the mix requirements.

Based on the total square footage of the gross building floor areas, the Project contains 77.7% residential space and 22.3% of other non-residential uses.

(4) Site Plan. A site plan shall be required and shall include a unified architectural theme, preliminary stormwater management design and conceptual landscaping.

All buildings proposed on the site will have a unified architectural theme that includes building materials, colors, textures and distinctive architectural elements. The architectural theme is illustrated in the renderings attached as Exhibit "E" to this report.

(5) Neighborhood Open Space. A minimum of ten percent (10%) of the net developable area of the lot shall be developed as Neighborhood Open Space. Neighborhood Open Space shall consist of parks, plazas, gardens, water features and other similarly improved common areas and amenities provided for the benefit of the residents, tenants and/or customers of the Mixed Use Development, and the general public. Trail and sidewalk connections also shall be provided to connect Neighborhood Open Spaces. A public access easement shall be granted in favor of the Township to provide public access to the trails and to certain portions of the Neighborhood Open Space within a Mixed Use Development that are appropriate for public access.

More than 10% of the net developable acreage of the lot is improved neighborhood open space in the proposed project, including a 2.5-acre neighborhood park located at the western end of the development (see conditional use plan set). The park includes landscaping, water features and seating areas and will provide areas for playgrounds, exercise and yoga, and other activities. This park will be open to the general public, as well as residents of the Promenade. The Project also includes substanial public trails, which will connect to the surrounding neighborhoods and provide pedestrian and bike access to the shops at the Promenade. Several of these trail connections are listed on the Township's and/or Montgomery County's open space and trail plan. The extent of the neighborhood open space is shown on sheet 2 of the Conditional Use Plan (Exhibit "D").

(6) Stormwater Facilities. Naturalized stormwater facilities may occupy up to twenty-five percent (25%) of the Neighborhood Open Space if such facilities are designed and landscaped using Best Management Practices (BMPs), as published from time to time by the Pennsylvania Department of Environmental Protection and incorporated into the landscaped area. There shall be no limit on the area of underground stormwater facilities.

Much of the proposed stormwater system will be constructed underground to mitigate the visual impact of stormwater management facilities. However, there are several locations where landscaped rain gardens are proposed. These areas are located within the Neighborhood Open Space and in large islands within the parking field near the intersection of Welsh Road and Dreshertown Road. In these locations, the rain gardens will provide a more aesthetically pleasing stormwater facility, while managing runoff and providing groundwater recharge.

(7) Buffers. There shall be a buffer area along the property line of a residential zoned district of at least fifty (50) feet, which buffer area shall include planting and landscaping. There shall be a buffer area of at least twenty-five (25) feet where parking is located along a street frontage, which buffer area may include a low wall, fencing and/or landscaping.

A 50-foot landscape buffer is proposed along the southwestern boundary of the site, adjacent to the proposed active adult community. A 25-foot buffer is provided along the frontages of Welsh Road, Dreshertown Road and Dryden Road. Typical details for both of these buffers are shown on Sheet 23 of the Conditional Use Plan (Exhibit "D").

(8) Permitted Density. A Mixed Use Development may contain up to fifteen (15) dwelling units per gross acre of the lot area. To encourage the use of green building technology and sustainable design features, increases in the base density are permitted in accordance with the following table. These increases

are cumulative and can be combined up to a maximum density of twenty (20) dwelling units per gross acre of the lot area.

The plan proposes 402 dwelling units on 25.411 acres, which is a density of 15.8 dwelling units per gross acre. The base density allowed under the OC District mixed-use option is 15.0 units per acre. Additional density is permitted by bonus provisions within the ordinance. In order to achieve the proposed 15.8 dwelling units per acre, the applicant will incorporate bonus features into the development, including: the use of structured parking; the construction of green roofs; and the provision of electric vehicle charging stations, bike racks, and a bike share program. As noted on sheet 2 of the Conditional Use Plan, the use of these bonus features provides an additional 5 dwelling units per acre maximum. However, the applicant has agreed to limit the density of the Project to 402 dwelling units.

D. Area and Bulk Requirements.

(1) Building coverage. The maximum building coverage shall not exceed forty percent (40%) of the net developable area of the lot.

The Project has 22.7% building coverage.

(2) Impervious coverage. The maximum impervious coverage shall not exceed seventy percent (70%) of the developable acreage of the lot.

The Project has 70.0% of impervious coverage.

(3) Building Height. The maximum building height of any residential or mixed use building or structure within a Mixed Use Development shall be sixty-five (65) feet, in accordance with the requirements under § 255-61.F. except that the maximum height for portions of a building comprised of ground floor retail, without residential above, shall be thirty-five (35) feet.

The maximum height of the proposed mixed use buildings on the site is 65 feet. However, any areas of the building where residential is not located above retail, the maximum height does not exceed 35 feet. The two freestanding buildings shall be less than 35 feet in height.

(4) Building setbacks. No building may be located closer than:

(a) Seventy (70) feet to any public highway or ultimate public right-of-way, or to any toll or controlled public highway right-of-way.

(b) Fifty (50) feet to any other property line or the center line of any existing private road.

The proposed building setback from Dreshertown Road is 70.84 feet. The proposed building setback from Welsh Road is 104.6 feet. The proposed building setback from Dryden Road is 127.42 feet. The proposed parking setback from Dresher town Road is 25.43 feet. The proposed parking setback from Welsh Road is 27.02 feet. The proposed parking setback from Dryden Road is 27 feet. The proposed parking setback from the adjacent active adult community is 50 feet.

(5) Parking setbacks. No parking area may be located closer than twenty-five (25) feet to any public highway or ultimate public right-of-way, or to any toll or controlled public highway right-of-way, or any other property line.

. The proposed parking setback from Dresher town Road is 25.43 feet. The proposed parking setback from Welsh Road is 27.02 feet. The proposed parking setback from Dryden Road is 27 feet. The proposed parking setback from the adjacent active adult community is 50 feet.

(6) Parking requirements.

(a) Nonresidential uses: 4 spaces per 1,000 square feet of gross building floor area.

(b) Residential uses: 2.0 spaces per dwelling unit, provided that the applicant may place in reserve up to twenty-five percent (25%) of the required parking, subject to the approval of the Board of Commissioners.

Based on the requirement of 4 spaces per 1000 square feet of building floor area and 2.0 spaces per dwelling unit, a total of 1,359 parking spaces are required. Including all surface and garage parking, a total of 1,370 parking spaces are provided. All spaces shall be built and no parking is proposed to be in reserve.

E. Design Standards. The intent of these standards is to ensure development contributes to a high-quality, mixed-use environment without limiting design flexibility and innovation. The applicant shall submit plans, elevations, renderings, reports, documents and samples as necessary in the form of proposed design guidelines to demonstrate compliance with the following standards:

(1) Building Design.

Bernardon Associates Architects has prepared a summary of the proposed building design and architectural elements used for the Project, which is attached to this report as Exhibit "H".

(2) Signage. The applicant for a Mixed Use Development shall submit a sign plan meeting the requirements of § 255-152.2.H.

Sign locations and conceptual sign design are located on Sheet 3 of the Conditional Use Plan (Exhibit "D").

(3) Landscape and Streetscape Standards.

(a) Sidewalks or multi-use trails shall be provided along all street frontages. Sidewalks along public and private street frontages shall be a minimum of six (6) feet wide. Trails shall be a minimum of ten (10) feet wide.

(b) A landscape plan prepared by a licensed landscape architect is required for all Mixed Use Developments. Landscaped areas include green areas, streetscapes, the interior and perimeter of surface parking areas, greenways, verges, stormwater basins, and natural areas.

(c) Within 100 feet of a residential zoning district the landscape plan shall include plantings, decorative fencing or a wall to shield headlights and soften the view of cars from the street and from adjacent residential areas.

A proposed conceptual landscape design and streetscape elements are located on Sheets 3 and 10 of the Conditional Use Plan (Exhibit "D").

(4) Standards for Neighborhood Open Space.

(a) The minimum width of any land area to be counted as Neighborhood Open Space shall be fifteen (15) feet.

(b) Neighborhood Open Space shall be landscaped and/or hardscaped with a mix of trees, shrubs, groundcover decorative paving or walls in accordance with the overall landscape plan prepared for the development by a registered landscape architect.

(c) Neighborhood Open Space shall be provided with benches, trash containers and/or lighting fixtures.

The area designated as neighborhood open space and conceptual design elements are depicted on Sheet s 2 and 3of the Conditional Use Plan (Exhibit "D").

(5) Public Transit. Transit facilities and shelters shall be provided in mutually agreeable location(s) and in accordance with the design standards established by the Southeastern Pennsylvania Transit Authority (SEPTA).

The Applicant has contacted SEPTA and will work with the agency to accommodate existing transit facilities.

GENERAL CONDITIONAL USE CRITERIA

§ 255-194 Standards and criteria for approval of use.

The Board of Commissioners may grant approval of a listed conditional use under any district, provided that the following standards and criteria are complied with by the applicant for the conditional use. The burden of proving compliance with such standards and criteria shall be on the applicant.

A. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval complies with the declaration of legislative intent that may appear at the beginning of the applicable district under which approval is sought.

The Project provides a diversity of uses, which include residential and nonresidential uses. These uses will complement the existing adjacent office uses by providing access to housing, goods and services in a walkable environment. The Project is located in an appropriate area with access to existing infrastructure. Furthermore, the proposed improvements will not only mitigate the impacts of the development in the immediate area but provide far-reaching benefits for all township residents.

B. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval complies with the conditions enumerated in that section of this chapter which gives the applicant the right to seek a conditional use.

As noted above, the Project complies with the requisite minimum acreage, road frontage, mix and all other requirements for conditional use approval of a Mixed Use Development in the OC District.

C. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval shall preserve the environmental and physical assets of the neighborhood, including but not limited to parking, traffic movement, noise, landscaping, buffering and lighting.

The Project will not have a negative impact on the parking or traffic of the surrounding neighborhood and the proposed traffic improvements will remediate several existing traffic problems. The proposed buildings have been carefully located away from the existing residential neighbors and closer to adjacent office uses, with landscaping and buffering that will mitigate any potential impacts from noise and lighting. In addition, lighting fixtures with cut-off shielding will prevent light leakage from the site in accordance with Township regulations.

D. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval shall be properly serviced by all existing public service systems.

The applicant has obtained "will serve" letters from the appropriate utilities. Copies of these letters are collectively attached hereto as Exhibit "I".

E. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval shall make accommodation for peak traffic generated by the proposed use.

The proposed traffic improvements will remedy a number of existing traffic problems. A summary of these improvements is in the Transportation Impact Study, prepared by McMahon and Associates, dated March 2016, last revised January 2017, a copy of which has been submitted to the Township.

F. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval is designed in accordance with the Township Code with regard to internal traffic circulation, parking, buffering,

grading, stormwater management, erosion control and all other elements of proper land planning

A description of internal circulation and parking is contained in the McMahon Transportation Impact Study. Conceptual buffering, grading, stormwater management, erosion control and other elements of proper land planning are contained in the conditional use plan set. All of these design considerations are in accordance with the Township Code.

G. The Board of Commissioners shall impose such reasonable conditions and safeguards as are advisable to ensure compliance with the purpose and intent of this chapter, which may include, without limitation, planting and buffers, special yards and spaces, construction of fences and walls, special parking and/or loading and drop-off provisions, together with control of vehicles' egress and ingress, harmonious design of buildings, protection of watercourses, the protection of environmental amenities and the elimination of noxious, offensive or hazardous elements.

Noted.

H. The applicant shall establish by credible evidence that the proposed use or other subject of consideration for approval will not adversely affect the health, safety and welfare of the neighborhood and community.

The Project will not have any adverse effect on the health, safety and welfare of the neighborhood and community. The Project will:

- ***Provide an economic benefit to both the Township and School District.***
- ***Provide an opportunity to live and work in close proximity to the site.***
- ***Implement critical portions of the Upper Dublin Trail Plan.***
- ***Diversify the housing stock of the Township.***
- ***Provide remediation for several existing traffic problems.***

OFFERED CONDITIONS OF APPROVAL

In addition to the above-listed requirements for obtaining Conditional Use approval, the Applicant is offering certain conditions to the grant of Conditional Use approval of the Project by the Board of Commissioners, which conditions are set forth in the Declaration attached hereto. If approval is granted, the Project will comply with these conditions.

Submitted by:

John H. Kennedy, AICP

Illuminating Engineering Society

STUBBE CONSULTING LLC

1438 Shaner Drive
Pottstown, PA 19465

Phone: 610 972-9803
FAX: 610 326-1402

stubbeconsultingllc@gmail.com

March 10, 2017

Mr. Richard D. Barton
Community Planner & Zoning Officer
Upper Dublin Township
801Loch Alsh Avenue
Fort Washington, PA 19034

Subject: The Promenade at Upper Dublin Preliminary Land Development, UD #17-01 Site-Lighting Review

Dear Mr. Barton:

This office is in receipt of your 02/24/17 transmittal containing Sheets 10, 11, 23 and 24, Rev. 0 dtd 02/10/17, for the Promenade at Upper Dublin Preliminary Land Development, UD #17-01, Preliminary Land Development Application.

Proposed exterior lighting, on Sheet 11 with details on Sheet 24, consists of 55 3000K LED full cutoff crook-neck mounted luminaires at an unspecified mounting height for roadway illumination and 53 4000K LED pole-mounted full cutoff area-type luminaires at an unspecified mounting height, for parking area illumination.

The following concerns and recommendations are offered for Township consideration, based on the lighting requirements contained in Township Ordinance Chapter 158-14, [Added 10-8-2002 by Ord. No. 1093] and reasonable and customary engineering practices:

1. Control: Section 158-14.D.(3)(d) sets forth requirements for on/off lighting control and hours of lighting operation. No information could be found that addressed proposed method(s) of on/off control of luminaires and the proposed hours of operation for parking area and roadway lighting.
2. Plan Content: Section 158-14.E requires the inclusion of the following additional information on Lighting Plan:
   a. Proposed exterior building-mounted lighting
   b. Specification of mounting height of luminaires
   c. Following Plan Notes:
      i. Post-approval alterations to lighting plans or intended substitutions for lighting equipment on approved lighting plans shall be submitted to Upper Dublin Township for review and approval prior to installation.
      ii. Upper Dublin Township reserves the right to conduct a post-installation nighttime site inspection to verify compliance with Lighting Ordinance requirements and if appropriate, to require remedial action at no expense to Township.
3. Pole Protection - There are locations where luminaires are to be located directly behind parking spaces and therefore vulnerable to being struck by backing vehicles

and in need of protection either by placing the poles a minimum of 5' behind edge of curb or tire stops, placing the pole atop a 30" concrete pedestal or by other approved means.

4. Pole Foundation - There is a single pole foundation on Sheet 24. If the detail is to apply to both pole/luminaire combinations it is recommended that be so stated on the detail. If a separate foundation detail is proposed for each pole/luminaire combination, it is recommended a second detail be provided.
5. LED Source Color Temperature: The area lighting luminaires are specified to have a correlated color temperature of 4000K. To minimize potential glare impact, especially on older drivers and pedestrians in this residential venue, it is recommended all site lighting be required to be specified to be 3000K.
6. Tree Conflict - Plan print quality and scale made it very difficult to assess possible conflicts between tree foliage at full maturity and intended light distribution. It is recommended that the landscaping and lighting design disciplines collaborate to ensure that potential conflicts are avoided.
7. Luminaire Detail - There is a Bollard Foundation Detail on Sheet 24 that appears to have no relevance to this application.

If there are questions regarding this review, please advise.

Sincerely,

Stubbe Consulting LLC

C. Stanley Stubbe

C. Stanley Stubbe

Upper Dublin Township Department of Fire Services

1245 Fort Washington Ave., Fort Washington, PA 19034

Voice: 215.643.1600 x 3923 Fax: 215.643.8843 email: tschuck@upperdublin.net

To: Richard D. Barton, Zoning Officer
Robert W. Gundlach, Jr., Esq.
Michael Markman, President

From: Timothy P. Schuck, Fire Marshal TPS

Date: March 14, 2017

Subject: The Promenade of Upper Dublin
Corner of Welsh Rd. and Dreshertown Rd.
Preliminary land development plan, UD #17-01
Conditional Use application #2219

The Upper Dublin Township Fire Marshal has completed a review of this preliminary land development and conditional use for the mixed use development and offers the following comments:

1) Additional Fire Hydrant must be located in the area of proposed Restaurants # 1 & # 2.

2) Fire Truck Turning Plan must be provided. Truck Turning Plan that was provided is for a tractor trailer. Fire Truck turning plan must be provided for both Engine and Aerial Apparatus indicating access from all main street access points into the development. Engine Apparatus turning radius must be calculated for parking lot access as well maneuverability. Aerial Apparatus turning radius must be calculated for access and maneuverability around the proposed retail/residential structures.

3) Aerial Apparatus set-up width for aerial operation is twenty-two (22) feet in width. The proposed Boulevard width is limited to eighteen (18) feet in width due to the proposed Boulevard Planting which is located in the center of the Boulevard must be adjusted to accommodate the setup of the aerial device.

Memorandum

To: Tom Fountain, Michael Markman

From: Richard D. Barton

Date: March 17, 2017

Re: Initial comments on Promenade conditional use and land development plan

---

The following comments are based on my review of the plan set by Gilmore & Associates, dated 2/10/17 and John Kennedy's Planning Report of the same date. John's report is a point-by-point review of how the plans meet the conditional use standards for mixed use development in the OC District. I recommend he attend the meeting to present an outline of these points to the Planning Commission.

In no particular order of importance, I note these points:

1. In Exhibit 'C', the Zoning Map should be revised to show the BT Residential site on Dreshertown Road as 'A' Residential instead of 'OC' Office Center.

2. One of the building elevations (West Building, exterior, west elevation, internal) refers to an "Age Qualified Side". Our understanding is that this is not an age qualified development.

3. Per the covenant, a maximum of 402 apartments are permitted. The units will be one and two-bedroom only, with at least 40% of the units one-bedroom. Confirm.

4. Rick Collier, our landscape consultant, will have comments on the buffer detail and other aspects of the plan.

5. Green roofs are mentioned as one element of the bonus provision. Which buildings are to have green roofs?

upper Dublin

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GARY SCARPELLO

PAUL A. LEONARD
Township Manager

GILBERT P. HIGH, JR.
Solicitor

March 17, 2017

BET Investments
200 Witmer Road
Horsham, PA 19044

RE: BET Investments-Promenade
Conditional Use Application #2219

To whom it may concern:

Upper Dublin Township has received and reviewed a Conditional Use application for a Land Development for the tract at the corner of Welsh Road and Dreshertown Road, a/k/a the Promenade, proposed by BET Investments. The development consists of office, commercial, residential, and building services units. The site area is 25.41 acres in gross. Improvements include public water and sewer, proposed roads, parking, landscaping, lighting, stormwater management, open space and other utilities. We offer the following comments and recommendations regarding this plan:

1. The applicant should confirm that no portions of the parking areas will be converted to pad sites for additional retail in the future. Also, the parking space calculation requires more examination, since some of the numbers do not match the actual spaces counted on the plans. We question if ground-floor parking should count towards "Structured" parking since the ground floor is generally surface parking.

2. The submitted plans are depicted at a scale of 1" = 80', which is too small to analyze the grading and landscaping details required for determining compliance with the Township standards. More detailed plans need to be submitted to verify conformance.

3. Building setbacks appear to comply; however, the plans need to confirm that the correct ultimate rights-of-way are depicted. The applicant should provide adequately-detailed plans of the road frontages to verify the rights-of-way. Additional right-of-way may be required near the corner, or at entrances, depending on the results of the Township Traffic consultant comments and concerns.

4. Bike racks are depicted at various locations. A detail of the proposed bike-share program should be included at this time.

5. The Zoning compliance sheet indicates a green roof is provided as depicted on Sheet 8, but we did not find the green roof depicted on Sheet 8.

6. Design guidelines should be submitted for review to demonstrate conformance to the requirements for coherency of architectural themes. Requirements are applicable to residential and retail. These design details should apply to the proposed signage as well, to conform to the building character.

7. The Record Plan notes need to depict the distribution between the one- and two-bedroom dwelling units.

8. Stormwater facilities require BMP-compliant design in order to be counted towards the Neighborhood Open Space requirement. This would require confirmation from the DEP and Conservation District that the stormwater facilities in fact comply with the BMP standards.

9. We have identified several portions of the proposed stormwater design which appear to be deficient related to Township stormwater management requirements, including:

   - Use of above-ground basins only to treat runoff from commercial parking lots.
   - Use of underground basin volume to satisfy the groundwater recharge volume.
   - Infiltration testing did not occur in the areas of proposed sub-grade infiltration basins.
   - Evaluation of combined peak flows downstream from the proposed development.
   - Differing drainage area sizes between the project area, and the area of runoff contributing to the SWM facilities.

RECOMMENDATION: FURTHER REVIEW

The items noted in this letter should be addressed to the Township's satisfaction. If you have any questions, please do not hesitate to call.

Very truly yours,

Thomas J. Fountain, P.E.
Upper Dublin Township

cc: Paul Leonard, Township Manager
Richard Barton, Township Zoning Officer
Jack Smyth, Transportation Consultant
Rick Collier, Landscaping Consultant
Joe Fielder, Township Code Officer
Gil High, Township Solicitor
Gilmore & Associates, Inc.
BET Investments

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LANDSCAPE REVIEW #1

MEMO TO: Tom Fountain, P.E.
Richard Baron, AICP
Upper Dublin Township

FROM: Richard Collier, Jr., AICP, ASLA
David Cavanaugh, RLA, ASLA
Land*Concepts* Group

DATE: March 17, 2017

Re: The Promenade at UD
Preliminary/Final Land Development
Conditional Use
Landscape Plan Review

Per your request, we have reviewed the proposed land development application for this property and the Code requirements for landscape compliance.

We have reviewed the plan based on the Township Code - Chapter 212-32 (SALDO) and 255-243 (Zoning Ordinance). The landscape plans reviewed include Sheets 2, 7, 10, 20, 23, and 24 of 34 prepared by Gilmore & Associates, dated 02-10-17.

b. <u>Section E. – Required Information on the Landscape Plan</u>

Section (1) (f) Freestanding signs are shown on the plan. They should be labeled and reference made to the sign details on Sheet 3 of 34.

Section (1) (g) All site utilities and easements need to be shown on the landscape plan. Some of the trunk utilities (e.g., storm sewer) are shown primarily within the streets and parking lots. An initial review of the utilities (from Sheet 9 of 34) indicates a number of conflicts with the proposed landscape. Adjustments will be needed to avoid conflicts and meet the Township requirements for separation.

Section (1) (h) Information regarding the existing trees with trunks 8" or more is shown on the Existing Conditions Plan (Sheet 7 of 34). A seal of a professional land surveyor or registered landscape architect needs to be added per the code.

Section (1) (i) A schedule of existing tree 8" or greater that will be removed must be provided with the required information (e.g., name, sizes, etc.) per this section. Those to be removed must be indicated. It appears to be all of them and that information is needed for replacement calculations.

Section (1) (k) Plans are be drawn at a scale of not less than 1"=40'. Submitted plans are at a scale of 1"=80' and do not comply. While this may require an additional sheet in the set, the information on the submitted plans is too small to identify the plant symbols and to count them. Additionally, plant material symbols (circle) should be drawn to a scale that reflects growth.

Section (1) (l) A planting detail for evergreen trees must be added to the Construction Details sheet as evergreen species are proposed in the landscape plan.

Section (1) (o) Information for seeding of those disturbed areas and not planted with trees, shrubs, ground cover should include seeding specifications or reference to the relevant sheets and sections in the plans. These do not appear on the E&S Control sheets. If added to them, these should be cross-referenced in the landscape plans. (Note: Many of the E&S notes are repeated and appear on both Sheets 12 - 14 of 34.)

Section (1) (p) Those areas, if any, where Tree Protection Fence (TPF) will be installed need to be indicated by symbols on the plans and in the legend. A detail of TPF is included in the plans, therefore, is assumed applicable.

Section (1) (r) A Compliance Table is provided (Sheet 10 of 34) with required symbols. The Landscape Compliance Calculations table appears to be incomplete with no information for buffer planting and tree replacement. This needs to be amended based on SALDO Section 212-32 and Zoning Ordinance 16-1326, adopted December 6, 2016.

c. **Section F. – Specific Plant Requirements**

F. (1) Street Trees – The requirement for Street Trees are stated as follows:

Welsh Road (763 LF) = 8 trees	8	proposed
Dreshertown Road (948 LF) = 13 trees	13	proposed
Dryden Road (869 LF) = 12 trees	12	proposed
Entry Street (264 LF) = 8 trees	8	proposed
Cross Street (892 LF) = 24 trees	24	proposed

It is noted that the Street Trees along Dreshertown Road are set further back than 15' due to the water line easement. This is acceptable but a **waiver** must be requested and granted.

The calculations are based on the street length at the right-of-way (minus street/driveway entries). Those indicated on the plan (above) appear to be short a small amount perhaps not accounting for the length represented by the radii at the intersections. These numbers need to be checked and tree count recalculated, as necessary.

For some streets, the numbers in the Compliance Calculations table do not match what appears on the plan. The corrected numbers and the plan must be revised to match. It is noted that the scale and the overlapping symbols/tree circle make the plans hard to decipher and that counts are off due to legibility. (See Section (1) (k) above.)

The applicant has proposed an approach of a total number of trees equally distributed among the species listed. The code requires location be provided and can be read to allow this more generalized location approach. More commonly, landscape plans submitted for review identify the species and their site locations and that is preferred. If the equal distribution approach is preferred by the applicant, it is requested that several of the same species be grouped based on specific site conditions and aesthetics rather than random placement. (See Section F.(1)(b)[5].)

As for the species, although permitted by code, the applicant is asked to reconsider the proposed number of Katsura and Ginko to be used as Street Trees or even select two alternatives. Although attractive and urban tolerant trees, Upper Dublin has moved progressively to more use of native species. Additionally, Katura is not tolerant of drought, strong sun, and wind which are expected in some part of this site.

F. (2) Softening Buffer - The requirement for Softening Buffer

Per the zoning code amendment to the OC Zone, a 25' wide buffer is required on Welsh Road, Dreshertown Road, and Dryden Road. Per Section 255-61.1. E. (3), these are to be low walls, fencing and/or landscaping. Given that most of the road frontage is abutted by parking (except restaurant #1), it seems that the majority of buffering is for the parked cars and is primarily shrubs combined with the required Street Trees. This is appropriate and consistent with Section F. (4) below. Additionally, a Screen Buffer is proposed along Dreshertown Road at the location of the proposed restaurant. This buffer is appropriate given the use opposite residential use and the loading area. (See Section F. (3) below.)

F. (3) Screen Buffer – Based on the SALDO, a Screen Buffer is required between office center and residential uses. Buffer widths (50' residential boundary and 25' street frontage) are established in the OC zoning amendment (Section 255-61.1 C. (7)). The Landscape Compliance tables (Sheet 10) do not address buffers, which are required. The plant schedules (Sheet 24) include buffers, presumably for the two buffer types in the code.

A Screen Buffer, as defined by the predominance of evergreen species (to 80%), is proposed at a width of 50' abutting the proposed neighboring age-restricted residential (except for Neighborhood Open Space) The proposed buffer should be designed to meet the spacing requirements (per Table 1) including the double staggered row and the requirements of F. (3) (c) [1]. A **waiver** is required if alternative spacing is requested. The species and size stated in the plant schedule

(Sheet 24) are acceptable. The applicant should consider using fewer Red Cedars due to risk of cedar-apple rust and other diseases. A landscape plan at smaller scale is needed to evaluate code compliance.

F. (4) Parking Area Landscape

(a) The applicant has addressed the Parking Area landscape requirements. The calculation of 80 required parking lot trees is correct based on the total of 796 surface parking spaces. The number of trees shown on the plan appears to be short. It is understood that the underground basin adds limitations. A smaller scale and clearer landscape plan may allow verification that the required 80 are provided.

In addition, many islands appear to be crowded with the number of trees and the size expected at maturity. (For example, 3 shade trees in an island 16' x 36' will be too tight.) The number should be reduced. Consideration can be given to use of some flowering trees and a waiver requested where space is limited.

(b) Interior parking lot green space for parking lots greater than 5,000 square feet (s.f.) must have a minimum landscape area of 10%. Calculations provided (Sheet 10) indicates that the green area averages 17% with a range among the 6 parking lots of 13% to 21%. The green areas are landscaped.

(c) The maximum of 12 parking spaces is permitted in a row without landscape islands. There are several rows exceeding 12 spaces and islands must be added. This will help alleviate the overcrowded islands as noted above.

(f) Parking lots over 4,000 s.f. in an area closer than 50 feet from public street r-o-w or to any residential district shall have a continuous row of shrubs, fence, wall, earth berm or combination to a height of 3'-6" at the time of installation. The zoning code amendment (255-61.1) requires low wall, fencing and/or landscaping and is applicable to all road frontage buffers. The plan indicates 140 shrubs for these buffers. The species selected are acceptable but the size requirement per the code is 3'-6"; the plant schedule indicates 30". Per the plan, these are to be evenly divided which is acceptable but should be groups of species. A smaller scale landscape plan is needed to verify the count and spacing. Based on the linear feet of shrubs shown, the 140 in the plant schedule seems considerably low.

F. (6) Individual Lot Landscaping

(a) (b) (c) Lot landscaping is required by the code at a ratio of one shade tree per 2,000 s.f. of gross floor area. The calculations for each type of building space are provided (Sheet 10). As provided, the calculations need a minor revision to round up the number of trees resulting in 360. The use of tree equivalents is acceptable and supported for a more diverse landscape. The distribution among shade trees (200), flowering trees (150), evergreen trees (34) and shrubs (640) is acceptable. The species selected are acceptable. However, the applicant is asked to consider using

fewer GD – Kentucky Coffeetree (40 of 200), as these tend to be more of a specialty specimen trees.

A smaller scale and clearer landscape plan is needed to identify these plantings and to verify the counts. Further, several of the symbols are very hard to decipher and alternates should be used for legibility.

d. Section G. Preservation and Protection of Existing Trees

This section of the Code encourages preservation of existing trees and credit for doing so. It looks from Sheet 7 that there are a number of trees (~25) that exist and are over the 8" diameter threshold for inventorying. None of these appear to be retained and incorporated into the landscape plan.

e. Section H. Tree Replacement

Tree preservation and replacement information is based on an inventory of what exists on site before the project and what needs to be removed. It is based on trees that are 8" diameter or more. The code allows up to 25% to be removed with no replacement. Greater than 25% requires replacement based on ratios stated in the code.

Tree replacement per this section (212-32 H) has not been addressed in the Landscape Compliance Calculations table or the landscape plan. This component of the code is required for all applications with existing qualified trees.

f. Section I. Recommended Plant List

All of the plant materials selected for the plan are on the recommended list and are acceptable. Please note the suggestions above regarding the proportion of several species in some landscape categories and grouped.

Other

1) Reference is made in the Landscape Compliance table to the amended code for the OC zone (Section 61.1D.2b) that additional landscape material be added to the plan based on impervious cover over 65%. This requirement could not be found in Ordinance 16-1326, passed December 6, 2016.

2) The rain garden design is appropriate and the selections of plant materials including the plus are acceptable.

3) The Neighborhood Open Space (2.763 acres) in the northwest corner is to be landscaped and/or hardscaped with a mix of trees, shrubs, groundcover, decorative paving or walls. The area is partially designed and detailed as shown on Sheets 3 and 10. This should be cross-referenced on Sheet 10 and more detail added. Sheet 3 needs to be sealed by the project landscape architect per the ordinance amendment (61.1 E. (4)(b)). The design needs to be further developed with details for the pavement/walkways, retaining walls, play park, and the groundcover(s). For conditional use, it is sufficient but not for land development. As with other parts of the landscape plan, the scale makes it difficult to identify the proposed plantings.

4) There appears to be a conflict in the plans for the open area (0.771 acre) behind the West Building. Sheet 3 labels it private amenity area and Sheet 2 labels it Neighborhood Open Space. No landscape treatment is provided.

5) Additional seeding details are need in the plans to include areas to be seeded with turf mix(es) and with special native mixes. Four native mixes are provided (Sheet 23) – ERNMX 140, 180, 181, 183 – but except for Rain Garden Mix (180), the location of the other applications is not clear. Labels and/or patterns are needed.

6) The trail along Welsh Road at the east end is very close (2-3') to the road which is very busy with auto and truck traffic. Can the trail be shifted to provide greater separation for safety and the use experience?

7) There are many young trees on the site that are under 8" diameter and were not inventoried, as permitted by the code. The vast majority are volunteer trees and are of little values and are invasive species. From casual observation, it is noted that there are some small native trees not damaged by deer that might be candidates for transplant. Consideration should be given to transplant and use the better, healthier ones on this or this adjacent site being developed by the same group and likely ahead of this one. It is understood that this effort must be cost effective.

COMMISSIONERS OF UPPER DUBLIN TOWNSHIP
DEPARTMENT OF PARKS & RECREATION
PLAN REVIEW COMMENTS
801 Loch Alsh Ave., Fort Washington, PA 19034
(215) 643-1600 x3239

Memo to: Richard Barton, Community Planner

from: Derek Dureka, Director

Property: The Promenade at Upper Dublin

Plan Number: UD #17-01

	REVISED		Minor Subdivision Plan
	REVISED		Minor Land Development Plan
	REVISED		Preliminary Subdivision Plan
	REVISED	x	Preliminary Land Development Plan
	REVISED		Final Subdivision Plan
	REVISED		Final Land Development Plan
	Other:		

Review Date: 3/20/17

[X] No comments relative to Parks & Recreation planning documents, reports or memos; current programs; or existing services.

[ ] Plan should have no impact on current or recommended leisure programs or public open spaces as stated in the ***Open Space*** (2005) and/or ***Comp. Plan*** (1998):

[ ] Comments recorded on previous review(s). Please see review memos dated:

[ ] *The following recommendations are made / issues are raised in the Trail, Sidewalk & Pathway Plan (2016), Open Space (2005) and/or P&R Comp. Plan (1998):*

General Comments:

- Who will be maintaing the areas designated for public open space?
- Will the rain gardens be checked regularly to make sure they are functioning correctly? Who will be responsible for making making sure they remain rain gardens and are not maintained and turned to grass basins?

Boles, Smyth Associates, Inc.
Consulting Civil Engineers Since 1972

March 21, 2017

Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034

Attn: Mr. Richard D. Barton
Community Planner and Zoning Officer

Subject: Traffic Improvement Commitments - BET Promenade
Welsh Road and Dreshertown Road

Dear Mr. Barton:

Boles, Smyth Associates, Inc. has performed a review of the revised Transportation Impact Study (TIS) dated February, 2017 for the proposed *The Promenade at Upper Dublin* BET Investments, Inc. development prepared by McMahon Associates. We have also reviewed the Record Plan, Overall Development Plan and Vehicle Turning Plans from the Preliminary Land Development & Conditional Use Plan set dated February 10, 2017 for The Promenade at Upper Dublin development prepared by Gilmore & Associates, Inc.

Please note the Applicant had previously agreed to external roadway network improvements along Welsh Road and Dreshertown Road as listed in a 9/21/16 letter prepared by Boles, Smyth Associates and included as Appendix A in the revised TIS. Since both are State Routes, the Applicant is required to obtain a Highway Occupancy Permit (HOP) from PennDOT. A Pre-Application Meeting was held with the PennDOT Traffic Unit on 1/12/17 and each of the improvements were discussed. Therefore, this letter does not provide additional comment until the HOP plans are submitted.

This review concentrates on the revised TIS and the internal vehicle, bike, pedestrian and truck loading circulation. For the revised McMahon Associates TIS, the following comments are submitted for consideration:

1. It is noted the land uses have been revised since the last TIS submission which has resulted in an overall decrease in 55 morning peak New Trips, 57 afternoon peak New Trips and 109 Saturday mid-day New Trips. Specifically,
    a. The amount of apartment units was reduced from 433 to 402,
    b. The 36 townhomes were eliminated,
    c. The amount of retail square footage was reduced from 140,000 to 127,728
    d. The amount of coffee shop square footage was reduced from 2,000 to 1,200
    e. The amount of restaurant square footage increased from 8,000 to 9,070, and
    f. An office use was added at 2,094 square feet.
2. Please update the restaurant square footage in the TIS to be consistent with the Gilmore plan which shows a 7,570 indoor area and 2,586 outdoor seating area for a total of 10,156 square feet. This is an increase of 1,086 square feet over the 9,070 listed in the TIS.

3. The amount of New Trips listed for the 2,094 square foot office use listed in Table 3 is three (3) trips. However, our calculations produce nine (9) New Trips.
4. In the Executive Summary, add the Welsh Road right turn lane will be lengthened and the radius with Dreshertown Road will be increased as part of the Phase 2 list of improvements.
5. Because the Existing Conditions counts are dated 2015, please provide an updated traffic count at the Welsh Road & Dreshertown Road intersection to determine if percentage adjustments should be made at the remaining TIS project area intersections. If updates are required, then please adjust the report and Synchro evaluations accordingly.
6. There are discussions throughout the main body of the TIS regarding the previously approved office development. While pertinent, please present this information as a separate appendix with one reference to the new appendix in the main body of the report.

For the Gilmore & Associate Land Development & Conditional Use Plans, the following comments are submitted for consideration:

1. Please provide a Pedestrian Connectivity Plan which would be separate from the Land Development Plan set. The TIS notes Internal Trips which are deducted from New Trips and the site is a Mixed Use development. Pedestrian walkways, crosswalks and ADA ramps are critical between the different uses, including the pedestrian walkways to the Neighborhood Open Space from the residential units.
2. Please provide a Bicycle Connectivity Plan which would be separate from the Land Development Plan set. With the provision of a Bike Sharing Program and bike racks for increased density and the mixed use nature of the site, it is critical to provide pavement markings and signage for bicycle amenities and residential access to the exterior trails. This includes access from the 115 age-restricted units and the 402 apartment units. This also includes access from the exterior trails to the retail and restaurant uses which will allow for better connections to existing trails (ie. Power Line Trail) and planned trails (ie. Cross County Trail).
3. The Drive-Thru and parking lot/driveway configuration for Restaurant #2 is problematic as proposed for both traffic operations and pedestrian connectivity to the Neighborhood Open Space. For the traffic operations, please provide more information on the anticipated queue lengths during the morning peak. For the pedestrian connection, it is recommended to provide pedestrian access from the residential units to the Neighborhood Open Space on the south side of Road B and to cross them at a mid-block crossing with a Rapid Flashing Beacon. The crossing is recommended between the Road B entrance to the 115 age-restricted units and the main boulevard, west of the proposed Drive-Thru access.
4. The 54 foot wide boulevard provides a long pedestrian crossing at the Dreshertown access road, Road B and Dryden Road intersections. For the segments of boulevard between the Dreshertown access road and Road B, as well as at the Dryden Road access, it is recommended to provide a narrower alignment or a median pedestrian refuge. Within the 18 foot wide median, it is recommended that a dedicated bicycle lane be evaluated.

5. Vehicle Turn Plans were provided for the loading area associated with eastern building. Please provide plans for the west retail/residential building and Restaurant #1 such that delivery and moving trucks are accommodated.
6. The Vehicle Turning Plan (Sheet 25) for the east retail/residential/office building show trucks turning left into the site from Welsh Road at the right in/right out access. This access is prohibited.

Please feel free to contact me should you have any questions or require additional information.

Sincerely,

Jack Smyth, Jr., P.E.

cc: Paul Leonard, Upper Dublin Township

MONTGOMERY COUNTY
BOARD OF COMMISSIONERS

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PLANNING COMMISSION
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WWW.MONTCOPA.ORG

JODY L. HOLTON, AICP
EXECUTIVE DIRECTOR

March 21, 2017

Mr. Richard D. Barton, AICP
Community Planner and Zoning Officer
Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034

Re: MCPC 16-0208-005 Amended (ref.08-0244-007)
Plan Name: The Promenade at Upper Dublin
Situate: Dreshertown (S)/Welsh Road (W)
Upper Dublin Township

Dear Mr. Barton:

We have reviewed the above-referenced preliminary land development plan and conditional use application in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as you requested on February 24, 2017. We forward this letter as a report of our review.

BACKGROUND

The applicant, BT Dreshertown, LP has proposed a conditional use and preliminary land development plan for the Promenade at Upper Dublin. This project, located on a 25 acre parcel at the intersection of Dreshertown and Welsh Roads, is proposed as a conditional use under the newly adopted Mixed Use Development requirements of the OC Office Center District. The amendment to the Code of Upper Dublin Township, Chapter 255, Zoning, Article IX OC Office Center District was adopted by the Township on December 6, 2016. The land development plan consists of 402 apartment units, 136,498 square feet of retail and restaurant, and 3.97 acres of open space. 1,370 parking spaces in surface lots and structured parking garages are proposed with no parking held in reserve. The applicant has also proposed a number of development options as bonus provisions to increase the permitted density from 15 du/acre to 15.8 du/acre which include structured parking, additional neighborhood open space, electric vehicle charging, bike racks, and a bike share program. The main entry for this development is proposed along Dreshertown Road, with additional access off of Dryden Road and limited access off Welsh Road. The development is

proposed to connect to an as-yet unbuilt adjacent age-restricted residential development to the south via "Road B".

COUNTY COMPREHENSIVE PLAN

The County comprehensive plan, Montco2040: A Shared Vision, supports the creation of new mixed use centers as a "Connected Communities" and "Vibrant Economy" goal for the ability of mixed use development to create walkable, transit-friendly, and entertainment- and retail-supportive places that will attract young workers and other key demographic groups. The comprehensive plan recommends new development within and adjacent to business parks to create a more diverse working environment with a mix of uses like restaurants, retail, health clubs, etc. Mixed Used Centers as defined in the plan's Future Land Use generate a lot of overall activity and should establish a sense of place, ideally with a clearly defined public gathering place and internal road systems that make it easy to walk to public transportation and other parts of the center. While the proposed plan contains a number of these key elements, the overall integration of pedestrian and bicycle access with the open space feature and retail/residential space could be better connected on the site plan. We feel an improvement in the relationship between vehicular circulation and pedestrian access to the many points of interest throughout the site will create a more cohesive and attractive development.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's proposal and in the course of our review we have identified a number of key issues that we believe should be resolved prior to final plan approval. Specifically, we have concerns about the pedestrian and bicycle accessibility and vehicular movement within the site which, in the current configuration, detracts from the ability of the development to operate as a successful mixed use center. Our comments are as follows, along with conceptual modifications to the existing site plans that we feel better address pedestrian and vehicular mobility and safety:

REVIEW COMMENTS

SITE LAYOUT

A. Pedestrian and Bicycle Access

1. There are a number of pedestrian circulation patterns to consider throughout the site as it will impact the residents who live in the apartments, residents who live in the adjacent age-restricted housing development, and visitors to the site. Specifically, we have concerns about how pedestrians will access the park, particularly from the primary residential and retail locations. In all scenarios, pedestrians will have to cross over multiple intersections and a drive-thru lane to access the park. The park is located in a corner of the property away from the majority of residences and is not well integrated into the functionality of the site (Appendix A). We feel these barriers may prevent residents from using the park or enjoying it to its full capacity.

2. No sidewalks are proposed along the landscape islands where Road B connects to the mixed-use development in the parking area across from the park. Residents from the adjacent age-restricted housing development will be required to walk through the park and across the busy main intersection to access the shopping center rather than being able to walk directly to the retail area along the eastern side of the roadway. Similarly, apartment residents will be required to cross at the same main intersection to access the park area. We recommend sidewalks be provided along both sides of Road B to provide a continual sidewalk network throughout the site and reduce unnecessary pedestrian crossings at major intersections (Figure A, Appendix B). The applicant may also wish to consider including a mid-block crossing with flashing pedestrian signals at a location south of the drive-thru lane and creating an extension of the park trail network to connect to this crossing (Figure B, Appendix B).

3. It would be helpful for the applicant to provide an internal roadway network that shows where painted crosswalks are proposed, along with pedestrian crossing signals and ADA ramps. At this time it is unclear what the proposed pedestrian navigation plan is. There are a number of locations where pavement markings and directional signs should be added to provide additional visibility to pedestrians and traffic control measures. In particular, we feel painted crosswalks and a 4-way stop should be provided at the main intersection where Road B intersects the boulevard. This will be a primary crossing spot for residents and site visitors to access the park and the two standalone restaurant pads. Crosswalks should also be incorporated in front of the main retail spaces facing Dreshertown Road and the parking lot to alert through traffic to pedestrian movements. Crosswalks may also be warranted mid-way through the boulevard and connecting the boulevard to the sidewalk network along Dryden Road.

    a. The boulevard is 54' wide, which is a long distance for pedestrians to cross. We encourage the applicant to provide additional pedestrian features to better facilitate foot traffic along the length of the boulevard and reduce the distance required for pedestrian crossings. This could include creating larger bump-outs and/or creating a pedestrian refuge island, either as a stand-alone feature or integrated into an extended landscape median.

4. No bike lanes are shown on the site plans. The applicant proposes bicycle parking and a bike share program, but does not provide bicycle navigation throughout the site. We recommend the applicant provide dedicated bike lanes for use of residents to access the park site and the external trail system.

B. <u>Vehicular Circulation</u>

1. Drive-Thru Restaurant

    a. A drive-thru in a mixed-use development prioritizes car movements over pedestrian movements, especially due to the location of the drive-thru at the entrance of the site and proximity to the park. Should a drive-thru pad site remain in the development, we would prefer to see it in an alternate location, either integrated into the other retail developments, or at a different location within the site to reduce traffic conflicts (Appendix C). Should the applicant and the Township wish to retain a drive-thru in this

location, we have provided additional comments and alternative site drawings to address the traffic circulation patterns created by the drive-thru, below.

b. It is not clear in the site drawings what the maximum capacity is in the stacking lane for the drive-thru, and whether or not it will be sufficient.

2. Entrance Drive

a. The driveway entrance was moved from the initial proposed location to the current location in order to align with the development entrance on the other side of Dreshertown Road and create increased separation from the traffic light at Dreshertown and Welsh Roads. However, the realignment resulted in a curved entrance drive that turns into the main boulevard and creates a problematic intersection where turning movements may create potential conflicts at this intersection due to multiple access points. The transportation impact study shows that 35% of all traffic will enter and exit at this location, underscoring a need to create a safe and functional traffic pattern at the driveway entrance. Turning movements out of the drive-thru area may conflict with incoming traffic turning right at the curve heading into the site, whereas outgoing traffic turning left at the curve may conflict with incoming traffic going straight into the parking lot. To accommodate a more continuous movement of traffic at this intersection, particularly if the drive-thru remains in this location, we propose a roundabout as an alternative (Appendix D). This conceptual rendering shows a gentler curve into the site, a closure of one of the exits for the drive-thru restaurant, an extension of the landscaped median, and two small triangles directing traffic flow on either side of the circle. This design reduces the number of parking spaces immediately around the restaurant; we suggest the space could be reimagined as an outdoor seating area for patrons. A roundabout would provide not only traffic calming at this intersection and a continual flow of traffic, but it would also create a focal point upon entry into the site that better aesthetically connects with the landscaped grand boulevard down the center of the development.

C. Main Street - Boulevard

1. The main boulevard with landscaped median appears to be a key feature of the site that creates a "main street" feel. However, the large loading zone and residential parking garage entries are dominant in the façade facing Main Street. These entries pose a hazard to pedestrians who need to stay alert for cars turning into and out of the garage and detract from the visual appeal of a continuous storefront and active streetscape. The location of the garage also channels the bulk of residential traffic through the heart of the "downtown". While we recognize the loading bay may need to remain where it is, we recommend flipping the main residential driveway garage entrance on the other side of the building to face Welsh Road to create a less interrupted retail and residential façade along the boulevard which will improve pedestrian safety and visual interest. Should the garage and the loading bay remain where they are, we recommend beautifying these entrances to provide additional architectural features that blend better with the existing storefronts. The loading bay in particular may not need to be open all the time, and so a decorative door could provide screening when the bay is not in use.

D. Public Transit

1. It is our understanding that the applicant has reached out to Mark Cassel at SEPTA to discuss public transportation needs at the site. A bus shelter is proposed on Welsh Road close to the intersection with Dryden. The shelter is set far back from the edge of the road which may prevent the bus driver from seeing riders waiting and it does not appear the sidewalk will connect to the shelter. Additionally, it is our understanding that SEPTA prefers mid-block stops so that buses are not blocking right-turn lanes, as the bus would need to go where the stop is currently located. We recommend relocating the bus stop further back on Welsh Road to align with where the sidewalk connection is shown from the ADA parking spaces.

2. It is unclear if the applicant has discussed the potential of having internal bus access within the site or if buses could even navigate through the site. Ridership to and from the development may warrant an internal stop. The applicant and Township should continue coordinating with SEPTA on locating any transit stops within the development.

E. Future Trail Connection

1. It is our understanding that the applicant has proposed 10' wide sidewalks along the exterior site frontages on Dreshertown and Welsh Roads for the potential future inclusion of this pathway as part of the Cross-County Trail (XCT). However, the regional standard for trail width is 12'. We, therefore, recommend the applicant increase this walkway from 10' to 12'.

2. Should the pathway network on the applicant's property ever become part of the XCT, a provision between the applicant and the Township should be established for the future transfer of ownership and maintenance to the Township.

F. West Building Orientation

1. The West Building contains one retail pad site at the far end of the development, closest to Dryden Road. This retail site is segregated from the rest of the retail by the leasing office and the underpass to the neighborhood open space and is otherwise completely surrounded by both surface parking and covered parking. This corner retail could become a landmark destination to draw site visitors to the end of the boulevard and could benefit greatly from a reduction in surrounding surface parking to accommodate a signature outdoor seating patio. This amenity would better activate this corner property which otherwise may be neglected.

2. All of the retail on the West building faces the internal boulevard, and the area facing the park is an open surface parking lot. We encourage the applicant to consider flipping the orientation of the West building so that the surface parking area is located closer to Dryden Road and the building massing is facing the park. Additional retail could potentially be located on the ground floor below the covered parking to activate the space across from the park, and apartments located above the retail would have an improved view of the park. This orientation would also bring future residents closer to the main park feature, rather than having residents cross a large parking lot to access open space (Appendix E).

SITE AMENITIES

A. Outdoor Dining

1. Outdoor seating does not appear to be offered in the development except at the standalone restaurant pad site. Outdoor seating is a hugely attractive feature, especially in walkable downtown areas with predominantly apartment style living that brings more life to the streetscape and encourages social interaction. The applicant is providing sidewalk widths between 8 and 10 feet along the boulevard, which may provide enough room for outdoor dining. Additional sidewalk width could be achieved by reducing the width of the central median to establish 10 to 12 foot wide sidewalks.

B. Bike Share

1. The applicant has provided for both bike parking and a bike share program. The applicant should provide additional details to the Township on how this program would operate, who would manage and maintain it, and who the program would be open to.

CONDITIONAL USE

A. Section 255-60 Use Regulations of the Upper Dublin Township Zoning Code permits a mixed use development in the OC Office Center District by conditional use. Section 255-191:196 outlines the requirements to meet conditional use. The applicant applied to the Township for conditional use on February 14, 2017. The applicant appears to meet most of the criteria for a mixed use development enumerated under Section 255-61.1. It does not appear the applicant has provided sidewalks along all public and private street frontages, as required in 255-61.1.E(3)(a), as noted above. We defer to the judgement of the Township Board of Commissioners to grant final approval of a conditional use.

CONCLUSION

We wish to reiterate that MCPC generally supports the application, but we have significant concerns with the ability of the site to provide safe and efficient pedestrian access to the many people who will live, work, and visit this development. Internal vehicular circulation patterns should also be subject to additional review to minimize potential conflicts and to ensure safe traffic flows.

Please note that the review comments and recommendations contained in this report are advisory to the municipality and final disposition for the approval of any proposal will be made by the municipality.

Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files.

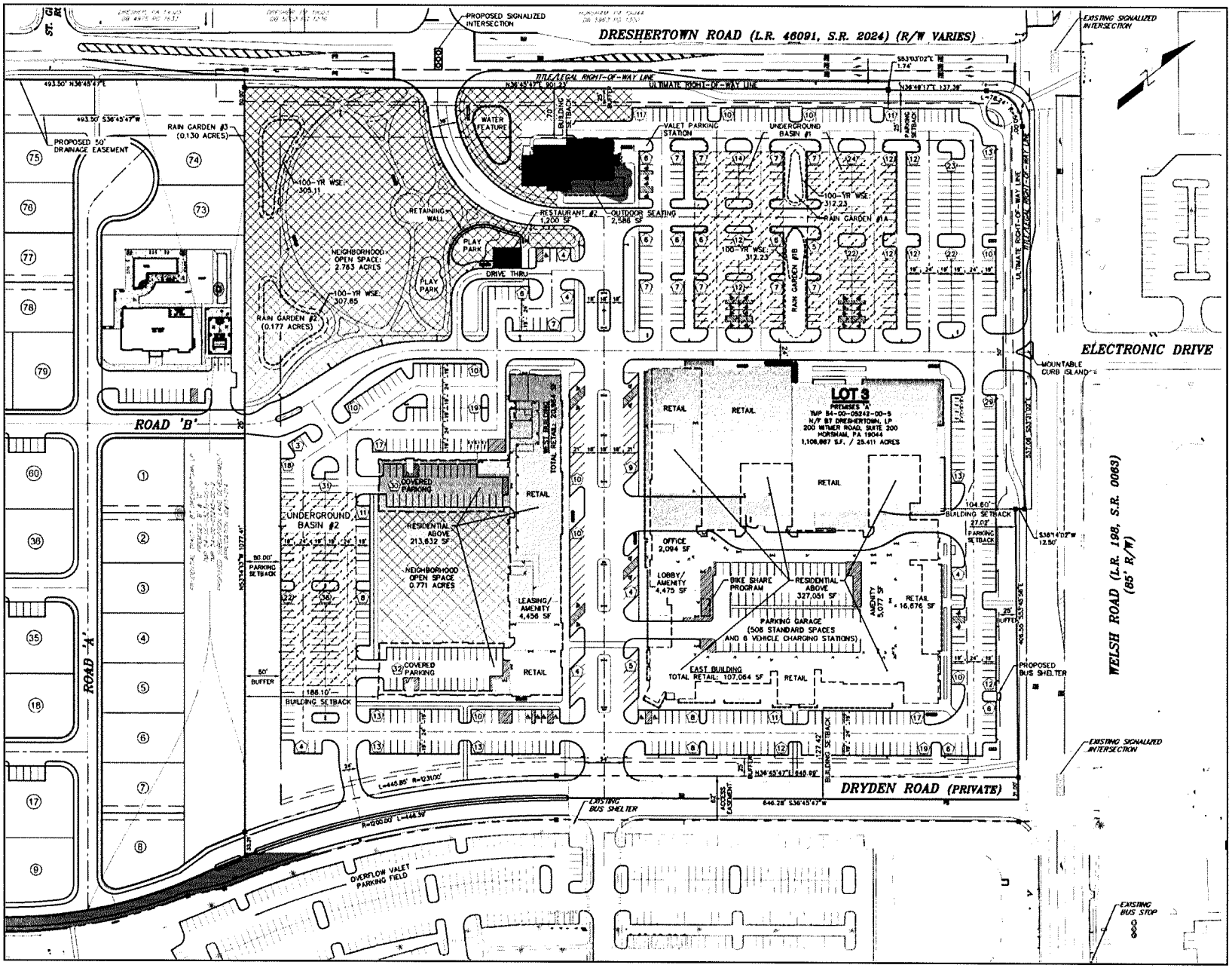
Sincerely,

Margaret Dobbs, Planner II
(610) 292-4917 mdobbs@montocpa.org

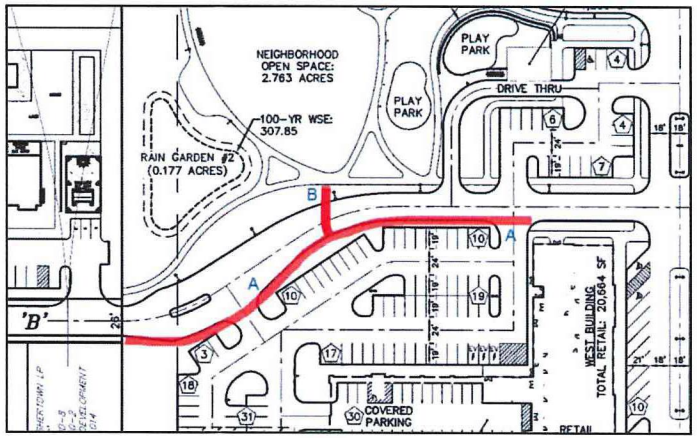
c: BT Dreshertown, LP, Applicant
Robert W. Gundlach, Jr., Esq., Applicant's Representative
Paul A. Leonard, Township Manager
Michael J. Cover, Chairman, Township Planning Commission
Thomas Fountain, PE, Township Engineer

Attachments:
A. Site Record Plan – Promenade at Upper Dublin
B. Sidewalk extension connecting to Road B
C. Relocated drive-thru
D. Alternate entrance concept
E. West building re-orientation

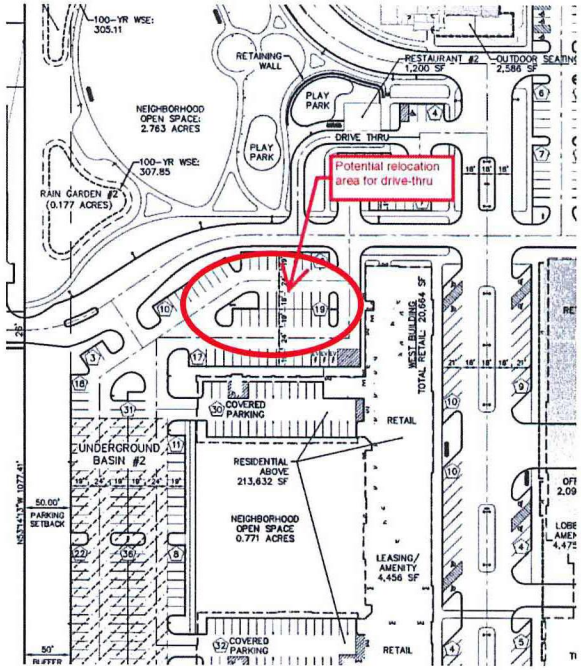
A. Site Record Plan – Promenade at Upper Dublin



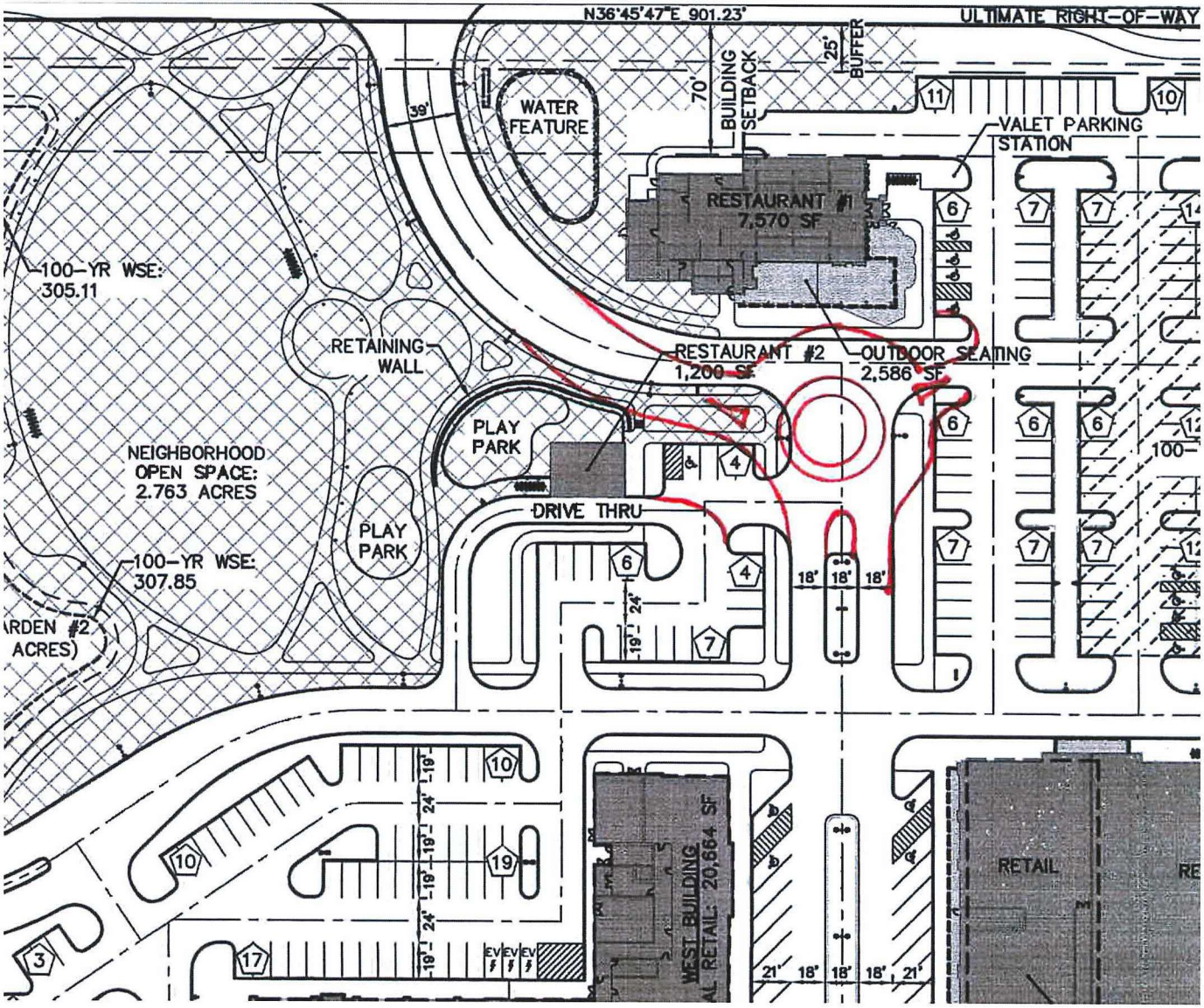
B. Sidewalk extension connecting to Road B



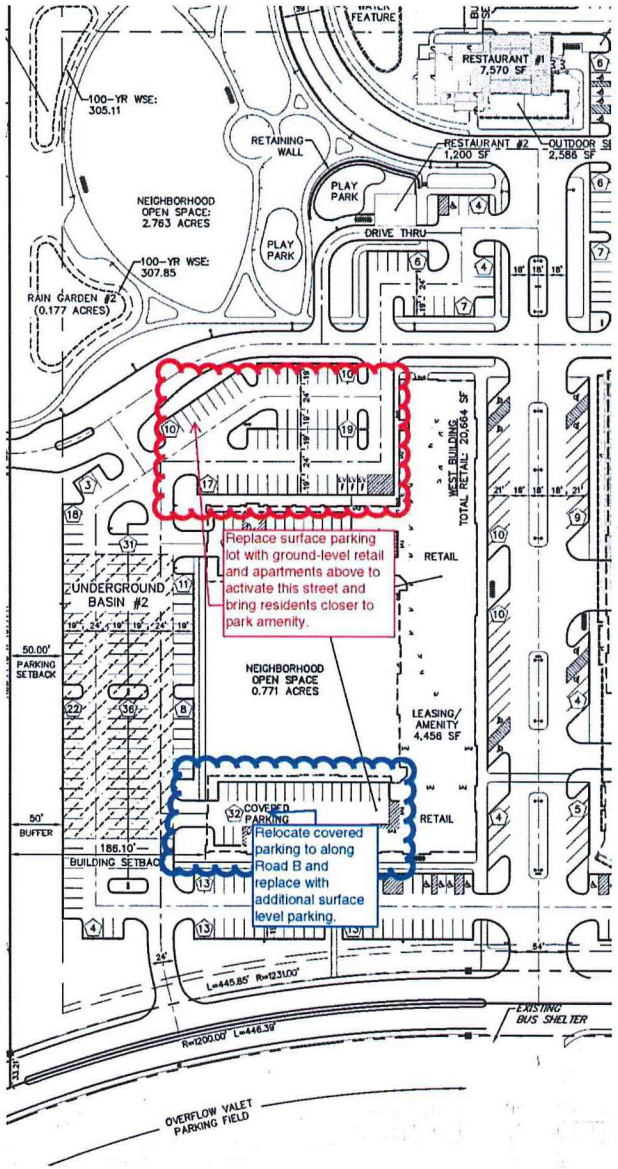
C. Relocated drive-thru



D. Alternate entrance concept



E. West building re-orientation



DISCHELL BARTLE DOOLEY

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March 30, 2017

BY EMAIL TO dbrooman@highswartz.com
AND FIRST CLASS MAIL

David J. Brooman, Esquire
High Swartz LLP
40 East Airy Street
Norristown, PA 19404-0671

RE: BT Dreshertown, LP – Applications for Preliminary Land Development and Conditional Use

Dear David:

As you know, I represent several neighbors with regard to the above-referenced applications. If you require, I can send you their names, but they are the 15 individuals listed in our procedural appeal to the rezone ordinance.

On behalf of those neighbors, I would like to formally enter my appearance on their behalf with regard to both the application for preliminary land development and the application for conditional use that have been filed by BT Dreshertown, LP for the mixed use development of the property located at the corner of Welsh Road and Dreshertown Road in Upper Dublin Township.

When these matters go before the Board of Commissioners, I will formally enter my appearance on the record for the conditional use as well as the land development. Prior to that time, however, I wanted to enter my appearance so that the Township could copy me on their review letters for the project. I am copying the Applicant's attorney to advise him of my appearance.

Also, please allow this letter to confirm both our conversation as well as my conversation with Attorney Gundlach in which you both informed me that the Applicant has granted an extension to the Township for the scheduling of the conditional use hearing. Accordingly, the original hearing scheduled for April 11 has been cancelled.

Thank you for your cooperation and courtesies given to my client thus far. I am hopeful that we can continue to work together with the Township and the Applicant to get the best project possible for all of the interested parties.

Very truly yours,

ERIC C. FREY

ECF/dfb
Enclosures

cc: Robert W. Gundlach, Jr., Esquire by email and mail
Ronald Sarachan, Esquire by email
Louis R. Pichini, Esquire by email

BET Investments

200 Witmer Road
Suite 200
Horsham, PA 19044
Phone (215) 938-7300
Fax (215) 938-8651

April 13, 2017

Mr. Richard Barton
Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034

RE: UD CU# 2219 – Promenade at Upper Dublin – Welsh Road

Dear Rick:

Enclosed please find twenty-one (21) copies of a revised Conditional Use Site Plan, Building Floorplans/Unit Chart/Structured Parking Exhibit, Green Roof details and Perspective Building Renderings for the subject project.

The Site Plan has been updated and modified to address several suggestions made by Township Staff, the Township Planning Commission and the Montgomery County Planning Commission.

Specifically we would like to call attention to the following:

1. The proposed restaurant building has been shifted approximately sixty feet (60') toward Welsh Road. This shift allows for the installation of a six foot (6') high earth berm with additional landscaping between the restaurant and the project driveway intersection with Dreshertown Road. The restaurant was previously oriented to locate the outdoor seating area toward the interior of the project site and away from neighboring residential areas. The proposed installation of an earth berm with landscaping will further soften the view of the restaurant and also eliminate any possibility of noise from the outdoor seating area emanating toward Dreshertown Road.
2. The boulevard between the two main buildings has been modified to eliminate the central divider island for a more conventional parking and driveway configuration. This modification has allowed for the inclusion of a separate bike lane through the property connecting from the multi-use trail on Dreshertown Road to a now widened multi-use trail paralleling Dryden Road leading back to the perimeter multi-use trail along Welsh Road. This modification further provides for the additional drive aisle width for fire apparatus as suggested by the Township Fire Marshal.

3. A traffic round-about has been provided as suggested by the Montgomery County Planning Commission nearest the proposed restaurant. The vehicle access to the coffee shop has been simplified away from the round-about area.
4. A pedestrian walkway has been provided on the east side of the driveway nearest the park along with an additional pedestrian crossing to the park so that residents and guests may access the park without crossing vehicle traffic associated with the coffee shop. Several other pedestrian connections and crosswalks have been clarified throughout the development along with appropriate markings.
5. Parking areas have been adjusted throughout the development to provide twenty feet (20') of clear area around the buildings. With regard to the structured parking, the International Building Code considers the buildings to be separated mix-use buildings. As such, and with the fire-rated wall construction that is provided between the structured parking and the occupied space, the parking structure and occupied space are permitted to have zero separation between them.
6. A ten foot (10') roadway easement has been illustrated along Welsh Road to allow for future road widening should it be necessary to widen beyond the existing one-hundred foot (100') wide right-of-way.
7. We are engaged in discussions with Zagster regarding the proposed bike share program. Zagster currently has three locations in Montgomery County operated in conjunction with MCPC. We intend to continue our discussions with Zagster as well as soliciting input from MCPC based on their experience with Zagster as to best locating the bike share facility and the appropriate number of bikes to be available. Users of the program can purchase a yearly membership or can rent on the spot.
8. A unit mix chart has been provided along with the building floorplan pages to identify the size and types of units proposed. The design is 50% two-bedroom units and 50% one-bedroom/studio units.
9. An isometric detail of the main parking structure has been included in the floorplan set to illustrate the 510 parking spaces available in this structure.
10. Fourteen (14) electric vehicle charging spaces are distributed around the project, including six (6) in the main parking structure, meeting the 1 percent (1%) requirement.

We look forward to reviewing these project updates with you on April 20th.

Please feel free to contact me with any questions.

Sincerely,

Peter J. Clelland
Director of Development

PROPOSED RENDERING

2054.00-16 APRIL 13, 2017

BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044

PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

BERNARDON
ARCHITECTURE
INTERIOR DESIGN
LANDSCAPE ARCHITECTURE

The Philadelphia Building | 1315 Walnut Street, Suite 600
Philadelphia, PA 19107 p: 215.609.4609 www.bernardon.com

PROPOSED RENDERING

2054.00-16 APRIL 13, 2017

BET Investments, Inc.
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Horsham, PA 19044

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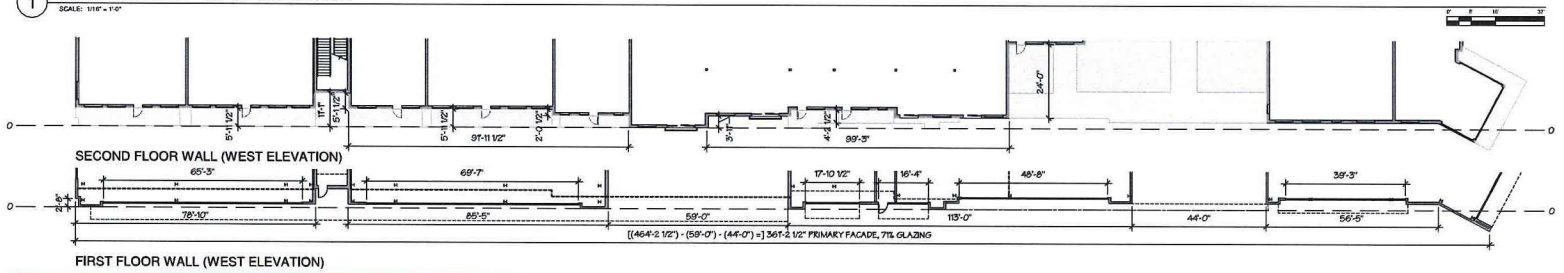
Philadelphia, PA 19107 p. 215 609 4609 www.bernardon.com

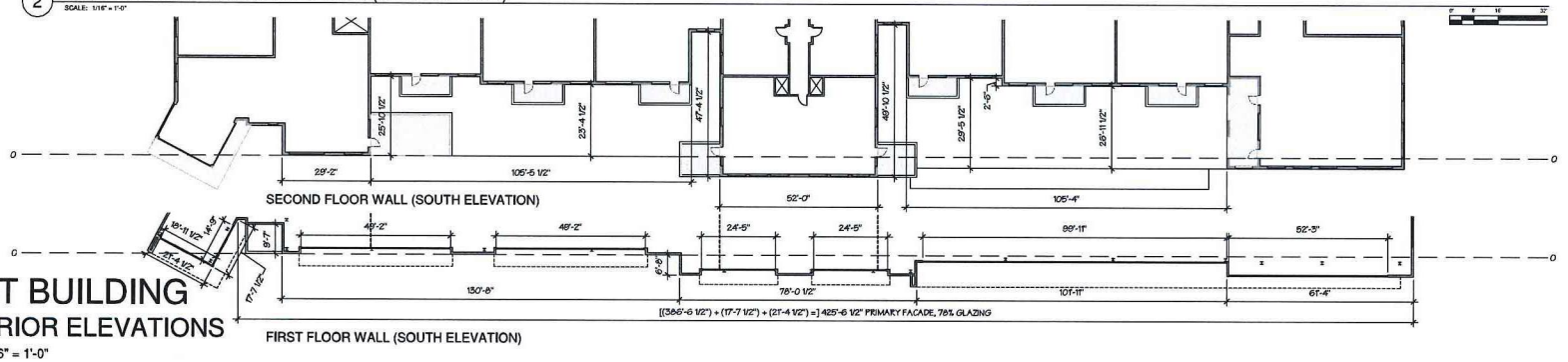
1 EAST BUILDING - WEST ELEVATION

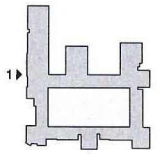
SCALE: 1/16" = 1'-0"



2 EAST BUILDING - SOUTH ELEVATION (DRYDEN ROAD)

SCALE: 1/16" = 1'-0"





KEY PLAN

EAST BUILDING
EXTERIOR ELEVATIONS

SCALE: 1/16" = 1'-0"

2054.00-16 APRIL 13, 2017

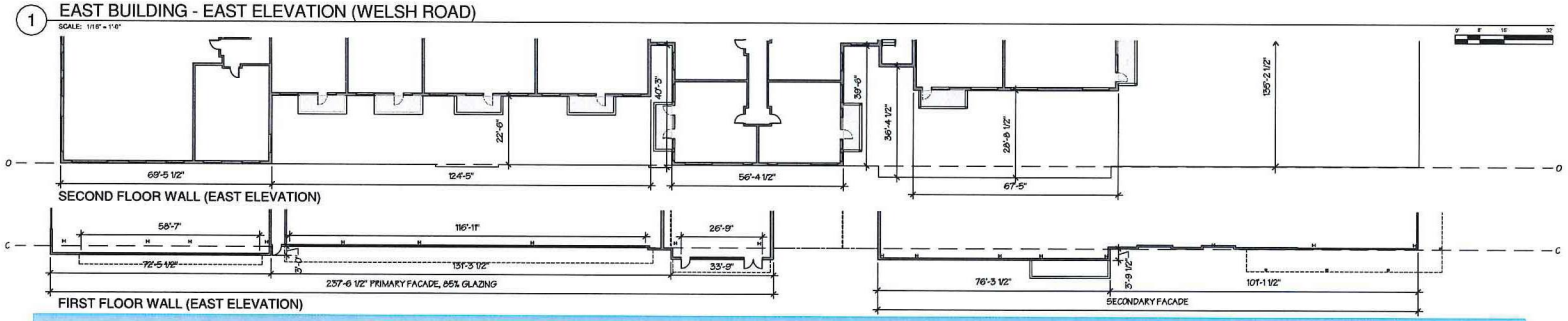
BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044

PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

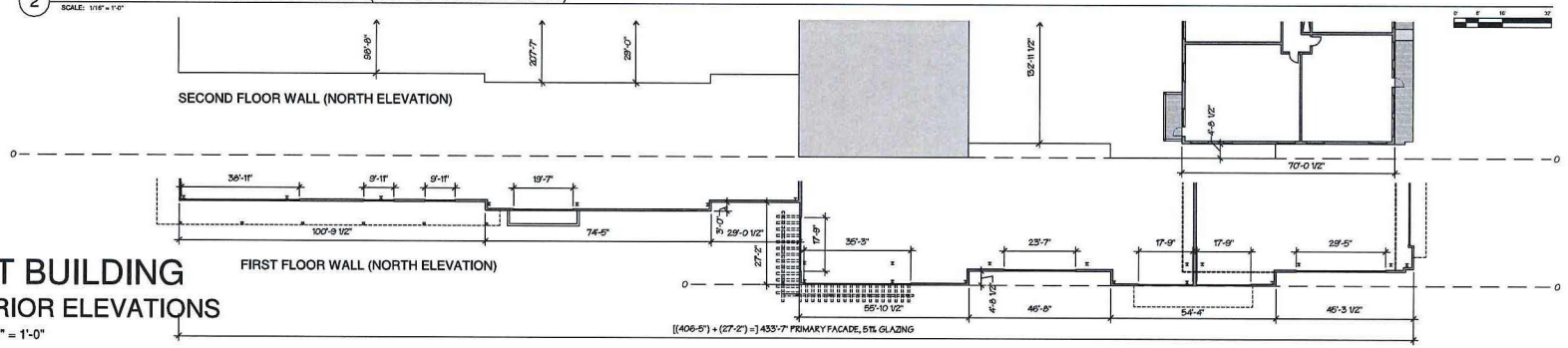
BERNARDON
ARCHITECTURE
INTERIOR DESIGN
LANDSCAPE ARCHITECTURE

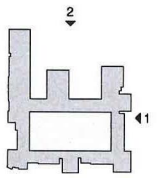
The Philadelphia Building | 1315 Walnut Street, Suite 600
Philadelphia, PA 19107 p. 215 609 4609 www.bernardon.com

1 EAST BUILDING - EAST ELEVATION (WELSH ROAD)
SCALE: 1/16" = 1'-0"



2 EAST BUILDING - NORTH ELEVATION (DRESHERTOWN ROAD)
SCALE: 1/16" = 1'-0"





EAST BUILDING
EXTERIOR ELEVATIONS
SCALE: 1/16" = 1'-0"

2054.00-16 APRIL 13, 2017

BET Investments, Inc.
200 Witmer Road
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PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

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PROPOSED RENDERING

2054.00-16 APRIL 13, 2017

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PROPOSED RENDERING

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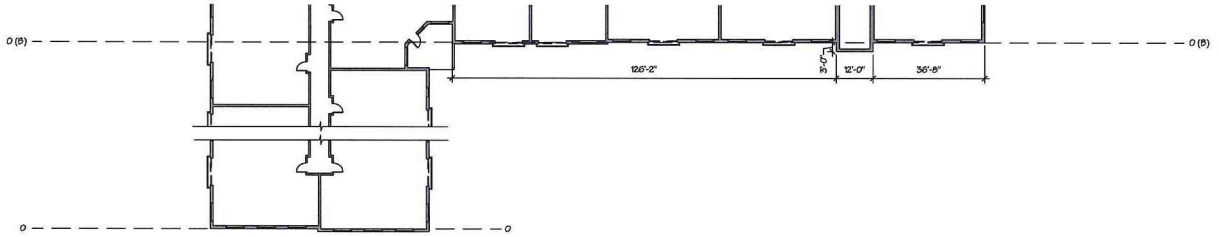
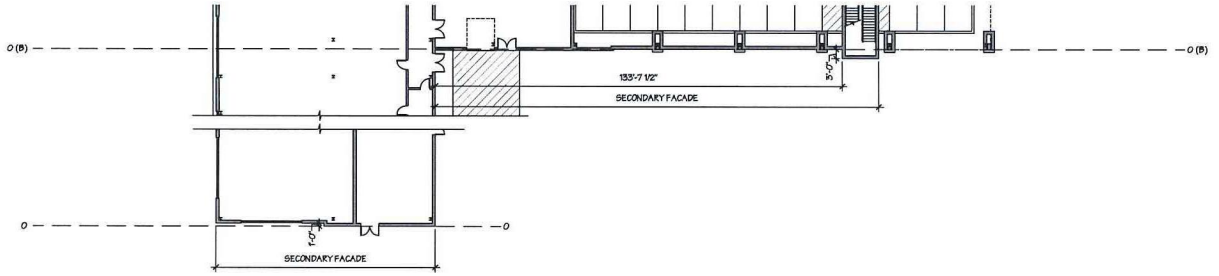
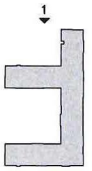
1 WEST BUILDING - NORTH ELEVATION (DRESHERTOWN ROAD)
SCALE: 1/16" = 1'-0"



SECOND FLOOR WALL (NORTH ELEVATION)



FIRST FLOOR WALL (NORTH ELEVATION)



KEY PLAN

WEST BUILDING
EXTERIOR ELEVATION
SCALE: 1/16" = 1'-0"

2054.00-16 APRIL 13, 2017

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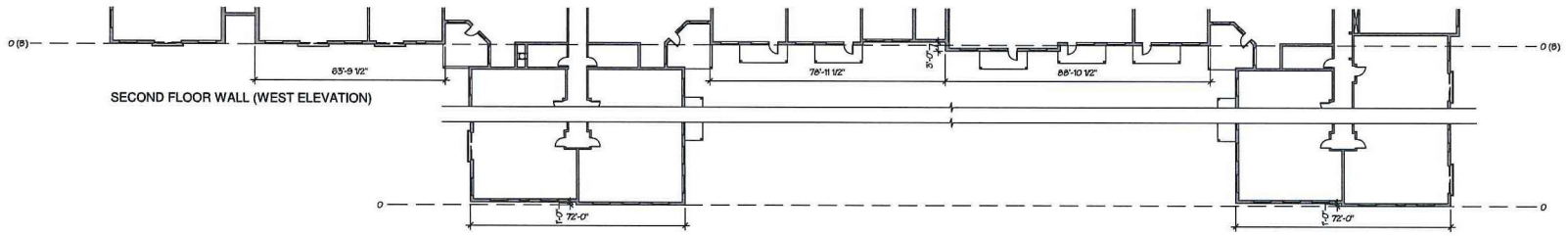
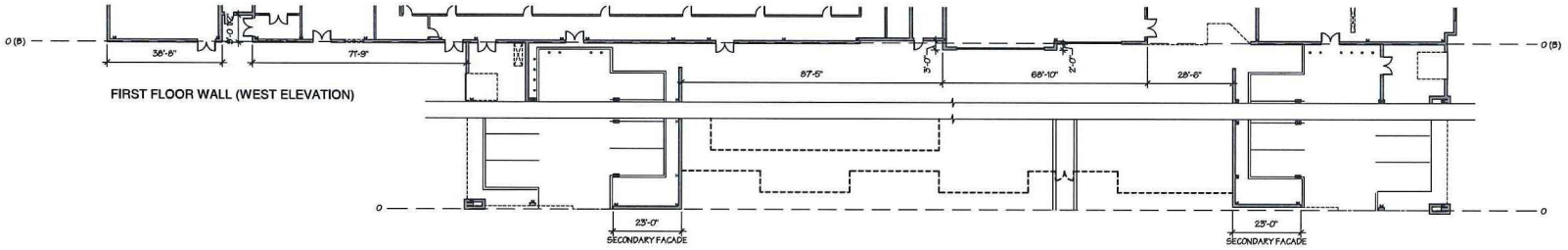
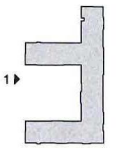
1 WEST BUILDING - WEST ELEVATION
SCALE: 1/16" = 1'-0"



SECOND FLOOR WALL (WEST ELEVATION)



FIRST FLOOR WALL (WEST ELEVATION)



KEY PLAN

WEST BUILDING
EXTERIOR ELEVATION
SCALE: 1/16" = 1'-0"

2054.00-16 APRIL 13, 2017

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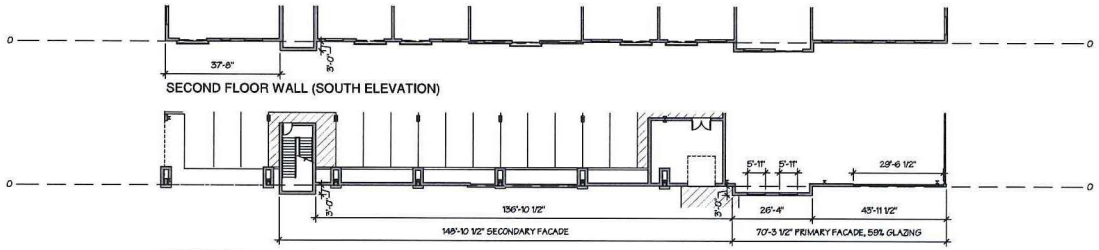
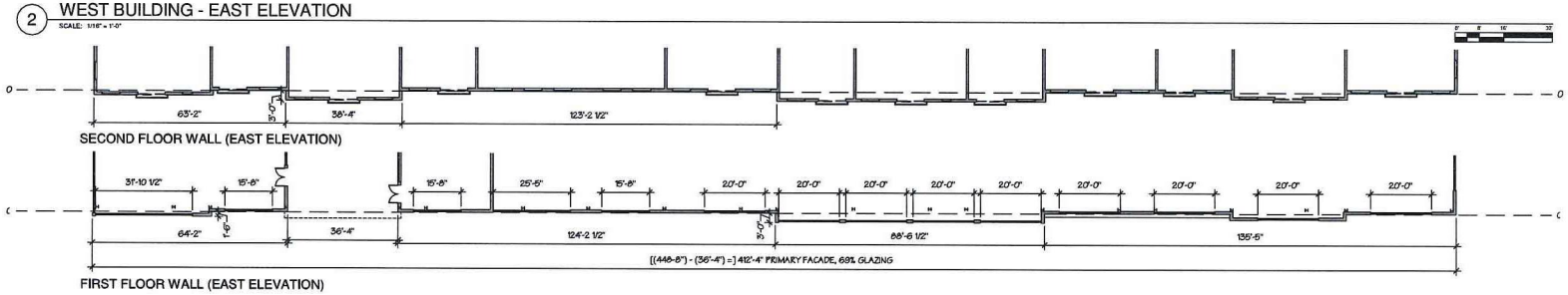
1 WEST BUILDING - SOUTH ELEVATION (DRYDEN ROAD)

SCALE: 1/16" = 1'-0"



2 WEST BUILDING - EAST ELEVATION

SCALE: 1/16" = 1'-0"



WEST BUILDING

EXTERIOR ELEVATIONS

SCALE: 1/16" = 1'-0"

E. DESIGN STANDARDS

(1) Building Design

b) Primary Facade
At least 50% of the length of the ground floor of primary facades shall consist of windows, glass doors, or other transparent building surfaces.

West Building Primary Facades	
North Elevation	N/A
West Elevation	N/A
South Elevation	59% glazing
East Elevation	69% glazing
East Building Primary Facades	
North Elevation	51% glazing
West Elevation	71% glazing
South Elevation	78% glazing
East Elevation	85% glazing

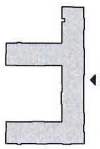
f) Building Breaks

[1] Buildings must have at least a 3' break in depth, for the full height of the building, every 150' of continuous primary facade.

West Building Maximum Unbroken Facade Length	
North Elevation	133'-7 1/2"
West Elevation	88'-10 1/2"
South Elevation	136'-10 1/2"
East Elevation	135'-5"
East Building Maximum Unbroken Facade Length	
North Elevation	100'-9 1/2"
West Elevation	113'-0"
South Elevation	130'-8"
East Elevation	131'-3 1/2"

[2] For buildings greater than 4 stories tall, the facade of the building shall step back a minimum of 3' above the first floor of the building.

West Building Step Back Above First Floor	
North Elevation	varies from 0 to 5'-11"
West Elevation	varies from 0 to 61'-2"
South Elevation	varies from 0 to 6'-11"
East Elevation	varies from 0 to 7'-9"
East Building Step Back Above First Floor	
North Elevation	varies from 0 to 132'-11 1/2"
West Elevation	varies from 0 to 31'-4"
South Elevation	varies from 0 to 49'-10 1/2"
East Elevation	varies from 0 to 135'-2 1/2"



KEY PLAN

2054.00-16 APRIL 13, 2017

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Promenade at Upper Dublin: Unit Types, Quantities and Areas

Unit Name	Description	Proposed					Quantities per Building		Total Gross Area (SF)
		%	Quantity	Area (Net)	Unit Dimensions	Balcony / Patio	East	West	
STUDIO UNITS									
Delta 1	Studio		3	506	19'-6" x 26'-4"		3		1,518
Delta 2	Studio		8	560	26'-6" x 21'-5"		8		4,480
Delta 3	Studio		3	732	18'-8" x 39'-8"		3		2,196
Delta 4	Studio		3	732	IRREGULAR		3		2,196
Total Studio		**4%**	**17**	**611**			**17**	**0**	**10,390**
ONE BEDROOM UNITS									
Alpha 1	1 Bedroom / 1 Bath		8	661	IRREGULAR		8		5,288
Alpha 2	1 Bedroom / 1 Bath		5	708	24'-4 x 29'-4"		4	1	3,540
Alpha 3	1 Bedroom / 1 Bath		4	723	IRREGULAR		4		2,892
Alpha 4	1 Bedroom / 1 Bath		143	757	24'-4" x 31'-5"		57	86	108,251
Alpha 5	1 Bedroom / 1 Bath		4	792	IRREGULAR		4		3,168
Alpha 6	1 Bedroom / 1 Bath		8	811	26'-1" x 31'-5"		8		6,488
Alpha 7	1 Bedroom / 1 Bath		4	882	28'-4" x 31'-5"		4		3,528
Total 1 Bedroom / 1 Bath		**44%**	**176**	**757**			**89**	**87**	**133,155**
Alpha 8	1 Bedroom / 1 Bath / Den		8	1,044	IRREGULAR		8		8,352
Total 1 Bedroom / 1 Bath / Den		**2%**	**8**	**1,044**			**8**	**0**	**8,352**
ONE BEDROOM TOTALS		**46%**	**184**				**97**	**87**	**141,507**
TWO BEDROOM UNITS									
Beta 1	2 Bedroom / 2 Bath		1	892	IRREGULAR		1		892
Beta 2	2 Bedroom / 2 Bath		4	960	IRREGULAR			4	3,840
Beta 3	2 Bedroom / 2 Bath		4	1,007	32'-4" x 31'-5"		4		4,028
Beta 4	2 Bedroom / 2 Bath		3	1,017	IRREGULAR		3		3,051
Beta 5	2 Bedroom / 2 Bath		4	1,070	34'-3" x 31'-5"		4		4,280
Beta 6	2 Bedroom / 2 Bath		8	1,071	41'-0" x 26'-4"		8		8,568
Beta 7	2 Bedroom / 2 Bath		4	1,092	35'-0" x 31'-5"		4		4,368
Beta 8	2 Bedroom / 2 Bath		10	1,129	IRREGULAR			10	11,290
Beta 9	2 Bedroom / 2 Bath		80	1,134	36'-4" x 31'-5"		40	40	90,720
Beta 10	2 Bedroom / 2 Bath		1	1,134	36'-4" x 31'-5"		1		1,134
Beta 11	2 Bedroom / 2 Bath		3	1,171	37'-6" x 31'-5"			3	3,513
Beta 12	2 Bedroom / 2 Bath		5	1,174	37'-8 x 31'-5"		4	1	5,870
Beta 13	2 Bedroom / 2 Bath		6	1,179	IRREGULAR			6	7,074
Beta 14	2 Bedroom / 2 Bath		4	1,187	IRREGULAR		4		4,748
Beta 15	2 Bedroom / 2 Bath		16	1,213	IRREGULAR		8	8	19,408
Beta 16	2 Bedroom / 2 Bath		3	1,259	40'-6" x 31'-4"		3		3,777
Beta 27	2 Bedroom / 2 Bath		2	892	IRREGULAR			2	1,784
Beta 28	2 Bedroom / 2 Bath		1	947	36'-1" x 26'-5"			1	947
Beta 30	2 Bedroom / 2 Bath		1	1,167	IRREGULAR			1	1,167
Total 2 Bedroom / 2 Bath		**40%**	**160**	**1,128**			**84**	**76**	**180,459**
Beta 17	2 Bedroom / 2 Bath / Den		3	1,214	IRREGULAR		3		3,642
Beta 18	2 Bedroom / 2 Bath / Den		15	1,275	IRREGULAR		15		19,125
Beta 19	2 Bedroom / 2 Bath / Den		4	1,308	IRREGULAR		4		5,232
Beta 20	2 Bedroom / 2 Bath / Den		1	1,354	IRREGULAR		1		1,354
Beta 21	2 Bedroom / 2 Bath / Den		3	1,354	IRREGULAR		3		4,062
Beta 22	2 Bedroom / 2 Bath / Den		3	1,480	IRREGULAR			3	4,440
Beta 23	2 Bedroom / 2 Bath / Den		2	1,544	IRREGULAR			2	3,088
Beta 24	2 Bedroom / 2 Bath / Den		1	2,053	IRREGULAR		1		2,053
Beta 25	2 Bedroom / 2 Bath / Den		4	2,224	IRREGULAR		4		8,896
Beta 26	2 Bedroom / 2 Bath / Den		3	2,372	IRREGULAR		3		7,116
Beta 29	2 Bedroom / 2 Bath / Den		2	1,129	IRREGULAR			2	2,258
Total 2 Bedroom / 2 Bath / Den		**10%**	**41**	**1,494**			**34**	**7**	**61,266**
TWO BEDROOM TOTALS		**50%**	**201**				**118**	**83**	**241,725**
TOTALS			**402**				**232**	**170**	**393,622**

50%

50%

OVERALL UNIT MATRIX

2054.00-16 MARCH 22, 2017

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PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

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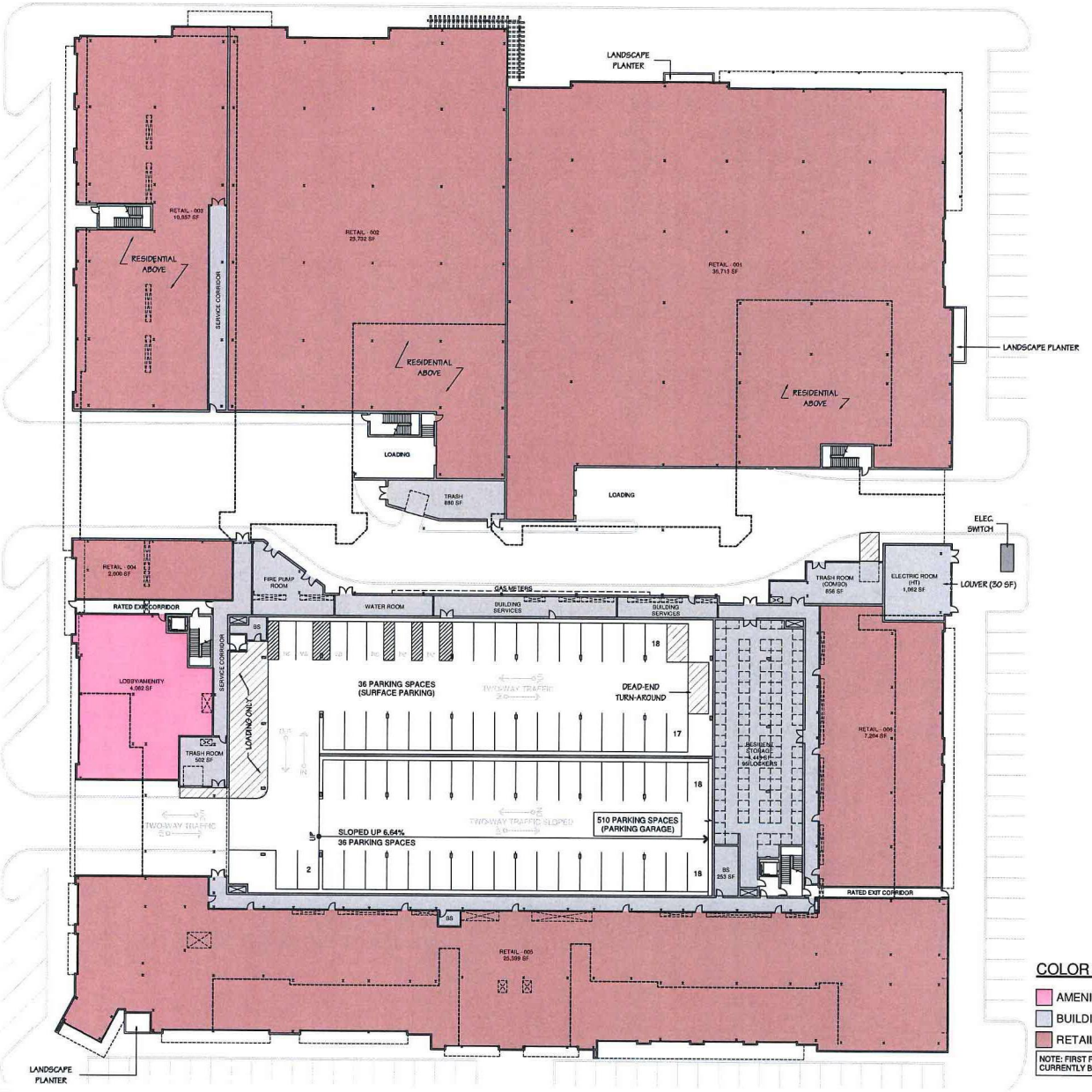

EAST BUILDING
1st FLOOR PLAN

SCALE: 1" = 20'

0' 10' 20' 40'

COLOR LEGEND

- AMENITY SPACE/ LEASING
- BUILDING SERVICES
- RETAIL

NOTE: FIRST FLOOR STRUCTURE CURRENTLY BEING EVALUATED

2054.00-16 MARCH 22, 2017

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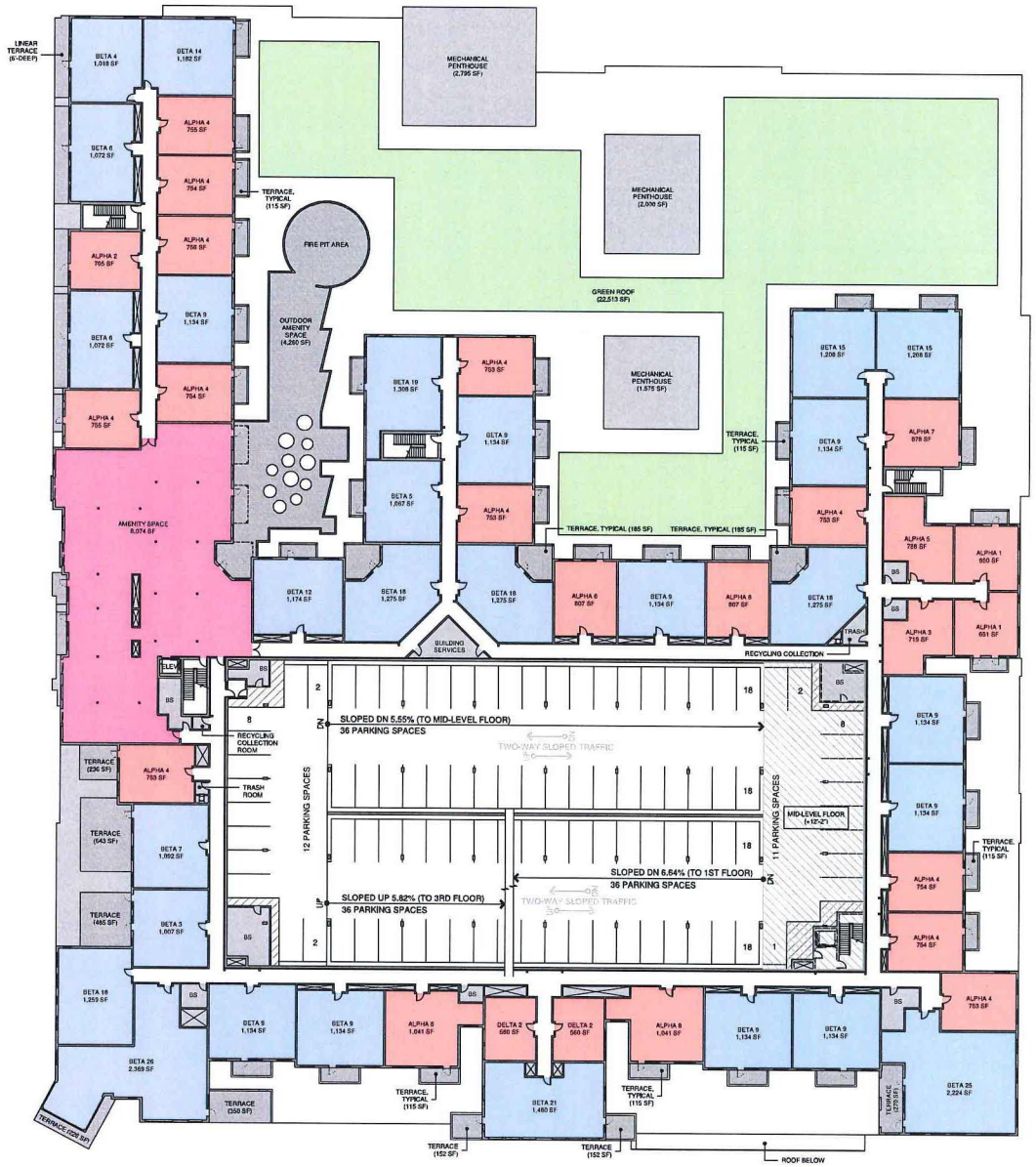

EAST BUILDING
2nd FLOOR PLAN

1st RESIDENTIAL FLOOR PLAN
SCALE: 1" = 20'

COLOR LEGEND

- 1BR
- 2BR
- AMENITY SPACE/ LEASING
- BUILDING SERVICES

2054.00-16 MARCH 22, 2017

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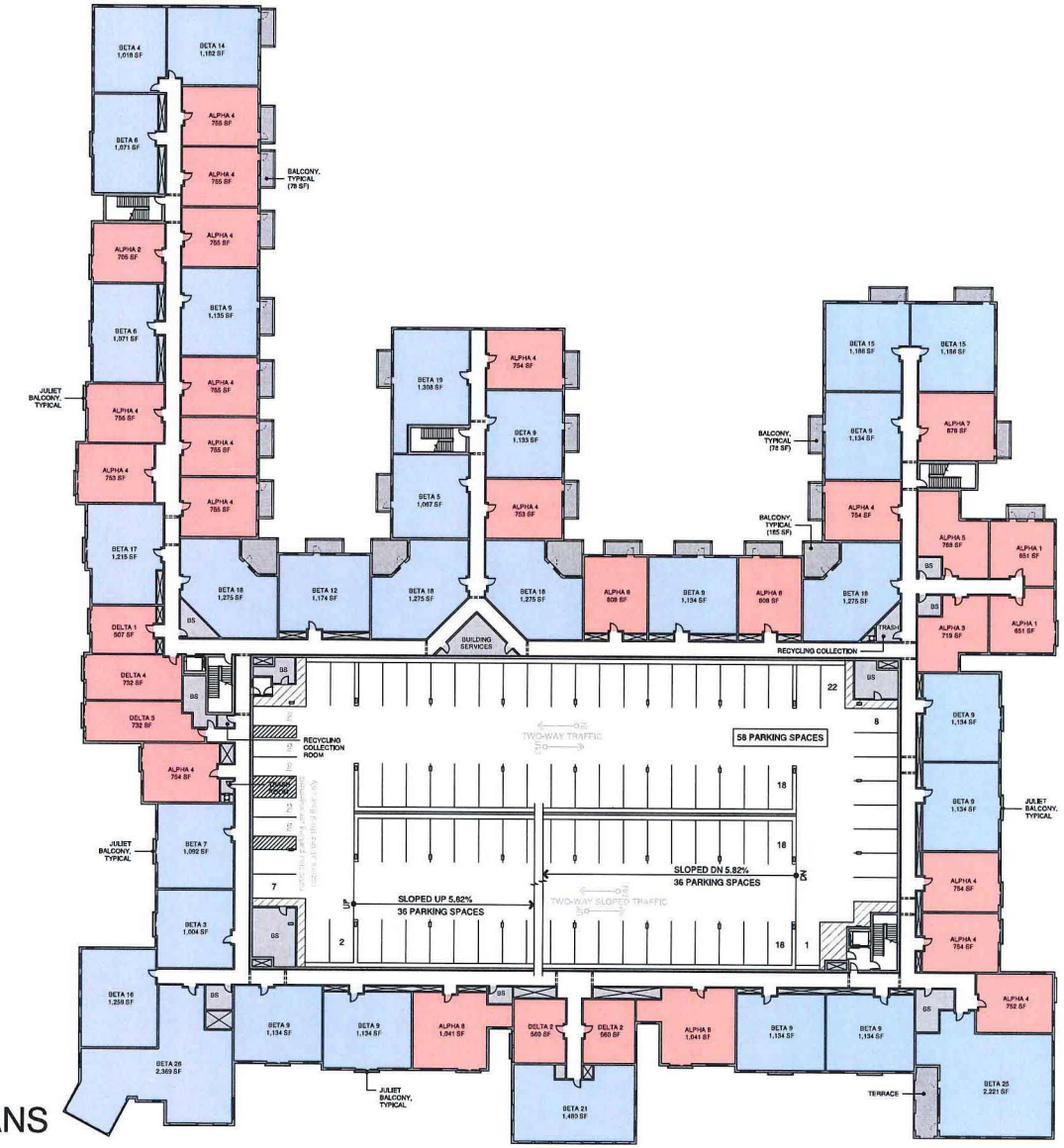

EAST BUILDING
3rd / 4th FLOOR PLANS

2nd / 3rd RESIDENTIAL FLOOR PLANS
SCALE: 1" = 20'

COLOR LEGEND

- 1BR
- 2BR
- BUILDING SERVICES

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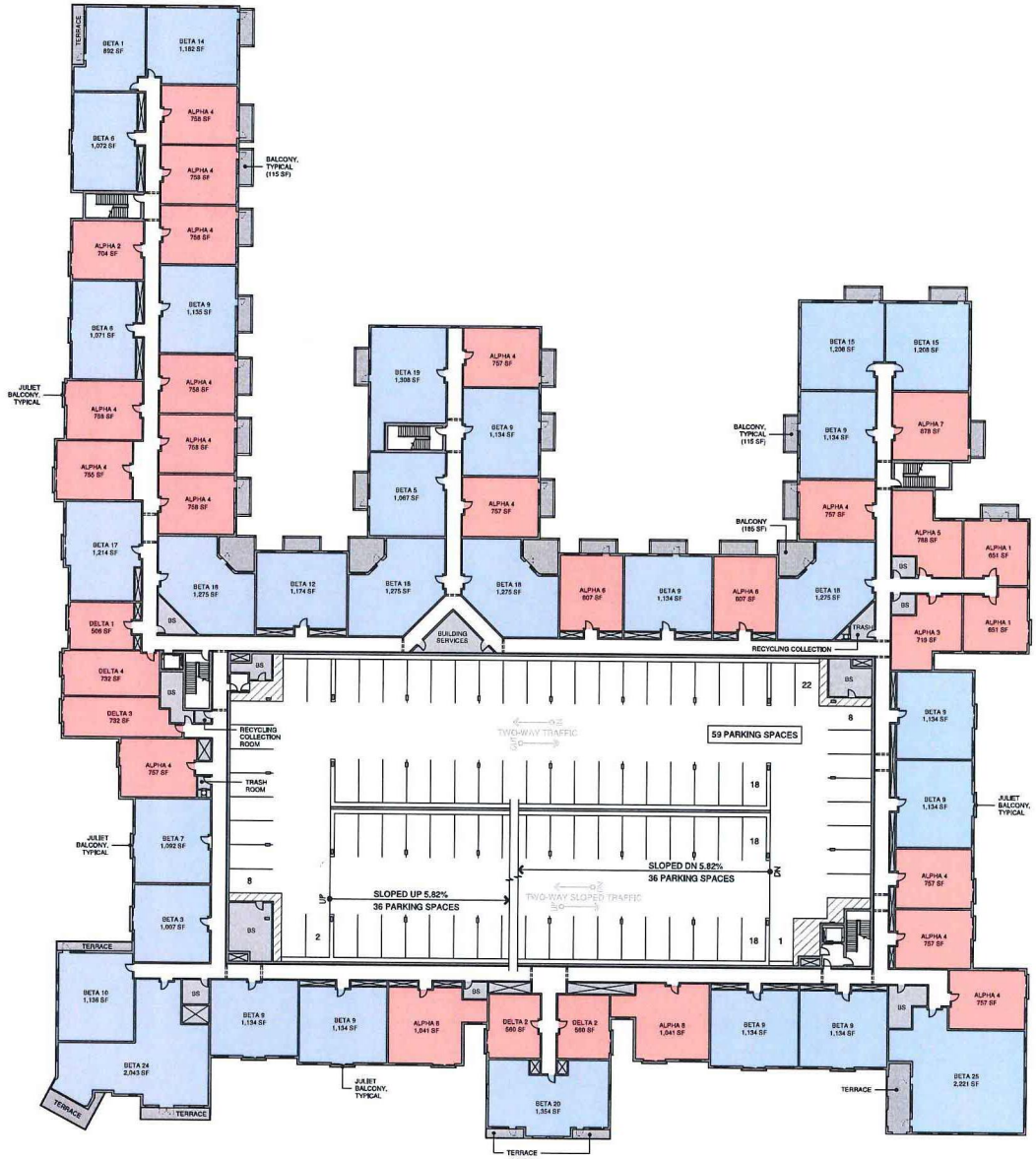

EAST BUILDING
5th FLOOR PLAN

4th RESIDENTIAL FLOOR PLAN
SCALE: 1" = 20'

COLOR LEGEND
- 1BR
- 2BR
- BUILDING SERVICES

2054.00-16 MARCH 22, 2017

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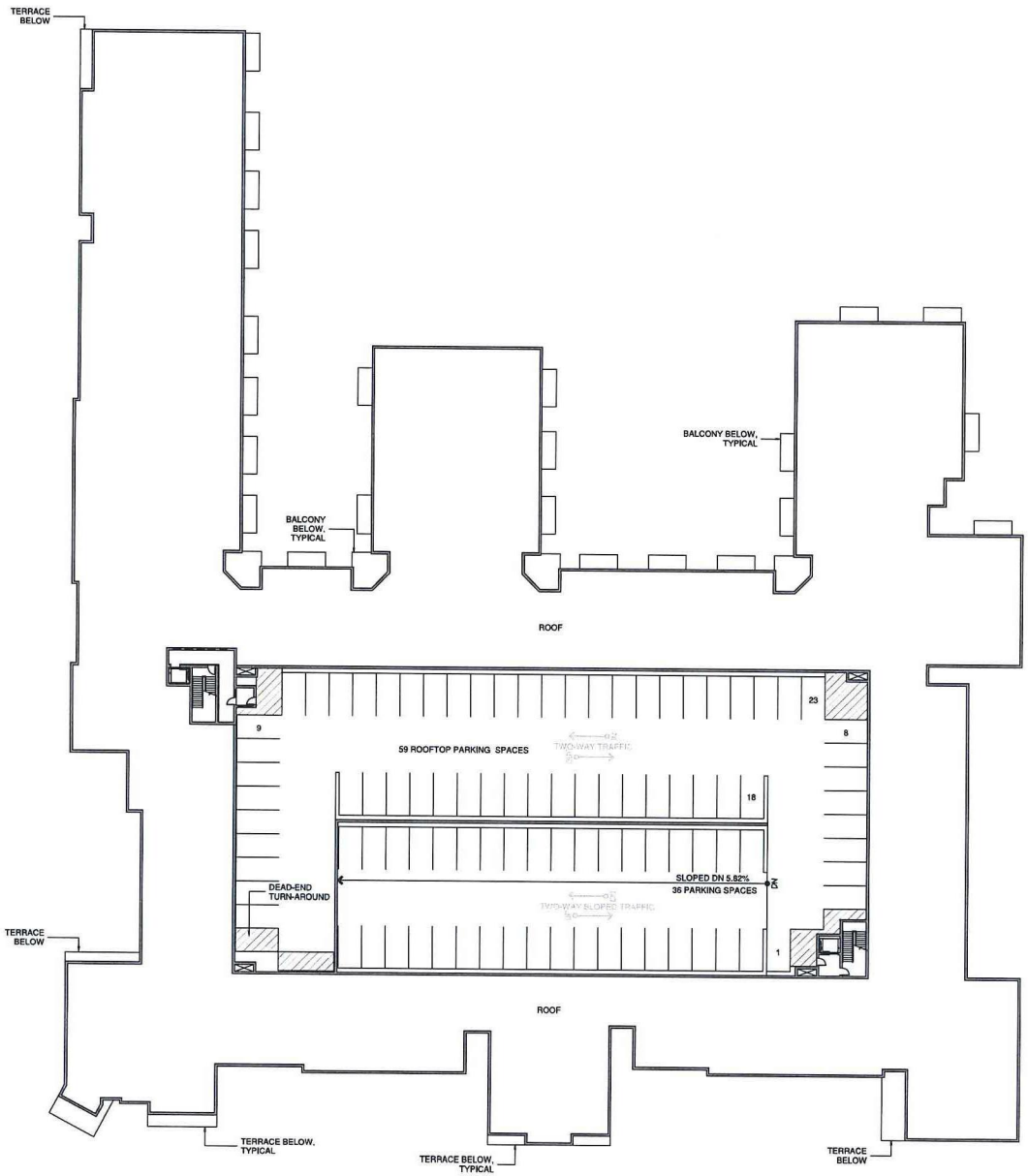

EAST BUILDING ROOF PLAN

SCALE: 1" = 20'

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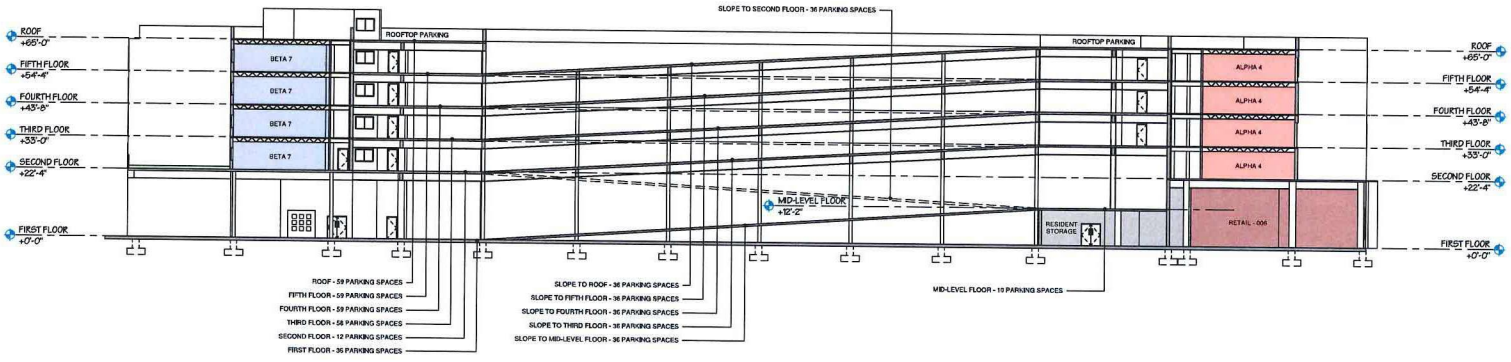
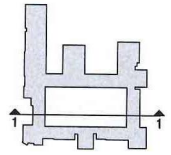


1 EAST BUILDING - BUILDING SECTION
SCALE: 1/16" = 1'-0"

COLOR LEGEND

- 1BR
- 2BR
- BUILDING SERVICES
- RETAIL



KEY PLAN

EAST BUILDING
BUILDING SECTION

SCALE: 1/16" = 1'-0"

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ROOF
59 TOTAL PARKING SPACES

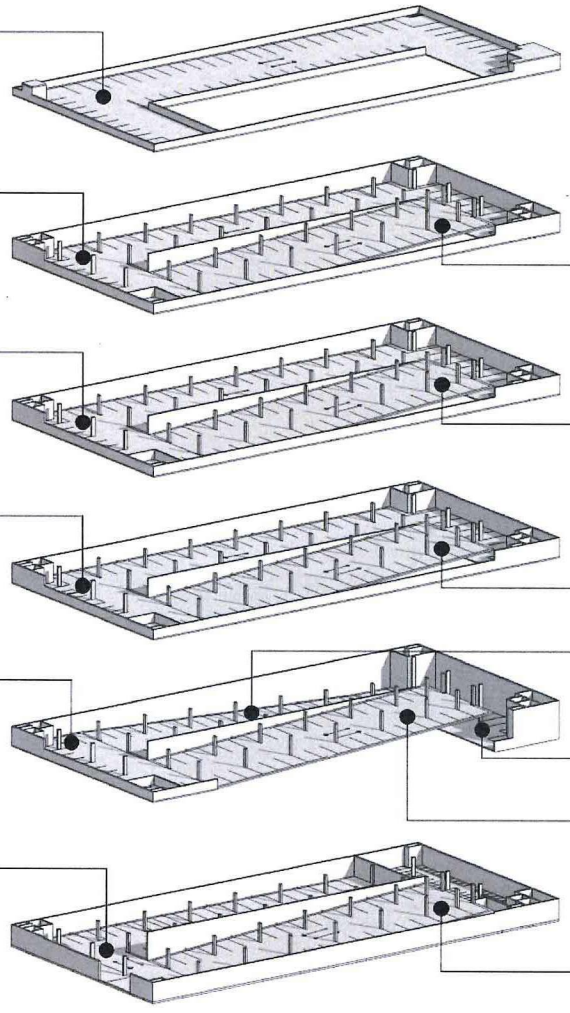
FIFTH FLOOR
95 TOTAL PARKING SPACES

FOURTH FLOOR
95 TOTAL PARKING SPACES

THIRD FLOOR
94 TOTAL PARKING SPACES

SECOND FLOOR
95 TOTAL PARKING SPACES

FIRST FLOOR
72 TOTAL PARKING SPACES



EAST BUILDING
510 PARKING SPACES

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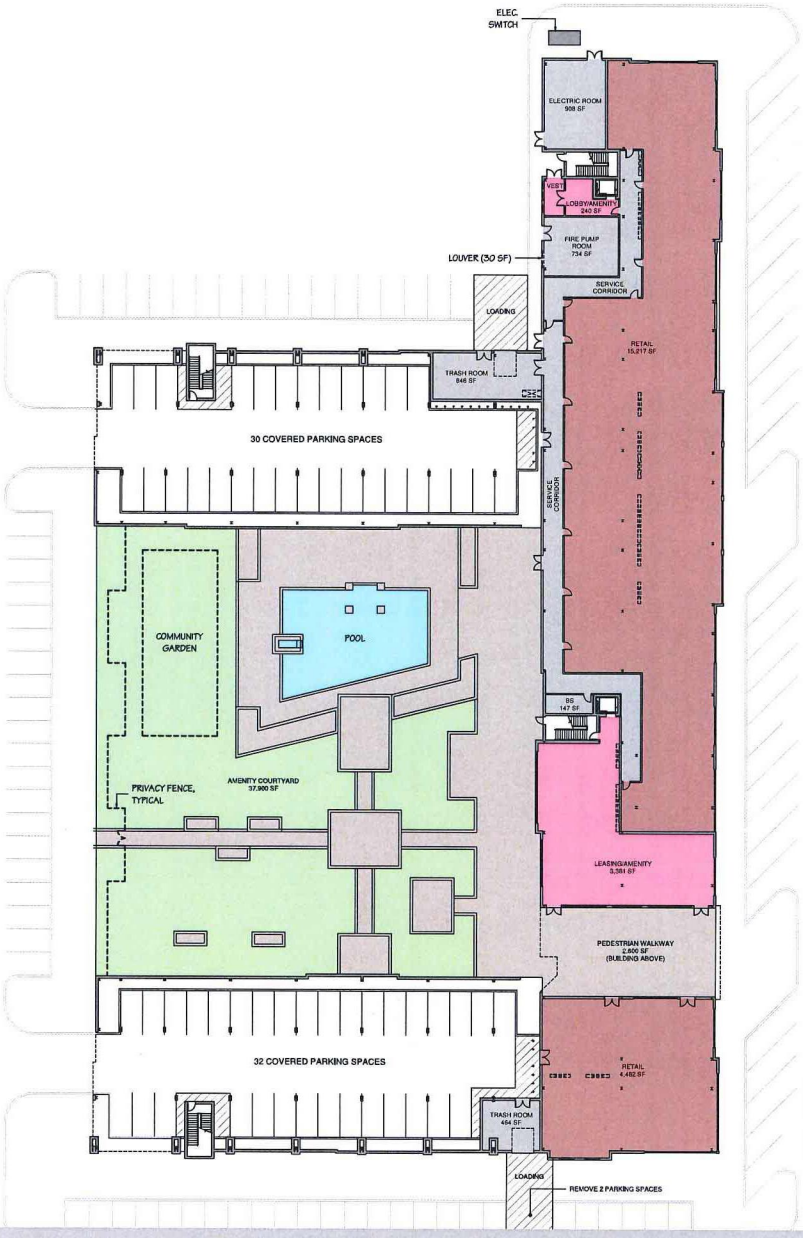

COLOR LEGEND

- AMENITY SPACE/ LEASING
- BUILDING SERVICES
- RETAIL

WEST BUILDING
1st FLOOR PLAN

SCALE: 1" = 20'

0' 10' 20' 40'

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COLOR LEGEND

- 1BR
- 2BR
- AMENITY SPACE/ LEASING
- BUILDING SERVICES

WEST BUILDING
2nd FLOOR PLAN

SCALE: 1" = 20'

2054.00-16 MARCH 22, 2017

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COLOR LEGEND

- 1BR
- 2BR
- AMENITY SPACE/ LEASING
- BUILDING SERVICES

WEST BUILDING
3rd FLOOR PLAN

2nd RESIDENTIAL FLOOR PLAN
SCALE: 1" = 20'

2054.00-16 MARCH 22, 2017

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PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

BERNARDON
ARCHITECTURE
INTERIOR DESIGN
LANDSCAPE ARCHITECTURE
The Philadelphia Building · 1315 Walnut Street, Suite 600
Philadelphia, PA 19107 · p. 215 609 4609 · www.bernardon.com

COLOR LEGEND

- 1BR
- 2BR
- AMENITY SPACE/ LEASING
- BUILDING SERVICES

WEST BUILDING
4th FLOOR PLAN

3rd RESIDENTIAL FLOOR PLAN
SCALE: 1" = 20'

2054.00-16 MARCH 22, 2017

BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044

PROMENADE AT UPPER DUBLIN
Upper Dublin Township, PA

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WEST BUILDING
5th FLOOR PLAN

4th RESIDENTIAL FLOOR PLAN
SCALE: 1" = 20'

0' 10' 20' 40'

COLOR LEGEND

- 1BR
- 2BR
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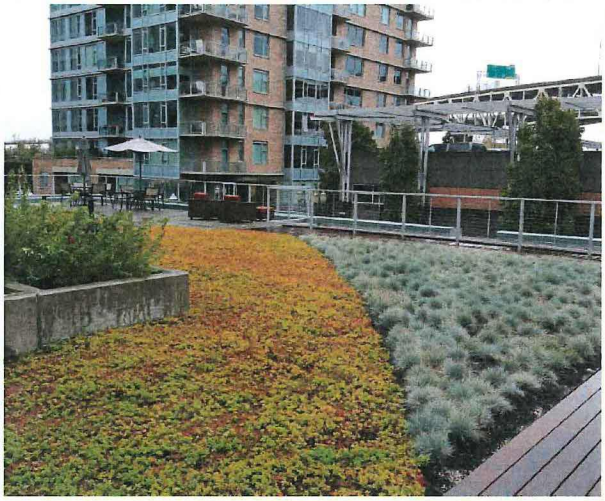
COLUMBIA GREEN TECHNOLOGIES®

INNOVATIVE GREEN ROOF TECHNOLOGY



Columbia Green Technologies provides the best green roof or amenity deck system for your project, not a one-size-fits-all approach. Our systems maximize plant health, stormwater retention and drainage for a beautiful finished product long term.

BENEFITS OF A GREEN ROOF

- Reduce the amount of stormwater runoff and delay the time in which runoff occurs- making green roofs a real asset to cities struggling with aging storm and sewer infrastructure
- Green roofs can support a variety of plant types and species, adding biodiversity and providing habitat for pollinator species.
- Provide a protective layer over the roof membrane, at least doubling the life of the roof
- Bring year-round building energy savings by acting as a thermal blanket- green roofs provide cost savings on a building's heating and cooling bills
- Green roofs reduce the air temperature through evapotranspiration, reducing the urban heat island effect
- Create attractive outdoor amenity spaces, increase property values and occupancy rates

Why Columbia Green?

- Comprehensive green roof solutions; from Extensive to Intensive
- Layered and Tray-based systems
- Multiple warranty options including Single-Source Warranty provided through our Roofing Partners
- Amenity Decks and Rooftop Gardening
- Stormwater retention calculations custom to your unique project

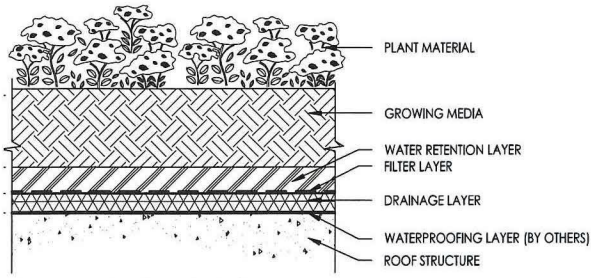
COLUMBIA GREEN TECHNOLOGIES
www.columbia-green.com
info@columbia-green.com

Declare.

LAYERED SYSTEM

Our built-in-place system

- Quality growing media options, regionally blended
- Water Retention Layer, providing supplemental moisture retention for plants, high porosity for root aeration, and anchorage. Available in .5-inch or 1-inch thickness
- Filter Layer, preventing growing media erosion
- Drainage Layer to prevent ponding and move excess water efficiently to the nearest drain. Available in .375-inch and .75-inch thickness
- Metal Edger for perimeter stability
- Soil depth flexibility: from 3-inch media depth (extensive) to 36-inches+ media depth (amenity decks).

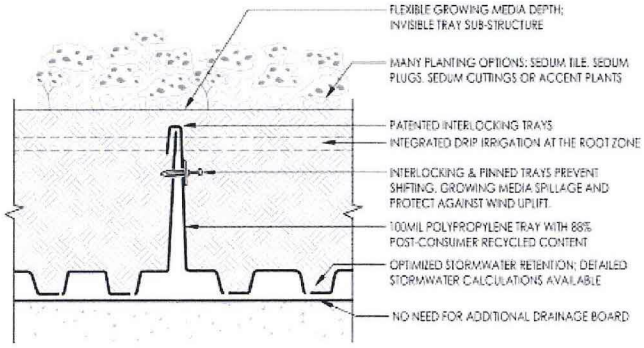


Layered System Detail

TRAY SYSTEMS

Pre-Grown and Planted-in-Place (with optional drip irrigation)

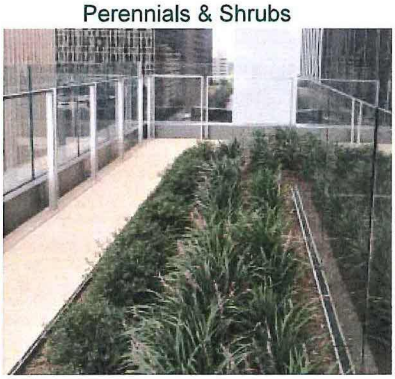
- Patented interlocking and overlapping tray design
- Tray designed by landscape architects, stormwater engineers, horticulturists and roofing experts for the unique challenges of the rooftop environment
- Simple installation- each of the individual functions found in the Layered System is inherent to the tray.
- Plants can be planted on-site or pregrown.
- Tray design maximizes stormwater retention
- *Integrated drip irrigation* available
- Soil depth flexibility: from 4-5/8 to 8-inch media depth



Planted in Place System Detail

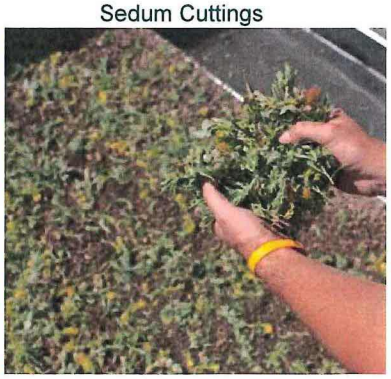
Pregrown Sedum

Perennials & Shrubs



Plugs

Sedum Cuttings



System partner: DOW

ABOUT COLUMBIA GREEN TECHNOLOGIES

Columbia Green is US green roof manufacturer with a focus on vegetative roof technology that maximizes both stormwater retention and plant health. Our systems help manage the quantity of storm water runoff, and decrease energy use and air/water pollution. We are an expert team of passionate and creative individuals who are committed to selling products that better our world. Our comprehensive green roof solutions are designed to meet the unique challenges of the rooftop growing environment.

OUR TECHNICAL EXPERTISE & DESIGN SUPPORT

- Stormwater Retention Calculations
- Standard and Custom Details
- Specifications
- Regional Plants & Growing Media Expertise
- System Weight Calculations
- Wind Uplift
- Budgetary Information
- Maintenance Guidelines

Contact:
79 SE Taylor, Suite 201 | Portland, OR 97214
503 327 8723 | info@columbia-green.com
www.columbia-green.com

WARRANTIES

Standard Full System Warranty

Our systems come with a standard Full System Warranty with an optional Overburden Warranty.

Single-Source Warranty

We partner with leading roof membrane manufacturers to offer a complete solution for every type of roof construction. These partnerships allow us to offer single-source warranties, which cover both the roof and the green roof system together.

ROOFING PARTNERS

	Avaliable Membranes
CARLISLE COATINGS & WATERPROOFING	Hot Rubber, Cold Applied
CARLISLE SYNTEC SYSTEMS	EPDM, TPO, PVC
FiberTite Green	PVC
VERSICO ROOFING SYSTEMS	EPDM, TPO, PVC
Malarkey Roofing Products	Mod Bit, SBS
DERBIGUM MAKING BUILDINGS SMART	Mod Bit, SBS
KEMPER SYSTEM	Cold Applied

GREEN ROOFS FOR STORMWATER MANAGEMENT

Columbia Green Technologies- Stormwater Services

Columbia Green Technologies offers complimentary, project-specific stormwater calculations to help your project demonstrate return on investment (ROI) for a green roof. Utilizing the green roof for stormwater retention may allow the project to downsize or even eliminate other costly stormwater treatment mechanisms, such as underground detention tanks. For more information, contact elainek@columbia-green.com.

Green Infrastructure

Vegetative Roofing is a Low Impact Development (LID) technique. Green Infrastructure manages rainfall at the source in order to improve placemaking and community livability, while enhancing the local environment and reducing site development costs.*

Green Roof ROI

*The GSA's 2011 Green Roof Report** found an average payback period of 6.2yrs for green roofs on civic and commercial buildings due to the following benefits:*

- Manage Stormwater to reduce Grey Infrastructure:
  - 100% Retention of moderate (+/-2") rainfall events, depending on specified media depth.
  - Detention and Peak Flow Reduction for large rainfall events.
  - Potential Water Quality Benefits.
- Extend the life of the roof membrane by 2x-3x
- Mitigate Urban Heat Island Effect
- More Efficient Buildings (Heating, Cooling; Solar Panels)
- Improve Air Quality
- Provide Habitat
- Opportunities for Urban Agriculture
- Attract Higher Rents and Less Turnover
- LEED Points
- Take advantage of local Incentive or Grant Programs. Download city-specific policy summaries here:

http://columbia-green.com/resources/regional-stormwater-information/

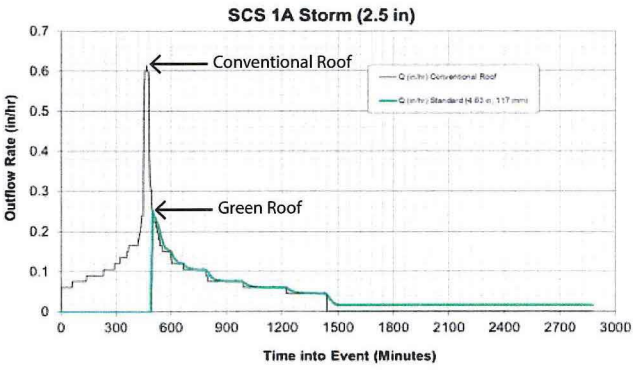
Columbia Green Technologies

Hydrograph Tool

Columbia Green has developed a dynamic routing model for predicting runoff through our modular green roof systems. This information can be incorporated into the detention routing for the entire site. It was developed in partnership with Portland State University's Green Building Research Laboratory.

Modeling Approach

Based on project specifics (green roof size, depth, slope, and geographic location) the model can predict the rainfall runoff distribution for a 24-hr design storm depth for either a standard Soil Conservation Service (SCS) intensity distribution, or a custom intensity distribution. It will plot these results in terms of maximum depth retained, and in contrast to a traditional rooftop. See sample output below.



About Columbia Green Technologies

Columbia Green Technologies offers a variety of comprehensive green roof solutions; from extensive to intensive green roofs, available with both layered and tray-based systems. Designers appreciate the flexibility our systems offer and the technical support that accompanies any project we undertake. Building owners love the single-source 'Roof to Green Roof' warranty options provided through our roofing partners.

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info@columbia-green.com

**Banking on Green,* a 2012 joint report by American Rivers, the Water Environment Federation, the American Society of Landscape Architects and ECONorthwest, found that using green infrastructure was cost-neutral or cheaper as compared to grey infrastructure about 75% of the time (from a survey of 479 case studies).

*** The Benefits and Challenges of Green Roofs on Public and Commercial Buildings, A report of the United States General Services Admininstration.*

COLUMBIA GREEN TECHNOLOGIES – GREEN ROOF SYSTEMS COMPARISON

COLUMBIA GREEN TECHNOLOGIES

Dominic Grecki
Northeast Regional Sales Manager
dominicg@columbia-green.com
973.699.0517

System Type	PREGROWN TRAY	PLANTED IN PLACE TRAY	LAYERED
System Unit Size	24" x 24" x 4-5/8" interlocking trays	24" x 24" x 4-5/8" interlocking trays	Per Design
Saturated Weight	25 to 30 lbs./s.f. (includes 4-5/8" growing media depth and weight of plants)	29 to 52 lbs./s.f. (based on 5-1/4" to 8" growing media depth and weight of plants)	20 to 91 lbs./s.f. (based on 3" to 12" growing media depth and weight of plants, greater depths available)
Growing Media Depth	Extensive 4-5/8" depth	Extensive and Intensive 5-1/4" to 8" depth	Extensive and Intensive 3" to +24" (greater depth available)
Plant Type	Sedum Cuttings, Plugs, Tiles, Mats, Regional Perennials and Grasses	Sedum Cuttings, Plugs, Tiles, Mats, Regional Perennials, Groundcover, Grasses and Small Shrubs	Sedum Cuttings, Plugs, Tiles, Mats, Regional Plants, Shrubs and Trees-flexible according to media depth.
Integrated Irrigation (Irrigation Recommended)	No, install spray irrigation system at green roof perimeter	Yes. Drip irrigation installed during tray installation	No, But spray or drip irrigation systems can be designed and installed in this system
Stormwater Retention	Based on 4-5/8" depth: Excellent stormwater retention	Based on 5-1/4" depth: Excellent stormwater retention	Based on 3" depth: Standard stormwater retention
Labor to Install	Based on 4 to 5 man crew: 60 to 80 s.f./hr *PO needed 10 to 16 weeks in advance	Based on 4 to 5 man crew: 70 to 90 s.f./hr *PO needed 4 to 6 weeks in advance	Based on 4 to 5 man crew: 60 to 80 s.f./hr *PO needed 4 to 6 weeks in advance

NOTE: The information above is offered to provide general guidance only and is not intended to serve as a final green roof design strategy or labor calculation

BENEFITS OF ADDING 'GREEN' TO YOUR AMENITY DECK

- Provide tenants with access to plants and nature in an urban environment
- Creates a relaxing outdoor gathering space for social cohesion or quiet contemplation
- Promote Wellness: Views of vegetated roofs have been shown to reduce stress levels
- Rooftop landscaping spaces can be used for urban agriculture and gardening
- Amenity decks are considered more desirable by tenants, bringing increased rents and occupancy rates
- Green roofs can help contribute toward 14 or more LEED points

The Intensive Layered system for amenity decks is designed for rooftop landscapes with perennials, shrubs, and trees. Our intensive blend media is engineered to ensure these plants thrive long term. The system consists of a drainage layer, filtration layer, and optional water retention layer. It can be used in any landscape design, and in large garden containers and rooftop planters.

Why Columbia Green?

- Comprehensive green roof solutions; from Extensive to Intensive
- Layered and Tray-based systems
- Multiple warranty options including Single-Source Warranty provided through our Roofing Partners
- Stormwater retention calculations custom to your unique project

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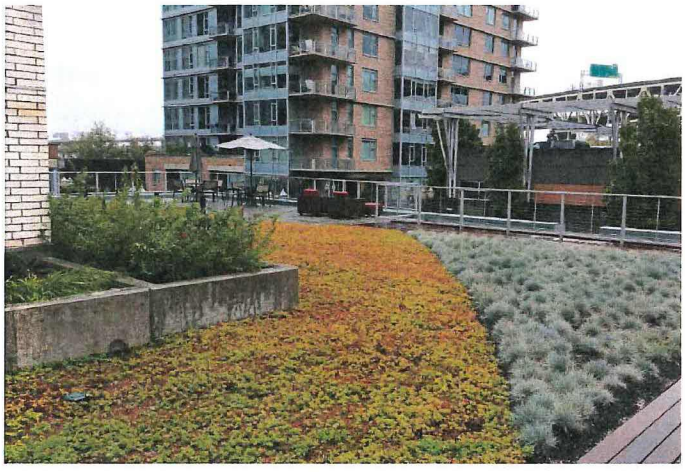
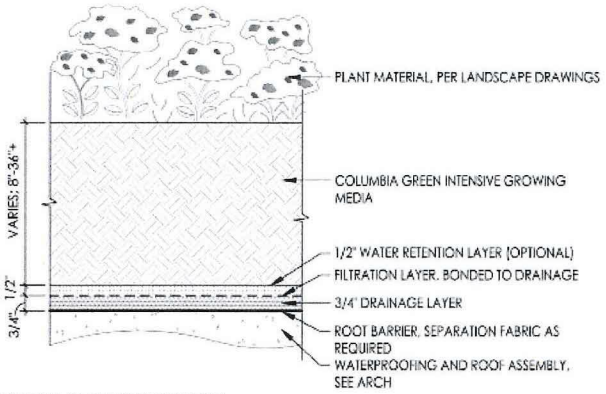


"We have received nothing but glowing comments, with everyone saying this is the best green roof that they have ever seen."
— Julie Currier Vice President, Development | Unico Properties

"As a biophilic design tactic, green roofs provide an essential connection between the built and natural environment. In addition to offering relaxing spaces our tenants enjoy, green roofs can support the regeneration of more robust urban ecosystems and the mitigation of storm water runoff."
— Ben Myers Sustainability Manager | Boston Properties



TYPICAL AMENITY DECK DETAIL

GREEN ROOF AND AMENITY DECK FAQ's

What makes the Columbia Green system unique?
Columbia Green provides a turn-key green roof solution giving building owners both lower installation cost and lower long term maintenance and operating expenditures **reducing the total cost of ownership**.

What types of systems does Columbia Green provide?
Columbia Green offers layered and tray based flexible design solutions from high-end amenity deck planting systems to shallow 'extensive' sedum roofs.

Can your systems be installed on existing buildings?
Yes! Depending on the structural conditions, our lightweight green roof systems can be added to existing buildings with minimal additional upgrades.

What warranties are available?
There are two types of warranties, Full System warranties that cover the roof membrane and green roof separately and Single Source Warranties that cover protection for the entire roof system together. Columbia Green provides both types.

How heavy are your amenity deck systems?
Weight can vary according to media depth. Go to our website, or contact us for project specific weight information

Contact:
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COLUMBIA GREEN TECHNOLOGIES

HEALTHY PLACES FOR PEOPLE TO WORK, LIVE & PLAY

200 CLARENDON STREET

FORMERLY JOHN HANCOCK TOWER

Photo Credit: Alan Karchmer

Green Roof Project Narrative

At 790 feet tall, 200 Clarendon Street is New England's tallest building and considered an architectural landmark. Mikyoung Kim Design, project Landscape Architect, designed the green roof and deck. The green roof design incorporates Columbia Green Technologies' Pre-Grown Trays planted with sedum. Mikyoung Kim Designs specified a patterning effect of varying heights, textures, and colors for the green roof, providing visual interest not only for the tenants in nearby office windows, but from higher floors and adjacent buildings. Sustainability Manager, Ben Myers of Boston Properties said, "We seek value creation opportunities, including the conversion of underutilized rooftops to accessible, vegetated spaces. Green roofs are a multifunctional component of our sustainability strategy. As a biophilic design feature, green roofs provide an essential connection between the built and natural environment."

Boston Properties is incorporating green roofs on their new and existing buildings. Buildings that provide visual or physical access to green, such as a green roof, help foster a healthy work environment. This can increase productivity, reduce stress levels and decrease the number of sick days. Building owners are using outdoor spaces like the deck at 200 Clarendon Street to attract and retain tenants that understand the health and wellness benefits a green roof can provide.

A Green Roof Can...

- Promote health and wellness
- Provide an outdoor space for social cohesion
- Retain stormwater and provide peak flow attenuation during rain events.

Project Quick Facts

- 62 story existing office building built in 1976 It is the tallest building in New England and an Architectural Landmark
- Green roof installed in 2015 on the 9th floor low-rise roof overlooking Copely Square in Boston's Back Bay

Project Team

Boston Properties ..... Owner / Developer

Commodore Builders..... General Contractor

Mikyoung Kim Design..... Landscape Architect

LeMessurier Consultants..... Structural Engineer

D Schumacher Landscaping...Installer

"In addition to offering relaxing spaces our tenants enjoy, green roofs can support the regeneration of more robust urban ecosystems and the mitigation of storm water runoff."

-Ben Myers
Sustainability Manager, Boston Properties

About Columbia Green Technologies

Columbia Green Technologies offers comprehensive green roof solutions; from extensive to intensive green roofs, available with both layered and tray-based systems. We offer complimentary, project-specific stormwater calculations to help your green roof project demonstrate a return on investment.

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GREEN ROOF CASE STUDY:

SIBLEY MEMORIAL HOSPITAL

A MEMBER OF JOHNS HOPKINS MEDICINE

Green Roof Project Narrative

Sibley Memorial Hospital, a member of Johns Hopkins Medicine, located in Washington, DC, is recognized as one of fifty of the greenest hospitals in the nation by Becker's Hospital Review, 2015. As a leading health provider, Sibley Memorial has cultivated a healthy environment for their patients, staff and visitors using environmentally-friendly, sustainable design elements. As an example, the hospital has installed two large cisterns to capture stormwater run-off for reuse and multiple green roofs throughout their campus, including a Columbia Green Technologies Tray system. The Columbia Green tray system was installed on the Surgical Suite, an existing roof adjacent to the new hospital expansion.

Green roofs can play an important role in healthcare facilities by providing views of, and exposure to, nature on otherwise unused rooftops. Studies have demonstrated that providing patients with visual access to nature can decrease total recovery time and reduce hospital stays by an average of 8.5%. Views to nature are also associated with reduced stress and anxiety and can have a positive effect on the emotional and mental health of patients, families and visitors. Additionally, green roofs can provide a restorative experience and boost the mental performance of hospital staff. Due to these factors, healthcare facilities with green roofs, such as Sibley Memorial, have recieved positive feedback and an increase overall satisfaction with their hospitals from staff, patients and visitors.

Green Roofs on Healthcare Facilities Quick Facts

- Shown to lower blood pressure and reduce heart rate
- Research has demonstrated that views of nature can bring a decrease in the need for pain medication
- Studies have shown that patients with a view to nature have fewer minor post-operative complications
- Provides a soothing view that can offset the clinical setting

Project Information

- Green Roof will treat and retain over 105,000 gallons of rain water annually- Reducing combined sewer overflows into Washington DC's waterways
- Green Roof System: Tray
- Green Roof Size: 8,000 s.f.
- Campus Roof: Surgical Suite (Existing Building)
- Location: Washington, DC
- Project Partners:
  Sibley Memorial Hospital, Owner
  Elevation Green Roofs, Green Roof Installer

"We saw an opportunity to take a barren black rooftop and create a beautiful green environment for our patients, staff and visitors to enjoy. With the Columbia Green Technologies tray system we had a lush, fully landscaped green roof on day one. We are thrilled with both the product and service provided by Columbia Green Technologies which made this project a success!"

-Wolf Boltansky

Owners Representative for Real Estate and Construction, Sibley Memorial Hospital

About Columbia Green Technologies

Columbia Green Technologies offers comprehensive green roof solutions; from extensive to intensive green roofs, available with both layered and tray-based systems. Building owners love the Single-Source 'Roof to Green Roof' warranty options provided through our roofing partners.

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INNOVATIVE WATER MANAGEMENT:
HASSALO ON EIGHTH
$1.48 MILLION IN REDUCED FEES

GBD Architects / Lara Swimmer photographer

- Project Narrative -

The Hassalo on Eighth project encompasses three new multifamily housing buildings set to transform east Portland's Lloyd District. The Lloyd Eco-District is close to downtown and the street car and is highly walkable. It also has a large 750 bike storage area. Kyle Andersen of GBD Architects said, "We were thrilled to have the opportunity to design a large scale eco-district utilizing leading-edge technology. The integration of the multiple large green roofs covering over 38,000 square feet and the largest on-site urban waste water treatment facility in North America (aka N.O.R.M. – Natural Organic Recycling Machine) were key components to this project. It is because of the innovative water management design elements that a significant refund on SDC's was provided by the city's Bureau of Environmental Services"

The entire development, along with an existing office tower, is connected to N.O.R.M. (Natural Organic Recycling Machine). N.O.R.M. treats and recycles 100% of the grey and black water on site. All site sewer treatment happens in N.O.R.M. instead of in the City's wastewater treatment system and water is reused on-site. The project's two green roofs reduce peak flows during large rain events by retaining stormwater, preventing stormwater flows from overwhelming the system.

Due to the cutting edge stormwater management strategies the project was allowed a refund of the system development charges (water and sewer fees) the owner had to pay for this new district. The refund totaled $1.48 million, almost half of the City's three million dollar fee.

- Quick Facts -

- Built 2015
- Extensive Green Roofs covering 25,650 s.f. and intensive roof gardens
- Uses a combination Natural Organic Recycling Machine/ Green Roof for water management
- System: Columbia Green Technologies' Extensive Layered system planted with sedum tiles
- The Green Roofs retain stormwater and reduce peak flows during rain events
- Three buildings with a total of 657 housing units and over 50,000 s.f. of retail space
- Located in Portland, Oregon
- On track for LEED ND Platinum
- Savings: Refunded $1.48 million, or almost half of the City's 3 million dollar SDC charges due to water management system.

- Project Team -

American Assets Trust	Owner / Developer
Turner Construction	General Contractor
GBD Architects	Architect
McDonald & Wetle Roofing	Green Roof Installer

"Hassalo on Eight is one of the most innovative and self-sustaining developments within a recognized Eco-District in the nation. In my opinion, this will be the modern building standard for the construction of resilient cities. The Columbia Green Technologies green roof is significant to the performance of our buildings as it retains stormwater on the roof, reducing demand on an already undersized city storm/ sewer system."

-Wade Lange, American Assets Trust

About Columbia Green Technologies

Columbia Green Technologies offers comprehensive green roof solutions; from extensive to intensive green roofs, available with both layered and tray-based systems. We offer complimentary, project-specific stormwater calculations to help your green roof project demonstrate a return on investment.

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GREEN ROOF CASE STUDY: LITTLE WING OFFICE BUILDING $70,000 SAVINGS

- Project Narrative -

The 'Little Wing' office building was constructed on a corner lot next to existing, adjacent residential buildings. The building's core was placed to one side in order to maximize the efficiency of plumbing utilities and to provide a buffer between the adjacent residential use. The civil engineer had initially planned to do underground detention tanks to meet on-site stormwater requirements, but Jason Twill (Vulcan Inc. Project Manager) challenged the team to see if a combination of a green roof (for retention/filtration) and rainwater harvesting tanks (for non-potable water reuse) could do double-duty… which they could.

By eliminating underground stormwater detention (~$80k), and a secondary storm/sewer discharge connection 18' below the street (which would have required excavation, street closures, etc. to the cost of approximately $170k), the project was able to save roughly $250,000 on traditional infrastructure. This savings more than paid for the necessary cistern (~$140k) and allowed the size of the green roof to be roughly doubled to 4,200sf. In addition to providing an immediate "green" amenity to the building, the project also received more LEED points as a result of the inclusion of the vegetated roof.

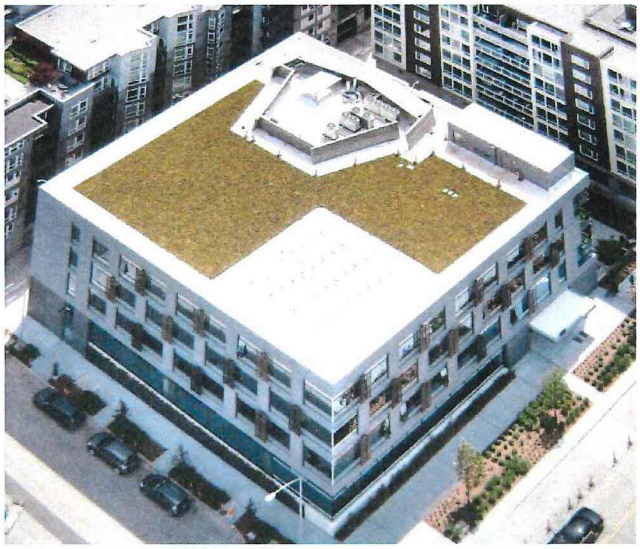
Net Savings Realized by Using a Green Infrastructure Approach = $70,000

- Project Team -

Vulcan Inc.	Owner / Developer
Howard S. Wright	General Contractor
Collins Woerman	Architect
Wayne's Roofing, Inc	Green Roof Installer

"We selected Columbia Green for the quality and reputation of the product and the intelligence and confidence of the team in assisting our design and construction team in integrating the vegetative roof into the project."

-Jason Twill, Vulcan Inc.



- Quick Facts -

- Project: 'Little Wing'. Built 2013.
- 54,000 sq ft. Experience Music Project administrative office building.
- Location: Seattle, Washington
- LEED platinum
- Uses a combination Cistern / Green Roof to manage stormwater.
- Extensive Green Roof : 4,200sf
- Green Roof System: Columbia Green Technologies' Extensive Layered System planted with sedum tiles.
- Cost: Rainwater harvesting cistern (~$140k)
- Cost: Green Roof (~$40k)
- Savings: Eliminate underground detention tank (~$80k) .
- Savings: Eliminate secondary storm/sewer discharge connection below the street (~$170k).

About Columbia Green Technologies

Columbia Green Technologies offers a variety of comprehensive green roof solutions; from extensive to intensive green roofs, available with both layered and tray-based systems. Columbia Green Technologies offers complimentary, project-specific stormwater calculations to help your project demonstrate return on investment (ROI) for a green roof. Using the green roof for stormwater retention may allow the project to downsize or even eliminate other costly stormwater treatment mechanisms, such as underground detention tanks.

COLUMBIA GREEN TECHNOLOGIES

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COLUMBIA GREEN TECHNOLOGIES

TECHNICAL INFORMATION SHEET

Layered System for Extensive Green Roofs

Description:

The Extensive Layered System is a cost effective built-up vegetative roof system consisting of a drainage layer, filter layer, and water retention layer. Able to fit nearly any design, this system can be used in conjunction with any roof layout since the layers can be easily cut to fit dimensional requirements on-site, including curves and various angles. These layers provide a viable foundation for the growing medium and plant materials.

The extensive layered system is designed to detain and retain rain and irrigation water, while preventing root rot by allowing airflow under and up through the multilayer system. This high level of air permittivity throughout the individual layers also aids in de-energizing air flow under the system thus reducing the chance of system uplift. The underlying waterproof membrane is protected with the use of a root barrier or sacrificial layer per the membrane manufacture's requirements.

The extensive layered system is intended to be used in extensive vegetative roof system profiles. Suggested growing media depths based on plant material selection typically range from a minimum of 3" to approximately 6" overall.

Layers:

1. Water Retention Layer:
    a. Description: Highly durable polyester blanket with anchorage points for promoting solid root structures
    b. Installation: Do not overlap material. Install perpendicular to slope.
2. Filter layer
    a. Description: Non-woven polypropylene
    b. Installation: Overlap provided 3" seams. Pre-attached to the Drainage Layer
3. Drainage Layer
    a. Description: Polypropylene woven into an entangled matrix
    b. Installation: Do not overlap material. Install parallel to slope.

Storage:

- Store components in a dry area.
- Store away from sources of ignition and extremely high temperatures.

Precautions:

- Avoid prolonged exposure to sunlight, heat, sparks and open flames.
- Wash exposed skin prior to eating, drinking or smoking and at the end of each shift.

LEED Information:

Post-Consumer Recycled Content and Manufacturing Locations:

- Drainage Layer 40% ; Euclid, Ohio 44117
- Filtration Layer 0% ; Euclid, Ohio 44117
- Water Retention Layer Michigan City, IN 46360

COLUMBIA GREEN TECHNOLOGIES

TECHNICAL INFORMATION SHEET

System Weight:*

.375" Drainage Layer, 1" Water Retention Layer, includes 2 lbs/s.f. plant material weight (plugs or cuttings)

System Depth	*Dry Weight*	*Saturated Weight*
3" Media Depth	11-14 lbs./ft^2	20-24 lbs./ft^2
4" Media Depth	14-18 lbs./ft^2	26-30 lbs./ft^2
6" Media Depth	20-26 lbs./ft^2	37-43 lbs./ft^2

**** System weights vary by region due to variances in growing media weight contact your local representative for more information.***

Packaging/Component Size:

1.0" Water Retention Layer, ML2001	
Thickness:	1.0" +/- 0.1"
Dimension:	90"W x 54'L
Color:	White
Coverage:	400 ft^2
Weight:	5.1 oz./yd^2
Packaging:	30"± dia. roll

Filter Layer: Pre-attached to Drainage Layer	
Weight:	3 oz./yd^2 (0.33 oz./ft^2)

0.375" Drainage Layer, ML2007	
Thickness:	0.40"
Dimension:	48"W. x 100'L.
Coverage:	400 ft^2
Weight:	17 oz./yd^2 (1.88 oz./ft^2)
Packaging:	24"± dia. roll

COLUMBIA GREEN TECHNOLOGIES

TECHNICAL INFORMATION SHEET

Pregrown Sedum Mat

Product NUMBER: PL4600

Description:

Pregrown sedum mats are a pre-vegetated option for instant coverage on green roofs. They are field-grown on a thin substrate, and are compatible with both the Planted-In-Place and Layered Green Roof systems. The mats can be trimmed to fit any shape, including curves and any angle.

Benefits:

- Quick and easy installation
- Immediate vegetative cover
- Minimal maintenance requirements once established
- The coconut coir fiber base assures effective rooting of the plants to the underlying growth media.
- Grown for a minimum of 9-12 months in outdoor field conditions regional to the project site
- Can be shipped year- round including in the winter
- Standard Mix, Sunray Yellow/Blue Mix and Maroon/Red Mix typically avaliable

Technical Data:

- Vegetation- Minimum 85% coverage
- Substrate: Biodegradable Coconut Coir Fiber/ Soil base- Approximately 1/2 - 3/4" thick
- Measurements- 47"width x 77"length, 25 sf per roll.
- Square footage per pallet: 15-16 rolls (375-400 sf) per pallet
- Max Weight- 4.5- 5 lbs/sf fully saturated
- Produced in accordance with FLL guidelines

Installation:

Install sedum mats directly over a minimum 2-inch depth freshly wetted and leveled growing media. Maintain good overall contact with the media avoiding gaps between and beneath the mats. Water thoroughly after installation. Overhead irrigation is recommended twice weekly until the roots become well established, which usually takes 3-4 weeks. Plantings installed during very cool fall weather may only need the initial irrigation.

Storage:

- If temperatures exceed 75°F [20°C], it is best to unroll and install sedum mats within 2 hours of arrival.
- If necessary, rolled sedum mats may be stored in a cool location for a maximum of 24 hours. Do not leave plants in hot storage areas.

Precautions:

- Do not leave plants in hot, closed storage areas.

LEED Compliance:

500 mile or less Component Source Location- We partner with growers throughout North America. Contact Columbia Green Technologies for project-specific source location.

Pregrown Sedum Mat

Standard Mix Plant List

This mix provides flowers throughout the growing season. Winter interest and seasonal foliage color changes are also found in this mix. This is a good, general-purpose mix that can handle the variety of microclimates on a roof, including sun and shade conditions, while providing year-round beauty. Each sedum mat includes 12-16 sedum varieties.

Sedum varieties used in the Standard Sedum Mat Mix:

- Phedimus (aka Sedum) spurium 'Fuldaglut' (aka Blaze of Fulda, Fireglow)
- Phedimus (aka Sedum) spurium 'John Creech'
- Phedimus (aka Sedum) spurium 'Red Carpet'
- Phedimus (aka Sedum) kamtschaticum
- Phedimus (aka Sedum) kamtsch. 'Variegatum'
- Phedimus (aka Sedum) takesimensis 'Golden Carpet'
- Sedum acre 'Aureum'
- Sedum acre 'Gold Moss'
- Sedum album 'Coral Carpet'
- Sedum album 'Murale'
- Sedum Stefco
- Sedum floriferum 'Weihenstephaner Gold'
- Sedum reflexum 'Blue Spruce'
- Sedum rupestre 'Angelina'
- Sedum sexangulare
- Sedum x Immergrunchen

Pregrown Sedum Mat

Sunray/Yellow-Blue Mix Plant List

This mix provides flowers throughout the growing season. This is a good, yellow/blue mix that provides year-round beauty. Each sedum mat includes at least 4 succulent varieties.

Sedum varieties used in the Sunray/ Yellow-Blue Sedum Mat Mix:

- Sedum rupestre 'Angelina'
- Sedum reflexum 'Blue Spruce'
- Sedum sexangulare
- Sedum Stefco
- Sedum acre 'Aureum'

Pregrown Sedum Mat

Maroon/Red Mix Plant List

This mix provides flowers throughout the growing season. This is a good, red mix that provides year-round beauty. Each sedum mat includes at least 4 succulent varieties.

Sedum varieties used in the Maroon/Red Sedum Mat Mix:

- Phedimus (aka Sedum) spurium 'Fuldaglut'
- Phedimus (aka Sedum) spurium 'Coccineum'
- Phedimus (aka Sedum) spurium 'Red Carpet'
- Phedimus (aka Sedum) spurium 'Dragon's Blood'
- Sedum album 'Murale'
- Sedum sexangulare

RESOLUTION OF UPPER DUBLIN PLANNING COMMISSION ON APRIL 20, 2017 WITH RESPECT TO THE CONDITIONAL USE APPLICATION SUBMITTED FOR "PROMENADE AT UPPER DUBLIN"

Our recommendation on conditions required on the Conditional Use Application #2219 for The Promenade at Upper Dublin by BT Dreshertown, LP to the Board of Commissioners are as follows:

A. On the Development Record Plan (Sheet 2 of 24) revised on 4/13/17 by Gilmore Associates we recommend the following:

1. Install a raised crosswalk as a traffic calming device where the pedestrian crosswalk is shown on the Boulevard between the residential buildings.

2. Provide striped crosswalks on Dryden Road crossing over to Montgomery Corporate Center at the entrance to the Boulevard.

3. The landscaped berm located adjacent to Restaurant No 2 should be a ***minimum*** of 6 feet in height.

B. Design guidelines

1. We request the developer submit design guidelines as indicated on the March 17, 2017 letter by Thomas Fountain P.E., Upper Dublin Township Engineer. The Developer should include sign guidelines.

C. April 13, 2017 Architectural Rendering

1. We request that updated renderings be provided to reflect the April 13, 2017 Record Plan as submitted. Changes include the elimination of the landscaped island on the Boulevard and adjustments to parking spaces.

2. We request that the revised rendering be made part of the conditional use approval.

D. Restaurant No 2 Dumpster

1. We request that the dumpster be emptied only between the daytime working hours of 8 am to 6 pm.

E. Green Roof

1. We request that the green roof maintenance plan be made part of the post construction stormwater management plan.

F. Public Transportation

1. Applicant must work with SEPTA representatives to improve access to transit service, which may include improvements to bus shelters.

G. Township Engineers conditions

1. Plans must comply with all Zoning and Subdivision regulations, as applicable.

2. Internal addresses must indicate Welsh Road as the address location.

3. No truck access from Dreshertown Road.

4. Provide public access easement over all Open Space lands.

5. Subject to lighting standards as directed by Township for internal site lighting and sign lighting.

6. Renderings include specific architectural features including window styles, number and location of windows, absence of tinting, façade colors and textures, including brick, stone, metal lap siding and wood lap siding, canopies, balconies, sign location and size, and these aspects are incorporated into the Conditional Use approval. Any variance from the included renderings will require a re-review by the Township Planning Commission.

7. Sign size and location restrictions may be more restrictive than the existing Ordinance generally allows.

Barton, Rick

From: David Brooman <DBrooman@highswartz.com>
Sent: Friday, April 21, 2017 1:17 PM
To: Fountain, Thomas; Barton, Rick
Cc: Leonard, Paul
Subject: FW: Promenade at Upper Dublin
Attachments: Agreement with Respect to Pedestrian Area 040417.docx

For your review.

From: Peter Clelland [mailto:PClelland@betinvestments.com]
Sent: Friday, April 21, 2017 1:13 PM
To: David Brooman
Cc: Michael Markman; Wunder, Jennifer L.; Gundlach, Robert W.
Subject: Promenade at Upper Dublin

David – attached please find a draft agreement to provide for public access to the planned park and pedestrian trails related to the Promenade at Upper Dublin project.

Peter J. Clelland
Director of Development
BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044
215-938-7300 P
215-416-2110 C

AGREEMENT WITH RESPECT TO PEDESTRIAN WALKWAYS AND PARK AREA

THIS AGREEMENT WITH RESPECT TO PEDESTRIAN WALKWAYS AND PARK AREA ("Agreement") is made as of the ___ day of _____, 2017 by and between BT DRESHERTOWN, LP ("Owner") and TOWNSHIP OF UPPER DUBLIN, MONTGOMERY COUNTY, PENNSYLVANIA (the "Township").

BACKGROUND

A. Owner is the legal owner of the entirety of a certain 25.41 acre parcel of land located in Upper Dublin Township, Montgomery County, Pennsylvania, being Parcel No. 54-00-05242-00-5 (the "Property"), which is commonly known as the Promenade at Upper Dublin, which is planned to be developed into various retail, restaurant, office and residential uses in accordance with a certain subdivision and land development plan entitled "Preliminary/Final Land Development Plan and Conditional Use Plan for the Promenade at Upper Dublin" prepared by Gilmore & Associates, dated 2/10/2017 (last revised xx/xx/xxxx), which was approved by the Township Board of Commissioners on _____, 2017 and recorded in Montgomery County Recorder of Deeds Office on _____, 2017 at Plan Book _____, ("Plan"), which Plan is incorporated herein by reference.

B. Approval of the Plan is conditioned upon, *inter alia*, Owner acknowledging that the general public may use certain pedestrian walkways and park area that will be constructed on the Property (collectively the "Pedestrian Area") as depicted on Exhibit "A" attached hereto, to connect various sections, both existing and proposed, of the Township's public trail system ("Township Trail System") and Owner granting the Township certain license rights (defined below as the "Township License") with respect to the Pedestrian Area.

C. The parties have agreed to memorialize matters relating to the Pedestrian Area and Township License as more particularly set forth below.

NOW, THEREFORE, in consideration of the mutual covenants and agreements of the parties herein and intending to be legally bound hereby, the parties agree as follows:

1. Incorporation of Background. The Background Recitals set forth above are incorporated herein by this reference.

2. Pedestrian Area. Owner agrees that the Township shall have the right to publicize, by maps or other promotional literature relating to the Township's Trail System, that members of the general public may use the Pedestrian Area to connect various sections of the Township's Trail System, existing and proposed, so long as all such maps or promotional literature conspicuously state that the Pedestrian Area is private property and is at all times subject to Owner's right to establish and enforce rules and regulations regarding the use of the Pedestrian Area, and the right to preclude uses and activities which Owner, in its sole discretion, determines are undesirable, including demonstrations, protests and other group gatherings and political and non-political activities. Owner shall at all times have the right to enforce its rules and regulations and to remove all persons from the Pedestrian Area who shall

violate Owner's rules and regulations. The Township's and the general public's use of the Pedestrian Area pursuant to this Agreement shall: (i) at all times be subject to common use and enjoyment of Owner and Owner's employees, agents, licensees, invitees, guests and any other person that may be upon the Pedestrian Area at the request or for the benefit of Owner; and (ii) shall not extend to any other part of the Property.

3. Maintenance of Pedestrian Walkways. Owner shall maintain the Pedestrian Walkways within the Pedestrian Area and keep the same free and clear of snow, ice or other naturally occurring conditions and other obstructions which would interfere with the Township's and the general public's use of the Pedestrian Walkways within the Pedestrian Area.

4. Suspension of Right to Use Pedestrian Area. (a) Owner reserves the right to suspend the Township's and/or the general public's right to use the Pedestrian Area at any time and during periods of time in order: (i) to facilitate the construction or maintenance of improvements in the Property in or near the Pedestrian Area; and/or (ii) to relocate parts of the Pedestrian Area in connection with the future development or re-development of the Property, so long as connectivity with the Township Trail System is maintained; and/or (iii) in the event the Township and/or members of the general public fail to comply with Owner's rules and regulations with respect to use of the Pedestrian Area.

5. Township License. Owner hereby grants unto the Township a limited, non-exclusive license ("Township License"), revocable upon the conditions set forth below, to use from time to time the Pedestrian Area in connection with certain Township events. The Township's exercise of the Township License shall be subject to the following terms and conditions:

(a) At and prior to the scheduling of any Township event pursuant to the Township License, the Township shall furnish to Owner, a certificate of insurance evidencing that Township has in force general liability insurance in an amount not less than One Million Dollars ($1,000,000.00) per occurrence, and Two Million Dollars ($2,000,000.00) in the aggregate, for injury or death of one or more persons in an occurrence (which minimum amounts may be increased in reasonable amounts from time to time to conform to prevailing insurance coverage standards) and for damage to tangible property (including loss of use) relating to or arising out of the use of the Pedestrian Area during any event scheduled by the Township pursuant to the Township License, shall name Owner as an additional insured party and shall contain a provision that the insurance provided by the Township shall be primary and noncontributing with any other insurance available to Owner.

(b) The Township shall indemnify, defend, and hold Owner and anyone claiming by, under or through Owner harmless from and against any damages, liability, actions, claims, and expenses (including without limitation, reasonable attorneys' fees and costs) for the loss of life, personal injury and/or damage to property relating to or arising out of the use of the Pedestrian Area during an event scheduled by the Township. The Township acknowledges that its obligation to indemnify Owner shall not be affected, limited or in any way modified by the fact that the Township may itself have statutory immunity from any such claim.

(c) In the event the Pedestrian Area or any other parts of the Property are damaged as a result of the Township's activities pursuant to the Township License, the Township shall promptly repair said damage at its sole cost and expense.

(d) In the event that the Township shall default in the performance of its obligations with respect to the Township License, Owner shall give the Township written notice of such default stating with reasonable specificity the nature of such default and the action required to cure such default (a "Default Notice") The Township shall have a period of thirty (30) days after the date of the Default Notice within which to cure such default or, if such default cannot reasonably be cured within such thirty (30) day period, such longer period (not to exceed ninety (90) days in the aggregate) as may be reasonably necessary to cure such default. Notwithstanding anything to the contrary contained herein, if the default is not timely cured, Owner may terminate and revoke the Township License and, in addition, Owner shall have all rights and remedies that may be available at law or in equity as a result of such default.

(e) The Township License shall remain in full force and effect notwithstanding any sale or transfer of the Property (or any part thereof) or a discontinuation of the use of the Property as a mixed-use center consisting of a combination of retail, restaurant, office and residential uses, provided however, that in the event the mixed-use center use is abandoned, and in the further event the continued use of the Pedestrian Area would materially interfere with any proposed new use of the Property and/or would create an unsafe condition, Owner shall have the right to terminate the Township License. Owner shall give the Township written notice of the termination of the License which shall be effective ninety (90) days of the date of the notice. Termination of the License by Owner shall be confirmed by an instrument recorded by Owner in the Office of the Recorder of Deeds.

6. Notices. All notices required by this Agreement shall be in writing and sent by United States certified mail, postage prepaid, return receipt requested, or by private courier service delivered as evidenced by written receipt of the addressee or courier, addressed in either case as follows:

If to Owner:
BT Dreshertown, LP
c/o BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, PA 19044
Attn: Michael P. Markman, President and
Gregory F. Gambel, Jr., Esquire, General Counsel

If to Township:
Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034
Attn: Paul Leonard, Township Manager

With a copy to:
David J. Brooman, Esquire
High Swartz LLP
40 East Airy Street
Norristown, PA 19404

7. Governing Law. This Agreement shall be governed and construed in accordance with Pennsylvania law.

8. Severability. If any part of this Agreement is held invalid or unenforceable, then the remainder of this Agreement shall continue to be enforceable. If any part of this Agreement is held invalid or unenforceable with respect to a particular party or circumstance, then such invalidity or unenforceability shall not affect applying this Agreement to any other party or circumstance.

9. Assignment. This Agreement may not be assigned by the Township without the consent of Owner, which consent Owner shall have no obligation to give. This Agreement shall be binding upon Owner and its successors in interest in the Property for so long as the License remains in effect in accordance with Paragraph 4 above.

10. Entire Agreement. This Agreement is the entire understanding and agreement between the parties with respect to the subject matter hereof, and supersedes all prior and contemporaneous agreements, understandings, inducements or conditions, express or implied, oral or written.

11. Amendment. This Agreement may be amended only by an agreement in writing, executed by the parties hereto.

12. Recording. This Agreement shall be recorded in the Office of the Recorder of Deeds of Montgomery County.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

WITNESS:

BT DRESHERTOWN LP, a Pennsylvania limited partnership

By: BT DRESHERTOWN GP LLC, a Pennsylvania limited liability company, its General Partner

_____
Name:

By:_____
Michael P. Markman, Manager

ATTEST:

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

_____
Township Secretary

BY:_____
Paul Leonard, Township Manager

COMMISSIONERS OF UPPER DUBLIN TOWNSHIP
COMMUNITY PLANNING AND ZONING

To: Nearby property owners, Board of Commissioners

From: Richard D. Barton, Community Planner and Zoning Officer

Date: May 26, 2017

Subject: The Promenade at Upper Dublin / Corner of Welsh and Dreshertown Roads

Conditional Use application #2219
Preliminary land development plan, UD #17-01

BT Dreshertown, LP has filed plans to develop 25.41 acres at the corner of Welsh Road and Dreshertown Road for a mixed use development. The property is zoned OC – Office Center District. The proposed development consists of 402 apartment units; 139,686 sq.ft. of combined retail, office and restaurant space; and 2.49 acres of neighborhood open space. A mixed-use development is permitted as a conditional use in the OC District under the regulations contained in Zoning Code Section 255-61.1. The general standards for conditional use approval are found under Section 255-194.

The conditional use and land development applications will be reviewed during the following meetings at the Township Building, 801 Loch Alsh Avenue, Fort Washington:

- Tuesday, June 13 at 6:30 pm: Conditional use hearing before the Board of Commissioners

- Tuesday, June 20 at 7:00 pm: Continued review of the land development plans by the Planning Commission

If you are a person with a disability and wish to attend either of the meetings and require an auxiliary aid, service or other accommodation to participate in the proceedings, phone (215) 643-1600 to discuss how Upper Dublin Township may best accommodate your needs. The applications and plans may be viewed during normal business hours at the Code Enforcement Department.

C: Michael Markman, President
BT Dreshertown, LP
200 Witmer Road
Suite 200
Horsham, PA 19044

Robert W. Gundlach, Jr., Esq.
Fox Rothschild, LLP
2700 Kelly Road
Suite 300
Warrington, PA 18976

Glen S Garry and Melissa R Gibson
825 Firethorn Circle,
Dresher, PA 19025

Jack S Chernow and Groves Claudia
1709 Saint Georges Road,
Dresher, PA 19025

Emer C and Janina Flounders
1800 Saint Georges Road,
Dresher, PA 19025

Allen N and Ruth E Heffler
1720 Saint Georges Road,
Dresher, PA 19025

Gil and Candy Beyda
605 Creek Ln,
Flourtown, PA 19031

Ori and Robin Cohen
811 Firethorn Circle,
Dresher, PA 19025

Dennis L and Patricia H Decktor
1729 Saint Georges Road,
Dresher, PA 19025

Lynne P Fox
1709 Devonshire Road,
Dresher, PA 19025

Mitchell and Julie Goldstein
1724 Devonshire Road,
Dresher, PA 19025

Charles P and Laurie P Hoffmann
1720 Salt Kettle Circle,
Dresher, PA 19025

Michael D and Donna A Binder
1712 Salt Kettle Circle,
Dresher, PA 19025

Thomas Cuce
2950 Rich Hill Road,
Quakertown, PA 18951

Kevin A Friedman
1716 Saint Georges Road,
Dresher, PA 19025

Jack S Chernow and Claudia Groves
1709 Saint Georges Road,
Dresher, PA 19025

Siu Fung Chang and Hung Lin Leung
6 Sarah Court,
Dresher, PA 19025

Danny D Cruice and Susan M Egler-Cruice
729 Castlewood Drive,
Dresher, PA 19025

Wanda Lorraine Diggs-Manning and Robert Lewis Manning
1802 Saint Georges Road,
Dresher, PA 19025

Scott H and Stefanie J Fredd
1728 Devonshire Road,
Dresher, PA 19025

Jason and Stella G Han
8 Sarah Court,
Dresher, PA 19025

Kab S and Connie K Hong
1720 Devonshire Road,
Dresher, PA 19025

Un Sok Chae and Sook Kyung
1711 Saint Georges Road,
Dresher, PA 19025

Anthony L and Susan J Delfiner
1716 Devonshire Road,
Dresher, PA 19025

Jerald M and Jill M Goodman
1720 Somerset Street,
Dresher, PA 19025

Sanford J and Amy R Blitzer
737 Castlewood Drive,
Dresher, PA 19025

Steven and Deborah Channick
1705 Tuckerstown Road,
Dresher, PA 19025

Vincent Dandrea
3 Sarah Court,
Dresher, PA 19025

Gary M and Debra L Fechter
813 Firethorn Circle,
Dresher, PA 19025

Barry L and Karen E Getzoff
1708 Saint Georges Road,
Dresher, PA 19025

Peter A and Ellen Harper
833 Firethorn Circle,
Dresher, PA 19025

William A Horn
1750 Dreshertown Road,
Dresher, PA 19025

Horng-Wen S Hsiung
1728 Somerset Street,
Dresher, PA 19025

Richard S. and Staci L Julie
1717 Saint Georges Road,
Dresher, PA 19025

Nak Youl and Sung Sil Kim
1713 Tuckerstown Road,
Dresher, PA 19025

Yajuan Lin
471 Arcadia Way,
Wilmington, DE 19808

John L. Manning Sr.
1721 Somerset Street,
Dresher, PA 19025

Lixing Min and Lingzhen Dong
741 Castlewood Drive,
Dresher, PA 19025

Dodd and Erin Pfeffer
824 Firethorn Circle,
Dresher, PA 19025

Mark E. and Linda E. Rosenthal
1709 Salt Kettle Circle
Dresher, PA 19025

Mark D. and Lynn B. Samson
1700 Salt Kettle Circle,
Dresher, PA 19025

David and Debra B. Schachter
1717 Somerset Street,
Dresher, PA 19025

Mark and Sheri Jones
1725 Saint Georges Road,
Dresher, PA 19025

Mark W and Judy B Katz
724 Castlewood Drive
Dresher, PA 19025

Alan B. and Chantal Levin
1709 Somerset Street,
Dresher, PA 19025

Ronald Bruce and Robin R. Lincow
1705 Somerset Street,
Dresher, PA 19025

Edward and Nancy McGrath
1724 Somerset Street,
Dresher, PA 19025

William P. and Rosine Paul
1804 Saint Georges,
Dresher, PA 19025

Louis R. and Marie Pichini
1708 Devonshire Road,
Dresher, PA 19025

Paul S. and Lisa H. Rovner
5 Sarah Court,
Dresher, PA 19025

Evan R. and Allison S. Sasson
7 Sarah Court,
Dresher, PA 19025

Robert J. and Ellen S. Schlackman
721 Castlewood Drive,
Dresher, PA 19025

Sally S. Jones
725 Castlewood Drive,
Dresher, PA 19025

Robert and Geralyn S. Kerprich
9 Sarah Court,
Dresher, PA 19025

Ellen S. Levy
1708 Salt Kettle Circle,
Dresher, PA 19025

Robert M. Mabel and Michelle B. Beidner
829 Firethorn Circle,
Dresher, PA 19025

Joseph F. Jr and Patricia McNulty
728 Castlewood Drive,
Dresher, PA 19025

Stephen S. and Donna M. Pennington
1712 Saint Georges Road,
Dresher, PA 19025

Stuart and Marjorie Richman
1721 Saint Georges Road,
Dresher, PA 19025

Jonathan and Ellen Donsky Samel
1700 Tuckerstown Road,
Dresher, PA 19025

Gregory D. Saul and Susan K. Buehler
820 Firethorn Circle,
Dresher, PA 19025

Joel P. and Carla C. Shafer
1732 Somerset Street,
Dresher, PA 19025

Sokunthveary Shah
4 Sarah Court,
Dresher, PA 19025

Gary J. and Ann E. Spiegel
1704 Salt Kettle Circle,
Dresher, PA 19025

Jamshid B. and Miriam Tehrani
1713 Devonshire Road,
Dresher, PA 19025

Mark N. and Amy H. Wittenstein
733 Castlewood Drive,
Dresher, PA 19025

Xuan and Li Yingzhe Zheng
1712 Devonshire Road,
Dresher, PA 19025

Virgil B. and Courtney L. Walker
756 Eastwind Circle,
Dresher, PA 19025

Kevin V. and Robin E Kelley
1 Stonington Court,
Dresher, PA 19025

Shuhong and Li Liu
805 E Welsh Road,
Amber, PA 19002

William A. Horn
1752 Dreshertown Road,
Dresher, PA 19025

Prudential Ins. Co of America
213 Washington St.
c/o Re Actg NJ 02-01-03
Newark, NJ 07102

Kenneth and Cindy Siegel
821 Firethorn Circle,
Dresher, PA 19025

Chris and Vicki Takimoto
1709 Tuckerstown Road,
Dresher, PA 19025

Toll PA XIV LP
4405 Northside PKWY
NW #2124,
Atlanta GA 30327-5204

Wei-Shih and Kacey Chin Yang
816 Firethorn Circle,
Dresher, PA 19025

Robert E. Silverma nand Randy Leavitt
1716 Somerset Street,
Dresher, PA 19025

Michael A. and Nancy H. Resnick
1613 Tuckerstown Road,
Dresher, PA 19025

Jonathan C. and Shelly B. Haltzman
841 Redgate Road,
Dresher, PA 19025

Joshua S. and Nicole M. Ganz
1740 Bantry Drive,
Dresher, PA 19025

Daniel & Staci Berman
817 Firethorn Circle
Dresher, PA 19025-1426

John and Nancy Stortz
1716 Salt Kettle Circle,
Dresher, PA 19025

Michel J. C. and Ellen B. Taupin
1729 Somerset Street,
Dresher, PA 19025

Leonard A. and Bonnie Winegrad
1701 Tuckerstown Road,
Dresher, PA 19025

Jianhua Zhao and Yongjiong Jiang
1704 Tuckerstown Road,
Dresher, PA 19025

Shira and Eric Grunfeld
1808 Beacon Hill Drive,
Dresher, PA 19025

Alan J. and Edythe M. Twer
55 Berrywood Ln,
Dresher, PA 19025

Anne Marie Cutler
1721 Bandtry Drive,
Dresher, PA 19025

Tamir and Jennifer Kuznits
704 Spring Avenue,
Fort Washington, PA 19034

BT Dreshertown LP c/o BET
Investments
200 Witmer Road, Suite 200
Horsham, PA 19044

Donghui and YaJuan Lin
417 Arcadia Way,
Wilmington DE, 19808

Ellen B. Taupin
1729 Somerset Street
Dresher, PA 19025

Paul A. Racette and Mary Elizabeth Gruwell
86 Tee Road,
Oreland, PA 19075

William and Gayl Tompkins
88 Tree Road,
Oreland, PA 19075

John C. and Mary Jo Egoville
324 Valley Road,
Oreland, PA 19075

Peter Jones and Colleen Whicker
304 Garden Road,
Oreland, PA 19075

William H. and Helen K. Stickel
84 Tee Road,
Oreland, PA 19075

Jaclyn Altman
4 Stonington Court
Dresher, PA 19025

Laurence & Dina Smith
9 Stonington Court
Dresher, PA 19025

Pat Brady
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Fort Washington, PA 19034

Sue & Greg Diehl
1215 Meetinghouse Road
Maple Glen, PA 19002

Jill Dressler
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Dresher, PA 19025

Dan Greeley
664 Meadowbrook Avenue
Ambler, PA 19002

Arnold & Rhonda Laikin
288 Westwind Way
Dresher, PA 19025

Jane F. Ludlow
1637 Tuckerstown Road
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Jagdish Parasrampuria
1636 Tuckerstown Road
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Shelly Goldstein
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1716 Aidenn Lair Road
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Dresher, PA 19025

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Fort Washington, PA 19034

Stanley Ropski
1550 Cooper Drive
Maple Glen, PA 19002

Mark Sirota
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Doug Smithman
1580 Derry Drive
Dresher, PA 19025

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1608 Kings Circle
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Roger Willcox
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Karen Zipfel
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Ambler, PA 19002

T 21

Barton, Rick

From: Peter Clelland <PClelland@betinvestments.com>
Sent: Friday, June 02, 2017 11:29 AM
To: Barton, Rick; dbrooman@highswartz.com; Wunder, Jennifer L.
Subject: Promenade at UD Posting Photos
Attachments: DSC_0045.jpg; DSC_0046.jpg; DSC_0047.jpg; DSC_0048.jpg; DSC_0049.jpg; DSC_0050.jpg; DSC_0051.jpg; DSC_0052.jpg; DSC_0053.jpg; DSC_0054.jpg; DSC_0055.jpg; DSC_0056.jpg; DSC_0057.jpg

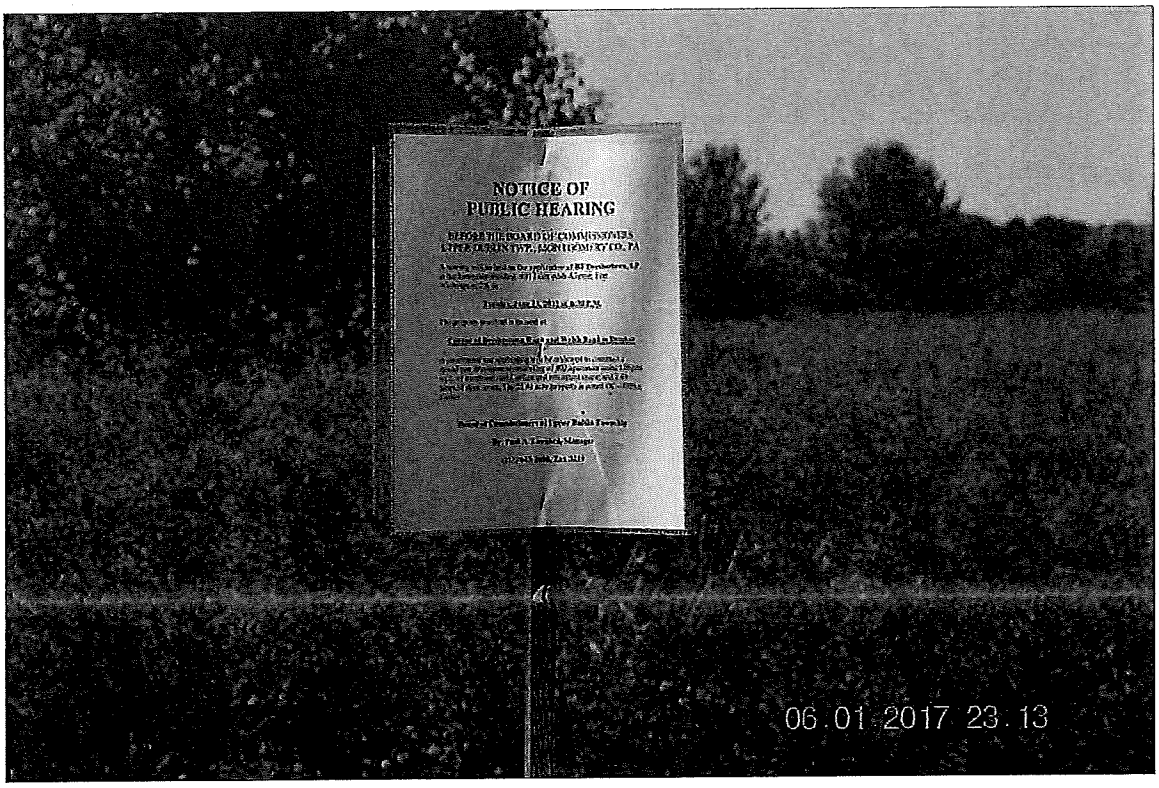
Attached please find photos of the signs posted at the subject property for the Conditional Use hearing.

Thanks.

Peter J. Clelland
Director of Development
BET Investments, Inc.
200 Witmer Road
Suite 200
Horsham, PA 19044
215-938-7300 P
215-416-2110 C

6/1/17 #1

#2



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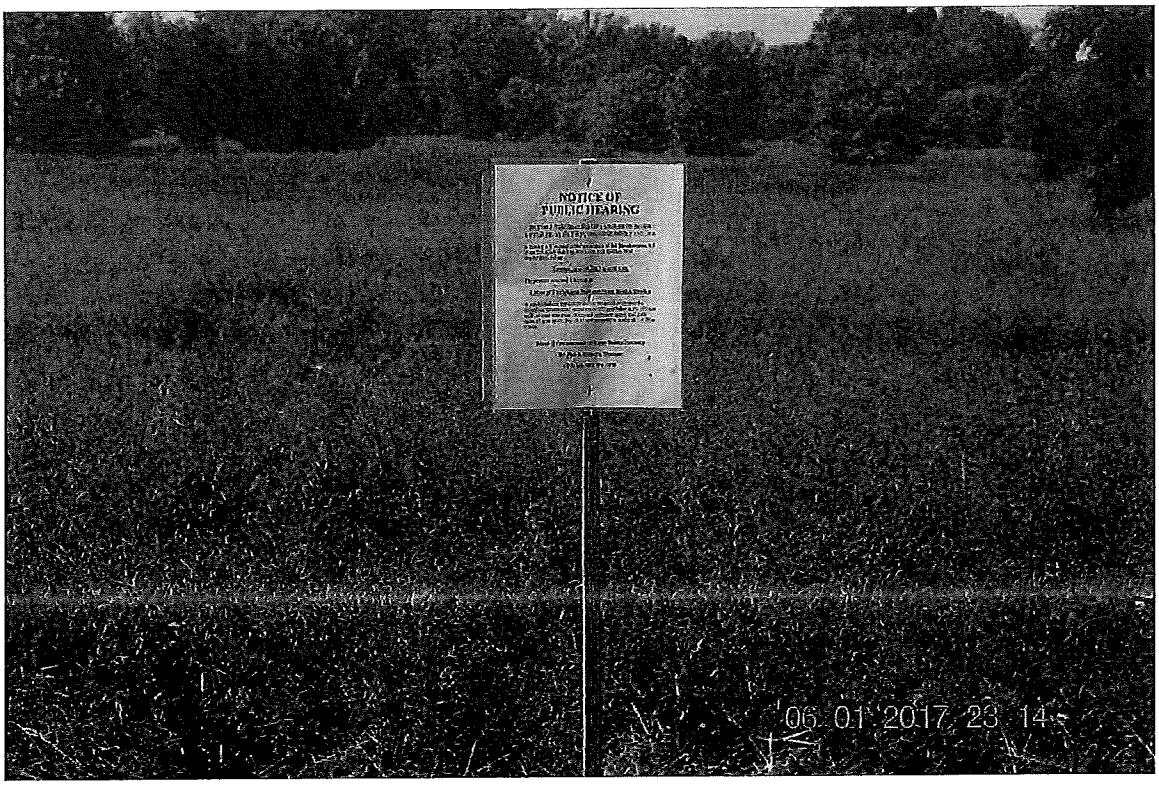

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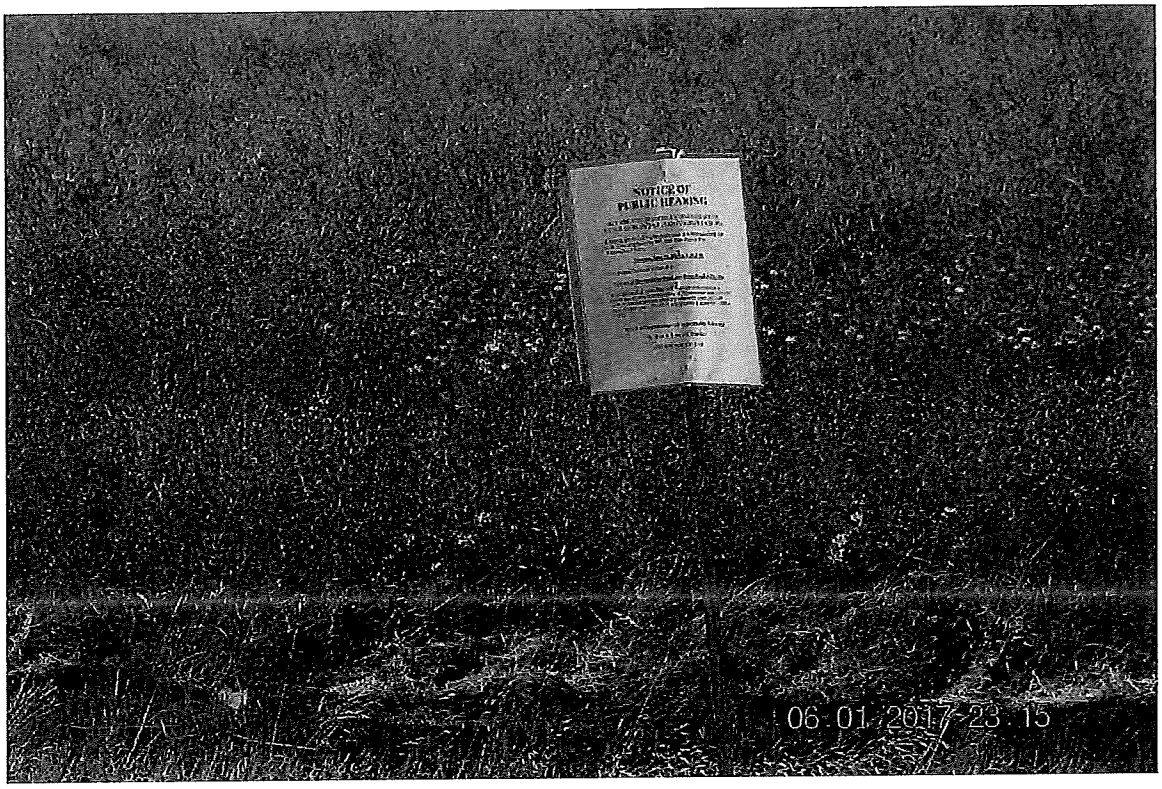

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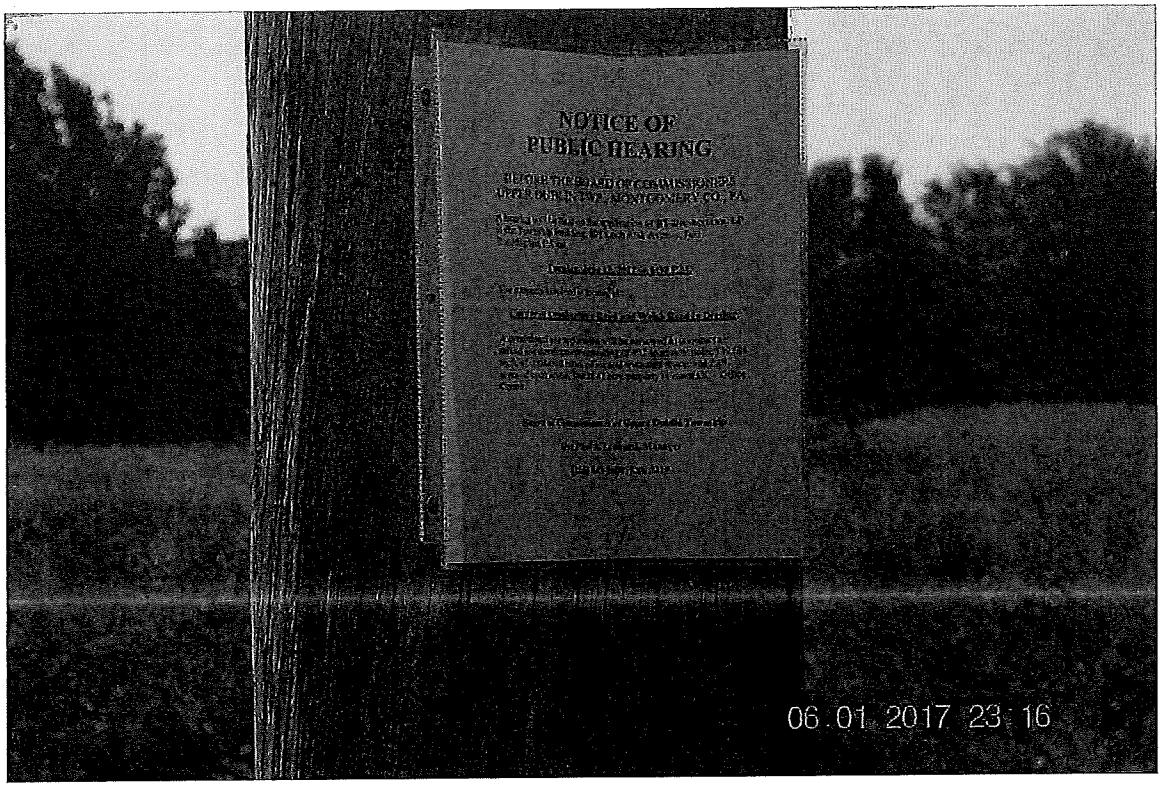

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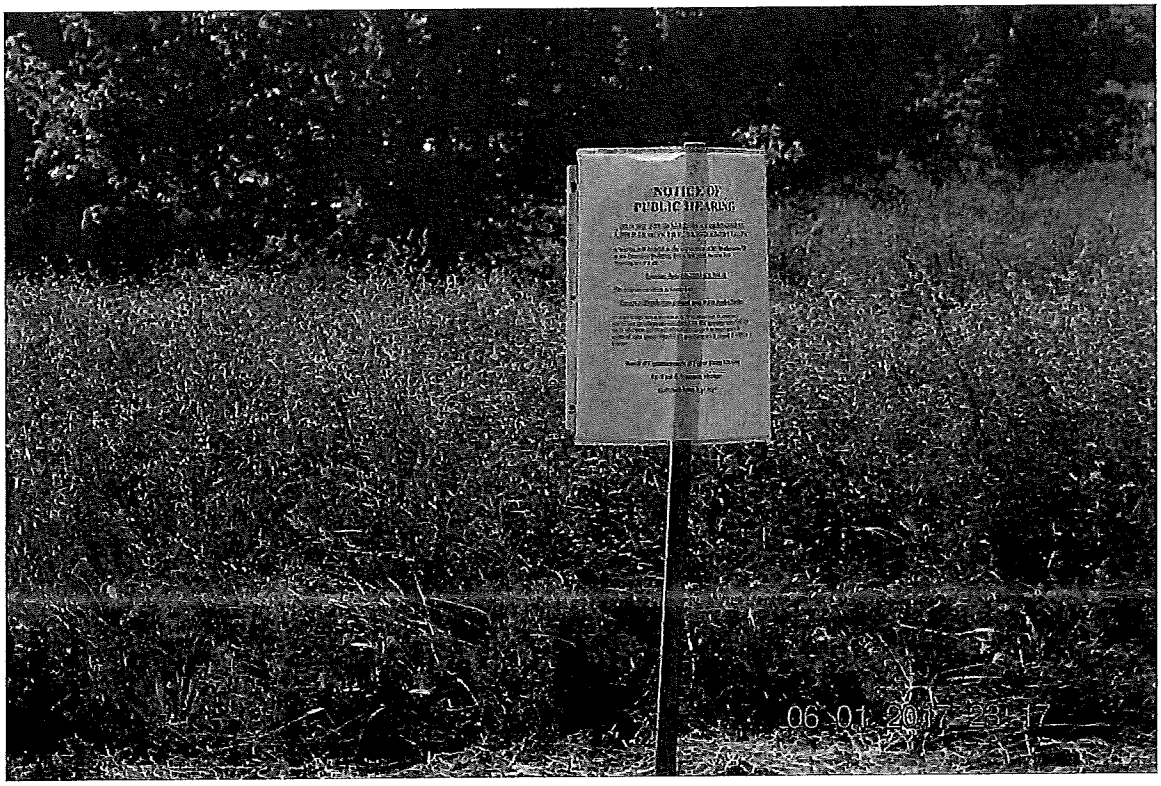

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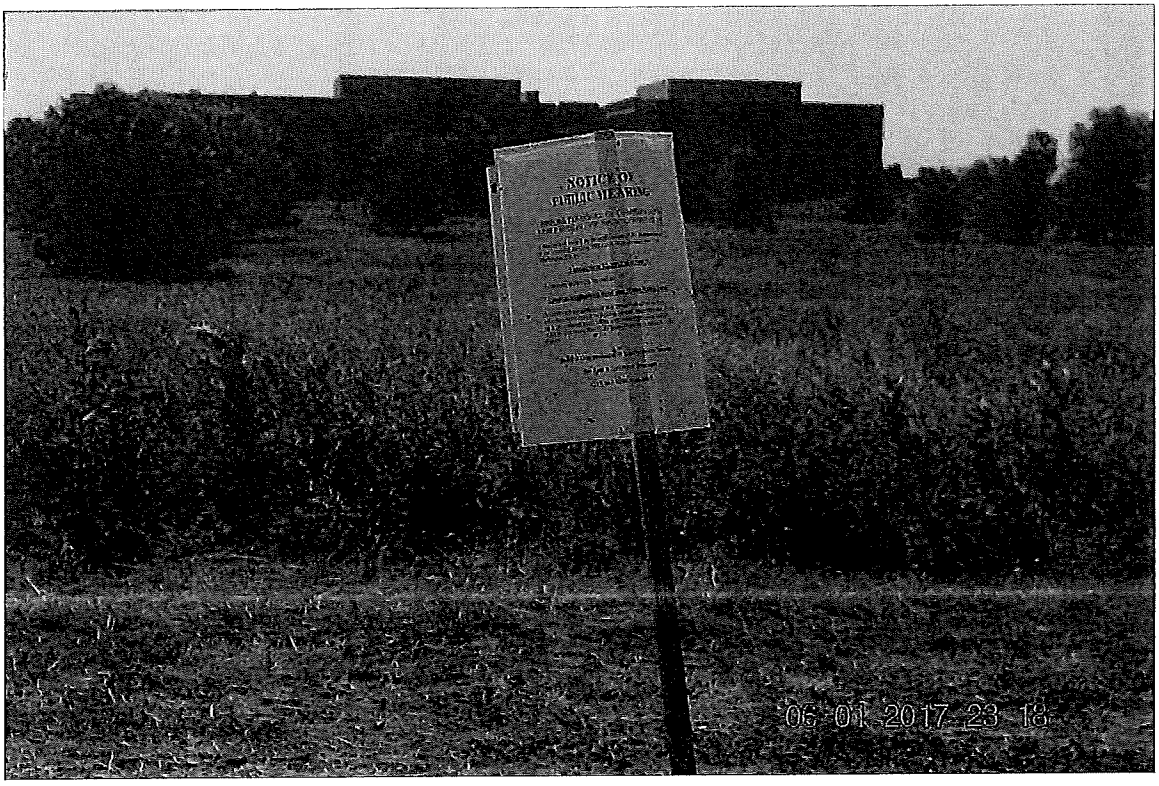

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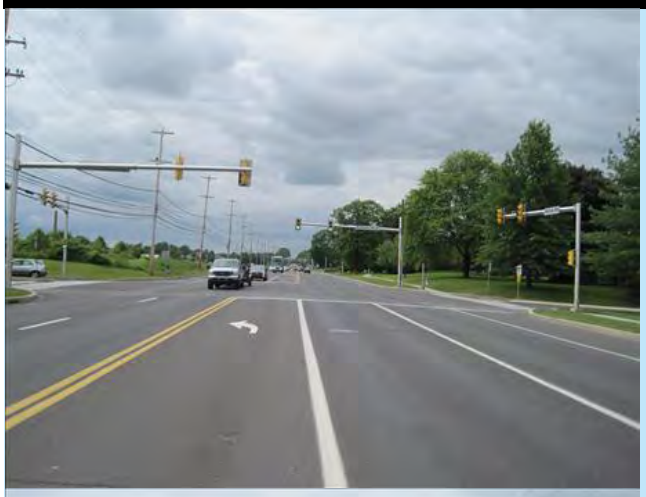
6-1-17 #12

6-1-17 #13

Transportation Impact Study
for
The Promenade at Upper Dublin

Upper Dublin Township, Montgomery County, PA



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Prepared by

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Prepared for

BET Investments, Inc.

March 2016
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Executive Summary

McMahon Associates, Inc. has completed a Traffic Impact Study for the proposed development to be located to the southeast of the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) in Upper Dublin Township, Montgomery County, Pennsylvania. This development is proposed to be located on Lots 3, 4, and 5 of the Montgomery Corporate Center and will occur in two phases. Phase 1 will consist of 115 age-restricted units and Phase 2 will consist of a mixed-use development, including 402 apartment units, an 9,070 square foot high turnover sit down restaurant with outdoor seating, a 1,200 square foot coffee shop with drive through, 127,728 square feet of non-residential/commercial space, and a 2,094 square foot office. These lots were previously approved for 692,000 square feet of office space. Phase 1 of the development is expected to be constructed by 2018 while Phase 2 is also expected to be constructed in 2018. Access to Phase 1 of this development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063) as well as a full-movement unsignalized driveway to Dreshertown Road (S.R. 2024). With development of Phase 2, the unsignalized Dreshertown Road (S.R. 2024) access will be signalized and improved with separate turn lanes provided on Dreshertown Road (S.R. 2024). Additionally, a right-in/right-out only driveway to Welsh Road (S.R. 0063) will be provided in Phase 2.

The purpose of this study is to determine the impact of traffic on the adjacent roadways and intersections due to the proposed development. This study focuses on the existing (2015) conditions along with the projected future opening year (2018) conditions and PennDOT design year (2023) conditions, which is five years beyond the opening in accordance with PennDOT criteria, at the following intersections:

- Welsh Road (S.R. 0063) and Jarrettown Road
- Welsh Road (S.R. 0063) and Dresher Road
- Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024)
- Welsh Road (S.R. 0063) and Dryden Road

The evaluation of traffic conditions associated with the proposed development project reveals the following findings and conclusions:

- **Trip Generation** – Given the proposed Phase 1 use, age-restricted residential units, the traffic generation of Phase 1 is expected to be minimal. Based on trip generation data contained in the Institute of Transportation Engineers (ITE) publication entitled, *Trip Generation Manual, Ninth Edition*, Phase 1 the proposed development is expected to generate a total of approximately 50 new trips during the weekday morning peak hour, 50 new trips during the weekday afternoon peak hour, and 26 new trips during the Saturday midday peak hour. With full build of the site, the proposed development will generate approximately 405 new trips during the weekday morning peak hour, 642 new trips during the weekday afternoon peak hour, and 1,021 new trips during the Saturday midday peak hour.

  It should be noted that Lots 3, 4 and 5 of the Montgomery Corporate Center were previously approved for 692,000 square feet of office space which would generate approximately 882 new trips during the weekday morning peak hour, 854 new trips during the weekday afternoon peak

hour, and approximately 298 new trips during the Saturday midday peak hour. The total proposed development will generate fewer new peak hour trips during the weekday morning and weekday afternoon peak hours when area traffic volumes peak and more new trips during the Saturday midday peak hour, when area traffic volumes are lower.

- **Capacity/Level-of-Service Results for Off-Site Intersections** – The study intersections were evaluated to determine the operational characteristics under existing and future without- and with-development conditions. A review of the levels-of-service indicates that the study intersections will operate at similar or better levels-of-service overall during the future build-out year (2018) and PennDOT design year (2023).

- **Site Access –** Access to the development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063), as well as a full-movement, unsignalized driveway to Dreshertown Road (S.R. 2024). The Dreshertown Road (S.R. 2024) access will be constructed as part of Phase 1 of the development. With the addition of the development proposed in Phase 2, it is expected that this intersection will be signalized. Additionally, Dreshertown Road (S.R. 2024) will be widened to provide a northbound right-turn lane and southbound left-turn lane at the access driveway. Additionally, as part of Phase 2 of the development, an additional right-in/right-out only driveway will be provided along Welsh Road (S.R. 0063).

- **Proposed Improvements –** The following improvements are proposed in conjunction with this development:

  Phase 1
  - Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) – traffic signal timing modifications.
  - Welsh Road (S.R. 0063) and Dryden Road – traffic signal timing modifications.
  - Dreshertown Road (S.R. 2024) Site Frontage – soften the existing horizontal and vertical curves along the site frontage of Dreshertown Road (S.R. 2024).

  Phase 2
  - Welsh Road (S.R. 0063) and Jarrettown Road – install an additional eastbound through lane on Welsh Road (S.R. 0063) and traffic signal timing modifications.
  - Welsh Road (S.R. 0063) and Dresher Road (S.R. 2024) – traffic signal timing modifications.
  - Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) – traffic signal timing modifications.
  - Welsh Road (S.R. 0063) and Dryden Road – traffic signal timing modifications.
  - Dreshertown Road (S.R. 2024) and Site Access – install a southbound left-turn lane and northbound right-turn lane on Dreshertown Road (S.R. 2024) and install a traffic signal.

Additionally, through the Township review of the zoning amendment process, the Township's Traffic Engineer, Boles, Smyth Associates, Inc. recommended additional improvements that they believed should be completed by the developer in conjunction with this development. These improvements are summarized in the September 21, 2016 letter from Jack Smyth, Jr., P.E., of Boles, Smyth Associates, Inc.,

to Richard D. Barton, the Upper Dublin Township Community Planning and Zoning Officer. This letter is provided in **Appendix A** of this traffic study. The applicant has agreed to implement these recommendations, subject to the review and approval of PennDOT.

While the improvement details are provided in that letter, listed below is a summary of some of the additional improvements that the developer will complete in conjunction with the mixed-use portion of the development:

- Provision of separate left-turn lanes on Dreshertown Road (S.R. 2024) at both Tuckerstown Road and St. Georges Road, through restriping and minor widening.
- Update and/or provide additional signal equipment and ADA ramps at various intersections, as needed and as outlined in the Boles, Smyth letter.
- Update traffic signal timing, clearance intervals, and pedestrian timing at the following intersections:
    1. Welsh Road (S.R. 0063) and Blair Mill Road (S.R. 2026)
    2. Welsh Road (S.R. 0063) and Computer Avenue
    3. Welsh Road (S.R. 0063) and Twining Road
- Install fiber optic cable along Welsh Road (S.R. 0063) from Jarrettown Road to Blair Mill Road (S.R. 2026). If Upper Dublin Township is successful in obtaining a Green Light Go grant providing this connection, the applicant will instead provide a cash contribution to be used as a local match for the grant.
- Provide a ten-foot trail along portions of the site.

The traffic analyses contained herein reveals that safe and efficient access to and from the proposed development can be provided and that the adjacent roadways and intersections can accommodate the projected site-generated traffic. Level-of-service and queue matrix tables are provided in **Appendix B** for the study area intersections and/or site accesses.

Introduction

McMahon Associates, Inc. has completed a Traffic Impact Study for the proposed development to be located to the southeast of the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) in Upper Dublin Township, Montgomery County, Pennsylvania **(Figure 1)**. This development is proposed to be located on Lots 3, 4, and 5 of the Montgomery Corporate Center and will occur in two phases. Phase 1 will consist of 115 age-restricted units and Phase 2 will consist of a mixed-use development, including 402 apartment units, an 9,070 square foot high turnover sit down restaurant with outdoor seating, a 1,200 square foot coffee shop with drive through, 127,728 square feet of non-residential/commercial space, and a 2,094 square foot office. These lots were previously approved for 692,000 square feet of office space. Phase 1 of the development is expected to be constructed by 2018 while Phase 2 is also expected to be constructed in 2018. Access to Phase 1 of this development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063) as well as a full-movement unsignalized driveway to Dreshertown Road (S.R. 2024). With development of Phase 2, the unsignalized Dreshertown Road (S.R. 2024) access will be signalized and improved with separate turn lanes provided on Dreshertown Road (S.R. 2024). Additionally, a right-in/right-out only driveway to Welsh Road (S.R. 0063) will be provided in Phase 2. A copy of the development site plans for Phase 1 and Phase 2 are provided in **Figures 2 and 2A**, respectively**.**

The purpose of this traffic study is to present an evaluation of the incremental traffic impacts of the phased proposed development within the study area in Upper Dublin Township, as well as to provide design recommendations regarding the site driveways in order to provide efficient access to the site.

Manual turning movement traffic counts were completed at the study intersections during the weekday morning peak period (7:00 AM to 9:00 AM), weekday afternoon peak period (4:00 PM to 6:00 PM), and Saturday midday peak period (11:00 AM to 2:00 PM). In order to assess the existing traffic conditions, these existing traffic volumes were subjected to detailed capacity/level-of-service analysis, in accordance with accepted methodologies, for the highest peak hour during each peak period, which serves as the basis for this evaluation.

Next, future traffic volumes without the development were projected utilizing an annual traffic growth rate to account for regional traffic growth, as well as known development projects in the area. The future traffic volumes were projected for the future opening year (2018) and PennDOT design year (2023), which is five years beyond the opening, in accordance with PennDOT criteria, at the study intersections. The future traffic volumes without the proposed development were then subjected to detailed capacity/level-of-service and queuing analysis.

Finally, the traffic generated by the proposed phases of the development was established based on accepted methodologies, and assigned to the roadway network and site accesses, as necessary. The site-generated traffic volumes were then added to the future without-development traffic volumes, and subjected to detailed capacity/level-of-service and queuing analysis to assess the future traffic conditions with development.

Existing Transportation Setting

The proposed development will be located in the southeast corner of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) in Upper Dublin Township, Montgomery County, Pennsylvania. The existing roadways and intersections in the vicinity of the site, which comprise the study area roadway network, are described in this section.

Roadway Characteristics

The characteristics of the study roadways surrounding the development project are described below in **Table 1**.

Table 1 - Existing Roadway Characteristics

Roadway	Roadway Classification		Travel Lanes (per direction)	Speed Limit (mph)
	Smart Transportation (1)	PennDOT (2)		
Welsh Road (S.R. 0063)	Suburban, Regional Arterial	Other, Principal Arterial	2	45
Dreshertown Road (S.R. 2024)	Suburban, Community Arterial	Minor Arterial	1	40
Dresher Road	Suburban, Community Arterial	Minor Arterial	2	35
Dryden Road	Suburban, Local	Local Road	1	25
Jarrettown Road	Suburban, Community Arterial	Minor Arterial	1	35

(1) Based on Table 5.1 – Roadway Categories in the PennDOT publication, *Smart Transportation Guidebook.*
(2) Based on the roadway classifications provided on PennDOT's internet Traffic Monitoring System (iTMS) website.

The following key intersections in the vicinity of the site comprise the study area:

- Welsh Road (S.R. 0063) and Jarrettown Road
- Welsh Road (S.R. 0063) and Dresher Road
- Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024)
- Welsh Road (S.R. 0063) and Dryden Road

The existing characteristics of the study intersections, including field sketches, signal plans, and photographs are summarized in **Appendix C**.

Transit Services

SEPTA bus routes 80 and 310 provide stops along Welsh Road (S.R. 0063) at Blair Mill Road (S.R. 2026) and Dryden Road. There is no regional rail station provided along the roadways surrounding the proposed development.

Pedestrian Facilities

There is an existing sidewalk system provided from Electronic Drive eastward along the northern side of Welsh Road (S.R. 0063) and along the western side of Dreshertown Road (S.R. 2024) near the intersections with Tuckerstown Road and St. Georges Road. There is no sidewalk provided along the site side of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) in the vicinity of the site.

Existing Traffic Conditions

This section provides a summary of the existing (2015) daily and peak hour traffic conditions on the study area roadways and intersections surrounding the proposed development.

Traffic Count Data

Manual turning movement traffic counts were conducted at the study intersections during the weekday morning peak period (7:00 AM to 9:00 PM), weekday afternoon peak period (4:00 PM to 6:00 PM), and Saturday midday peak period (11:00 AM to 2:00 PM). The results of these traffic counts are tabulated by 15-minute intervals in **Appendix D**. The four highest consecutive 15-minute peak intervals during these traffic count periods constitute the peak hours that are the basis of this traffic analysis. The resultant 2015 existing weekday morning, weekday afternoon, and Saturday midday peak hours are depicted in **Figure 3A**.

Capacity/Level of Service Analysis

The peak hour traffic volumes were analyzed to determine the existing and future operating conditions, both without and with the proposed development, in accordance with the standard techniques contained in the current *Highway Capacity Manual (2010)*. These standard capacity/level-of-service analysis techniques, which calculate total control delay, are more thoroughly described in **Appendix E** for both signalized and unsignalized intersections, as well as the correlation between average total control delay and the respective level-of-service (LOS) criteria for each intersection type.

The results of the capacity/level-of-service analyses are illustrated in **Figure 3B** for the existing peak hour traffic conditions, and detailed capacity/level-of-service analysis worksheets are contained in **Appendix F**. Specific details regarding the analysis results and traffic operations for each intersection are contained in the "Capacity/Level-of-Service Results" section of this study.

Site Characteristics

This section presents the details of the proposed site, including the incremental increase in traffic volumes generated by the development during the peak hours and distribution of this site traffic to the study area roadways, as well as the proposed site access configuration, and traffic control.

Trip Generation

Traffic volumes generated by the proposed development were prepared based on trip generation data compiled from numerous studies contained in the Institute of Transportation Engineers (ITE) publication, *Trip Generation, 9th Edition*. **Table 2** present the anticipated vehicular trip generation for Phase 1 of the proposed development.

Table 2 - Vehicular Trip Generation (Phase 1) [1]

Land Use	Size	Weekday Morning			Weekday Afternoon			Saturday Midday		
		In	Out	Total	In	Out	Total	In	Out	Total
Age-Restricted Housing[2]	**115 units**	**18**	**32**	**50**	**31**	**19**	**50**	**12**	**14**	**26**
Previously Approved Development[3]	440,000 s.f.	430	59	489	84	409	493	102	87	189[4]
Difference		**-412**	**-27**	**-439**	**-53**	**-390**	**-443**	**-90**	**-73**	**-163**

(1) Based on ITE's *Trip Generation Manual, Ninth Edition*.
(2) Based on equations for ITE Land Use Code 251 – Senior Adult Housing Detached.
(3) From *Traffic Impact Study* for the Montgomery Corporate Center prepared by McMahon Associates, Inc. dated December 2010.
(4) Since not included in December 2010 traffic impact study, the rates for ITE Land Use Code 710 contained in ITE publication, *Trip Generation, 9th Edition,* 2012 were utilized.

Table 2 also shows a comparison of Phase 1 of the proposed development to the previously approved office development on Lots 4 and 5 of the Montgomery Corporate Center. This comparison shows the proposed Phase 1 of this development is expected to generate significantly fewer trips than the approved Lots 4 and 5 office use, approximately 439 fewer total new trips during the weekday morning peak hour, approximately 443 fewer total new trips during the weekday afternoon peak hour, and approximately 163 fewer total new trips during the Saturday midday peak hour.

Table 3 presents the anticipated vehicular trip generation for Phases 1 and 2 of the proposed development.

Table 3 - Vehicular Trip Generation (Phases 1 and 2) [1]

Land Use	Size	Weekday Morning			Weekday Afternoon			Saturday Midday		
		In	Out	Total	In	Out	Total	In	Out	Total
Age-Restricted Housing[2]	115 units	18	32	50	31	19	50	12	14	26
-Internalization[3]		-2	-12	-14	-16	-12	-28	-4	-4	-8
"New" Trips		16	20	36	15	7	22	8	10	18
Apartment[4]	402 units	40	161	201	155	84	239	92	92	184
-Internalization[3]		-5	-25	-30	-42	-28	-70	-10	-10	-20
"New" Trips		35	136	171	113	56	169	82	82	164
Restaurant[5]	9,070 s.f.	54	44	98	53	36	89	68	60	128
-Internalization[3]		-26	-9	-35	-22	-18	-40	-15	-13	-28
-Pass-by[6]		-9	-12	-21	-13	-8	-21	-17	-16	-33
New" Trips		19	23	42	18	10	28	36	31	67
Coffee Shop W/Drive Through[7]	1,200 s.f.	62	59	121	26	25	51	51	50	101
-Internalization[3]		-27	-11	-38	-13	-15	-28	-12	-11	-23
-Pass-by[8]		-17	-24	-41	-6	-6	-12	-16	-15	-31
New" Trips		18	24	42	7	4	11	23	24	47
Retail[9]	127,728 s.f.	112	69	181	339	367	706	533	492	1,025
-Internalization[3]		-16	-19	-35	-33	-53	-86	-22	-25	-47
-Pass-by[10]		-23	-12	-35	-104	-107	-211	-133	-121	-254
New" Trips		73	38	111	202	207	409	378	346	724
Office [11]	2,094 s.f.	3	0	3	1	2	3	1	0	1
-Internalization[3]		-0	-0	-0	-0	-0	-0	-0	-0	-0
New" Trips		3	0	3	1	2	3	1	0	1
Total		**289**	**365**	**654**	**605**	**533**	**1,138**	**757**	**708**	**1,465**
-Internalization		**-76**	**-76**	**-152**	**-126**	**-126**	**-252**	**-63**	**-63**	**-126**
-Pass-by		**-49**	**-48**	**-97**	**-123**	**-121**	**-244**	**-166**	**-152**	**-318**
New" Trips		**164**	**241**	**405**	**356**	**286**	**642**	**528**	**493**	**1,021**

(1) Based on ITE's *Trip Generation Manual, Ninth Edition*.
(2) Based on equations for ITE Land Use Code 251 – Senior Adult Housing Detached.
(3) Based on rates contained in ITE publication, *Trip Generation Manual.*
(4) Based on equations for ITE Land Use Code 220 – Apartment.
(5) Based on rates for ITE Land Use Code 932 – High Turnover Sit-Down Restaurant, including an additional 1,500 square feet for outdoor seating.
(6) According to *Trip Generation Manual* for Land Use Code 932, approximately 43% of total trips during the PM peak hour are pass-by trips. Assumed 33% for AM and SAT peak hours.
(7) Based on rates for ITE Land Use Code 937 – Coffee Shop with Drive Through Window.
(8) Used pass-by data for Land Use Code 934 since no pass-by data provided for Land Use Code 937. According to *Trip Generation Manual* for Land Use Code 934, approximately 49% and 50% of total trips during the AM and PM peak hours are pass-by trips, respectively. Assumed 40% for SAT peak hour.
(9) Based on equations for ITE Land Use Code 820 – Shopping Center.
(10) According to *Trip Generation Manual* for Land Use Code 820, approximately 34% and 26% of total trips during the PM and SAT peak hours are pass-by trips, respectively. Assumed 24% for AM peak hour.
(11) Based on rates for ITE Land Use Code 710 – General Office

It should be noted that some level of interaction or internalization is also expected on the site between the various uses of this development once Phase 2 is constructed, as drivers will, at times, visit more than one portion of the site on a given visit, such as a driver visiting the coffee shop and then going to a retail store. As a result, the total development traffic was reduced to account for this interaction based on methodologies contained in ITE's publication, *Trip Generation Manual*.

Phase 2 of the development will include pass-by traffic, which are vehicles that are already on the roadway network that will divert to the site as an interim stop on the way to their ultimate destination. Since pass-by traffic is already on the adjacent roadways, this portion of the total development traffic on the roadway/intersection network is part of future without-development traffic volumes, and does not represent additional traffic added to the roadway network. Therefore, the total traffic associated with Phase 2 of the development was reduced by the pass-by traffic to estimate the "new," or primary, site traffic generated by Phase 2 of the development, that traffic which will be added to the study area's streets and intersections, and is shown in Table 3.

Table 4 shows a comparison of the trip generation of Phases 1 and 2 of this development and the previously approved 692,000 square feet of office space on Lots 3, 4, and 5 of the Montgomery Corporate Center.

Table 4 - Vehicular Trip Generation Comparison

Land Use	Size	Weekday Morning			Weekday Afternoon			Saturday Midday		
		In	Out	Total	In	Out	Total	In	Out	Total
Total Development Phases 1 and 2 (New Trips)	**---**	**164**	**241**	**405**	**356**	**286**	**642**	**528**	**493**	**1,021**
Previously Approved Development(1)	692,000 s.f.	776	106	882	145	709	854	161	137	298(2)
Difference		**-612**	**135**	**-477**	**211**	**-423**	**-212**	**367**	**356**	**723**

(1) From *Traffic Impact Study* for the Montgomery Corporate Center prepared by McMahon Associates, Inc. dated December 2010.

(1) Since not included in December 2010 traffic impact study, the rates for ITE Land Use Code 710 contained in ITE publication, *Trip Generation, 9th Edition,* 2012 were utilized.

A comparison of the proposed full build (Phases 1 and 2) of the development to the previously approved office development on Lots 3, 4 and 5 of the Montgomery Corporate Center shows the proposed development is expected to generate approximately 477 fewer total new trips during the weekday morning peak hour, approximately 212 fewer total new trips during the weekday afternoon peak hour, and approximately 723 more total new trips during the Saturday midday peak hour than the previously approved 692,000 square feet of office space on Lots 3, 4 and 5 of the Montgomery Corporate Center. It should be noted that while the proposed development will generate more total new trips during the Saturday midday peak hour than the previously approved use of the site, area traffic volumes during the Saturday midday peak hour are considerably lower than the weekday morning and weekday afternoon peak hours.

Trip Distribution and Assignment

Site-generated traffic will approach and depart the site via different routes depending on factors such as the existing traffic patterns, location of major roadways, and the location of the development's site accesses. The overall distribution percentages for the anticipated directions of approach and departure are illustrated in **Figures 4A and 4C** for the "new" site trips for Phase 1 and Phase 2 of the development, respectively. The net "new" trip assignment for the development is then illustrated in **Figures 4B and 4D** for the weekday morning, weekday afternoon, and Saturday midday peak hours. Phase 2 "pass-by trip" assignment for the three peak hours is illustrated in **Figure 4E**. The net total "new" and "pass-by" trip assignment for phases one and two is then illustrated in **Figure 4F**.

Site Access Configuration and Traffic Control

Access to Phase 1 of the development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063) as well as a full-movement unsignalized driveway to Dreshertown Road (S.R. 2024). It is recommended to maintain the existing lane configurations at the intersection of Welsh Road (S.R. 0063) and Dryden Road under both Phases 1 and 2 of this development.

Under Phase 2 of this development it is proposed to signalize the intersection of Dreshertown Road (S.R. 2024) and site access and provide a 225-foot northbound right-turn lane and 175-foot southbound left-turn lane on Dreshertown Road (S.R. 2024). Once this intersection is signalized, it is expected that Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) traffic will divert to this access to bypass the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024). In addition to the accesses provided in Phase 1 of this development, Phase 2 of the development will include an additional right-in/right-out only driveway to Welsh Road (S.R. 0063).

Since Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) are State roads, any modifications to the intersection of Welsh Road (S.R. 0063) and Dryden Road and the proposed site access to Dreshertown Road (S.R. 2024) will be subject to the review and approval of PennDOT for issuance of a Highway Occupancy Permit.

Future Build-Out Year (2018) and PennDOT Design Year (2023) Traffic Conditions

This section presents the future build-out year and PennDOT design year (five years after build-out) traffic conditions, both without and with the proposed development, which is anticipated to be complete by 2018. The future 2018 build-out year and PennDOT design year (2023) without-development traffic volumes were estimated by increasing the existing 2015 traffic volumes to account for regional and local growth, as described below. The incremental increase due to the anticipated trip generation for the site was then added, resulting in the 2018 and 2023 future build-out year with-development traffic volumes.

Regional Growth

According to the traffic growth rates complied by PennDOT's Bureau of Planning and Research *Growth Factors for August 2015 to July 2016*, the anticipated growth for similar urban, non-interstate roadway in Montgomery County is 0.64 percent per year. To account for regional traffic growth, the existing (2015) peak hour traffic volumes were increased by the annual traffic growth rate of 0.64 percent per year, compounded for three years, or 1.93 percent total for the build-out year (2018) and for eight years, or 5.24 percent for the PennDOT design year (2023).

Local Growth

In addition to the regional growth, traffic volumes associated with the following proposed developments in the vicinity of the site were included:

- FW Triangle Development – mixed-use development located along Susquehanna Road north of Dreshertown Road (S.R. 2024). The pharmacy portion of the development was open at the time of the counts so only the proposed 6,400 square foot office, 5,670 square foot restaurant, and 24 townhomes were included as background growth.
- Zieger Rose Farm Development – residential development to be located on the southwestern corner of the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024). The development will consist of 105 age-restricted units.
- Horsham Retail Development – proposed retail development to be located on the northern side of Blair Mill Road to the west of New Road. The development will consist of a 5,585 square foot Wawa convenience store with 16 fueling positions, a 12,900 square foot pharmacy with drive through, and three high turnover sit down restaurants totaling 17,200 square feet.
- Residential Development – proposed residential development to be located along Witmer Road to the west of Dresher Road. The development will consist of 15 single family homes.
- Residential Development – proposed residential development to be located in the northeast corner of the intersection of Dresher Road and Witmer Road. The development will consist of 250 apartment units.

Information on these proposed area developments is provided in **Appendix G.**

Future without Development Traffic Volumes

The total background growth was then added to the existing 2015 traffic volumes along with the traffic anticipated for the five proposed developments noted above. The resultant future 2018 build-out year peak hour traffic volumes are illustrated in **Figure 5A** for the weekday morning, weekday afternoon, and Saturday midday peak hours. The resultant future 2023 PennDOT design year peak hour traffic volumes are illustrated in **Figure 6A** for the weekday morning, weekday afternoon, and Saturday midday peak hours.

Planned Roadway Improvements

Through discussions with the Township, three intersection improvements were identified as potentially being completed by other developments in the area which are expected to be completed in the spring of 2017. These improvements include:

- An eastbound left-turn lane on Welsh Road (S.R. 0063) at its intersection with Dresher Road.
- An eastbound right-turn lane on Welsh Road (S.R. 0063) at its intersection with Dreshertown Road (S.R. 2024). It should be noted that, as agreed upon by the Township and PennDOT, this turn lane will be shorter than desirable and will include a tight turning radius, which prohibits a right-turn overlap for the movement.
- A northbound right-turn lane on Jarrettown Road at its intersection with Welsh Road (S.R. 0063).

These improvements are proposed in conjunction with the age-restricted residential development (Zieger Rose Farm) located on the southwestern corner of the intersection of Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024).

Future with Development Traffic Volumes

The site generated traffic volumes, as shown in Figure 4B, were then added to the future 2018 without-development traffic volumes (Figure 5A). The resultant future 2018 with-development peak hour traffic volumes are illustrated in **Figure 5B** for the weekday morning, weekday afternoon, and Saturday midday peak hours. Detailed spreadsheets summarizing the traffic volumes are provided in **Appendix H**.

The site generated traffic volumes, as shown in Figure 4F, were also added to the future 2023 without-development traffic volumes (Figure 6A). The resultant future 2023 with-development peak hour traffic volumes are illustrated in **Figure 6B** for the weekday morning, weekday afternoon, and Saturday midday peak hours. Detailed spreadsheets summarizing the traffic volumes are provided in Appendix H.

The future 2018 peak hour traffic volumes for the build-out year, as illustrated in Figures 5A and 5B, were then subjected to detailed capacity/level-of-service analysis. The results of the traffic analyses are illustrated in **Figures 5C and 5D**, and the detailed capacity/level-of-service analysis worksheets are provided in **Appendices I and J.** Specific details regarding the analysis results and traffic operations are provided later in this report.

The future 2023 peak hour traffic volumes for the build-out year, as illustrated in Figures 6A and 6B, were then subjected to detailed capacity/level-of-service analysis. The results of the traffic analyses are illustrated in **Figures 6C and 6D**, and the detailed capacity/level-of-service analysis worksheets are provided in **Appendices K and L**. Specific details regarding the analysis results and traffic operations are provided later in this report.

Capacity/Level-of-Service Results

This section presents a detailed summary of the traffic analysis results for the existing and future build-out year (2018) and PennDOT design year (2023) traffic conditions, both without and with the proposed development, for the peak hours at the study area intersections and site accesses.

According to PennDOT's *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permit Plans,* no mitigation requirements are required for an overall level-of-service drop from without- to with development conditions (i.e. LOS D to LOS E), if the increase in overall delay per vehicle is less than 10 seconds (i.e., 48.2 to 56.5 seconds per vehicle); however, PennDOT reserves the right to look at individual lane groups where level-of-service drops may occur.

Welsh Road (S.R. 0063) and Dresher Road

Under existing conditions, this signalized intersection operates at acceptable conditions overall (LOS D or better) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours with exception of the southbound Dresher Road left-turn lane (LOS F) during the weekday afternoon peak hour. Under future build-out year (2018) and future PennDOT design year (2023) without-development conditions, with the installation of an eastbound left-turn lane along Welsh Road (S.R. 0063), this signalized intersection will operate at acceptable conditions overall (LOS C or better) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours with exception of the southbound Dresher Road left-turn lane (LOS E) during the weekday afternoon peak hour under 2023 without-development conditions.

With development of the site, similar levels-of-service will exist at this intersection overall during all three peak hours as observed under without-development conditions.

Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024)

Under existing conditions, this signalized intersection operates at overall LOS B during the weekday morning peak hour, overall LOS E during the weekday afternoon peak hour, and overall LOS A during the Saturday midday peak hour with the eastbound Welsh Road (S.R. 0063) approach operating at LOS F during the weekday afternoon peak hour. Under future build-out year (2018) and future PennDOT design year (2023) without-development conditions, and the installation of an eastbound right-turn lane along Welsh Road (S.R. 0063), this signalized intersection will operate at acceptable conditions overall (LOS C or better) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours with exception of the northbound Dreshertown Road (S.R. 2024) left-turn lane and eastbound Welsh Road (S.R. 0063) right-turn lane (LOS E) during the weekday afternoon peak hour under 2023 future without-development conditions, due largely to the tight turning radius and the inability to allow a right-turn overlap phase.

With development of the site, and the proposed improvements, all movements will improve to operate at LOS D or better during all three peak hours.

Welsh Road (S.R. 0063) and Dryden Road

Under existing conditions, future build-out year (2018), and future PennDOT design year (2023) without-development conditions, this signalized intersection operates at highly acceptable conditions overall (LOS A) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours with exception of the northbound and southbound left-turn lanes (LOS E) during the weekday morning peak hour.

With development of the site, all movements will improve to operate at LOS D or better during all three peak hours.

Welsh Road (S.R. 0063) and Jarrettown Road

Under existing conditions, this signalized intersection operates at acceptable conditions overall (LOS D or better) during all three peak hours with delay (LOS E and F) experienced on several movements during the weekday morning and weekday afternoon peak hours. Under future build-out year (2018) and future PennDOT design year (2023) without-development conditions, with the installation of a northbound right-turn lane along Jarrettown Road, this signalized intersection will operate at acceptable conditions overall (LOS D or better) with all of the lane groups also operating at acceptable conditions (LOS D or better) during all three peak hours.

With development of the site it is recommended to provide an additional eastbound through lane, extending the two eastbound through lanes that currently exist east of Jarrettown Road, further west. With this improvement, the overall intersection operation will improve significantly. Under 2023 future conditions, the overall LOS of D, C, and B during the weekday morning, weekday afternoon, and Saturday midday peak hours, will improve to LOS B, C, and A with the development and with the proposed improvements.

Dreshertown Road (S.R. 2024) and Site Access

Under 2018 future with-development conditions, this unsignalized intersection will operate at overall LOS A during the weekday morning, weekday afternoon, and Saturday midday peak hours with all movements operating at LOS D or better during all three peak hours.

Under 2023 future with-development conditions, this signalized intersection will operate at overall LOS B during the weekday morning, weekday afternoon, and Saturday midday peak hours with all movements operating at LOS D or better during all three peak hours.

Welsh Road (S.R. 0063) and Site Access

Under 2023 future with-development conditions, this unsignalized intersection will operate at overall LOS A during the weekday morning, weekday afternoon, and Saturday midday peak hours with all movements operating at LOS C during all three peak hours.

Proposed Roadway Improvements

The following improvements are recommended in conjunction with this development:

Phase 1

- Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) – traffic signal timing modifications.
- Welsh Road (S.R. 0063) and Dryden Road – traffic signal timing modifications.
- Dreshertown Road (S.R. 2024) Site Frontage - soften the existing horizontal and vertical curves along the site frontage of Dreshertown Road (S.R. 2024).

Phase 2

- Welsh Road (S.R. 0063) and Jarrettown Road – install an additional eastbound through lane on Welsh Road (S.R. 0063) and traffic signal timing modifications.
- Welsh Road (S.R. 0063) and Dresher Road (S.R. 2024) – traffic signal timing modifications.
- Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) – traffic signal timing modifications.
- Welsh Road (S.R. 0063) and Dryden Road – traffic signal timing modifications.
- Dreshertown Road (S.R. 2024) and Site Access – install a southbound left-turn lane and northbound right-turn lane on Dreshertown Road (S.R. 2024) and install a traffic signal.

Additionally, through the Township review of the zoning amendment process, the Township's Traffic Engineer, Boles, Smyth Associates, Inc. recommended additional improvements that they believed should be completed by the developer in conjunction with this development. These improvements are summarized in the September 21, 2016 letter from Jack Smyth, Jr., P.E., of Boles, Smyth Associates, Inc., to Richard D. Barton, the Upper Dublin Township Community Planning and Zoning Officer. The applicant has agreed to implement these recommendations, subject to the review and approval of PennDOT.

While the improvement details are provided in that letter, listed below is a summary of some of the additional improvements that the developer will complete in conjunction with the mixed-use portion of the development:

- Provision of separate left-turn lanes on Dreshertown Road (S.R. 2024) at both Tuckerstown Road and St. Georges Road, through restriping and minor widening.
- Update and/or provide additional signal equipment and ADA ramps at various intersections, as needed and as outlined in the Boles, Smyth letter.

- Update traffic signal timing, clearance intervals, and pedestrian timing at the following intersections:
    1. Welsh Road (S.R. 0063) and Blair Mill Road (S.R. 2026)
    2. Welsh Road (S.R. 0063) and Computer Avenue
    3. Welsh Road (S.R. 0063) and Twining Road
- Install fiber optic cable along Welsh Road (S.R. 0063) from Jarrettown Road to Blair Mill Road (S.R. 2026). If Upper Dublin Township is successful in obtaining a Green Light Go grant providing this connection, the applicant will instead provide a cash contribution to be used as a local match for the grant.
- Provide a ten-foot trail along portions of the site.

Concept plans depicting these improvements are provided in **Appendix M.**

95th Percentile Queue Analysis

95th percentile queue analyses were conducted at the study intersections using Synchro 8 software. The queue analysis is summarized in Appendix A. Based on the analyses, in most cases the 2018 and 2023 future with-development queues are similar to the 2018 and 2023 future without-development queues increasing minimally with the proposed development.

Summary and Conclusions

Access to Phase 1 of this development will be provided via Dryden Road and its existing full-movement signalized intersection with Welsh Road (S.R. 0063) as well as a full-movement unsignalized driveway to Dreshertown Road (S.R. 2024). With development of Phase 2, the unsignalized Dreshertown Road (S.R. 2024) access will be signalized and improved with separate turn lanes provided on Dreshertown Road (S.R. 2024). Additionally, a right-in/right-out only driveway to Welsh Road (S.R. 0063) will be provided in Phase 2. Since Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024) are State roads, any modifications to the intersection of Welsh Road (S.R. 0063) and Dryden Road and the proposed site access to Dreshertown Road (S.R. 2024) will be subject to the review and approval of PennDOT for issuance of a Highway Occupancy Permit. In conjunction with this development, it is proposed to soften the existing horizontal and vertical curves along the site frontage of Dreshertown Road (S.R. 2024) as well as install an additional eastbound through lane on Welsh Road (S.R. 0063) at its intersection with Jarrettown Road.

The traffic analyses contained herein reveals that safe and efficient access to and from the proposed development can be provided and that the adjacent roadways and intersections can accommodate the projected site-generated traffic.

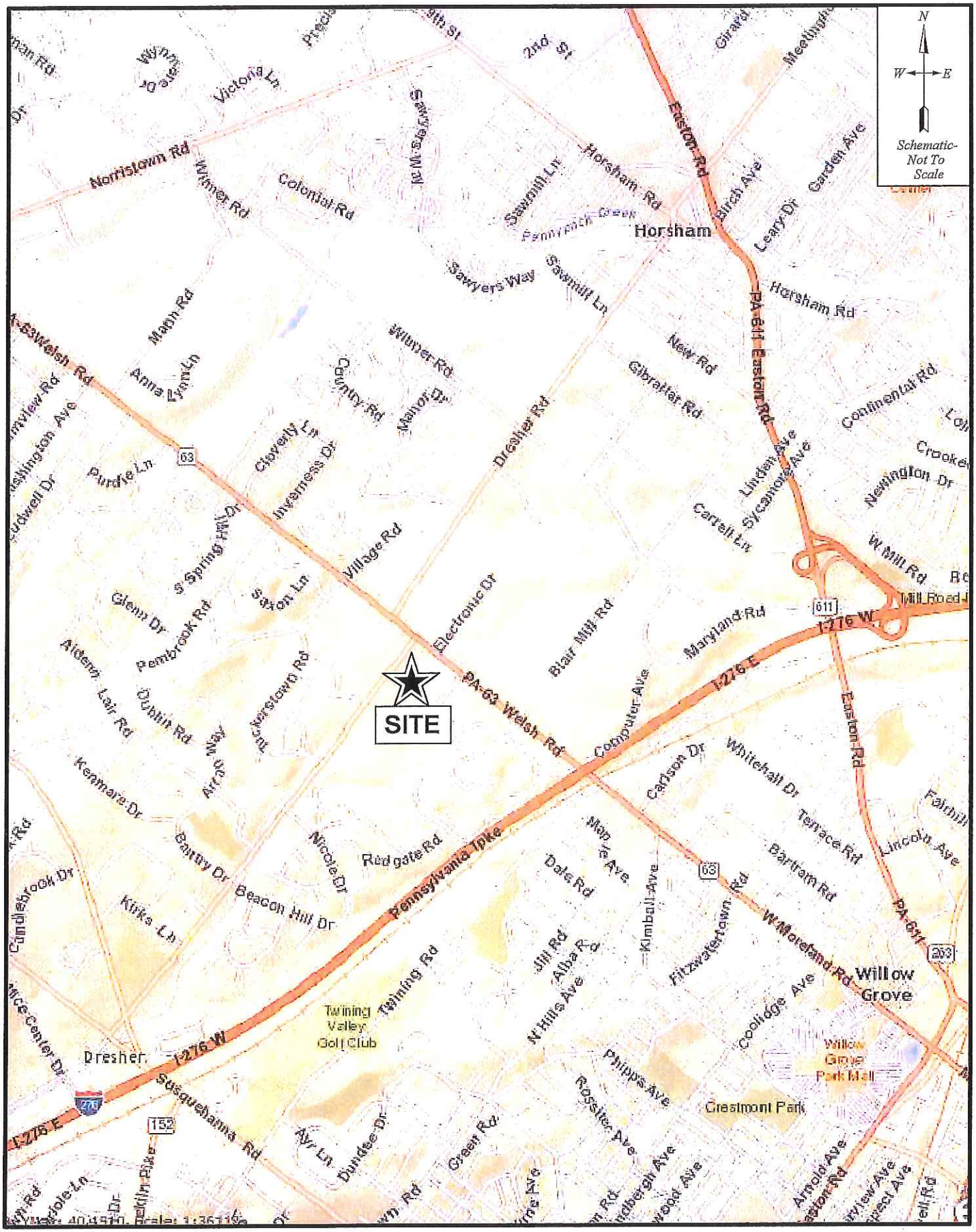

FIGURE 1

Site Location Map

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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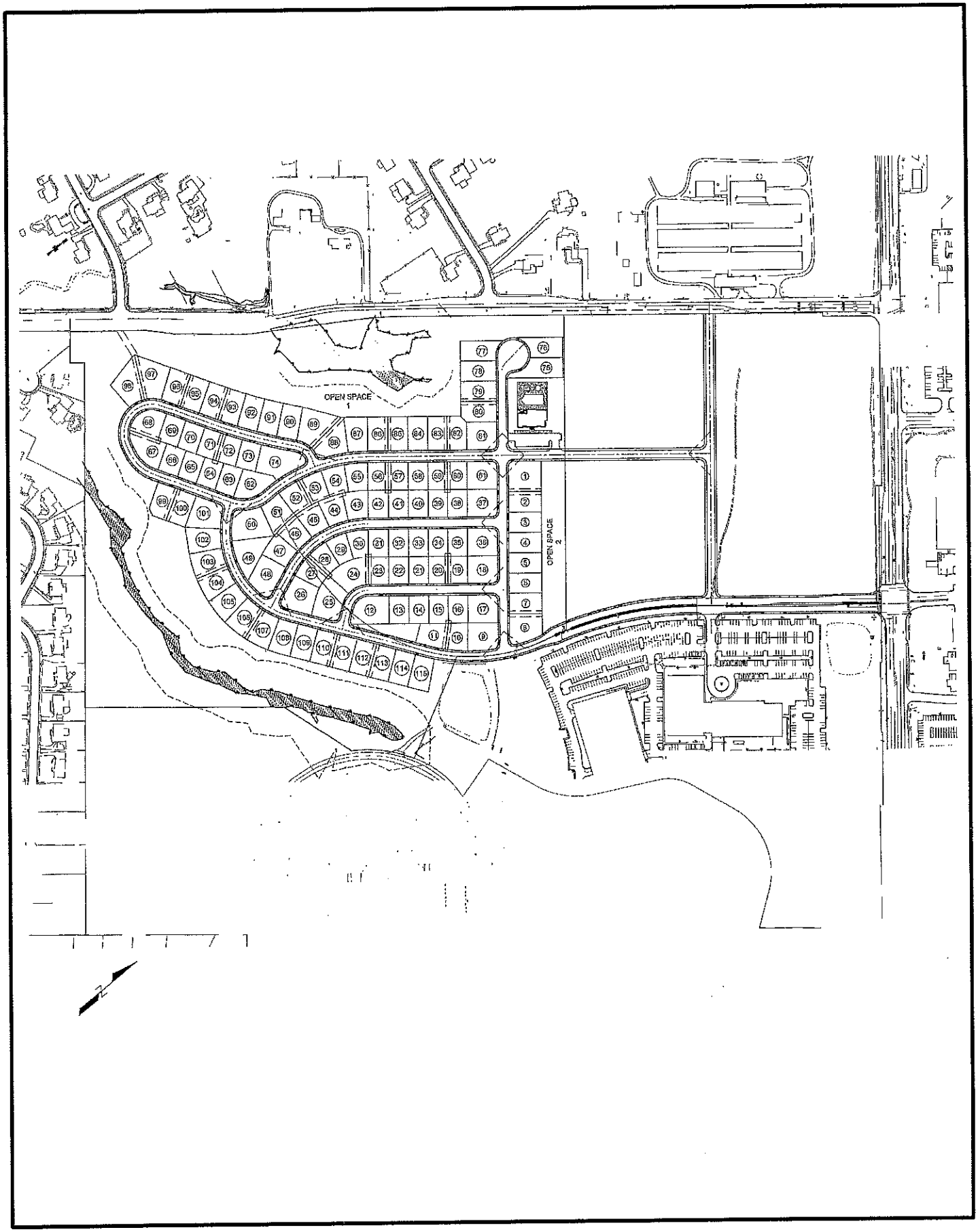

FIGURE 2

Site Plan - Phase 1 (prepared by Gilmore & Associates, Inc.)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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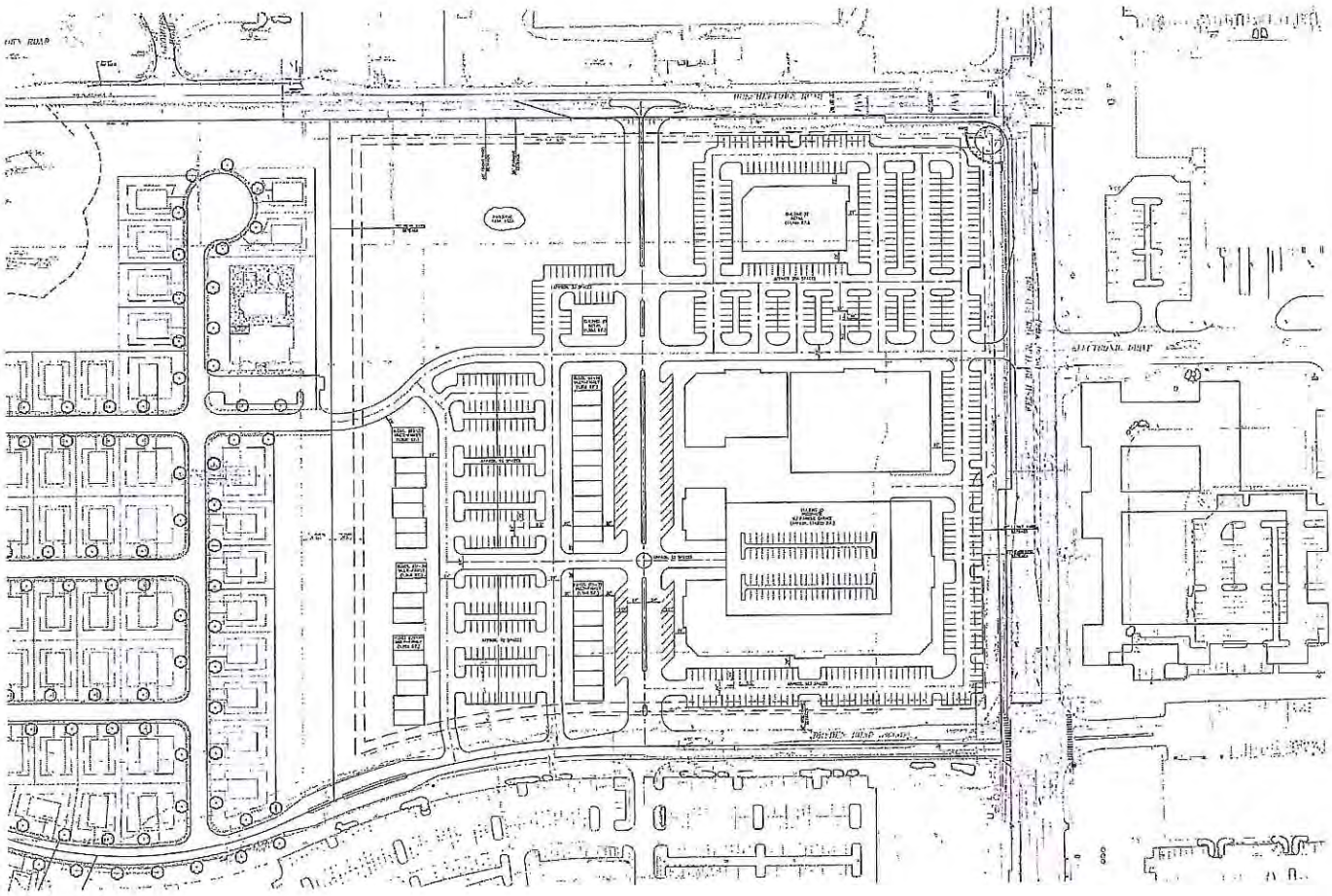

FIGURE 2A

Site Plan - Phase 1 & 2 (prepared by Gilmore & Associates, Inc.)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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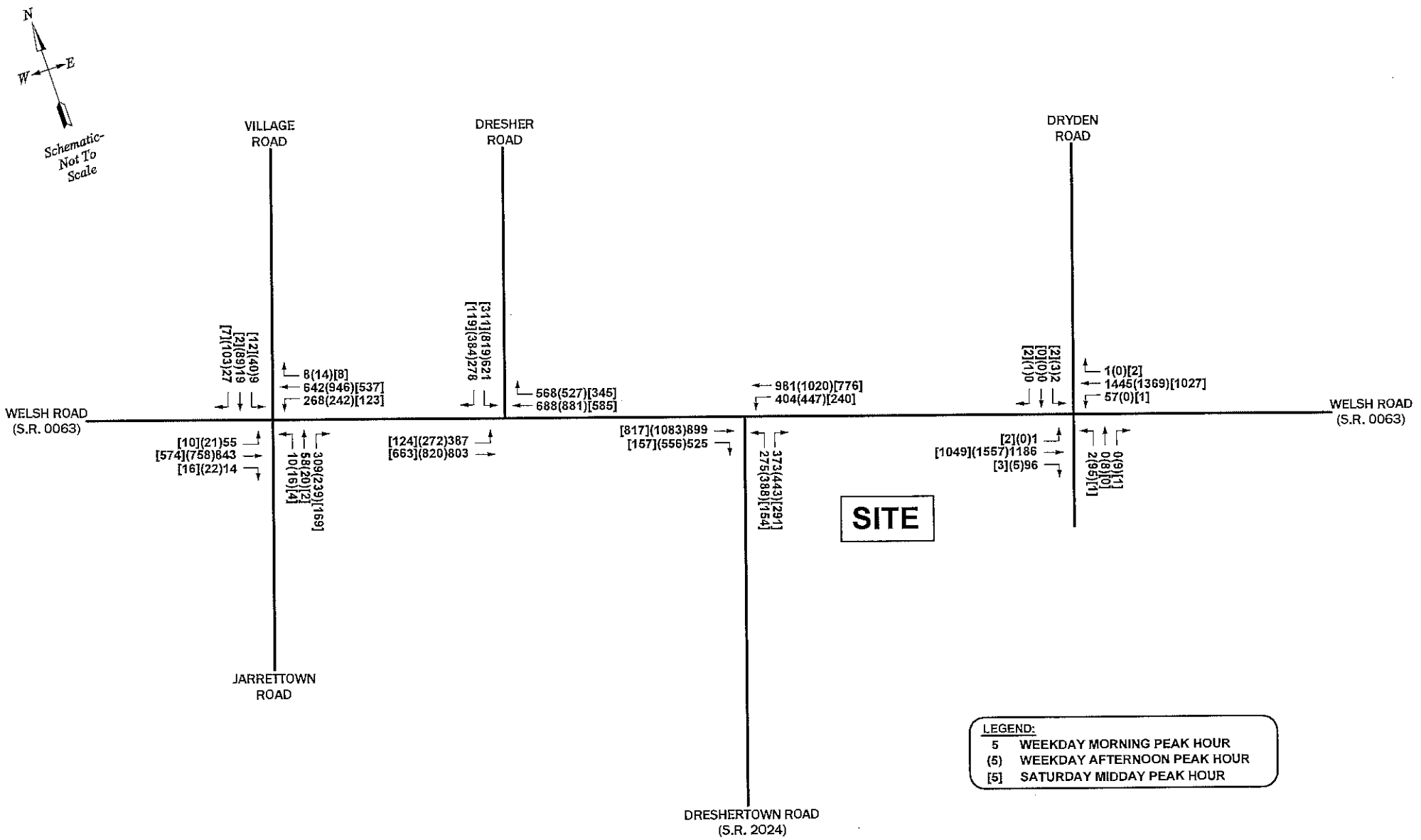

FIGURE 3A

2015 Existing Peak Hour Traffic Volumes

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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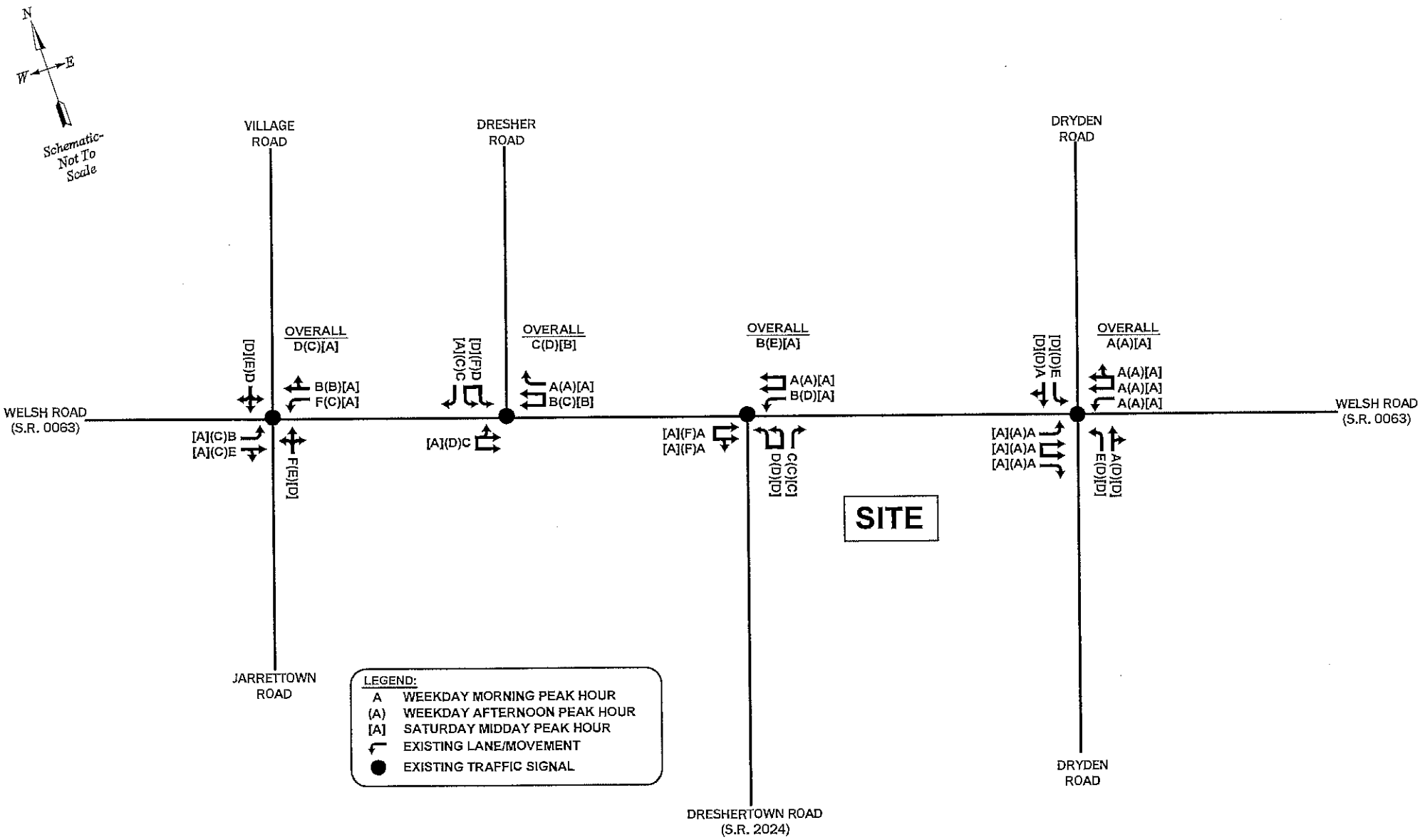

FIGURE 3B

2015 Existing Levels of Service

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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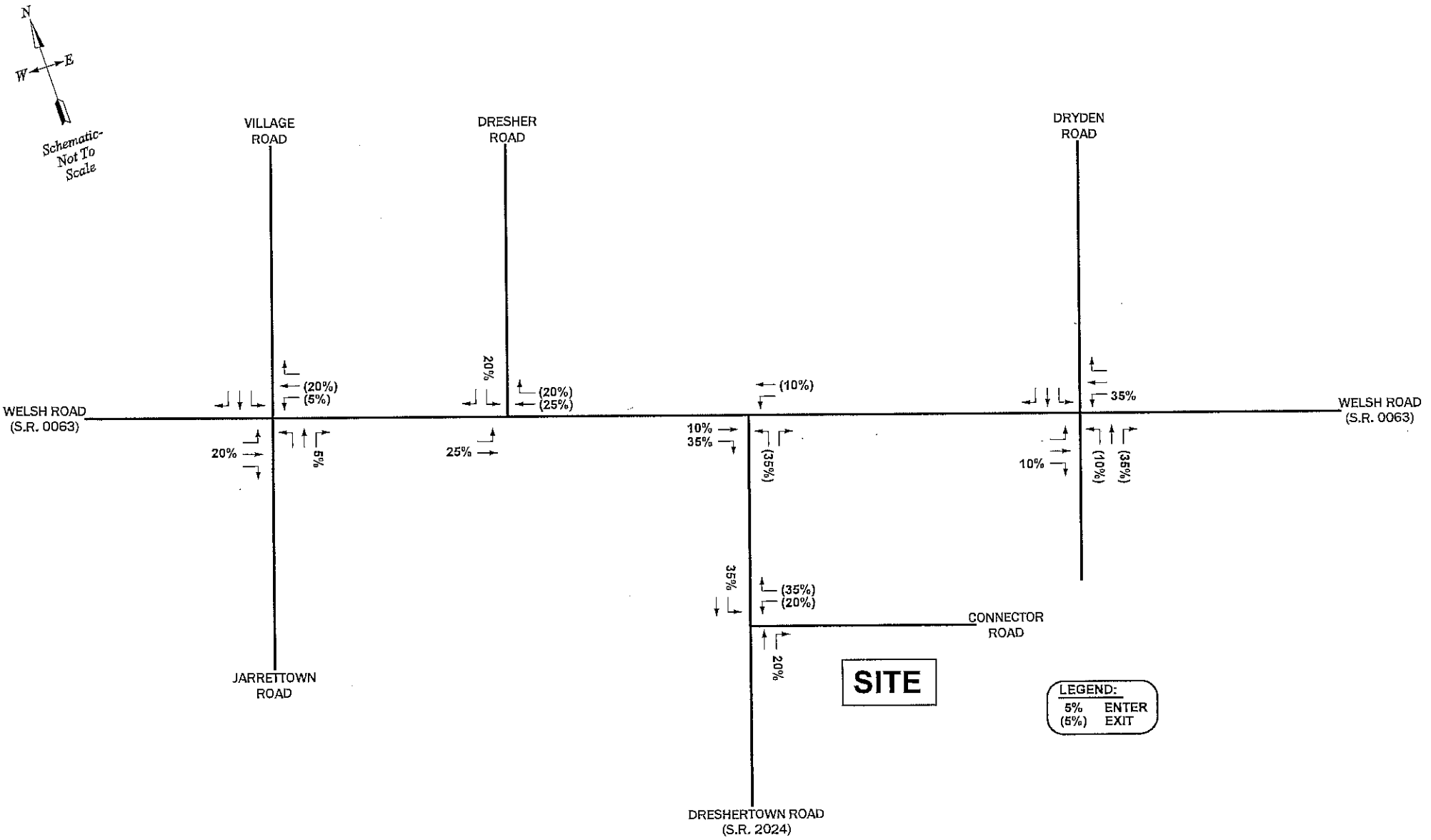

FIGURE 4A

"New" Trip Distribution (Phase 1)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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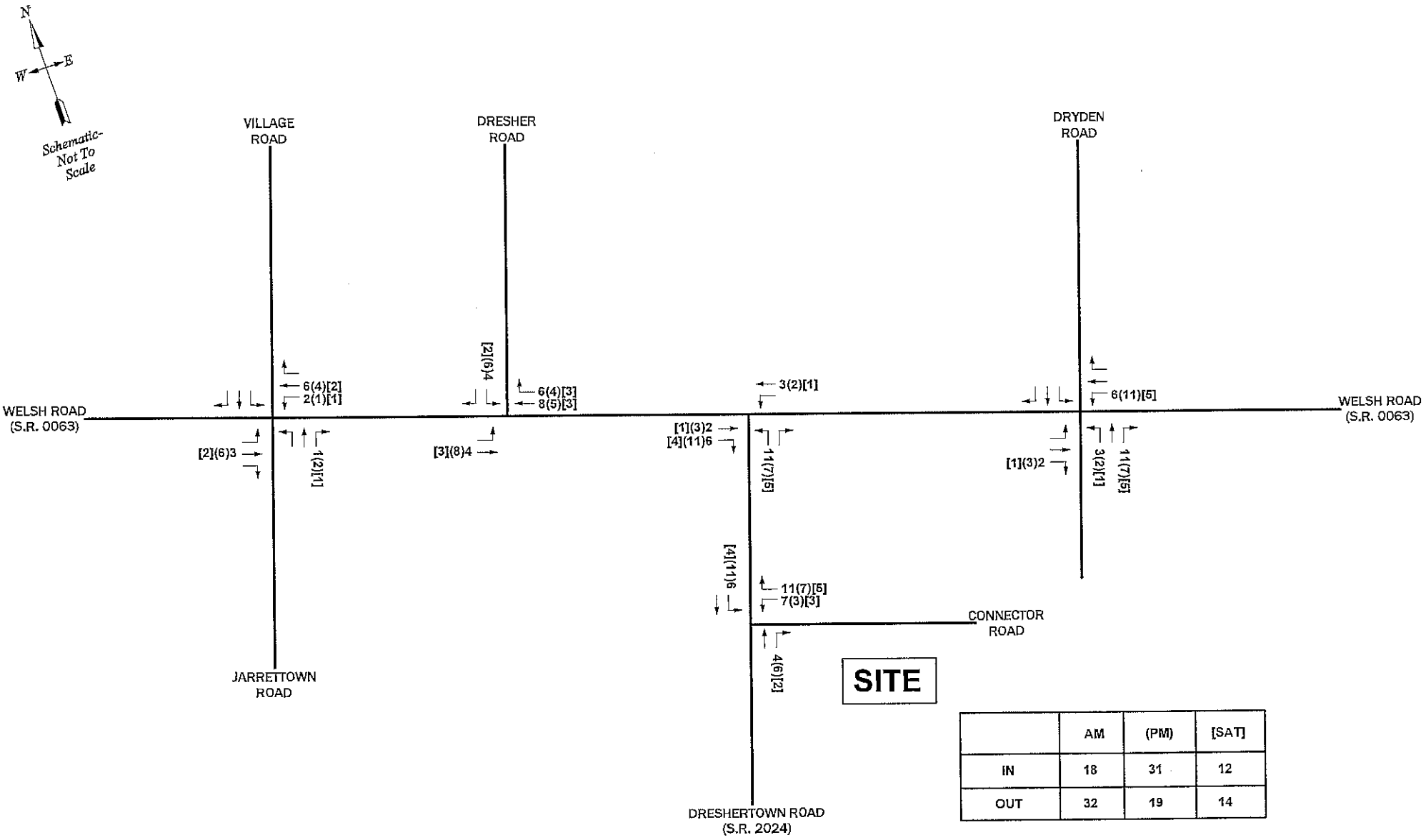

	AM	(PM)	[SAT]
IN	18	31	12
OUT	32	19	14

FIGURE 4B

"New" Trip Assignment (Phase 1)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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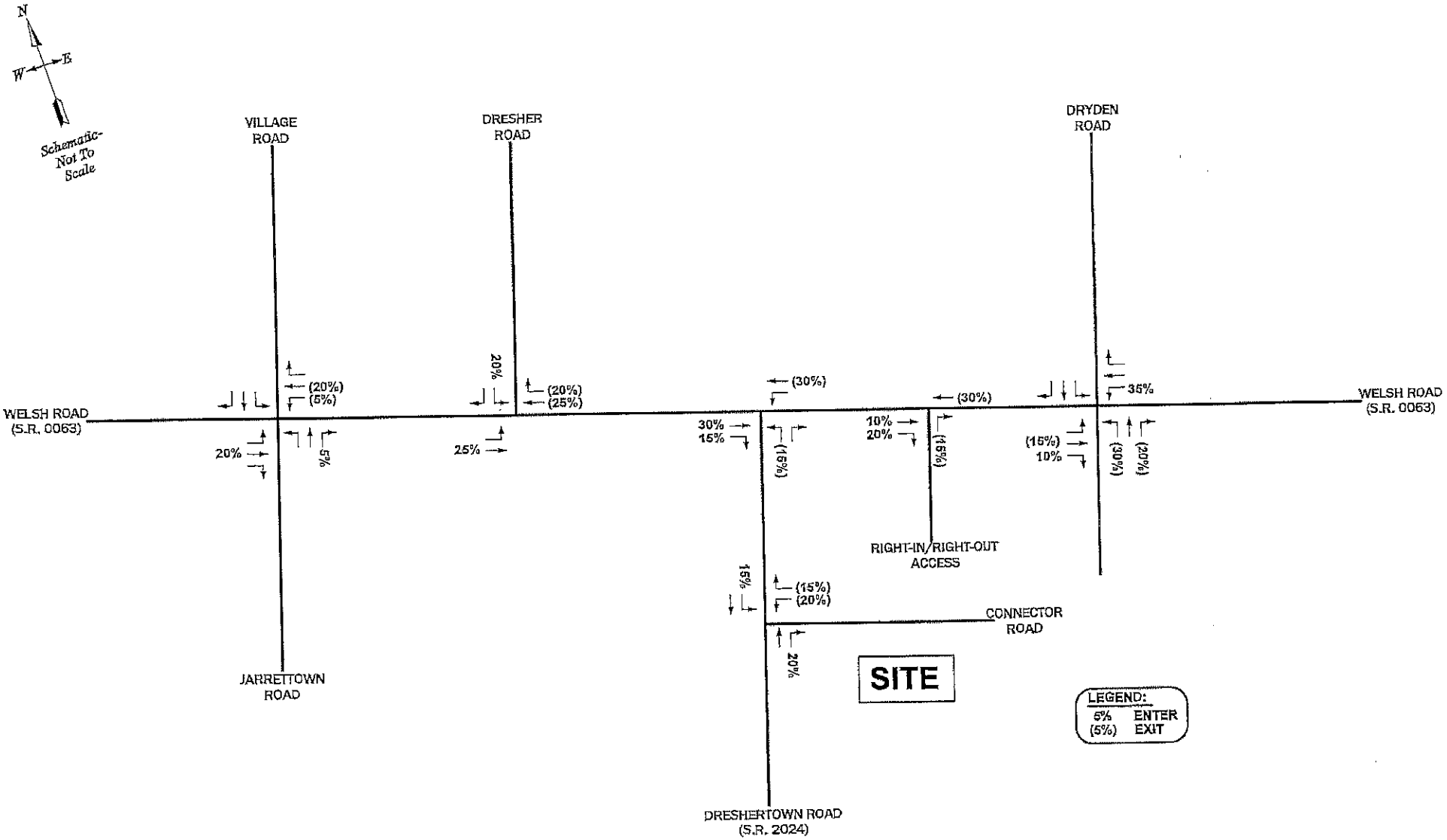

FIGURE 4C

"New" Trip Distribution (Phase 2)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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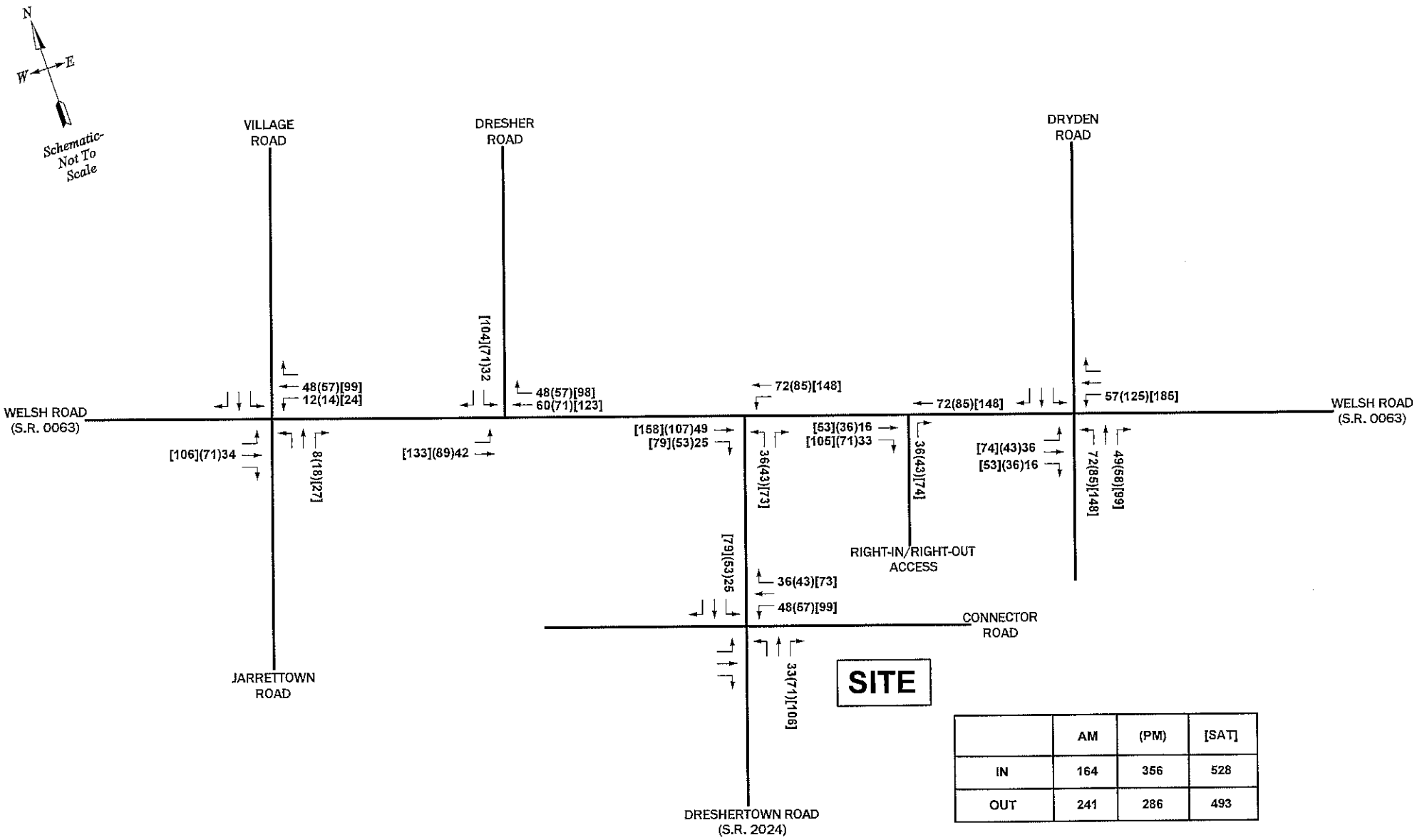

	AM	(PM)	[SAT]
IN	164	356	528
OUT	241	286	493

FIGURE 4D

"New" Trip Assignment (Phases 1 and 2)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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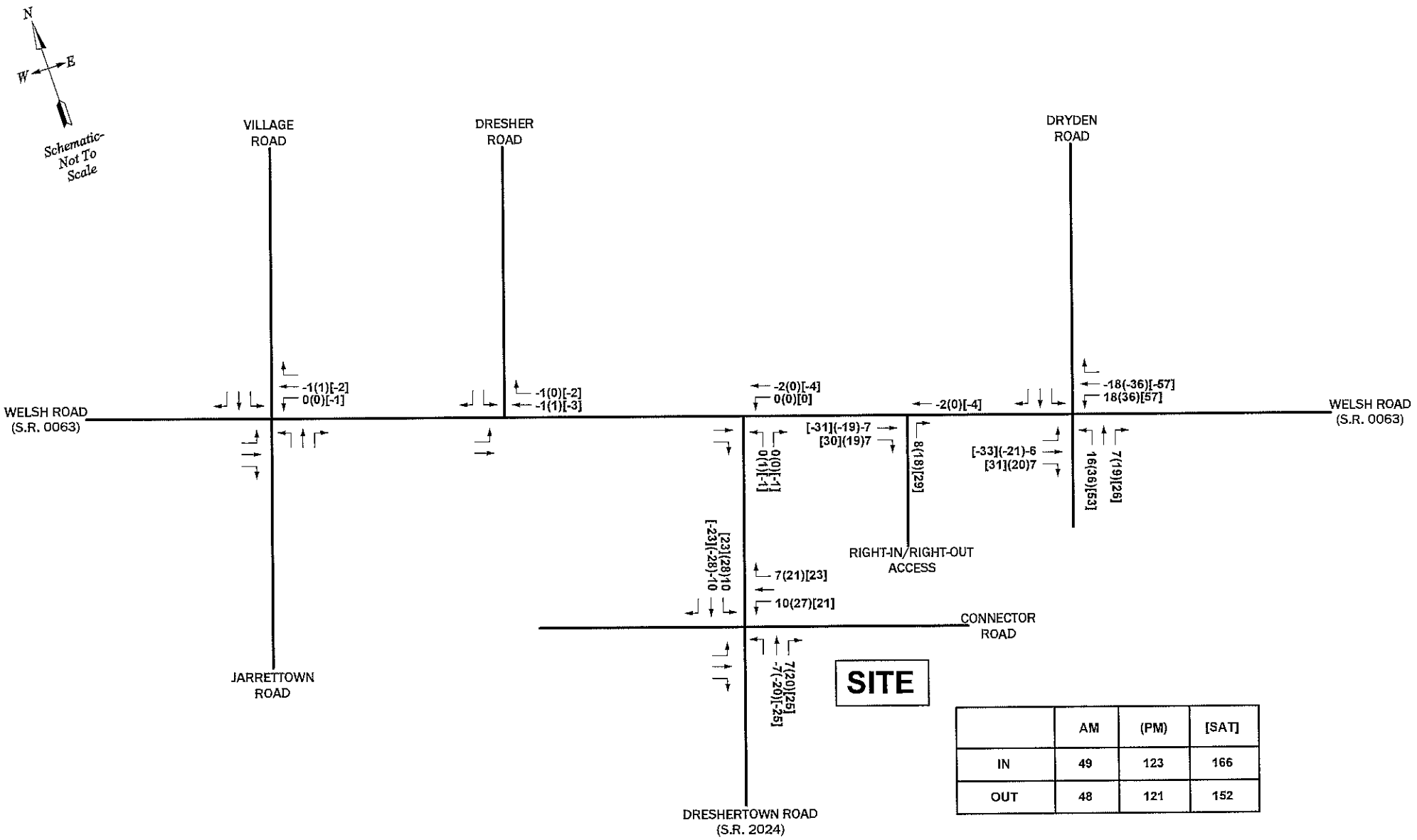

	AM	(PM)	[SAT]
IN	49	123	166
OUT	48	121	152

FIGURE 4E

Pass-by Trips (Phases 1 and 2)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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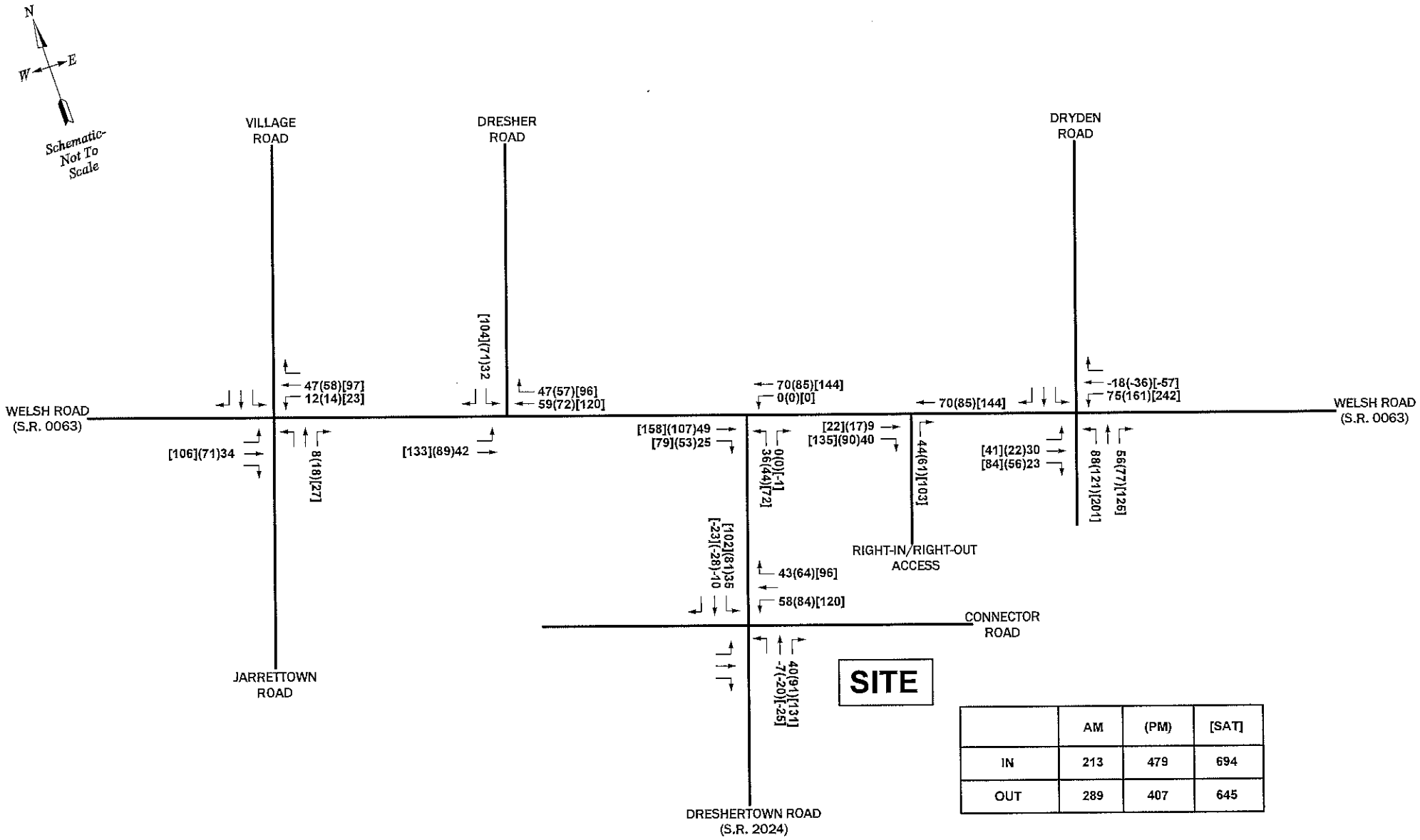

	AM	(PM)	[SAT]
IN	213	479	694
OUT	289	407	645

FIGURE 4F

Net "New" and Pass-by Trips (Phases 1 and 2)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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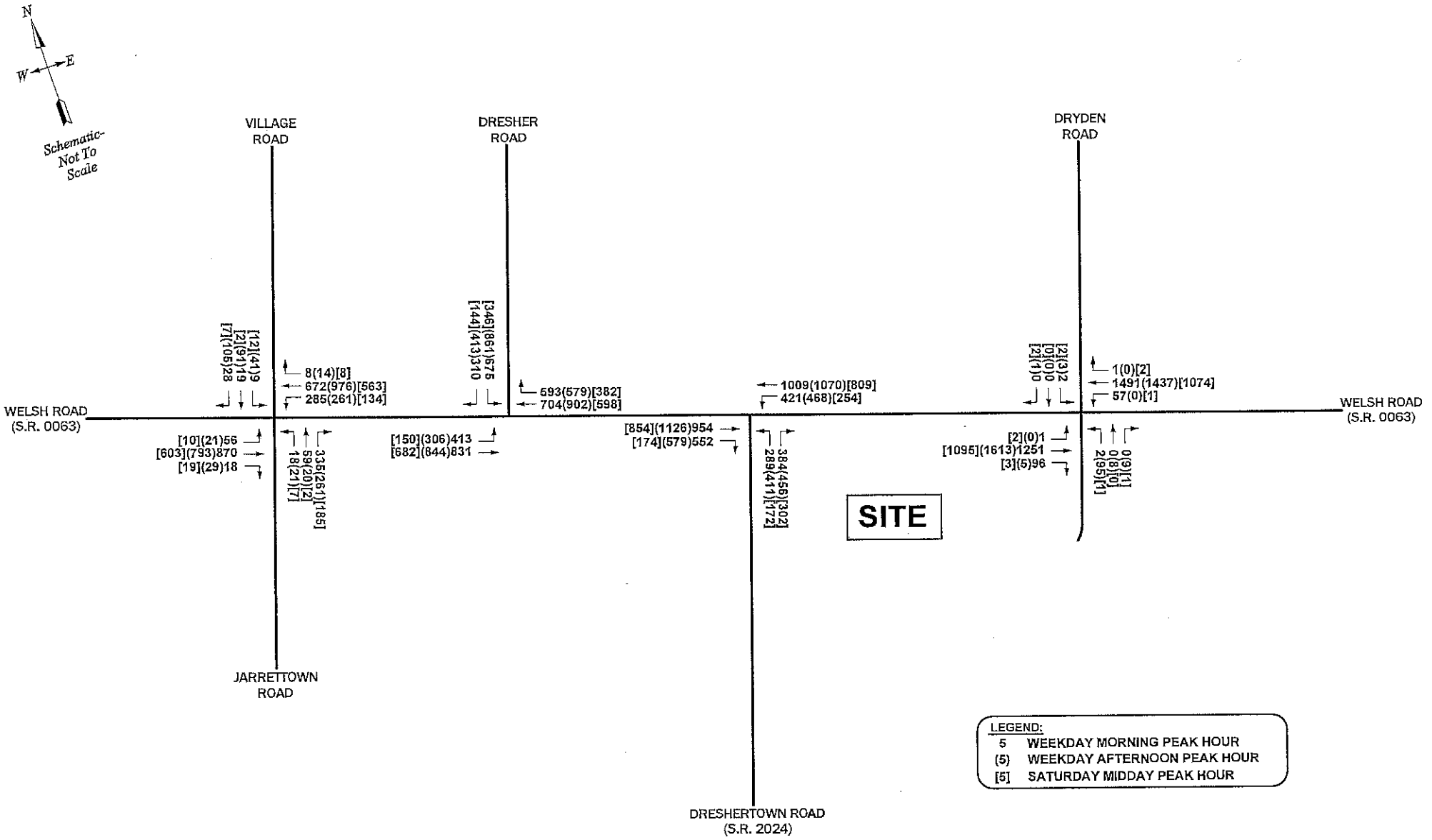

FIGURE 5A

2018 Future Peak Hour Traffic Volumes Without Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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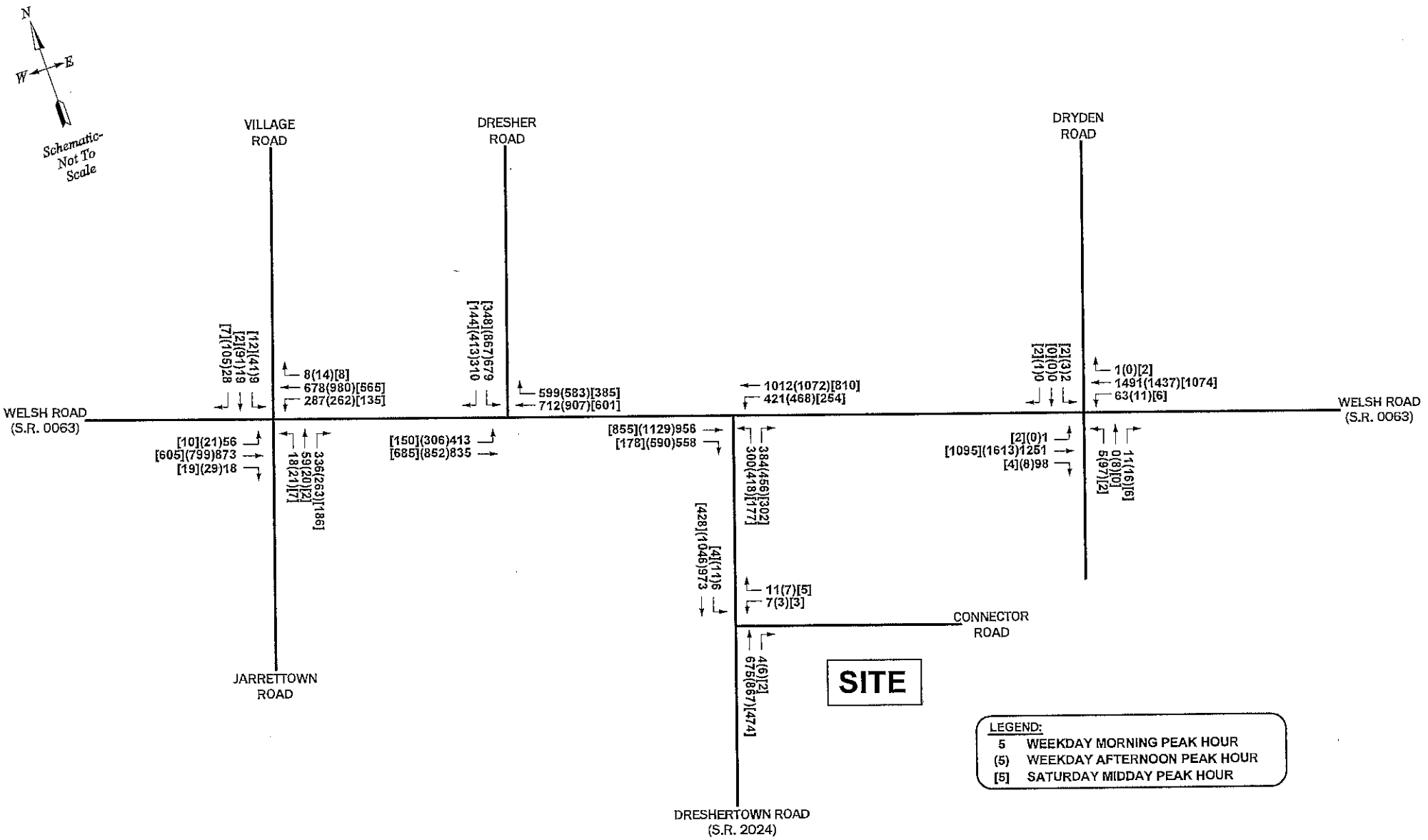

FIGURE 5B

2018 Future Peak Hour Traffic Volumes With Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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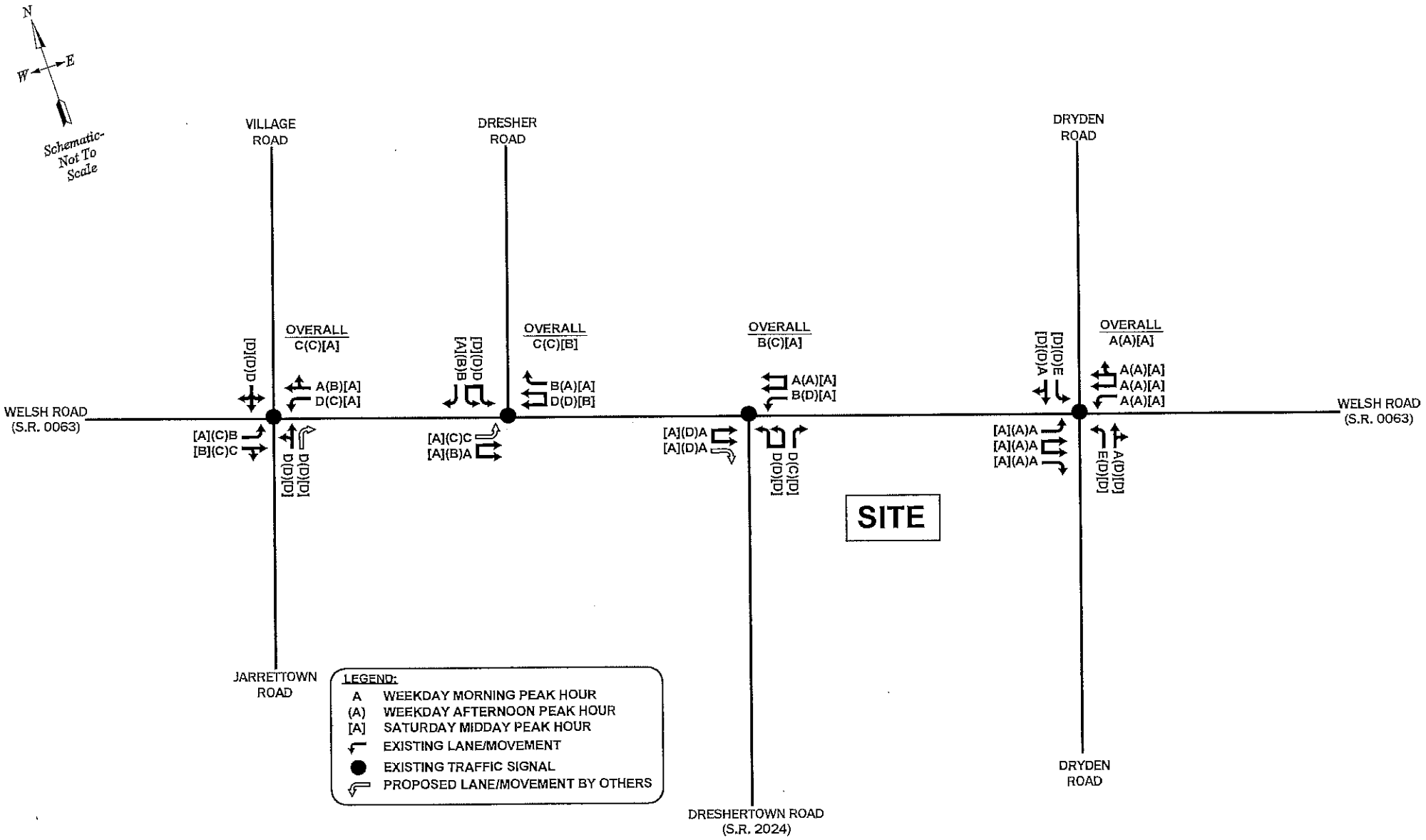

FIGURE 5C

2018 Future Levels of Service without Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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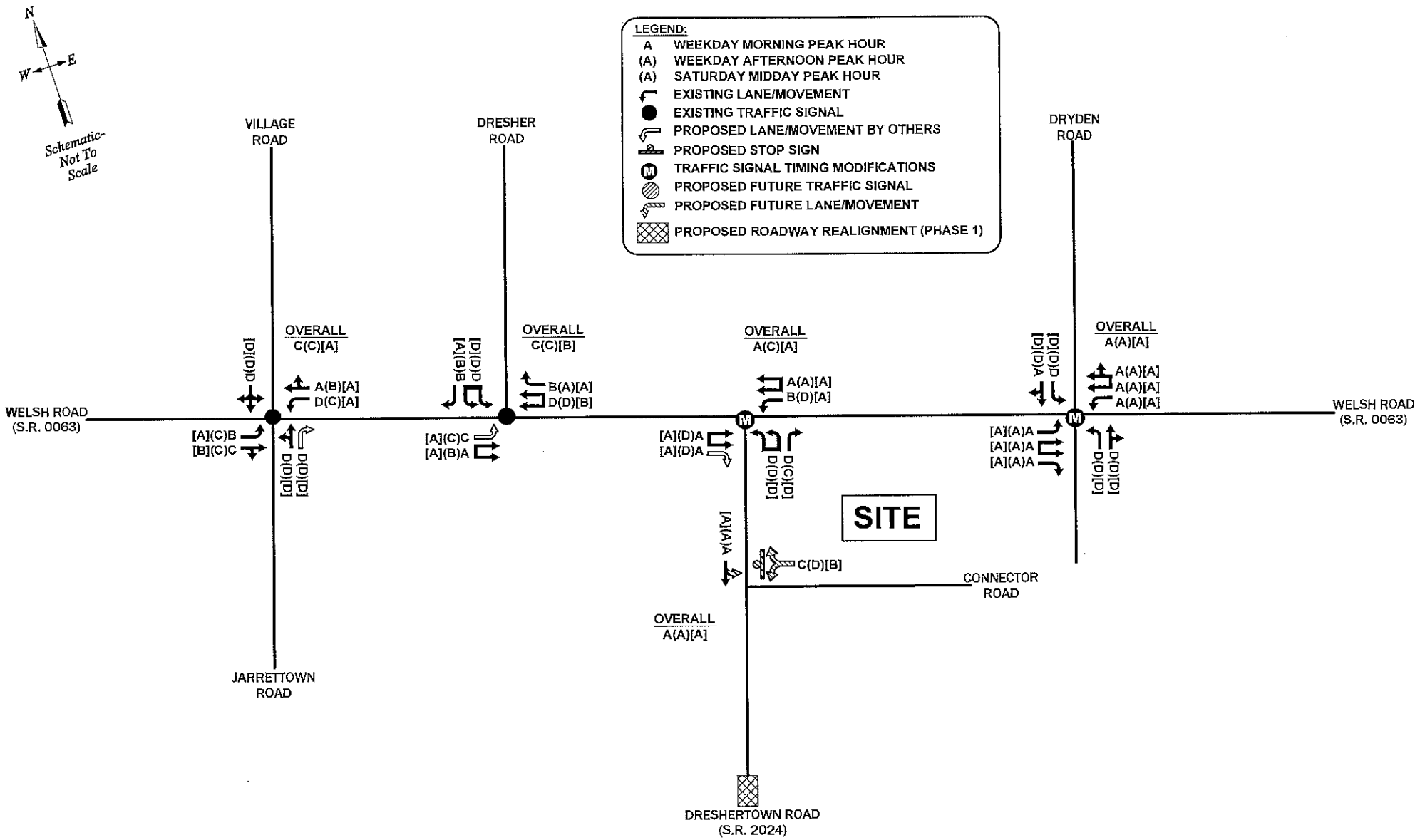

FIGURE 5D

2018 Future Levels of Service with Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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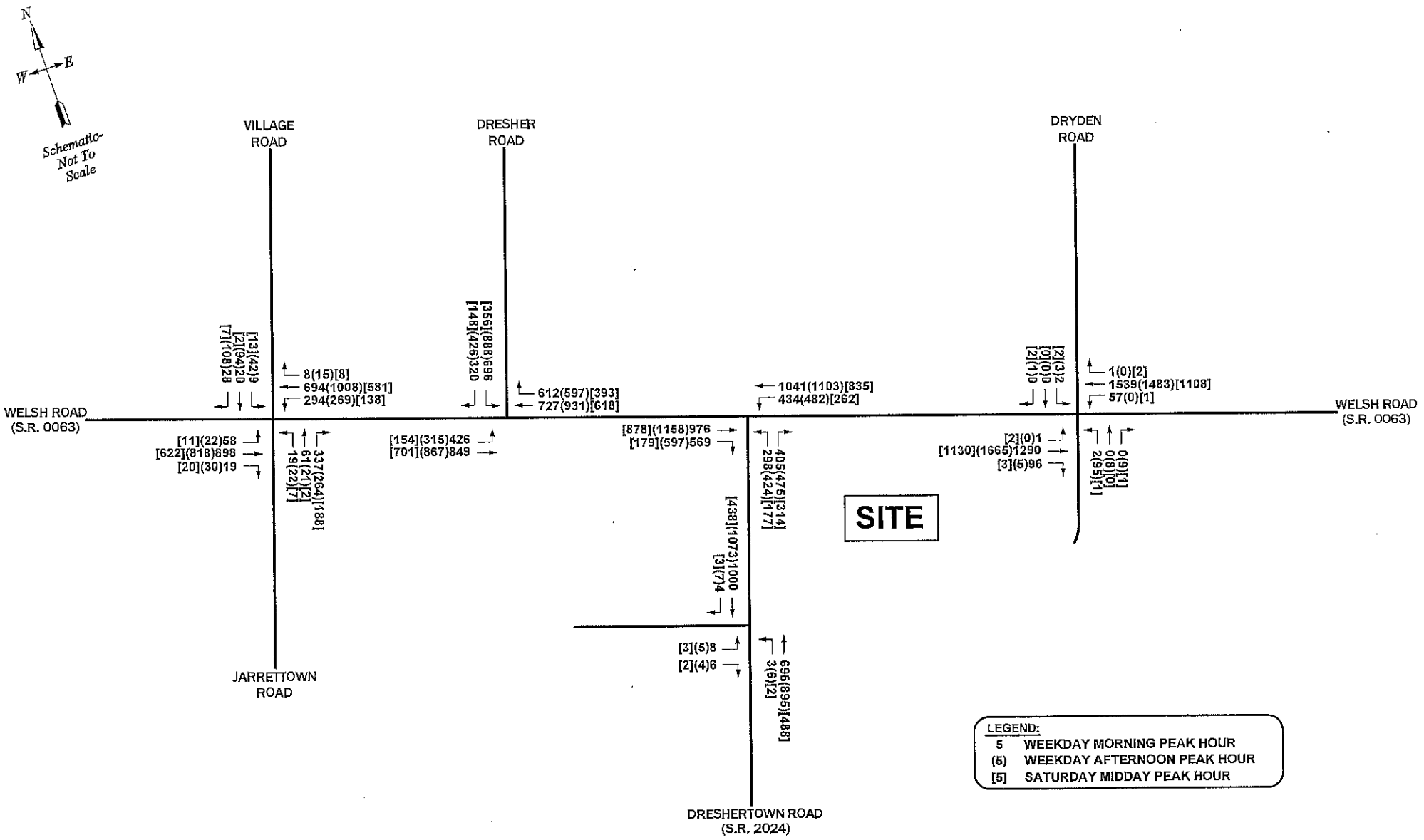

FIGURE 6A

2023 Future Peak Hour Traffic Volumes Without Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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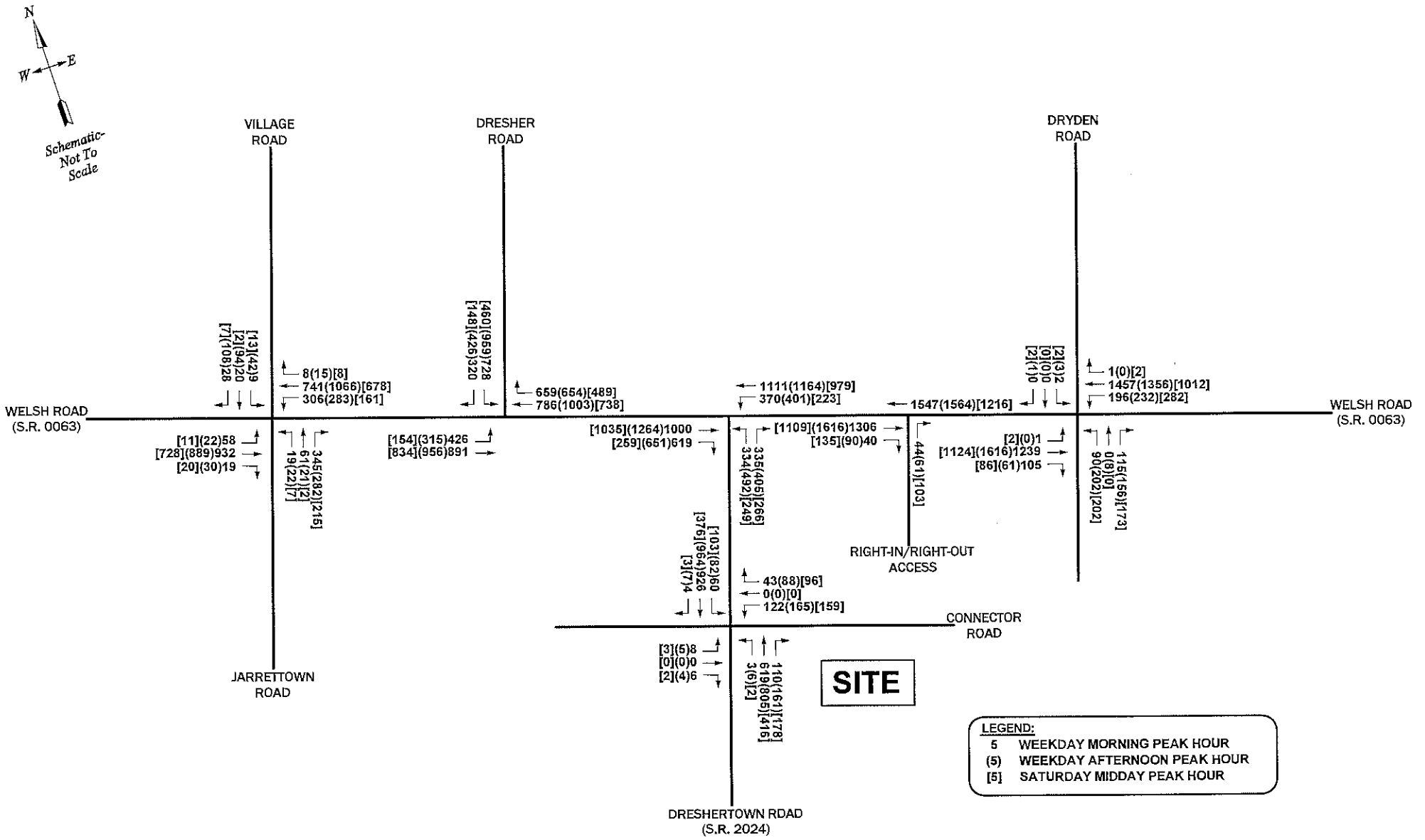

FIGURE 6B

2023 Future Peak Hour Traffic Volumes With Development (Phases 1 and 2)

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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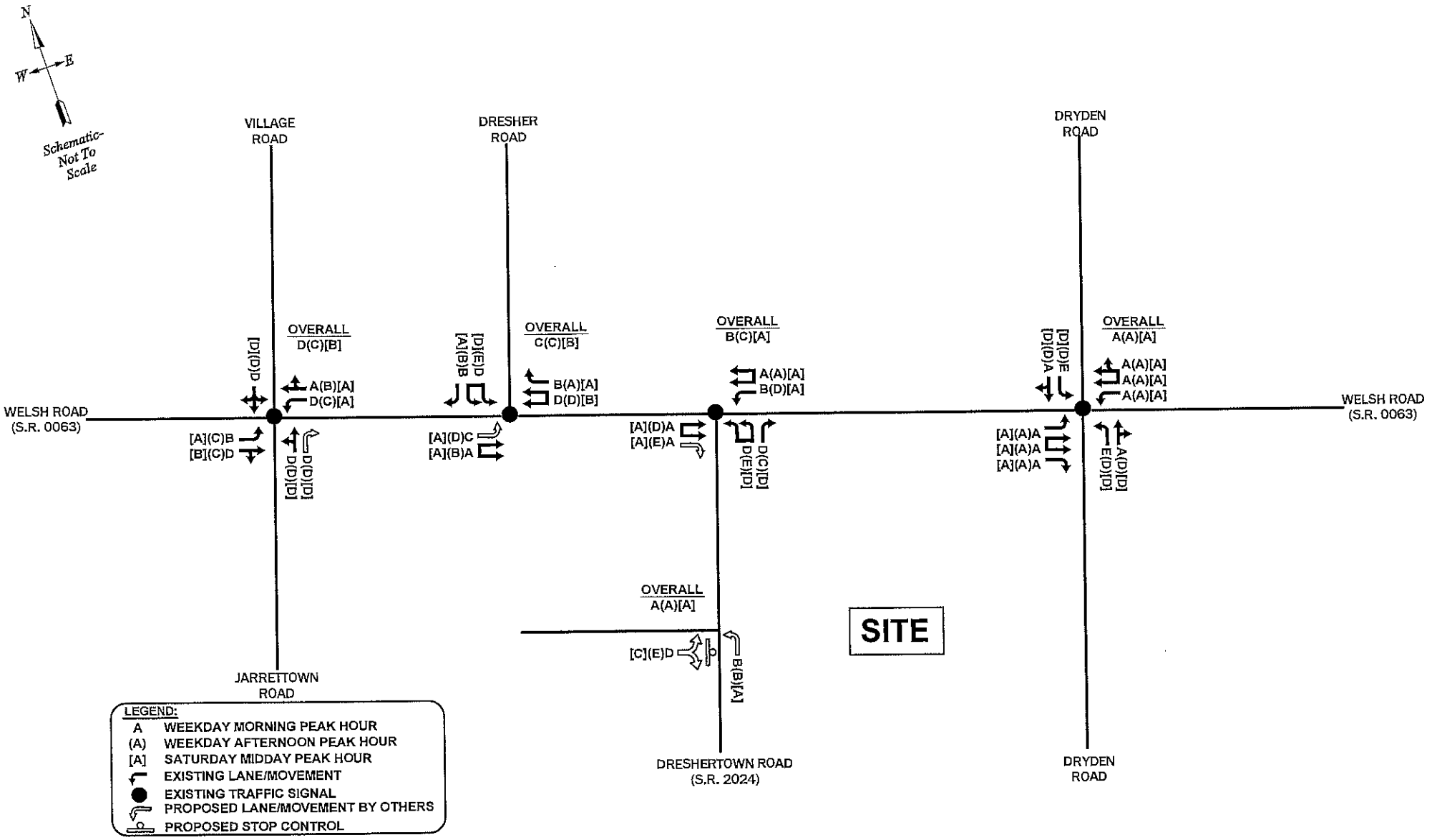

FIGURE 6C

2023 Future Levels of Service without Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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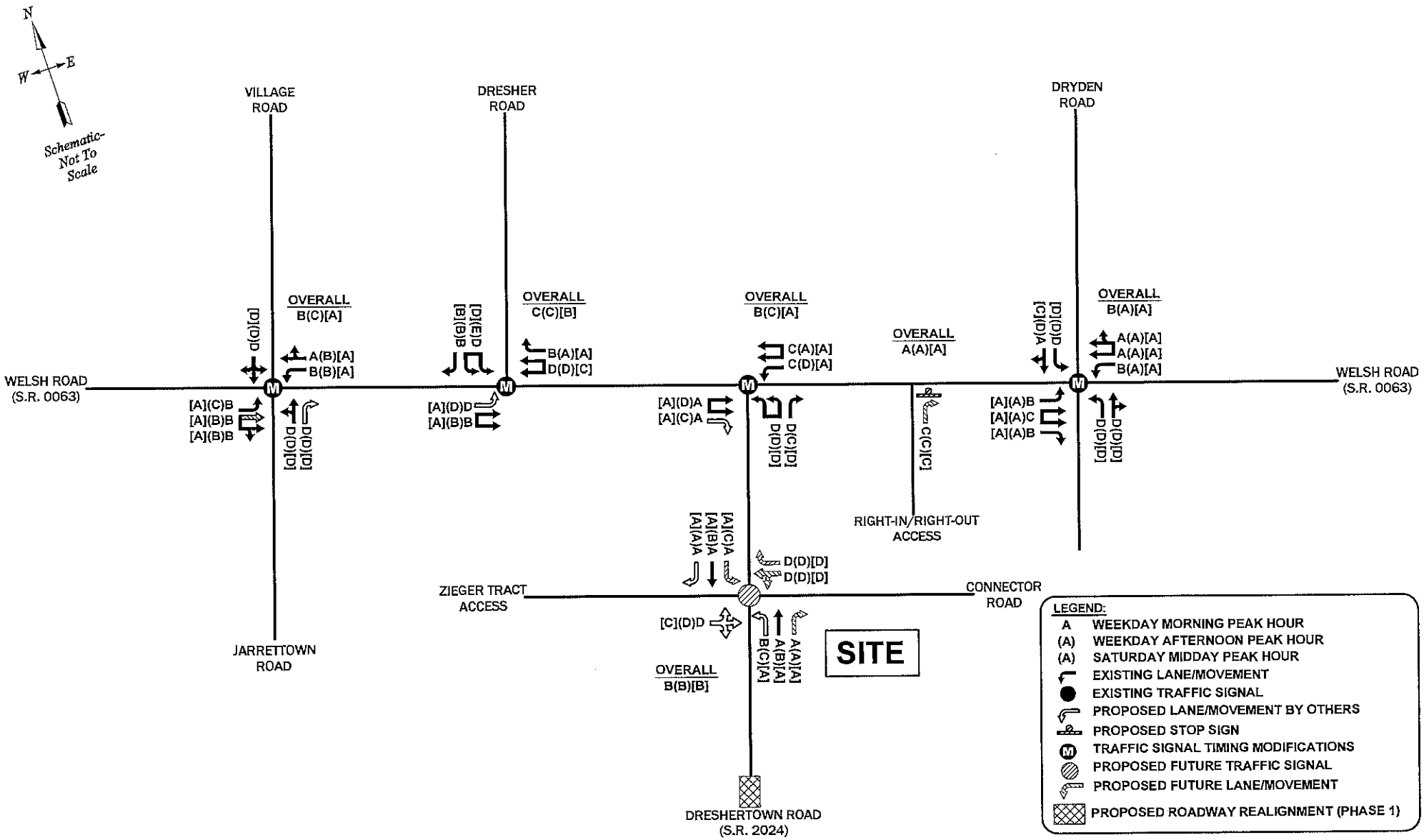

FIGURE 6D

2023 Future Levels of Service with Development

THE PROMENADE AT UPPER DUBLIN

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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APPENDIX A

Improvement Summary Letter

Boles, Smyth Associates, Inc.
Consulting Civil Engineers Since 1972

September 21, 2016

Upper Dublin Township
801 Loch Alsh Avenue
Fort Washington, PA 19034

Attn: Mr. Richard D. Barton
Community Planner and Zoning Officer

Subject: Traffic Improvement Commitments - BET Promenade
Welsh Road and Dreshertown Road

Dear Mr. Barton:

Boles, Smyth Associates, Inc. has performed a review of the Transportation Impact Study and proposed transportation improvements for the proposed *The Promenade at Upper Dublin* BET Investments, Inc. development prepared by McMahon Associates. We recommend the Township request traffic improvement commitments from BET Investments for the following:

1) Access
    a. Full Welsh Road access via the existing signal at Dryden Road
    b. Right In - Right Out access from a new driveway on Welsh Road between Dryden Road and Dreshertown Road
    c. Full Dreshertown Road access across from the new Toll Brothers development driveway with a new traffic signal
2) Welsh Road Improvements
    a. Widen Welsh Road and extend the second eastbound through lane from its current termination point east of Jarrettown Road to accommodate the 95% queue distance west of Jarrettown Road.
    b. Extend the eastbound Welsh Road right turn lane at Dreshertown Road to provide the maximum storage capacity available with no impact to the trail system being installed by Toll Brothers.
    c. Reconfigure the southwest corner of the Welsh Road and Dreshertown Road intersection to accommodate a WB-50 truck turn with a standard stop bar configuration on Dreshertown Road (ie. four feet from crosswalk).
3) Dreshertown Road Improvements
    a. Install a new traffic signal at the driveway location with a southbound left turn lane and northbound right turn lane on Dreshertown Road. The length of the turn lanes should accommodate the 95% queue distance.
    b. Soften the curve between St Georges Road and Tuckerstown Road to comply with a minimum Design Speed of 40 MPH per PennDOT standards. This includes design elements for lane width, horizontal radius, vertical sight distance and superelevation. Ensure the pavement section is adequate for the traffic loads identified in the Transportation Impact Study for the 2023 Development Condition.

c. Install 75 foot minimum left turn lanes on Dreshertown Road for access to St Georges Road and Tuckerstown Road in accordance with PennDOT design standards.

4) Traffic Signal Improvements
   a. Welsh Road & Jarrettown Road
      i. Replace signal equipment and ADA ramps as required for the widening of Welsh Road.
      ii. Re-establish Volume Density loops and install ground wire loop detection to replace video detection shown on the Traffic Signal Permit Plan.
      iii. Replace existing pole mounted controller with a ground mounted controller cabinet and Econolite ASC/3-2100 controller and battery back-up. (See Item 9)
      iv. Update signal timings, clearance intervals and pedestrian timing.
      v. Re-establish the Signal Ahead warning system located west of Jarrettown Road with a new mast arm and equipment to operate in accordance with the current Traffic Signal Permit. Replace the Fail-Safe device located on the existing mast arm.
   b. Welsh Road & Dresher Road
      i. Replace existing controller in the existing ground mounted cabinet with an Econolite ASC/3-2100 controller and battery back-up. (See Item 9)
      ii. Update signal timings, clearance intervals and pedestrian timing. Do not decrease the amount of green time provided to Dresher Road.
   c. Welsh Road & Dreshertown Road
      i. Replace signal equipment and ADA ramps as required for the widening of Welsh Road.
      ii. Replace ground wire detection loops on Dreshertown Road to reflect the new stop bar locations.
      iii. Update signal timings, clearance intervals and pedestrian timing.
   d. Welsh Road & Dryden Road
      i. Install ADA compliant ramps and add pedestrian countdown timers and LED pushbuttons as determined through the PennDOT Highway Occupancy Permit process.
      ii. Determine if a protected left turn phase is warranted. If necessary, replace the existing 35 foot mast arm on the northwest corner to allow for the phase.
      iii. Add ground wire loop detection on the Welsh Road turn lanes and re-establish loops as necessary for the side street stop bar locations.
      iv. Update signal timings, clearance intervals and pedestrian timing.
   e. Welsh Road & Blair Mill, Computer and Twining Roads
      i. Update signal timings, clearance intervals and pedestrian timing.
   f. New signal at Dreshertown Road & Driveway
      i. Ensure the cabinet is ground mounted with an Econolite ASC/3-2100 controller and battery backup. Provide LED signals, countdown timers and pedestrian push buttons along with emergency pre-emption.

ii. Install traffic adaptive software with video detection. Supplement the video detection zones with ground wire loop detection on side streets and turn lanes.

iii. Determine if a Queue Detector is required for the southbound approach in consultation with PennDOT, as well as Dilemma Zone detection.

iv. Incorporate this signal into the Welsh Road Interconnect System, I-0998. Provide a 12 strand aerial fiber optic connection from the 72 strand backbone.

5) Fiber Optic Installation (See Item 9)
   a. Install a 72 strand aerial fiber optic line along Welsh Road from Jarrettown Road to Blair Mill Road as part of the existing signal interconnection system. This includes termination connections, software integration and ethernet switches at Jarrettown, Dresher, Dreshertown and Dryden Roads.
6) Trail System along the Dreshertown Road and Welsh Road perimeter
   a. Provide a minimum trail width of 10 feet for the perimeter trails shown on the Land Development Plan to allow for the possibility of incorporating into a regional trail.
7) Transit Service - It is noted that Septa provides two routes along Welsh Road (Route 80 and 310) and provides stops at Blair Mill Road and Dryden Road. Coordinate with Septa to determine if additional stops or service would be appropriate based on the opening of the development.
8) Perform an After Study Traffic Analysis of the driveways six months after full build-out to determine the actual number of new trips. If there is a substantial amount of trips above the TIS projections, then additional analysis will be required to determine if phasing/timing adjustments are warranted at the new intersection and Welsh Road intersections from Jarrettown Road to Twining Road.
9) If Upper Dublin Township and neighboring municipalities are successful in obtaining an award through the PennDOT Green Light Go 2016 Program for Welsh Road Corridor Fiber Optic and Signal Upgrades from PA 309 to PA 611, then the items noted in Commitment #4 and #5 will be converted to a cash contribution of $235,000 to be used expressly for the local match requirement. The cost estimating method is consistent with the method utilized in the Green Light Go application and will be transmitted separately for concurrence.

Please note, items 1 through 5 will ultimately be reviewed and approved by PennDOT through the Highway Occupancy Permit process. It is also noted that the Dreshertown Road improvements to soften the curve and install left turn lanes will be completed in Phase 1 of development for the 115 age-restricted residential units. The remaining items will be completed in Phase 2.

Please feel free to contact me should you have any questions or require additional information.

Sincerely,

Jack Smyth, Jr., P.E.

cc: Paul Leonard, Upper Dublin Township

APPENDIX B

Level-of-Service and Queue Matrix Tables

Level-of-Service Matrix Tables

Welsh Road (S.R. 0063) and Jarrettown Road/Village Road

Time Period			Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition			Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Left	B 17.2	B 11.2	B 11.6	B 14.6	B 13.3	C 23.5	C 22.9	C 23.3	C 25.9	C 31.4	A 5.0	A 5.3	A 5.4	A 5.5	A 7.0
		Thru	E	C	C	D	B 15.2	C	C	C	C	B 16.5	A	B	B	B	A 8.9
		Thru/Right	58.2	29.8	31.8	53.8	B 15.1	24.5	24.9	25.4	27.5	B 16.5	9.2	10.2	10.3	10.7	A 8.8
	WB	Left	F 85.8	D 37.4	D 39.7	D 54.0	B 12.1	C 20.8	C 24.8	C 25.8	C 30.5	B 11.8	A 5.4	A 6.3	A 6.3	A 6.8	A 5.2
		Thru/Right	B 11.5	A 7.2	A 7.3	A 7.5	A 8.5	B 14.3	B 13.7	B 13.9	B 15.2	B 18.0	A 3.7	A 4.0	A 4.1	A 4.2	A 5.5
Jarrettown Road	NB	Left/Thru	F	D 46.1	D 46.1	D 46.2	D 45.3	E	D 42.3	D 42.2	D 42.0	D 41.6	D	D 41.8	D 41.7	D 41.6	D 40.1
		Right	92.4	D 49.4	D 47.2	D 37.5	D 52.2	59.3	D 39.5	D 39.4	D 38.8	D 38.5	47.8	D 39.6	D 39.5	D 39.4	D 38.0
Village Road	SB	Left/Thru/Right	D 37.8	D 45.6	D 45.6	D 45.6	D 44.7	E 55.7	D 54.0	D 53.8	D 54.4	D 54.4	D 42.7	D 42.1	D 42.1	D 42.0	D 40.4
Overall			D 51.8	C 27.2	C 28.0	D 36.9	B 19.0	C 26.5	C 24.8	C 25.1	C 26.7	C 22.2	A 9.5	A 9.9	A 9.9	B 10.2	A 9.8

Level-of-Service Matrix Tables

Welsh Road (S.R. 0063) and Dresher Road

Time Period			Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition			Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Left	C	C	C	C	D	D	C	C	D	D	A	A	A	A	A
				25.6	26.2	29.2	51.1		33.9	34.4	36.8	51.9		6.5	6.5	6.5	9.7
		Thru	31.4	A	A	A	B	39.1	B	B	B	B	4.8	A	A	A	A
				6.3	6.2	6.2	11.4		17.8	17.9	17.7	11.8		5.5	5.5	5.2	6.5
		Thru															
	WB	Thru	B	D	D	D	D	C	D	D	D	D	B	B	B	B	B
			18.7	37.6	38.2	39.7	36.3	23.9	37.4	37.6	38.7	53.7	11.7	14.2	14.3	14.8	20.1
		Thru															
		Right	A	B	B	B	B	A	A	A	A	A	A	A	A	A	A
			4.6	14.7	13.4	15.9	12.9	1.9	6.8	6.8	7.4	5.4	2.7	2.5	2.5	2.6	4.9
Dresher Road	SB	Left	D	D	D	D	D	F	D	D	E	E	D	D	D	D	D
			48.7	52.6	52.9	54.2	54.4	106.0	51.4	51.9	56.6	60.2	42.1	41.2	41.2	40.7	40.0
		Left															
		Right	C	B	B	B	B	C	B	B	B	B	A	A	A	A	B
			26.6	13.6	13.6	13.3	15.0	28.8	17.7	17.6	18.1	17.2	5.4	6.0	6.1	6.8	10.4
Overall			C	C	C	C	C	D	C	C	C	C	B	B	B	B	B
			27.1	25.7	25.8	27.1	29.8	43.9	29.4	29.6	31.2	34.8	11.8	12.7	12.8	12.8	15.6

Level-of-Service Matrix Tables

Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024)

Time Period			Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition			Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Thru	A 5.0	A	A	A	A	F 125.4	D	D	D	C	A 2.1	A	A	A	A
		Thru	A	0.7	0.9	0.8	0.7	F	43.0	43.2	44.4	54.5	A	0.7	0.7	0.7	0.9
		Right	6.5	A 2.3	A 2.9	A 3.4	A 1.4	156.5	D 50.1	D 51.9	E 58.5	D 23.9	2.1	A 0.4	A 0.4	A 0.5	A 0.4
	WB	Left	B 19.1	B 10.4	B 11.1	B 13.8	C 24.3	D 40.5	D 39.7	D 39.7	D 40.5	D 45.8	A 6.1	A 4.8	A 4.8	A 4.9	A 5.0
		Thru/Thru	A 0.5	A 0.4	A 0.5	A 0.5	C 25.1	A 0.5	A 0.5	A 0.5	A 0.5	A 0.8	A 0.4	A 0.3	A 0.3	A 0.4	A 0.5
Dreshertown Road (S.R. 2024)	NB	Left	D 43.3	D 54.6	D 49.1	D 52.8	D 53.1	D 50.5	D 52.3	D 52.9	E 57.1	D 52.8	D 37.0	D 42.0	D 42.1	D 42.1	D 47.0
		Left															
		Right	C 31.3	D 42.4	D 36.7	D 41.0	D 40.3	C 28.0	C 29.1	C 29.1	C 29.9	C 28.1	C 32.3	D 42.0	D 42.0	D 43.3	D 39.0
Overall			B 11.2	B 10.1	A 9.5	B 10.5	B 18.0	E 71.6	C 31.9	C 32.3	C 34.2	C 32.3	A 6.9	A 7.5	A 7.6	A 7.8	A 7.4

Level-of-Service Matrix Tables

Welsh Road (S.R. 0063) and Dryden Road

Time Period			Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition			Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Left	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A
			0.4	0.5	1.2	0.5	15.7	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.0
		Thru	A	A	A	A	C	A	A	A	A	A	A	A	A	A	A
			0.2	0.3	0.4	0.4	21.2	0.1	0.4	0.4	0.4	3.0	0.3	0.3	0.3	0.3	1.8
		Right	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A
			0.0	0.1	0.1	0.1	12.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
	WB	Left	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A
			1.4	1.5	2.7	1.6	19.8	0.0	0.0	2.2	0.0	7.4	0.7	0.7	0.9	0.7	7.6
		Thru	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
			2.2	2.3	4.0	2.4	7.0	4.0	4.1	4.2	4.3	7.6	1.7	1.8	1.9	1.8	7.4
		Thru/Right	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
			2.1	2.2	4.0	2.3	6.9	0.0	0.0	0.0	0.0	0.0	1.7	1.7	1.9	1.8	7.3
Dryden Road	NB	Left	E	E	D	E	D	D	D	D	D	D	D	D	D	D	D
			58.6	58.6	52.5	58.6	49.3	54.4	54.7	54.5	54.7	52.2	48.3	48.3	47.6	48.3	41.5
		Thru/Right	A	A	D	A	D	D	D	D	D	D	D	D	D	D	D
			0.0	0.0	53.6	0.0	51.9	50.0	50.2	50.4	50.2	48.9	49.3	49.3	50.2	49.3	40.2
	SB	Left	E	E	D	E	D	D	D	D	D	D	D	D	D	D	D
			58.6	58.6	52.7	58.6	52.7	49.7	49.8	50.1	49.8	51.0	48.4	48.4	47.7	48.4	42.0
		Thru/Right	A	A	A	A	A	D	D	D	D	D	D	D	D	D	C
			0.0	0.0	0.0	0.0	0.0	49.5	49.7	49.5	49.7	41.5	49.9	49.9	48.6	49.9	33.2
Overall			A	A	A	A	B	A	A	A	A	A	A	A	A	A	A
			1.3	1.4	2.6	1.5	16.3	3.9	4.1	4.2	4.1	9.8	1.1	1.2	1.4	1.2	9.4

Level-of-Service Matrix Tables

Dreshertown Road (S.R. 2024) and Site Access

Time Period			Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition			Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Zieger Tract Access	EB	Left/Thru/Right	(1)	(1)	(1)	D 33.0	D 46.1	(1)	(1)	(1)	E 47.0	D 41.1	(1)	(1)	(1)	C 15.0	C 34.0
Site Access	WB	Left/Thru	(1)	(1)	C 24.6	(1)	D 52.6	(1)	(1)	D 30.6	(1)	D 51.6	(1)	(1)	B 13.6	(1)	D 40.2
		Right	(1)	(1)		(1)	D 45.6	(1)	(1)		(1)	D 41.5	(1)	(1)		(1)	D 35.3
Dreshertown Road (S.R. 2024)	NB	Left	(1)	(1)	(1)	B 11.9	B 14.9				B 12.5	C 26.1				A 9.4	A 7.4
		Thru	(1)	(1)	(2)	(1)	A 6.1	(1)	(1)	(2)	(1)	B 11.9	(1)	(1)	(2)	(1)	A 6.7
		Right	(1)	(1)	(2)	(1)	A 3.5	(1)	(1)	(2)	(1)	A 5.6	(1)	(1)	(2)	(1)	A 5.3
	SB	Left	(1)	(1)	A 0.1	(1)	A 8.8	(1)	(1)	A 0.1	(1)	C 21.9	(1)	(1)	A 0.1	(1)	A 10.0
		Thru	(1)	(1)		(1)	A 9.1	(1)	(1)		(1)	B 14.3	(1)	(1)		(1)	A 6.3
		Right	(1)	(1)	(1)	(1)	A 3.1				(1)	A 4.8				(1)	A 4.4
Overall			(1)	(1)	A 0.3	A 0.3	B 11.7	(1)	(1)	A 0.2	A 0.3	B 17.0	(1)	(1)	A 0.2	A 0.3	B 12.8

(1) Movement does not exist

(2) Movement operates at free flow

Level-of-Service Matrix Tables

Welsh Road (S.R. 0063) and RIRO Access

Time Period			Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition			Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Thru/Thru	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)
		Right	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)
	WB	Thru	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)
		Thru/Right	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)
RIRO Access	NB	Right	(1)	(1)	(1)	(3)	C 15.7	(1)	(1)	(1)	(3)	C 21.2	(1)	(1)	(1)	(3)	C 15.4
Overall			(1)	(1)	(1)	(3)	A 0.2	(1)	(1)	(1)	(3)	A 0.4	(1)	(1)	(1)	(3)	A 0.6

(1) Intersection not studied under these conditions

(2) Movement operates at free flow

(3) Movement does not exist

95th Percentile Queue Matrix Tables

Welsh Road (S.R. 0063) and Jarrettown Road

Time Period					Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			Existing Storage (feet)	Proposed Storage (feet)	2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition					Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Left	150	150	50	43	43	50	48	23	23	23	25	28	5	5	5	5	5
		Thru	---	---	1,165	930	958	1,215	365	738	783	798	843	360	355	390	390	408	228
		Thru/Right	---	---					378					373					235
	WB	Left	100[2]	100[2]	473	395	398	423	203	210	248	250	260	168	43	50	50	55	65
		Thru/Right	---	---	443	375	378	393	445	725	738	740	800	918	218	238	238	250	318
Jarrettown Road	NB	Left/Thru	---	---	595	110	110	115	115	373	58	58	60	60	123	13	13	13	13
		Right	175	175		410	405	368	433		298	298	298	315		123	123	128	158
Village Drive	SB	Left/Thru/Right	---	---	68	75	75	78	78	323	320	320	328	330	23	23	23	23	23

(1) Intersection not studied under these conditions

(2) Center gore area can accommodate a total of approximately 280 feet of storage without impacting other movements

95th Percentile Queue Matrix Tables

Welsh Road (S.R. 0063) and Dresher Road

Time Period					Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			Existing Storage (feet)	Proposed Storage (feet)	2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition					Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Left	---	225	330	224	226	243	446	499	211	211	220	354	92	51	52	49	52
		Thru		---		98	99	95	205		315	318	313	84		100	101	92	116
		Thru																	
	WB	Thru	---	---	269	362	367	376	353	311	398	401	398	562	167	158	159	171	310
		Thru																	
		Right	210	210	228	379	364	406	65	82	202	203	216	134	30	72	72	73	187
Dresher Road	SB	Left	≥ 1000[1]	≥ 1000[1]	309	344	347	374	393	457	450	456	487	527	138	150	151	152	194
		Left																	
		Right	415	415	222	160	160	167	190	314	261	261	277	271	38	46	46	50	67

(1) Distance to adjacent signalized intersection

95th Percentile Queue Matrix Tables

Welsh Road (S.R. 0063) and Dreshertown Road (S.R. 2024)

Time Period					Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			Existing Storage (feet)	Proposed Storage (feet)	2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition					Existing	w/o Dev.	w/Dev. & Imps	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Thru	---	---	78	10	10	10	8	1,843	623	625	645	718	25	8	8	10	13
		Thru			138					1,985					25				
		Right		150		25	30	35	20		653	675	740	700		5	5	5	8
	WB	Left	175[1]	175[1]	303	285	280	290	485	568	593	595	610	545	133	123	123	128	105
		Thru/Thru	---	---	8	8	8	8	570	8	8	8	8	13	5	5	5	5	8
Dreshertown Road (S.R. 2024)	NB	Left	600	600	188	215	213	218	235	270	288	295	308	323	93	113	115	115	175
		Left																	
		Right	350	350	315	370	348	388	303	408	430	430	453	358	238	280	280	293	230

(1) 650' queue can be accomodated in the existing center left-turn lane along Welsh Road

(2) Distance to adjacent signalized intersection

95th Percentile Queue Matrix Tables

Welsh Road (S.R. 0063) and Dryden Road[1]

Time Period					Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			Existing Storage (feet)	Proposed Storage (feet)	2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition					Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Left	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Thru	---	---	3	8	8	8	585	3	8	8	8	40	5	8	8	8	23
		Right	225	225	0	3	3	0	98	0	0	0	0	3	0	0	0	0	3
	WB	Left	175[2]	175[2]	15	15	23	15	220	0	0	5	0	120	0	0	3	0	153
		Thru	---	---	208	213	300	225	393	295	313	313	328	388	125	138	145	143	278
		Thru/Right			215	220	313	235	410	0	0	0	0	0	130	145	153	150	288
Dryden Road	NB	Left	110	110	3	3	8	3	138	148	148	150	148	285	3	3	3	3	258
		Thru/Right	---	---	0	0	18	0	180	25	25	33	25	230	3	3	10	3	220
	SB	Left	150	150	3	3	3	3	3	5	5	5	5	5	3	3	3	3	3
		Thru/Right	---	---	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3

(1) It is recommended that the NB left-turn lane on Dryden Road and WB left-turn lane on Welsh Road (S.R. 0063) be extended to accommodate development of the Prudential Lot 3 site when a detailed development plan of that site is determined

(2) 500'+ queue can be accomodated in the existing center left-turn lane along Welsh Road

95th Percentile Queue Matrix Tables

Dreshertown Road (S.R. 2024) and Site Access

Time Period					Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year			Existing Storage (feet)	Proposed Storage (feet)	2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition					Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Zieger Tract Access	EB	Left/Thru/Right	---	---	(1)	(1)	(1)	8	20	(1)	(1)	(1)	8	13	(1)	(1)	(1)	0	5
Site Access	WB	Left/Thru	---	---	(1)	(1)	8	(1)	188	(1)	(1)	5	(1)	248	(1)	(1)	3	(1)	208
		Right	---	200	(1)	(1)		(1)	60	(1)	(1)		(1)	120	(1)	(1)		(1)	115
Dreshertown Road (S.R. 2024)	NB	Left	---	100	(1)	(1)	(1)	0	3	(1)	(1)	(1)	0	8	(1)	(1)	(1)	0	0
		Thru	---	≥ 1000[2]	(1)	(1)	(3)	(3)	310	(1)	(1)	(3)	(3)	560	(1)	(1)	(3)	(3)	225
		Right	---	225	(1)	(1)	(3)	(3)	43	(1)	(1)	(3)	(3)	83	(1)	(1)	(3)	(3)	85
	SB	Left	---	175	(1)	(1)	0	(1)	38	(1)	(1)	3	(1)	85	(1)	(1)	0	(1)	70
		Thru	---	750	(1)	(1)		(3)	543	(1)	(1)		(3)	720	(1)	(1)		(3)	198
		Right	---	100	(1)	(1)	(3)	(3)	3	(1)	(1)	(3)	(3)	3	(1)	(1)	(3)	(3)	0

(1) Movement does not exist

(2) Distance to adjacent signalized intersection

(3) Movement operates at free flow

95th Percentile Queue Matrix Tables

Welsh Road (S.R. 0063) and RIRO Access

Time Period			Existing Storage (feet)	Proposed Storage (feet)	Weekday Morning Peak Hour					Weekday Afternoon Peak Hour					Saturday Midday Peak Hour				
Design Year					2015	2018		2023		2015	2018		2023		2015	2018		2023	
Development Condition					Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.	Existing	w/o Dev.	w/Dev.	w/o Dev.	w/Dev.
Welsh Road (S.R. 0063)	EB	Thru/Thru	---	---	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)
		Right	---	225	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)
	WB	Thru	---	---	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)
		Thru/Right	---	---	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)
RIRO Access	NB	Right	---	---	(1)	(1)	(1)	(3)	10	(1)	(1)	(1)	(3)	23	(1)	(1)	(1)	(3)	25

(1) Movement does not exist

(2) Movement operates at free flow

(3) Movement does not exist

APPENDIX C

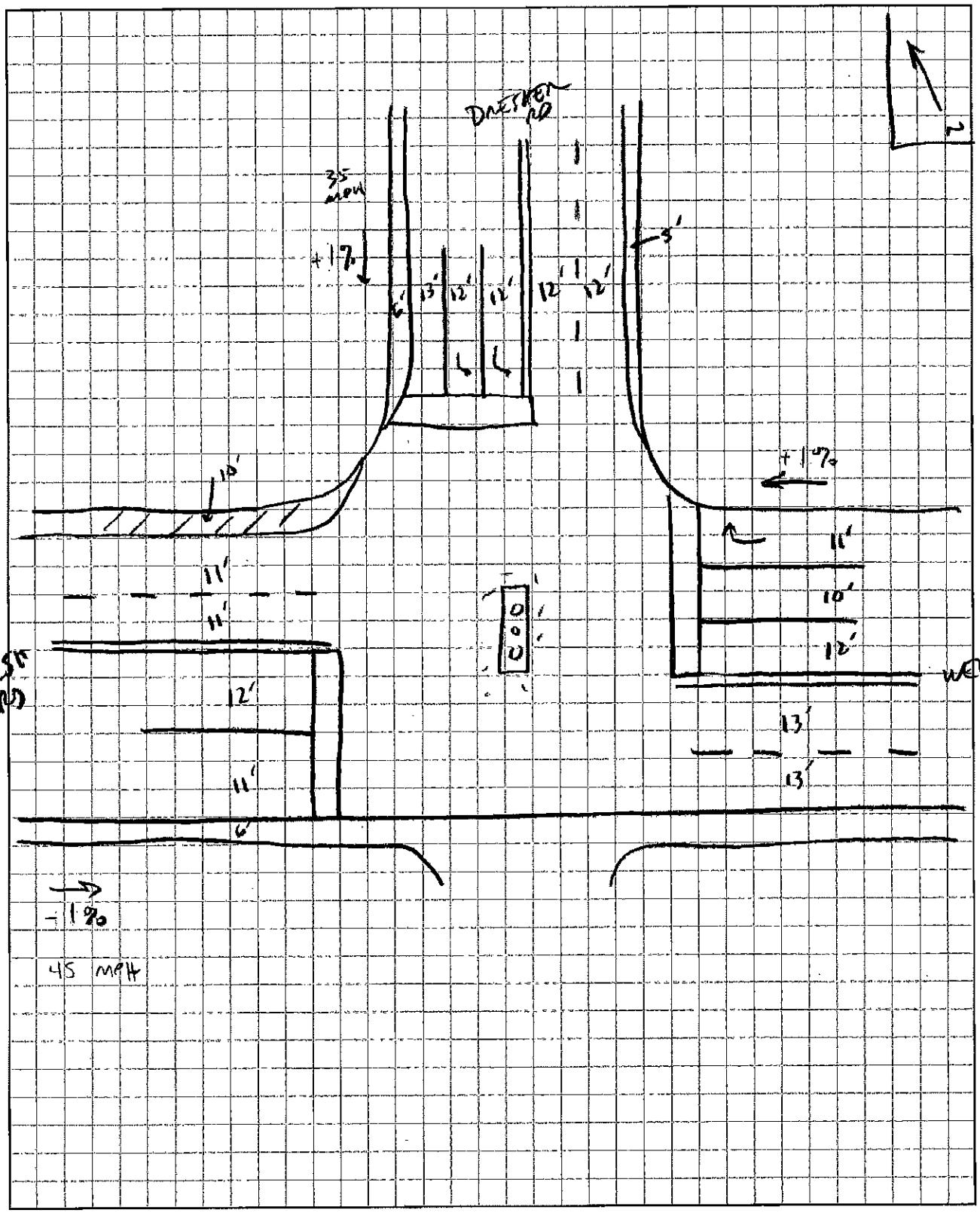
Study Area Sketches and Signal Permit Plan

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Job _____ McMahon Project No. _____ Sheet _____ of _____

Description WELSH RD + DREXEL RD Designed By RDB/BW Date _____

Checked By _____ Date _____

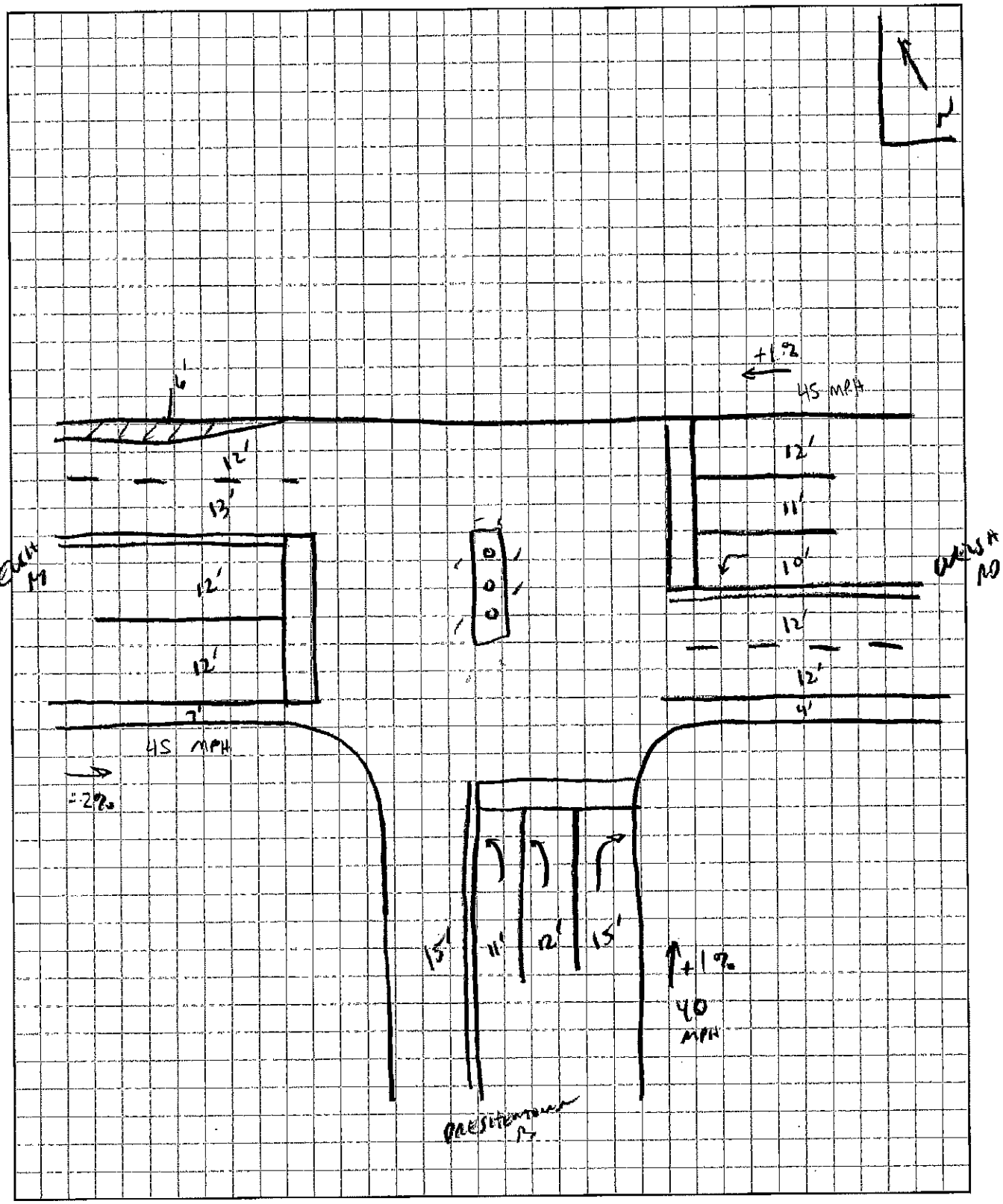


McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Job _____ McMahon Project No. _____ Sheet _____ of _____

Description WEST MP + _____ Designed By ADD/BW _____ Date _____

PRESENTATION MD _____ Checked By _____ Date _____

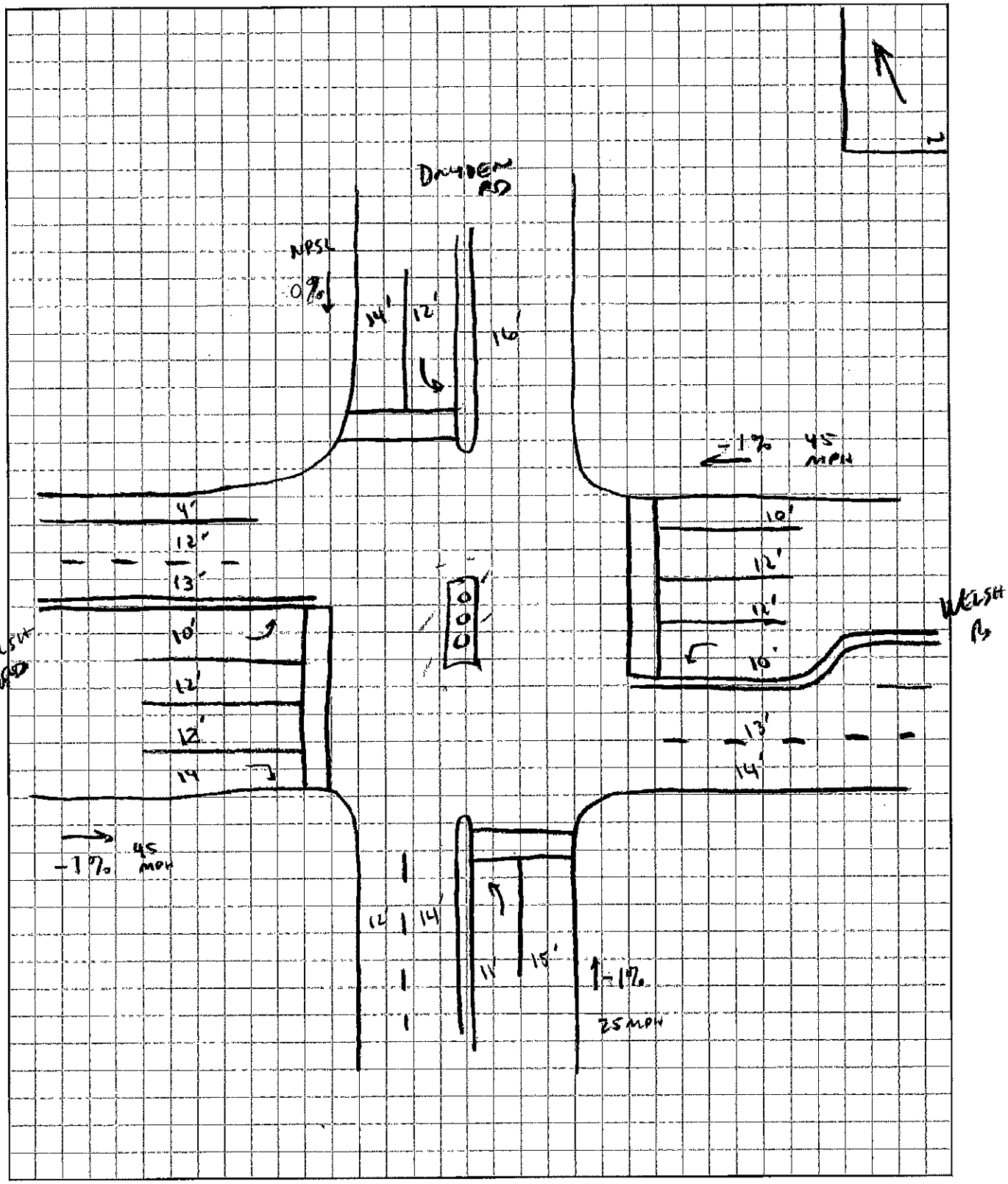


McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Job _____ McMahon Project No. _____ Sheet _____ of _____

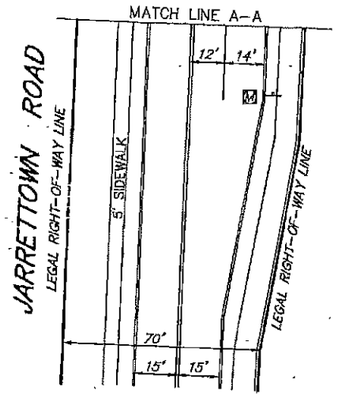
Description WELSH RD & DAYDEN RD Designed By NDO / BW Date _____

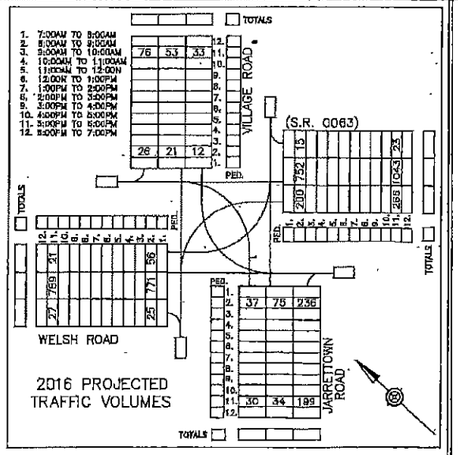
Checked By _____ Dare _____

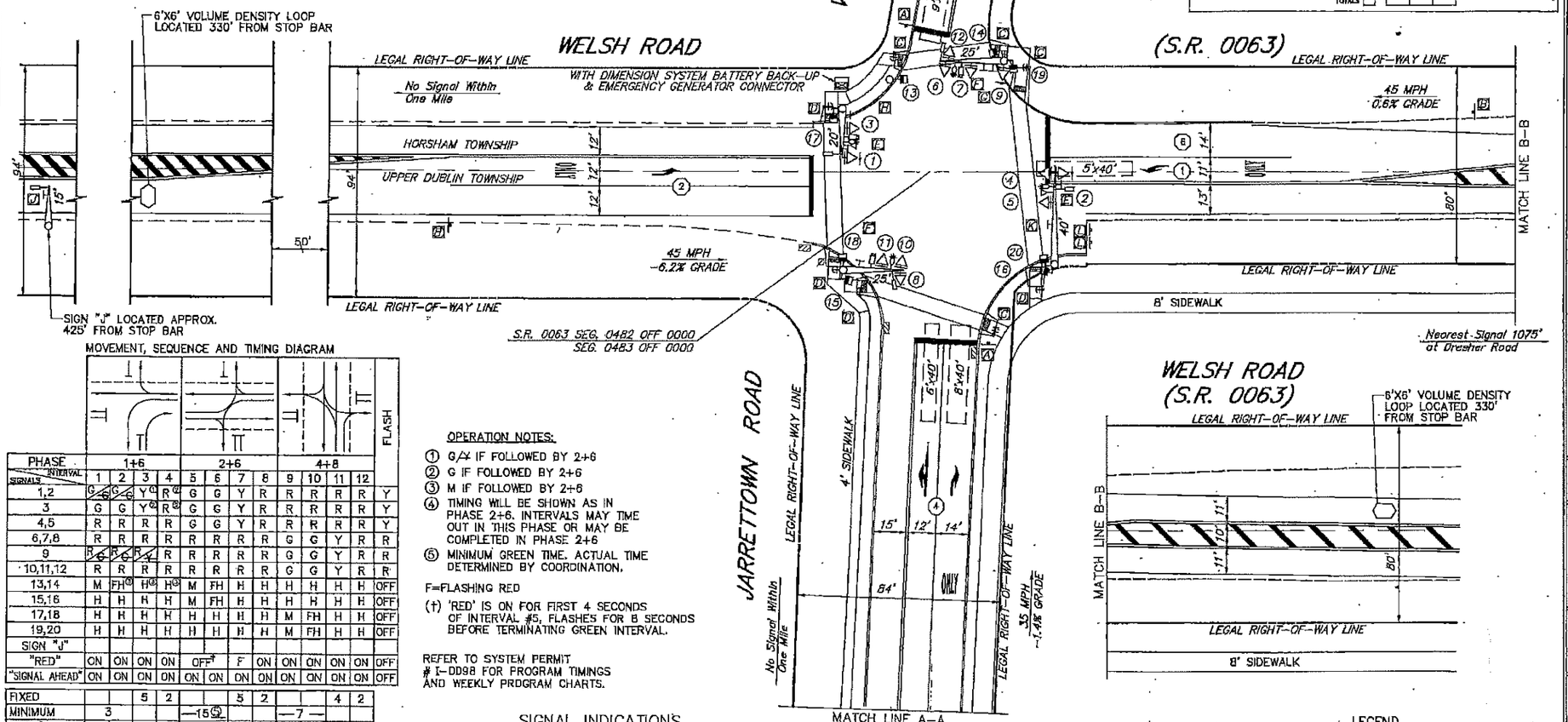


SIGN TABULATION			
PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R10-5AL	24"x30"	STOP HERE ON RED
B	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
C	R10-3E(R)	9"x15"	EDUCATIONAL PUSH BUTTON
D	R10-3E(L)	9"x15"	EDUCATIONAL PUSH BUTTON
E	R10-12	30"x36"	LEFT TURN YIELD ON GREEN ●
F	D3-4	72"x18"	Welsh Rd
G	R10-10R	30"x36"	RIGHT TURN SIGNAL
H	D3-5	96"x28"	←Jarrettown Rd/Village Rd→
J ***	W3-3	48"x48"	RED SIGNAL AHEAD
K	D3-5	96"x28"	Jarrettown Rd←/→Village Rd
L	OM-3R	12"x36"	RIGHT CLEARANCE MARKER
M	R3-7R	30"x30"	RIGHT LANE MUST TURN RIGHT

*** SEE SHEET 3 OF 3 "DETAIL RED SIGNAL AHEAD"







MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	1+6				2+6				4+8				FLASH
INTERVAL / SIGNALS	1	2	3	4	5	6	7	8	9	10	11	12	
1,2	G	G	Y	R	G	G	Y	R	R	R	R	R	Y
3	G	G	Y	R	G	G	Y	R	R	R	R	R	Y
4,5	R	R	R	R	G	G	Y	R	R	R	R	R	Y
6,7,8	R	R	R	R	R	R	R	R	G	G	Y	R	R
9	R	R	R	R	R	R	R	R	G	G	Y	R	R
10,11,12	R	R	R	R	R	R	R	R	G	G	Y	R	R
13,14	M	FH(3)	H(4)	H(5)	M	FH	H	H	H	H	H	H	OFF
15,16	H	H	H	H	M	FH	H	H	H	H	H	H	OFF
17,18	H	H	H	H	H	H	H	H	M	FH	H	H	OFF
19,20	H	H	H	H	H	H	H	H	M	FH	H	H	OFF
SIGN "J"													
"RED"	ON	ON	ON	ON	OFF(1)	F	ON	ON	ON	ON	ON	ON	OFF
"SIGNAL AHEAD"	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF

FIXED			5	2			5	2			4	2
MINIMUM	3				—15(5)—				—7—			
SEC./ACT.					—2—							
MAX. INITIAL					—35—							
PASSAGE	—3—				—5—				—5—			
TBR					—35—							
TTR					—15—							
MINIMUM GAP					—2.7—							
MAXIMUM 1	—10—				—70—				—15—			
PEDESTRIAN *	(4)				7	15			7	20		
MEMORY	—NL—				—MN—				—NL—			

* UPON PEDESTRIAN ACTUATION, OTHERWISE HAND SYMBOL AT ALL TIMES

OPERATION NOTES:

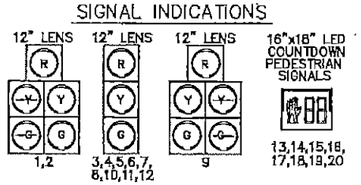
1. G/A IF FOLLOWED BY 2+6
2. G IF FOLLOWED BY 2+6
3. M IF FOLLOWED BY 2+6
4. TIMING WILL BE SHOWN AS IN PHASE 2+6. INTERVALS MAY TIME OUT IN THIS PHASE OR MAY BE COMPLETED IN PHASE 2+6
5. MINIMUM GREEN TIME. ACTUAL TIME DETERMINED BY COORDINATION.

F=FLASHING RED

(†) 'RED' IS ON FOR FIRST 4 SECONDS OF INTERVAL #5, FLASHES FOR 8 SECONDS BEFORE TERMINATING GREEN INTERVAL.

REFER TO SYSTEM PERMIT # I-0098 FOR PROGRAM TIMINGS AND WEEKLY PROGRAM CHARTS.

SIGNAL INDICATIONS



SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS & LOUVERS

LEGEND

- 20' — MAST ARM/ IDENTIFYING LENGTH
- (2) — VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS/ DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- (2) — PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- PEDESTRIAN PUSH-BUTTON/ SIGN
- A — SIGN/IDENTIFYING LETTER
- 12'x6' — DETECTION ZONE/SIZE
- 6'x6' — LOOP SENSOR/SIZE
- PRE-EMPTION SYSTEM
- FAIL-SAFE DEVICE
- CURB CUT RAMP
- UTILITY POLE
- (2) — PHASE NUMBER
- VIDEO DETECTOR

25 0 25
SCALE IN FEET

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL BE OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT # I-0098

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: HORSHAM & UPPER DUBLIN TWPS.
INTERSECTION: WELSH ROAD (SR 0063)
& JARRETTOWN ROAD/VILLAGE ROAD

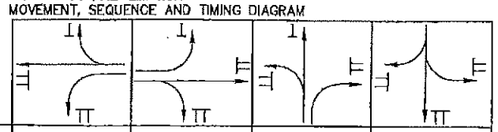
REVIEWED: _____ 7/8/2015
DATE
MUNICIPAL OFFICIAL DATE

RECOMMENDED: MARK L. KRAY 5-23-97
MUNICIPAL SIGNALS ENGINEER DATE
DOUGLAS MAY 5-23-97
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES/REV.	DATE	REVW	DATE	RECOM	DATE
1	NEW CADD DWG/TIMING UPDATE	CB	4/23/98	MK	4/23/98 4/28/98	DWM	4/29/98
2	CHANGE V/D TIMINGS	NU	4/20/00	MK	4/26/00 4/26/00	WJE	5/19/00
3	REV. COORD.	TPD	1/10/05	MK	1/30/05	LRB	2/1/05
4	ADD NB RT LANE, EVP, TIMING IMPR., VIDEO DET.	BURNS	6/17/15	DLJA	7/14/15 8/4/15	DJS	8/5/15
5							
6							
7							
8							

SHEET 2 OF 3 | PERMIT # 64-2385 | FILE # 2385

EMERGENCY PRE-EMPTION
MOVEMENT, SEQUENCE AND TIMING DIAGRAM



PHASE	6			2			4			8		
INTERVAL / SIGNALS	13	14	15	16	17	18	19	20	21	22	23	24
1,2	G/ⓐ	Yⓐ	Rⓐ	R	R	R	R	R	R	R	R	R
3	G	Yⓐ	Rⓐ	R	R	R	R	R	R	R	R	R
4,5	R	R	R	G	Yⓐ	Rⓐ	R	R	R	R	R	R
6,7,8	R	R	R	R	R	R	G	Y	R	R	R	R
8	R	R	R	R	R	R	G	Y	R	R	R	R
10,11,12	R	R	R	R	R	R	R	R	R	G	Y	R
13,14	H	H	H	H	H	H	H	H	H	H	H	H
15,16	H	H	H	H	H	H	H	H	H	H	H	H
17,18	H	H	H	H	H	H	H	H	H	H	H	H
19,20	H	H	H	H	H	H	H	H	H	H	H	H
SIGN J 'RED'	ON	ON	ON	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON
FIXED	**	5	2	**	5	2	**	4	2	**	4	2

** DURATION OF PRE-EMPTION

NOTE: IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE "OD" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

OPERATION NOTES:
ⓐ G/Ⓨ IF FOLLOWED BY 2+6
ⓑ G IF FOLLOWED BY 2+6

EMERGENCY PRE-EMPTION NOTES:

* CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE NORTHBOUND APPROACH OF JARRETTOWN RDAD, THE SOUTHBOUND APPROACH OF VILLAGE ROAD AND THE EASTBOUND AND WESTBOUND APPROACHES OF WELSH ROAD WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.

THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH. LOCATION OF THE EMERGENCY VEHICLE DETECTORS ARE TO BE FIELD ADJUSTED TO ACHIEVE MAXIMUM OPERATION.

* THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLES, SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY, FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY, THEN THE GREEN INTERVAL FOR THE PRE-EMPTED PHASE SHALL FOLLOW.

* THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TIME OUT ALL YELLOW, HAND/MAN AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

* IF THE SIGNAL HAS BEEN ACTUATED BY PEDESTRIAN PUSHBUTTON, AND THE SIGNAL IS PRE-EMPTED DURING THE "MAN" INTERVAL, THE MAN INTERVAL SHALL TERMINATE IMMEDIATELY FOLLOWED BY THE "FLASHING HAND" INDICATION IN ITS ENTIRETY, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE PROCEEDING TO THE PRE-EMPTION PHASE.

* IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE ARE FLASHING, ALL SIGNALS SHALL REMAIN FLASHING.

* IF ADDITIONAL PRE-EMPTION, PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.

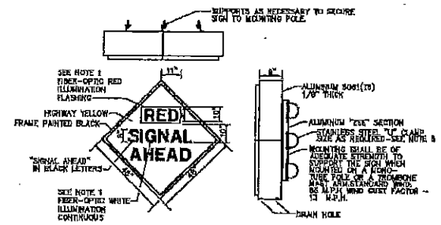
* UPON COMPLETION OF PRE-EMPTION PHASES 2,4,6,8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.

* IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED. PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.

SIGN K
86"
28"
Jarrettown Rd →
← Village Rd
N.T.S.
CLEARVIEW-ONE 1-W
10.6" UPPER CASE
8" LOWER CASE LETTERS

SIGN F
72"
16"
Welsh Rd
N.T.S.
CLEARVIEW-ONE 1-W
8" UPPER CASE
6" LOWER CASE LETTERS

SIGN H
96"
28"
← Jarrettown Rd
Village Rd →
N.T.S.
CLEARVIEW-ONE 1-W
10.6" UPPER CASE
8" LOWER CASE LETTERS



DETAIL
"RED SIGNAL AHEAD"
*** SIGN "J" MOUNTING ARRANGEMENTS
NOT TO SCALE

GENERAL NOTES FOR
"RED SIGNAL AHEAD" SIGN

1. "RED SIGNAL AHEAD" SIGN SHALL BE FIBER-OPTIC WITH A MINIMUM OF TWO (2) LAMPS REQUIRED FOR EACH LINE OF THE SIGN LEGEND.
2. THE FIBER-OPTIC BUNDLES SHALL BE ARRANGED SO THAT FAILURE OF ONE LAMP WILL NOT EXTINGUISH THE LINE OF THE LEGEND.
3. "SIGNAL AHEAD" TO BE CONTINUOUSLY ILLUMINATED.
4. THE WORD "RED" TO BE ILLUMINATED IN A FLASHING MODE AND AS SPECIFIED IN THE OPERATIONAL CHART.
5. THE WORD "RED" SHALL NOT BE VISIBLE DURING THE GREEN INTERVAL.
6. THE SIGN CASE SHALL BE FULLY SEALED AND WATER TIGHT.

OPERATIONAL NOTES:

A. WHEN ACTIVATED, THE WORD "RED" SHALL FLASH 8 SECONDS BEFORE THE TERMINATION OF THE GREEN INTERVAL (INTERVAL 6) AND DURING THE ENTIRE YELLOW INTERVAL (INTERVAL 7).

B. DURING THE INTERVALS 1,2,3,4,8,9,10,11 AND 12 THE "RED" SHALL BE A STEADY BURN OPERATION.

C. (†) SIGN IS ON FOR FIRST 4 SECONDS OF INTERVAL #5, FLASH 'RED' FOR 8 SECONDS AS INDICATED IN NOTE A.

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER, SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT, ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPAUTY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE OR CRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED DECEMBER 20, 1974.

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SYSTEM PERMIT # I-0098

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: HORSHAM & UPPER DUBLIN TWPS.
INTERSECTION: WELSH ROAD (SR 0063)
& JARRETTOWN ROAD/VILLAGE ROAD

REVIEWED: 7/8/2015
MUNICIPAL OFFICIAL — DATE

RECOMMENDED:
MARK L. KRAY — 5-23-97
MUNICIPAL SIGNALS ENGINEER — DATE
DOUGLAS MAY — 5-23-97
DISTRICT TRAFFIC ENGINEER — DATE

NO.	REVISION	DES. REV.	DATE	REVW.	DATE	RECOM.	DATE
1	NEW CADD DWG/TIMING UPDATE	CB	4/23/98	MK	4/23/98	DWM	4/29/98
2	CHANGE V/D TIMINGS	NU	4/20/00	MK	4/20/00 4/25/00	WJE	5/14/00
3	REV. COORD.	TPD	1/10/05	MK	1/28/05	LRB	2/1/05
4	ADD. NB RT LANE,EVP,TIMING &PR.,VIDEO DET.	BURNS	5/17/15	DLA	7/7/15		7/7/15
5							
6							
7							
8							

SHEET 3 OF 3 | PERMIT # 64-2385 | FILE # 2385

SIGN TABULATION			
PLAN SYMBOL	SERIES	SIZE	DESCRIPTION
A	R9-3	18"x18"	NO PEDESTRIAN CROSSING SIGN
B	D3-4	72"x16"	Welsh Rd
C	R3-7R	30"x30"	RIGHT LANE MUST TURN RIGHT
D	R10-3E(L)	9"x15"	EDUCATIONAL PUSH BUTTON ←
E	OM1-3	18"x18"	OBJECT MARKER
F	R10-3E(R)	9"x15"	EDUCATIONAL PUSH BUTTON →
G	R10-12	30"x36"	LEFT TURN YIELD ON GREEN●
H	R3-5A	30"x36"	STRAIGHT THROUGH SIGN
I	R3-6R	30"x36"	RIGHT TURN SIGN
M	R3-5L	30"x36"	LEFT TURN SIGN
N	W1-7	48"x24"	LARGE DOUBLE ARROW SIGN
P	D3-4	72"x16"	Dresher Rd
S	R10-10R	30"x36"	RIGHT TURN SIGNAL
T	R3-7L	30"x30"	LEFT LANE MUST TURN RIGHT

SIGN B
N.T.S.

CLEARVIEW-ONE 1-W
10.5" UPPER CASE
8" LOWER CASE LETTERS

SIGN R
N.T.S.

CLEARVIEW-ONE 1-W
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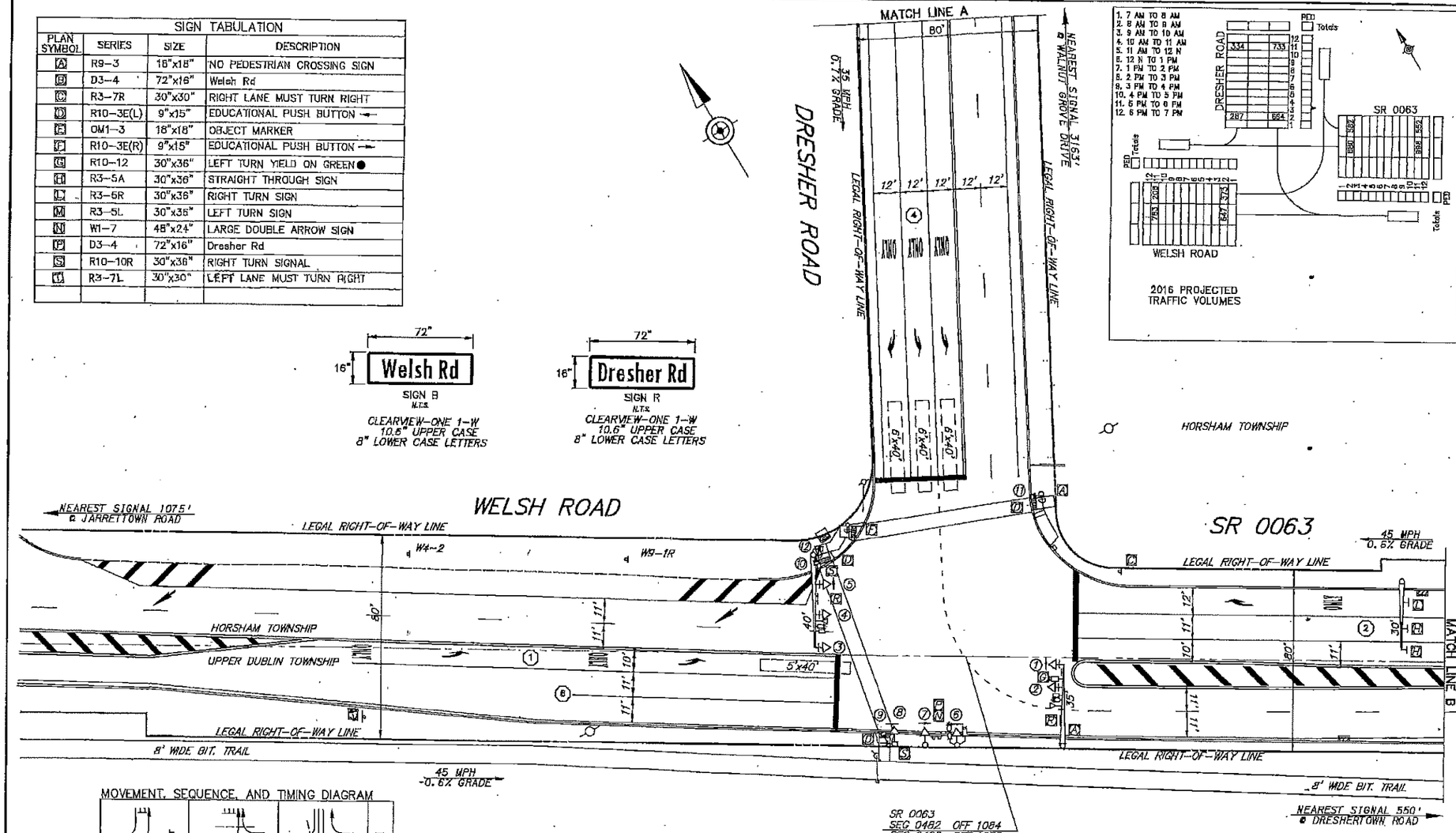

HORSHAM TOWNSHIP

UPPER DUBLIN TOWNSHIP

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SYSTEM PERMIT # I-0098

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: HORSHAM & UPPER DUBLIN TWPS.
INTERSECTION: WELSH ROAD (SR 0063)
& DRESHER ROAD

REVIEWED: 7/8/2015
DATE
MUNICIPAL OFFICIAL DATE

RECOMMENDED:
JEFFREY GREENE 7-6-81
MUNICIPAL SIGNALS ENGINEER DATE
STEPHEN B LESTER 7-6-81
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES. REV.	DATE	REVR.	DATE	RECOM	DATE
1	ADDING WB OHLC SIGN & PVMT MARKINGS	NV	9/11/00	RR MK	9/18/00 2/16/00	LRB	9/22/00
2	NEW DWG; REV COORD	TPD	1/10/05	MLK	1/20/05	LRB	2/1/05
3	ADD. EB LT., EVP, TIMING &PHR., VIDEO DET.	BURNS	8/17/15	DRA	7/14/15	[illegible]	7/15/15
4							
5							
6							
7							
8							

SHEET 2 OF 3 | PERMIT # 64-2071 | FILE # 2071

MOVEMENT, SEQUENCE, AND TIMING DIAGRAM

PHASE	1+6			2+6				4				FLASH
INTERVAL / SIGNAL	1	2	3	4	5	6	7	8	9	10	11	
1	G/G	Y①	R②	G	G	Y	R	R	R	R	R	Y
2	G	Y②	R②	G	G	Y	R	R	R	R	R	Y
3,4	R	R	R	G	G	Y	R	R	R	R	R	Y
5	R	R	R	G	G	Y	R	R/G	R/G	R/G	R	OFF
6,7	R	R	R	R	R	R	R	G/G	G/G	Y	R	R
8	R/G	R/Y	R	R	R	R	R	G	G	Y	R	OFF
9,10	H	H	H	H	H	H	H	M	FH	H	H	OFF
11,12	H	H	H	M	FH	H	H	H	H	H	H	OFF

FIXED		4	2			4	2			4	3
MINIMUM	3				20			7			
PASSAGE	3				++			5			
MAX. 1	20				40			20			
PEDESTRIAN*					7	23			7	23	
MEMORY	NL				MN				NL		

* UPON PEDESTRIAN ACTUATION ONLY

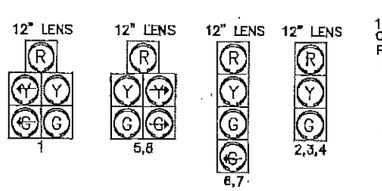
REFER TO SYSTEM PERMIT # I-0098 FOR PROGRAM TIMINGS AND WEEKLY PROGRAM CHARTS.

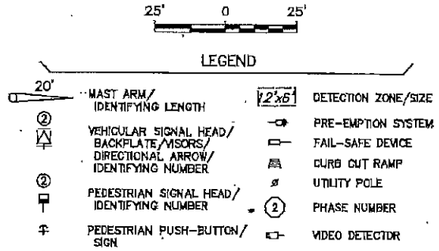
*UPON PEDESTRIAN ACTUATION, OTHERWISE HAND SYMBOL AT ALL TIMES

OPERATION NOTES:

① G/Y IF FOLLOWED BY 2+6.
② G IF FOLLOWED BY 2+6.
++ ADVANCED DILEMMA ZONE DETECTION SYSTEM NOTES
EST. TIME OF ARRIVAL: MIN. 2.5-MAX. 5.5 SEC.
RANGE OF DETECTION: STOP BAR TO 450 FT.
SPEED BOUNDARY: MIN. 27-MAX. 100 MPH
DENSITY ZONE NOTES
RANGE OF DETECTION: STOP BAR TO 100 FT.
MINIMUM SPEED BOUNDARY: 5 MPH TO 30 MPH

SIGNAL INDICATIONS





EMERGENCY PRE-EMPTION
MOVEMENT, SEQUENCE, AND TIMING DIAGRAM

PHASE	6			2			4		
INTERVAL	12	13	14	15	16	17	18	19	20
SIGNALS									
1	G/G	Y(a)	R(a)	R	R	R	R	R	R
2	G	Y(a)	R(a)	R	R	R	R	R	R
3,4	R	R	R	G	Y(a)	R(a)	R	R	R
5	R	R	R	G	Y(a)	R(a)	R	R	R
6,7	R	R	R	R	R	R	G/G	Y	R
8	R	R	R	R	R	R	G	Y	R
9,10	H	H	H	H	H	H	H	H	H
11,12	H	H	H	H	H	H	H	H	H
FIXED	▲	4	2	▲	4	2	▲	4	3

▲ FOR DURATION OF PRE-EMPTION

OPERATION NOTES:
(a) SIGNAL TO INDICATE R WHEN RETURNING TO NORMAL OPERATION
(b) SIGNAL TO INDICATE G/Y WHEN RETURNING TO NORMAL OPERATION

NOTE:
IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

EMERGENCY PRE-EMPTION NOTES:

* CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE SOUTHBOUND APPROACH OF DRESHER ROAD AND THE EASTBOUND AND WESTBOUND APPROACHES OF WELSH ROAD (SR 0063) WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.

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* THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TIME OUT ALL YELLOW, HAND/MAN AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

* IF THE SIGNAL HAS BEEN ACTUATED BY PEDESTRIAN PUSHBUTTON, AND THE SIGNAL IS PRE-EMPTED DURING THE "MAN" INTERVAL, THE MAN INTERVAL SHALL TERMINATE IMMEDIATELY FOLLOWED BY THE "FLASHING HAND" INDICATION IN ITS ENTIRETY, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE PROCEEDING TO THE PRE-EMPTION PHASE.

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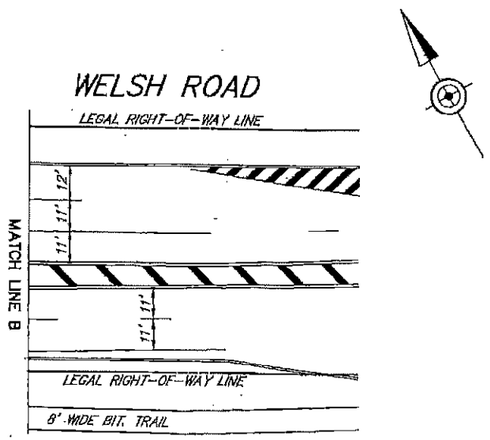
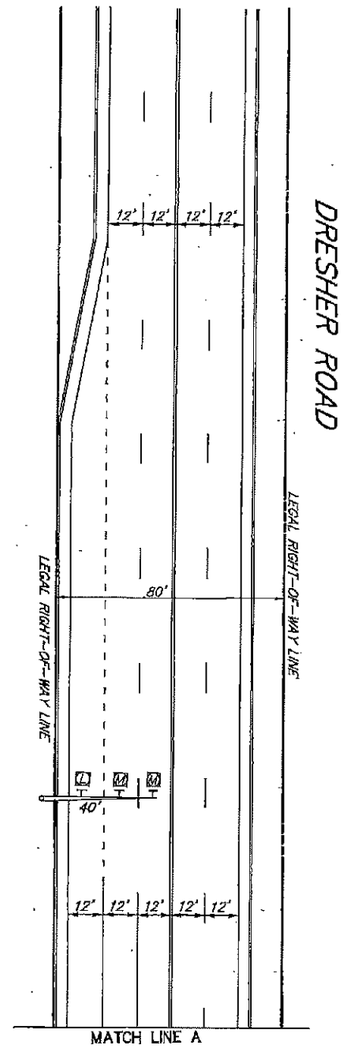




25' 0 25'

LEGEND

20'	MAST ARM/ IDENTIFYING LENGTH	12'x6'	DETECTION ZONE/SIZE
②	VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS/ DIRECTIONAL ARROW/ IDENTIFYING NUMBER		PRE-EMPTION SYSTEM
			FAIL-SAFE DEVICE
			CURB CUT RAMP
②	PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER	ø	UTILITY POLE
		(2)	PHASE NUMBER
	PEDESTRIAN PUSH-BUTTON/ SIGN		VIDEO DETECTOR
A	SIGN/IDENTIFYING LETTER		ADVANCE DILEMA ZONE DETECTOR

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 18 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL BE OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT # I-0098

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: HORSHAM & UPPER DUBLIN TWPS.
INTERSECTION: WELSH ROAD (SR 0063)
& DRESHER ROAD

REVIEWED: [signature] 7/8/2015
DATE
MUNICIPAL OFFICIAL DATE

RECOMMENDED:
JEFFREY GREENE 7-6-81
MUNICIPAL SIGNALS ENGINEER DATE
STEPHEN B LESTER 7-6-81
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ REV.	DATE	REVW.	DATE	RECOM	DATE
1	ADDING WB ONLY SIGN & PVMT MARKINGS	NV	9/11/00	RP MK	9/18/00 9/28/00	LRB	9/22/00
2	NEW DWG; REV COORD	TPD	1/10/05	MLK	1/20/05	LRB	2/1/05
3	ADD. EB LTL EXP.TWING MAPR.,VIDEO DET.	BURNS	6/17/15	DLA	7/1/15	[illegible]	7/15/15
4							
5							
6							
7							
8							

SHEET 3 OF 3 | PERMIT # 64-2071 | FILE # 2071

SIGN TABULATION

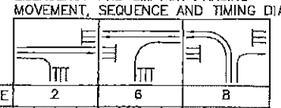
PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R9-3	18"x18"	NO PEDESTRIAN CROSSING
B	R3-5L	30"x36"	LEFT TURN
C	R3-5R	30"x36"	RIGHT TURN
D	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
E	W1-7	48"x24"	LARGE DOUBLE ARROW
F	R10-12	30"x36"	LEFT TURN YIELD ON GREEN ●
G	D3-4	72"x16"	Welsh Rd
H	D3-4	96"x16"	Dreshertown Rd
J	R10-10R	24"x30"	RIGHT TURN SIGNAL
K	R10-10L	24"x30"	LEFT TURN SIGNAL
L	R10-3E	9"x15"	EDUCATIONAL PUSH BUTTON →
M	R10-3E	9"x15"	EDUCATIONAL PUSH BUTTON ←
N	R10-11	30"x36"	NO TURN ON RED
P	R3-7R	30"x30"	RIGHT LANE MUST TURN RIGHT

CLEARVIEW-ONE 1-W
10.6" UPPER CASE
8" LOWER CASE LETTERS

SIGN K — 72" x 16" — Welsh Rd

SIGN M — 96" x 16" — Dreshertown Rd

EMERGENCY PRE-EMPTION PHASING MOVEMENT, SEQUENCE AND TIMING DIAGRAM



PHASE	2			6			8		
SIGNALS / INTERVAL	12	13	14	15	16	17	18	19	20
1	R	R	R	G/Ⓖ	Y/Ⓨ	R/Ⓡ	R	R	R
2	R	R	R	G	Y/Ⓨ	R/Ⓡ	R	R	R
3,4,5	G	Y/Ⓨ	R/Ⓡ	R	R	R	R	R	R
6	R	R	R	R	R	R	-G-	Y	R
7,8	R	R	R	R	R	R	G/Ⓖ	Y	R
9	R	R	R	R	R	R	G	Y	R
10,11	H	H	H	H	H	H	H	H	H
12,13	H	H	H	H	H	H	H	H	H
FIXED	*	5	2	*	5	2	*	4	2

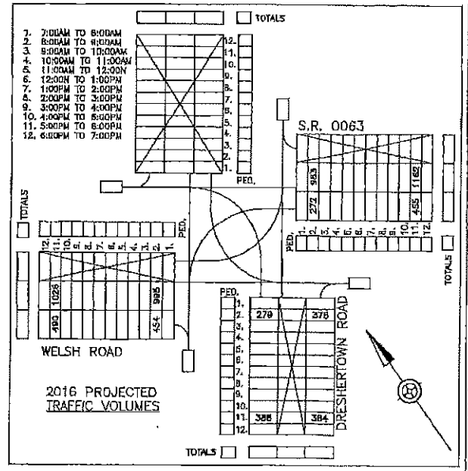
* FOR DURATION OF PRE-EMPTION

Ⓖ G/-Y- WHEN RETURNING TO NORMAL OPERATION.
Ⓡ G WHEN RETURNING TO NORMAL OPERATION.

NOTE:
IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND & WESTBOUND APPROACHES OF WELSH ROAD AND THE NORTHBOUND APPROACH OF DRESHERTOWN ROAD WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.
  THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE, SHALL TERMINATE ALL INDICATIONS, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PRE-EMPTION OCCURS. THE "GREEN" INDICATIONS FOR THE PRE-EMPTED PHASE SHALL REMAIN "GREEN" FOR THE DURATION OF SIGNAL PRE-EMPTION AND "RED" INDICATIONS DISPLAYED FOR ALL OTHER PHASES. ONLY THOSE PHASES NOT POSING A YELLOW TRAP CONDITION (PHASES 1+6 AND 8) MAY REMAIN GREEN.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.
- IF THE SIGNAL HAS BEEN ACTUATED BY A PEDESTRIAN PUSH BUTTON AND THE SIGNAL IS PRE-EMPTED THE PEDESTRIAN TIME SHALL BE SPLIT BETWEEN "PED WALK" AND "PED CLEAR". THE "PED WALK" INTERVAL SHALL TERMINATE IMMEDIATELY FOLLOWED BY THE "PED CLEAR" INTERVAL. THIS INTERVAL SHALL TIME OUT FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE PROCEEDING TO THE PRE-EMPTION PHASE.
- IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.
- UPON COMPLETION OF PRE-EMPTION, PHASE 2, 6, OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED, PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.



GENERAL NOTES

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POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

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THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 20, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT FOR REVIEW PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT # I-0098

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

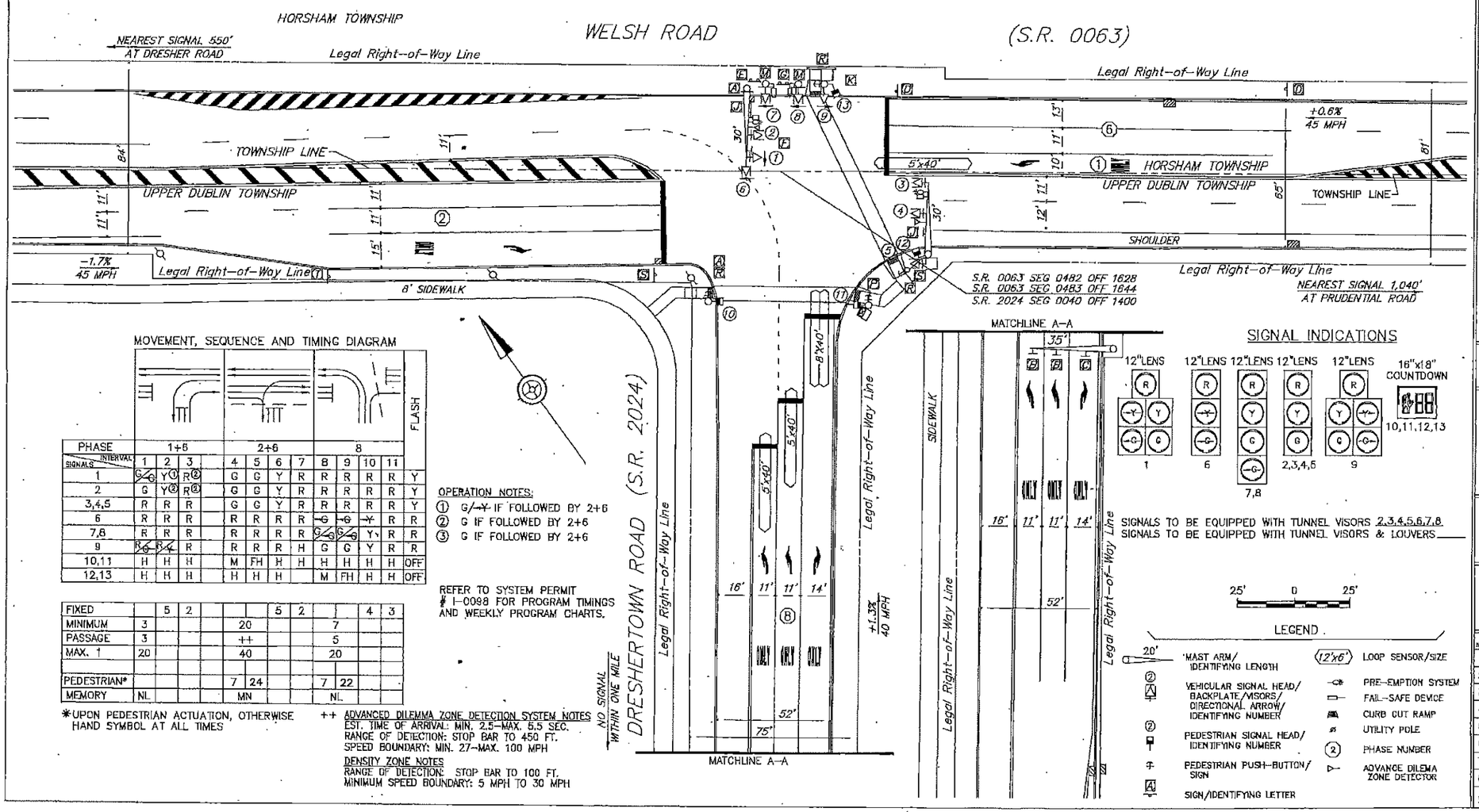
COUNTY: MONTGOMERY
MUNICIPALITY: UPPER DUBLIN/HORSHAM TWPS.
INTERSECTION: WELSH ROAD (S.R. 0063) AND DRESHERTOWN ROAD (S.R. 2024)

REVIEWED: _____ 7/1/2015
MUNICIPAL OFFICIAL — DATE

RECOMMENDED:
MARK KRAY — SIGNALS ENGINEER — 5/30/96 DATE
DOUGLAS W. MAY, PE — DISTRICT TRAFFIC ENGINEER — 5/30/96 DATE

NO.	REVISION	DES/REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	NEW GEOMETRY						
2	RE-LOCATED M.A. POLES	MV	9/00	MLK	9/00	LRB	9/00
3	CHNG MA FOR OHLC DRSHRTWN RD	MCH	10/01	MLK	11/2/01	LRB	11/15/01
4	REV. CONFIG.	TPD	1/10/05	MLK	1/20/05	LRB	2/1/05
5	ADD EB RGT TURN LN, DILEMMA DET, D'DWN, APPR RESTRIPE, TIMING CHNGS	BURNS	6/17/15	PLM	7/1/15	[illegible]	7/15/15
6							
7							
8							

SHEET 2 OF 2 | PERMIT # 64-1893 | FILE # 1893



MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	1+6			2+6				8				FLASH
INTERVAL / SIGNALS	1	2	3	4	5	6	7	8	9	10	11	
1	G/Ⓖ	Y①	R②	G	G	Y	R	R	R	R	R	Y
2	G	Y②	R②	G	G	Y	R	R	R	R	R	Y
3,4,5	R	R	R	G	G	Y	R	R	R	R	R	Y
6	R	R	R	R	R	R	R	-G-	-Y-	R	R	
7,8	R	R	R	R	R	R	R	G/Ⓖ	G/Ⓖ	Y	R	
9	R/Ⓡ	R/Ⓡ	R	R	R	R	H	G	G	Y	R	R
10,11	H	H	H	M	FH	H	H	H	H	H	H	OFF
12,13	H	H	H	H	H	H		M	FH	H	H	OFF

OPERATION NOTES:
① G/-Y- IF FOLLOWED BY 2+6
② G IF FOLLOWED BY 2+6
③ G IF FOLLOWED BY 2+6

REFER TO SYSTEM PERMIT # I-0098 FOR PROGRAM TIMINGS AND WEEKLY PROGRAM CHARTS.

FIXED		5	2			5	2			4	3	
MINIMUM	3				20				7			
PASSAGE	3				++				5			
MAX. 1	20				40				20			
PEDESTRIAN*					7	24			7	22		
MEMORY	NL				MN				NL			

*UPON PEDESTRIAN ACTUATION, OTHERWISE HAND SYMBOL AT ALL TIMES

++ ADVANCED DILEMMA ZONE DETECTION SYSTEM NOTES
EST. TIME OF ARRIVAL: MIN. 2.5-MAX. 5.5 SEC.
RANGE OF DETECTION: STOP BAR TO 450 FT.
SPEED BOUNDARY: MIN. 27-MAX. 100 MPH

DENSITY ZONE NOTES
RANGE OF DETECTION: STOP BAR TO 100 FT.
MINIMUM SPEED BOUNDARY: 5 MPH TO 30 MPH

SIGNAL INDICATIONS

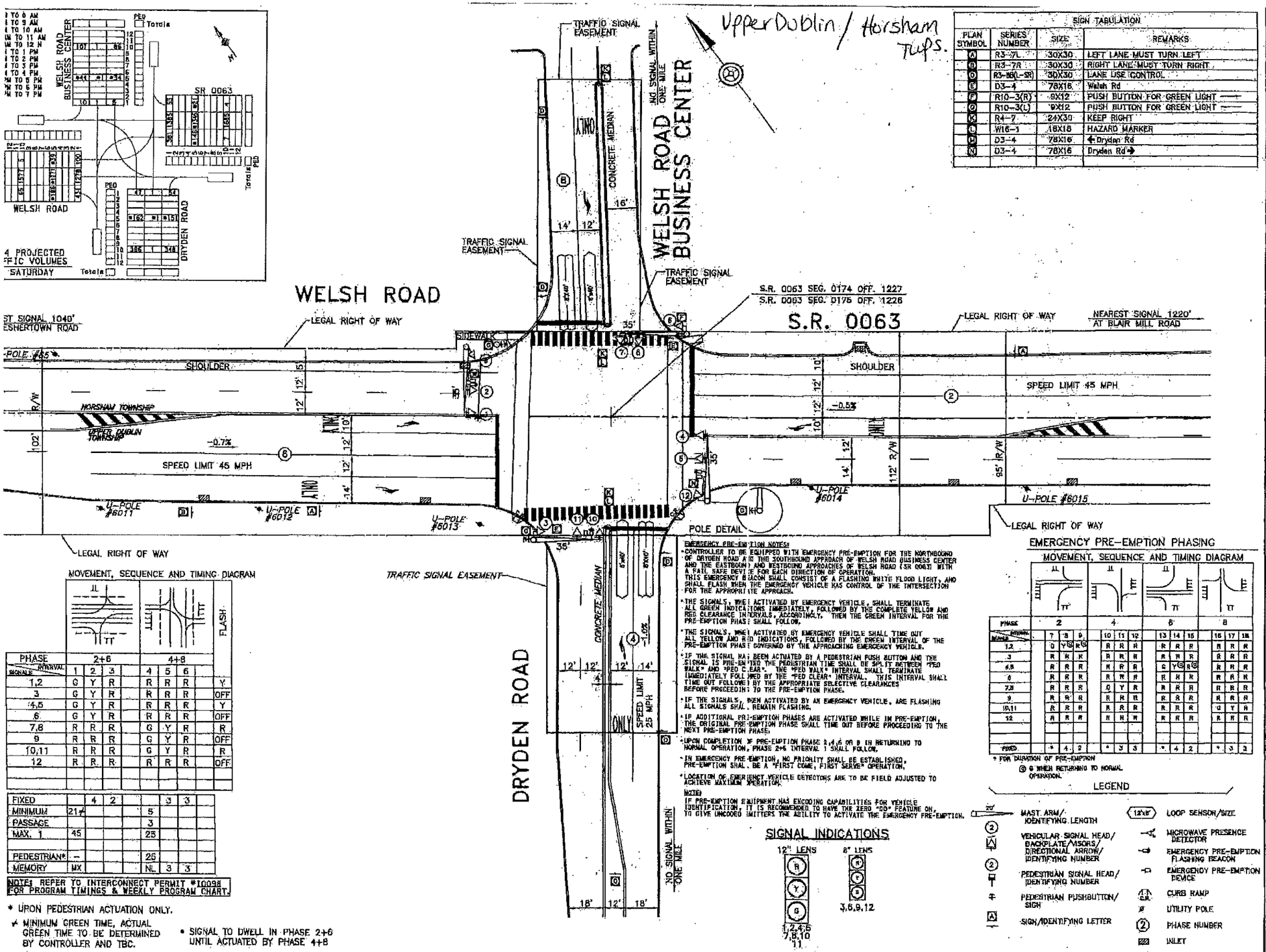
SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS 2,3,4,5,6,7,8
SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS & LOUVERS

LEGEND

- 20' — MAST ARM/IDENTIFYING LENGTH
- (12'x6') — LOOP SENSOR/SIZE
- ② — VEHICULAR SIGNAL HEAD/BACKPLATE/MSORS/DIRECTIONAL ARROW/IDENTIFYING NUMBER
- PRE-EMPTION SYSTEM
- FAIL-SAFE DEVICE
- CURB CUT RAMP
- UTILITY POLE
- ② — PEDESTRIAN SIGNAL HEAD/IDENTIFYING NUMBER
- (2) — PHASE NUMBER
- PEDESTRIAN PUSH-BUTTON/SIGN
- ADVANCE DILEMMA ZONE DETECTOR
- A — SIGN/IDENTIFYING LETTER

#3215

Upper Dublin / Horsham Twps.



SIGN TABULATION			
PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R3-7L	30X30	LEFT LANE MUST TURN LEFT
B	R3-7R	30X30	RIGHT LANE MUST TURN RIGHT
D	R3-16(L-SR)	30X30	LANE USE CONTROL
E	D3-4	78X16	Welsh Rd
F	R10-3(R)	9X12	PUSH BUTTON FOR GREEN LIGHT →
G	R10-3(L)	9X12	PUSH BUTTON FOR GREEN LIGHT ←
K	R4-7	24X30	KEEP RIGHT
L	W16-1	18X18	HAZARD MARKER
M	D3-4	78X16	←Dryden Rd
N	D3-4	78X16	Dryden Rd→

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2+6				4+8				FLASH
SIGNAL INTERVAL	1	2	3		4	5	6		
1,2	G	Y	R		R	R	R		Y
3	G	Y	R		R	R	R		OFF
4,5	G	Y	R		R	R	R		Y
6	G	Y	R		R	R	R		OFF
7,8	R	R	R		G	Y	R		R
9	R	R	R		G	Y	R		OFF
10,11	R	R	R		G	Y	R		R
12	R	R	R		R	R	R		OFF

FIXED		4	2			3	3	
MINIMUM	21*				5			
PASSAGE					3			
MAX. 1	45				25			
PEDESTRIAN*	–				26			
MEMORY	MX				NL	3	3	

NOTE: REFER TO INTERCONNECT PERMIT #10098 FOR PROGRAM TIMINGS & WEEKLY PROGRAM CHART.

* UPON PEDESTRIAN ACTUATION ONLY.

* MINIMUM GREEN TIME, ACTUAL GREEN TIME TO BE DETERMINED BY CONTROLLER AND TBC.

• SIGNAL TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 4+8

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE NORTHBOUND OF DRYDEN ROAD A IS THE SOUTHBOUND APPROACH OF WELSH ROAD BUSINESS CENTER AND THE EASTBOUND AND WESTBOUND APPROACHES OF WELSH ROAD (SR 0063) WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION. THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY, FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY. THEN THE GREEN INTERVAL FOR THE PRE-EMPTION PHASE SHALL FOLLOW.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.
- IF THE SIGNAL HAS BEEN ACTUATED BY A PEDESTRIAN PUSH BUTTON AND THE SIGNAL IS PRE-EMPTED THE PEDESTRIAN TIME SHALL BE SPLIT BETWEEN "PED WALK" AND "PED CLEAR". THE "PED WALK" INTERVAL SHALL TERMINATE IMMEDIATELY FOLLOWED BY THE "PED CLEAR" INTERVAL. THIS INTERVAL SHALL TIME OUT FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE PROCEEDING TO THE PRE-EMPTION PHASE.
- IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.
- UPON COMPLETION OF PRE-EMPTION PHASE 2,4,6 OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED. PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.
- LOCATION OF EMERGENCY VEHICLE DETECTORS ARE TO BE FIELD ADJUSTED TO ACHIEVE MAXIMUM OPERATION.

NOTE:
IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

SIGNAL INDICATIONS

EMERGENCY PRE-EMPTION PHASING

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2			4			6			8		
SIGNAL INTERVAL	7	8	9	10	11	12	13	14	15	16	17	18
1,2	G	Y	R	R	R	R	R	R	R	R	R	R
3	R	R	R	R	R	R	R	R	R	R	R	R
4,5	R	R	R	R	R	R	G	Y	R	R	R	R
6	R	R	R	R	R	R	R	R	R	R	R	R
7,8	R	R	R	G	Y	R	R	R	R	R	R	R
9	R	R	R	R	R	R	R	R	R	R	R	R
10,11	R	R	R	R	R	R	R	R	R	G	Y	R
12	R	R	R	R	R	R	R	R	R	R	R	R
FIXED	*	4	2	*	3	3	*	4	2	*	3	3

* FOR DURATION OF PRE-EMPTION

⑥ WHEN RETURNING TO NORMAL OPERATION.

LEGEND

- 20' — MAST ARM/IDENTIFYING LENGTH
- (2) — VEHICULAR SIGNAL HEAD/BACKPLATE/MSORS/DIRECTIONAL ARROW/IDENTIFYING NUMBER
- (2) — PEDESTRIAN SIGNAL HEAD/IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/SIGN
- A — SIGN/IDENTIFYING LETTER
- 12"x8" — LOOP SENSOR/SIZE
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- EMERGENCY PRE-EMPTION DEVICE
- CURB RAMP
- UTILITY POLE
- (2) — PHASE NUMBER
- INLET

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SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

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THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 187, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 19, 1996.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

25' 0' 25' 50'
SCALE IN FEET

SYSTEM PERMIT # 10098

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: UPPER DUBLIN/HORSHAM TWPS.
INTERSECTION: WELSH ROAD (S.R. 0063) AND DRYDEN ROAD/WELSH RD BUSINESS CTR

REVIEWED:

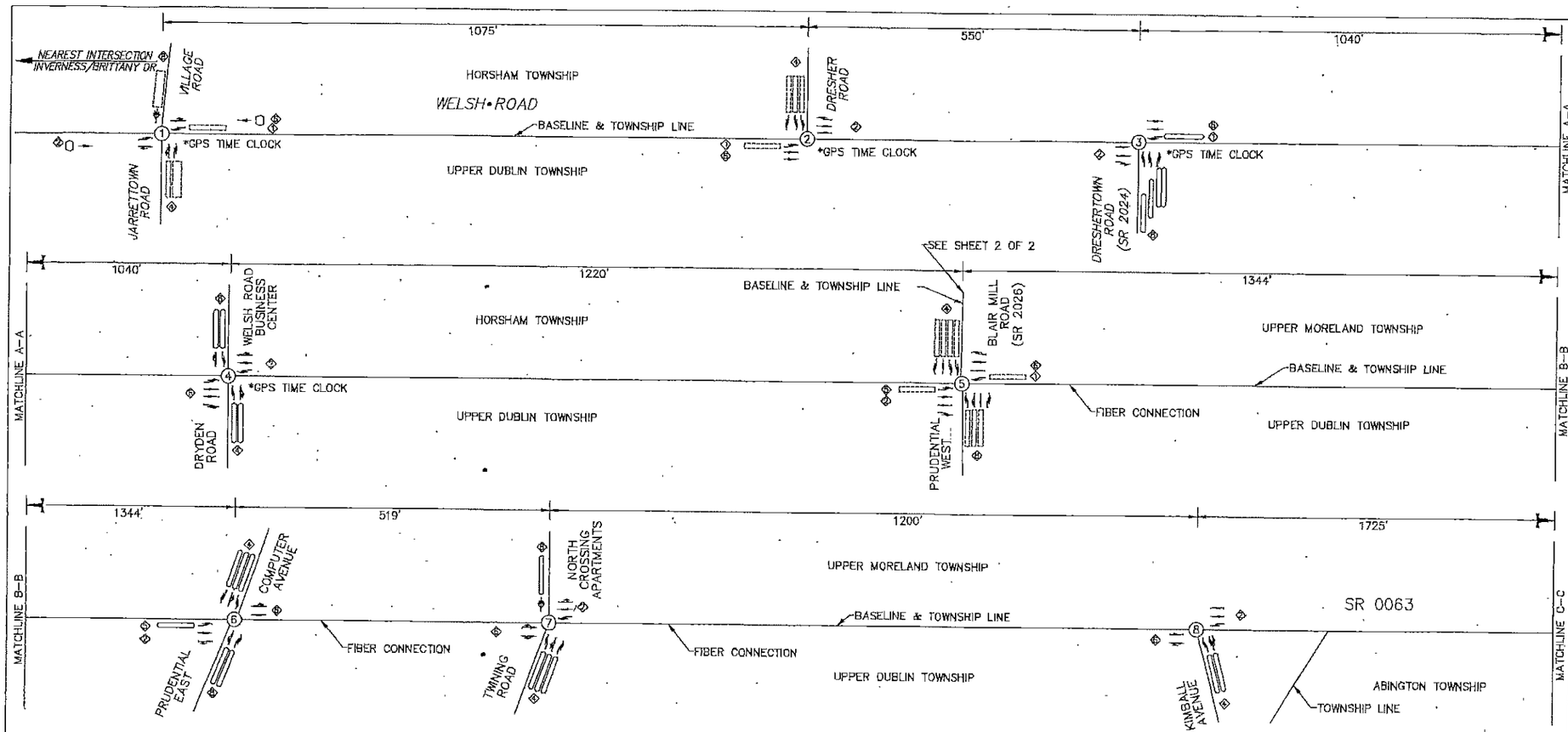
DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:
MARK L. KRAY 9/18/00
L. R. BELMONTE 9/22/00
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVWD.	DATE	REVWD.	DATE	APPROVED	DATE
1	REVISED COORDINATION	MCM	8/10/00	MLK	8/10/00	LRB	8-9-00
2	REV. BUSINESS CTR ACCESS DESIGN	MCM	8/22/00	MLK	9/6/00	LRB	9-7-00
3	REV COORD.	TPD/	11/9/01	MLK	11/20/01	LRB	11/26/01
4							
5							
6							
7							
8							

SHEET 2 OF 2 | PERMIT # 64-3215 | FILE # 3215



GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

REFER TO TRAFFIC SIGNAL PERMIT DRAWING FOR INDIVIDUAL INTERSECTION OPERATION, GEOMETRY, PHASING AND CRITICAL TIMES.

FOR CONSTRUCTION AND INSPECTION THE SYSTEM PERMIT SHOULD ALWAYS BE ACCOMPANIED WITH TRAFFIC SIGNAL PERMIT DRAWING.

TEST THE SYSTEM AT LOCAL INTERSECTION LEVEL, SUBSYSTEM LEVEL MASTER CONTROLLER LEVEL AND PERSONAL COMPUTER REMOTE DIAL UP LEVEL.

GATHER THE SYSTEM FAILURE CRITICAL ALARMS REPORT AND ARCHIVE THEM WHERE APPLICABLE.

SET UP PENNDOT DISTRICT 6-0 COMPUTER WITH THE SYSTEM DATABASE AND GRAPHICS. MODIFY THE DATABASE AND GRAPHICS FOR SYSTEMS REVISIONS.

ASSIGN LOOP DETECTORS AND PROGRAM THE CONTROLLERS TO GATHER TRAFFIC VOLUMES IN 15 MINUTE INTERVAL, WHERE APPLICABLE.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

OBTAIN POLE ATTACHMENT PERMIT FOR AERIAL FIBER OPTIC INSTALLATION.

MAINTAIN MASTER CONTROLLER COMMUNICATION SUCH AS PHONE DROPS.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE LATEST PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES EFFECTIVE DATE DECEMBER 10, 1974.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT FOR REVIEW PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8900 SERIES.

CYCLE / SPLIT / OFFSET

PROGRAM 1=

	INTERSECTIONS	FILE #	1	2	3	4	5	6	7	8	CYCLE	OFFSET#1	OFFSET#2	OFFSET REFERENCE
52	BLAIR MILL RD/WIDNER RD/COMMERCE AVE	1814									MAX 2	FREE		
51	BLAIR MILL RD/SHOPPING CENTER DR	3579									MAX 1	FREE		
9	WELSH RD / FITZWATERTOWN RD	0148	13(LEAD)	38	14(LEAD)	38	19(LEAD)	29	14(LEAD)	38	100	79		TS2 1ST GREEN
8	WELSH RD / KIMBALL AVE	1545		73		27		73			100	47		TS2 1ST GREEN
7	WELSH RD / TWINING RD	1644		61		26(SPLIT)		61		13(SPLIT)	100	97		TS2 1ST GREEN
6	WELSH RD / COMPUTER AVE	0526		53		32(SPLIT)	13(LEAD)	40		15(SPLIT)	100	0		TS2 1ST GREEN
5	WELSH RD / BLAIR MILL RD	1046	14(LEAD)	51		19(SPLIT)	28(LEAD)	32		16(SPLIT)	100	12		TS2 1ST GREEN
4	WELSH RD / DRYDEN RD	3215		59		31		69		31	100	41		TS2 1ST GREEN
3	WELSH RD / DRESHERTOWN RD	1893	27(LEAD)	48				75		25	100	28		TS2 1ST GREEN
2	WELSH RD / DRESHER RD	2071	14(LEAD)	56		30		70			100	38		TS2 1ST GREEN
1	WELSH RD / JARRETTOWN RD	2385	14(LEAD)	61		25		75		25	100	26		TS2 1ST GREEN

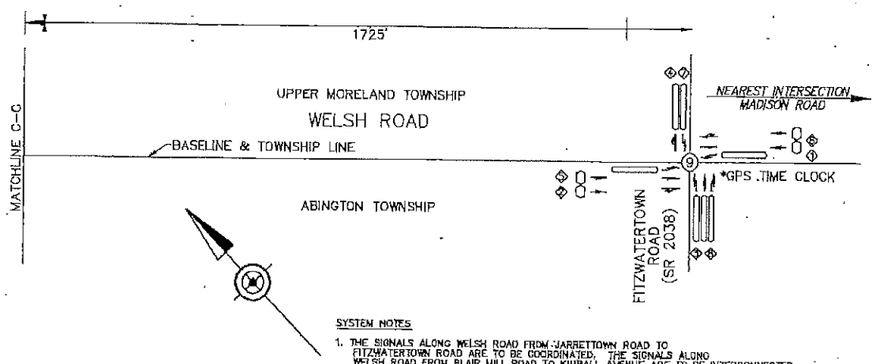
PROGRAM 2=

	INTERSECTIONS	FILE #	1	2	3	4	5	6	7	8	CYCLE	OFFSET#1	OFFSET#2	OFFSET REFERENCE
52	BLAIR MILL RD/WIDNER RD/COMMERCE AVE	1814									MAX 1	FREE		
51	BLAIR MILL RD/SHOPPING CENTER DR	3579									MAX 1	FREE		
9	WELSH RD / FITZWATERTOWN RD	0148	13(LEAD)	47	14(LEAD)	46	18(LEAD)	42	14(LEAD)	46	120	83		TS2 1ST GREEN
8	WELSH RD / KIMBALL AVE	1545		78		45		75			120	74		TS2 1ST GREEN
7	WELSH RD / TWINING RD	1644		74		33(SPLIT)		74		13(SPLIT)	120	118		TS2 1ST GREEN
6	WELSH RD / COMPUTER AVE	0526		77		28(SPLIT)	13(LEAD)	64		15(SPLIT)	120	0		TS2 1ST GREEN
5	WELSH RD / BLAIR MILL RD	1046	31(LEAD)	52		21(SPLIT)	31(LEAD)	52		16(SPLIT)	120	17		TS2 1ST GREEN
4	WELSH RD / DRYDEN RD	3215		89		31		89		31	120	62		TS2 1ST GREEN
3	WELSH RD / DRESHERTOWN RD	1893	33(LEAD)	51				86		34	120	86		TS2 1ST GREEN
2	WELSH RD / DRESHER RD	2071	38(LEAD)	43		39		81			120	85		TS2 1ST GREEN
1	WELSH RD / JARRETTOWN RD	2385	22(LEAD)	86		32		88		32	120	33		TS2 1ST GREEN

PROGRAM 3=

	INTERSECTIONS	FILE #	1	2	3	4	5	6	7	8	CYCLE	OFFSET#1	OFFSET#2	OFFSET REFERENCE
52	BLAIR MILL RD/WIDNER RD/COMMERCE AVE	1814									MAX 2	FREE		
51	BLAIR MILL RD/SHOPPING CENTER DR	3579									MAX 1	FREE		
9	WELSH RD / FITZWATERTOWN RD	0148	13(LEAD)	47	14(LEAD)	46	31(LEAD)	29	14(LEAD)	46	120	68		TS2 1ST GREEN
8	WELSH RD / KIMBALL AVE	1545		99		31		99			120	48		TS2 1ST GREEN
7	WELSH RD / TWINING RD	1644		81		26(SPLIT)		81		13(SPLIT)	120	3		TS2 1ST GREEN
6	WELSH RD / COMPUTER AVE	0526		70		31(SPLIT)	13(LEAD)	57		15(SPLIT)	120	0		TS2 1ST GREEN
5	WELSH RD / BLAIR MILL RD	1046	14(LEAD)	57		33(SPLIT)	28(LEAD)	44		16(SPLIT)	120	11		TS2 1ST GREEN
4	WELSH RD / DRYDEN RD	3215		72		46		72		43	120	59		TS2 1ST GREEN
3	WELSH RD / DRESHERTOWN RD	1893	44(LEAD)	49				93		27	120	29		TS2 1ST GREEN
2	WELSH RD / DRESHER RD	2071	26(LEAD)	55		40		80			120	77		TS2 1ST GREEN
1	WELSH RD / JARRETTOWN RD	2385	27(LEAD)	62		31		89		31	120	5		TS2 1ST GREEN

Notes:
- ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE.
- REFER TO SIGNAL PERMIT PLAN FOR MAX 1, MAX 2 AND CLEARANCE AND PED TIMES.



WEEKLY PROGRAM CHART

EVENT	DAY*	TIME	PROGRAM*	REMARKS
1	1-7	0000	MAXIMUM 1	FREE
2	1-5	0500	2	AM PEAK
3	1-5	0900	1	OFF PEAK
4	1-5	1500	3	PM PEAK
5	1-5	1900	1	OFF PEAK
6	6,7	0600	1	OFF PEAK

*DAY 1 = MONDAY
* MAX / FREE WHERE NOTED IN CYCLE / SPLIT / OFFSET MATRIX.

SYSTEM NOTES

1. THE SIGNALS ALONG WELSH ROAD FROM JARRETTOWN ROAD TO FITZWATERTOWN ROAD ARE TO BE COORDINATED. THE SIGNALS ALONG WELSH ROAD FROM BLAIR MILL ROAD TO KIMBALL AVENUE ARE TO BE INTERCONNECTED. THE SIGNALS ALONG BLAIR MILL ROAD FROM WELSH ROAD TO WITMER ROAD/COMMERCE AVENUE ARE TO BE INTERCONNECTED. ALL REMAINING SIGNALS ARE TO BE COORDINATED VIA GPS TIME CLOCK (INT #1-4 AND #9).
2. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
3. OFFSETS ARE REFERENCED TO EITHER THE BEGINNING OF YELLOW (PHASE 2+6) OR TO THE BEGINNING OF TS2 1ST GREEN (PHASE 2+6). PLEASE SEE CYCLE / SPLIT / OFFSET TABLE FOR APPROPRIATE OFFSET REFERENCE POINT
4. SYSTEM UNITS:
   FOR EACH INTERSECTION.
   WELSH ROAD (SR 0063) - FROM JARRETTOWN ROAD TO FITZWATERTOWN ROAD (SR 2038).
   BLAIR MILL ROAD (SR 2026) - FROM WELSH ROAD (SR 0063) TO WITMER ROAD/COMMERCE AVENUE.
   MASTER CONTROLLER:
   ON STREET MASTER WITH PHONE DROP AT WELSH ROAD (SR 0063) & COMPUTER AVENUE.
5. PRIMARY COORDINATION: FIBER OPTIC CABLE.
   SECONDARY COORDINATION: TBC (DEFAULT TO BACKUP TBC).
6. CYCLES, SPLITS & OFFSETS ARE IN SECONDS.

LEGEND

- (4) INTERSECTION ADDRESS
- S## SYSTEM LOOP / IDENTIFYING NUMBER
- LOOP SENSOR
- DETECTION ZONE
- MICROWAVE DETECTION AREA
- (4) PHASE NUMBER
- NOT TO SCALE

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: UPPER DUBLIN & HORSHAM TWPS.
UPPER MORELAND & ABINGTON TWPS.
WELSH RD (SR 0063) JARRETTOWN TO FITZWATERTOWN

REVIEWED: [signature] 7/1/2015 DATE
[signature] 7/8/2015 DATE
MUNICIPAL OFFICIAL

RECOMMENDED: A B PATEL 12/14/04
MUNICIPAL SIGNALS ENGINEER
L R BELMONTE 12/14/04
DISTRICT TRAFFIC ENGINEER

NO.	REVISION	DES./REV.	DATE	REVW.	DATE	RECOM	DATE
1	REVISED OFFSETS	TPD		KMC	3/11/05	LRB	3/15/05
2	RECONFIG. LANES AT 5 & 6	KMC	5/22/06	KMC	5/22/06	LRB	5/22/06
3	ADD 88 ST SAMP. VIDEO DET 2ND DET TO BLAIR MILL APPROACHING FROM SR 63 REMOVE/ADJACENT TO PHASE 08	TPD/ BPP	9/22/06	MK	9/28/06	LRB	10/2/06
4	REVISE LANE CONFIG FOR CHANGE # 1,2,3 & 52, REINUM INT. 2,3,5	TPD		DLA	1/19/10	AP	1/20/10
5	ADD 4B LTL @ DRESHER, RTL @ DRESSERTOWN ADD. VIDEO DET. @ J-TOWN & DRESHER	SURNS	6/17/15	DLA	7/1/15	[illegible]	7/15/15
6							
7							
8							

SHEET 1 OF 2 SYSTEM PERMIT # I-0098

APPENDIX D

Manual Turning Movement (MTM) Counts

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Route 63 (Welsh Road) &
Jarrettown Road / Village Road
Counter/Board #: HP

File Name : prudential01w
Site Code : 81633301
Start Date : 2/18/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Village Rd Southbound				Rt 63 (Welsh Rd) Westbound				Jarrettown Rd Northbound				Rt 63 (Welsh Rd) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	1	1	0	7	44	142	0	1	3	3	8	39	6	143	0	3	401
07:15	4	1	1	5	48	129	0	1	5	4	7	48	8	181	1	2	445
07:30	3	2	0	4	83	184	1	0	0	9	8	51	9	230	0	2	586
07:45	3	5	2	4	58	147	0	2	2	18	9	58	16	208	2	3	537
Total	11	9	3	20	233	602	1	4	10	34	32	196	39	762	3	10	1969
08:00	1	5	0	9	62	169	0	2	2	18	5	72	16	217	0	0	578
08:15	2	7	0	8	58	124	0	3	6	13	4	102	14	188	0	7	536
08:30	1	6	1	4	46	138	0	2	10	13	5	84	14	181	1	0	506
08:45	6	2	0	3	53	146	1	10	5	17	1	90	14	170	0	8	526
Total	10	20	1	24	219	577	1	17	23	61	15	348	58	756	1	15	2146
15:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
16:00	3	5	1	16	49	202	0	3	5	5	4	44	5	140	1	1	484
16:15	5	3	0	8	45	210	0	8	3	5	4	50	3	166	0	0	510
16:30	6	2	2	16	53	217	0	4	0	6	5	34	4	150	0	2	501
16:45	2	13	4	13	52	227	0	5	3	9	6	52	7	144	1	7	545
Total	16	23	7	53	199	856	0	20	11	25	19	180	19	600	2	10	2040
17:00	17	26	3	30	54	241	0	3	8	8	5	42	2	167	0	4	610
17:15	10	30	4	25	68	225	1	2	2	2	7	51	5	166	0	4	602
17:30	11	20	2	22	56	212	0	3	3	1	2	43	7	184	0	6	572
17:45	3	10	1	9	58	168	0	0	6	6	8	42	7	163	1	1	483
Total	41	86	10	86	236	846	1	8	19	17	22	178	21	680	1	15	2267
Grand Total	78	138	21	183	887	2881	4	49	63	137	88	902	137	2798	7	50	8423
Apprch %	18.6	32.9	5	43.6	23.2	75.4	0.1	1.3	5.3	11.5	7.4	75.8	4.6	93.5	0.2	1.7	
Total %	0.9	1.6	0.2	2.2	10.5	34.2	0	0.6	0.7	1.6	1	10.7	1.6	33.2	0.1	0.6	
Passenger Vehicles	75	138	21	179	874	2819	4	49	61	136	88	891	134	2745	7	48	8269
% Passenger Vehicles	96.2	100	100	97.8	98.5	97.8	100	100	96.8	99.3	100	98.8	97.8	98.1	100	96	98.2
Heavy Vehicles	3	0	0	4	13	62	0	0	2	1	0	11	3	53	0	2	154
% Heavy Vehicles	3.8	0	0	2.2	1.5	2.2	0	0	3.2	0.7	0	1.2	2.2	1.9	0	4	1.8

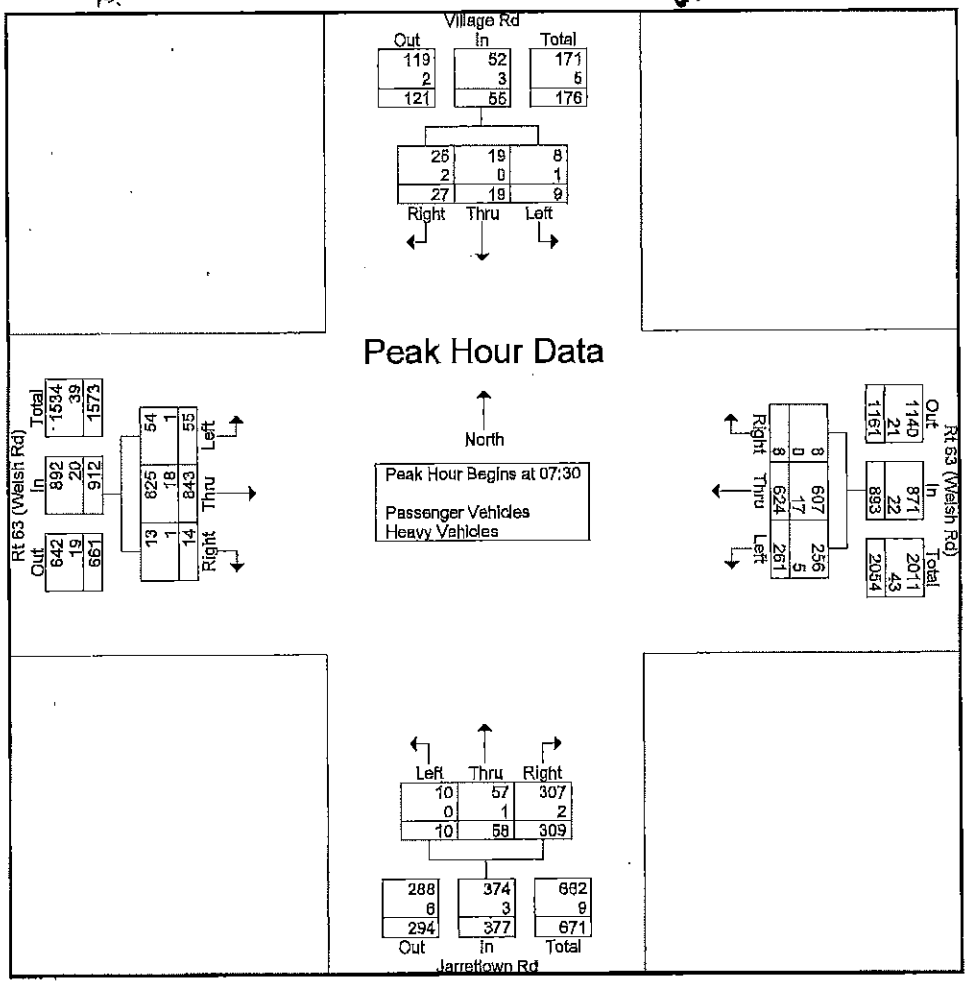
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Route 63 (Welsh Road) &
Jarrettown Road / Village Road
Counter/Board #: HP

File Name : prudential01w
Site Code : 81633301
Start Date : 2/18/2016
Page No : 2

	Village Rd Southbound					Rt 63 (Welsh Rd) Westbound					Jarrettown Rd Northbound					Rt 63 (Welsh Rd) Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	3	2	0	4	9	83	184	1	0	268	0	9	8	51	68	9	230	0	2	241	586
07:45	3	5	2	4	14	58	147	0	2	207	2	18	9	58	87	16	208	2	3	229	537
08:00	1	5	0	9	15	62	169	0	2	233	2	18	5	72	97	16	217	0	0	233	578
08:15	2	7	0	8	17	58	124	0	3	185	6	13	4	102	125	14	188	0	7	209	536
Total Volume	9	19	2	25	55	261	624	1	7	893	10	58	26	283	377	55	843	2	12	912	2237
% App. Total	16.4	34.5	3.6	45.5		29.2	69.9	0.1	0.8		2.7	15.4	6.9	75.1		6	92.4	0.2	1.3		
PHF	.750	.679	.250	.694	.809	.786	.848	.250	.583	.833	.417	.806	.722	.694	.754	.859	.918	.250	.429	.946	.954
Passenger Vehicles	88.9	100	100	92.0	94.5	98.1	97.3	100	100	97.5	100	98.3	100	99.3	99.2	98.2	97.9	100	91.7	97.8	97.9
% Passenger Vehicles																					
Heavy Vehicles	11.1	0	0	8.0	5.5	1.9	2.7	0	0	2.5	0	1.7	0	0.7	0.8	1.8	2.1	0	8.3	2.2	2.1
% Heavy Vehicles																					



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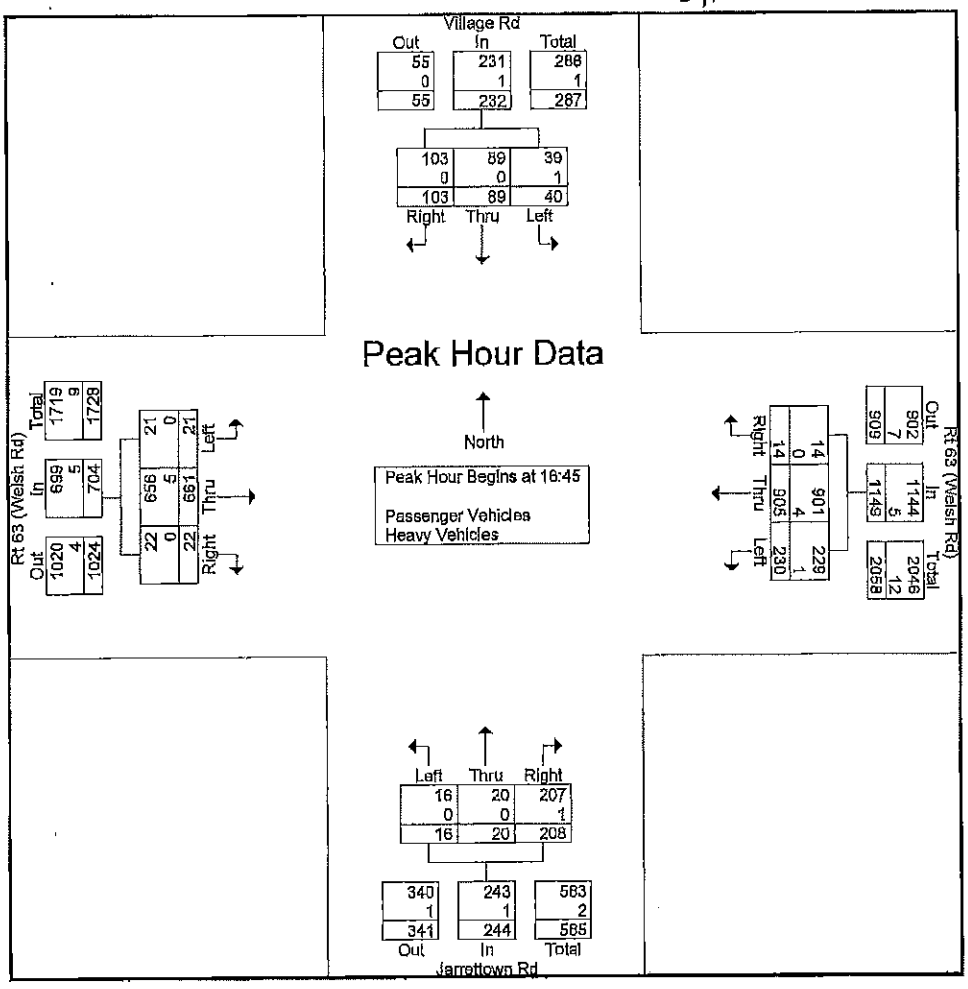
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	2	13	4	13	32	52	227	0	5	284	3	9	6	52	70	7	144	1	7	159	545
17:00	17	26	3	30	76	54	241	0	3	298	8	8	5	42	63	2	167	0	4	173	610
17:15	10	30	4	25	69	68	225	1	2	296	2	2	7	51	62	5	166	0	4	175	602
17:30	11	20	2	22	55	56	212	0	3	271	3	1	2	43	49	7	184	0	6	197	572
Total Volume	40	89	13	90	232	230	905	1	13	1149	16	20	20	188	244	21	661	1	21	704	2329
% App. Total	17.2	38.4	5.6	38.8		20	78.8	0.1	1.1		6.6	8.2	8.2	77		3	93.9	0.1	3		
PHF	.588	.742	.813	.750	.763	.846	.939	.250	.650	.964	.500	.556	.714	.904	.871	.750	.898	.250	.750	.893	.955
Passenger Vehicles																					
% Passenger Vehicles	97.5	100	100	100	99.6	99.6	99.6	100	100	99.6	100	100	100	99.5	99.6	100	99.2	100	100	99.3	99.5
Heavy Vehicles																					
% Heavy Vehicles	2.5	0	0	0	0.4	0.4	0.4	0	0	0.4	0	0	0	0.5	0.4	0	0.8	0	0	0.7	0.5



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Groups Printed- Passenger Vehicles

	Village Rd Southbound				Rt 63 (Welsh Rd) Westbound				Jarrettown Rd Northbound				Rt 63 (Welsh Rd) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	1	1	0	7	44	135	0	1	3	3	8	39	5	139	0	2	388
07:15	4	1	1	3	48	127	0	1	5	4	7	46	8	179	1	2	437
07:30	3	2	0	3	83	180	1	0	0	9	8	50	9	224	0	2	574
07:45	3	5	2	4	57	144	0	2	2	18	9	58	16	204	2	3	529
Total	11	9	3	17	232	586	1	4	10	34	32	193	38	746	3	9	1928
08:00	1	5	0	9	60	162	0	2	2	17	5	71	16	213	0	0	563
08:15	1	7	0	7	56	121	0	3	6	13	4	102	13	184	0	6	523
08:30	1	6	1	4	45	131	0	2	8	13	5	84	14	170	1	0	485
08:45	5	2	0	3	51	128	1	10	5	17	1	88	13	168	0	8	500
Total	8	20	1	23	212	542	1	17	21	60	15	345	56	735	1	14	2071
15:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
16:00	3	5	1	16	47	200	0	3	5	5	4	42	5	135	1	1	473
16:15	5	3	0	8	44	208	0	8	3	5	4	48	3	164	0	0	503
16:30	6	2	2	16	52	216	0	4	0	6	5	34	4	148	0	2	497
16:45	2	13	4	13	52	224	0	5	3	9	6	52	7	142	1	7	540
Total	16	23	7	53	195	848	0	20	11	25	19	176	19	589	2	10	2013
17:00	17	26	3	30	53	241	0	3	8	8	5	42	2	166	0	4	608
17:15	9	30	4	25	68	224	1	2	2	2	7	50	5	165	0	4	598
17:30	11	20	2	22	56	212	0	3	3	1	2	43	7	183	0	6	571
17:45	3	10	1	9	58	166	0	0	6	6	8	42	7	161	1	1	479
Total	40	86	10	86	235	843	1	8	19	17	22	177	21	675	1	15	2256
Grand Total	75	138	21	179	874	2819	4	49	61	136	88	891	134	2745	7	48	8269
Apprch %	18.2	33.4	5.1	43.3	23.3	75.3	0.1	1.3	5.2	11.6	7.5	75.8	4.6	93.6	0.2	1.6	
Total %	0.9	1.7	0.3	2.2	10.6	34.1	0	0.6	0.7	1.6	1.1	10.8	1.6	33.2	0.1	0.6	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Route 63 (Welsh Road) &
Jarrettown Road / Village Road
Counter/Board #: HP

File Name : prudential01w
Site Code : 81633301
Start Date : 2/18/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Village Rd Southbound				Rt 63 (Welsh Rd) Westbound				Jarrettown Rd Northbound				Rt 63 (Welsh Rd) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	0	0	0	0	0	7	0	0	0	0	0	0	1	4	0	1	13
07:15	0	0	0	2	0	2	0	0	0	0	0	2	0	2	0	0	8
07:30	0	0	0	1	0	4	0	0	0	0	0	1	0	6	0	0	12
07:45	0	0	0	0	1	3	0	0	0	0	0	0	0	4	0	0	8
Total	0	0	0	3	1	16	0	0	0	0	0	3	1	16	0	1	41
08:00	0	0	0	0	2	7	0	0	0	1	0	1	0	4	0	0	15
08:15	1	0	0	1	2	3	0	0	0	0	0	0	1	4	0	1	13
08:30	0	0	0	0	1	7	0	0	2	0	0	0	0	11	0	0	21
08:45	1	0	0	0	2	18	0	0	0	0	0	2	1	2	0	0	26
Total	2	0	0	1	7	35	0	0	2	1	0	3	2	21	0	1	75
16:00	0	0	0	0	2	2	0	0	0	0	0	2	0	5	0	0	11
16:15	0	0	0	0	1	2	0	0	0	0	0	2	0	2	0	0	7
16:30	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	4
16:45	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	5
Total	0	0	0	0	4	8	0	0	0	0	0	4	0	11	0	0	27
17:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
17:15	1	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	4
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:45	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
Total	1	0	0	0	1	3	0	0	0	0	0	1	0	5	0	0	11
Grand Total	3	0	0	4	13	62	0	0	2	1	0	11	3	53	0	2	154
Apprch %	42.9	0	0	57.1	17.3	82.7	0	0	14.3	7.1	0	78.6	5.2	91.4	0	3.4	
Total %	1.9	0	0	2.6	8.4	40.3	0	0	1.3	0.6	0	7.1	1.9	34.4	0	1.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Route 63 (Welsh Rd) &
Jarrettown Road / Village Road
Counter/Board #: BW

File Name : prudential01s
Site Code : 81677701
Start Date : 2/20/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Village Rd Southbound				Rt 63 (Welsh Rd) Westbound				Jarrettown Rd Northbound				Rt 63 (Welsh Rd) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
11:00	1	0	1	1	29	112	0	2	4	3	8	23	4	140	0	0	328
11:15	4	1	2	2	23	113	0	1	2	1	16	15	1	121	0	1	303
11:30	3	0	1	0	26	121	0	1	3	0	15	12	0	134	0	5	321
11:45	0	0	2	1	33	138	0	2	3	3	8	25	0	135	0	4	354
Total	8	1	6	4	111	484	0	6	12	7	47	75	5	530	0	10	1306
12:00	5	0	2	1	30	134	0	1	0	1	22	24	3	137	0	6	366
12:15	2	1	2	1	35	118	0	2	2	0	21	19	2	130	0	3	338
12:30	3	1	0	0	26	140	0	2	1	0	20	22	1	134	0	4	354
12:45	2	0	1	0	31	141	0	3	1	1	26	15	4	173	1	2	401
Total	12	2	5	2	122	533	0	8	4	2	89	80	10	574	1	15	1459
13:00	1	1	0	0	30	126	0	4	0	1	18	19	1	125	0	1	327
13:15	0	0	4	0	20	132	0	3	0	0	13	15	2	139	0	3	331
13:30	0	1	2	1	19	138	0	3	4	0	20	16	3	121	0	1	329
13:45	2	1	0	0	20	139	0	2	1	1	7	9	2	132	0	0	316
Total	3	3	6	1	89	535	0	12	5	2	58	59	8	517	0	5	1303
Grand Total	23	6	17	7	322	1552	0	26	21	11	194	214	23	1621	1	30	4068
Apprch %	43.4	11.3	32.1	13.2	16.9	81.7	0	1.4	4.8	2.5	44.1	48.6	1.4	96.8	0.1	1.8	
Total %	0.6	0.1	0.4	0.2	7.9	38.2	0	0.6	0.5	0.3	4.8	5.3	0.6	39.8	0	0.7	
Passenger Vehicles	23	5	17	7	320	1545	0	26	21	11	194	213	22	1610	1	26	4041
% Passenger Vehicles	100	83.3	100	100	99.4	99.5	0	100	100	100	100	99.5	95.7	99.3	100	86.7	99.3
Heavy Vehicles	0	1	0	0	2	7	0	0	0	0	0	1	1	11	0	4	27
% Heavy Vehicles	0	16.7	0	0	0.6	0.5	0	0	0	0	0	0.5	4.3	0.7	0	13.3	0.7

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Route 63 (Welsh Rd) &
Jarrettown Road / Village Road
Counter/Board #: BW

File Name : prudential01s
Site Code : 81677701
Start Date : 2/20/2016
Page No : 2

	Village Rd Southbound					Rt 63 (Welsh Rd) Westbound					Jarrettown Rd Northbound					Rt 63 (Welsh Rd) Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00																					
12:00	5	0	2	1	8	30	134	0	1	165	0	1	22	24	47	3	137	0	6	146	366
12:15	2	1	2	1	6	35	118	0	2	155	2	0	21	19	42	2	130	0	3	135	338
12:30	3	1	0	0	4	26	140	0	2	168	1	0	20	22	43	1	134	0	4	139	354
12:45	2	0	1	0	3	31	141	0	3	175	1	1	26	15	43	4	173	1	2	180	401
Total Volume	12	2	5	2	21	122	533	0	8	663	4	2	89	80	175	10	574	1	15	600	1459
% App. Total	57.1	9.5	23.8	9.5		18.4	80.4	0	1.2		2.3	1.1	50.9	45.7		1.7	95.7	0.2	2.5		
PHF	.600	.500	.625	.500	.656	.871	.945	.000	.667	.947	.500	.500	.856	.833	.931	.625	.829	.250	.625	.833	.910
Passenger Vehicles	100	100	100	100	100	98.4	99.6	0	100	99.4	100	100	100	100	100	100	99.0	100	73.3	98.3	99.0
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	1.6	0.4	0	0	0.6	0	0	0	0	0	0	1.0	0	26.7	1.7	1.0
% Heavy Vehicles																					

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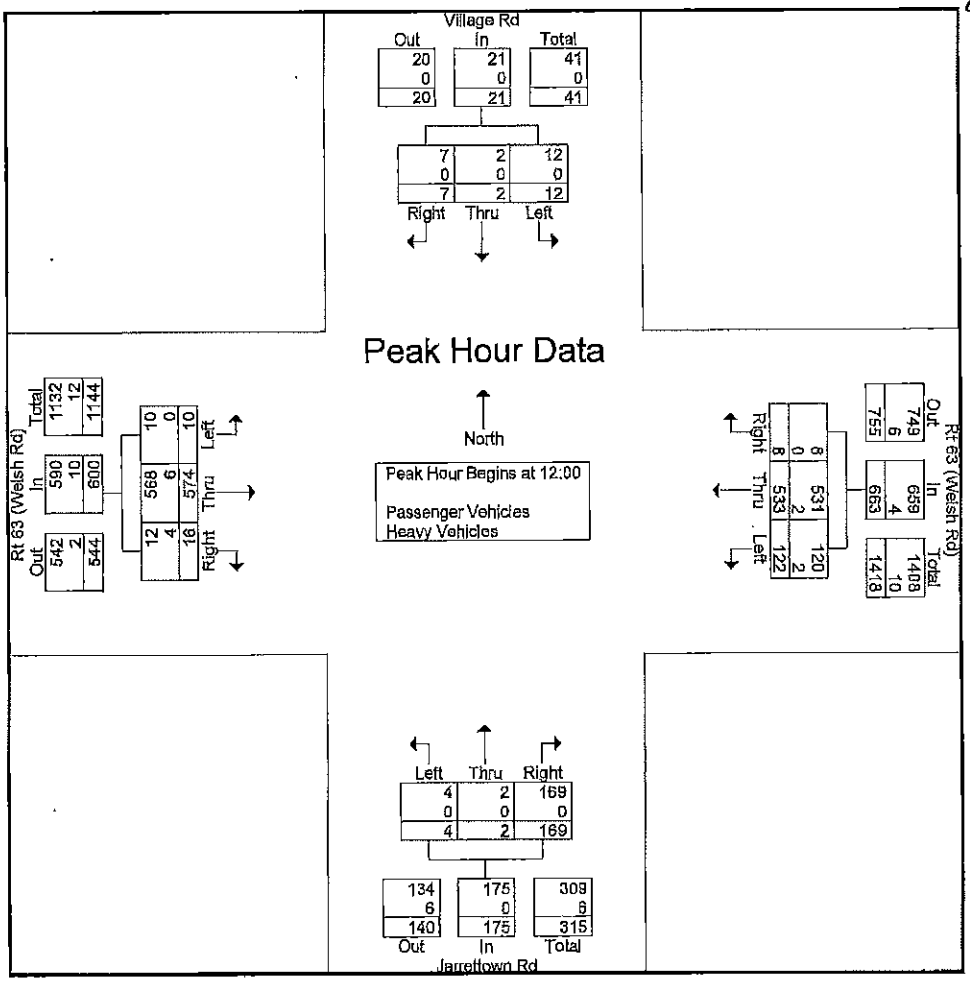


McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Route 63 (Welsh Rd) &
Jarrettown Road / Village Road
Counter/Board #: BW

File Name : prudential01s
Site Code : 81677701
Start Date : 2/20/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Village Rd Southbound				Rt 63 (Welsh Rd) Westbound				Jarrettown Rd Northbound				Rt 63 (Welsh Rd) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
11:00	1	0	1	1	29	111	0	2	4	3	8	23	3	138	0	0	324
11:15	4	0	2	2	23	113	0	1	2	1	16	14	1	121	0	1	301
11:30	3	0	1	0	26	120	0	1	3	0	15	12	0	134	0	5	320
11:45	0	0	2	1	33	138	0	2	3	3	8	25	0	135	0	4	354
Total	8	0	6	4	111	482	0	6	12	7	47	74	4	528	0	10	1299
12:00	5	0	2	1	30	134	0	1	0	1	22	24	3	137	0	6	366
12:15	2	1	2	1	35	118	0	2	2	0	21	19	2	128	0	3	336
12:30	3	1	0	0	25	139	0	2	1	0	20	22	1	132	0	2	348
12:45	2	0	1	0	30	140	0	3	1	1	26	15	4	171	1	0	395
Total	12	2	5	2	120	531	0	8	4	2	89	80	10	568	1	11	1445
13:00	1	1	0	0	30	124	0	4	0	1	18	19	1	122	0	1	322
13:15	0	0	4	0	20	132	0	3	0	0	13	15	2	139	0	3	331
13:30	0	1	2	1	19	138	0	3	4	0	20	16	3	121	0	1	329
13:45	2	1	0	0	20	138	0	2	1	1	7	9	2	132	0	0	315
Total	3	3	6	1	89	532	0	12	5	2	58	59	8	514	0	5	1297
Grand Total	23	5	17	7	320	1545	0	26	21	11	194	213	22	1610	1	26	4041
Apprch %	44.2	9.6	32.7	13.5	16.9	81.7	0	1.4	4.8	2.5	44.2	48.5	1.3	97	0.1	1.6	
Total %	0.6	0.1	0.4	0.2	7.9	38.2	0	0.6	0.5	0.3	4.8	5.3	0.5	39.8	0	0.6	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Route 63 (Welsh Rd) &
Jarrettown Road / Village Road
Counter/Board #: BW

File Name : prudential01s
Site Code : 81677701
Start Date : 2/20/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Village Rd Southbound				Rt 63 (Welsh Rd) Westbound				Jarrettown Rd Northbound				Rt 63 (Welsh Rd) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
11:00	0	0	0	0	0	1	0	0	0	0	0	0	1	2	0	0	4
11:15	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
11:30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	2	0	0	0	0	0	1	1	2	0	0	7
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
12:30	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	2	6
12:45	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	2	6
Total	0	0	0	0	2	2	0	0	0	0	0	0	0	6	0	4	14
13:00	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	5
13:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	6
Grand Total	0	1	0	0	2	7	0	0	0	0	0	1	1	11	0	4	27
Apprch %	0	100	0	0	22.2	77.8	0	0	0	0	0	100	6.2	68.8	0	25	
Total %	0	3.7	0	0	7.4	25.9	0	0	0	0	0	3.7	3.7	40.7	0	14.8	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dresher Road
Counter/Board#: JB

File Name : dryden03wr
Site Code : 81536703
Start Date : 12/3/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Dresher Rd Southbound				Welsh Rd Westbound				Access Northbound				Welsh Rd Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	159	0	15	48	0	176	5	66	0	0	0	0	48	141	0	0	658
07:15	161	0	8	50	0	166	9	73	0	0	0	0	66	142	0	0	675
07:30	148	0	1	86	0	189	0	118	0	0	0	0	81	194	0	0	817
07:45	164	0	1	72	0	168	0	174	0	0	0	0	98	211	0	0	888
Total	632	0	25	256	0	699	14	431	0	0	0	0	293	688	0	0	3038
08:00	159	0	0	65	0	178	3	139	0	0	0	0	92	192	0	0	828
08:15	150	0	1	52	0	153	3	131	0	0	0	0	116	206	0	0	812
08:30	144	0	1	53	0	159	0	137	0	0	0	0	102	207	0	0	803
08:45	146	0	0	36	0	185	0	192	0	0	0	0	100	187	0	0	846
Total	599	0	2	206	0	675	6	599	0	0	0	0	410	792	0	0	3289
16:00	142	0	0	72	0	205	0	109	0	0	0	0	38	180	0	0	746
16:15	144	0	1	63	0	206	0	120	0	0	0	0	43	170	0	0	747
16:30	185	0	0	87	0	227	0	129	0	0	0	0	58	188	0	0	874
16:45	195	0	0	74	0	231	0	115	0	0	0	0	65	187	0	0	867
Total	666	0	1	296	0	869	0	473	0	0	0	0	204	725	0	0	3234
17:00	212	0	0	130	0	237	0	146	0	0	0	0	49	203	0	0	977
17:15	215	0	0	94	0	232	0	139	0	0	0	0	80	211	0	0	971
17:30	197	0	0	86	0	181	0	127	0	0	0	0	78	219	0	0	888
17:45	173	0	0	62	0	198	0	119	0	0	0	0	73	203	0	0	828
Total	797	0	0	372	0	848	0	531	0	0	0	0	280	836	0	0	3664
Grand Total	2694	0	28	1130	0	3091	20	2034	0	0	0	0	1187	3041	0	0	13225
Apprch %	69.9	0	0.7	29.3	0	60.1	0.4	39.5	0	0	0	0	28.1	71.9	0	0	
Total %	20.4	0	0.2	8.5	0	23.4	0.2	15.4	0	0	0	0	9	23	0	0	
Passenger Vehicles	2657	0	28	1114	0	3043	20	1984	0	0	0	0	1168	2992	0	0	13006
% Passenger Vehicles	98.6	0	100	98.6	0	98.4	100	97.5	0	0	0	0	98.4	98.4	0	0	98.3
Heavy Vehicles	37	0	0	16	0	48	0	50	0	0	0	0	19	49	0	0	219
% Heavy Vehicles	1.4	0	0	1.4	0	1.6	0	2.5	0	0	0	0	1.6	1.6	0	0	1.7

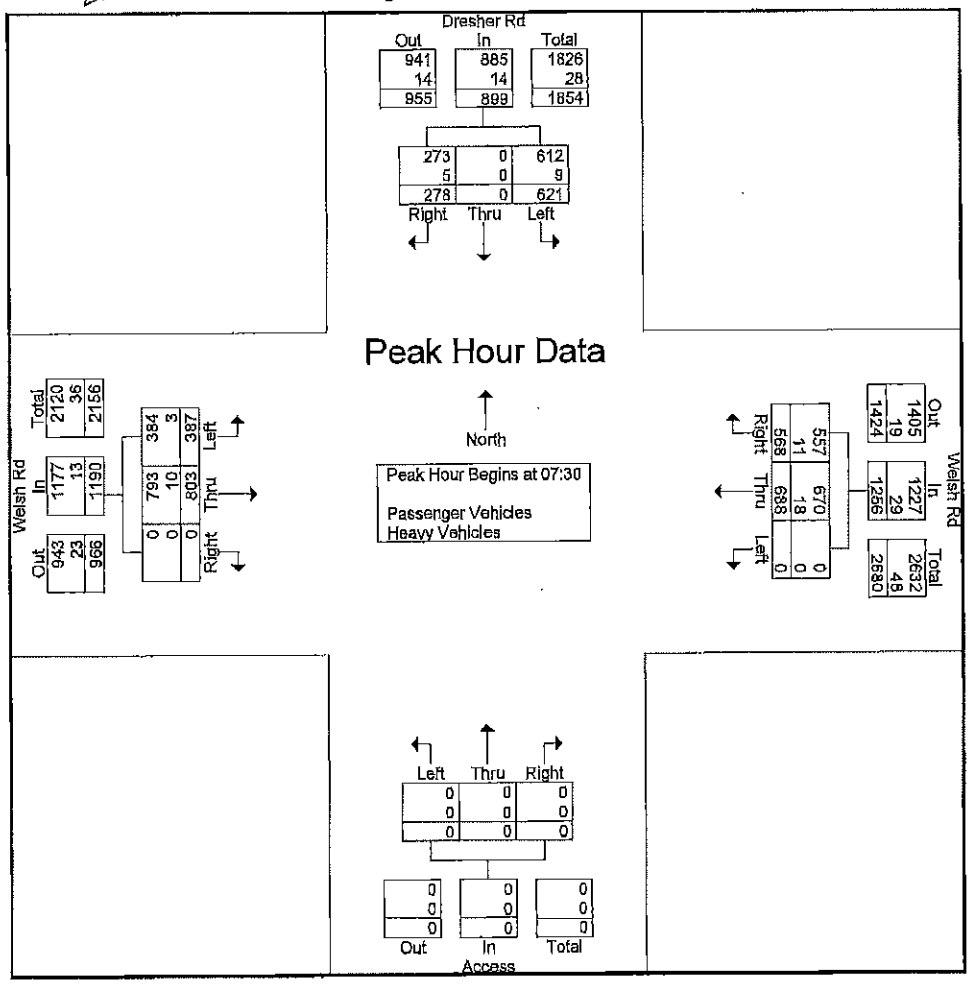
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dresher Road
Counter/Board#: JB

File Name : dryden03wr
Site Code : 81536703
Start Date : 12/3/2015
Page No : 2

	Dresher Rd Southbound					Welsh Rd Westbound					Access Northbound					Welsh Rd Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	148	0	1	86	235	0	189	0	118	307	0	0	0	0	0	81	194	0	0	275	817
07:45	164	0	1	72	237	0	168	0	174	342	0	0	0	0	0	98	211	0	0	309	888
08:00	159	0	0	65	224	0	178	3	139	320	0	0	0	0	0	92	192	0	0	284	828
08:15	150	0	1	52	203	0	153	3	131	287	0	0	0	0	0	116	206	0	0	322	812
Total Volume	621	0	3	275	899	0	688	6	562	1256	0	0	0	0	0	387	803	0	0	1190	3345
% App. Total	69.1	0	0.3	30.6		0	54.8	0.5	44.7		0	0	0	0		32.5	67.5	0	0		
PHF	.947	.000	.750	.799	.948	.000	.910	.500	.807	.918	.000	.000	.000	.000	.000	.834	.951	.000	.000	.924	.942
Passenger Vehicles	98.6	0	100	98.2	98.4	0	97.4	100	98.0	97.7	0	0	0	0	0	99.2	98.8	0	0	98.9	98.3
% Passenger Vehicles																					
Heavy Vehicles	1.4	0	0	1.8	1.6	0	2.6	0	2.0	2.3	0	0	0	0	0	0.8	1.2	0	0	1.1	1.7
% Heavy Vehicles																					



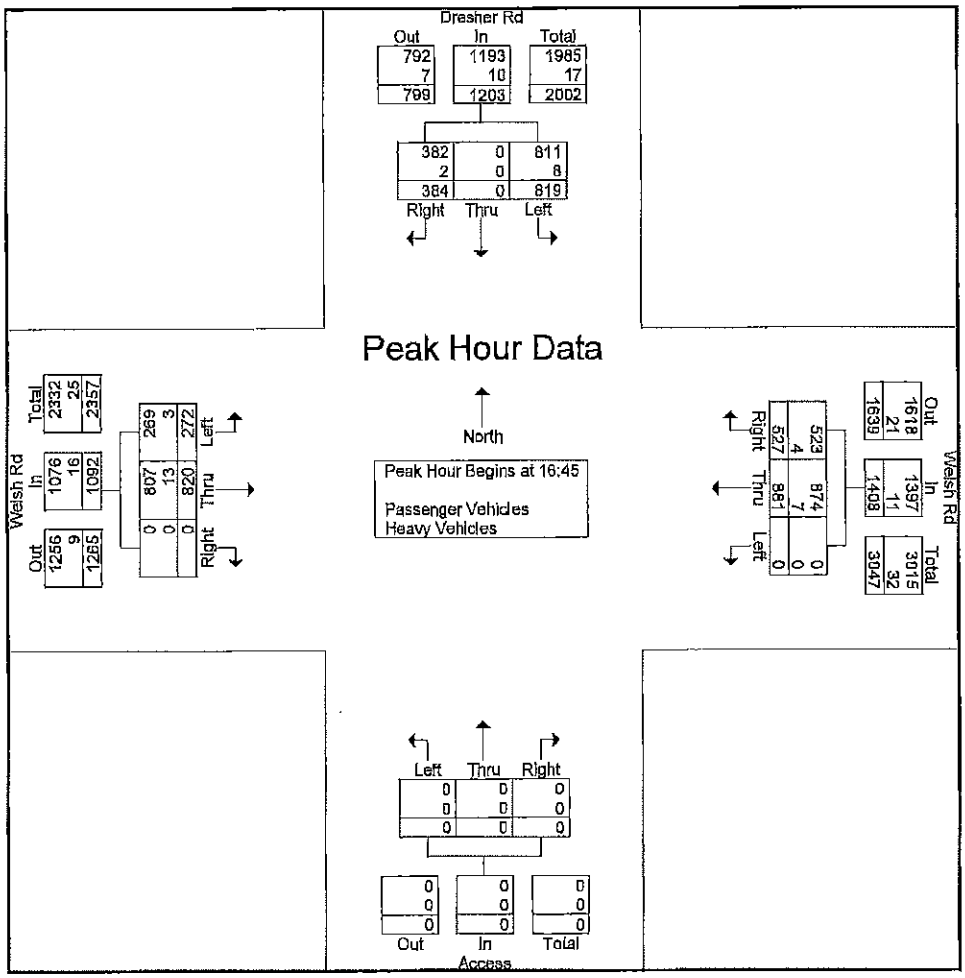
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dresher Road
Counter/Board#: JB

File Name : dryden03wr
Site Code : 81536703
Start Date : 12/3/2015
Page No : 3

	Dresher Rd Southbound					Welsh Rd Westbound					Access Northbound					Welsh Rd Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	195	0	0	74	269	0	231	0	115	346	0	0	0	0	0	65	187	0	0	252	867
17:00	212	0	0	**130**	**342**	0	**237**	0	**146**	**383**	0	0	0	0	0	49	203	0	0	252	**977**
17:15	**215**	0	0	94	309	0	232	0	139	371	0	0	0	0	0	**80**	211	0	0	291	971
17:30	197	0	0	86	283	0	181	0	127	308	0	0	0	0	0	76	**219**	0	0	**297**	888
Total Volume	819	0	0	384	1203	0	881	0	527	1408	0	0	0	0	0	272	820	0	0	1092	3703
% App. Total	68.1	0	0	31.9		0	62.6	0	37.4		0	0	0	0		24.9	75.1	0	0		
PHF	.952	.000	.000	.738	.879	.000	.929	.000	.902	.919	.000	.000	.000	.000	.000	.850	.936	.000	.000	.919	.948
Passenger Vehicles																					
% Passenger Vehicles	99.0	0	0	99.5	99.2	0	99.2	0	99.2	99.2	0	0	0	0	0	98.9	98.4	0	0	98.5	99.0
Heavy Vehicles																					
% Heavy Vehicles	1.0	0	0	0.5	0.8	0	0.8	0	0.8	0.8	0	0	0	0	0	1.1	1.6	0	0	1.5	1.0



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dresher Road
Counter/Board#: JB

File Name : dryden03wr
Site Code : 81536703
Start Date : 12/3/2015
Page No : 1

Groups Printed- Passenger Vehicles

	Dresher Rd Southbound				Welsh Rd Westbound				Access Northbound				Welsh Rd Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	159	0	15	43	0	176	5	64	0	0	0	0	46	139	0	0	647
07:15	157	0	8	49	0	163	9	72	0	0	0	0	65	138	0	0	661
07:30	147	0	1	85	0	186	0	114	0	0	0	0	81	193	0	0	807
07:45	161	0	1	70	0	162	0	171	0	0	0	0	97	209	0	0	871
Total	624	0	25	247	0	687	14	421	0	0	0	0	289	679	0	0	2986
08:00	158	0	0	65	0	174	3	138	0	0	0	0	91	188	0	0	817
08:15	146	0	1	50	0	148	3	128	0	0	0	0	115	203	0	0	794
08:30	139	0	1	53	0	155	0	136	0	0	0	0	100	203	0	0	787
08:45	145	0	0	36	0	180	0	176	0	0	0	0	97	183	0	0	817
Total	588	0	2	204	0	657	6	578	0	0	0	0	403	777	0	0	3215
16:00	139	0	0	71	0	203	0	106	0	0	0	0	37	178	0	0	734
16:15	142	0	1	63	0	204	0	112	0	0	0	0	40	169	0	0	731
16:30	182	0	0	85	0	222	0	127	0	0	0	0	57	185	0	0	858
16:45	194	0	0	73	0	228	0	114	0	0	0	0	64	185	0	0	858
Total	657	0	1	292	0	857	0	459	0	0	0	0	198	717	0	0	3181
17:00	211	0	0	130	0	235	0	145	0	0	0	0	48	199	0	0	968
17:15	213	0	0	94	0	231	0	138	0	0	0	0	80	208	0	0	964
17:30	193	0	0	85	0	180	0	126	0	0	0	0	77	215	0	0	876
17:45	171	0	0	62	0	196	0	117	0	0	0	0	73	197	0	0	816
Total	788	0	0	371	0	842	0	526	0	0	0	0	278	819	0	0	3624
Grand Total	2657	0	28	1114	0	3043	20	1984	0	0	0	0	1168	2992	0	0	13006
Apprch %	69.9	0	0.7	29.3	0	60.3	0.4	39.3	0	0	0	0	28.1	71.9	0	0	
Total %	20.4	0	0.2	8.6	0	23.4	0.2	15.3	0	0	0	0	9	23	0	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dresher Road
Counter/Board#: JB

File Name : dryden03wr
Site Code : 81536703
Start Date : 12/3/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Dresher Rd Southbound				Welsh Rd Westbound				Access Northbound				Welsh Rd Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	0	0	0	5	0	0	0	2	0	0	0	0	2	2	0	0	11
07:15	4	0	0	1	0	3	0	1	0	0	0	0	1	4	0	0	14
07:30	1	0	0	1	0	3	0	4	0	0	0	0	0	1	0	0	10
07:45	3	0	0	2	0	6	0	3	0	0	0	0	1	2	0	0	17
Total	8	0	0	9	0	12	0	10	0	0	0	0	4	9	0	0	52
08:00	1	0	0	0	0	4	0	1	0	0	0	0	1	4	0	0	11
08:15	4	0	0	2	0	5	0	3	0	0	0	0	1	3	0	0	18
08:30	5	0	0	0	0	4	0	1	0	0	0	0	2	4	0	0	16
08:45	1	0	0	0	0	5	0	16	0	0	0	0	3	4	0	0	29
Total	11	0	0	2	0	18	0	21	0	0	0	0	7	15	0	0	74
16:00	3	0	0	1	0	2	0	3	0	0	0	0	1	2	0	0	12
16:15	2	0	0	0	0	2	0	8	0	0	0	0	3	1	0	0	16
16:30	3	0	0	2	0	5	0	2	0	0	0	0	1	3	0	0	16
16:45	1	0	0	1	0	3	0	1	0	0	0	0	1	2	0	0	9
Total	9	0	0	4	0	12	0	14	0	0	0	0	6	8	0	0	53
17:00	1	0	0	0	0	2	0	1	0	0	0	0	1	4	0	0	9
17:15	2	0	0	0	0	1	0	1	0	0	0	0	0	3	0	0	7
17:30	4	0	0	1	0	1	0	1	0	0	0	0	1	4	0	0	12
17:45	2	0	0	0	0	2	0	2	0	0	0	0	0	6	0	0	12
Total	9	0	0	1	0	6	0	5	0	0	0	0	2	17	0	0	40
Grand Total	37	0	0	16	0	48	0	50	0	0	0	0	19	49	0	0	219
Apprch %	69.8	0	0	30.2	0	49	0	51	0	0	0	0	27.9	72.1	0	0	
Total %	16.9	0	0	7.3	0	21.9	0	22.8	0	0	0	0	8.7	22.4	0	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road (Route 63) &
Dresher Road
Counter/Board #: BW

File Name : pru03s
Site Code : 81600001
Start Date : 1/9/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Dresher Rd Southbound			Welsh Rd (Rt 63) Westbound			Welsh Rd (Rt 63) Eastbound		
Start Time	Left	ROR	Right	Thru	ROR	Right	Left	Thru	Int. Total
11:00	71	2	33	119	1	60	16	127	429
11:15	70	1	36	124	1	72	25	142	471
11:30	72	1	20	140	0	67	18	151	469
11:45	62	2	23	156	0	61	19	153	476
Total	275	6	112	539	2	260	78	573	1845
12:00	95	1	31	112	2	69	17	138	465
12:15	94	4	23	147	1	80	26	147	522
12:30	70	5	33	161	2	87	30	184	572
12:45	79	1	20	144	2	83	42	169	540
Total	338	11	107	564	7	319	115	638	2099
13:00	62	2	31	133	4	86	26	151	495
13:15	64	4	21	149	2	63	19	156	478
13:30	47	2	31	175	1	57	21	161	495
13:45	67	2	32	171	1	80	28	147	528
Total	240	10	115	628	8	286	94	615	1996
Grand Total	853	27	334	1731	17	865	287	1826	5940
Apprch %	70.3	2.2	27.5	66.2	0.7	33.1	13.6	86.4	
Total %	14.4	0.5	5.6	29.1	0.3	14.6	4.8	30.7	
Passenger Vehicles	845	27	329	1719	17	857	282	1814	5890
% Passenger Vehicles	99.1	100	98.5	99.3	100	99.1	98.3	99.3	99.2
Heavy Vehicles	8	0	5	12	0	8	5	12	50
% Heavy Vehicles	0.9	0	1.5	0.7	0	0.9	1.7	0.7	0.8

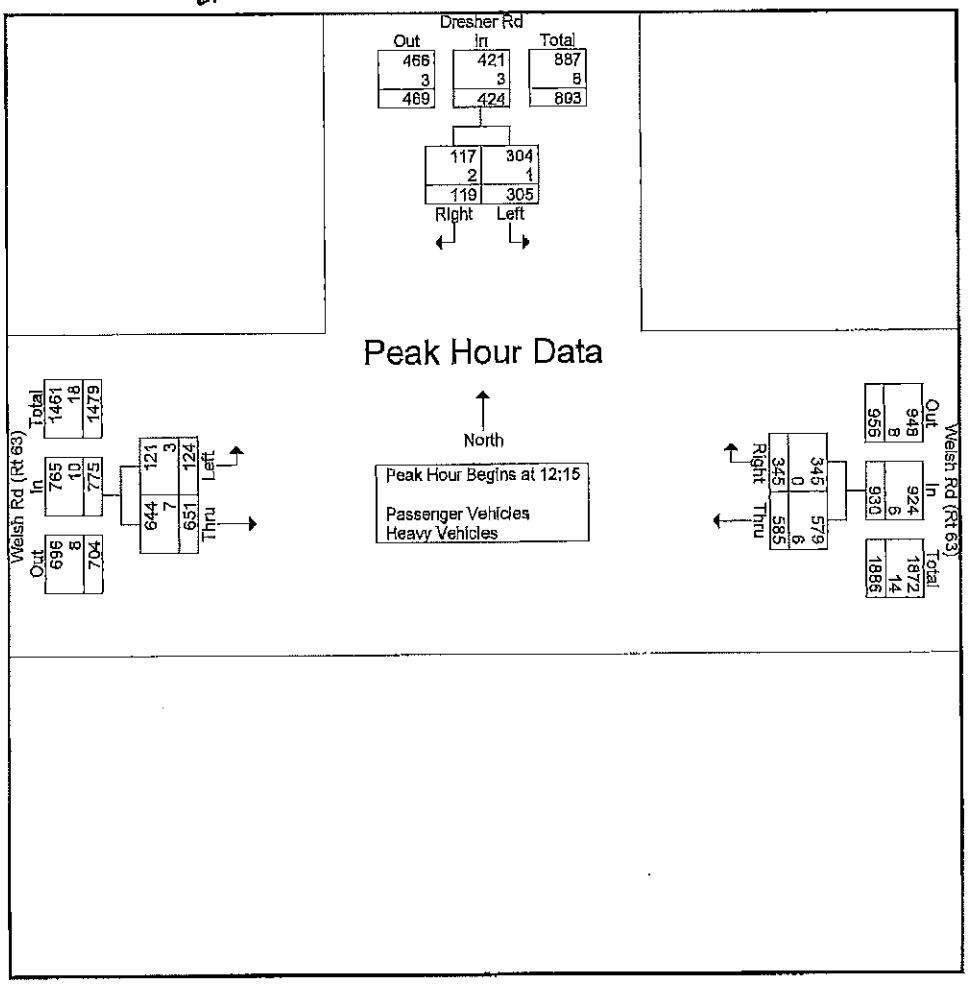
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road (Route 63) &
Dresher Road
Counter/Board #: BW

File Name : pru03s
Site Code : 81600001
Start Date : 1/9/2016
Page No : 2

	Dresher Rd Southbound				Welsh Rd (Rt 63) Westbound				Welsh Rd (Rt 63) Eastbound			
Start Time	Left	ROR	Right	App. Total	Thru	ROR	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 12:15												
12:15	**94**	4	23	**121**	147	1	80	228	26	147	173	522
12:30	70	**5**	**33**	108	**161**	2	**87**	**250**	30	**184**	**214**	**572**
12:45	79	1	20	100	144	2	83	229	**42**	169	211	540
13:00	62	2	31	95	133	**4**	86	223	26	151	177	495
Total Volume	305	12	107	424	585	9	336	930	124	651	775	2129
% App. Total	71.9	2.8	25.2		62.9	1	36.1		16	84		
PHF	.811	.600	.811	.876	.908	.563	.966	.930	.738	.885	.905	.931
Passenger Vehicles	304	12	105	421	579	9	336	924	121	644	765	2110
% Passenger Vehicles	99.7	100	98.1	99.3	99.0	100	100	99.4	97.6	98.9	98.7	99.1
Heavy Vehicles	1	0	2	3	6	0	0	6	3	7	10	19
% Heavy Vehicles	0.3	0	1.9	0.7	1.0	0	0	0.6	2.4	1.1	1.3	0.9



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road (Route 63) &
Dresher Road
Counter/Board #: BW

File Name : pru03s
Site Code : 81600001
Start Date : 1/9/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Dresher Rd Southbound			Welsh Rd (Rt 63) Westbound			Welsh Rd (Rt 63) Eastbound		
Start Time	Left	ROR	Right	Thru	ROR	Right	Left	Thru	Int. Total
11:00	67	2	33	119	1	60	16	127	425
11:15	70	1	35	121	1	69	25	141	463
11:30	70	1	18	140	0	67	18	151	465
11:45	62	2	23	154	0	59	18	152	470
Total	269	6	109	534	2	255	77	571	1823
12:00	95	1	31	112	2	68	17	138	464
12:15	94	4	22	146	1	80	24	144	515
12:30	70	5	33	156	2	87	30	183	566
12:45	79	1	20	144	2	83	41	166	536
Total	338	11	106	558	7	318	112	631	2081
13:00	61	2	30	133	4	86	26	151	493
13:15	64	4	21	149	2	63	18	154	475
13:30	46	2	31	175	1	55	21	161	492
13:45	67	2	32	170	1	80	28	146	526
Total	238	10	114	627	8	284	93	612	1986
Grand Total	845	27	329	1719	17	857	282	1814	5890
Apprch %	70.4	2.2	27.4	66.3	0.7	33.1	13.5	86.5	
Total %	14.3	0.5	5.6	29.2	0.3	14.6	4.8	30.8	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road (Route 63) &
Dresher Road
Counter/Board #: BW

File Name : pru03s
Site Code : 81600001
Start Date : 1/9/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Dresher Rd Southbound			Welsh Rd (Rt 63) Westbound			Welsh Rd (Rt 63) Eastbound		
Start Time	Left	ROR	Right	Thru	ROR	Right	Left	Thru	Int. Total
11:00	4	0	0	0	0	0	0	0	4
11:15	0	0	1	3	0	3	0	1	8
11:30	2	0	2	0	0	0	0	0	4
11:45	0	0	0	2	0	2	1	1	6
Total	6	0	3	5	0	5	1	2	22
12:00	0	0	0	0	0	1	0	0	1
12:15	0	0	1	1	0	0	2	3	7
12:30	0	0	0	5	0	0	0	1	6
12:45	0	0	0	0	0	0	1	3	4
Total	0	0	1	6	0	1	3	7	18
13:00	1	0	1	0	0	0	0	0	2
13:15	0	0	0	0	0	0	1	2	3
13:30	1	0	0	0	0	2	0	0	3
13:45	0	0	0	1	0	0	0	1	2
Total	2	0	1	1	0	2	1	3	10
Grand Total	8	0	5	12	0	8	5	12	50
Apprch %	61.5	0	38.5	60	0	40	29.4	70.6	
Total %	16	0	10	24	0	16	10	24	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dreshertown Road
Counter/Board #: LB

File Name : dryden02wR
Site Code : 81536702
Start Date : 12/3/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Welsh Rd Westbound		Dreshertown Rd Northbound			Welsh Rd Eastbound			
Start Time	Left	Thru	Left	ROR	Right	Thru	ROR	Right	Int. Total
07:00	77	157	30	16	23	158	10	101	572
07:15	97	163	49	25	51	131	11	104	631
07:30	107	220	58	23	66	238	15	99	826
07:45	84	235	69	28	78	205	14	96	809
Total	365	775	206	92	218	732	50	400	2838
08:00	115	226	62	16	81	192	8	117	817
08:15	98	219	63	14	67	198	6	132	797
08:30	92	162	46	24	60	220	11	112	727
08:45	81	155	57	6	60	164	4	113	640
Total	386	762	228	60	268	774	29	474	2981
16:00	94	200	61	27	43	176	13	106	720
16:15	79	198	54	12	57	180	8	93	681
16:30	87	204	72	22	79	177	14	100	755
16:45	84	187	74	13	68	191	8	110	735
Total	344	789	261	74	247	724	43	409	2891
17:00	113	269	96	18	85	241	10	127	959
17:15	140	243	91	12	120	265	7	112	990
17:30	109	251	89	5	93	279	3	138	967
17:45	85	219	97	9	101	252	5	131	899
Total	447	982	373	44	399	1037	25	508	3815
Grand Total	1542	3308	1068	270	1132	3267	147	1791	12525
Apprch %	31.8	68.2	43.2	10.9	45.8	62.8	2.8	34.4	
Total %	12.3	26.4	8.5	2.2	9	26.1	1.2	14.3	
Passenger Vehicles	1506	3240	1042	270	1080	3208	147	1758	12251
% Passenger Vehicles	97.7	97.9	97.6	100	95.4	98.2	100	98.2	97.8
Heavy Vehicles	36	68	26	0	52	59	0	33	274
% Heavy Vehicles	2.3	2.1	2.4	0	4.6	1.8	0	1.8	2.2

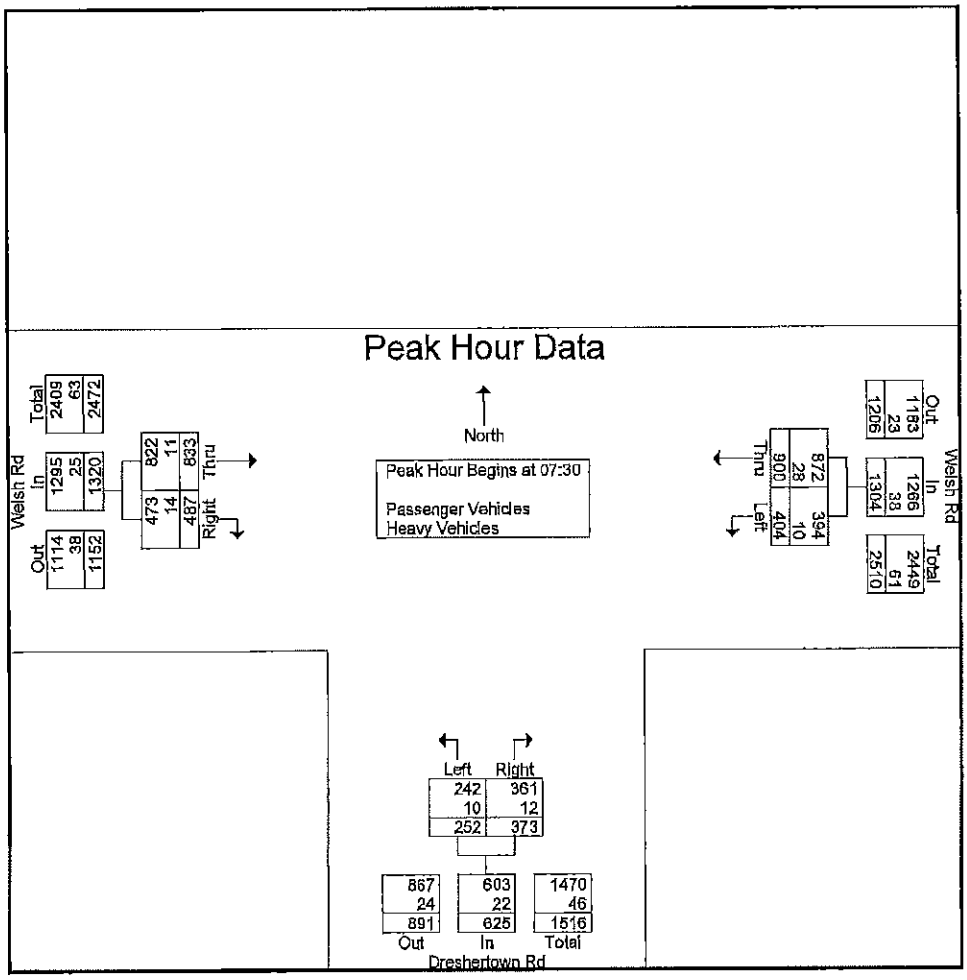
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dreshertown Road
Counter/Board #: LB

File Name : dryden02wR
Site Code : 81536702
Start Date : 12/3/2015
Page No : 2

	Welsh Rd Westbound			Dreshertown Rd Northbound				Welsh Rd Eastbound				
Start Time	Left	Thru	App. Total	Left	ROR	Right	App. Total	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 07:30												
07:30	107	220	327	58	23	66	147	**238**	**15**	99	**352**	**826**
07:45	84	**235**	319	**69**	**28**	78	**175**	205	14	96	315	809
08:00	**115**	226	**341**	62	16	**81**	159	192	8	117	**317**	817
08:15	98	219	317	63	14	67	144	198	6	**132**	336	797
Total Volume	404	900	1304	252	81	292	625	833	43	444	1320	3249
% App. Total	31	69		40.3	13	46.7		63.1	3.3	33.6		
PHF	.878	.957	.956	.913	.723	.901	.893	.875	.717	.841	.938	.983
Passenger Vehicles	394	872	1266	242	81	280	603	822	43	430	1295	3164
% Passenger Vehicles	97.5	96.9	97.1	96.0	100	95.9	96.5	98.7	100	96.8	98.1	97.4
Heavy Vehicles	10	28	38	10	0	12	22	11	0	14	25	85
% Heavy Vehicles	2.5	3.1	2.9	4.0	0	4.1	3.5	1.3	0	3.2	1.9	2.6



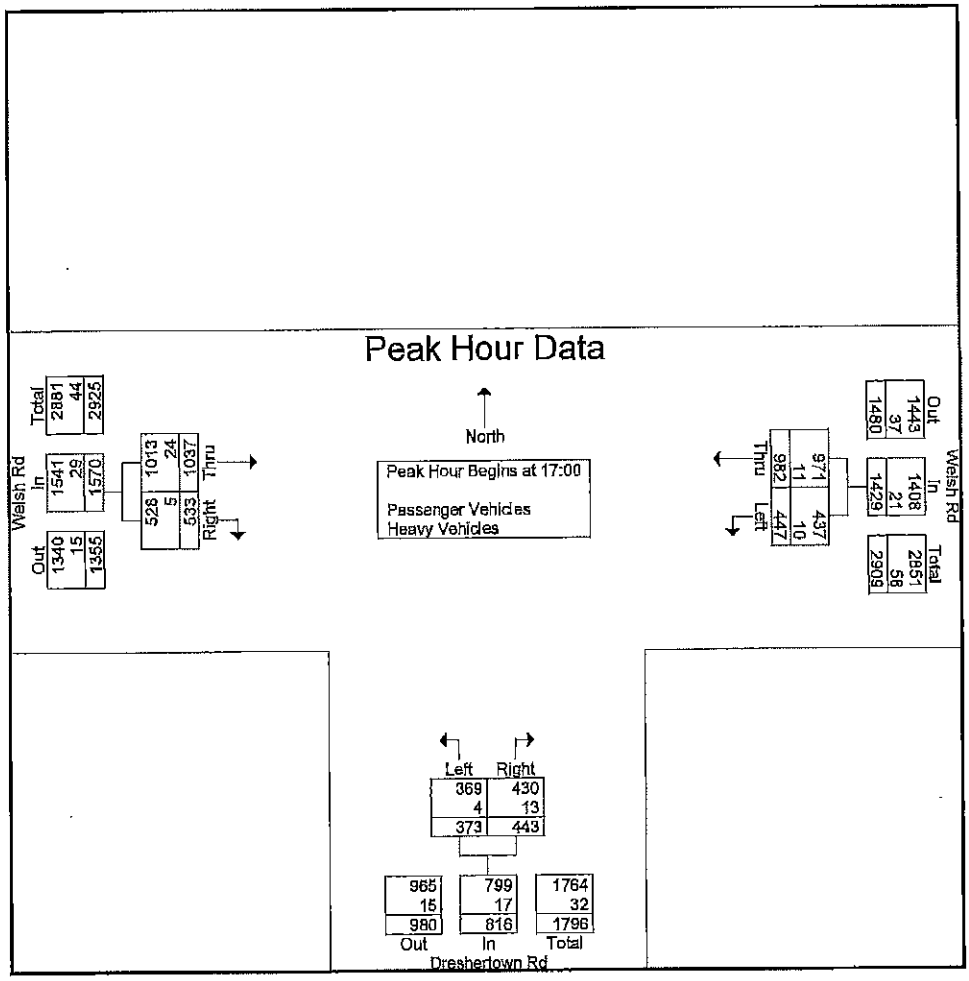
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dreshertown Road
Counter/Board #: LB

File Name : dryden02wR
Site Code : 81536702
Start Date : 12/3/2015
Page No : 3

	Welsh Rd Westbound			Dreshertown Rd Northbound				Welsh Rd Eastbound				
Start Time	Left	Thru	App. Total	Left	ROR	Right	App. Total	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 17:00												
17:00	113	**269**	382	96	**18**	85	199	241	**10**	127	378	959
17:15	**140**	243	**383**	91	12	**120**	**223**	265	7	112	384	**990**
17:30	109	251	360	89	5	93	187	**279**	3	**138**	**420**	967
17:45	85	219	304	**97**	9	101	207	252	5	131	388	899
Total Volume	447	982	1429	373	44	399	816	1037	25	508	1570	3815
% App. Total	31.3	68.7		45.7	5.4	48.9		66.1	1.6	32.4		
PHF	.798	.913	.933	.961	.611	.831	.915	.929	.625	.920	.935	.963
Passenger Vehicles	437	971	1408	369	44	386	799	1013	25	503	1541	3748
% Passenger Vehicles	97.8	98.9	98.5	98.9	100	96.7	97.9	97.7	100	99.0	98.2	98.2
Heavy Vehicles	10	11	21	4	0	13	17	24	0	5	29	67
% Heavy Vehicles	2.2	1.1	1.5	1.1	0	3.3	2.1	2.3	0	1.0	1.8	1.8



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dreshertown Road
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Start Date : 12/3/2015
Page No : 1

Groups Printed- Passenger Vehicles

	Welsh Rd Westbound		Dreshertown Rd Northbound			Welsh Rd Eastbound			
Start Time	Left	Thru	Left	ROR	Right	Thru	ROR	Right	Int. Total
07:00	76	155	29	16	21	156	10	98	561
07:15	96	159	47	25	50	130	11	101	619
07:30	105	212	55	23	65	236	15	98	809
07:45	81	228	67	28	73	202	14	92	785
Total	358	754	198	92	209	724	50	389	2774
08:00	112	222	60	16	78	188	8	114	798
08:15	96	210	60	14	64	196	6	126	772
08:30	89	155	45	24	58	215	11	108	705
08:45	81	152	56	6	58	161	4	113	631
Total	378	739	221	60	258	760	29	461	2906
16:00	93	197	59	27	40	171	13	106	706
16:15	75	194	49	12	51	179	8	91	659
16:30	84	199	72	22	74	174	14	98	737
16:45	81	186	74	13	62	187	8	110	721
Total	333	776	254	74	227	711	43	405	2823
17:00	110	266	94	18	84	238	10	126	946
17:15	137	241	89	12	119	260	7	111	976
17:30	107	249	89	5	88	270	3	135	946
17:45	83	215	97	9	95	245	5	131	880
Total	437	971	369	44	386	1013	25	503	3748
Grand Total	1506	3240	1042	270	1080	3208	147	1758	12251
Apprch %	31.7	68.3	43.6	11.3	45.2	62.7	2.9	34.4	
Total %	12.3	26.4	8.5	2.2	8.8	26.2	1.2	14.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dreshertown Road
Counter/Board #: LB

File Name : dryden02wR
Site Code : 81536702
Start Date : 12/3/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Welsh Rd Westbound		Dreshertown Rd Northbound			Welsh Rd Eastbound			
Start Time	Left	Thru	Left	ROR	Right	Thru	ROR	Right	Int. Total
07:00	1	2	1	0	2	2	0	3	11
07:15	1	4	2	0	1	1	0	3	12
07:30	2	8	3	0	1	2	0	1	17
07:45	3	7	2	0	5	3	0	4	24
Total	7	21	8	0	9	8	0	11	64
08:00	3	4	2	0	3	4	0	3	19
08:15	2	9	3	0	3	2	0	6	25
08:30	3	7	1	0	2	5	0	4	22
08:45	0	3	1	0	2	3	0	0	9
Total	8	23	7	0	10	14	0	13	75
16:00	1	3	2	0	3	5	0	0	14
16:15	4	4	5	0	6	1	0	2	22
16:30	3	5	0	0	5	3	0	2	18
16:45	3	1	0	0	6	4	0	0	14
Total	11	13	7	0	20	13	0	4	68
17:00	3	3	2	0	1	3	0	1	13
17:15	3	2	2	0	1	5	0	1	14
17:30	2	2	0	0	5	9	0	3	21
17:45	2	4	0	0	6	7	0	0	19
Total	10	11	4	0	13	24	0	5	67
Grand Total	36	68	26	0	52	59	0	33	274
Apprch %	34.6	65.4	33.3	0	66.7	64.1	0	35.9	
Total %	13.1	24.8	9.5	0	19	21.5	0	12	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin
Location: Welsh Rd (Rt 63) & Dreshertown Road
Counter/Board #: KB

File Name : pru02s
Site Code : 81600002
Start Date : 1/9/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Welsh Rd (Rt 63) Westbound		Dreshertown Rd Northbound			Welsh Rd (Rt 63) Eastbound			
Start Time	Left	Thru	Left	ROR	Right	Thru	ROR	Right	Int. Total
11:00	46	157	25	32	24	153	8	30	475
11:15	38	173	21	31	38	177	7	33	518
11:30	47	181	27	26	33	189	4	33	540
11:45	53	175	24	14	54	201	3	28	552
Total	184	686	97	103	149	720	22	124	2085
12:00	51	177	33	30	38	188	2	42	561
12:15	61	171	47	17	48	186	0	34	564
12:30	55	217	36	24	64	220	0	46	662
12:45	60	183	39	17	51	211	0	42	603
Total	227	748	155	88	201	805	2	164	2390
13:00	64	190	29	20	50	200	0	35	588
13:15	50	192	28	12	35	184	0	28	529
13:30	66	203	30	14	52	192	0	23	580
13:45	71	191	23	0	51	171	0	18	525
Total	251	776	110	46	188	747	0	104	2222
Grand Total	662	2210	362	237	538	2272	24	392	6697
Apprch %	23.1	76.9	31.8	20.8	47.3	84.5	0.9	14.6	
Total %	9.9	33	5.4	3.5	8	33.9	0.4	5.9	
Passenger Vehicles	659	2201	360	237	538	2268	24	389	6676
% Passenger Vehicles	99.5	99.6	99.4	100	100	99.8	100	99.2	99.7
Heavy Vehicles	3	9	2	0	0	4	0	3	21
% Heavy Vehicles	0.5	0.4	0.6	0	0	0.2	0	0.8	0.3

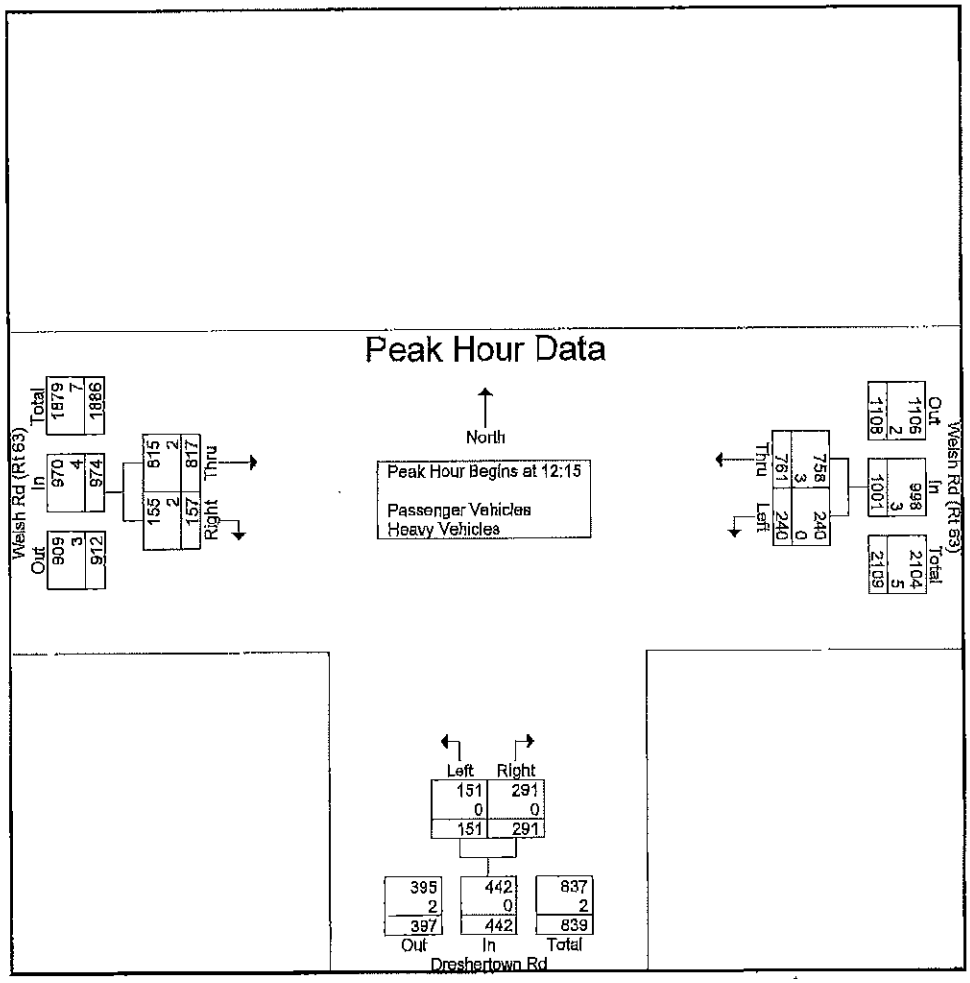
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin
Location: Welsh Rd (Rt 63) & Dreshertown Road
Counter/Board #: KB

File Name : pru02s
Site Code : 81600002
Start Date : 1/9/2015
Page No : 2

	Welsh Rd (Rt 63) Westbound			Dreshertown Rd Northbound				Welsh Rd (Rt 63) Eastbound				
Start Time	Left	Thru	App. Total	Left	ROR	Right	App. Total	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 to 13:30 - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 12:15												
12:15	61	171	232	47	17	48	112	186	0	34	220	564
12:30	55	217	272	36	24	64	124	220	0	46	266	662
12:45	60	183	243	39	17	51	107	211	0	42	253	603
13:00	64	190	254	29	20	50	99	200	0	35	235	588
Total Volume	240	761	1001	151	78	213	442	817	0	157	974	2417
% App. Total	24	76		34.2	17.6	48.2		83.9	0	16.1		
PHF	.938	.877	.920	.803	.813	.832	.891	.928	.000	.853	.915	.913
Passenger Vehicles	240	758	998	151	78	213	442	815	0	155	970	2410
% Passenger Vehicles	100	99.6	99.7	100	100	100	100	99.8	0	98.7	99.6	99.7
Heavy Vehicles	0	3	3	0	0	0	0	2	0	2	4	7
% Heavy Vehicles	0	0.4	0.3	0	0	0	0	0.2	0	1.3	0.4	0.3



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin
Location: Welsh Rd (Rt 63) & Dreshertown Road
Counter/Board #: KB

File Name : pru02s
Site Code : 81600002
Start Date : 1/9/2015
Page No : 1

Groups Printed- Passenger Vehicles

	Welsh Rd (Rt 63) Westbound		Dreshertown Rd Northbound			Welsh Rd (Rt 63) Eastbound			
Start Time	Left	Thru	Left	ROR	Right	Thru	ROR	Right	Int. Total
11:00	46	157	25	32	24	153	8	30	475
11:15	37	170	20	31	38	176	7	33	512
11:30	46	181	27	26	33	189	4	32	538
11:45	53	173	23	14	54	201	3	28	549
Total	182	681	95	103	149	719	22	123	2074
12:00	51	176	33	30	38	188	2	42	560
12:15	61	170	47	17	48	185	0	34	562
12:30	55	215	36	24	64	220	0	46	660
12:45	60	183	39	17	51	210	0	41	601
Total	227	744	155	88	201	803	2	163	2383
13:00	64	190	29	20	50	200	0	34	587
13:15	49	192	28	12	35	184	0	28	528
13:30	66	203	30	14	52	191	0	23	579
13:45	71	191	23	0	51	171	0	18	525
Total	250	776	110	46	188	746	0	103	2219
Grand Total	659	2201	360	237	538	2268	24	389	6676
Apprch %	23	77	31.7	20.9	47.4	84.6	0.9	14.5	
Total %	9.9	33	5.4	3.6	8.1	34	0.4	5.8	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin
Location: Welsh Rd (Rt 63) & Dreshertown Road
Counter/Board #: KB

File Name : pru02s
Site Code : 81600002
Start Date : 1/9/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Welsh Rd (Rt 63) Westbound		Dreshertown Rd Northbound			Welsh Rd (Rt 63) Eastbound			
Start Time	Left	Thru	Left	ROR	Right	Thru	ROR	Right	Int. Total
11:15	1	3	1	0	0	1	0	0	6
11:30	1	0	0	0	0	0	0	1	2
11:45	0	2	1	0	0	0	0	0	3
Total	2	5	2	0	0	1	0	1	11
12:00	0	1	0	0	0	0	0	0	1
12:15	0	1	0	0	0	1	0	0	2
12:30	0	2	0	0	0	0	0	0	2
12:45	0	0	0	0	0	1	0	1	2
Total	0	4	0	0	0	2	0	1	7
13:00	0	0	0	0	0	0	0	1	1
13:15	1	0	0	0	0	0	0	0	1
13:30	0	0	0	0	0	1	0	0	1
Total	1	0	0	0	0	1	0	1	3
Grand Total	3	9	2	0	0	4	0	3	21
Apprch %	25	75	100	0	0	57.1	0	42.9	
Total %	14.3	42.9	9.5	0	0	19	0	14.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dryden Road
Counter/Board #: GG

File Name : dryden01wR
Site Code : 81536701
Start Date : 12/3/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Dryden Rd Southbound				Welsh Rd Westbound				Dryden Rd Northbound				Welsh Rd Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	0	0	0	0	1	286	0	0	1	0	0	0	0	202	0	4	494
07:15	0	0	0	0	7	319	0	0	0	0	0	0	0	229	0	11	566
07:30	0	0	0	0	6	356	0	0	0	0	0	0	0	293	2	11	668
07:45	1	0	0	0	6	354	0	0	1	0	0	0	0	305	0	18	685
Total	1	0	0	0	20	1315	0	0	2	0	0	0	0	1029	2	44	2413
08:00	0	0	0	0	16	371	0	1	0	0	0	0	0	265	0	35	688
08:15	1	0	0	0	29	364	0	0	1	0	0	0	1	323	0	30	749
08:30	0	0	0	1	21	324	0	0	2	1	0	0	1	270	1	41	662
08:45	0	0	0	0	14	316	0	0	2	0	0	0	0	275	0	19	626
Total	1	0	0	1	80	1375	0	1	5	1	0	0	2	1133	1	125	2725
16:00	1	0	0	0	0	322	0	0	7	0	0	1	0	299	0	1	631
16:15	0	0	0	1	1	272	0	0	6	0	0	4	0	306	0	2	592
16:30	1	0	0	0	4	315	0	0	20	0	0	0	0	332	0	0	672
16:45	1	0	0	0	0	371	0	0	7	0	0	3	0	340	0	0	722
Total	3	0	0	1	5	1280	0	0	40	0	0	8	0	1277	0	3	2617
17:00	0	0	0	1	0	353	0	0	25	8	0	3	0	381	0	2	773
17:15	1	0	0	0	0	328	0	0	35	0	0	2	0	417	0	2	785
17:30	1	0	0	0	0	317	0	0	28	0	0	1	0	419	0	1	767
17:45	0	0	0	0	3	285	0	0	39	0	0	4	0	365	1	0	697
Total	2	0	0	1	3	1283	0	0	127	8	0	10	0	1582	1	5	3022
Grand Total	7	0	0	3	108	5253	0	1	174	9	0	18	2	5021	4	177	10777
Apprch %	70	0	0	30	2	98	0	0	86.6	4.5	0	9	0	96.5	0.1	3.4	
Total %	0.1	0	0	0	1	48.7	0	0	1.6	0.1	0	0.2	0	46.6	0	1.6	
Passenger Vehicles	7	0	0	3	107	5181	0	1	172	8	0	18	2	4957	4	177	10637
% Passenger Vehicles	100	0	0	100	99.1	98.6	0	100	98.9	88.9	0	100	100	98.7	100	100	98.7
Heavy Vehicles	0	0	0	0	1	72	0	0	2	1	0	0	0	64	0	0	140
% Heavy Vehicles	0	0	0	0	0.9	1.4	0	0	1.1	11.1	0	0	0	1.3	0	0	1.3

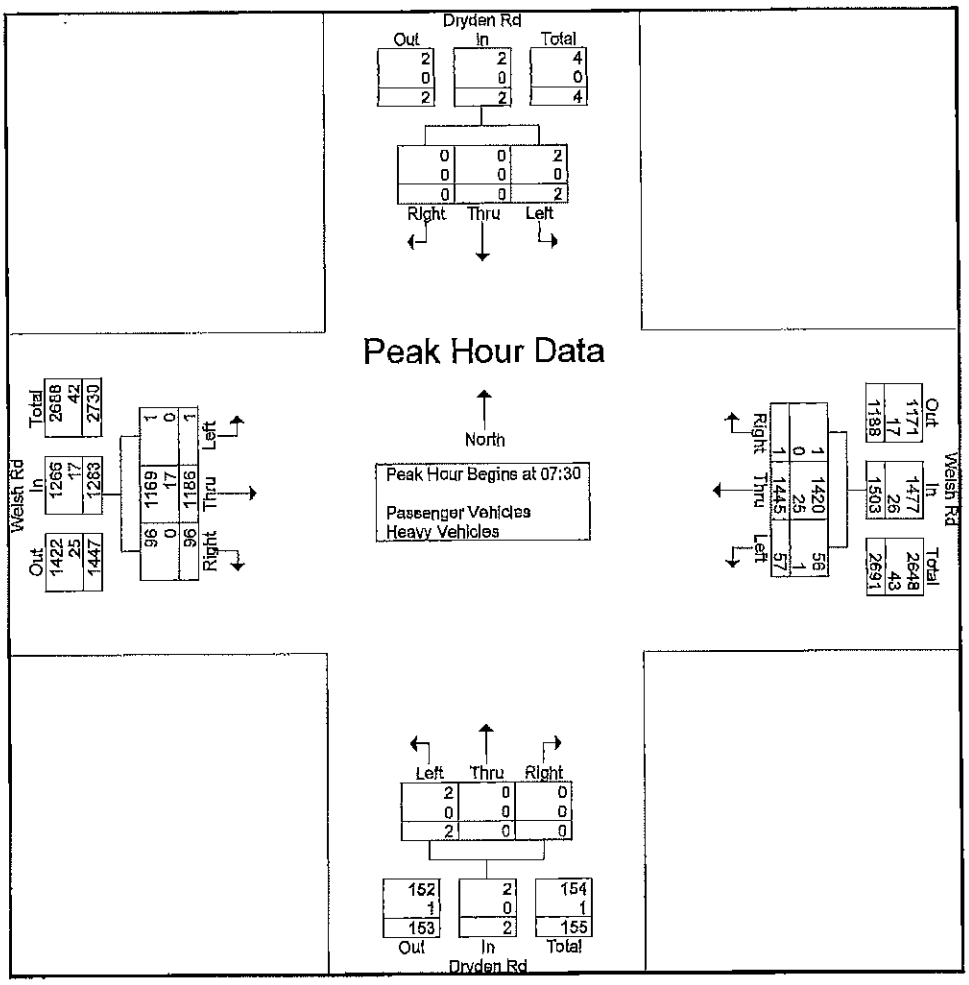
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dryden Road
Counter/Board #: GG

File Name : dryden01wR
Site Code : 81536701
Start Date : 12/3/2015
Page No : 2

	Dryden Rd Southbound					Welsh Rd Westbound					Dryden Rd Northbound					Welsh Rd Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	0	0	0	0	0	6	356	0	0	362	0	0	0	0	0	0	293	2	11	306	668
07:45	1	0	0	0	1	6	354	0	0	360	1	0	0	0	1	0	305	0	18	323	685
08:00	0	0	0	0	0	16	**371**	0	1	388	0	0	0	0	0	0	265	0	**35**	300	688
08:15	1	0	0	0	1	**29**	364	0	0	**393**	1	0	0	0	1	**1**	**323**	0	30	**354**	**749**
Total Volume	2	0	0	0	2	57	1445	0	1	1503	2	0	0	0	2	1	1186	2	94	1283	2790
% App. Total	100	0	0	0		3.8	96.1	0	0.1		100	0	0	0		0.1	92.4	0.2	7.3		
PHF	.500	.000	.000	.000	.500	.491	.974	.000	.250	.956	.500	.000	.000	.000	.500	.250	.918	.250	.671	.908	.931
Passenger Vehicles	100	0	0	0	100	98.2	1420 98.3	0	100	98.3	100	0	0	0	100	100	1169 98.6	100	100	98.7	98.5
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	1.8	1.7	0	0	1.7	0	0	0	0	0	0	1.4	0	0	1.3	1.5
% Heavy Vehicles																					



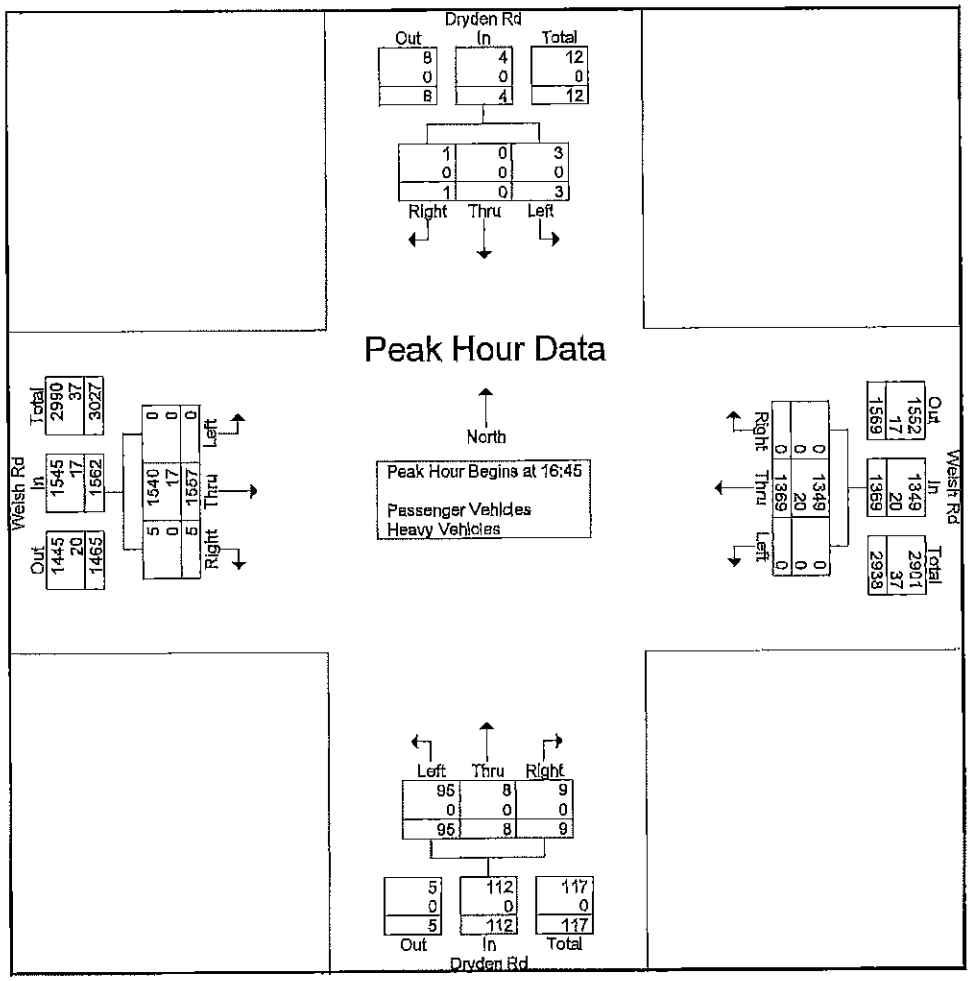
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dryden Road
Counter/Board #: GG

File Name : dryden01wR
Site Code : 81536701
Start Date : 12/3/2015
Page No : 3

	Dryden Rd Southbound					Welsh Rd Westbound					Dryden Rd Northbound					Welsh Rd Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	**1**	0	0	0	1	0	**371**	0	0	**371**	7	0	0	**3**	10	0	340	0	0	340	722
17:00	0	0	0	**1**	1	0	353	0	0	353	25	**8**	0	3	36	0	381	0	**2**	383	773
17:15	1	0	0	0	1	0	328	0	0	328	**35**	0	0	2	**37**	0	417	0	2	419	**785**
17:30	1	0	0	0	1	0	317	0	0	317	28	0	0	1	29	0	**419**	0	1	**420**	767
Total Volume	3	0	0	1	4	0	1369	0	0	1369	95	8	0	9	112	0	1557	0	5	1562	3047
% App. Total	75	0	0	25		0	100	0	0		84.8	7.1	0	8		0	99.7	0	0.3		
PHF	.750	.000	.000	.250	1.00	.000	.923	.000	.000	.923	.679	.250	.000	.750	.757	.000	.929	.000	.625	.930	.970
Passenger Vehicles							1349										1540				
% Passenger Vehicles	100	0	0	100	100	0	98.5	0	0	98.5	100	100	0	100	100	0	98.9	0	100	98.9	98.8
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	1.5	0	0	1.5	0	0	0	0	0	0	1.1	0	0	1.1	1.2



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dryden Road
Counter/Board #: GG

File Name : dryden01wR
Site Code : 81536701
Start Date : 12/3/2015
Page No : 1

Groups Printed- Passenger Vehicles

	Dryden Rd Southbound				Welsh Rd Westbound				Dryden Rd Northbound				Welsh Rd Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	0	0	0	0	1	284	0	0	1	0	0	0	0	201	0	4	491
07:15	0	0	0	0	7	316	0	0	0	0	0	0	0	226	0	11	560
07:30	0	0	0	0	6	350	0	0	0	0	0	0	0	287	2	11	656
07:45	1	0	0	0	6	346	0	0	1	0	0	0	0	301	0	18	673
Total	1	0	0	0	20	1296	0	0	2	0	0	0	0	1015	2	44	2380
08:00	0	0	0	0	16	366	0	1	0	0	0	0	0	260	0	35	678
08:15	1	0	0	0	28	358	0	0	1	0	0	0	1	321	0	30	740
08:30	0	0	0	1	21	319	0	0	1	0	0	0	1	269	1	41	654
08:45	0	0	0	0	14	312	0	0	1	0	0	0	0	266	0	19	612
Total	1	0	0	1	79	1355	0	1	3	0	0	0	2	1116	1	125	2684
16:00	1	0	0	0	0	320	0	0	7	0	0	1	0	292	0	1	622
16:15	0	0	0	1	1	268	0	0	6	0	0	4	0	303	0	2	585
16:30	1	0	0	0	4	311	0	0	20	0	0	0	0	328	0	0	664
16:45	1	0	0	0	0	362	0	0	7	0	0	3	0	336	0	0	709
Total	3	0	0	1	5	1261	0	0	40	0	0	8	0	1259	0	3	2580
17:00	0	0	0	1	0	347	0	0	25	8	0	3	0	381	0	2	767
17:15	1	0	0	0	0	327	0	0	35	0	0	2	0	413	0	2	780
17:30	1	0	0	0	0	313	0	0	28	0	0	1	0	410	0	1	754
17:45	0	0	0	0	3	282	0	0	39	0	0	4	0	363	1	0	692
Total	2	0	0	1	3	1269	0	0	127	8	0	10	0	1567	1	5	2993
Grand Total	7	0	0	3	107	5181	0	1	172	8	0	18	2	4957	4	177	10637
Apprch %	70	0	0	30	2	98	0	0	86.9	4	0	9.1	0	96.4	0.1	3.4	
Total %	0.1	0	0	0	1	48.7	0	0	1.6	0.1	0	0.2	0	46.6	0	1.7	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin Township
Location: Welsh Road &
Dryden Road
Counter/Board #: GG

File Name : dryden01wR
Site Code : 81536701
Start Date : 12/3/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Dryden Rd Southbound				Welsh Rd Westbound				Dryden Rd Northbound				Welsh Rd Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	3
07:15	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	6
07:30	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0	12
07:45	0	0	0	0	0	8	0	0	0	0	0	0	0	4	0	0	12
Total	0	0	0	0	0	19	0	0	0	0	0	0	0	14	0	0	33
08:00	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0	0	10
08:15	0	0	0	0	1	6	0	0	0	0	0	0	0	2	0	0	9
08:30	0	0	0	0	0	5	0	0	1	1	0	0	0	1	0	0	8
08:45	0	0	0	0	0	4	0	0	1	0	0	0	0	9	0	0	14
Total	0	0	0	0	1	20	0	0	2	1	0	0	0	17	0	0	41
16:00	0	0	0	0	0	2	0	0	0	0	0	0	0	7	0	0	9
16:15	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	7
16:30	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0	8
16:45	0	0	0	0	0	9	0	0	0	0	0	0	0	4	0	0	13
Total	0	0	0	0	0	19	0	0	0	0	0	0	0	18	0	0	37
17:00	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	6
17:15	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	5
17:30	0	0	0	0	0	4	0	0	0	0	0	0	0	9	0	0	13
17:45	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	5
Total	0	0	0	0	0	14	0	0	0	0	0	0	0	15	0	0	29
Grand Total	0	0	0	0	1	72	0	0	2	1	0	0	0	64	0	0	140
Apprch %	0	0	0	0	1.4	98.6	0	0	66.7	33.3	0	0	0	100	0	0	
Total %	0	0	0	0	0.7	51.4	0	0	1.4	0.7	0	0	0	45.7	0	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Upper Dublin
Location: Welsh Road (Route 63)
& Dryden Road
Counter/Board #: AB

File Name : pru01s
Site Code : 81600001
Start Date : 1/9/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Dryden Rd Southbound			Welsh Rd (Rt 63) Westbound			Dryden Rd Northbound			Welsh Rd (Rt 63) Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00	0	0	0	0	197	0	0	0	0	0	237	0	434
11:15	0	0	0	0	221	0	0	0	0	0	248	0	469
11:30	0	0	0	0	248	0	0	0	1	0	242	1	492
11:45	0	0	1	2	225	1	0	0	1	0	263	0	493
Total	0	0	1	2	891	1	0	0	2	0	990	1	1888
12:00	1	0	1	0	226	1	0	0	2	1	252	2	486
12:15	1	0	1	2	223	1	1	0	0	1	247	0	477
12:30	1	0	1	1	262	2	0	0	1	0	295	0	563
12:45	0	0	0	0	231	0	1	0	0	0	267	1	500
Total	3	0	3	3	942	4	2	0	3	2	1061	3	2026
13:00	0	0	0	0	257	1	0	0	1	0	264	1	524
13:15	1	0	2	0	228	0	0	0	0	2	241	0	474
13:30	1	0	0	1	311	1	0	0	0	0	262	1	577
13:45	2	0	0	2	252	2	0	0	1	1	216	2	478
Total	4	0	2	3	1048	4	0	0	2	3	983	4	2053
Grand Total	7	0	6	8	2881	9	2	0	7	5	3034	8	5967
Apprch %	53.8	0	46.2	0.3	99.4	0.3	22.2	0	77.8	0.2	99.6	0.3	
Total %	0.1	0	0.1	0.1	48.3	0.2	0	0	0.1	0.1	50.8	0.1	
Passenger Vehicles	7	0	6	8	2878	9	2	0	7	5	3032	8	5962
% Passenger Vehicles	100	0	100	100	99.9	100	100	0	100	100	99.9	100	99.9
Heavy Vehicles	0	0	0	0	3	0	0	0	0	0	2	0	5
% Heavy Vehicles	0	0	0	0	0.1	0	0	0	0	0	0.1	0	0.1

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425 Commerce Drive, Suite 200
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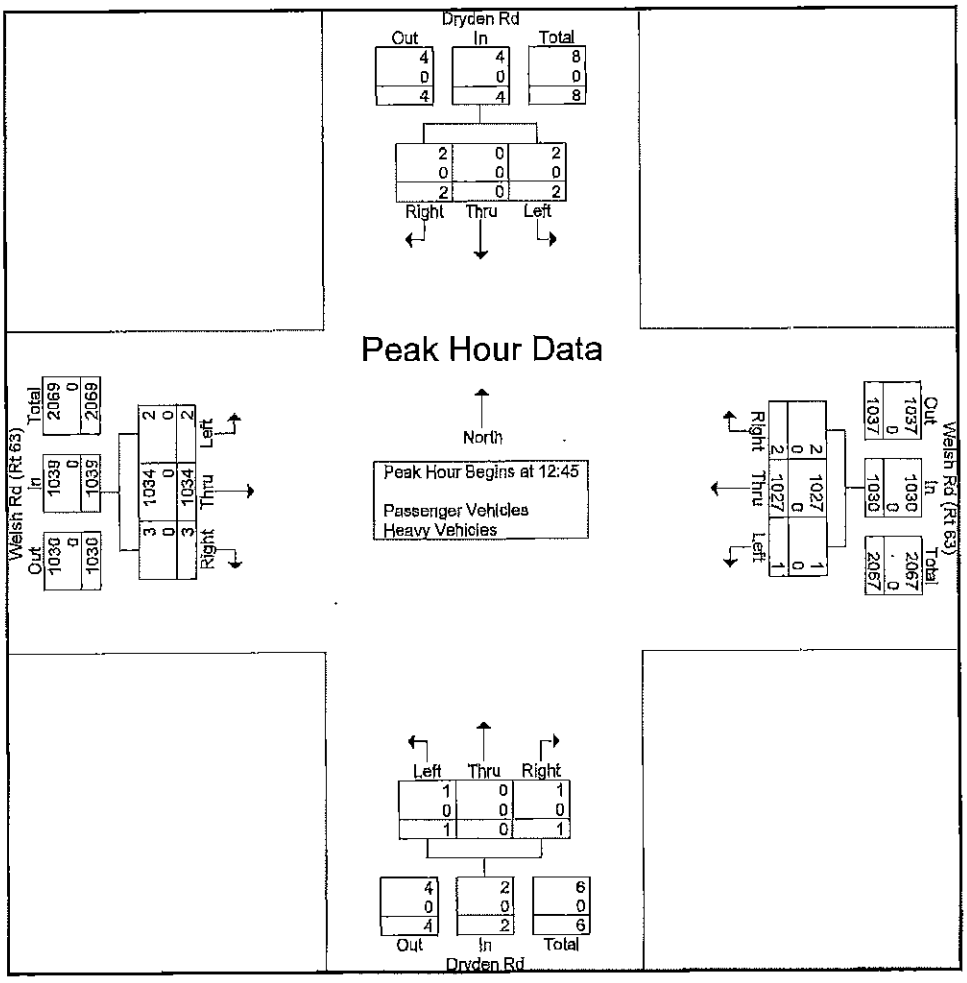
Municipality: Upper Dublin
Location: Welsh Road (Route 63)
& Dryden Road
Counter/Board #: AB

File Name : pru01s
Site Code : 81600001
Start Date : 1/9/2016
Page No : 2

	Dryden Rd Southbound				Welsh Rd (Rt 63) Westbound				Dryden Rd Northbound				Welsh Rd (Rt 63) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:45																	
12:45	0	0	0	0	0	231	0	231	**1**	0	0	**1**	0	**267**	**1**	**268**	500
13:00	0	0	0	0	0	257	**1**	258	0	0	**1**	1	0	264	1	265	524
13:15	**1**	0	**2**	**3**	0	226	0	228	0	0	0	0	**2**	241	0	243	474
13:30	1	0	0	1	**1**	**311**	**1**	**313**	0	0	0	0	0	262	1	263	**577**
Total Volume	2	0	2	4	1	1027	2	1030	1	0	1	2	2	1034	3	1039	2075
% App. Total	50	0	50		0.1	99.7	0.2		50	0	50		0.2	99.5	0.3		
PHF	.500	.000	.250	.333	.250	.826	.500	.823	.250	.000	.250	.500	.250	.968	.750	.969	.899
Passenger Vehicles	2	0	2	4	1	1027	2	1030	1	0	1	2	2	1034	3	1039	2075
% Passenger Vehicles	100	0	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Site Code : 81600001
Start Date : 1/9/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Dryden Rd Southbound			Welsh Rd (Rt 63) Westbound			Dryden Rd Northbound			Welsh Rd (Rt 63) Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00	0	0	0	0	196	0	0	0	0	0	237	0	433
11:15	0	0	0	0	220	0	0	0	0	0	248	0	468
11:30	0	0	0	0	248	0	0	0	1	0	242	1	492
11:45	0	0	1	2	224	1	0	0	1	0	263	0	492
Total	0	0	1	2	888	1	0	0	2	0	990	1	1885
12:00	1	0	1	0	226	1	0	0	2	1	252	2	486
12:15	1	0	1	2	223	1	1	0	0	1	247	0	477
12:30	1	0	1	1	262	2	0	0	1	0	293	0	561
12:45	0	0	0	0	231	0	1	0	0	0	267	1	500
Total	3	0	3	3	942	4	2	0	3	2	1059	3	2024
13:00	0	0	0	0	257	1	0	0	1	0	264	1	524
13:15	1	0	2	0	228	0	0	0	0	2	241	0	474
13:30	1	0	0	1	311	1	0	0	0	0	262	1	577
13:45	2	0	0	2	252	2	0	0	1	1	216	2	478
Total	4	0	2	3	1048	4	0	0	2	3	983	4	2053
Grand Total	7	0	6	8	2878	9	2	0	7	5	3032	8	5962
Apprch %	53.8	0	46.2	0.3	99.4	0.3	22.2	0	77.8	0.2	99.6	0.3	
Total %	0.1	0	0.1	0.1	48.3	0.2	0	0	0.1	0.1	50.9	0.1	

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Site Code : 81600001
Start Date : 1/9/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Dryden Rd Southbound			Welsh Rd (Rt 63) Westbound			Dryden Rd Northbound			Welsh Rd (Rt 63) Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00	0	0	0	0	1	0	0	0	0	0	0	0	1
11:15	0	0	0	0	1	0	0	0	0	0	0	0	1
11:45	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	0	0	0	3	0	0	0	0	0	0	0	3
12:30	0	0	0	0	0	0	0	0	0	0	2	0	2
Total	0	0	0	0	0	0	0	0	0	0	2	0	2
Grand Total	0	0	0	0	3	0	0	0	0	0	2	0	5
Apprch %	0	0	0	0	100	0	0	0	0	0	100	0	
Total %	0	0	0	0	60	0	0	0	0	0	40	0	

APPENDIX E

HCM Methodology

CAPACITY/LEVEL-OF-SERVICE ANALYSIS METHODOLOGY

The detailed capacity/level-of-service analysis contained in this transportation impact study was performed in accordance with the standard techniques contained in the *Highway Capacity Manual 2010*. By definition, capacity represents "the maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions." The level at which an intersection or a uniform section of a lane or roadway function can be expressed in terms of a level of service. Level of service (LOS) is defined as "a quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst."

Stop-Controlled Intersections

At unsignalized stop-controlled intersections, such as two-way stop-controlled (TWSC) or all-way stop-controlled (AWSC), a methodology for evaluating the relative functioning of these intersections is based upon the control delay. For these types of unsignalized intersections, the analysis of the control delay is based upon the following data:

- Number and configuration of lanes on each approach;
- Percentage of heavy vehicles on each approach;
- Demand flow rate for each entering vehicular movement and pedestrian crossing movement;
- Unique geometric factors such as, channelization aspects; two-way left-turn lanes, raised or striped median storage; approach grades, flared approaches on the minor street; and upstream signals within 0.25 miles.

At TWSC intersections, only drivers on the minor street approaches are required to stop before proceeding into the intersection and left-turning drivers from the major street may have to yield to on-coming major street through or right-turning traffic, but are not required to stop in the absence of on-coming traffic. The capacity at stop-controlled legs is based primarily on three factors: the distribution of gaps in the major stream, driver judgment in selecting the gaps, and the follow-up headways required by each driver in a queue.

At AWSC intersections, every vehicle is required to stop at the intersection before proceeding, and as a result, the decision to proceed is a function of the traffic conditions on the other approaches. Each driver proceeds only after determining that no vehicles are currently in the intersection and that it is the driver's turn to proceed. Capacity at an AWSC intersection is described by the saturation headway or time between departures of successive vehicles on a given approach for a particular case assuming a continuous queue; departure headway or the average time between departures of successive vehicles on a given approach accounting for the probability of each possible case; and service time or the average time sent by a vehicle in first position waiting to depart.

At both TWSC and AWSC intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. For TWSC intersections, the level of service is not calculated for major-street approaches or for the intersection as a whole; however, the intersection-wide level of service is calculated for AWSC intersections. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for TWSC and AWSC intersections.

Control Delay (Sec/Veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

Signalized Intersections

At three or four-legged signalized intersections, a methodology for evaluating the capacity and quality of service provided to road users traveling through the signalized intersection. For signalized intersections, the level of service can be characterized for the entire intersection, each approach, and each lane group. The level of service is based upon the control delay and volume-to-capacity ratio. The delay quantifies the increase in travel time due to the traffic signal control and is a surrogate measure of driver discomfort and fuel consumption, while the volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group. Input data in determining the delay and volume-to-capacity ratio include:

- Demand flow rate for each entering vehicular movement and pedestrian crossing movement, including right-turn on red volumes and percent of heavy vehicles;
- Initial queue for each lane group;
- Number and configuration of lanes on each approach;
- Type of signal control and phase sequence;
- Allocation of minimum/maximum green times and clearance intervals (Yellow plus All Red phases); and
- Phase recall.

At signalized intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for signalized intersections.

Control Delay (Sec/Veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 – 20	B	F
> 20 – 35	C	F
> 35 – 55	D	F
> 55 – 80	E	F
> 80	F	F

APPENDIX F

Existing
Capacity/Level-of-Service Analysis Worksheets

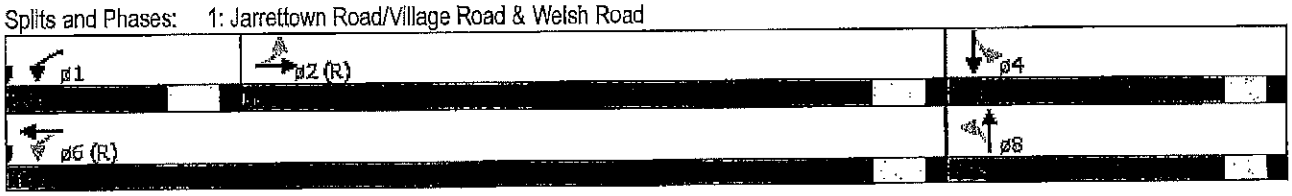
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	843	14	268	642	8	10	58	309	9	19	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	12	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.998			0.889			0.934	
Flt Protected	0.950			0.950				0.999			0.992	
Satd. Flow (prot)	1727	1813	0	1612	1852	0	0	1602	0	0	1736	0
Flt Permitted	0.405			0.064				0.992			0.741	
Satd. Flow (perm)	736	1813	0	109	1852	0	0	1590	0	0	1296	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1			175			28	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	7%	2%	3%	0%	0%	2%	0%	11%	0%	7%
Adj. Flow (vph)	58	887	15	282	676	8	11	61	325	9	20	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	902	0	282	684	0	0	397	0	0	57	0
Number of Detectors	1	2		1	2		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35		20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5		0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0		13.0	13.0	
Total Split (s)	66.0	66.0		22.0	88.0		32.0	32.0		32.0	32.0	
Total Split (%)	55.0%	55.0%		18.3%	73.3%		26.7%	26.7%		26.7%	26.7%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	59.0	59.0		15.0	81.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0			5.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	55	843	14	268	642	8	10	58	309	9	19	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1818	1816	1854	1756	1809	1863	1809	1803	1809	1863	1771	1863
Adj Flow Rate, veh/h	58	887	13	282	676	7	11	61	298	9	20	26
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	3	2	2	2	0	0	0
Cap, veh/h	445	893	13	289	1221	13	36	64	285	62	129	140
Arrive On Green	0.50	0.50	0.49	0.13	0.68	0.68	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	778	1785	26	1672	1787	19	21	286	1267	120	572	621
Grp Volume(v), veh/h	58	0	900	282	0	683	370	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	778	0	1812	1672	0	1806	1574	0	0	1313	0	0
Q Serve(g_s), s	4.9	0.0	59.2	15.4	0.0	23.1	11.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.5	0.0	59.2	15.4	0.0	23.1	26.0	0.0	0.0	3.3	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.01	0.03		0.81	0.16		0.47
Lane Grp Cap(c), veh/h	445	0	906	289	0	1234	372	0	0	319	0	0
V/C Ratio(X)	0.13	0.00	0.99	0.97	0.00	0.55	1.00	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	445	0	906	289	0	1234	372	0	0	319	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.5	0.0	29.8	40.1	0.0	9.7	47.1	0.0	0.0	37.6	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	28.4	45.7	0.0	1.8	45.3	0.0	0.0	0.3	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(95%),veh/ln	2.0	0.0	46.6	18.9	0.0	17.7	23.8	0.0	0.0	2.7	0.0	0.0
LnGrp Delay(d),s/veh	17.2	0.0	58.2	85.8	0.0	11.5	92.4	0.0	0.0	37.8	0.0	0.0
LnGrp LOS	B		E	F		B	F			D		
Approach Vol, veh/h		958			965			370			55	
Approach Delay, s/veh		55.7			33.2			92.4			37.8	
Approach LOS		E			C			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	22.0	66.0		32.0		88.0		32.0
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	15.0	59.0		26.0		81.0		26.0
Max Q Clear Time (g_c+I1), s	17.9	61.2		5.3		25.1		28.0
Green Ext Time (p_c), s	0.0	0.0		1.6		46.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.8
HCM 2010 LOS	D

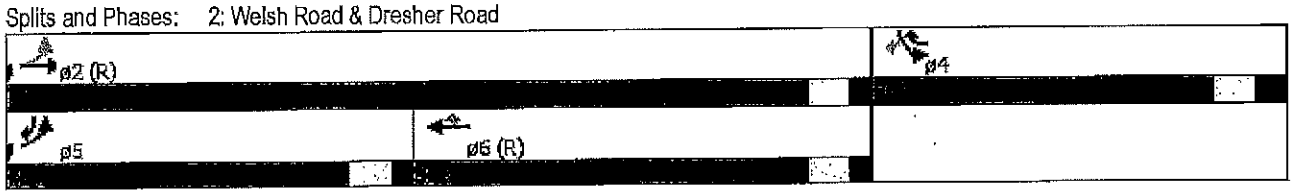
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	387	803	688	568	621	278
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	0			210	0	415
Storage Lanes	0			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	0.95	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected		0.984			0.950	
Satd. Flow (prot)	0	3349	3194	1443	3268	1542
Flt Permitted		0.563			0.950	
Satd. Flow (perm)	0	1916	3194	1443	3268	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				359		49
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	3%	2%	1%	2%
Adj. Flow (vph)	412	854	732	604	661	296
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1266	732	604	661	296
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	5	5	5	35	35
Trailing Detector (ft)	0	0	0	0	-5	-5
Detector 1 Position(ft)	0	0	0	0	-5	-5
Detector 1 Size(ft)	50	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	38.0	81.0	43.0	39.0	39.0	38.0
Total Split (%)	31.7%	67.5%	35.8%	32.5%	32.5%	31.7%
Maximum Green (s)	32.0	75.0	37.0	32.0	32.0	32.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)		78.1	65.5	101.4	30.9	44.5
Actuated g/C Ratio		0.65	0.55	0.84	0.26	0.37
v/c Ratio		0.99dl	0.42	0.47	0.79	0.49
Control Delay		23.2	18.7	4.5	48.7	26.6
Queue Delay		8.2	0.0	0.2	0.0	0.0
Total Delay		31.4	18.7	4.6	48.7	26.6
LOS		C	B	A	D	C
Approach Delay		31.4	12.3		41.9	
Approach LOS		C	B		D	
Queue Length 50th (ft)		205	212	125	241	142
Queue Length 95th (ft)		m#330	269	228	309	222
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)				210		415
Base Capacity (vph)		1337	1744	1294	898	918
Starvation Cap Reductn		0	0	154	0	0
Spillback Cap Reductn		72	0	0	0	0
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		1.00	0.42	0.53	0.74	0.32

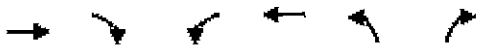
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 27.1 Intersection LOS: C
Intersection Capacity Utilization 87.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2: Welsh Road & Dresher Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	899	525	404	981	275	373
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		0	175		0	350
Storage Lanes		0	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	1.00
Frt	0.945					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3208	0	1542	3304	3174	1626
Flt Permitted			0.064		0.950	
Satd. Flow (perm)	3208	0	104	3304	3174	1626
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	112					41
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	778	
Travel Time (s)	8.3			15.8	13.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	3%	3%	4%	3%
Adj. Flow (vph)	917	536	412	1001	281	381
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1453	0	412	1001	281	381
Number of Detectors	1		1	1	1	1
Detector Template						
Leading Detector (ft)	5		35	5	35	35
Trailing Detector (ft)	0		-5	0	-5	-5
Detector 1 Position(ft)	0		-5	0	-5	-5
Detector 1 Size(ft)	5		40	5	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases			6			8
Detector Phase	2		1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0		3.0	20.0	7.0	3.0
Minimum Split (s)	27.0		10.0	27.0	14.0	10.0
Total Split (s)	51.0		35.0	86.0	34.0	35.0
Total Split (%)	42.5%		29.2%	71.7%	28.3%	29.2%
Maximum Green (s)	44.0		28.0	79.0	27.0	28.0
Yellow Time (s)	5.0		5.0	5.0	4.0	5.0
All-Red Time (s)	2.0		2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0

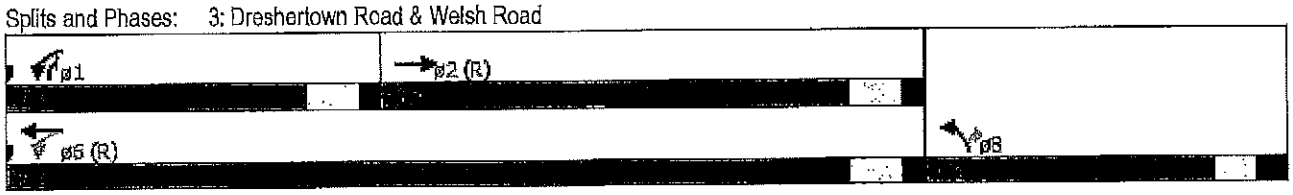


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	899	525	404	981	275	373
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1787	1818	1739	1739	1722	1808
Adj Flow Rate, veh/h	917	492	412	1001	281	298
Adj No. of Lanes	2	0	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	3	3	4	3
Cap, veh/h	1054	556	484	2333	617	553
Arrive On Green	0.98	0.96	0.33	1.00	0.19	0.19
Sat Flow, veh/h	2240	1134	1656	3391	3182	1537
Grp Volume(v), veh/h	720	689	412	1001	281	298
Grp Sat Flow(s),veh/h/ln	1698	1587	1656	1652	1591	1537
Q Serve(g_s), s	6.6	11.6	15.4	0.0	9.4	18.5
Cycle Q Clear(g_c), s	6.6	11.6	15.4	0.0	9.4	18.5
Prop In Lane		0.71	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	832	778	484	2333	617	553
V/C Ratio(X)	0.87	0.89	0.85	0.43	0.46	0.54
Avail Cap(c_a), veh/h	832	778	609	2333	742	614
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.33	0.33	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	0.7	1.2	10.9	0.0	42.8	30.5
Incr Delay (d2), s/veh	4.3	5.4	8.2	0.5	0.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	5.5	12.1	0.3	7.5	12.6
LnGrp Delay(d),s/veh	5.0	6.5	19.1	0.5	43.3	31.3
LnGrp LOS	A	A	B	A	D	C
Approach Vol, veh/h	1409			1413	579	
Approach Delay, s/veh	5.7			5.9	37.1	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	25.9	64.8				90.7		29.3
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	28.0	44.0				79.0		27.0
Max Q Clear Time (g_c+I1), s	17.9	13.6				2.5		21.0
Green Ext Time (p_c), s	1.1	9.7				10.7		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

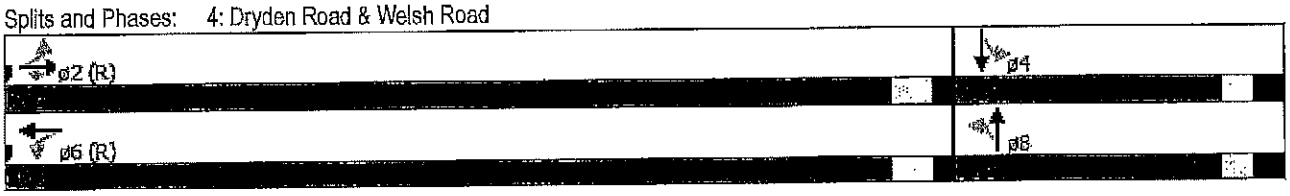
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1186	96	57	1445	1	2	0	0	2	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850									
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3403	1640	1573	3370	0	1661	1990	0	1710	1920	0
Flt Permitted	0.156			0.213								
Satd. Flow (perm)	263	3403	1640	353	3370	0	1749	1990	0	1800	1920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			103									
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	1275	103	61	1554	1	2	0	0	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1275	103	61	1555	0	2	0	0	2	0	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	89.0	89.0	89.0	89.0	89.0		31.0	31.0		31.0	31.0	
Total Split (%)	74.2%	74.2%	74.2%	74.2%	74.2%		25.8%	25.8%		25.8%	25.8%	
Maximum Green (s)	83.0	83.0	83.0	83.0	83.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 62 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SEL	SET	SER
Lane Configurations												
Volume (veh/h)	1	1186	96	57	1445	1	2	0	0	2	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1774	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	1	1275	101	61	1554	1	2	0	0	2	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	2	2	2	0	0	0	0	0	0
Cap, veh/h	339	3073	1444	416	3121	2	80	25	0	79	25	0
Arrive On Green	1.00	1.00	1.00	0.90	0.90	0.89	0.01	0.00	0.00	0.01	0.00	0.00
Sat Flow, veh/h	339	3403	1599	394	3456	2	1447	1881	0	1440	1872	0
Grp Volume(v), veh/h	1	1275	101	61	758	797	2	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	339	1702	1599	394	1685	1773	1447	1881	0	1440	1872	0
Q Serve(g_s), s	0.0	0.0	0.0	2.1	9.5	9.5	0.2	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	9.5	0.0	0.0	2.1	9.5	9.5	0.2	0.0	0.0	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	339	3073	1444	416	1522	1601	80	25	0	79	25	0
V/C Ratio(X)	0.00	0.41	0.07	0.15	0.50	0.50	0.03	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	339	3073	1444	416	1522	1601	374	408	0	372	406	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.42	0.42	0.42	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.4	0.0	0.0	0.7	1.0	1.0	58.5	0.0	0.0	58.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.7	1.2	1.1	0.1	0.0	0.0	0.1	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(95%),veh/ln	0.0	0.1	0.0	0.6	8.3	8.6	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	0.4	0.2	0.0	1.4	2.2	2.1	58.6	0.0	0.0	58.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E			E		
Approach Vol, veh/h		1377			1616			2			2	
Approach Delay, s/veh		0.2			2.1			58.6			58.6	
Approach LOS		A			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		113.4		6.6		113.4		6.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		83.0		25.0		83.0		25.0
Max Q Clear Time (g_c+I1), s		12.0		2.7		12.0		2.7
Green Ext Time (p_c), s		17.7		0.0		17.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.3
HCM 2010 LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	758	22	242	946	14	16	20	239	40	89	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	12	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.998			0.883			0.940	
Flt Protected	0.950			0.950				0.997			0.991	
Satd. Flow (prot)	1761	1829	0	1645	1907	0	0	1593	0	0	1826	0
Flt Permitted	0.238			0.104				0.953			0.682	
Satd. Flow (perm)	441	1829	0	180	1907	0	0	1522	0	0	1256	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1			249			30	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	22	790	23	252	985	15	17	21	249	42	93	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	813	0	252	1000	0	0	287	0	0	242	0
Number of Detectors	1	2		1	2		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35		20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5		0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0		13.0	13.0	
Total Split (s)	62.0	62.0		27.0	89.0		31.0	31.0		31.0	31.0	
Total Split (%)	51.7%	51.7%		22.5%	74.2%		25.8%	25.8%		25.8%	25.8%	

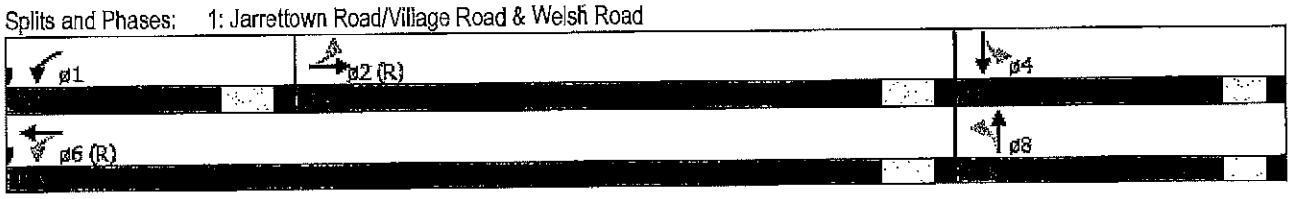
1: Jarrettown Road/Village Road & Welsh Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	55.0	55.0		20.0	82.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0			5.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	758	22	242	946	14	16	20	239	40	89	103
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1836	1854	1791	1863	1863	1809	1809	1809	1863	1853	1863
Adj Flow Rate, veh/h	22	790	22	252	985	14	17	21	228	42	93	93
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	291	1029	29	378	1314	19	43	33	264	70	127	111
Arrive On Green	0.58	0.58	0.57	0.09	0.72	0.71	0.18	0.19	0.19	0.18	0.19	0.18
Sat Flow, veh/h	590	1778	50	1706	1832	26	57	173	1382	182	664	583
Grp Volume(v), veh/h	22	0	812	252	0	999	266	0	0	228	0	0
Grp Sat Flow(s),veh/h/ln	590	0	1827	1706	0	1858	1612	0	0	1428	0	0
Q Serve(g_s), s	2.8	0.0	40.4	6.5	0.0	39.5	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	25.2	0.0	40.4	6.5	0.0	39.5	19.2	0.0	0.0	18.9	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.06		0.86	0.18		0.41
Lane Grp Cap(c), veh/h	291	0	1058	378	0	1333	327	0	0	297	0	0
V/C Ratio(X)	0.08	0.00	0.77	0.67	0.00	0.75	0.81	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	291	0	1058	526	0	1333	366	0	0	337	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.0	0.0	19.1	18.8	0.0	10.4	47.2	0.0	0.0	46.6	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	5.3	2.0	0.0	3.9	12.1	0.0	0.0	9.1	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(95%),veh/ln	0.9	0.0	29.5	8.4	0.0	29.0	14.9	0.0	0.0	12.9	0.0	0.0
LnGrp Delay(d),s/veh	23.5	0.0	24.5	20.8	0.0	14.3	59.3	0.0	0.0	55.7	0.0	0.0
LnGrp LOS	C		C	C		B	E			E		
Approach Vol, veh/h		834			1251			266			228	
Approach Delay, s/veh		24.5			15.6			59.3			55.7	
Approach LOS		C			B			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	16.6	75.5		27.9		92.1		27.9
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	20.0	55.0		25.0		82.0		25.0
Max Q Clear Time (g_c+I1), s	9.0	42.4		20.9		41.5		21.2
Green Ext Time (p_c), s	0.6	12.2		0.8		37.8		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

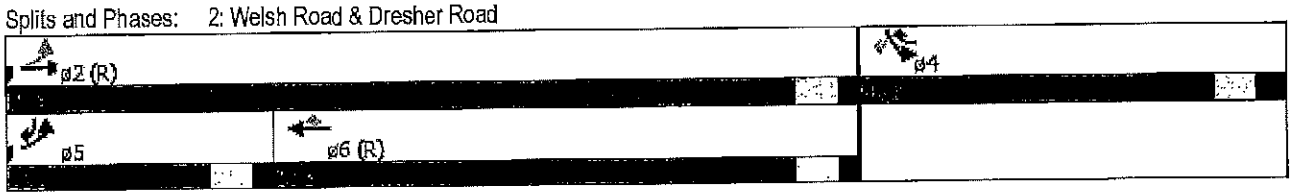
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	272	820	881	527	819	384
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	0			210	0	415
Storage Lanes	0			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	0.95	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected		0.988			0.950	
Satd. Flow (prot)	0	3337	3257	1457	3268	1558
Flt Permitted		0.534			0.950	
Satd. Flow (perm)	0	1804	3257	1457	3268	1558
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				449		55
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	1%	1%	1%	1%
Adj. Flow (vph)	286	863	927	555	862	404
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1149	927	555	862	404
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	5	5	5	35	35
Trailing Detector (ft)	0	0	0	0	-5	-5
Detector 1 Position(ft)	0	0	0	0	-5	-5
Detector 1 Size(ft)	50	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	25.0	80.0	55.0	40.0	40.0	25.0
Total Split (%)	20.8%	66.7%	45.8%	33.3%	33.3%	20.8%
Maximum Green (s)	19.0	74.0	49.0	33.0	33.0	19.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)		75.1	61.7	100.7	33.9	48.3
Actuated g/C Ratio		0.63	0.51	0.84	0.28	0.40
v/c Ratio		0.93	0.55	0.43	0.93	0.61
Control Delay		39.1	23.6	1.7	59.6	28.8
Queue Delay		0.0	0.3	0.2	46.4	0.0
Total Delay		39.1	23.9	1.9	106.0	28.8
LOS		D	C	A	F	C
Approach Delay		39.1	15.6		81.4	
Approach LOS		D	B		F	
Queue Length 50th (ft)		424	251	0	335	213
Queue Length 95th (ft)		#499	311	82	#457	314
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)				210		415
Base Capacity (vph)		1234	1675	1295	925	805
Starvation Cap Reductn		0	241	197	0	0
Spillback Cap Reductn		0	0	0	290	0
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		0.93	0.65	0.51	1.36	0.50

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 77 (64%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 43.9 Intersection LOS: D
Intersection Capacity Utilization 96.0% ICU Level of Service F
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Welsh Road & Dresher Road



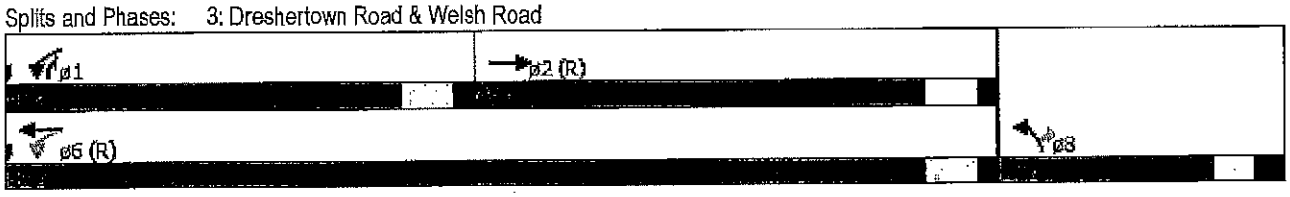
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1083	556	447	1020	388	443
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		0	175		0	350
Storage Lanes		0	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	1.00
Frt	0.949					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3224	0	1557	3369	3268	1626
Flt Permitted			0.075		0.950	
Satd. Flow (perm)	3224	0	123	3369	3268	1626
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	85					15
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	778	
Travel Time (s)	8.3			15.8	13.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	2%	1%	1%	3%
Adj. Flow (vph)	1128	579	466	1062	404	461
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1707	0	466	1062	404	461
Number of Detectors	1		1	1	1	1
Detector Template						
Leading Detector (ft)	5		35	5	35	35
Trailing Detector (ft)	0		-5	0	-5	-5
Detector 1 Position(ft)	0		-5	0	-5	-5
Detector 1 Size(ft)	5		40	5	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases			6			8
Detector Phase	2		1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0		3.0	20.0	7.0	3.0
Minimum Split (s)	27.0		10.0	27.0	14.0	10.0
Total Split (s)	49.0		44.0	93.0	27.0	44.0
Total Split (%)	40.8%		36.7%	77.5%	22.5%	36.7%
Maximum Green (s)	42.0		37.0	86.0	20.0	37.0
Yellow Time (s)	5.0		5.0	5.0	4.0	5.0
All-Red Time (s)	2.0		2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 29 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1083	556	447	1020	388	443
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1788	1818	1756	1773	1773	1808
Adj Flow Rate, veh/h	1128	553	466	1062	404	415
Adj No. of Lanes	2	0	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	1	3
Cap, veh/h	933	438	494	2443	573	668
Arrive On Green	0.42	0.41	0.52	1.00	0.17	0.17
Sat Flow, veh/h	2335	1055	1672	3458	3276	1537
Grp Volume(v), veh/h	841	840	466	1062	404	415
Grp Sat Flow(s),veh/h/ln	1699	1602	1672	1685	1638	1537
Q Serve(g_s), s	49.8	49.8	26.6	0.0	13.9	21.0
Cycle Q Clear(g_c), s	49.8	49.8	26.6	0.0	13.9	21.0
Prop In Lane		0.66	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	706	665	494	2443	573	668
V/C Ratio(X)	1.19	1.26	0.94	0.43	0.70	0.62
Avail Cap(c_a), veh/h	706	665	590	2443	573	668
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	35.1	35.4	21.3	0.0	46.6	26.3
Incr Delay (d2), s/veh	90.3	121.0	19.2	0.5	3.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	73.7	79.4	22.7	0.3	10.8	16.3
LnGrp Delay(d),s/veh	125.4	156.5	40.5	0.5	50.5	28.0
LnGrp LOS	F	F	D	A	D	C
Approach Vol, veh/h	1681			1528	819	
Approach Delay, s/veh	140.9			12.7	39.1	
Approach LOS	F			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	37.2	55.8				93.0		27.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	37.0	42.0				86.0		20.0
Max Q Clear Time (g_c+I1), s	29.1	52.3				2.5		23.5
Green Ext Time (p_c), s	1.1	0.0				14.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	71.6
HCM 2010 LOS	E

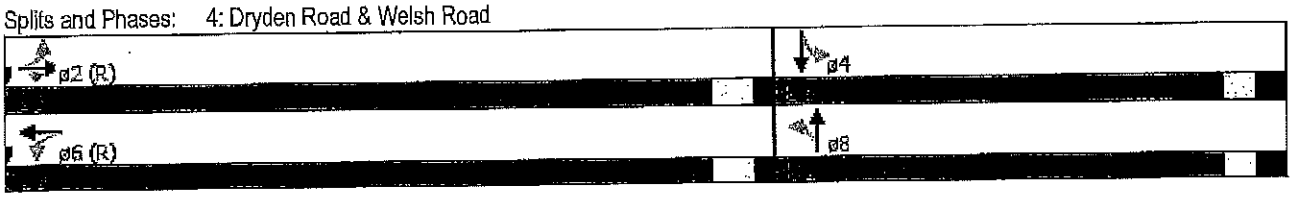
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1557	5	0	1369	0	95	8	9	3	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.921			0.850	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	1688	3403	1640	1688	3370	0	1661	1833	0	1710	1632	0
Flt Permitted							0.757			0.746		
Satd. Flow (perm)	1688	3403	1640	1688	3370	0	1324	1833	0	1343	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			27					9			36	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1605	5	0	1411	0	98	8	9	3	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1605	5	0	1411	0	98	17	0	3	1	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	72.0	72.0	72.0	72.0	72.0		48.0	48.0		48.0	48.0	
Total Split (%)	60.0%	60.0%	60.0%	60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	66.0	66.0	66.0	66.0	66.0		42.0	42.0		42.0	42.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1557	5	0	1369	0	95	8	9	3	0	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1809	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	0	1605	3	0	1411	0	98	8	9	3	0	1
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	2	2	0	0	0	0	0	0
Cap, veh/h	60	2792	1312	60	2765	0	199	78	88	190	0	153
Arrive On Green	0.00	1.00	1.00	0.00	0.82	0.00	0.10	0.10	0.09	0.10	0.00	0.09
Sat Flow, veh/h	389	3403	1599	322	3458	0	1446	810	911	1418	0	1591
Grp Volume(v), veh/h	0	1605	3	0	1411	0	98	0	17	3	0	1
Grp Sat Flow(s),veh/h/ln	389	1702	1599	322	1685	0	1446	0	1721	1418	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.0	15.5	0.0	7.9	0.0	1.1	0.2	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	15.5	0.0	7.9	0.0	1.1	0.8	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	60	2792	1312	60	2765	0	199	0	166	190	0	153
V/C Ratio(X)	0.00	0.57	0.00	0.00	0.51	0.00	0.49	0.00	0.10	0.02	0.00	0.01
Avail Cap(c_a), veh/h	60	2792	1312	60	2765	0	578	0	617	561	0	570
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	3.3	0.0	52.6	0.0	49.7	49.6	0.0	49.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.7	0.0	1.9	0.0	0.3	0.0	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(95%),veh/ln	0.0	0.1	0.0	0.0	11.8	0.0	5.9	0.0	1.0	0.2	0.0	0.1
LnGrp Delay(d),s/veh	0.0	0.1	0.0	0.0	4.0	0.0	54.4	0.0	50.0	49.7	0.0	49.5
LnGrp LOS		A	A		A		D		D	D		D
Approach Vol, veh/h		1608			1411			115			4	
Approach Delay, s/veh		0.1			4.0			53.8			49.6	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		103.4		16.6		103.4		16.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		66.0		42.0		66.0		42.0
Max Q Clear Time (g_c+I1), s		2.5		3.3		18.0		10.4
Green Ext Time (p_c), s		19.2		0.4		18.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	3.9
HCM 2010 LOS	A

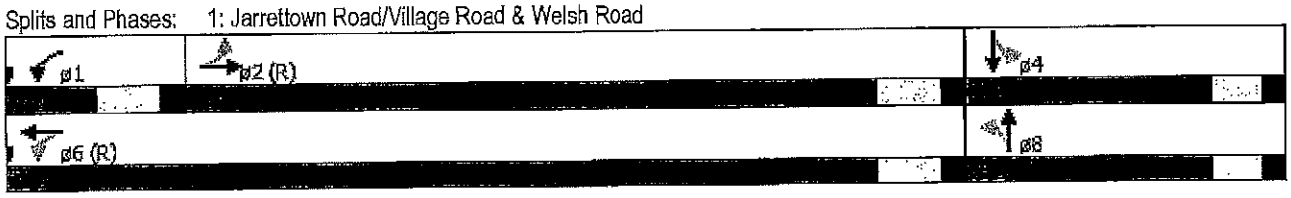
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	574	16	123	537	8	4	2	169	12	2	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	12	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.998			0.869			0.953	
Flt Protected	0.950			0.950				0.999			0.973	
Satd. Flow (prot)	1761	1816	0	1612	1907	0	0	1570	0	0	1827	0
Flt Permitted	0.438			0.304				0.993			0.377	
Satd. Flow (perm)	812	1816	0	516	1907	0	0	1561	0	0	708	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2			186			8	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	25%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	11	631	18	135	590	9	4	2	186	13	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	649	0	135	599	0	0	192	0	0	23	0
Number of Detectors	1	2		1	2		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35		20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5		0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5		0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0		13.0	13.0	
Total Split (s)	61.0	61.0		14.0	75.0		25.0	25.0		25.0	25.0	
Total Split (%)	61.0%	61.0%		14.0%	75.0%		25.0%	25.0%		25.0%	25.0%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	54.0	54.0		7.0	68.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0			-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0			5.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 26 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	574	16	123	537	8	4	2	169	12	2	7
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1824	1854	1756	1863	1863	1809	1809	1809	1863	1863	1863
Adj Flow Rate, veh/h	11	631	17	135	590	9	4	2	88	13	2	3
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	1	2	0	0	0	0	0	0	0	0
Cap, veh/h	661	1214	33	566	1467	22	40	6	127	144	26	22
Arrive On Green	0.69	0.69	0.68	0.06	0.80	0.79	0.08	0.09	0.09	0.08	0.09	0.08
Sat Flow, veh/h	857	1768	48	1672	1830	28	29	69	1447	932	291	245
Grp Volume(v), veh/h	11	0	648	135	0	599	94	0	0	18	0	0
Grp Sat Flow(s),veh/h/ln	857	0	1815	1672	0	1858	1546	0	0	1468	0	0
Q Serve(g_s), s	0.4	0.0	17.4	2.0	0.0	9.4	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	17.4	2.0	0.0	9.4	5.9	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	0.04		0.94	0.72		0.17
Lane Grp Cap(c), veh/h	661	0	1247	566	0	1490	158	0	0	177	0	0
V/C Ratio(X)	0.02	0.00	0.52	0.24	0.00	0.40	0.59	0.00	0.00	0.10	0.00	0.00
Avail Cap(c_a), veh/h	661	0	1247	608	0	1490	330	0	0	339	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.0	0.0	7.6	5.2	0.0	2.9	44.3	0.0	0.0	42.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.2	0.0	0.8	3.5	0.0	0.0	0.2	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(95%),veh/ln	0.2	0.0	14.2	1.7	0.0	8.7	4.9	0.0	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	5.0	0.0	9.2	5.4	0.0	3.7	47.8	0.0	0.0	42.7	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		659			734			94			18	
Approach Delay, s/veh		9.1			4.0			47.8			42.7	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.5	74.7		13.8		86.2		13.8
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	7.0	54.0		19.0		68.0		19.0
Max Q Clear Time (g_c+I1), s	4.5	19.4		3.0		11.4		7.9
Green Ext Time (p_c), s	0.1	25.4		0.3		35.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

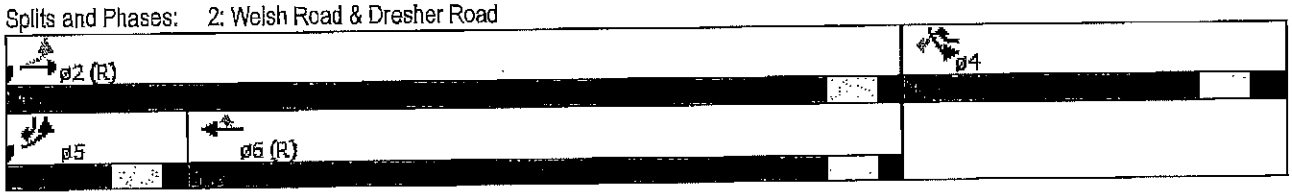
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱	↑↑	↱
Volume (vph)	124	663	585	345	311	119
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	0			210	0	415
Storage Lanes	0			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	0.95	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected		0.992			0.950	
Satd. Flow (prot)	0	3371	3257	1472	3301	1542
Flt Permitted		0.701			0.950	
Satd. Flow (perm)	0	2382	3257	1472	3301	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				371		128
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	1%	1%	0%	0%	2%
Adj. Flow (vph)	133	713	629	371	334	128
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	846	629	371	334	128
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	14.0	70.0	56.0	30.0	30.0	14.0
Total Split (%)	14.0%	70.0%	56.0%	30.0%	30.0%	14.0%
Maximum Green (s)	8.0	64.0	50.0	23.0	23.0	8.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)		-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)		71.9	60.2	82.3	17.1	29.8
Actuated g/C Ratio		0.72	0.60	0.82	0.17	0.30
v/c Ratio		0.48	0.32	0.29	0.59	0.23
Control Delay		4.8	11.7	2.7	42.1	5.4
Queue Delay		0.0	0.0	0.0	0.0	0.0
Total Delay		4.8	11.7	2.7	42.1	5.4
LOS		A	B	A	D	A
Approach Delay		4.8	8.4		32.0	
Approach LOS		A	A		C	
Queue Length 50th (ft)		55	123	27	102	0
Queue Length 95th (ft)		92	167	30	138	38
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)				210		415
Base Capacity (vph)		1778	1960	1353	792	582
Starvation Cap Reductn		0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		0.48	0.32	0.27	0.42	0.22

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 38 (38%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 11.8 Intersection LOS: B
Intersection Capacity Utilization 62.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Welsh Road & Dresher Road



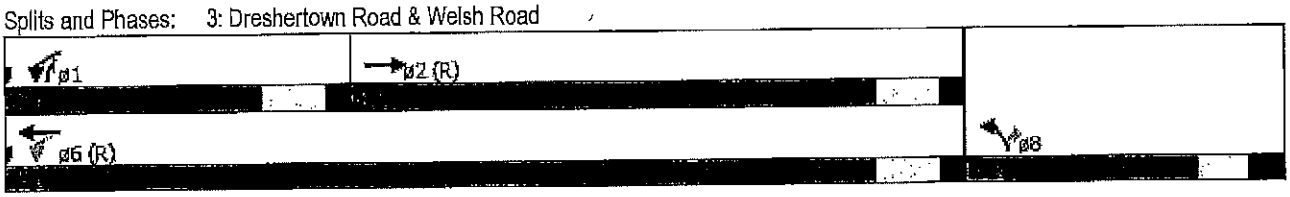
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	817	157	240	776	154	291
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		0	175		0	350
Storage Lanes		0	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	0.95	1.00	0.95	0.97	1.00
Frt	0.976					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3366	0	1588	3403	3301	1675
Flt Permitted			0.180		0.950	
Satd. Flow (perm)	3366	0	301	3403	3301	1675
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	27					63
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	778	
Travel Time (s)	8.3			15.8	13.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	898	173	264	853	169	320
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1071	0	264	853	169	320
Number of Detectors	1		1	1	1	1
Detector Template						
Leading Detector (ft)	5		35	5	35	35
Trailing Detector (ft)	0		-5	0	-5	-5
Detector 1 Position(ft)	0		-5	0	-5	-5
Detector 1 Size(ft)	5		40	5	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases			6			8
Detector Phase	2		1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0		3.0	20.0	7.0	3.0
Minimum Split (s)	27.0		10.0	27.0	14.0	10.0
Total Split (s)	48.0		27.0	75.0	25.0	27.0
Total Split (%)	48.0%		27.0%	75.0%	25.0%	27.0%
Maximum Green (s)	41.0		20.0	68.0	18.0	20.0
Yellow Time (s)	5.0		5.0	5.0	4.0	5.0
All-Red Time (s)	2.0		2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road

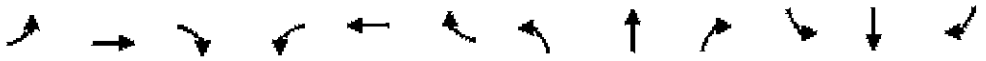


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	817	157	240	776	154	291
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1815	1818	1791	1791	1791	1863
Adj Flow Rate, veh/h	898	173	264	853	169	234
Adj No. of Lanes	2	0	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	1585	305	543	2429	550	429
Arrive On Green	1.00	1.00	0.21	1.00	0.17	0.17
Sat Flow, veh/h	2976	556	1706	3492	3309	1583
Grp Volume(v), veh/h	536	535	264	853	169	234
Grp Sat Flow(s),veh/h/ln	1724	1717	1706	1701	1655	1583
Q Serve(g_s), s	0.0	0.0	6.4	0.0	4.5	12.6
Cycle Q Clear(g_c), s	0.0	0.0	6.4	0.0	4.5	12.6
Prop In Lane		0.32	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	947	943	543	2429	550	429
V/C Ratio(X)	0.57	0.57	0.49	0.35	0.31	0.55
Avail Cap(c_a), veh/h	947	943	723	2429	629	467
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	5.5	0.0	36.6	31.2
Incr Delay (d2), s/veh	2.1	2.1	0.6	0.4	0.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	1.0	5.3	0.2	3.7	9.5
LnGrp Delay(d),s/veh	2.1	2.1	6.1	0.4	37.0	32.3
LnGrp LOS	A	A	A	A	D	C
Approach Vol, veh/h	1071			1117	403	
Approach Delay, s/veh	2.1			1.7	34.2	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.5	60.9				77.4		22.6
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	20.0	41.0				68.0		18.0
Max Q Clear Time (g_c+I1), s	8.9	2.5				2.5		15.1
Green Ext Time (p_c), s	0.6	6.7				6.8		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	6.9
HCM 2010 LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	1049	3	1	1027	2	1	0	1	2	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3437	1640	1604	3437	0	1661	1691	0	1710	1632	0
Flt Permitted	0.245			0.239								
Satd. Flow (perm)	414	3437	1640	404	3437	0	1749	1691	0	1800	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33					97			103	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	1166	3	1	1141	2	1	0	1	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1166	3	1	1143	0	1	1	0	2	2	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	69.0	69.0	69.0	69.0	69.0		31.0	31.0		31.0	31.0	
Total Split (%)	69.0%	69.0%	69.0%	69.0%	69.0%		31.0%	31.0%		31.0%	31.0%	
Maximum Green (s)	63.0	63.0	63.0	63.0	63.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

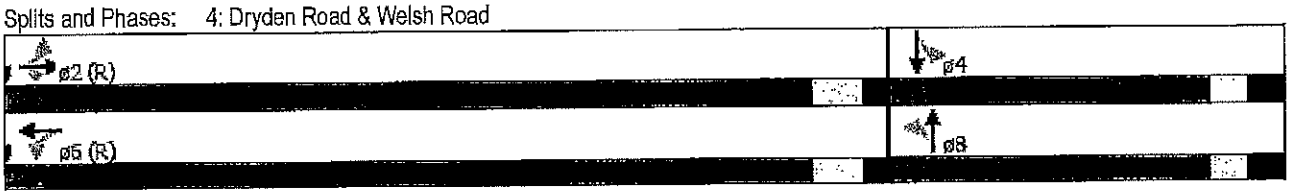


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1049	3	1	1027	2	1	0	1	2	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1809	1881	1809	1809	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	2	1166	1	1	1141	2	1	0	1	2	0	2
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	487	3033	1411	505	3106	5	98	0	28	97	0	28
Arrive On Green	1.00	1.00	1.00	0.88	0.88	0.87	0.02	0.00	0.01	0.02	0.00	0.01
Sat Flow, veh/h	502	3437	1599	491	3520	6	1445	0	1599	1439	0	1591
Grp Volume(v), veh/h	2	1166	1	1	557	586	1	0	1	2	0	2
Grp Sat Flow(s),veh/h/ln	502	1719	1599	491	1719	1808	1445	0	1599	1439	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.0	5.6	5.6	0.1	0.0	0.1	0.1	0.0	0.1
Cycle Q Clear(g_c), s	5.7	0.0	0.0	0.0	5.6	5.6	0.1	0.0	0.1	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	487	3033	1411	505	1516	1595	98	0	28	97	0	28
V/C Ratio(X)	0.00	0.38	0.00	0.00	0.37	0.37	0.01	0.00	0.04	0.02	0.00	0.07
Avail Cap(c_a), veh/h	487	3033	1411	505	1516	1595	448	0	416	446	0	414
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.7	1.0	1.0	48.3	0.0	48.8	48.3	0.0	48.8
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.7	0.7	0.0	0.0	0.5	0.1	0.0	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(95%),veh/ln	0.0	0.2	0.0	0.0	5.0	5.2	0.1	0.0	0.1	0.1	0.0	0.1
LnGrp Delay(d),s/veh	0.2	0.3	0.0	0.7	1.7	1.7	48.3	0.0	49.3	48.4	0.0	49.9
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1169			1144			2			4	
Approach Delay, s/veh		0.3			1.7			48.8			49.1	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		93.2		6.8		93.2		6.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		63.0		25.0		63.0		25.0
Max Q Clear Time (g_c+I1), s		8.2		2.6		8.1		2.6
Green Ext Time (p_c), s		9.3		0.0		9.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.1
HCM 2010 LOS	A

APPENDIX G

Other Development

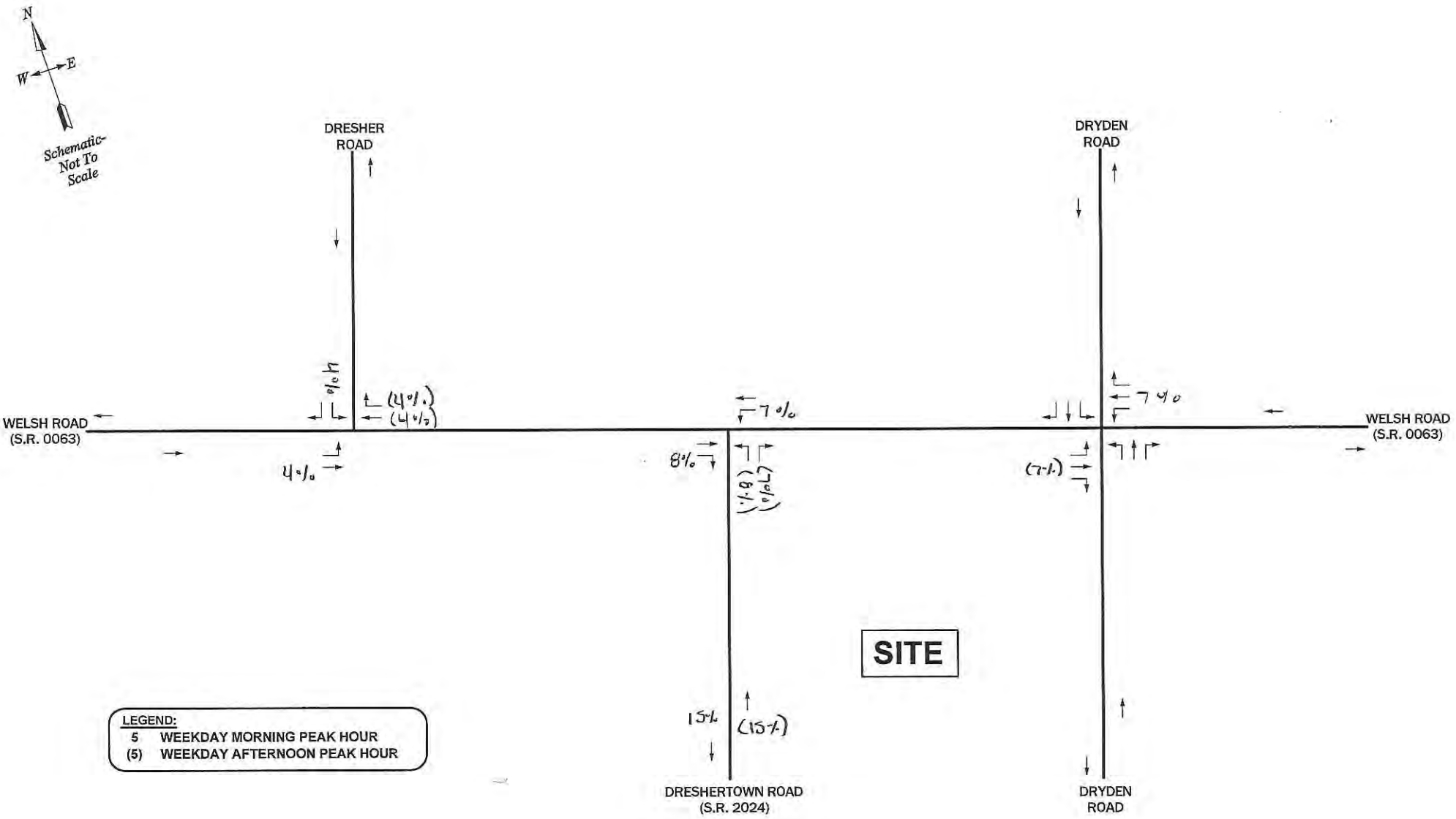
BMJ 12/04/2015

"OTHER" DEVELOPMENT TRIP GENERATION

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Design Year 2023 Residential and Office (Approved)
2023

TRIP VOLUMES

Land Use	Pass-By (%)	Size	Daily	Weekday 7-9 AM			Weekday 4-6 PM			Saturday 11-2 PM		
				In	Out	Total	In	Out	Total	In	Out	Total
FW Triangle - Upper Dublin	AM PM SAT	Sq. Ft.	0	48	45	93	52	37	89	55	49	104
- Pass-By Trips (%)	0 0 0	--	0	11	11	22	14	14	28	15	15	30
"New" Trips			0	37	34	71	38	23	61	40	34	74
Zieger Rose - Upper Dublin	AM PM SAT	Sq. Ft.	0	17	31	48	29	18	47	12	12	24
- Pass-By Trips (%)	0 0 0	--	0	0	0	0	0	0	0	0	0	0
"New" Trips			0	17	31	48	29	18	47	12	12	24
Wawa Retail Site - Horsham	AM PM SAT	Sq. Ft.	0	225	208	433	256	232	488	272	255	527
- Pass-By Trips (%)	0 0 0	--	0	109	109	218	141	141	282	118	118	236
"New" Trips			0	116	99	215	115	91	206	154	137	291
Single Family Homes - Horsha	AM PM SAT	Sq. Ft.	0	3	8	11	9	6	15	8	6	14
- Pass-By Trips (%)	0 0 0	--	0	0	0	0	0	0	0	0	0	0
"New" Trips			0	3	8	11	9	6	15	8	6	14
Horsham Apartments	AM PM SAT	Sq. Ft.	0	25	101	126	101	54	155	61	61	122
- Pass-By Trips (%)	0 0 0	--	0	0	0	0	0	0	0	0	0	0
"New" Trips			0	25	101	126	101	54	155	61	61	122
	AM PM SAT	Sq. Ft.										
- Pass-By Trips (%)	0 0 0	--										
"New" Trips												
	AM PM SAT	Sq. Ft.										
- Pass-By Trips (%)	0 0 0	--										
"New" Trips												
	AM PM SAT	Sq. Ft.										
- Pass-By Trips (%)	0 0 0	--										
"New" Trips												
TOTAL TRIPS:			**0**	**318**	**393**	**711**	**447**	**347**	**794**	**408**	**383**	**791**
	AM PM SAT											
Other Adjustments	0 0 0	%	0	0	0	0	0	0	0	0	0	0
- Pass-By Trips			0	120	120	240	155	155	310	133	133	266
TOTAL EXTERNAL "NEW" TRIPS:			**0**	**198**	**273**	**471**	**292**	**192**	**484**	**275**	**250**	**525**



FIGURE

FW Triangle Development

SITE

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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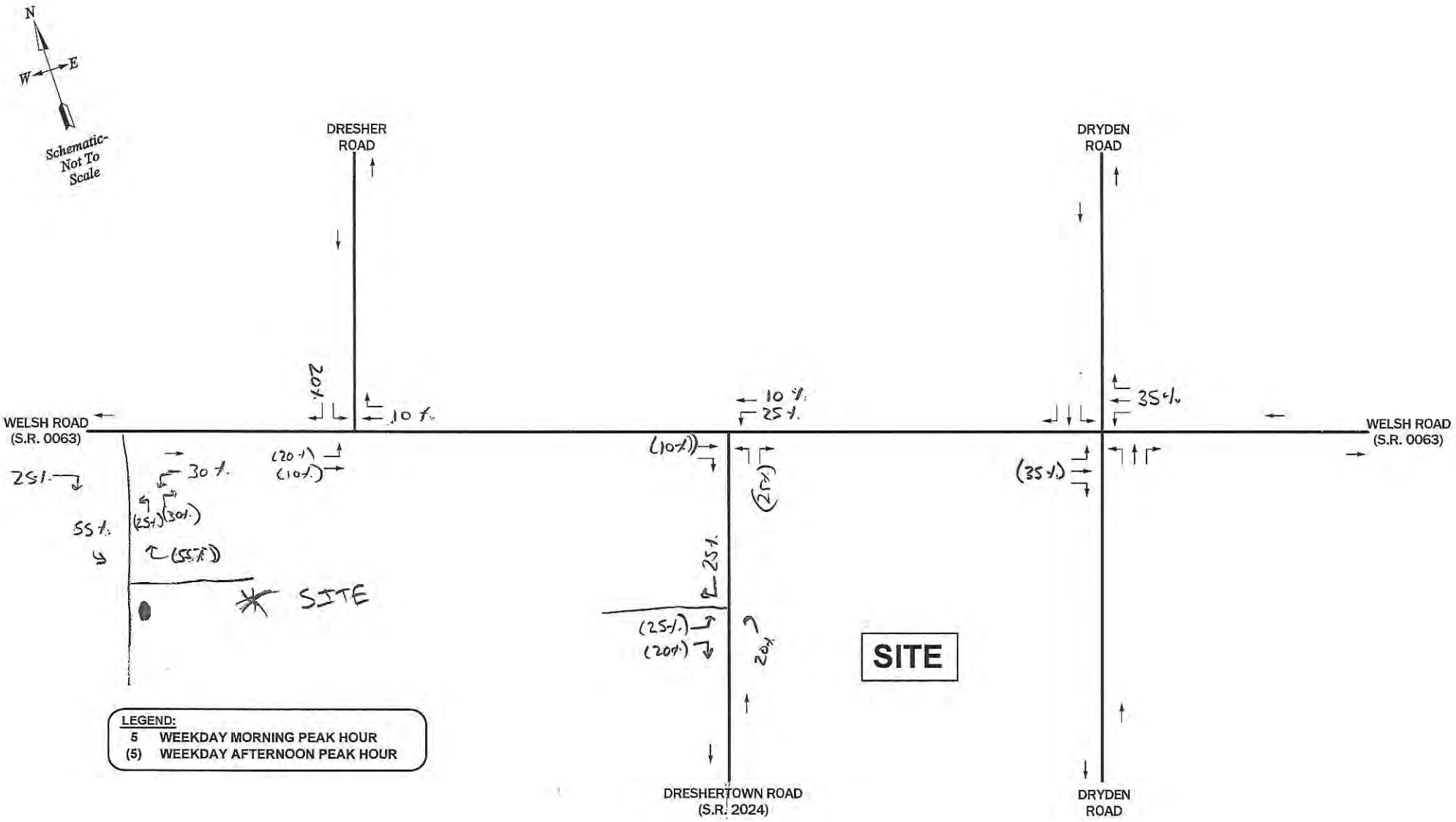

FIGURE

Zieger Rose

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

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TRANSPORTATION ENGINEERS & PLANNERS

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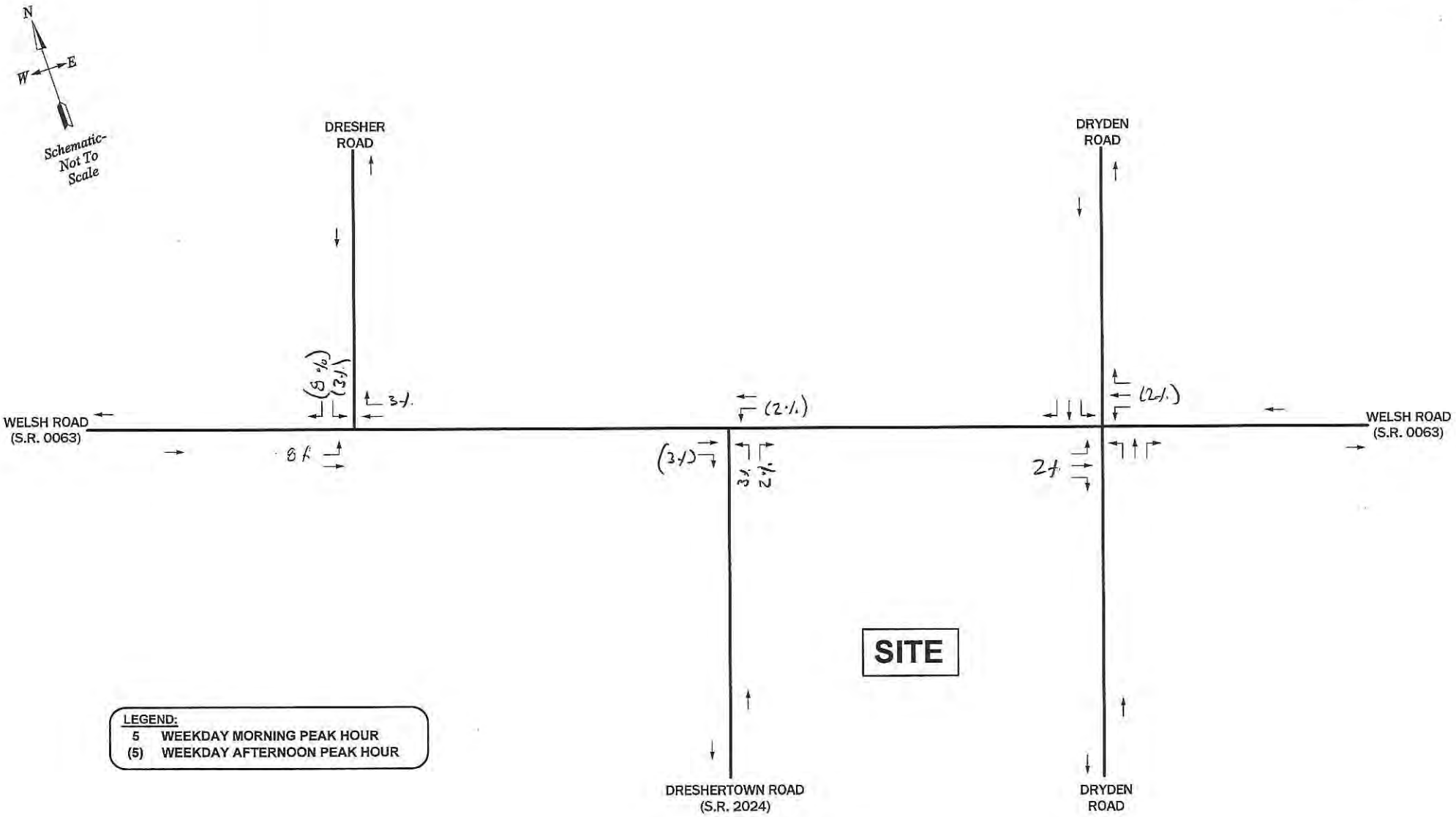
Horsham Retail



FIGURE

Horsham Retail Center

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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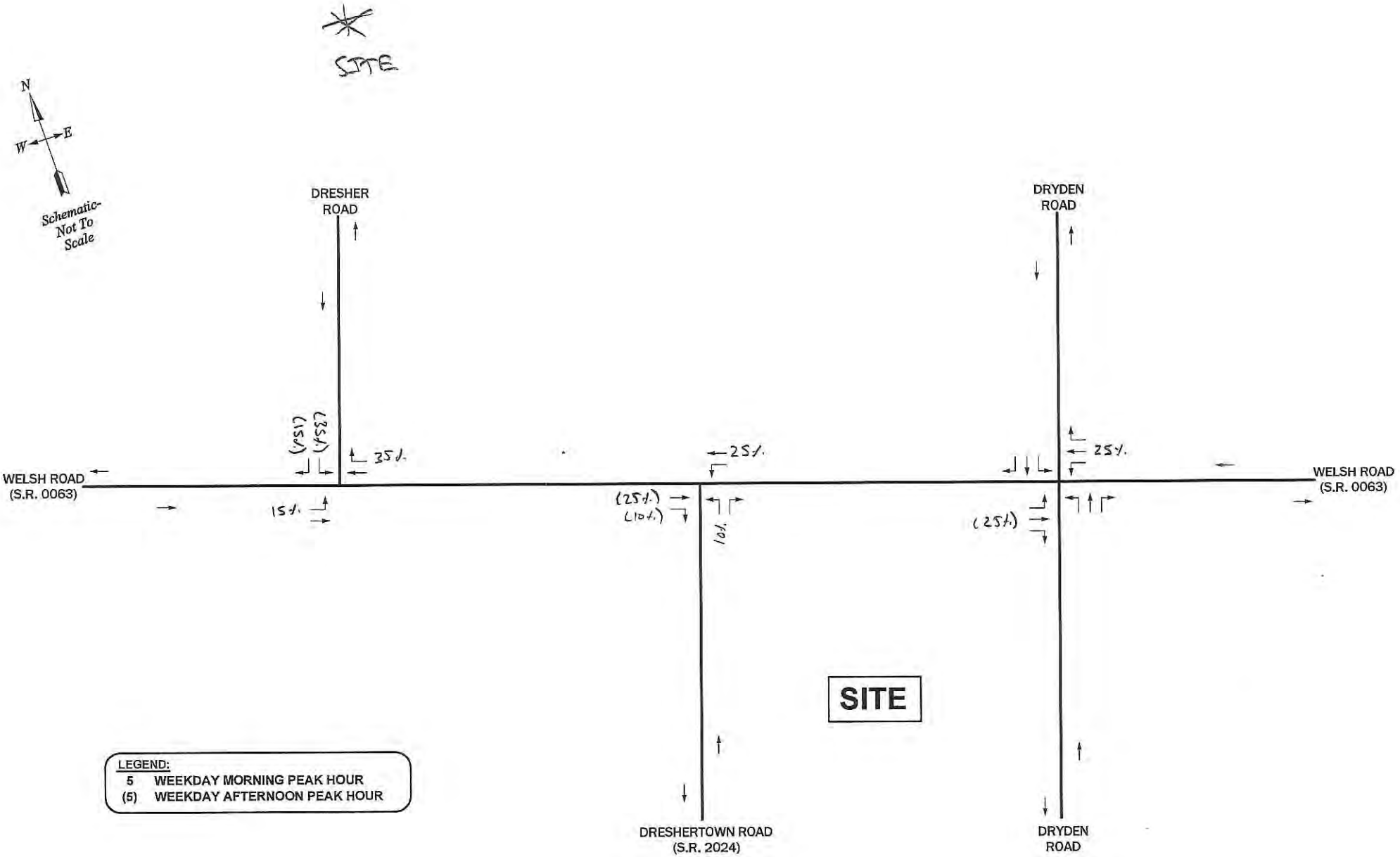

FIGURE

15 Single Family Homes + BET - Apartments - Horsham

UPPER DUBLIN TOWNSHIP, MONTGOMERY COUNTY, PA

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APPENDIX H

Traffic Volume Spreadsheets

INTERSECTION VOLUME SUMMARY
Dresher Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed F **Weekday 7-9 AM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dresher Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dresher Road L	S	R
EXISTING TRAFFIC		387	803	0	0	0	0	0	688	568	621	0	278
Seasonal Adjustment Factor	1.000	387	803	0	0	0	0	0	688	568	621	0	278
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**387**	**803**	**0**	**0**	**0**	**0**	**0**	**688**	**568**	**621**	**0**	**278**
Background Growth	1.93 %	7	16	0	0	0	0	0	13	11	12	0	5
EXISTING W/ BACKGROUND		394	819	0	0	0	0	0	701	579	633	0	283
TOTAL "OTHER" DEVELOPMENTS		19	12	0	0	0	0	0	3	14	42	0	27
FW Triangle - Upper Dublin		0	1	0	0	0	0	0	1	1	1	0	0
Zieger Rose - Upper Dublin		6	11	0	0	0	0	0	2	0	0	0	3
Wawa Retail Site - Horsham		9	0	0	0	0	0	0	0	3	3	0	8
Single Family Homes - Horsham		0	0	0	0	0	0	0	0	1	3	0	1
Horsham Apartments		4	0	0	0	0	0	0	0	9	35	0	15
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**413**	**831**	**0**	**0**	**0**	**0**	**0**	**704**	**593**	**675**	**0**	**310**
TOTAL "NEW" SITE TRAFFIC		**0**	**4**	**0**	**0**	**0**	**0**	**0**	**8**	**6**	**4**	**0**	**0**
BT Dreshertown, LP		0	4	0	0	0	0	0	8	6	4	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**413**	**835**	**0**	**0**	**0**	**0**	**0**	**712**	**599**	**679**	**0**	**310**
"New" Site Traffic % of Total	0.0%	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.1	1.0	0.6	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dresher Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P **Weekday 4-6 PM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dresher Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dresher Road L	S	R
EXISTING TRAFFIC		272	820	0	0	0	0	0	881	527	819	0	384
Seasonal Adjustment Factor	1.000	272	820	0	0	0	0	0	881	527	819	0	384
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**272**	**820**	**0**	**0**	**0**	**0**	**0**	**881**	**527**	**819**	**0**	**384**
Background Growth	1.93 %	5	16	0	0	0	0	0	17	10	16	0	7
EXISTING W/ BACKGROUND		277	836	0	0	0	0	0	898	537	835	0	391
TOTAL "OTHER" DEVELOPMENTS		29	8	0	0	0	0	0	4	42	26	0	22
FW Triangle - Upper Dublin		0	2	0	0	0	0	0	1	1	2	0	0
Zieger Rose - Upper Dublin		4	6	0	0	0	0	0	3	0	0	0	6
Wawa Retail Site - Horsham		9	0	0	0	0	0	0	0	3	3	0	7
Single Family Homes - Horsham		1	0	0	0	0	0	0	0	3	2	0	1
Horsham Apartments		15	0	0	0	0	0	0	0	35	19	0	8
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**306**	**844**	**0**	**0**	**0**	**0**	**0**	**902**	**579**	**861**	**0**	**413**
TOTAL "NEW" SITE TRAFFIC		**0**	**8**	**0**	**0**	**0**	**0**	**0**	**5**	**4**	**6**	**0**	**0**
BT Dreshertown, LP		0	8	0	0	0	0	0	5	4	6	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**306**	**852**	**0**	**0**	**0**	**0**	**0**	**907**	**583**	**867**	**0**	**413**
"New" Site Traffic % of Total	*0.0%*	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.7	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dresher Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P **Saturday 11-2 PM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dresher Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dresher Road L	S	R
EXISTING TRAFFIC		124	651	0	0	0	0	0	585	345	305	0	119
Seasonal Adjustment Factor	1.000	124	651	0	0	0	0	0	585	345	305	0	119
Balancing Adjustments		0	12	0	0	0	0	0	0	0	6	0	0
ADJUSTED EXISTING TRAFFIC		**124**	**663**	**0**	**0**	**0**	**0**	**0**	**585**	**345**	**311**	**0**	**119**
Background Growth	1.93 %	2	13	0	0	0	0	0	11	7	6	0	2
EXISTING W/ BACKGROUND		126	676	0	0	0	0	0	596	352	317	0	121
TOTAL "OTHER" DEVELOPMENTS		24	6	0	0	0	0	0	2	30	29	0	23
FW Triangle - Upper Dublin		0	2	0	0	0	0	0	1	1	2	0	0
Zieger Rose - Upper Dublin		2	4	0	0	0	0	0	1	0	0	0	2
Wawa Retail Site - Horsham		12	0	0	0	0	0	0	0	5	4	0	11
Single Family Homes - Horsham		1	0	0	0	0	0	0	0	3	2	0	1
Horsham Apartments		9	0	0	0	0	0	0	0	21	21	0	9
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**150**	**682**	**0**	**0**	**0**	**0**	**0**	**598**	**382**	**346**	**0**	**144**
TOTAL "NEW" SITE TRAFFIC		**0**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**2**	**0**	**0**
BT Dreshertown, LP		0	3	0	0	0	0	0	3	3	2	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**150**	**685**	**0**	**0**	**0**	**0**	**0**	**601**	**385**	**348**	**0**	**144**
"New" Site Traffic % of Total	*0.0%*	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.5	0.8	0.6	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed] **Weekday 7-9 AM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Dreshertown Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Dreshertown Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	833	487	252	0	373	404	900	0	0	0	0
Seasonal Adjustment Factor	1.000	0	833	487	252	0	373	404	900	0	0	0	0
Balancing Adjustments		0	66	38	23	0	0	0	81	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**899**	**525**	**275**	**0**	**373**	**404**	**981**	**0**	**0**	**0**	**0**
Background Growth	1.93 %	0	17	10	5	0	7	8	19	0	0	0	0
EXISTING W/ BACKGROUND		0	916	535	280	0	380	412	1000	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	38	17	9	0	4	9	9	0	0	0	0
FW Triangle - Upper Dublin		0	0	3	3	0	2	3	0	0	0	0	0
Zieger Rose - Upper Dublin		0	11	0	0	0	0	4	2	0	0	0	0
Wawa Retail Site - Horsham		0	0	3	3	0	2	2	0	0	0	0	0
Single Family Homes - Horsham		0	2	1	0	0	0	0	1	0	0	0	0
Horsham Apartments		0	25	10	3	0	0	0	6	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**954**	**552**	**289**	**0**	**384**	**421**	**1009**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**2**	**6**	**11**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**
BT Dreshertown, LP		0	2	6	11	0	0	0	3	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**956**	**558**	**300**	**0**	**384**	**421**	**1012**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.2	1.1	3.7	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Welsh Road (S.R. 0063)

Age Restricted Honsing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P **Weekday 4-6 PM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dreshertown Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dreshertown Road L	S	R
EXISTING TRAFFIC		0	1037	533	373	0	443	447	982	0	0	0	0
Seasonal Adjustment Factor	1.000	0	1037	533	373	0	443	447	982	0	0	0	0
Balancing Adjustments		0	46	23	15	0	0	0	38	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**1083**	**556**	**388**	**0**	**443**	**447**	**1020**	**0**	**0**	**0**	**0**
Background Growth	1.93 %	0	21	11	7	0	9	9	20	0	0	0	0
EXISTING W/ BACKGROUND		0	1104	567	395	0	452	456	1040	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	22	12	16	0	4	12	30	0	0	0	0
FW Triangle - Upper Dublin		0	0	3	2	0	2	3	0	0	0	0	0
Zieger Rose - Upper Dublin		0	6	0	0	0	0	7	3	0	0	0	0
Wawa Retail Site - Horsham		0	0	3	3	0	2	2	0	0	0	0	0
Single Family Homes - Horsham		0	2	1	1	0	0	0	2	0	0	0	0
Horsham Apartments		0	14	5	10	0	0	0	25	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**1126**	**579**	**411**	**0**	**456**	**468**	**1070**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		0	**3**	**11**	**7**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**
BT Dreshertown, LP		0	3	11	7	0	0	0	2	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**1129**	**590**	**418**	**0**	**456**	**468**	**1072**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.3	1.9	1.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P **Saturday 11-2 PM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dreshertown Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dreshertown Road L	S	R
EXISTING TRAFFIC		0	817	157	151	0	291	240	761	0	0	0	0
Seasonal Adjustment Factor	1.000	0	817	157	151	0	291	240	761	0	0	0	0
Balancing Adjustments		0	0	0	3	0	0	0	15	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**817**	**157**	**154**	**0**	**291**	**240**	**776**	**0**	**0**	**0**	**0**
Background Growth	1.93 %	0	16	3	3	0	6	5	15	0	0	0	0
EXISTING W/ BACKGROUND		0	833	160	157	0	297	245	791	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	21	14	15	0	5	9	18	0	0	0	0
FW Triangle - Upper Dublin		0	0	3	3	0	2	3	0	0	0	0	0
Zieger Rose - Upper Dublin		0	4	0	0	0	0	3	1	0	0	0	0
Wawa Retail Site - Horsham		0	0	4	5	0	3	3	0	0	0	0	0
Single Family Homes - Horsham		0	2	1	1	0	0	0	2	0	0	0	0
Horsham Apartments		0	15	6	6	0	0	0	15	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**854**	**174**	**172**	**0**	**302**	**254**	**809**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**1**	**4**	**5**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**
BT Dreshertown, LP		0	1	4	5	0	0	0	1	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**855**	**178**	**177**	**0**	**302**	**254**	**810**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.1	2.2	2.8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dryden Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed F **Weekday 7-9 AM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dryden Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dryden Road L	S	R
EXISTING TRAFFIC		1	1186	96	2	0	0	57	1445	1	2	0	0
Seasonal Adjustment Factor	1.000	1	1186	96	2	0	0	57	1445	1	2	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**1**	**1186**	**96**	**2**	**0**	**0**	**57**	**1445**	**1**	**2**	**0**	**0**
Background Growth	1.93 %	0	23	0	0	0	0	0	28	0	0	0	0
EXISTING W/ BACKGROUND		1	1209	96	2	0	0	57	1473	1	2	0	0
TOTAL "OTHER" DEVELOPMENTS		0	42	0	0	0	0	0	18	0	0	0	0
FW Triangle - Upper Dublin		0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin		0	11	0	0	0	0	0	6	0	0	0	0
Wawa Retail Site - Horsham		0	2	0	0	0	0	0	2	0	0	0	0
Single Family Homes - Horsham		0	2	0	0	0	0	0	1	0	0	0	0
Horsham Apartments		0	25	0	0	0	0	0	6	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**1**	**1251**	**96**	**2**	**0**	**0**	**57**	**1491**	**1**	**2**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**2**	**3**	**0**	**11**	**6**	**0**	**0**	**0**	**0**	**0**
BT Dreshertown, LP		0	0	2	3	0	11	6	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**1**	**1251**	**98**	**5**	**0**	**11**	**63**	**1491**	**1**	**2**	**0**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	2.0	60.0	0.0	100.0	9.5	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dryden Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P **Weekday 4-6 PM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dryden Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dryden Road L	S	R
EXISTING TRAFFIC		0	1557	5	95	8	9	0	1369	0	3	0	1
Seasonal Adjustment Factor	1.000	0	1557	5	95	8	9	0	1369	0	3	0	1
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**1557**	**5**	**95**	**8**	**9**	**0**	**1369**	**0**	**3**	**0**	**1**
Background Growth	1.93 %	0	30	0	0	0	0	0	26	0	0	0	0
EXISTING W/ BACKGROUND		0	1587	5	95	8	9	0	1395	0	3	0	1
TOTAL "OTHER" DEVELOPMENTS		0	26	0	0	0	0	0	42	0	0	0	0
FW Triangle - Upper Dublin		0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin		0	6	0	0	0	0	0	10	0	0	0	0
Wawa Retail Site - Horsham		0	2	0	0	0	0	0	2	0	0	0	0
Single Family Homes - Horsham		0	2	0	0	0	0	0	2	0	0	0	0
Horsham Apartments		0	14	0	0	0	0	0	25	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**1613**	**5**	**95**	**8**	**9**	**0**	**1437**	**0**	**3**	**0**	**1**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**3**	**2**	**0**	**7**	**11**	**0**	**0**	**0**	**0**	**0**
BT Dreshertown, LP		0	0	3	2	0	7	11	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**1613**	**8**	**97**	**8**	**16**	**11**	**1437**	**0**	**3**	**0**	**1**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	37.5	2.1	0.0	43.8	100.0	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dryden Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P. **Saturday 11-2 PM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Dryden Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Dryden Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		2	1034	3	1	0	1	1	1027	2	2	0	2
Seasonal Adjustment Factor	1.000	2	1034	3	1	0	1	1	1027	2	2	0	2
Balancing Adjustments		0	15	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**2**	**1049**	**3**	**1**	**0**	**1**	**1**	**1027**	**2**	**2**	**0**	**2**
Background Growth	1.93 %	0	20	0	0	0	0	0	20	0	0	0	0
EXISTING W/ BACKGROUND		2	1069	3	1	0	1	1	1047	2	2	0	2
TOTAL "OTHER" DEVELOPMENTS		0	26	0	0	0	0	0	27	0	0	0	0
FW Triangle - Upper Dublin		0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin		0	4	0	0	0	0	0	4	0	0	0	0
Wawa Retail Site - Horsham		0	3	0	0	0	0	0	3	0	0	0	0
Single Family Homes - Horsham		0	2	0	0	0	0	0	2	0	0	0	0
Horsham Apartments		0	15	0	0	0	0	0	15	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**2**	**1095**	**3**	**1**	**0**	**1**	**1**	**1074**	**2**	**2**	**0**	**2**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**1**	**1**	**0**	**5**	**5**	**0**	**0**	**0**	**0**	**0**
BT Dreshertown, LP		0	0	1	1	0	5	5	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**2**	**1095**	**4**	**2**	**0**	**6**	**6**	**1074**	**2**	**2**	**0**	**2**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	25.0	50.0	0.0	83.3	83.3	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Dryden Road Extension

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed **Weekday 7-9 AM**
2018

Traffic Component	EASTBOUND Dryden Road Extension			NORTHBOUND Dreshertown Road			WESTBOUND Dryden Road Extension			SOUTHBOUND Dreshertown Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	625	0	0	0	0	0	891	0
Seasonal Adjustment Factor 1.000	0	0	0	0	625	0	0	0	0	0	891	0
Balancing Adjustments	0	0	0	0	23	0	0	0	0	0	38	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**648**	**0**	**0**	**0**	**0**	**0**	**929**	**0**
Background Growth 1.93 %	0	0	0	0	13	0	0	0	0	0	18	0
EXISTING W/ BACKGROUND	0	0	0	0	661	0	0	0	0	0	947	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	14	0	0	0	0	0	26	0
FW Triangle - Upper Dublin	0	0	0	0	5	0	0	0	0	0	6	0
Zieger Rose - Upper Dublin	0	0	0	0	0	0	0	0	0	0	4	0
Wawa Retail Site - Horsham	0	0	0	0	6	0	0	0	0	0	5	0
Single Family Homes - Horsham	0	0	0	0	0	0	0	0	0	0	1	0
Horsham Apartments	0	0	0	0	3	0	0	0	0	0	10	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**675**	**0**	**0**	**0**	**0**	**0**	**973**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**0**	**0**	**0**	**4**	**7**	**0**	**11**	**6**	**0**	**0**
BT Dreshertown, LP	0	0	0	0	0	4	7	0	11	6	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**0**	**0**	**0**	**675**	**4**	**7**	**0**	**11**	**6**	**973**	**0**
"New" Site Traffic % of Total *0.0%*	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Dryden Road Extension

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P **Weekday 4-6 PM**
2018

Traffic Component	EASTBOUND Dryden Road Extension			NORTHBOUND Dreshertown Road			WESTBOUND Dryden Road Extension			SOUTHBOUND Dreshertown Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	816	0	0	0	0	0	980	0
Seasonal Adjustment Factor 1.000	0	0	0	0	816	0	0	0	0	0	980	0
Balancing Adjustments	0	0	0	0	15	0	0	0	0	0	23	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**831**	**0**	**0**	**0**	**0**	**0**	**1003**	**0**
Background Growth 1.93 %	0	0	0	0	16	0	0	0	0	0	19	0
EXISTING W/ BACKGROUND	0	0	0	0	847	0	0	0	0	0	1022	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	20	0	0	0	0	0	24	0
FW Triangle - Upper Dublin	0	0	0	0	3	0	0	0	0	0	6	0
Zieger Rose - Upper Dublin	0	0	0	0	0	0	0	0	0	0	7	0
Wawa Retail Site - Horsham	0	0	0	0	6	0	0	0	0	0	5	0
Single Family Homes - Horsham	0	0	0	0	1	0	0	0	0	0	1	0
Horsham Apartments	0	0	0	0	10	0	0	0	0	0	5	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**867**	**0**	**0**	**0**	**0**	**0**	**1046**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**0**	**0**	**0**	**6**	**3**	**0**	**7**	**11**	**0**	**0**
BT Dreshertown, LP	0	0	0	0	0	6	3	0	7	11	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**0**	**0**	**0**	**867**	**6**	**3**	**0**	**7**	**11**	**1046**	**0**
"New" Site Traffic % of Total *0.0%*	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Dryden Road Extension

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P **Saturday 11-2 PM**
2018

Traffic Component		EASTBOUND Dryden Road Extension			NORTHBOUND Dreshertown Road			WESTBOUND Dryden Road Extension			SOUTHBOUND Dreshertown Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	0	0	0	442	0	0	0	0	0	397	0
Seasonal Adjustment Factor	1.000	0	0	0	0	442	0	0	0	0	0	397	0
Balancing Adjustments		0	0	0	0	3	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**445**	**0**	**0**	**0**	**0**	**0**	**397**	**0**
Background Growth	1.93 %	0	0	0	0	9	0	0	0	0	0	8	0
EXISTING W/ BACKGROUND		0	0	0	0	454	0	0	0	0	0	405	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	20	0	0	0	0	0	23	0
FW Triangle - Upper Dublin		0	0	0	0	5	0	0	0	0	0	6	0
Zieger Rose - Upper Dublin		0	0	0	0	0	0	0	0	0	0	3	0
Wawa Retail Site - Horsham		0	0	0	0	8	0	0	0	0	0	7	0
Single Family Homes - Horsham		0	0	0	0	1	0	0	0	0	0	1	0
Horsham Apartments		0	0	0	0	6	0	0	0	0	0	6	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**474**	**0**	**0**	**0**	**0**	**0**	**428**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**5**	**4**	**0**	**0**
BT Dreshertown, LP		0	0	0	0	0	2	3	0	5	4	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**474**	**2**	**3**	**0**	**5**	**4**	**428**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Jarrettown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed F **Weekday 7-9 AM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Jarrettown Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Jarrettown Road L	S	R
EXISTING TRAFFIC		55	843	14	10	58	309	261	624	8	9	19	27
Seasonal Adjustment Factor	1.000	55	843	14	10	58	309	261	624	8	9	19	27
Balancing Adjustments		0	0	0	0	0	0	7	18	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**55**	**843**	**14**	**10**	**58**	**309**	**268**	**642**	**8**	**9**	**19**	**27**
Background Growth	1.93 %	1	16	0	0	1	6	5	12	0	0	0	1
EXISTING W/ BACKGROUND		56	859	14	10	59	315	273	654	8	9	19	28
TOTAL "OTHER" DEVELOPMENTS		0	11	4	8	0	20	12	18	0	0	0	0
FW Triangle - Upper Dublin		0	1	0	0	0	0	0	1	0	0	0	0
Zieger Rose - Upper Dublin		0	0	4	8	0	17	5	0	0	0	0	0
Wawa Retail Site - Horsham		0	7	0	0	0	2	2	6	0	0	0	0
Single Family Homes - Horsham		0	0	0	0	0	0	0	1	0	0	0	0
Horsham Apartments		0	3	0	0	0	1	5	10	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**56**	**870**	**18**	**18**	**59**	**335**	**285**	**672**	**8**	**9**	**19**	**28**
TOTAL "NEW" SITE TRAFFIC		**0**	**3**	**0**	0	**0**	**1**	**2**	**6**	**0**	**0**	**0**	0
BT Dreshertown, LP		0	3	0	0	0	1	2	6	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**56**	**873**	**18**	**18**	**59**	**336**	**287**	**678**	**8**	**9**	**19**	**28**
"New" Site Traffic % of Total	*0.0%*	0.0	0.3	0.0	0.0	0.0	0.3	0.7	0.9	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Jarrettown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P. **Weekday 4-6 PM**
2018

Traffic Component	EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Jarrettown Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Jarrettown Road L	S	R
EXISTING TRAFFIC	21	661	22	16	20	208	230	905	14	40	89	103
Seasonal Adjustment Factor 1.000	21	661	22	16	20	208	230	905	14	40	89	103
Balancing Adjustments	0	97	0	0	0	31	12	41	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**21**	**758**	**22**	**16**	**20**	**239**	**242**	**946**	**14**	**40**	**89**	**103**
Background Growth 1.93 %	0	15	0	0	0	5	5	18	0	1	2	2
EXISTING W/ BACKGROUND	21	773	22	16	20	244	247	964	14	41	91	105
TOTAL "OTHER" DEVELOPMENTS	0	20	7	5	0	17	14	12	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	1	0	0	0	0
Zieger Rose - Upper Dublin	0	0	7	5	0	10	9	0	0	0	0	0
Wawa Retail Site - Horsham	0	7	0	0	0	2	2	5	0	0	0	0
Single Family Homes - Horsham	0	1	0	0	0	0	0	1	0	0	0	0
Horsham Apartments	0	10	0	0	0	5	3	5	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**21**	**793**	**29**	**21**	**20**	**261**	**261**	**976**	**14**	**41**	**91**	**105**
TOTAL "NEW" SITE TRAFFIC	**0**	**6**	**0**	**0**	**0**	**2**	**1**	**4**	**0**	**0**	**0**	**0**
BT Dreshertown, LP	0	6	0	0	0	2	1	4	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**21**	**799**	**29**	**21**	**20**	**263**	**262**	**980**	**14**	**41**	**91**	**105**
"New" Site Traffic % of Total *0.0%*	0.0	0.8	0.0	0.0	0.0	0.8	0.4	0.4	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Jarrettown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\SDS\[SDS Opening Year 2018 Residential (Proposed P **Saturday 11-2 PM**
2018

Traffic Component		EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Jarrettown Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Jarrettown Road L	S	R
EXISTING TRAFFIC		10	574	16	4	2	169	122	533	8	12	2	7
Seasonal Adjustment Factor	1.000	10	574	16	4	2	169	122	533	8	12	2	7
Balancing Adjustments		0	0	0	0	0	0	1	4	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**10**	**574**	**16**	**4**	**2**	**169**	**123**	**537**	**8**	**12**	**2**	**7**
Background Growth	1.93 %	0	11	0	0	0	3	2	10	0	0	0	0
EXISTING W/ BACKGROUND		10	585	16	4	2	172	125	547	8	12	2	7
TOTAL "OTHER" DEVELOPMENTS		0	18	3	3	0	13	9	16	0	0	0	0
FW Triangle - Upper Dublin		0	2	0	0	0	0	0	1	0	0	0	0
Zieger Rose - Upper Dublin		0	0	3	3	0	7	3	0	0	0	0	0
Wawa Retail Site - Horsham		0	9	0	0	0	3	3	8	0	0	0	0
Single Family Homes - Horsham		0	1	0	0	0	0	0	1	0	0	0	0
Horsham Apartments		0	6	0	0	0	3	3	6	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**10**	**603**	**19**	**7**	**2**	**185**	**134**	**563**	**8**	**12**	**2**	**7**
TOTAL "NEW" SITE TRAFFIC		**0**	**2**	**0**	**0**	**0**	**1**	**1**	**2**	**0**	**0**	**0**	**0**
BT Dreshertown, LP		0	2	0	0	0	1	1	2	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**10**	**605**	**19**	**7**	**2**	**186**	**135**	**565**	**8**	**12**	**2**	**7**
"New" Site Traffic % of Total	*0.0%*	0.0	0.3	0.0	0.0	0.0	0.5	0.7	0.4	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dresher Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 7-9 AM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Dresher Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Dresher Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	387	803	0	0	0	0	0	688	568	621	0	278
Seasonal Adjustment Factor ####	387	803	0	0	0	0	0	688	568	621	0	278
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**387**	**803**	**0**	**0**	**0**	**0**	**0**	**688**	**568**	**621**	**0**	**278**
Background Growth 5.24 %	20	42	0	0	0	0	0	36	30	33	0	15
EXISTING W/ BACKGROUND	407	845	0	0	0	0	0	724	598	654	0	293
TOTAL "OTHER" DEVELOPMENTS	19	4	0	0	0	0	0	3	14	42	0	27
FW Triangle - Upper Dublin	0	1	0	0	0	0	0	1	1	1	0	0
Zieger Rose - Upper Dublin	6	3	0	0	0	0	0	2	0	0	0	3
Wawa Retail Site - Horsham	9	0	0	0	0	0	0	0	3	3	0	8
Single Family Homes - Horsham	0	0	0	0	0	0	0	0	1	3	0	1
Horsham Apartments	4	0	0	0	0	0	0	0	9	35	0	15
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**426**	**849**	**0**	**0**	**0**	**0**	**0**	**727**	**612**	**696**	**0**	**320**
TOTAL "NEW" SITE TRAFFIC	**0**	**42**	**0**	**0**	**0**	**0**	**0**	**60**	**48**	**32**	**0**	**0**
Prudential Site	0	42	0	0	0	0	0	60	48	32	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	-1	-1	0	0	0
Dryden Road Extension Diversions	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**426**	**891**	**0**	**0**	**0**	**0**	**0**	**786**	**659**	**728**	**0**	**320**
"New" Site Traffic % of Total ####	0.0	4.7	0.0	0.0	0.0	0.0	0.0	7.6	7.3	4.4	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dresher Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 4-6 PM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Dresher Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Dresher Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	272	820	0	0	0	0	0	881	527	819	0	384
Seasonal Adjustment Factor 1.000	272	820	0	0	0	0	0	881	527	819	0	384
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**272**	**820**	**0**	**0**	**0**	**0**	**0**	**881**	**527**	**819**	**0**	**384**
Background Growth 5.24 %	14	43	0	0	0	0	0	46	28	43	0	20
EXISTING W/ BACKGROUND	286	863	0	0	0	0	0	927	555	862	0	404
TOTAL "OTHER" DEVELOPMENTS	29	4	0	0	0	0	0	4	42	26	0	22
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	1	1	2	0	0
Zieger Rose - Upper Dublin	4	2	0	0	0	0	0	3	0	0	0	6
Wawa Retail Site - Horsham	9	0	0	0	0	0	0	0	3	3	0	7
Single Family Homes - Horsham	1	0	0	0	0	0	0	0	3	2	0	1
Horsham Apartments	15	0	0	0	0	0	0	0	35	19	0	8
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**315**	**867**	**0**	**0**	**0**	**0**	**0**	**931**	**597**	**888**	**0**	**426**
TOTAL "NEW" SITE TRAFFIC	**0**	**89**	**0**	**0**	**0**	**0**	**0**	**71**	**57**	**71**	**0**	**0**
Prudential Site	0	89	0	0	0	0	0	71	57	71	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	1	0	0	0	0
Dryden Road Extension Diversions	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**315**	**956**	**0**	**0**	**0**	**0**	**0**	**1003**	**654**	**959**	**0**	**426**
"New" Site Traffic % of Total ####	0.0	9.3	0.0	0.0	0.0	0.0	0.0	7.1	8.7	7.4	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dresher Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023

Saturday 11-2 PM

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Dresher Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Dresher Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	124	651	0	0	0	0	0	585	345	305	0	119
Seasonal Adjustment Factor 1.000	124	651	0	0	0	0	0	585	345	305	0	119
Balancing Adjustments	0	12	0	0	0	0	0	0	0	6	0	0
ADJUSTED EXISTING TRAFFIC	**124**	**663**	**0**	**0**	**0**	**0**	**0**	**585**	**345**	**311**	**0**	**119**
Background Growth 5.24 %	6	35	0	0	0	0	0	31	18	16	0	6
EXISTING W/ BACKGROUND	130	698	0	0	0	0	0	616	363	327	0	125
TOTAL "OTHER" DEVELOPMENTS	24	3	0	0	0	0	0	2	30	29	0	23
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	1	1	2	0	0
Zieger Rose - Upper Dublin	2	1	0	0	0	0	0	1	0	0	0	2
Wawa Retail Site - Horsham	12	0	0	0	0	0	0	0	5	4	0	11
Single Family Homes - Horsham	1	0	0	0	0	0	0	0	3	2	0	1
Horsham Apartments	9	0	0	0	0	0	0	0	21	21	0	9
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**154**	**701**	**0**	**0**	**0**	**0**	**0**	**618**	**393**	**356**	**0**	**148**
TOTAL "NEW" SITE TRAFFIC	**0**	**133**	**0**	**0**	**0**	**0**	**0**	**123**	**98**	**104**	**0**	**0**
Prudential Site	0	133	0	0	0	0	0	123	98	104	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	-3	-2	0	0	0
Dryden Road Extension Diversions	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**154**	**834**	**0**	**0**	**0**	**0**	**0**	**738**	**489**	**460**	**0**	**148**
"New" Site Traffic % of Total ####	0.0	15.9	0.0	0.0	0.0	0.0	0.0	16.7	20.0	22.6	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 7-9 AM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dreshertown Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dreshertown Road L	S	R
EXISTING TRAFFIC	0	833	487	252	0	373	404	900	0	0	0	0
Seasonal Adjustment Factor ####	0	833	487	252	0	373	404	900	0	0	0	0
Balancing Adjustments	0	66	38	23	0	0	0	81	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**899**	**525**	**275**	**0**	**373**	**404**	**981**	**0**	**0**	**0**	**0**
Background Growth 5.24 %	0	47	27	14	0	20	21	51	0	0	0	0
EXISTING W/ BACKGROUND	0	946	552	289	0	393	425	1032	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	30	17	9	0	12	9	9	0	0	0	0
FW Triangle - Upper Dublin	0	0	3	3	0	2	3	0	0	0	0	0
Zieger Rose - Upper Dublin	0	3	0	0	0	8	4	2	0	0	0	0
Wawa Retail Site - Horsham	0	0	3	3	0	2	2	0	0	0	0	0
Single Family Homes - Horsham	0	2	1	0	0	0	0	1	0	0	0	0
Horsham Apartments	0	25	10	3	0	0	0	6	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**976**	**569**	**298**	**0**	**405**	**434**	**1041**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**49**	**25**	**36**	**0**	**0**	**0**	**72**	**0**	**0**	**0**	**0**
Prudential Site	0	49	25	36	0	0	0	72	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	-2	0	0	0	0
Dryden Road Extension Diversions	0	-25	25	0	0	-70	-64	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**1000**	**619**	**334**	**0**	**335**	**370**	**1111**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	4.9	4.0	10.8	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 4-6 PM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dreshertown Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dreshertown Road L	S	R
EXISTING TRAFFIC	0	1037	533	373	0	443	447	982	0	0	0	0
Seasonal Adjustment Factor 1.000	0	1037	533	373	0	443	447	982	0	0	0	0
Balancing Adjustments	0	46	23	15	0	0	0	38	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**1083**	**556**	**388**	**0**	**443**	**447**	**1020**	**0**	**0**	**0**	**0**
Background Growth 5.24 %	0	57	29	20	0	23	23	53	0	0	0	0
EXISTING W/ BACKGROUND	0	1140	585	408	0	466	470	1073	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	18	12	16	0	9	12	30	0	0	0	0
FW Triangle - Upper Dublin	0	0	3	2	0	2	3	0	0	0	0	0
Zieger Rose - Upper Dublin	0	2	0	0	0	5	7	3	0	0	0	0
Wawa Retail Site - Horsham	0	0	3	3	0	2	2	0	0	0	0	0
Single Family Homes - Horsham	0	2	1	1	0	0	0	2	0	0	0	0
Horsham Apartments	0	14	5	10	0	0	0	25	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**1158**	**597**	**424**	**0**	**475**	**482**	**1103**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**107**	**53**	**43**	**0**	**0**	**0**	**85**	**0**	**0**	**0**	**0**
Prudential Site	0	107	53	43	0	0	0	85	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	1	0	0	0	0	0	0	0	0
Dryden Road Extension Diversions	0	-1	1	24	0	-70	-81	-24	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**1264**	**651**	**492**	**0**	**405**	**401**	**1164**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	8.5	8.1	8.7	0.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023

Saturday 11-2 PM

Traffic Component	EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dreshertown Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dreshertown Road L	S	R
EXISTING TRAFFIC	0	817	157	151	0	291	240	761	0	0	0	0
Seasonal Adjustment Factor 1.000	0	817	157	151	0	291	240	761	0	0	0	0
Balancing Adjustments	0	0	0	3	0	0	0	15	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**817**	**157**	**154**	**0**	**291**	**240**	**776**	**0**	**0**	**0**	**0**
Background Growth 5.24 %	0	43	8	8	0	15	13	41	0	0	0	0
EXISTING W/ BACKGROUND	0	860	165	162	0	306	253	817	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	18	14	15	0	8	9	18	0	0	0	0
FW Triangle - Upper Dublin	0	0	3	3	0	2	3	0	0	0	0	0
Zieger Rose - Upper Dublin	0	1	0	0	0	3	3	1	0	0	0	0
Wawa Retail Site - Horsham	0	0	4	5	0	3	3	0	0	0	0	0
Single Family Homes - Horsham	0	2	1	1	0	0	0	2	0	0	0	0
Horsham Apartments	0	15	6	6	0	0	0	15	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**878**	**179**	**177**	**0**	**314**	**262**	**835**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**158**	**79**	**73**	**0**	**0**	**0**	**148**	**0**	**0**	**0**	**0**
Prudential Site	0	158	79	73	0	0	0	148	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	-1	0	-1	0	-4	0	0	0	0
Dryden Road Extension Diversions	0	-1	1	0	0	-47	-39	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**1035**	**259**	**249**	**0**	**266**	**223**	**979**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	15.3	30.5	29.3	0.0	0.0	0.0	15.1	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dryden Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 7-9 AM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Dryden Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Dryden Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	1	1186	96	2	0	0	57	1445	1	2	0	0
Seasonal Adjustment Factor ####	1	1186	96	2	0	0	57	1445	1	2	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**1**	**1186**	**96**	**2**	**0**	**0**	**57**	**1445**	**1**	**2**	**0**	**0**
Background Growth 5.24 %	0	62	0	0	0	0	0	76	0	0	0	0
EXISTING W/ BACKGROUND	1	1248	96	2	0	0	57	1521	1	2	0	0
TOTAL "OTHER" DEVELOPMENTS	0	42	0	0	0	0	0	18	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin	0	11	0	0	0	0	0	6	0	0	0	0
Wawa Retail Site - Horsham	0	2	0	0	0	0	0	2	0	0	0	0
Single Family Homes - Horsham	0	2	0	0	0	0	0	1	0	0	0	0
Horsham Apartments	0	25	0	0	0	0	0	6	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**1**	**1290**	**96**	**2**	**0**	**0**	**57**	**1539**	**1**	**2**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**36**	**16**	**72**	**0**	**49**	**57**	**0**	**0**	**0**	**0**	**0**
Prudential Site	0	36	16	72	0	49	57	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	-6	7	16	0	7	18	-18	0	0	0	0
Other Adjustments	0	-81	-14	0	0	59	64	-64	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**1**	**1239**	**105**	**90**	**0**	**115**	**196**	**1457**	**1**	**2**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	2.9	15.2	80.0	0.0	42.6	29.1	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dryden Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\JSDS Design Year 20 2023

Weekday 4-6 PM

Traffic Component	EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND Dryden Road L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND Dryden Road L	S	R
EXISTING TRAFFIC	0	1557	5	95	8	9	0	1369	0	3	0	1
Seasonal Adjustment Factor 1.000	0	1557	5	95	8	9	0	1369	0	3	0	1
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**1557**	**5**	**95**	**8**	**9**	**0**	**1369**	**0**	**3**	**0**	**1**
Background Growth 5.24 %	0	82	0	0	0	0	0	72	0	0	0	0
EXISTING W/ BACKGROUND	0	1639	5	95	8	9	0	1441	0	3	0	1
TOTAL "OTHER" DEVELOPMENTS	0	26	0	0	0	0	0	42	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin	0	6	0	0	0	0	0	10	0	0	0	0
Wawa Retail Site - Horsham	0	2	0	0	0	0	0	2	0	0	0	0
Single Family Homes - Horsham	0	2	0	0	0	0	0	2	0	0	0	0
Horsham Apartments	0	14	0	0	0	0	0	25	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**1665**	**5**	**95**	**8**	**9**	**0**	**1483**	**0**	**3**	**0**	**1**
TOTAL "NEW" SITE TRAFFIC	**0**	**43**	**36**	**85**	**0**	**58**	**125**	**0**	**0**	**0**	**0**	**0**
Prudential Site	0	43	36	85	0	58	125	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	-21	20	36	0	19	36	-36	0	0	0	0
Dryden Road Extension Diversions	0	-71	0	-14	0	70	71	-91	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**1616**	**61**	**202**	**8**	**156**	**232**	**1356**	**0**	**3**	**0**	**1**
"New" Site Traffic % of Total ####	0.0	2.7	59.0	42.1	0.0	37.2	53.9	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dryden Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023

Saturday 11-2 PM

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Dryden Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Dryden Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	2	1034	3	1	0	1	1	1027	2	2	0	2
Seasonal Adjustment Factor 1.000	2	1034	3	1	0	1	1	1027	2	2	0	2
Balancing Adjustments	0	15	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**2**	**1049**	**3**	**1**	**0**	**1**	**1**	**1027**	**2**	**2**	**0**	**2**
Background Growth 5.24 %	0	55	0	0	0	0	0	54	0	0	0	0
EXISTING W/ BACKGROUND	2	1104	3	1	0	1	1	1081	2	2	0	2
TOTAL "OTHER" DEVELOPMENTS	0	26	0	0	0	0	0	27	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin	0	4	0	0	0	0	0	4	0	0	0	0
Wawa Retail Site - Horsham	0	3	0	0	0	0	0	3	0	0	0	0
Single Family Homes - Horsham	0	2	0	0	0	0	0	2	0	0	0	0
Horsham Apartments	0	15	0	0	0	0	0	15	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**2**	**1130**	**3**	**1**	**0**	**1**	**1**	**1108**	**2**	**2**	**0**	**2**
TOTAL "NEW" SITE TRAFFIC	**0**	**74**	**53**	**148**	**0**	**99**	**185**	**0**	**0**	**0**	**0**	**0**
Prudential Site	0	74	53	148	0	99	185	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	-33	31	53	0	26	57	-57	0	0	0	0
Dryden Road Extension Diversions	0	-47	-1	0	0	47	39	-39	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**2**	**1124**	**86**	**202**	**0**	**173**	**282**	**1012**	**2**	**2**	**0**	**2**
"New" Site Traffic % of Total ####	0.0	6.6	61.6	73.3	0.0	57.2	65.6	0.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Dryden Road Extension

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 7-9 AM**

Traffic Component	EASTBOUND Dryden Road Extension L	S	R	NORTHBOUND Dreshertown Road L	S	R	WESTBOUND Dryden Road Extension L	S	R	SOUTHBOUND Dreshertown Road L	S	R
EXISTING TRAFFIC	0	0	0	0	625	0	0	0	0	0	891	0
Seasonal Adjustment Factor ####	0	0	0	0	625	0	0	0	0	0	891	0
Balancing Adjustments	0	0	0	0	23	0	0	0	0	0	38	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**648**	**0**	**0**	**0**	**0**	**0**	**929**	**0**
Background Growth 5.24 %	0	0	0	0	34	0	0	0	0	0	49	0
EXISTING W/ BACKGROUND	0	0	0	0	682	0	0	0	0	0	978	0
TOTAL "OTHER" DEVELOPMENTS	8	0	6	3	14	0	0	0	0	0	22	4
FW Triangle - Upper Dublin	0	0	0	0	5	0	0	0	0	0	6	0
Zieger Rose - Upper Dublin	8	0	6	3	0	0	0	0	0	0	0	4
Wawa Retail Site - Horsham	0	0	0	0	6	0	0	0	0	0	5	0
Single Family Homes - Horsham	0	0	0	0	0	0	0	0	0	0	1	0
Horsham Apartments	0	0	0	0	3	0	0	0	0	0	10	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**8**	**0**	**6**	**3**	**696**	**0**	**0**	**0**	**0**	**0**	**1000**	**4**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**0**	**0**	**0**	**33**	**48**	**0**	**36**	**25**	**0**	**0**
Prudential Site	0	0	0	0	0	33	48	0	36	25	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	-7	7	10	0	7	10	-10	0
Dryden Road Extension Diversions	0	0	0	0	-70	70	64	0	0	25	-64	0
FUTURE TRAFFIC W/ PROJECT	**8**	**0**	**6**	**3**	**619**	**110**	**122**	**0**	**43**	**60**	**926**	**4**
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	0.0	30.0	39.3	0.0	83.7	41.7	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Dryden Road Extension

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 4-6 PM**

Traffic Component	EASTBOUND Dryden Road Extension			NORTHBOUND Dreshertown Road			WESTBOUND Dryden Road Extension			SOUTHBOUND Dreshertown Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	816	0	0	0	0	0	980	0
Seasonal Adjustment Factor 1.000	0	0	0	0	816	0	0	0	0	0	980	0
Balancing Adjustments	0	0	0	0	15	0	0	0	0	0	23	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**831**	**0**	**0**	**0**	**0**	**0**	**1003**	**0**
Background Growth 5.24 %	0	0	0	0	44	0	0	0	0	0	53	0
EXISTING W/ BACKGROUND	0	0	0	0	875	0	0	0	0	0	1056	0
TOTAL "OTHER" DEVELOPMENTS	5	0	4	6	20	0	0	0	0	0	17	7
FW Triangle - Upper Dublin	0	0	0	0	3	0	0	0	0	0	6	0
Zieger Rose - Upper Dublin	5	0	4	6	0	0	0	0	0	0	0	7
Wawa Retail Site - Horsham	0	0	0	0	6	0	0	0	0	0	5	0
Single Family Homes - Horsham	0	0	0	0	1	0	0	0	0	0	1	0
Horsham Apartments	0	0	0	0	10	0	0	0	0	0	5	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**5**	**0**	**4**	**6**	**895**	**0**	**0**	**0**	**0**	**0**	**1073**	**7**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**0**	**0**	**0**	**71**	**57**	**0**	**43**	**53**	**0**	**0**
Prudential Site	0	0	0	0	0	71	57	0	43	53	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	-20	20	27	0	21	28	-28	0
Dryden Road Extension Diversions	0	0	0	0	-70	70	81	0	24	1	-81	0
FUTURE TRAFFIC W/ PROJECT	**5**	**0**	**4**	**6**	**805**	**161**	**165**	**0**	**88**	**82**	**964**	**7**
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	0.0	44.1	34.5	0.0	48.9	64.6	0.0	0.0

INTERSECTION VOLUME SUMMARY
Dreshertown Road/Dryden Road Extension

Age Restricted Housing Development
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Traffic Component	EASTBOUND Dryden Road Extension			NORTHBOUND Dreshertown Road			WESTBOUND Dryden Road Extension			SOUTHBOUND Dreshertown Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	442	0	0	0	0	0	397	0
Seasonal Adjustment Factor 1.000	0	0	0	0	442	0	0	0	0	0	397	0
Balancing Adjustments	0	0	0	0	3	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**445**	**0**	**0**	**0**	**0**	**0**	**397**	**0**
Background Growth 5.24 %	0	0	0	0	23	0	0	0	0	0	21	0
EXISTING W/ BACKGROUND	0	0	0	0	468	0	0	0	0	0	418	0
TOTAL "OTHER" DEVELOPMENTS	3	0	2	2	20	0	0	0	0	0	20	3
FW Triangle - Upper Dublin	0	0	0	0	5	0	0	0	0	0	6	0
Zieger Rose - Upper Dublin	3	0	2	2	0	0	0	0	0	0	0	3
Wawa Retail Site - Horsham	0	0	0	0	8	0	0	0	0	0	7	0
Single Family Homes - Horsham	0	0	0	0	1	0	0	0	0	0	1	0
Horsham Apartments	0	0	0	0	6	0	0	0	0	0	6	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**3**	**0**	**2**	**2**	**488**	**0**	**0**	**0**	**0**	**0**	**438**	**3**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**0**	**0**	**0**	**106**	**99**	**0**	**73**	**79**	**0**	**0**
Prudential Site	0	0	0	0	0	106	99	0	73	79	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	-25	25	21	0	23	23	-23	0
Dryden Road Extension Diversions	0	0	0	0	-47	47	39	0	0	1	-39	0
FUTURE TRAFFIC W/ PROJECT	**3**	**0**	**2**	**2**	**416**	**178**	**159**	**0**	**96**	**103**	**376**	**3**
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	0.0	59.6	62.3	0.0	76.0	76.7	0.0	0.0

INTERSECTION VOLUME SUMMARY
Jarrettown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 7-9 AM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Jarrettown Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Jarrettown Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	55	843	14	10	58	309	261	624	8	9	19	27
Seasonal Adjustment Factor ####	55	843	14	10	58	309	261	624	8	9	19	27
Balancing Adjustments	0	0	0	0	0	0	7	18	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**55**	**843**	**14**	**10**	**58**	**309**	**268**	**642**	**8**	**9**	**19**	**27**
Background Growth 5.24 %	3	44	1	1	3	16	14	34	0	0	1	1
EXISTING W/ BACKGROUND	58	887	15	11	61	325	282	676	8	9	20	28
TOTAL "OTHER" DEVELOPMENTS	0	11	4	8	0	12	12	18	0	0	0	0
FW Triangle - Upper Dublin	0	1	0	0	0	0	0	1	0	0	0	0
Zieger Rose - Upper Dublin	0	0	4	8	0	9	5	0	0	0	0	0
Wawa Retail Site - Horsham	0	7	0	0	0	2	2	6	0	0	0	0
Single Family Homes - Horsham	0	0	0	0	0	0	0	1	0	0	0	0
Horsham Apartments	0	3	0	0	0	1	5	10	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**58**	**898**	**19**	**19**	**61**	**337**	**294**	**694**	**8**	**9**	**20**	**28**
TOTAL "NEW" SITE TRAFFIC	**0**	**34**	**0**	**0**	**0**	**8**	**12**	**48**	**0**	**0**	**0**	**0**
Prudential Site	0	34	0	0	0	8	12	48	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	-1	0	0	0	0
Dryden Road Extension Diversions	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**58**	**932**	**19**	**19**	**61**	**345**	**306**	**741**	**8**	**9**	**20**	**28**
"New" Site Traffic % of Total ####	0.0	3.6	0.0	0.0	0.0	2.3	3.9	6.5	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Jarrettown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 4-6 PM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Jarrettown Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Jarrettown Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	21	661	22	16	20	208	230	905	14	40	89	103
Seasonal Adjustment Factor 1.000	21	661	22	16	20	208	230	905	14	40	89	103
Balancing Adjustments	0	97	0	0	0	31	12	41	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**21**	**758**	**22**	**16**	**20**	**239**	**242**	**946**	**14**	**40**	**89**	**103**
Background Growth 5.24 %	1	40	1	1	1	13	13	50	1	2	5	5
EXISTING W/ BACKGROUND	22	798	23	17	21	252	255	996	15	42	94	108
TOTAL "OTHER" DEVELOPMENTS	0	20	7	5	0	12	14	12	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	1	0	0	0	0
Zieger Rose - Upper Dublin	0	0	7	5	0	5	9	0	0	0	0	0
Wawa Retail Site - Horsham	0	7	0	0	0	2	2	5	0	0	0	0
Single Family Homes - Horsham	0	1	0	0	0	0	0	1	0	0	0	0
Horsham Apartments	0	10	0	0	0	5	3	5	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**22**	**818**	**30**	**22**	**21**	**264**	**269**	**1008**	**15**	**42**	**94**	**108**
TOTAL "NEW" SITE TRAFFIC	**0**	**71**	**0**	**0**	**0**	**18**	**14**	**57**	**0**	**0**	**0**	**0**
Prudential Site	0	71	0	0	0	18	14	57	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	1	0	0	0	0
Dryden Road Extension Diversions	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**22**	**889**	**30**	**22**	**21**	**282**	**283**	**1066**	**15**	**42**	**94**	**108**
"New" Site Traffic % of Total ####	0.0	8.0	0.0	0.0	0.0	6.4	4.9	5.3	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Jarrettown Road/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023

Saturday 11-2 PM

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND Jarrettown Road			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND Jarrettown Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	10	574	16	4	2	169	122	533	8	12	2	7
Seasonal Adjustment Factor 1.000	10	574	16	4	2	169	122	533	8	12	2	7
Balancing Adjustments	0	0	0	0	0	0	1	4	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**10**	**574**	**16**	**4**	**2**	**169**	**123**	**537**	**8**	**12**	**2**	**7**
Background Growth 5.24 %	1	30	1	0	0	9	6	28	0	1	0	0
EXISTING W/ BACKGROUND	11	604	17	4	2	178	129	565	8	13	2	7
TOTAL "OTHER" DEVELOPMENTS	0	18	3	3	0	10	9	16	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	1	0	0	0	0
Zieger Rose - Upper Dublin	0	0	3	3	0	4	3	0	0	0	0	0
Wawa Retail Site - Horsham	0	9	0	0	0	3	3	8	0	0	0	0
Single Family Homes - Horsham	0	1	0	0	0	0	0	1	0	0	0	0
Horsham Apartments	0	6	0	0	0	3	3	6	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**11**	**622**	**20**	**7**	**2**	**188**	**138**	**581**	**8**	**13**	**2**	**7**
TOTAL "NEW" SITE TRAFFIC	**0**	**106**	**0**	**0**	**0**	**27**	**24**	**99**	**0**	**0**	**0**	**0**
Prudential Site	0	106	0	0	0	27	24	99	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	-1	-2	0	0	0	0
Dryden Road Extension Diversions	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**11**	**728**	**20**	**7**	**2**	**215**	**161**	**678**	**8**	**13**	**2**	**7**
"New" Site Traffic % of Total ####	0.0	14.6	0.0	0.0	0.0	12.6	14.9	14.6	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
RIRO Access/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 7-9 AM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND RIRO Access			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND RIRO Access		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	1283	0	0	0	0	0	1447	0	0	0	0
Seasonal Adjustment Factor ####	0	1283	0	0	0	0	0	1447	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**1283**	**0**	**0**	**0**	**0**	**0**	**1447**	**0**	**0**	**0**	**0**
Background Growth 5.24 %	0	67	0	0	0	0	0	76	0	0	0	0
EXISTING W/ BACKGROUND	0	1350	0	0	0	0	0	1523	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	42	0	0	0	0	0	18	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin	0	11	0	0	0	0	0	6	0	0	0	0
Wawa Retail Site - Horsham	0	2	0	0	0	0	0	2	0	0	0	0
Single Family Homes - Horsham	0	2	0	0	0	0	0	1	0	0	0	0
Horsham Apartments	0	25	0	0	0	0	0	6	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**1392**	**0**	**0**	**0**	**0**	**0**	**1541**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**16**	**33**	**0**	**0**	**36**	**0**	**72**	**0**	**0**	**0**	**0**
Prudential Site	0	16	33	0	0	36	0	72	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	-7	7	0	0	8	0	-2	0	0	0	0
Dryden Road Extension Diversions	0	-95	0	0	0	0	0	-64	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**1306**	**40**	**0**	**0**	**44**	**0**	**1547**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	1.2	82.5	0.0	0.0	81.8	0.0	4.7	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
RIRO Access/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Weekday 4-6 PM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063) L	S	R	NORTHBOUND RIRO Access L	S	R	WESTBOUND Welsh Road (S.R. 0063) L	S	R	SOUTHBOUND RIRO Access L	S	R
EXISTING TRAFFIC	0	1562	0	0	0	0	0	1465	0	0	0	0
Seasonal Adjustment Factor 1.000	0	1562	0	0	0	0	0	1465	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**1562**	**0**	**0**	**0**	**0**	**0**	**1465**	**0**	**0**	**0**	**0**
Background Growth 5.24 %	0	82	0	0	0	0	0	77	0	0	0	0
EXISTING W/ BACKGROUND	0	1644	0	0	0	0	0	1542	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	26	0	0	0	0	0	42	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin	0	6	0	0	0	0	0	10	0	0	0	0
Wawa Retail Site - Horsham	0	2	0	0	0	0	0	2	0	0	0	0
Single Family Homes - Horsham	0	2	0	0	0	0	0	2	0	0	0	0
Horsham Apartments	0	14	0	0	0	0	0	25	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**1670**	**0**	**0**	**0**	**0**	**0**	**1584**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**36**	**71**	**0**	**0**	**43**	**0**	**85**	**0**	**0**	**0**	**0**
Prudential Site	0	36	71	0	0	43	0	85	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	-19	19	0	0	18	0	0	0	0	0	0
Dryden Road Extension Diversions	0	-71	0	0	0	0	0	-105	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**1616**	**90**	**0**	**0**	**61**	**0**	**1564**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	2.2	78.9	0.0	0.0	70.5	0.0	5.4	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
RIRO Access/Welsh Road (S.R. 0063)

Age Restricted Housing Development
I:\eng\815367\Traffic\Analysis\January 2017\SDS\[SDS Design Year 20 2023 **Saturday 11-2 PM**

Traffic Component	EASTBOUND Welsh Road (S.R. 0063)			NORTHBOUND RIRO Access			WESTBOUND Welsh Road (S.R. 0063)			SOUTHBOUND RIRO Access		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	1039	0	0	0	0	0	1030	0	0	0	0
Seasonal Adjustment Factor 1.000	0	1039	0	0	0	0	0	1030	0	0	0	0
Balancing Adjustments	0	15	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**1054**	**0**	**0**	**0**	**0**	**0**	**1030**	**0**	**0**	**0**	**0**
Background Growth 5.24 %	0	55	0	0	0	0	0	54	0	0	0	0
EXISTING W/ BACKGROUND	0	1109	0	0	0	0	0	1084	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	26	0	0	0	0	0	27	0	0	0	0
FW Triangle - Upper Dublin	0	2	0	0	0	0	0	3	0	0	0	0
Zieger Rose - Upper Dublin	0	4	0	0	0	0	0	4	0	0	0	0
Wawa Retail Site - Horsham	0	3	0	0	0	0	0	3	0	0	0	0
Single Family Homes - Horsham	0	2	0	0	0	0	0	2	0	0	0	0
Horsham Apartments	0	15	0	0	0	0	0	15	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**1135**	**0**	**0**	**0**	**0**	**0**	**1111**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**53**	**105**	**0**	**0**	**74**	**0**	**148**	**0**	**0**	**0**	**0**
Prudential Site	0	53	105	0	0	74	0	148	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	-31	30	0	0	29	0	-4	0	0	0	0
Dryden Road Extension Diversions	0	-48	0	0	0	0	0	-39	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**1109**	**135**	**0**	**0**	**103**	**0**	**1216**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	4.8	77.8	0.0	0.0	71.8	0.0	12.2	0.0	0.0	0.0	0.0

APPENDIX I

2018 Future without Development
Capacity/Level-of-Service Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	870	18	285	672	8	18	59	335	9	19	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.998				0.850		0.932	
Flt Protected	0.950			0.950				0.988			0.992	
Satd. Flow (prot)	1727	1810	0	1612	1852	0	0	1760	1640	0	1731	0
Flt Permitted	0.393			0.089				0.920			0.939	
Satd. Flow (perm)	714	1810	0	151	1852	0	0	1639	1640	0	1639	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1				92		29	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	7%	2%	3%	0%	0%	2%	0%	11%	0%	7%
Adj. Flow (vph)	59	916	19	300	707	8	19	62	353	9	20	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	935	0	300	715	0	0	81	353	0	58	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	65.0	65.0		32.0	97.0		23.0	23.0	32.0	23.0	23.0	
Total Split (%)	54.2%	54.2%		26.7%	80.8%		19.2%	19.2%	26.7%	19.2%	19.2%	

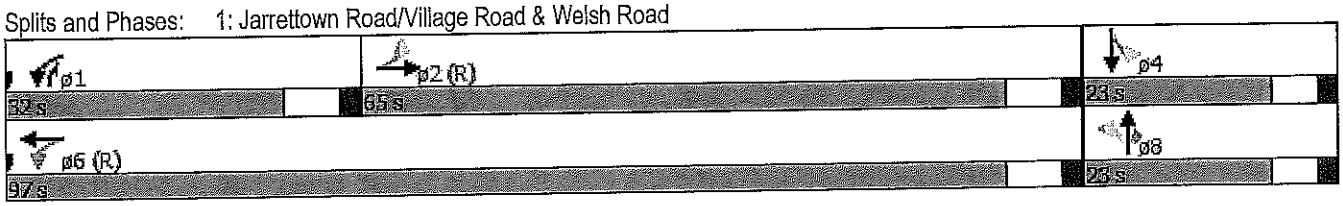
1: Jarrettown Road/Village Road & Welsh Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	58.0	58.0		25.0	90.0		17.0	17.0	25.0	17.0	17.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	870	18	285	672	8	18	59	335	9	19	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1818	1816	1854	1756	1809	1863	1809	1782	1881	1863	1770	1863
Adj Flow Rate, veh/h	59	916	17	300	707	7	19	62	326	9	20	27
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	3	2	2	0	0	0	0
Cap, veh/h	509	1056	20	350	1356	13	75	217	422	53	101	112
Arrive On Green	0.59	0.59	0.59	0.11	0.76	0.75	0.14	0.15	0.15	0.14	0.15	0.14
Sat Flow, veh/h	755	1777	33	1672	1788	18	256	1448	1599	123	676	744
Grp Volume(v), veh/h	59	0	933	300	0	714	81	0	326	56	0	0
Grp Sat Flow(s),veh/h/ln	755	0	1810	1672	0	1806	1704	0	1599	1543	0	0
Q Serve(g_s), s	4.1	0.0	51.8	9.4	0.0	19.0	0.0	0.0	18.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.1	0.0	51.8	9.4	0.0	19.0	4.9	0.0	18.0	3.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.01	0.23		1.00	0.16		0.48
Lane Grp Cap(c), veh/h	509	0	1076	350	0	1369	278	0	422	253	0	0
V/C Ratio(X)	0.12	0.00	0.87	0.86	0.00	0.52	0.29	0.00	0.77	0.22	0.00	0.00
Avail Cap(c_a), veh/h	509	0	1076	521	0	1369	278	0	422	253	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.7	0.0	20.4	28.3	0.0	5.8	45.5	0.0	40.8	45.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	9.5	9.1	0.0	1.4	0.6	0.0	8.6	0.4	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(95%),veh/ln	1.7	0.0	37.2	15.8	0.0	15.0	4.4	0.0	16.4	3.0	0.0	0.0
LnGrp Delay(d),s/veh	11.2	0.0	29.8	37.4	0.0	7.2	46.1	0.0	49.4	45.6	0.0	0.0
LnGrp LOS	B		C	D		A	D		D	D		
Approach Vol, veh/h		992			1014			407			56	
Approach Delay, s/veh		28.7			16.2			48.7			45.6	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	19.7	77.3		23.0		97.0		23.0
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	25.0	58.0		17.0		90.0		17.0
Max Q Clear Time (g_c+I1), s	11.9	53.8		5.7		21.0		20.5
Green Ext Time (p_c), s	0.8	4.1		1.4		57.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.2
HCM 2010 LOS	C

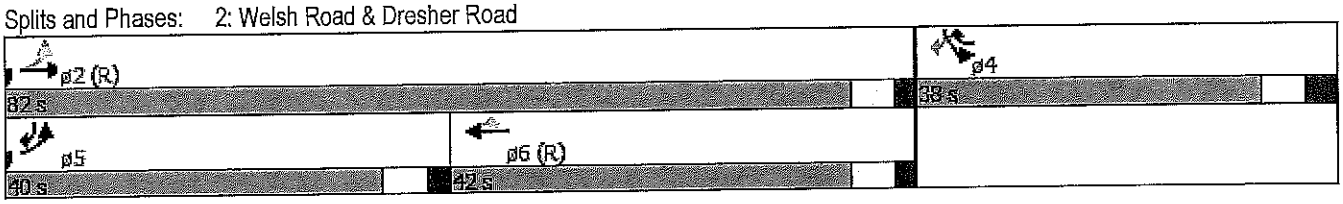
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	413	831	704	593	675	310
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1588	3290	3194	1443	3268	1542
Flt Permitted	0.207				0.950	
Satd. Flow (perm)	346	3290	3194	1443	3268	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				230		41
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	3%	2%	1%	2%
Adj. Flow (vph)	439	884	749	631	718	330
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	884	749	631	718	330
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	40.0	82.0	42.0	38.0	38.0	40.0
Total Split (%)	33.3%	68.3%	35.0%	31.7%	31.7%	33.3%
Maximum Green (s)	34.0	76.0	36.0	31.0	31.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	77.9	77.9	43.8	80.0	31.1	66.2
Actuated g/C Ratio	0.65	0.65	0.36	0.67	0.26	0.55
v/c Ratio	0.84	0.41	0.64	0.61	0.85	0.38
Control Delay	25.6	6.2	37.6	14.4	52.6	13.6
Queue Delay	0.0	0.1	0.0	0.4	0.0	0.0
Total Delay	25.6	6.3	37.6	14.7	52.6	13.6
LOS	C	A	D	B	D	B
Approach Delay		12.7	27.1		40.3	
Approach LOS		B	C		D	
Queue Length 50th (ft)	151	90	281	214	270	111
Queue Length 95th (ft)	m224	m98	362	379	344	160
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	586	2134	1166	1047	871	943
Starvation Cap Reductn	0	0	0	108	0	0
Spillback Cap Reductn	0	186	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.45	0.64	0.67	0.82	0.35

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 25.7 Intersection LOS: C
Intersection Capacity Utilization 78.4% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Welsh Road & Dresher Road



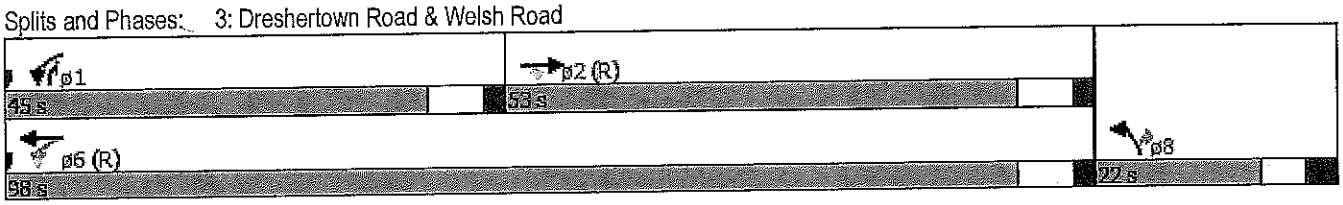
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (vph)	954	552	421	1009	289	384
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3306	1650	1542	3304	3174	1626
Flt Permitted			0.177		0.950	
Satd. Flow (perm)	3306	1650	287	3304	3174	1626
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		380				38
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	778	
Travel Time (s)	8.3			15.8	13.3	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	3%	3%	4%	3%
Adj. Flow (vph)	973	563	430	1030	295	392
Shared Lane Traffic (%)						
Lane Group Flow (vph)	973	563	430	1030	295	392
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	53.0	53.0	45.0	98.0	22.0	45.0
Total Split (%)	44.2%	44.2%	37.5%	81.7%	18.3%	37.5%
Maximum Green (s)	46.0	46.0	38.0	91.0	15.0	38.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	954	552	421	1009	289	384
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1836	1739	1739	1722	1808
Adj Flow Rate, veh/h	973	519	430	1030	295	309
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	3	3	3	4	3
Cap, veh/h	1915	874	513	2533	424	446
Arrive On Green	1.00	1.00	0.31	1.00	0.13	0.13
Sat Flow, veh/h	3510	1560	1656	3391	3182	1537
Grp Volume(v), veh/h	973	519	430	1030	295	309
Grp Sat Flow(s),veh/h/ln	1710	1560	1656	1652	1591	1537
Q Serve(g_s), s	0.0	0.0	13.9	0.0	10.6	16.0
Cycle Q Clear(g_c), s	0.0	0.0	13.9	0.0	10.6	16.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1915	874	513	2533	424	446
V/C Ratio(X)	0.51	0.59	0.84	0.41	0.70	0.69
Avail Cap(c_a), veh/h	1915	874	792	2533	424	446
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.87	0.87	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	6.2	0.0	49.7	37.8
Incr Delay (d2), s/veh	0.7	2.3	4.2	0.4	4.9	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	1.0	11.4	0.3	8.6	14.8
LnGrp Delay(d),s/veh	0.7	2.3	10.4	0.4	54.6	42.4
LnGrp LOS	A	A	B	A	D	D
Approach Vol, veh/h	1492			1460	604	
Approach Delay, s/veh	1.3			3.4	48.3	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	24.8	73.2				98.0		22.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	38.0	46.0				91.0		15.0
Max Q Clear Time (g_c+I1), s	16.4	2.5				2.5		18.5
Green Ext Time (p_c), s	1.5	11.7				12.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

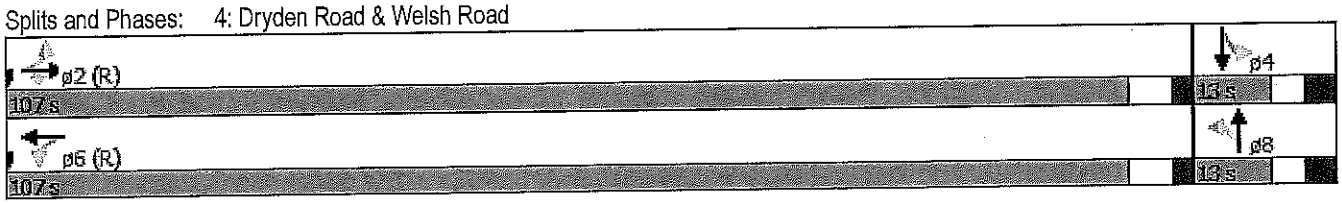
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1251	96	57	1491	1	2	0	0	2	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850									
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3403	1640	1573	3370	0	1661	1990	0	1710	1920	0
Flt Permitted	0.147			0.197								
Satd. Flow (perm)	248	3403	1640	326	3370	0	1749	1990	0	1800	1920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			103									
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	1345	103	61	1603	1	2	0	0	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1345	103	61	1604	0	2	0	0	2	0	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	107.0	107.0	107.0	107.0	107.0		13.0	13.0		13.0	13.0	
Total Split (%)	89.2%	89.2%	89.2%	89.2%	89.2%		10.8%	10.8%		10.8%	10.8%	
Maximum Green (s)	101.0	101.0	101.0	101.0	101.0		7.0	7.0		7.0	7.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 62 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	1251	96	57	1491	1	2	0	0	2	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1774	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	1	1345	101	61	1603	1	2	0	0	2	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	2	2	2	0	0	0	0	0	0
Cap, veh/h	325	3073	1444	393	3121	2	80	25	0	79	25	0
Arrive On Green	1.00	1.00	1.00	0.90	0.90	0.89	0.01	0.00	0.00	0.01	0.00	0.00
Sat Flow, veh/h	323	3403	1599	369	3456	2	1447	1881	0	1440	1872	0
Grp Volume(v), veh/h	1	1345	101	61	781	823	2	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	323	1702	1599	369	1685	1773	1447	1881	0	1440	1872	0
Q Serve(g_s), s	0.0	0.0	0.0	2.3	10.1	10.1	0.2	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	10.1	0.0	0.0	2.3	10.1	10.1	0.2	0.0	0.0	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	325	3073	1444	393	1522	1601	80	25	0	79	25	0
V/C Ratio(X)	0.00	0.44	0.07	0.16	0.51	0.51	0.03	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	325	3073	1444	393	1522	1601	156	125	0	156	125	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.77	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.5	0.0	0.0	0.7	1.1	1.1	58.5	0.0	0.0	58.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.8	1.2	1.2	0.1	0.0	0.0	0.1	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(95%),veh/ln	0.0	0.3	0.1	0.6	8.5	8.8	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	0.5	0.3	0.1	1.5	2.3	2.2	58.6	0.0	0.0	58.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E			E		
Approach Vol, veh/h		1447			1665			2			2	
Approach Delay, s/veh		0.3			2.2			58.6			58.6	
Approach LOS		A			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		113.4		6.6		113.4		6.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		101.0		7.0		101.0		7.0
Max Q Clear Time (g_c+I1), s		12.6		2.7		12.6		2.7
Green Ext Time (p_c), s		20.0		0.0		20.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.4
HCM 2010 LOS	A

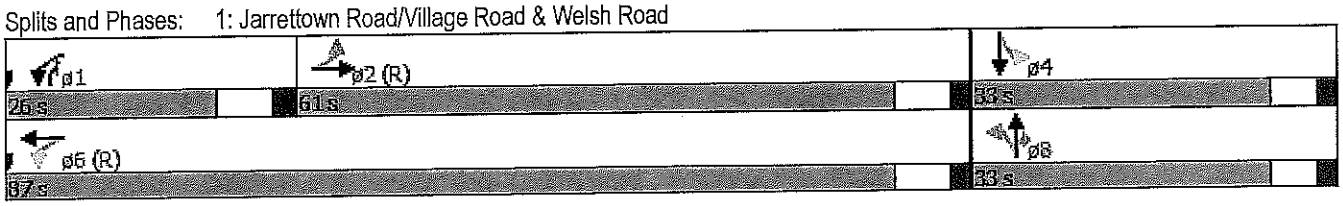
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	793	29	261	976	14	21	20	261	41	91	105
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.998				0.850		0.940	
Flt Protected	0.950			0.950				0.975			0.991	
Satd. Flow (prot)	1761	1827	0	1645	1907	0	0	1764	1640	0	1826	0
Flt Permitted	0.232			0.090				0.650			0.935	
Satd. Flow (perm)	430	1827	0	156	1907	0	0	1176	1640	0	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1				100		31	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	22	826	30	272	1017	15	22	21	272	43	95	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	856	0	272	1032	0	0	43	272	0	247	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	61.0	61.0		26.0	87.0		33.0	33.0	26.0	33.0	33.0	
Total Split (%)	50.8%	50.8%		21.7%	72.5%		27.5%	27.5%	21.7%	27.5%	27.5%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	54.0	54.0		19.0	80.0		27.0	27.0	19.0	27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	793	29	261	976	14	21	20	261	41	91	105
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1836	1854	1791	1863	1863	1809	1809	1881	1863	1853	1863
Adj Flow Rate, veh/h	22	826	29	272	1017	14	22	21	251	43	95	95
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	289	1042	37	368	1341	18	126	107	428	74	129	116
Arrive On Green	0.59	0.59	0.58	0.09	0.73	0.72	0.17	0.18	0.18	0.17	0.18	0.17
Sat Flow, veh/h	572	1763	62	1706	1833	25	454	604	1599	219	732	655
Grp Volume(v), veh/h	22	0	855	272	0	1031	43	0	251	233	0	0
Grp Sat Flow(s),veh/h/ln	572	0	1825	1706	0	1858	1059	0	1599	1606	0	0
Q Serve(g_s), s	2.9	0.0	43.3	6.8	0.0	40.2	0.0	0.0	16.4	11.9	0.0	0.0
Cycle Q Clear(g_c), s	25.7	0.0	43.3	6.8	0.0	40.2	3.0	0.0	16.4	16.8	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.51		1.00	0.18		0.41
Lane Grp Cap(c), veh/h	289	0	1078	368	0	1359	224	0	428	306	0	0
V/C Ratio(X)	0.08	0.00	0.79	0.74	0.00	0.76	0.19	0.00	0.59	0.76	0.00	0.00
Avail Cap(c_a), veh/h	289	0	1078	497	0	1359	306	0	518	395	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	0.0	18.9	20.9	0.0	9.7	41.9	0.0	38.2	47.7	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	6.0	3.9	0.0	4.0	0.4	0.0	1.3	6.3	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(95%),veh/ln	0.9	0.0	31.3	9.9	0.0	29.5	2.3	0.0	11.9	12.8	0.0	0.0
LnGrp Delay(d),s/veh	22.9	0.0	24.9	24.8	0.0	13.7	42.3	0.0	39.5	54.0	0.0	0.0
LnGrp LOS	C		C	C		B	D		D	D		
Approach Vol, veh/h		877			1303			294			233	
Approach Delay, s/veh		24.9			16.0			39.9			54.0	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	16.9	76.9		26.2		93.8		26.2
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	19.0	54.0		27.0		80.0		27.0
Max Q Clear Time (g_c+I1), s	9.3	45.3		18.8		42.2		18.9
Green Ext Time (p_c), s	0.6	8.6		1.4		35.9		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

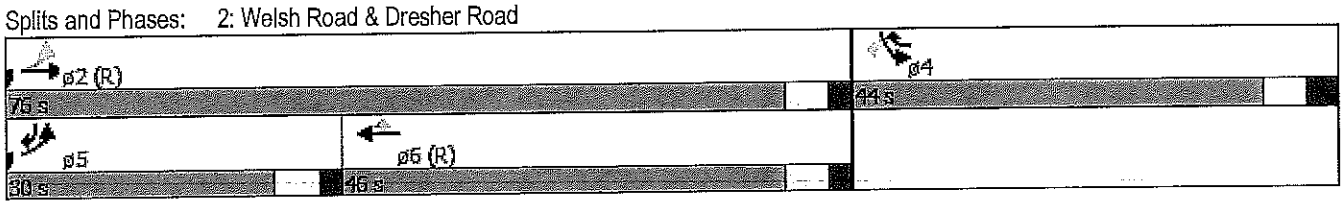
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	306	844	902	579	861	413
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1588	3257	3257	1457	3268	1558
Flt Permitted	0.123				0.950	
Satd. Flow (perm)	206	3257	3257	1457	3268	1558
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				213		25
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	1%	1%	1%	1%
Adj. Flow (vph)	322	888	949	609	906	435
Shared Lane Traffic (%)						
Lane Group Flow (vph)	322	888	949	609	906	435
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	30.0	76.0	46.0	44.0	44.0	30.0
Total Split (%)	25.0%	63.3%	38.3%	36.7%	36.7%	25.0%
Maximum Green (s)	24.0	70.0	40.0	37.0	37.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	71.6	71.6	44.3	86.6	37.4	65.7
Actuated g/C Ratio	0.60	0.60	0.37	0.72	0.31	0.55
v/c Ratio	0.85	0.46	0.79	0.55	0.89	0.50
Control Delay	33.9	17.7	37.3	6.5	51.4	17.7
Queue Delay	0.0	0.1	0.1	0.3	0.0	0.0
Total Delay	33.9	17.8	37.4	6.8	51.4	17.7
LOS	C	B	D	A	D	B
Approach Delay		22.1	25.5		40.5	
Approach LOS		C	C		D	
Queue Length 50th (ft)	170	283	304	131	341	177
Queue Length 95th (ft)	m211	m315	398	202	#450	261
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	410	1944	1201	1117	1034	898
Starvation Cap Reductn	0	0	12	132	0	0
Spillback Cap Reductn	0	212	0	0	0	25
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.51	0.80	0.62	0.88	0.50

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 77 (64%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 83.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Welsh Road & Dresher Road



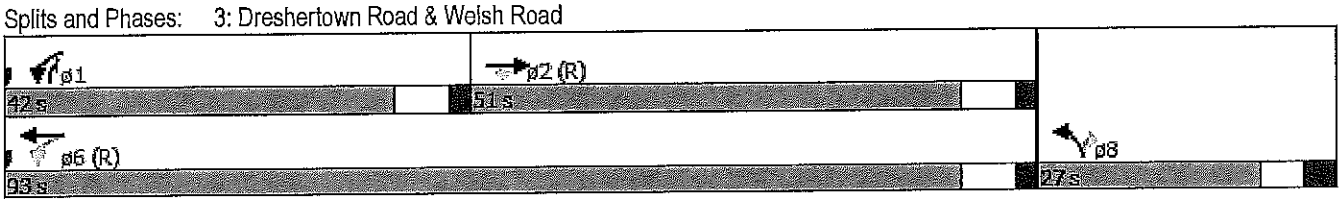
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1126	579	468	1070	411	456
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3274	1683	1557	3369	3268	1626
Flt Permitted			0.075		0.950	
Satd. Flow (perm)	3274	1683	123	3369	3268	1626
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		328				15
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	778	
Travel Time (s)	8.3			15.8	13.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	2%	1%	1%	3%
Adj. Flow (vph)	1173	603	488	1115	428	475
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1173	603	488	1115	428	475
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	51.0	51.0	42.0	93.0	27.0	42.0
Total Split (%)	42.5%	42.5%	35.0%	77.5%	22.5%	35.0%
Maximum Green (s)	44.0	44.0	35.0	86.0	20.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 29 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	1126	579	468	1070	411	456
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1872	1756	1773	1773	1808
Adj Flow Rate, veh/h	1173	577	488	1115	428	429
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	2	1	1	3
Cap, veh/h	1418	666	514	2443	573	663
Arrive On Green	0.28	0.28	0.51	1.00	0.17	0.17
Sat Flow, veh/h	3476	1591	1672	3458	3276	1537
Grp Volume(v), veh/h	1173	577	488	1115	428	429
Grp Sat Flow(s),veh/h/ln	1693	1591	1672	1685	1638	1537
Q Serve(g_s), s	38.9	41.4	26.2	0.0	14.9	21.0
Cycle Q Clear(g_c), s	38.9	41.4	26.2	0.0	14.9	21.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1418	666	514	2443	573	663
V/C Ratio(X)	0.83	0.87	0.95	0.46	0.75	0.65
Avail Cap(c_a), veh/h	1418	666	587	2443	573	663
HCM Platoon Ratio	0.67	0.67	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.81	0.81	1.00	1.00
Uniform Delay (d), s/veh	39.1	40.0	19.1	0.0	47.0	26.9
Incr Delay (d2), s/veh	3.9	10.2	20.5	0.5	5.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	24.9	26.1	23.7	0.3	11.5	17.2
LnGrp Delay(d),s/veh	43.0	50.1	39.7	0.5	52.3	29.1
LnGrp LOS	D	D	D	A	D	C
Approach Vol, veh/h	1750			1603	857	
Approach Delay, s/veh	45.4			12.4	40.7	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	36.7	56.3				93.0		27.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	35.0	44.0				86.0		20.0
Max Q Clear Time (g_c+I1), s	28.7	43.9				2.5		23.5
Green Ext Time (p_c), s	1.0	0.1				16.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

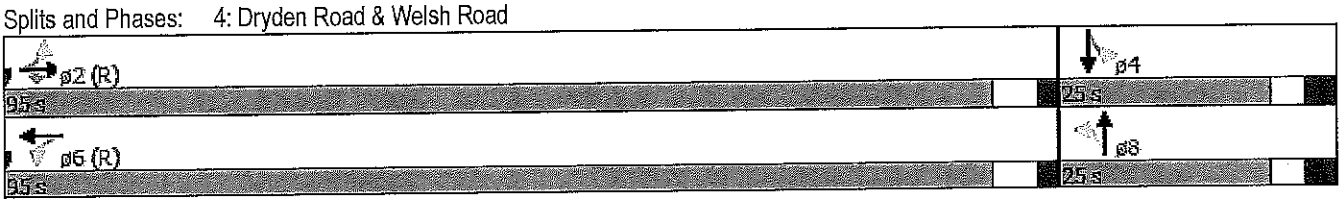
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1613	5	0	1437	0	95	8	9	3	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.921			0.850	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	1688	3403	1640	1688	3370	0	1661	1833	0	1710	1632	0
Flt Permitted							0.757			0.746		
Satd. Flow (perm)	1688	3403	1640	1688	3370	0	1324	1833	0	1343	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			27					9			79	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1663	5	0	1481	0	98	8	9	3	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1663	5	0	1481	0	98	17	0	3	1	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	95.0	95.0	95.0	95.0	95.0		25.0	25.0		25.0	25.0	
Total Split (%)	79.2%	79.2%	79.2%	79.2%	79.2%		20.8%	20.8%		20.8%	20.8%	
Maximum Green (s)	89.0	89.0	89.0	89.0	89.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1613	5	0	1437	0	95	8	9	3	0	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1809	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	0	1663	3	0	1481	0	98	8	9	3	0	1
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	2	2	0	0	0	0	0	0
Cap, veh/h	60	2797	1314	60	2769	0	197	77	86	188	0	151
Arrive On Green	0.00	1.00	1.00	0.00	0.82	0.00	0.09	0.09	0.09	0.09	0.00	0.09
Sat Flow, veh/h	364	3403	1599	304	3458	0	1446	810	911	1418	0	1591
Grp Volume(v), veh/h	0	1663	3	0	1481	0	98	0	17	3	0	1
Grp Sat Flow(s),veh/h/ln	364	1702	1599	304	1685	0	1446	0	1721	1418	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.0	16.8	0.0	7.9	0.0	1.1	0.2	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	16.8	0.0	7.9	0.0	1.1	0.8	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	60	2797	1314	60	2769	0	197	0	163	188	0	151
V/C Ratio(X)	0.00	0.59	0.00	0.00	0.53	0.00	0.50	0.00	0.10	0.02	0.00	0.01
Avail Cap(c_a), veh/h	60	2797	1314	60	2769	0	301	0	287	289	0	265
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.47	0.47	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	3.4	0.0	52.7	0.0	49.9	49.8	0.0	49.6
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.7	0.0	1.9	0.0	0.3	0.0	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(95%),veh/ln	0.0	0.3	0.0	0.0	12.5	0.0	5.9	0.0	1.0	0.2	0.0	0.1
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	4.1	0.0	54.7	0.0	50.2	49.8	0.0	49.7
LnGrp LOS		A	A		A		D		D	D		D
Approach Vol, veh/h		1666			1481			115			4	
Approach Delay, s/veh		0.4			4.1			54.0			49.8	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		103.6		16.4		103.6		16.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		89.0		19.0		89.0		19.0
Max Q Clear Time (g_c+I1), s		2.5		3.3		19.3		10.4
Green Ext Time (p_c), s		22.2		0.3		21.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.1
HCM 2010 LOS	A

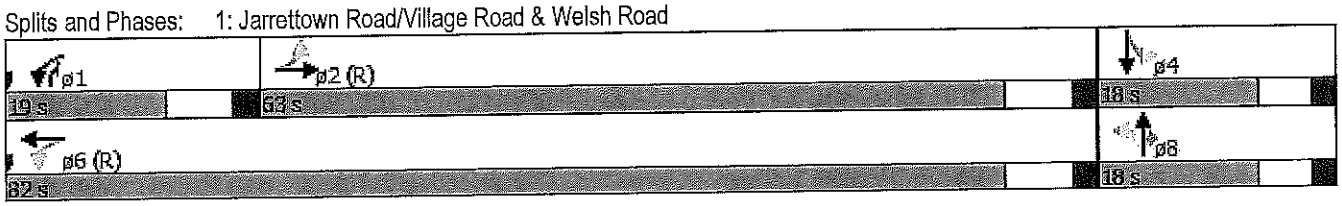
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	603	19	134	563	8	7	2	185	12	2	7
Ideal Flow (vphpi)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.998				0.850		0.953	
Flt Protected	0.950			0.950				0.962			0.973	
Satd. Flow (prot)	1761	1813	0	1612	1907	0	0	1740	1640	0	1827	0
Flt Permitted	0.427			0.310				0.857			0.819	
Satd. Flow (perm)	792	1813	0	526	1907	0	0	1550	1640	0	1538	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2				203		8	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	25%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	11	663	21	147	619	9	8	2	203	13	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	684	0	147	628	0	0	10	203	0	23	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	63.0	63.0		19.0	82.0		18.0	18.0	19.0	18.0	18.0	
Total Split (%)	63.0%	63.0%		19.0%	82.0%		18.0%	18.0%	19.0%	18.0%	18.0%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	56.0	56.0		12.0	75.0		12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 26 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	603	19	134	563	8	7	2	185	12	2	7
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1822	1854	1756	1863	1863	1809	1809	1881	1863	1863	1863
Adj Flow Rate, veh/h	11	663	20	147	619	9	8	2	105	13	2	3
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	1	2	0	0	0	0	0	0	0	0
Cap, veh/h	637	1192	36	537	1458	21	172	37	244	150	26	23
Arrive On Green	0.68	0.68	0.67	0.06	0.80	0.79	0.08	0.09	0.09	0.08	0.09	0.08
Sat Flow, veh/h	835	1760	53	1672	1831	27	1140	393	1599	939	283	244
Grp Volume(v), veh/h	11	0	683	147	0	628	10	0	105	18	0	0
Grp Sat Flow(s),veh/h/ln	835	0	1813	1672	0	1858	1533	0	1599	1466	0	0
Q Serve(g_s), s	0.4	0.0	19.5	2.3	0.0	10.4	0.0	0.0	6.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	19.5	2.3	0.0	10.4	0.5	0.0	6.0	1.0	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.80		1.00	0.72		0.17
Lane Grp Cap(c), veh/h	637	0	1228	537	0	1480	193	0	244	185	0	0
V/C Ratio(X)	0.02	0.00	0.56	0.27	0.00	0.42	0.05	0.00	0.43	0.10	0.00	0.00
Avail Cap(c_a), veh/h	637	0	1228	655	0	1480	248	0	303	237	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	0.0	8.4	6.0	0.0	3.1	41.7	0.0	38.4	41.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.8	0.3	0.0	0.9	0.1	0.0	1.2	0.2	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(95%),veh/ln	0.2	0.0	15.6	2.0	0.0	9.5	0.5	0.0	4.9	0.9	0.0	0.0
LnGrp Delay(d),s/veh	5.3	0.0	10.2	6.3	0.0	4.0	41.8	0.0	39.6	42.1	0.0	0.0
LnGrp LOS	A		B	A		A	D		D	D		
Approach Vol, veh/h		694			775			115			18	
Approach Delay, s/veh		10.1			4.5			39.8			42.1	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	11.9	73.7		14.4		85.6		14.4
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	12.0	56.0		12.0		75.0		12.0
Max Q Clear Time (g_c+I1), s	4.8	21.5		3.0		12.4		8.5
Green Ext Time (p_c), s	0.2	26.5		0.3		40.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

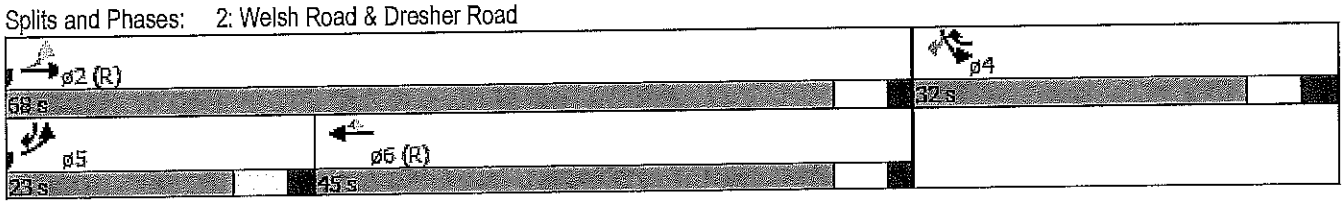
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	150	682	598	382	346	144
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1573	3290	3257	1472	3301	1542
Flt Permitted	0.337				0.950	
Satd. Flow (perm)	558	3290	3257	1472	3301	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				411		131
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	1%	1%	0%	0%	2%
Adj. Flow (vph)	161	733	643	411	372	155
Shared Lane Traffic (%)						
Lane Group Flow (vph)	161	733	643	411	372	155
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	23.0	68.0	45.0	32.0	32.0	23.0
Total Split (%)	23.0%	68.0%	45.0%	32.0%	32.0%	23.0%
Maximum Green (s)	17.0	62.0	39.0	25.0	25.0	17.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	70.4	70.4	55.2	78.8	18.6	34.8
Actuated g/C Ratio	0.70	0.70	0.55	0.79	0.19	0.35
v/c Ratio	0.32	0.32	0.36	0.33	0.61	0.25
Control Delay	6.5	5.5	14.2	2.5	41.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	5.5	14.2	2.5	41.2	6.0
LOS	A	A	B	A	D	A
Approach Delay		5.6	9.6		30.8	
Approach LOS		A	A		C	
Queue Length 50th (ft)	26	65	137	39	113	10
Queue Length 95th (ft)	51	100	158	72	150	46
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	575	2315	1796	1325	858	732
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.32	0.36	0.31	0.43	0.21

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 38 (38%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 12.7 Intersection LOS: B
Intersection Capacity Utilization 50.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Welsh Road & Dresher Road



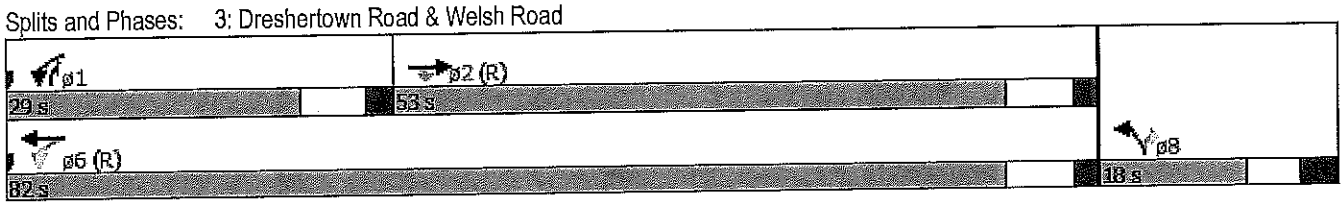
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	854	174	254	809	172	302
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3339	1683	1588	3403	3301	1675
Flt Permitted			0.228		0.950	
Satd. Flow (perm)	3339	1683	381	3403	3301	1675
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		184				76
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	778	
Travel Time (s)	8.3			15.8	13.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	938	191	279	889	189	332
Shared Lane Traffic (%)						
Lane Group Flow (vph)	938	191	279	889	189	332
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	53.0	53.0	29.0	82.0	18.0	29.0
Total Split (%)	53.0%	53.0%	29.0%	82.0%	18.0%	29.0%
Maximum Green (s)	46.0	46.0	22.0	75.0	11.0	22.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	854	174	254	809	172	302
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1872	1791	1791	1791	1863
Adj Flow Rate, veh/h	938	191	279	889	189	246
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	0	0	0	0
Cap, veh/h	2067	952	547	2586	397	351
Arrive On Green	1.00	1.00	0.20	1.00	0.12	0.12
Sat Flow, veh/h	3545	1591	1706	3492	3309	1583
Grp Volume(v), veh/h	938	191	279	889	189	246
Grp Sat Flow(s),veh/h/ln	1727	1591	1706	1701	1655	1583
Q Serve(g_s), s	0.0	0.0	5.9	0.0	5.3	12.0
Cycle Q Clear(g_c), s	0.0	0.0	5.9	0.0	5.3	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2067	952	547	2586	397	351
V/C Ratio(X)	0.45	0.20	0.51	0.34	0.48	0.70
Avail Cap(c_a), veh/h	2067	952	766	2586	397	351
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	4.1	0.0	41.1	35.9
Incr Delay (d2), s/veh	0.7	0.4	0.7	0.3	0.9	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.2	4.9	0.2	4.5	11.2
LnGrp Delay(d),s/veh	0.7	0.4	4.8	0.3	42.0	42.0
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	1129			1168	435	
Approach Delay, s/veh	0.6			1.4	42.0	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.2	65.8				82.0		18.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	22.0	46.0				75.0		11.0
Max Q Clear Time (g_c+I1), s	8.4	2.5				2.5		14.5
Green Ext Time (p_c), s	0.7	8.0				8.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.5
HCM 2010 LOS	A

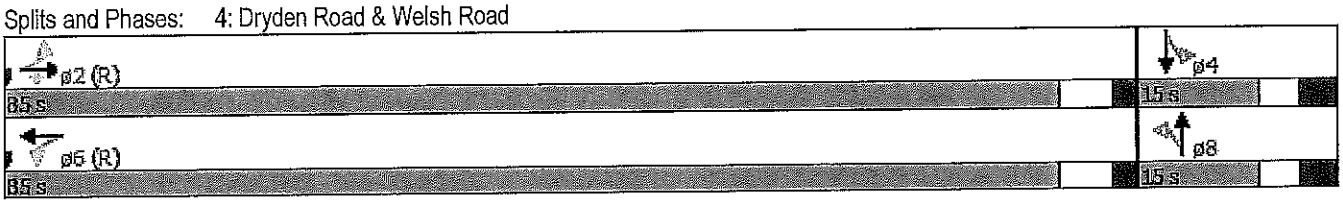
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	1095	3	1	1074	2	1	0	1	2	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3437	1640	1604	3437	0	1661	1691	0	1710	1632	0
Flt Permitted	0.232			0.226								
Satd. Flow (perm)	392	3437	1640	382	3437	0	1749	1691	0	1800	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33		1			147			153	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	1217	3	1	1193	2	1	0	1	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1217	3	1	1195	0	1	1	0	2	2	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		15.0	15.0		15.0	15.0	
Total Split (%)	85.0%	85.0%	85.0%	85.0%	85.0%		15.0%	15.0%		15.0%	15.0%	
Maximum Green (s)	79.0	79.0	79.0	79.0	79.0		9.0	9.0		9.0	9.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1095	3	1	1074	2	1	0	1	2	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1809	1881	1809	1809	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	2	1217	1	1	1193	2	1	0	1	2	0	2
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	465	3033	1411	485	3106	5	98	0	28	97	0	28
Arrive On Green	1.00	1.00	1.00	0.88	0.88	0.87	0.02	0.00	0.01	0.02	0.00	0.01
Sat Flow, veh/h	478	3437	1599	468	3521	6	1445	0	1599	1439	0	1591
Grp Volume(v), veh/h	2	1217	1	1	582	613	1	0	1	2	0	2
Grp Sat Flow(s),veh/h/ln	478	1719	1599	468	1719	1808	1445	0	1599	1439	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.0	6.0	6.0	0.1	0.0	0.1	0.1	0.0	0.1
Cycle Q Clear(g_c), s	6.1	0.0	0.0	0.0	6.0	6.0	0.1	0.0	0.1	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	465	3033	1411	485	1516	1595	98	0	28	97	0	28
V/C Ratio(X)	0.00	0.40	0.00	0.00	0.38	0.38	0.01	0.00	0.04	0.02	0.00	0.07
Avail Cap(c_a), veh/h	465	3033	1411	485	1516	1595	216	0	160	216	0	159
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.7	1.0	1.0	48.3	0.0	48.8	48.3	0.0	48.8
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.7	0.7	0.0	0.0	0.5	0.1	0.0	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(95%),veh/ln	0.0	0.3	0.0	0.0	5.5	5.8	0.1	0.0	0.1	0.1	0.0	0.1
LnGrp Delay(d),s/veh	0.2	0.3	0.0	0.7	1.8	1.7	48.3	0.0	49.3	48.4	0.0	49.9
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1220			1196			2			4	
Approach Delay, s/veh		0.3			1.8			48.8			49.1	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		93.2		6.8		93.2		6.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		79.0		9.0		79.0		9.0
Max Q Clear Time (g_c+I1), s		8.6		2.6		8.5		2.6
Green Ext Time (p_c), s		10.2		0.0		10.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.2
HCM 2010 LOS	A

APPENDIX J

2018 Future with Development
Capacity/Level-of-Service Analysis Worksheets

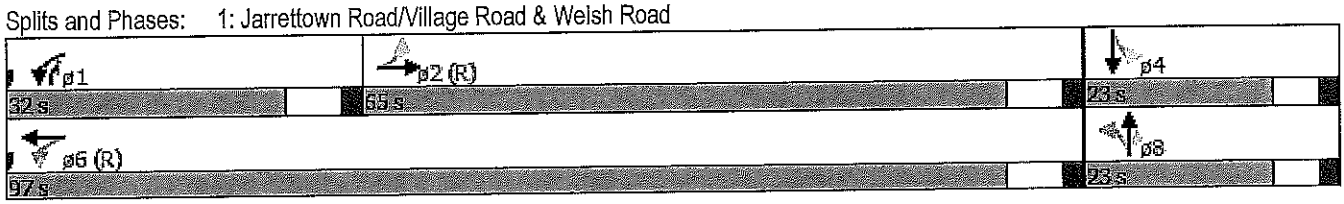
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	873	18	287	678	8	18	59	336	9	19	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.998				0.850		0.932	
Flt Protected	0.950			0.950				0.988			0.992	
Satd. Flow (prot)	1727	1810	0	1612	1852	0	0	1760	1640	0	1731	0
Flt Permitted	0.391			0.086				0.920			0.939	
Satd. Flow (perm)	711	1810	0	146	1852	0	0	1639	1640	0	1639	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1				91		29	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	7%	2%	3%	0%	0%	2%	0%	11%	0%	7%
Adj. Flow (vph)	59	919	19	302	714	8	19	62	354	9	20	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	938	0	302	722	0	0	81	354	0	58	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	65.0	65.0		32.0	97.0		23.0	23.0	32.0	23.0	23.0	
Total Split (%)	54.2%	54.2%		26.7%	80.8%		19.2%	19.2%	26.7%	19.2%	19.2%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	58.0	58.0		25.0	90.0		17.0	17.0	25.0	17.0	17.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	873	18	287	678	8	18	59	336	9	19	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1818	1816	1854	1756	1809	1863	1809	1782	1881	1863	1770	1863
Adj Flow Rate, veh/h	59	919	17	302	714	7	19	62	327	9	20	27
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	3	2	2	0	0	0	0
Cap, veh/h	500	1042	19	351	1356	13	75	217	435	53	101	112
Arrive On Green	0.59	0.59	0.58	0.12	0.76	0.75	0.14	0.15	0.15	0.14	0.15	0.14
Sat Flow, veh/h	751	1777	33	1672	1788	18	256	1448	1599	123	676	744
Grp Volume(v), veh/h	59	0	936	302	0	721	81	0	327	56	0	0
Grp Sat Flow(s),veh/h/ln	751	0	1810	1672	0	1806	1704	0	1599	1543	0	0
Q Serve(g_s), s	4.2	0.0	53.2	10.3	0.0	19.3	0.0	0.0	18.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	0.0	53.2	10.3	0.0	19.3	4.9	0.0	18.0	3.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.01	0.23		1.00	0.16		0.48
Lane Grp Cap(c), veh/h	500	0	1061	351	0	1369	278	0	435	253	0	0
V/C Ratio(X)	0.12	0.00	0.88	0.86	0.00	0.53	0.29	0.00	0.75	0.22	0.00	0.00
Avail Cap(c_a), veh/h	500	0	1061	509	0	1369	278	0	435	253	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.2	0.0	21.3	29.9	0.0	5.8	45.5	0.0	40.0	45.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	10.6	9.8	0.0	1.5	0.6	0.0	7.2	0.4	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(95%),veh/ln	1.7	0.0	38.3	15.9	0.0	15.1	4.4	0.0	16.2	3.0	0.0	0.0
LnGrp Delay(d),s/veh	11.6	0.0	31.8	39.7	0.0	7.3	46.1	0.0	47.2	45.6	0.0	0.0
LnGrp LOS	B		C	D		A	D		D	D		
Approach Vol, veh/h		995			1023			408			56	
Approach Delay, s/veh		30.6			16.9			46.9			45.6	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	20.6	76.4		23.0		97.0		23.0
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	25.0	58.0		17.0		90.0		17.0
Max Q Clear Time (g_c+I1), s	12.8	55.2		5.7		21.3		20.5
Green Ext Time (p_c), s	0.8	2.8		1.4		57.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

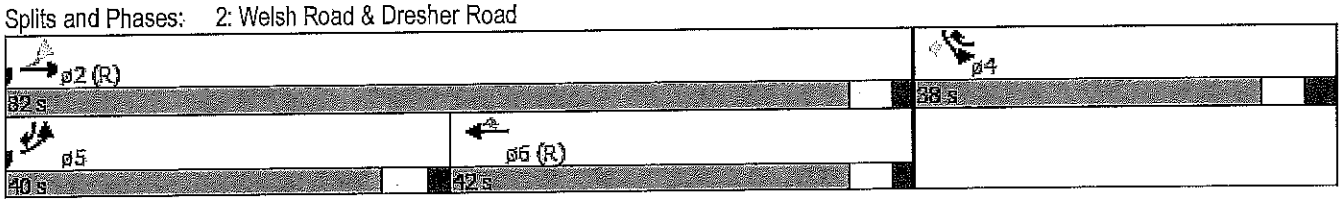
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	413	835	712	599	679	310
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1588	3290	3194	1443	3268	1542
Flt Permitted	0.202				0.950	
Satd. Flow (perm)	338	3290	3194	1443	3268	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				228		40
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	3%	2%	1%	2%
Adj. Flow (vph)	439	888	757	637	722	330
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	888	757	637	722	330
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	40.0	82.0	42.0	38.0	38.0	40.0
Total Split (%)	33.3%	68.3%	35.0%	31.7%	31.7%	33.3%
Maximum Green (s)	34.0	76.0	36.0	31.0	31.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	77.8	77.8	43.6	79.8	31.2	66.4
Actuated g/C Ratio	0.65	0.65	0.36	0.66	0.26	0.55
v/c Ratio	0.84	0.42	0.65	0.62	0.85	0.38
Control Delay	26.2	6.2	38.2	13.1	52.9	13.6
Queue Delay	0.0	0.1	0.0	0.4	0.0	0.0
Total Delay	26.2	6.2	38.2	13.4	52.9	13.6
LOS	C	A	D	B	D	B
Approach Delay		12.8	26.9		40.6	
Approach LOS		B	C		D	
Queue Length 50th (ft)	154	84	286	203	272	110
Queue Length 95th (ft)	m226	m99	367	364	347	160
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	583	2134	1160	1044	871	943
Starvation Cap Reductn	0	0	0	100	0	0
Spillback Cap Reductn	0	222	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.46	0.65	0.67	0.83	0.35

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 25.8 Intersection LOS: C
Intersection Capacity Utilization 78.7% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Welsh Road & Dresher Road



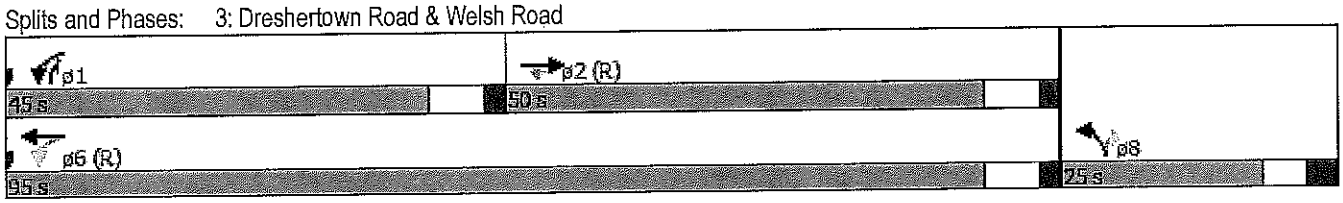
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (vph)	956	558	421	1012	300	384
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3306	1650	1542	3304	3174	1626
Flt Permitted			0.163		0.950	
Satd. Flow (perm)	3306	1650	265	3304	3174	1626
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		367				30
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	600	
Travel Time (s)	8.3			15.8	10.2	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	3%	3%	4%	3%
Adj. Flow (vph)	976	569	430	1033	306	392
Shared Lane Traffic (%)						
Lane Group Flow (vph)	976	569	430	1033	306	392
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	50.0	50.0	45.0	95.0	25.0	45.0
Total Split (%)	41.7%	41.7%	37.5%	79.2%	20.8%	37.5%
Maximum Green (s)	43.0	43.0	38.0	88.0	18.0	38.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	956	558	421	1012	300	384
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1836	1739	1739	1722	1808
Adj Flow Rate, veh/h	976	525	430	1033	306	309
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	3	3	3	4	3
Cap, veh/h	1799	821	515	2450	504	498
Arrive On Green	1.00	1.00	0.33	1.00	0.16	0.16
Sat Flow, veh/h	3510	1560	1656	3391	3182	1537
Grp Volume(v), veh/h	976	525	430	1033	306	309
Grp Sat Flow(s),veh/h/ln	1710	1560	1656	1652	1591	1537
Q Serve(g_s), s	0.0	0.0	14.9	0.0	10.7	19.0
Cycle Q Clear(g_c), s	0.0	0.0	14.9	0.0	10.7	19.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1799	821	515	2450	504	498
V/C Ratio(X)	0.54	0.64	0.84	0.42	0.61	0.62
Avail Cap(c_a), veh/h	1799	821	779	2450	504	498
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.85	0.85	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	6.8	0.0	47.0	34.3
Incr Delay (d2), s/veh	0.9	2.9	4.3	0.5	2.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	1.2	11.2	0.3	8.5	13.9
LnGrp Delay(d),s/veh	0.9	2.9	11.1	0.5	49.1	36.7
LnGrp LOS	A	A	B	A	D	D
Approach Vol, veh/h	1501			1463	615	
Approach Delay, s/veh	1.6			3.6	42.9	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	25.9	69.1				95.0		25.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	38.0	43.0				88.0		18.0
Max Q Clear Time (g_c+I1), s	17.4	2.5				2.5		21.5
Green Ext Time (p_c), s	1.4	11.7				12.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.5
HCM 2010 LOS	A

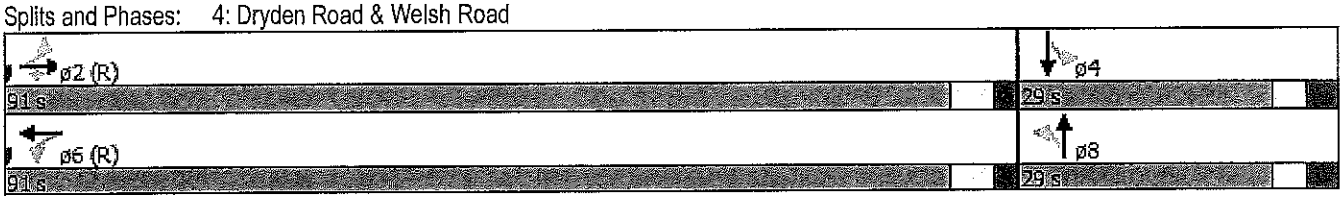
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1251	98	63	1491	1	5	0	11	2	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3403	1640	1573	3370	0	1661	1691	0	1710	1920	0
Flt Permitted	0.141			0.191			0.757			0.750		
Satd. Flow (perm)	238	3403	1640	316	3370	0	1324	1691	0	1350	1920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105					90				
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	1345	105	68	1603	1	5	0	12	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1345	105	68	1604	0	5	12	0	2	0	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		21.0	21.0		21.0	21.0	
Total Split (s)	91.0	91.0	91.0	91.0	91.0		29.0	29.0		29.0	29.0	
Total Split (%)	75.8%	75.8%	75.8%	75.8%	75.8%		24.2%	24.2%		24.2%	24.2%	
Maximum Green (s)	85.0	85.0	85.0	85.0	85.0		23.0	23.0		23.0	23.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 62 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	1251	98	63	1491	1	5	0	11	2	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1774	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	1	1345	103	68	1603	1	5	0	12	2	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	2	2	2	0	0	0	0	0	0
Cap, veh/h	293	2892	1359	373	2936	2	157	0	107	151	125	0
Arrive On Green	1.00	1.00	1.00	0.85	0.85	0.84	0.07	0.00	0.06	0.07	0.00	0.00
Sat Flow, veh/h	323	3403	1599	368	3456	2	1447	0	1599	1424	1872	0
Grp Volume(v), veh/h	1	1345	103	68	781	823	5	0	12	2	0	0
Grp Sat Flow(s),veh/h/ln	323	1702	1599	368	1685	1773	1447	0	1599	1424	1872	0
Q Serve(g_s), s	0.1	0.0	0.0	4.1	15.6	15.6	0.4	0.0	0.9	0.2	0.0	0.0
Cycle Q Clear(g_c), s	15.7	0.0	0.0	4.1	15.6	15.6	0.4	0.0	0.9	0.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	293	2892	1359	373	1432	1507	157	0	107	151	125	0
V/C Ratio(X)	0.00	0.47	0.08	0.18	0.55	0.55	0.03	0.00	0.11	0.01	0.00	0.00
Avail Cap(c_a), veh/h	293	2892	1359	373	1432	1507	349	0	320	341	374	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.2	0.0	0.0	1.7	2.5	2.5	52.4	0.0	53.1	52.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.1	1.1	1.5	1.4	0.1	0.0	0.5	0.0	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(95%),veh/ln	0.0	0.3	0.1	0.9	12.0	12.5	0.3	0.0	0.7	0.1	0.0	0.0
LnGrp Delay(d),s/veh	1.2	0.4	0.1	2.7	4.0	4.0	52.5	0.0	53.6	52.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D		D	D		
Approach Vol, veh/h		1449			1672			17			2	
Approach Delay, s/veh		0.4			3.9			53.2			52.7	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		107.0		13.0		107.0		13.0
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		85.0		23.0		85.0		23.0
Max Q Clear Time (g_c+I1), s		18.2		3.0		18.1		2.9
Green Ext Time (p_c), s		19.8		0.0		19.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	2.6
HCM 2010 LOS	A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	7	11	675	4	6	973
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	0%		1%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.917		0.999			
Flt Protected	0.981					
Satd. Flow (prot)	1587	0	1737	0	0	1748
Flt Permitted	0.981					
Satd. Flow (perm)	1587	0	1737	0	0	1748
Link Speed (mph)	25		40			40
Link Distance (ft)	425		608			600
Travel Time (s)	11.6		10.4			10.2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	3%	2%	2%	3%
Adj. Flow (vph)	7	11	689	4	6	993
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	693	0	0	999
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	7	11	675	4	6	973
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	1	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	3	2	2	3
Mvmt Flow	7	11	689	4	6	993

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1696	691	0	0	693	0
Stage 1	691	-	-	-	-	-
Stage 2	1005	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	109	467	-	-	690	-
Stage 1	558	-	-	-	-	-
Stage 2	390	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	107	467	-	-	690	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	558	-	-	-	-	-
Stage 2	383	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.6	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	202	690	-
HCM Lane V/C Ratio	-	-	0.091	0.009	-
HCM Control Delay (s)	-	-	24.6	10.3	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

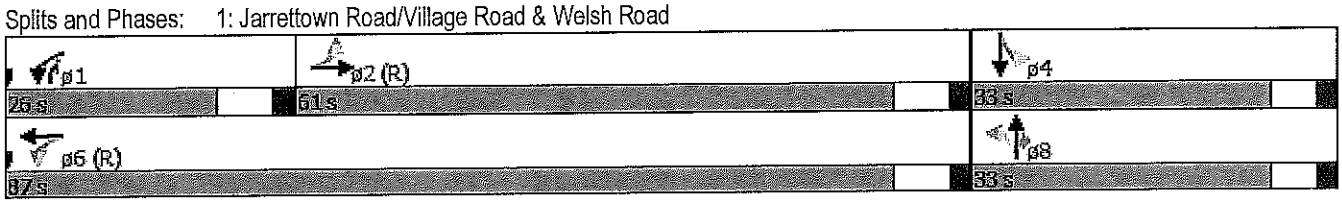
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	799	29	262	980	14	21	20	263	41	91	105
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.998				0.850		0.940	
Flt Protected	0.950			0.950				0.975			0.991	
Satd. Flow (prot)	1761	1827	0	1645	1907	0	0	1764	1640	0	1826	0
Flt Permitted	0.229			0.086				0.650			0.935	
Satd. Flow (perm)	425	1827	0	149	1907	0	0	1176	1640	0	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1				98		31	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	22	832	30	273	1021	15	22	21	274	43	95	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	862	0	273	1036	0	0	43	274	0	247	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	61.0	61.0		26.0	87.0		33.0	33.0	26.0	33.0	33.0	
Total Split (%)	50.8%	50.8%		21.7%	72.5%		27.5%	27.5%	21.7%	27.5%	27.5%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	54.0	54.0		19.0	80.0		27.0	27.0	19.0	27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	799	29	262	980	14	21	20	263	41	91	105
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1836	1854	1791	1863	1863	1809	1809	1881	1863	1853	1863
Adj Flow Rate, veh/h	22	832	29	273	1021	14	22	21	253	43	95	95
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	286	1040	36	363	1339	18	127	108	430	75	130	116
Arrive On Green	0.59	0.59	0.58	0.09	0.73	0.72	0.17	0.18	0.18	0.17	0.18	0.17
Sat Flow, veh/h	570	1764	61	1706	1833	25	457	605	1599	219	732	655
Grp Volume(v), veh/h	22	0	861	273	0	1035	43	0	253	233	0	0
Grp Sat Flow(s),veh/h/ln	570	0	1825	1706	0	1858	1062	0	1599	1605	0	0
Q Serve(g_s), s	2.9	0.0	44.0	6.8	0.0	40.7	0.0	0.0	16.5	11.9	0.0	0.0
Cycle Q Clear(g_c), s	26.2	0.0	44.0	6.8	0.0	40.7	3.0	0.0	16.5	16.8	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.51		1.00	0.18		0.41
Lane Grp Cap(c), veh/h	286	0	1076	363	0	1357	225	0	430	308	0	0
V/C Ratio(X)	0.08	0.00	0.80	0.75	0.00	0.76	0.19	0.00	0.59	0.76	0.00	0.00
Avail Cap(c_a), veh/h	286	0	1076	491	0	1357	306	0	519	395	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.8	0.0	19.2	21.4	0.0	9.8	41.8	0.0	38.1	47.6	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	6.3	4.4	0.0	4.1	0.4	0.0	1.3	6.2	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(95%),veh/ln	0.9	0.0	31.9	10.0	0.0	29.6	2.3	0.0	11.9	12.8	0.0	0.0
LnGrp Delay(d),s/veh	23.3	0.0	25.4	25.8	0.0	13.9	42.2	0.0	39.4	53.8	0.0	0.0
LnGrp LOS	C		C	C		B	D		D	D		
Approach Vol, veh/h		883			1308			296			233	
Approach Delay, s/veh		25.4			16.4			39.8			53.8	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	16.9	76.7		26.3		93.7		26.3
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	19.0	54.0		27.0		80.0		27.0
Max Q Clear Time (g_c+I1), s	9.3	46.0		18.8		42.7		19.0
Green Ext Time (p_c), s	0.6	7.9		1.4		35.5		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

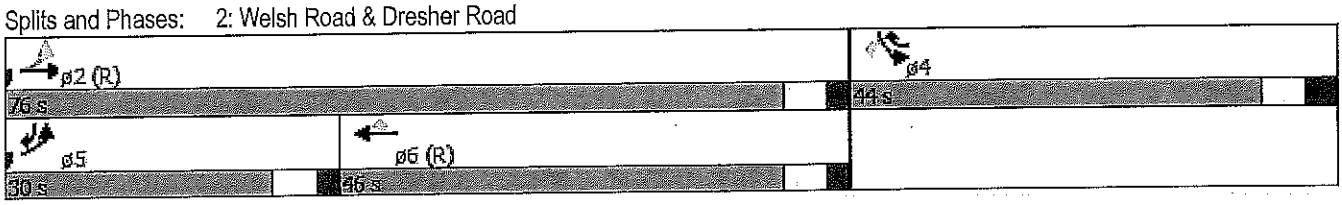
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	306	852	907	583	867	413
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1588	3257	3257	1457	3268	1558
Flt Permitted	0.120				0.950	
Satd. Flow (perm)	201	3257	3257	1457	3268	1558
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				211		25
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	1%	1%	1%	1%
Adj. Flow (vph)	322	897	955	614	913	435
Shared Lane Traffic (%)						
Lane Group Flow (vph)	322	897	955	614	913	435
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	30.0	76.0	46.0	44.0	44.0	30.0
Total Split (%)	25.0%	63.3%	38.3%	36.7%	36.7%	25.0%
Maximum Green (s)	24.0	70.0	40.0	37.0	37.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	71.6	71.6	44.1	86.5	37.4	65.9
Actuated g/C Ratio	0.60	0.60	0.37	0.72	0.31	0.55
v/c Ratio	0.85	0.46	0.80	0.55	0.90	0.50
Control Delay	34.4	17.8	37.5	6.5	51.9	17.6
Queue Delay	0.0	0.1	0.1	0.3	0.0	0.1
Total Delay	34.4	17.9	37.6	6.8	51.9	17.6
LOS	C	B	D	A	D	B
Approach Delay		22.2	25.6		40.8	
Approach LOS		C	C		D	
Queue Length 50th (ft)	170	286	305	132	344	177
Queue Length 95th (ft)	m211	m318	401	203	#456	261
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	408	1943	1196	1115	1034	899
Starvation Cap Reductn	0	0	12	131	0	0
Spillback Cap Reductn	0	215	0	0	0	27
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.52	0.81	0.62	0.88	0.50

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 77 (64%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 29.6 Intersection LOS: C
Intersection Capacity Utilization 83.8% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Welsh Road & Dresher Road



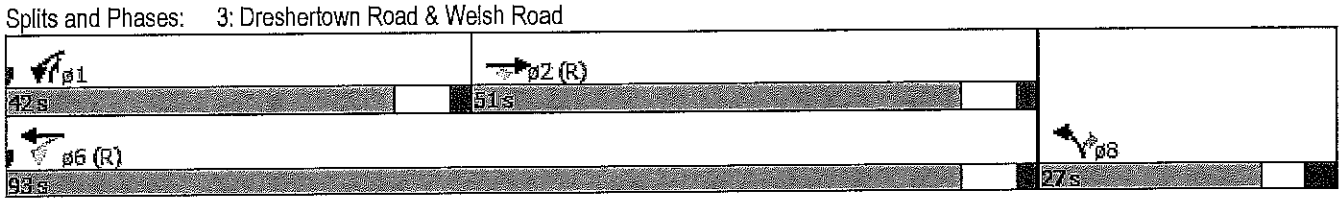
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1129	590	468	1072	418	456
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3274	1683	1557	3369	3268	1626
Flt Permitted			0.075		0.950	
Satd. Flow (perm)	3274	1683	123	3369	3268	1626
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		334				15
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	582	
Travel Time (s)	8.3			15.8	9.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	2%	1%	1%	3%
Adj. Flow (vph)	1176	615	488	1117	435	475
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1176	615	488	1117	435	475
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	51.0	51.0	42.0	93.0	27.0	42.0
Total Split (%)	42.5%	42.5%	35.0%	77.5%	22.5%	35.0%
Maximum Green (s)	44.0	44.0	35.0	86.0	20.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 29 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	1129	590	468	1072	418	456
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1872	1756	1773	1773	1808
Adj Flow Rate, veh/h	1176	589	488	1117	435	429
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	2	1	1	3
Cap, veh/h	1417	666	514	2443	573	664
Arrive On Green	0.28	0.28	0.51	1.00	0.17	0.17
Sat Flow, veh/h	3476	1591	1672	3458	3276	1537
Grp Volume(v), veh/h	1176	589	488	1117	435	429
Grp Sat Flow(s),veh/h/ln	1693	1591	1672	1685	1638	1537
Q Serve(g_s), s	39.1	42.5	26.3	0.0	15.2	21.0
Cycle Q Clear(g_c), s	39.1	42.5	26.3	0.0	15.2	21.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1417	666	514	2443	573	664
V/C Ratio(X)	0.83	0.88	0.95	0.46	0.76	0.65
Avail Cap(c_a), veh/h	1417	666	587	2443	573	664
HCM Platoon Ratio	0.67	0.67	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	0.81	0.81	1.00	1.00
Uniform Delay (d), s/veh	39.2	40.4	19.2	0.0	47.1	26.9
Incr Delay (d2), s/veh	4.0	11.5	20.5	0.5	5.8	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	25.0	27.0	23.8	0.3	11.8	17.2
LnGrp Delay(d),s/veh	43.2	51.9	39.7	0.5	52.9	29.1
LnGrp LOS	D	D	D	A	D	C
Approach Vol, veh/h	1765			1605	864	
Approach Delay, s/veh	46.1			12.4	41.1	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	36.8	56.2				93.0		27.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	35.0	44.0				86.0		20.0
Max Q Clear Time (g_c+I1), s	28.8	45.0				2.5		23.5
Green Ext Time (p_c), s	1.0	0.0				16.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

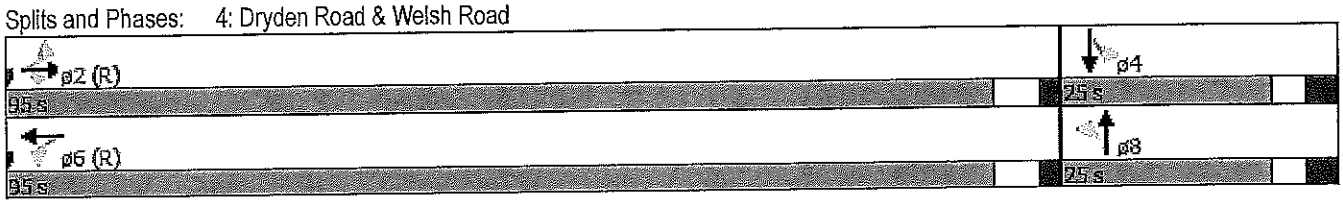
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1613	8	11	1437	0	97	8	16	3	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.900			0.850	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	1688	3403	1640	1604	3370	0	1661	1791	0	1710	1632	0
Flt Permitted				0.118			0.757			0.742		
Satd. Flow (perm)	1688	3403	1640	199	3370	0	1324	1791	0	1336	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			27					16			79	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1663	8	11	1481	0	100	8	16	3	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1663	8	11	1481	0	100	24	0	3	1	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	95.0	95.0	95.0	95.0	95.0		25.0	25.0		25.0	25.0	
Total Split (%)	79.2%	79.2%	79.2%	79.2%	79.2%		20.8%	20.8%		20.8%	20.8%	
Maximum Green (s)	89.0	89.0	89.0	89.0	89.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1613	8	11	1437	0	97	8	16	3	0	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1809	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	0	1663	6	11	1481	0	100	8	16	3	0	1
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	2	2	0	0	0	0	0	0
Cap, veh/h	60	2790	1311	309	2763	0	200	54	109	184	0	154
Arrive On Green	0.00	1.00	1.00	0.82	0.82	0.00	0.10	0.10	0.09	0.10	0.00	0.09
Sat Flow, veh/h	364	3403	1599	303	3458	0	1446	561	1122	1409	0	1591
Grp Volume(v), veh/h	0	1663	6	11	1481	0	100	0	24	3	0	1
Grp Sat Flow(s),veh/h/ln	364	1702	1599	303	1685	0	1446	0	1683	1409	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.8	16.9	0.0	8.1	0.0	1.6	0.2	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.8	16.9	0.0	8.1	0.0	1.6	1.3	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	60	2790	1311	309	2763	0	200	0	163	184	0	154
V/C Ratio(X)	0.00	0.60	0.00	0.04	0.54	0.00	0.50	0.00	0.15	0.02	0.00	0.01
Avail Cap(c_a), veh/h	60	2790	1311	309	2763	0	301	0	281	282	0	265
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.47	0.47	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	2.0	3.5	0.0	52.6	0.0	50.0	50.0	0.0	49.4
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.2	0.8	0.0	1.9	0.0	0.4	0.0	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(95%),veh/ln	0.0	0.3	0.0	0.2	12.5	0.0	6.0	0.0	1.3	0.2	0.0	0.1
LnGrp Delay(d),s/veh	0.0	0.4	0.0	2.2	4.2	0.0	54.5	0.0	50.4	50.1	0.0	49.5
LnGrp LOS		A	A	A	A		D		D	D		D
Approach Vol, veh/h		1669			1492			124			4	
Approach Delay, s/veh		0.4			4.2			53.7			49.9	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		103.4		16.6		103.4		16.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		89.0		19.0		89.0		19.0
Max Q Clear Time (g_c+I1), s		2.5		3.8		19.4		10.6
Green Ext Time (p_c), s		23.0		0.3		22.2		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.2
HCM 2010 LOS	A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	3	7	867	6	11	1046
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	0%		1%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905		0.999			
Flt Protected	0.985					
Satd. Flow (prot)	1573	0	1754	0	0	1765
Flt Permitted	0.985					
Satd. Flow (perm)	1573	0	1754	0	0	1765
Link Speed (mph)	25		40			40
Link Distance (ft)	415		379			582
Travel Time (s)	11.3		6.5			9.9
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	3	7	903	6	11	1090
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	909	0	0	1101
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	3	7	867	6	11	1046
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	1	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	7	903	6	11	1090

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2019	906	0	0	909	0
Stage 1	906	-	-	-	-	-
Stage 2	1113	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	68	350	-	-	578	-
Stage 1	437	-	-	-	-	-
Stage 2	345	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	65	350	-	-	578	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	328	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.6	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	151	578	-
HCM Lane V/C Ratio	-	-	0.069	0.02	-
HCM Control Delay (s)	-	-	30.6	11.4	0
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	605	19	135	565	8	7	2	186	12	2	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.998				0.850		0.953	
Flt Protected	0.950			0.950				0.962			0.973	
Satd. Flow (prot)	1761	1813	0	1612	1907	0	0	1740	1640	0	1827	0
Flt Permitted	0.426			0.309				0.857			0.819	
Satd. Flow (perm)	790	1813	0	524	1907	0	0	1550	1640	0	1538	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2				204		8	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	25%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	11	665	21	148	621	9	8	2	204	13	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	686	0	148	630	0	0	10	204	0	23	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	63.0	63.0		19.0	82.0		18.0	18.0	19.0	18.0	18.0	
Total Split (%)	63.0%	63.0%		19.0%	82.0%		18.0%	18.0%	19.0%	18.0%	18.0%	

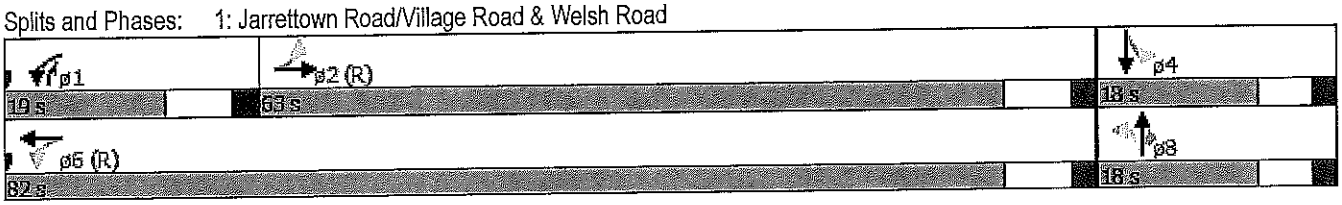
1: Jarrettown Road/Village Road & Welsh Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	56.0	56.0		12.0	75.0		12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 26 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	605	19	135	565	8	7	2	186	12	2	7
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1822	1854	1756	1863	1863	1809	1809	1881	1863	1863	1863
Adj Flow Rate, veh/h	11	665	20	148	621	9	8	2	106	13	2	3
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	1	2	0	0	0	0	0	0	0	0
Cap, veh/h	635	1190	36	535	1457	21	172	37	246	150	27	23
Arrive On Green	0.68	0.68	0.67	0.06	0.80	0.79	0.08	0.09	0.09	0.08	0.09	0.08
Sat Flow, veh/h	833	1760	53	1672	1831	27	1141	392	1599	939	282	244
Grp Volume(v), veh/h	11	0	685	148	0	630	10	0	106	18	0	0
Grp Sat Flow(s),veh/h/ln	833	0	1813	1672	0	1858	1533	0	1599	1464	0	0
Q Serve(g_s), s	0.4	0.0	19.7	2.3	0.0	10.5	0.0	0.0	6.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	19.7	2.3	0.0	10.5	0.5	0.0	6.0	1.0	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.80		1.00	0.72		0.17
Lane Grp Cap(c), veh/h	635	0	1226	535	0	1479	194	0	246	185	0	0
V/C Ratio(X)	0.02	0.00	0.56	0.28	0.00	0.43	0.05	0.00	0.43	0.10	0.00	0.00
Avail Cap(c_a), veh/h	635	0	1226	653	0	1479	248	0	303	236	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	0.0	8.4	6.1	0.0	3.2	41.6	0.0	38.3	41.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.8	0.3	0.0	0.9	0.1	0.0	1.2	0.2	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(95%),veh/ln	0.2	0.0	15.6	2.0	0.0	9.5	0.5	0.0	4.9	0.9	0.0	0.0
LnGrp Delay(d),s/veh	5.4	0.0	10.3	6.3	0.0	4.1	41.7	0.0	39.5	42.1	0.0	0.0
LnGrp LOS	A		B	A		A	D		D	D		
Approach Vol, veh/h		696			778			116			18	
Approach Delay, s/veh		10.2			4.5			39.7			42.1	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	12.0	73.6		14.4		85.6		14.4
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	12.0	56.0		12.0		75.0		12.0
Max Q Clear Time (g_c+I1), s	4.8	21.7		3.0		12.5		8.5
Green Ext Time (p_c), s	0.2	26.4		0.3		41.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

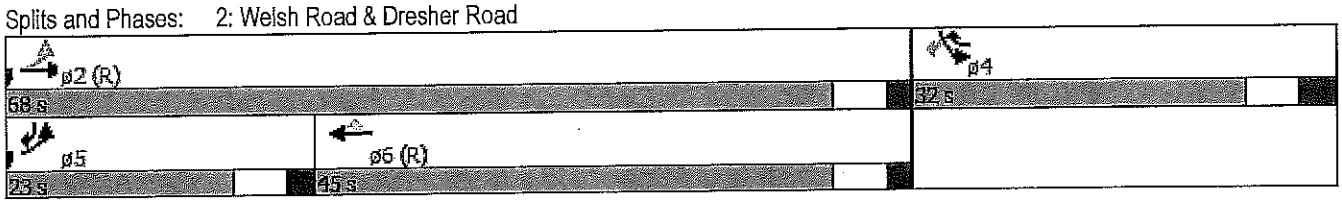
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	150	685	601	385	348	144
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1573	3290	3257	1472	3301	1542
Flt Permitted	0.336				0.950	
Satd. Flow (perm)	556	3290	3257	1472	3301	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				414		129
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	1%	1%	0%	0%	2%
Adj. Flow (vph)	161	737	646	414	374	155
Shared Lane Traffic (%)						
Lane Group Flow (vph)	161	737	646	414	374	155
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	23.0	68.0	45.0	32.0	32.0	23.0
Total Split (%)	23.0%	68.0%	45.0%	32.0%	32.0%	23.0%
Maximum Green (s)	17.0	62.0	39.0	25.0	25.0	17.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	70.3	70.3	55.1	78.8	18.7	34.9
Actuated g/C Ratio	0.70	0.70	0.55	0.79	0.19	0.35
v/c Ratio	0.33	0.32	0.36	0.33	0.61	0.25
Control Delay	6.5	5.5	14.3	2.5	41.2	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	5.5	14.3	2.5	41.2	6.1
LOS	A	A	B	A	D	A
Approach Delay		5.7	9.7		30.9	
Approach LOS		A	A		C	
Queue Length 50th (ft)	26	65	139	38	113	11
Queue Length 95th (ft)	52	101	159	72	151	46
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	574	2314	1795	1325	858	731
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.32	0.36	0.31	0.44	0.21

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 38 (38%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 50.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Welsh Road & Dresher Road



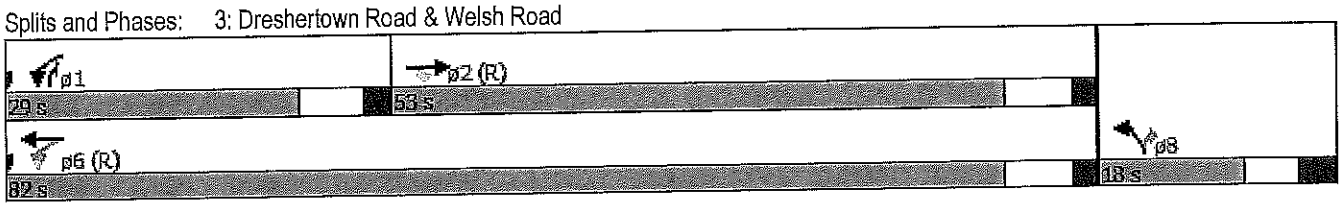
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	855	178	254	810	177	302
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3339	1683	1588	3403	3301	1675
Flt Permitted			0.227		0.950	
Satd. Flow (perm)	3339	1683	379	3403	3301	1675
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		188				76
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	600	
Travel Time (s)	8.3			15.8	10.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	940	196	279	890	195	332
Shared Lane Traffic (%)						
Lane Group Flow (vph)	940	196	279	890	195	332
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	53.0	53.0	29.0	82.0	18.0	29.0
Total Split (%)	53.0%	53.0%	29.0%	82.0%	18.0%	29.0%
Maximum Green (s)	46.0	46.0	22.0	75.0	11.0	22.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	855	178	254	810	177	302
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1872	1791	1791	1791	1863
Adj Flow Rate, veh/h	940	196	279	890	195	246
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	0	0	0	0
Cap, veh/h	2067	952	545	2586	397	351
Arrive On Green	1.00	1.00	0.20	1.00	0.12	0.12
Sat Flow, veh/h	3545	1591	1706	3492	3309	1583
Grp Volume(v), veh/h	940	196	279	890	195	246
Grp Sat Flow(s),veh/h/ln	1727	1591	1706	1701	1655	1583
Q Serve(g_s), s	0.0	0.0	5.9	0.0	5.5	12.0
Cycle Q Clear(g_c), s	0.0	0.0	5.9	0.0	5.5	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2067	952	545	2586	397	351
V/C Ratio(X)	0.45	0.21	0.51	0.34	0.49	0.70
Avail Cap(c_a), veh/h	2067	952	764	2586	397	351
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	4.1	0.0	41.1	35.9
Incr Delay (d2), s/veh	0.7	0.4	0.7	0.3	0.9	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.2	4.9	0.2	4.6	11.2
LnGrp Delay(d),s/veh	0.7	0.4	4.8	0.3	42.1	42.0
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	1136			1169	441	
Approach Delay, s/veh	0.6			1.4	42.0	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.2	65.8				82.0		18.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	22.0	46.0				75.0		11.0
Max Q Clear Time (g_c+I1), s	8.4	2.5				2.5		14.5
Green Ext Time (p_c), s	0.7	8.0				8.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.6
HCM 2010 LOS	A

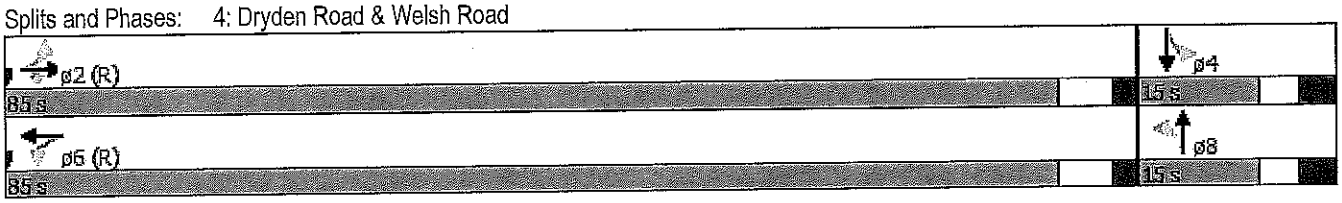
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	1095	4	6	1074	2	2	0	6	2	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3437	1640	1604	3437	0	1661	1691	0	1710	1632	0
Flt Permitted	0.232			0.226								
Satd. Flow (perm)	392	3437	1640	382	3437	0	1749	1691	0	1800	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33		1			147			153	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	1217	4	7	1193	2	2	0	7	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1217	4	7	1195	0	2	7	0	2	2	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		15.0	15.0		15.0	15.0	
Total Split (%)	85.0%	85.0%	85.0%	85.0%	85.0%		15.0%	15.0%		15.0%	15.0%	
Maximum Green (s)	79.0	79.0	79.0	79.0	79.0		9.0	9.0		9.0	9.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1095	4	6	1074	2	2	0	6	2	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1809	1881	1809	1809	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	2	1217	2	7	1193	2	2	0	7	2	0	2
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	460	3007	1399	481	3080	5	108	0	40	108	0	40
Arrive On Green	1.00	1.00	1.00	0.87	0.87	0.86	0.03	0.00	0.02	0.03	0.00	0.02
Sat Flow, veh/h	478	3437	1599	467	3521	6	1445	0	1599	1431	0	1591
Grp Volume(v), veh/h	2	1217	2	7	582	613	2	0	7	2	0	2
Grp Sat Flow(s),veh/h/ln	478	1719	1599	467	1719	1808	1445	0	1599	1431	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.2	6.4	6.4	0.1	0.0	0.4	0.1	0.0	0.1
Cycle Q Clear(g_c), s	6.4	0.0	0.0	0.2	6.4	6.4	0.1	0.0	0.4	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	460	3007	1399	481	1503	1582	108	0	40	108	0	40
V/C Ratio(X)	0.00	0.40	0.00	0.01	0.39	0.39	0.02	0.00	0.17	0.02	0.00	0.05
Avail Cap(c_a), veh/h	460	3007	1399	481	1503	1582	216	0	160	215	0	159
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.8	1.2	1.2	47.6	0.0	48.2	47.6	0.0	48.1
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.1	0.8	0.7	0.1	0.0	2.0	0.1	0.0	0.5
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(95%),veh/ln	0.0	0.3	0.0	0.1	5.8	6.1	0.1	0.0	0.4	0.1	0.0	0.1
LnGrp Delay(d),s/veh	0.3	0.3	0.0	0.9	1.9	1.9	47.6	0.0	50.2	47.7	0.0	48.6
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1221			1202			9			4	
Approach Delay, s/veh		0.3			1.9			49.7			48.1	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		92.5		7.5		92.5		7.5
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		79.0		9.0		79.0		9.0
Max Q Clear Time (g_c+I1), s		8.9		2.6		8.9		2.6
Green Ext Time (p_c), s		10.3		0.0		10.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.4
HCM 2010 LOS	A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	3	5	474	2	4	428
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	0%		1%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.916		0.999			
Flt Protected	0.982					
Satd. Flow (prot)	1587	0	1789	0	0	1800
Flt Permitted	0.982					
Satd. Flow (perm)	1587	0	1789	0	0	1800
Link Speed (mph)	25		40			40
Link Distance (ft)	431		648			600
Travel Time (s)	11.8		11.0			10.2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	0%	2%	2%	0%
Adj. Flow (vph)	3	5	521	2	4	470
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	523	0	0	474
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	3	5	474	2	4	428
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	1	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	0	2	2	0
Mvmt Flow	3	5	521	2	4	470

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1001	522	0	0	523	0
Stage 1	522	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	297	585	-	-	793	-
Stage 1	674	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	295	585	-	-	793	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	703	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	793	-
HCM Lane V/C Ratio	-	-	0.021	0.006	-
HCM Control Delay (s)	-	-	13.6	9.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

APPENDIX K

2023 Future without Development
Capacity/Level-of-Service Analysis Worksheets

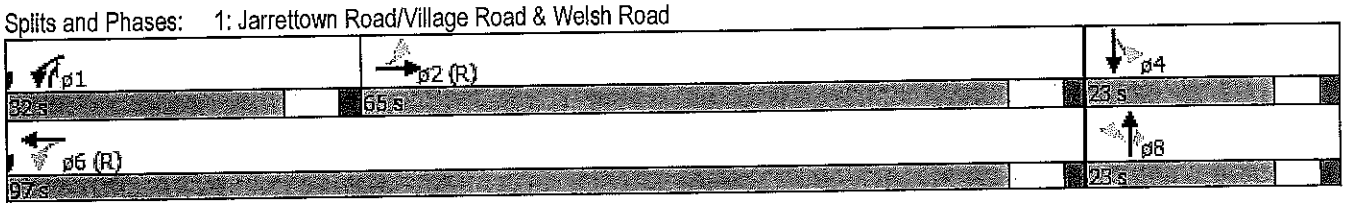
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	898	19	294	694	8	19	61	337	9	20	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.998				0.850		0.934	
Flt Protected	0.950			0.950				0.988			0.992	
Satd. Flow (prot)	1727	1810	0	1612	1852	0	0	1760	1640	0	1736	0
Flt Permitted	0.385			0.065				0.918			0.940	
Satd. Flow (perm)	700	1810	0	110	1852	0	0	1636	1640	0	1645	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			1				84		29	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	7%	2%	3%	0%	0%	2%	0%	11%	0%	7%
Adj. Flow (vph)	61	945	20	309	731	8	20	64	355	9	21	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	965	0	309	739	0	0	84	355	0	59	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	65.0	65.0		32.0	97.0		23.0	23.0	32.0	23.0	23.0	
Total Split (%)	54.2%	54.2%		26.7%	80.8%		19.2%	19.2%	26.7%	19.2%	19.2%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	58.0	58.0		25.0	90.0		17.0	17.0	25.0	17.0	17.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

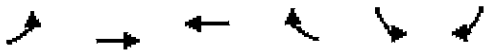
Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



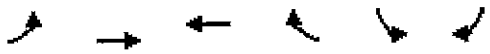
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	898	19	294	694	8	19	61	337	9	20	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	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	1818	1816	1854	1756	1809	1863	1809	1782	1881	1863	1772	1863
Adj Flow Rate, veh/h	61	945	18	309	731	7	20	64	328	9	21	27
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	3	2	2	0	0	0	0
Cap, veh/h	457	955	18	355	1357	13	76	216	513	53	104	110
Arrive On Green	0.54	0.54	0.53	0.17	0.76	0.75	0.14	0.15	0.15	0.14	0.15	0.14
Sat Flow, veh/h	739	1776	34	1672	1789	17	261	1441	1599	120	695	733
Grp Volume(v), veh/h	61	0	963	309	0	738	84	0	328	57	0	0
Grp Sat Flow(s),veh/h/ln	739	0	1810	1672	0	1806	1702	0	1599	1548	0	0
Q Serve(g_s), s	5.0	0.0	63.1	16.4	0.0	20.0	0.0	0.0	18.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	63.1	16.4	0.0	20.0	5.1	0.0	18.0	3.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.01	0.24		1.00	0.16		0.47
Lane Grp Cap(c), veh/h	457	0	973	355	0	1370	278	0	513	254	0	0
V/C Ratio(X)	0.13	0.00	0.99	0.87	0.00	0.54	0.30	0.00	0.64	0.22	0.00	0.00
Avail Cap(c_a), veh/h	457	0	973	432	0	1370	278	0	513	254	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.0	0.0	27.4	38.9	0.0	5.9	45.6	0.0	34.8	45.2	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	26.4	15.1	0.0	1.5	0.6	0.0	2.7	0.4	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(95%),veh/ln	2.0	0.0	48.6	16.9	0.0	15.7	4.6	0.0	14.7	3.1	0.0	0.0
LnGrp Delay(d),s/veh	14.6	0.0	53.8	54.0	0.0	7.5	46.2	0.0	37.5	45.6	0.0	0.0
LnGrp LOS	B		D	D		A	D		D	D		
Approach Vol, veh/h		1024			1047			412			57	
Approach Delay, s/veh		51.5			21.2			39.3			45.6	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	26.5	70.5		23.0		97.0		23.0
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	25.0	58.0		17.0		90.0		17.0
Max Q Clear Time (g_c+I1), s	18.9	65.1		5.7		22.0		20.5
Green Ext Time (p_c), s	0.5	0.0		1.4		58.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.9
HCM 2010 LOS	D



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	426	849	727	612	696	320
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1588	3290	3194	1443	3268	1542
Flt Permitted	0.186				0.950	
Satd. Flow (perm)	311	3290	3194	1443	3268	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				211		37
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	3%	2%	1%	2%
Adj. Flow (vph)	453	903	773	651	740	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	453	903	773	651	740	340
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	40.0	82.0	42.0	38.0	38.0	40.0
Total Split (%)	33.3%	68.3%	35.0%	31.7%	31.7%	33.3%
Maximum Green (s)	34.0	76.0	36.0	31.0	31.0	34.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

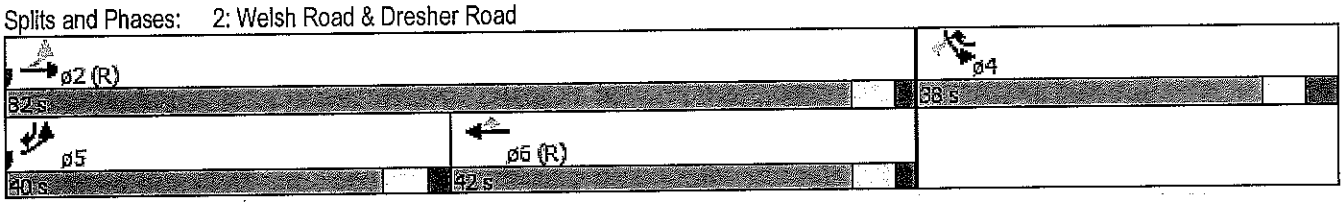


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	77.7	77.7	42.1	78.5	31.3	67.9
Actuated g/C Ratio	0.65	0.65	0.35	0.65	0.26	0.57
v/c Ratio	0.86	0.42	0.69	0.64	0.87	0.38
Control Delay	29.2	6.1	39.7	15.4	54.2	13.3
Queue Delay	0.0	0.1	0.0	0.4	0.0	0.0
Total Delay	29.2	6.2	39.7	15.9	54.2	13.3
LOS	C	A	D	B	D	B
Approach Delay		13.9	28.8		41.4	
Approach LOS		B	C		D	
Queue Length 50th (ft)	179	78	298	237	280	111
Queue Length 95th (ft)	m243	m95	376	406	#374	167
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	574	2130	1121	1023	871	943
Starvation Cap Reductn	0	0	0	96	0	0
Spillback Cap Reductn	0	265	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.48	0.69	0.70	0.85	0.36

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 27.1 Intersection LOS: C
Intersection Capacity Utilization 80.4% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Welsh Road & Dresher Road



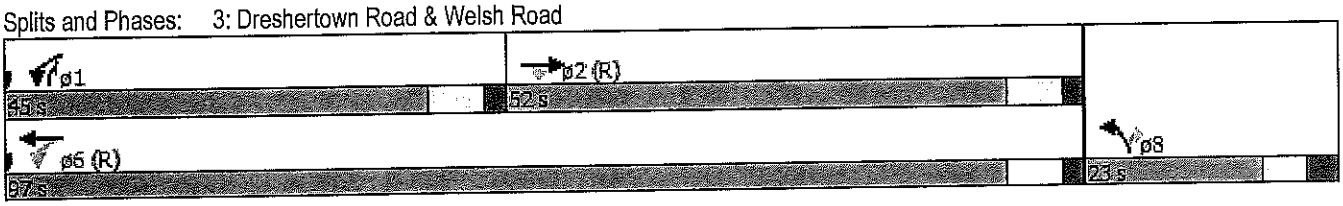
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	976	569	434	1041	298	405
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3306	1650	1542	3304	3174	1626
Flt Permitted			0.159		0.950	
Satd. Flow (perm)	3306	1650	258	3304	3174	1626
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						33
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	760	
Travel Time (s)	8.3			15.8	13.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	3%	3%	4%	3%
Adj. Flow (vph)	996	581	443	1062	304	413
Shared Lane Traffic (%)						
Lane Group Flow (vph)	996	581	443	1062	304	413
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	52.0	52.0	45.0	97.0	23.0	45.0
Total Split (%)	43.3%	43.3%	37.5%	80.8%	19.2%	37.5%
Maximum Green (s)	45.0	45.0	38.0	90.0	16.0	38.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	976	569	434	1041	298	405
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1836	1739	1739	1722	1808
Adj Flow Rate, veh/h	996	581	443	1062	304	330
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	3	3	3	4	3
Cap, veh/h	1854	846	508	2505	451	473
Arrive On Green	1.00	1.00	0.33	1.00	0.14	0.14
Sat Flow, veh/h	3510	1560	1656	3391	3182	1537
Grp Volume(v), veh/h	996	581	443	1062	304	330
Grp Sat Flow(s),veh/h/ln	1710	1560	1656	1652	1591	1537
Q Serve(g_s), s	0.0	0.0	15.0	0.0	10.9	17.0
Cycle Q Clear(g_c), s	0.0	0.0	15.0	0.0	10.9	17.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1854	846	508	2505	451	473
V/C Ratio(X)	0.54	0.69	0.87	0.42	0.67	0.70
Avail Cap(c_a), veh/h	1854	846	771	2505	451	473
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.85	0.85	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	7.7	0.0	48.9	36.6
Incr Delay (d2), s/veh	0.8	3.4	6.2	0.5	3.9	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	1.4	11.6	0.3	8.7	15.5
LnGrp Delay(d),s/veh	0.8	3.4	13.8	0.5	52.8	41.0
LnGrp LOS	A	A	B	A	D	D
Approach Vol, veh/h	1577			1505	634	
Approach Delay, s/veh	1.8			4.4	46.7	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	26.0	71.0				97.0		23.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	38.0	45.0				90.0		16.0
Max Q Clear Time (g_c+I1), s	17.5	2.5				2.5		19.5
Green Ext Time (p_c), s	1.5	12.7				13.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B

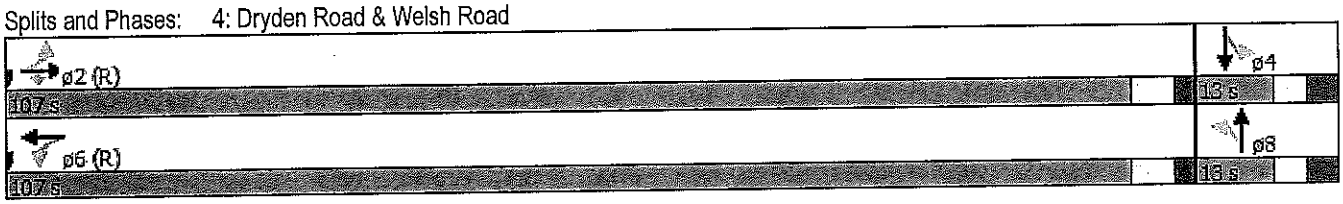
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1290	96	57	1539	1	2	0	0	2	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850									
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3403	1640	1573	3370	0	1661	1990	0	1710	1920	0
Flt Permitted	0.139			0.188								
Satd. Flow (perm)	235	3403	1640	311	3370	0	1749	1990	0	1800	1920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			103									
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	1387	103	61	1655	1	2	0	0	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1387	103	61	1656	0	2	0	0	2	0	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	107.0	107.0	107.0	107.0	107.0		13.0	13.0		13.0	13.0	
Total Split (%)	89.2%	89.2%	89.2%	89.2%	89.2%		10.8%	10.8%		10.8%	10.8%	
Maximum Green (s)	101.0	101.0	101.0	101.0	101.0		7.0	7.0		7.0	7.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 62 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	1290	96	57	1539	1	2	0	0	2	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1774	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	1	1387	101	61	1655	1	2	0	0	2	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	2	2	2	0	0	0	0	0	0
Cap, veh/h	310	3073	1444	380	3121	2	80	25	0	79	25	0
Arrive On Green	1.00	1.00	1.00	0.90	0.90	0.89	0.01	0.00	0.00	0.01	0.00	0.00
Sat Flow, veh/h	307	3403	1599	354	3456	2	1447	1881	0	1440	1872	0
Grp Volume(v), veh/h	1	1387	101	61	807	849	2	0	0	2	0	0
Grp Sat Flow(s),veh/h/ln	307	1702	1599	354	1685	1773	1447	1881	0	1440	1872	0
Q Serve(g_s), s	0.0	0.0	0.0	2.4	10.7	10.7	0.2	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	10.7	0.0	0.0	2.4	10.7	10.7	0.2	0.0	0.0	0.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	310	3073	1444	380	1522	1601	80	25	0	79	25	0
V/C Ratio(X)	0.00	0.45	0.07	0.16	0.53	0.53	0.03	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	310	3073	1444	380	1522	1601	156	125	0	156	125	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.5	0.0	0.0	0.7	1.1	1.1	58.5	0.0	0.0	58.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.1	0.9	1.3	1.3	0.1	0.0	0.0	0.1	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(95%),veh/ln	0.0	0.3	0.0	0.6	9.0	9.4	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	0.5	0.4	0.1	1.6	2.4	2.3	58.6	0.0	0.0	58.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E			E		
Approach Vol, veh/h		1489			1717			2			2	
Approach Delay, s/veh		0.3			2.3			58.6			58.6	
Approach LOS		A			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		113.4		6.6		113.4		6.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		101.0		7.0		101.0		7.0
Max Q Clear Time (g_c+I1), s		13.2		2.7		13.2		2.7
Green Ext Time (p_c), s		21.8		0.0		21.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.5
HCM 2010 LOS	A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	8	6	3	696	1000	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	12	12	14
Grade (%)	0%			1%	0%	
Storage Length (ft)	0	0	100			100
Storage Lanes	1	0	1			1
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.942					0.850
Flt Protected	0.972		0.950			
Satd. Flow (prot)	1703	0	1701	1739	1748	1632
Flt Permitted	0.972		0.950			
Satd. Flow (perm)	1703	0	1701	1739	1748	1632
Link Speed (mph)	25			40	40	
Link Distance (ft)	449			1212	760	
Travel Time (s)	12.2			20.7	13.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	3%	3%	0%
Adj. Flow (vph)	8	6	3	710	1020	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	3	710	1020	4
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	8	6	3	696	1000	4
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	-	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	3	3	0
Mvmt Flow	8	6	3	710	1020	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1736	1020	1020	0	-	0
Stage 1	1020	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.3	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	104	301	527	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	103	301	527	-	-	-
Mov Cap-2 Maneuver	103	-	-	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	541	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	527	-	143	-	-
HCM Lane V/C Ratio	0.006	-	0.1	-	-
HCM Control Delay (s)	11.9	-	33	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

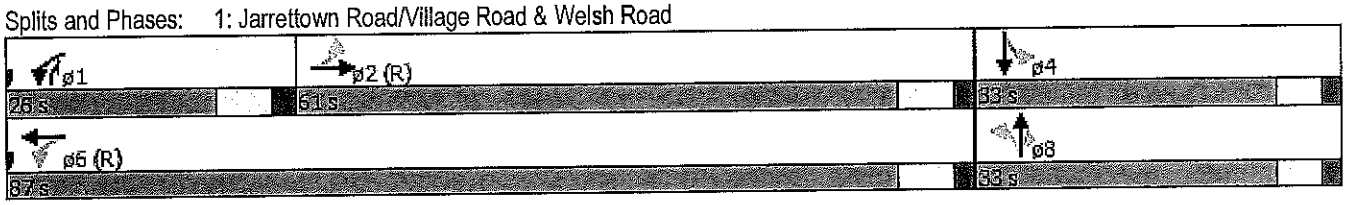
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	818	30	269	1008	15	22	21	264	42	94	108
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.998				0.850		0.940	
Flt Protected	0.950			0.950				0.975			0.991	
Satd. Flow (prot)	1761	1827	0	1645	1907	0	0	1764	1640	0	1826	0
Flt Permitted	0.207			0.065				0.642			0.935	
Satd. Flow (perm)	384	1827	0	113	1907	0	0	1161	1640	0	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1				92		31	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	23	852	31	280	1050	16	23	22	275	44	98	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	883	0	280	1066	0	0	45	275	0	254	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	61.0	61.0		26.0	87.0		33.0	33.0	26.0	33.0	33.0	
Total Split (%)	50.8%	50.8%		21.7%	72.5%		27.5%	27.5%	21.7%	27.5%	27.5%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	54.0	54.0		19.0	80.0		27.0	27.0	19.0	27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

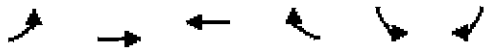
Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	818	30	269	1008	15	22	21	264	42	94	108
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1836	1854	1791	1863	1863	1809	1809	1881	1863	1853	1863
Adj Flow Rate, veh/h	23	852	30	280	1050	15	23	22	254	44	98	98
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	263	1030	36	346	1333	19	126	108	439	75	132	119
Arrive On Green	0.58	0.58	0.58	0.09	0.73	0.72	0.17	0.18	0.18	0.17	0.18	0.17
Sat Flow, veh/h	554	1763	62	1706	1832	26	447	594	1599	219	731	655
Grp Volume(v), veh/h	23	0	882	280	0	1065	45	0	254	240	0	0
Grp Sat Flow(s),veh/h/ln	554	0	1825	1706	0	1858	1041	0	1599	1605	0	0
Q Serve(g_s), s	3.3	0.0	46.7	7.1	0.0	43.9	0.0	0.0	16.4	12.4	0.0	0.0
Cycle Q Clear(g_c), s	29.5	0.0	46.7	7.1	0.0	43.9	3.2	0.0	16.4	17.4	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.51		1.00	0.18		0.41
Lane Grp Cap(c), veh/h	263	0	1066	346	0	1352	225	0	439	312	0	0
V/C Ratio(X)	0.09	0.00	0.83	0.81	0.00	0.79	0.20	0.00	0.58	0.77	0.00	0.00
Avail Cap(c_a), veh/h	263	0	1066	471	0	1352	301	0	523	395	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.2	0.0	20.1	23.1	0.0	10.4	41.6	0.0	37.6	47.5	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	7.4	7.4	0.0	4.7	0.4	0.0	1.2	6.9	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(95%),veh/ln	1.0	0.0	33.7	10.4	0.0	32.0	2.4	0.0	11.9	13.1	0.0	0.0
LnGrp Delay(d),s/veh	25.9	0.0	27.5	30.5	0.0	15.2	42.0	0.0	38.8	54.4	0.0	0.0
LnGrp LOS	C		C	C		B	D		D	D		
Approach Vol, veh/h		905			1345			299			240	
Approach Delay, s/veh		27.5			18.3			39.3			54.4	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	17.2	76.1		26.7		93.3		26.7
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	19.0	54.0		27.0		80.0		27.0
Max Q Clear Time (g_c+I1), s	9.6	48.7		19.4		45.9		18.9
Green Ext Time (p_c), s	0.6	5.3		1.4		32.8		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C



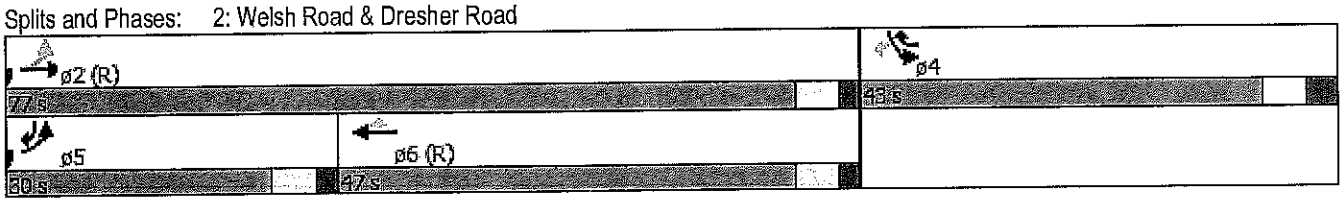
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	315	867	931	597	888	426
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1588	3257	3257	1457	3268	1558
Flt Permitted	0.110				0.950	
Satd. Flow (perm)	184	3257	3257	1457	3268	1558
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				196		24
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	1%	1%	1%	1%
Adj. Flow (vph)	332	913	980	628	935	448
Shared Lane Traffic (%)						
Lane Group Flow (vph)	332	913	980	628	935	448
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	30.0	77.0	47.0	43.0	43.0	30.0
Total Split (%)	25.0%	64.2%	39.2%	35.8%	35.8%	25.0%
Maximum Green (s)	24.0	71.0	41.0	36.0	36.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	72.1	72.1	43.8	85.8	36.9	66.2
Actuated g/C Ratio	0.60	0.60	0.36	0.72	0.31	0.55
v/c Ratio	0.87	0.47	0.82	0.57	0.93	0.52
Control Delay	36.8	17.6	38.4	7.1	56.6	18.0
Queue Delay	0.0	0.1	0.3	0.4	0.0	0.1
Total Delay	36.8	17.7	38.7	7.4	56.6	18.1
LOS	D	B	D	A	E	B
Approach Delay		22.8	26.5		44.1	
Approach LOS		C	C		D	
Queue Length 50th (ft)	179	288	313	144	360	189
Queue Length 95th (ft)	m220	m313	398	216	#487	277
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	402	1956	1189	1097	1007	892
Starvation Cap Reductn	0	0	24	126	0	0
Spillback Cap Reductn	0	244	0	0	0	35
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.53	0.84	0.65	0.93	0.52

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 77 (64%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 85.7% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Welsh Road & Dresher Road



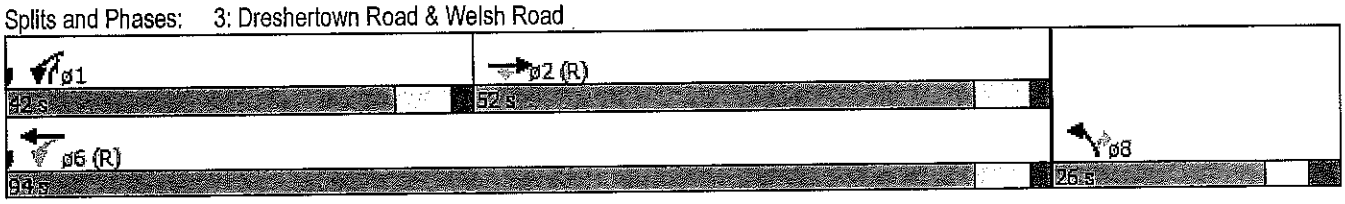
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (vph)	1158	597	482	1103	424	475
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3274	1683	1557	3369	3268	1626
Flt Permitted			0.076		0.950	
Satd. Flow (perm)	3274	1683	125	3369	3268	1626
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						15
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	760	
Travel Time (s)	8.3			15.8	13.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	2%	1%	1%	3%
Adj. Flow (vph)	1206	622	502	1149	442	495
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1206	622	502	1149	442	495
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	52.0	52.0	42.0	94.0	26.0	42.0
Total Split (%)	43.3%	43.3%	35.0%	78.3%	21.7%	35.0%
Maximum Green (s)	45.0	45.0	35.0	87.0	19.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 29 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1158	597	482	1103	424	475
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1872	1756	1773	1773	1808
Adj Flow Rate, veh/h	1206	622	502	1149	442	449
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	2	1	1	3
Cap, veh/h	1410	663	526	2471	546	666
Arrive On Green	0.28	0.28	0.53	1.00	0.17	0.17
Sat Flow, veh/h	3476	1591	1672	3458	3276	1537
Grp Volume(v), veh/h	1206	622	502	1149	442	449
Grp Sat Flow(s),veh/h/ln	1693	1591	1672	1685	1638	1537
Q Serve(g_s), s	40.5	45.8	27.7	0.0	15.6	20.0
Cycle Q Clear(g_c), s	40.5	45.8	27.7	0.0	15.6	20.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1410	663	526	2471	546	666
V/C Ratio(X)	0.86	0.94	0.95	0.47	0.81	0.67
Avail Cap(c_a), veh/h	1410	663	582	2471	546	666
HCM Platoon Ratio	0.67	0.67	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.79	0.79	1.00	1.00
Uniform Delay (d), s/veh	39.8	41.8	18.9	0.0	48.2	27.2
Incr Delay (d2), s/veh	4.6	16.8	21.6	0.5	8.9	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	25.8	29.6	24.4	0.3	12.3	18.1
LnGrp Delay(d),s/veh	44.4	58.5	40.5	0.5	57.1	29.9
LnGrp LOS	D	E	D	A	E	C
Approach Vol, veh/h	1828			1651	891	
Approach Delay, s/veh	49.2			12.7	43.4	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	38.0	56.0				94.0		26.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	35.0	45.0				87.0		19.0
Max Q Clear Time (g_c+I1), s	30.2	48.3				2.5		22.5
Green Ext Time (p_c), s	0.9	0.0				17.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

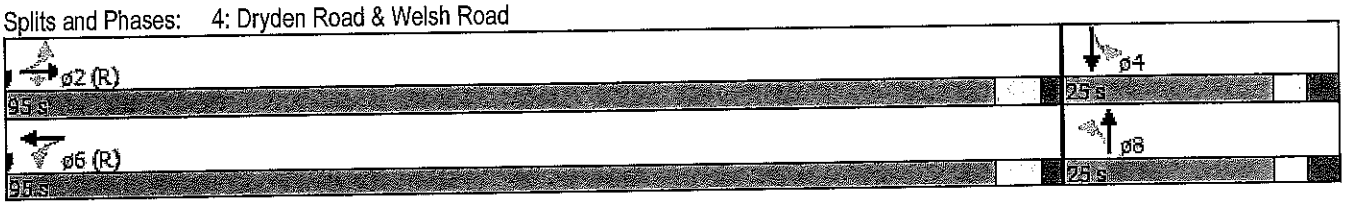
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1665	5	0	1483	0	95	8	9	3	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.921			0.850	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	1688	3403	1640	1688	3370	0	1661	1833	0	1710	1632	0
Flt Permitted							0.757			0.746		
Satd. Flow (perm)	1688	3403	1640	1688	3370	0	1324	1833	0	1343	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			27					9			72	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1716	5	0	1529	0	98	8	9	3	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1716	5	0	1529	0	98	17	0	3	1	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	95.0	95.0	95.0	95.0	95.0		25.0	25.0		25.0	25.0	
Total Split (%)	79.2%	79.2%	79.2%	79.2%	79.2%		20.8%	20.8%		20.8%	20.8%	
Maximum Green (s)	89.0	89.0	89.0	89.0	89.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

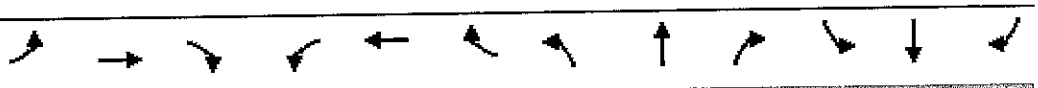
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1665	5	0	1483	0	95	8	9	3	0	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1809	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	0	1716	3	0	1529	0	98	8	9	3	0	1
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	2	2	0	0	0	0	0	0
Cap, veh/h	60	2797	1314	60	2769	0	197	77	86	188	0	151
Arrive On Green	0.00	1.00	1.00	0.00	0.82	0.00	0.09	0.09	0.09	0.09	0.00	0.09
Sat Flow, veh/h	347	3403	1599	289	3458	0	1446	810	911	1418	0	1591
Grp Volume(v), veh/h	0	1716	3	0	1529	0	98	0	17	3	0	1
Grp Sat Flow(s),veh/h/ln	347	1702	1599	289	1685	0	1446	0	1721	1418	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.0	17.8	0.0	7.9	0.0	1.1	0.2	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	17.8	0.0	7.9	0.0	1.1	0.8	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	60	2797	1314	60	2769	0	197	0	163	188	0	151
V/C Ratio(X)	0.00	0.61	0.00	0.00	0.55	0.00	0.50	0.00	0.10	0.02	0.00	0.01
Avail Cap(c_a), veh/h	60	2797	1314	60	2769	0	301	0	287	289	0	265
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.42	0.42	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	3.5	0.0	52.7	0.0	49.9	49.8	0.0	49.6
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.8	0.0	1.9	0.0	0.3	0.0	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(95%),veh/ln	0.0	0.3	0.0	0.0	13.1	0.0	5.9	0.0	1.0	0.2	0.0	0.1
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	4.3	0.0	54.7	0.0	50.2	49.8	0.0	49.7
LnGrp LOS		A	A		A		D		D	D		D
Approach Vol, veh/h		1719			1529			115			4	
Approach Delay, s/veh		0.4			4.3			54.0			49.8	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		103.6		16.4		103.6		16.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		89.0		19.0		89.0		19.0
Max Q Clear Time (g_c+I1), s		2.5		3.3		20.3		10.4
Green Ext Time (p_c), s		24.2		0.3		23.2		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.1
HCM 2010 LOS	A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	5	4	6	895	1073	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	12	12	16
Grade (%)	0%			1%	0%	
Storage Length (ft)	0	0	100			100
Storage Lanes	1	0	1			1
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940					0.850
Flt Protected	0.973		0.950			
Satd. Flow (prot)	1701	0	1701	1756	1765	1734
Flt Permitted	0.973		0.950			
Satd. Flow (perm)	1701	0	1701	1756	1765	1734
Link Speed (mph)	25			40	40	
Link Distance (ft)	484			817	760	
Travel Time (s)	13.2			13.9	13.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	5	4	6	932	1118	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	6	932	1118	7
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	4	6	895	1073	7
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	-	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	5	4	6	932	1118	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2063	1118	1118	0	-	0
Stage 1	1118	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.3	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	64	264	485	-	-	-
Stage 1	345	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	63	264	485	-	-	-
Mov Cap-2 Maneuver	63	-	-	-	-	-
Stage 1	345	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	47	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	485	-	95	-	-
HCM Lane V/C Ratio	0.013	-	0.099	-	-
HCM Control Delay (s)	12.5	-	47	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

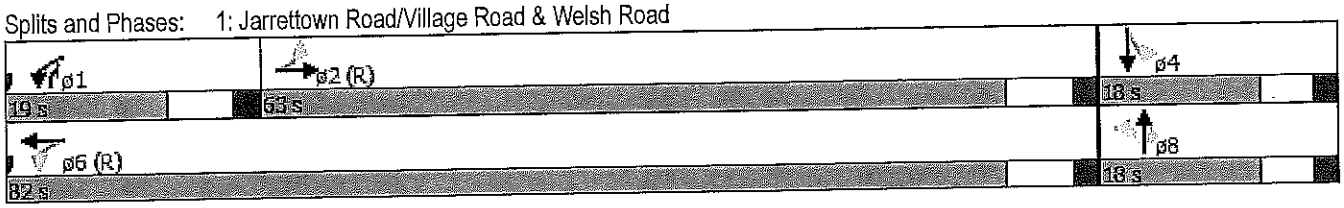
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	622	20	138	581	8	7	2	188	13	2	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.998				0.850		0.955	
Flt Protected	0.950			0.950				0.962			0.972	
Satd. Flow (prot)	1761	1813	0	1612	1907	0	0	1740	1640	0	1829	0
Flt Permitted	0.419			0.299				0.857			0.815	
Satd. Flow (perm)	777	1813	0	508	1907	0	0	1550	1640	0	1533	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2				207		8	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	25%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	684	22	152	638	9	8	2	207	14	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	706	0	152	647	0	0	10	207	0	24	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	63.0	63.0		19.0	82.0		18.0	18.0	19.0	18.0	18.0	
Total Split (%)	63.0%	63.0%		19.0%	82.0%		18.0%	18.0%	19.0%	18.0%	18.0%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	56.0	56.0		12.0	75.0		12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 26 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

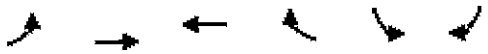
Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	622	20	138	581	8	7	2	188	13	2	7
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1822	1854	1756	1863	1863	1809	1809	1881	1863	1863	1863
Adj Flow Rate, veh/h	12	684	21	152	638	9	8	2	109	14	2	3
Adj No. of Lanes	1	1	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	1	2	0	0	0	0	0	0	0	0
Cap, veh/h	624	1184	36	520	1455	21	175	38	250	155	25	22
Arrive On Green	0.67	0.67	0.66	0.06	0.79	0.78	0.09	0.10	0.10	0.09	0.10	0.09
Sat Flow, veh/h	820	1759	54	1672	1832	26	1144	391	1599	961	264	230
Grp Volume(v), veh/h	12	0	705	152	0	647	10	0	109	19	0	0
Grp Sat Flow(s),veh/h/ln	820	0	1813	1672	0	1858	1535	0	1599	1455	0	0
Q Serve(g_s), s	0.5	0.0	20.8	2.4	0.0	11.0	0.0	0.0	6.2	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	20.8	2.4	0.0	11.0	0.5	0.0	6.2	1.0	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.01	0.80		1.00	0.74		0.16
Lane Grp Cap(c), veh/h	624	0	1221	520	0	1475	197	0	250	188	0	0
V/C Ratio(X)	0.02	0.00	0.58	0.29	0.00	0.44	0.05	0.00	0.44	0.10	0.00	0.00
Avail Cap(c_a), veh/h	624	0	1221	636	0	1475	248	0	305	236	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.4	0.0	8.7	6.5	0.0	3.3	41.5	0.0	38.2	41.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	2.0	0.3	0.0	0.9	0.1	0.0	1.2	0.2	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(95%),veh/ln	0.2	0.0	16.3	2.2	0.0	10.0	0.5	0.0	5.1	0.9	0.0	0.0
LnGrp Delay(d),s/veh	5.5	0.0	10.7	6.8	0.0	4.2	41.6	0.0	39.4	42.0	0.0	0.0
LnGrp LOS	A		B	A		A	D		D	D		
Approach Vol, veh/h		717			799			119			19	
Approach Delay, s/veh		10.6			4.7			39.5			42.0	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	12.1	73.3		14.6		85.4		14.6
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	12.0	56.0		12.0		75.0		12.0
Max Q Clear Time (g_c+I1), s	4.9	22.8		3.0		13.0		8.7
Green Ext Time (p_c), s	0.2	26.3		0.3		42.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.2
HCM 2010 LOS	B



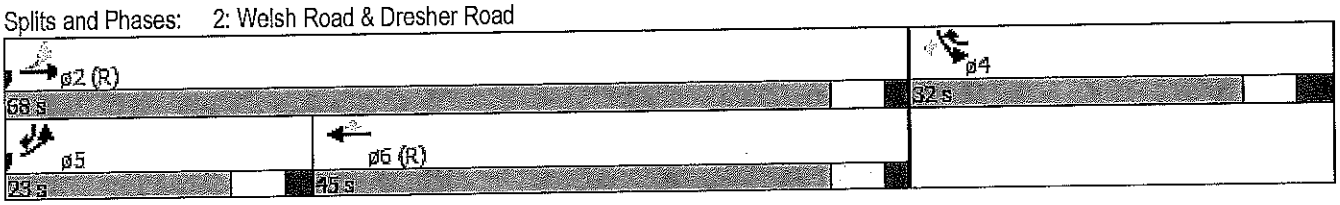
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	154	701	618	393	356	148
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1573	3290	3257	1472	3301	1542
Flt Permitted	0.325				0.950	
Satd. Flow (perm)	538	3290	3257	1472	3301	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				423		121
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	1%	1%	0%	0%	2%
Adj. Flow (vph)	166	754	665	423	383	159
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	754	665	423	383	159
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	23.0	68.0	45.0	32.0	32.0	23.0
Total Split (%)	23.0%	68.0%	45.0%	32.0%	32.0%	23.0%
Maximum Green (s)	17.0	62.0	39.0	25.0	25.0	17.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	69.9	69.9	54.5	78.6	19.1	35.5
Actuated g/C Ratio	0.70	0.70	0.54	0.79	0.19	0.36
v/c Ratio	0.34	0.33	0.37	0.34	0.61	0.25
Control Delay	6.5	5.2	14.8	2.6	40.7	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	5.2	14.8	2.6	40.7	6.8
LOS	A	A	B	A	D	A
Approach Delay		5.4	10.1		30.8	
Approach LOS		A	B		C	
Queue Length 50th (ft)	24	57	144	42	116	16
Queue Length 95th (ft)	49	92	171	73	152	50
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	562	2299	1775	1332	858	733
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.33	0.37	0.32	0.45	0.22

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 38 (38%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 12.8 — Intersection LOS: B
Intersection Capacity Utilization 51.1% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Welsh Road & Dresher Road



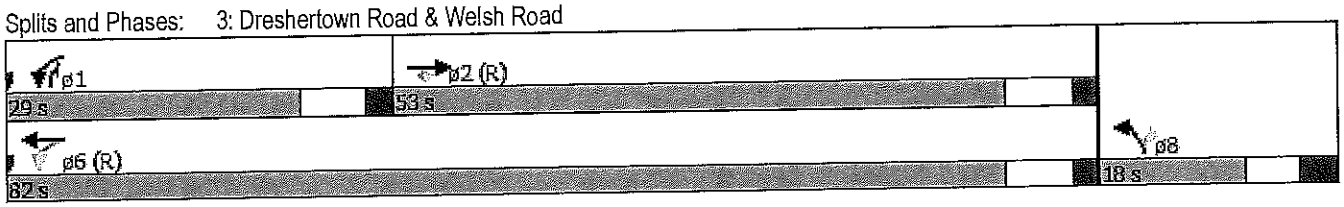
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	878	179	262	835	177	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		150	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3339	1683	1588	3403	3301	1675
Flt Permitted			0.217		0.950	
Satd. Flow (perm)	3339	1683	363	3403	3301	1675
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						70
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			1040	760	
Travel Time (s)	8.3			15.8	13.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	965	197	288	918	195	345
Shared Lane Traffic (%)						
Lane Group Flow (vph)	965	197	288	918	195	345
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	27.0	10.0	27.0	14.0	10.0
Total Split (s)	53.0	53.0	29.0	82.0	18.0	29.0
Total Split (%)	53.0%	53.0%	29.0%	82.0%	18.0%	29.0%
Maximum Green (s)	46.0	46.0	22.0	75.0	11.0	22.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	878	179	262	835	177	314
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1872	1791	1791	1791	1863
Adj Flow Rate, veh/h	965	197	288	918	195	259
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	0	0	0	0
Cap, veh/h	2057	948	541	2586	397	355
Arrive On Green	1.00	1.00	0.21	1.00	0.12	0.12
Sat Flow, veh/h	3545	1591	1706	3492	3309	1583
Grp Volume(v), veh/h	965	197	288	918	195	259
Grp Sat Flow(s),veh/h/ln	1727	1591	1706	1701	1655	1583
Q Serve(g_s), s	0.0	0.0	6.2	0.0	5.5	12.0
Cycle Q Clear(g_c), s	0.0	0.0	6.2	0.0	5.5	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2057	948	541	2586	397	355
V/C Ratio(X)	0.47	0.21	0.53	0.35	0.49	0.73
Avail Cap(c_a), veh/h	2057	948	755	2586	397	355
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	4.1	0.0	41.1	36.0
Incr Delay (d2), s/veh	0.7	0.5	0.8	0.4	0.9	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.2	5.1	0.2	4.6	11.7
LnGrp Delay(d),s/veh	0.7	0.5	4.9	0.4	42.1	43.3
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	1162			1206	454	
Approach Delay, s/veh	0.7			1.4	42.8	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.4	65.6				82.0		18.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	22.0	46.0				75.0		11.0
Max Q Clear Time (g_c+I1), s	8.7	2.5				2.5		14.5
Green Ext Time (p_c), s	0.8	8.4				8.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.8
HCM 2010 LOS	A

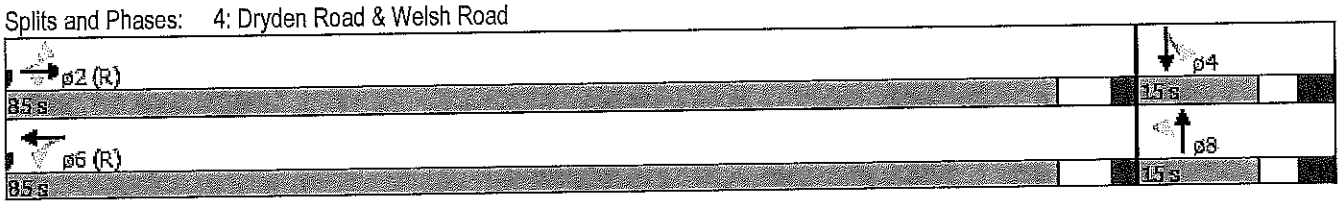
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	1130	3	1	1108	2	1	0	1	2	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3437	1640	1604	3437	0	1661	1691	0	1710	1632	0
Flt Permitted	0.222			0.216								
Satd. Flow (perm)	375	3437	1640	365	3437	0	1749	1691	0	1800	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33		1			138			144	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1040			1416			754			960	
Travel Time (s)		15.8			21.5			20.6			26.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	1256	3	1	1231	2	1	0	1	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1256	3	1	1233	0	1	1	0	2	2	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	21.0	21.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		11.0	11.0		11.0	11.0	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		15.0	15.0		15.0	15.0	
Total Split (%)	85.0%	85.0%	85.0%	85.0%	85.0%		15.0%	15.0%		15.0%	15.0%	
Maximum Green (s)	79.0	79.0	79.0	79.0	79.0		9.0	9.0		9.0	9.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 41 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1130	3	1	1108	2	1	0	1	2	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1809	1881	1809	1809	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	2	1256	1	1	1231	2	1	0	1	2	0	2
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	450	3033	1411	470	3107	5	98	0	28	97	0	28
Arrive On Green	1.00	1.00	1.00	0.88	0.88	0.87	0.02	0.00	0.01	0.02	0.00	0.01
Sat Flow, veh/h	461	3437	1599	451	3521	6	1445	0	1599	1439	0	1591
Grp Volume(v), veh/h	2	1256	1	1	601	632	1	0	1	2	0	2
Grp Sat Flow(s),veh/h/ln	461	1719	1599	451	1719	1808	1445	0	1599	1439	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.0	6.3	6.3	0.1	0.0	0.1	0.1	0.0	0.1
Cycle Q Clear(g_c), s	6.4	0.0	0.0	0.0	6.3	6.3	0.1	0.0	0.1	0.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	450	3033	1411	470	1516	1595	98	0	28	97	0	28
V/C Ratio(X)	0.00	0.41	0.00	0.00	0.40	0.40	0.01	0.00	0.04	0.02	0.00	0.07
Avail Cap(c_a), veh/h	450	3033	1411	470	1516	1595	216	0	160	216	0	159
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	0.7	1.1	1.1	48.3	0.0	48.8	48.3	0.0	48.8
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.8	0.7	0.0	0.0	0.5	0.1	0.0	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(95%),veh/ln	0.0	0.3	0.0	0.0	5.7	6.0	0.1	0.0	0.1	0.1	0.0	0.1
LnGrp Delay(d),s/veh	0.2	0.3	0.0	0.7	1.8	1.8	48.3	0.0	49.3	48.4	0.0	49.9
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1259			1234			2			4	
Approach Delay, s/veh		0.3			1.8			48.8			49.1	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		93.2		6.8		93.2		6.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		79.0		9.0		79.0		9.0
Max Q Clear Time (g_c+I1), s		8.9		2.6		8.8		2.6
Green Ext Time (p_c), s		10.8		0.0		10.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.2
HCM 2010 LOS	A

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	3	2	2	488	438	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	12	12	16
Grade (%)	0%			1%	0%	
Storage Length (ft)	0	0	100			100
Storage Lanes	1	0	1			1
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.946					0.850
Flt Protected	0.971		0.950			
Satd. Flow (prot)	1709	0	1701	1791	1800	1734
Flt Permitted	0.971		0.950			
Satd. Flow (perm)	1709	0	1701	1791	1800	1734
Link Speed (mph)	25			40	40	
Link Distance (ft)	415			817	760	
Travel Time (s)	11.3			13.9	13.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	2	2	536	481	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	2	536	481	3
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	3	2	2	488	438	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	12	12	12	16
Grade (%)	0%			1%	0%	
Storage Length (ft)	0	0	100			100
Storage Lanes	1	0	1			1
Taper Length (ft)	75		75			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.946					0.850
Flt Protected	0.971		0.950			
Satd. Flow (prot)	1709	0	1701	1791	1800	1734
Flt Permitted	0.971		0.950			
Satd. Flow (perm)	1709	0	1701	1791	1800	1734
Link Speed (mph)	25			40	40	
Link Distance (ft)	415			817	760	
Travel Time (s)	11.3			13.9	13.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	2	2	536	481	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	2	536	481	3
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	3	2	2	488	438	3
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	-	100	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	2	2	536	481	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1022	481	481	0	-	0
Stage 1	481	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.3	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	290	619	820	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	289	619	820	-	-	-
Mov Cap-2 Maneuver	289	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	660	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	820	-	367	-	-
HCM Lane V/C Ratio	0.003	-	0.015	-	-
HCM Control Delay (s)	9.4	-	15	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

APPENDIX L

2023 Future with Development
Capacity/Level-of-Service Analysis Worksheets

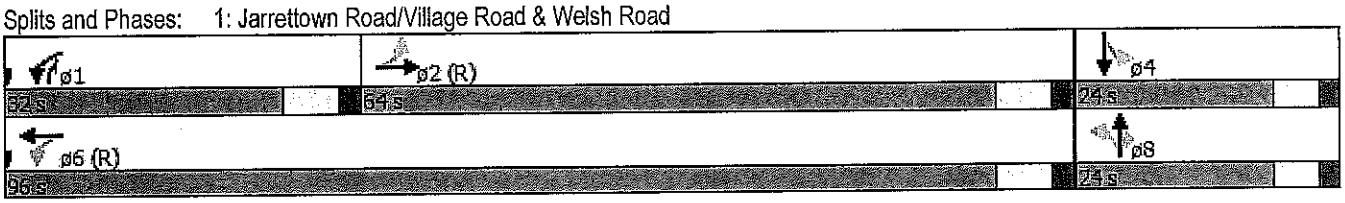
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	932	19	306	741	8	19	61	345	9	20	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.998				0.850		0.934	
Flt Protected	0.950			0.950				0.988			0.992	
Satd. Flow (prot)	1727	3440	0	1612	1852	0	0	1760	1640	0	1736	0
Flt Permitted	0.367			0.214				0.916			0.940	
Satd. Flow (perm)	667	3440	0	363	1852	0	0	1632	1640	0	1645	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1				73		29	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	7%	2%	3%	0%	0%	2%	0%	11%	0%	7%
Adj. Flow (vph)	61	981	20	322	780	8	20	64	363	9	21	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	1001	0	322	788	0	0	84	363	0	59	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	64.0	64.0		32.0	96.0		24.0	24.0	32.0	24.0	24.0	
Total Split (%)	53.3%	53.3%		26.7%	80.0%		20.0%	20.0%	26.7%	20.0%	20.0%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	57.0	57.0		25.0	89.0		18.0	18.0	25.0	18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

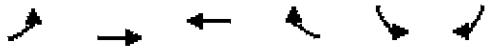
Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	932	19	306	741	8	19	61	345	9	20	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1818	1816	1854	1756	1809	1863	1809	1782	1881	1863	1772	1863
Adj Flow Rate, veh/h	61	981	18	322	780	7	20	64	336	9	21	27
Adj No. of Lanes	1	2	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	3	3	2	2	0	0	0	0
Cap, veh/h	456	2068	38	477	1343	12	79	227	418	54	109	116
Arrive On Green	0.60	0.60	0.59	0.10	0.75	0.74	0.15	0.16	0.16	0.15	0.16	0.15
Sat Flow, veh/h	706	3466	64	1672	1790	16	267	1433	1599	123	689	731
Grp Volume(v), veh/h	61	488	511	322	0	787	84	0	336	57	0	0
Grp Sat Flow(s),veh/h/ln	706	1725	1805	1672	0	1806	1700	0	1599	1544	0	0
Q Serve(g_s), s	5.0	19.1	19.1	8.0	0.0	23.2	0.0	0.0	19.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.3	19.1	19.1	8.0	0.0	23.2	5.0	0.0	19.0	3.7	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.01	0.24		1.00	0.16		0.47
Lane Grp Cap(c), veh/h	456	1029	1077	477	0	1355	292	0	418	266	0	0
V/C Ratio(X)	0.13	0.47	0.47	0.67	0.00	0.58	0.29	0.00	0.80	0.21	0.00	0.00
Avail Cap(c_a), veh/h	456	1029	1077	667	0	1355	292	0	418	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	13.6	13.6	10.4	0.0	6.6	44.7	0.0	41.4	44.3	0.0	0.0
Incr Delay (d2), s/veh	0.6	1.6	1.5	1.7	0.0	1.8	0.5	0.0	10.8	0.4	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(95%),veh/ln	1.9	14.6	15.1	8.1	0.0	17.8	4.6	0.0	17.3	3.1	0.0	0.0
LnGrp Delay(d),s/veh	13.3	15.2	15.1	12.1	0.0	8.5	45.3	0.0	52.2	44.7	0.0	0.0
LnGrp LOS	B	B	B	B		A	D		D	D		
Approach Vol, veh/h		1060			1109			420			57	
Approach Delay, s/veh		15.0			9.5			50.8			44.7	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	18.4	77.6		24.0		96.0		24.0
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	25.0	57.0		18.0		89.0		18.0
Max Q Clear Time (g_c+I1), s	10.5	21.6		5.7		25.2		21.5
Green Ext Time (p_c), s	0.9	32.0		1.5		54.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B



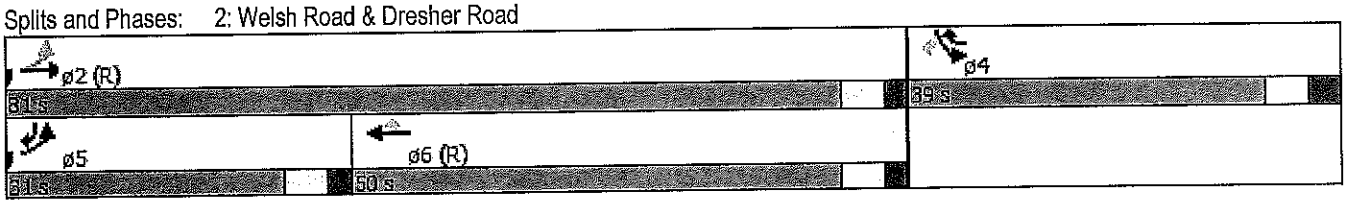
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	426	891	786	659	728	320
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1588	3290	3194	1443	3268	1542
Flt Permitted	0.177				0.950	
Satd. Flow (perm)	296	3290	3194	1443	3268	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				144		55
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	3%	2%	1%	2%
Adj. Flow (vph)	453	948	836	701	774	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	453	948	836	701	774	340
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	31.0	81.0	50.0	39.0	39.0	31.0
Total Split (%)	25.8%	67.5%	41.7%	32.5%	32.5%	25.8%
Maximum Green (s)	25.0	75.0	44.0	32.0	32.0	25.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	76.7	76.7	45.7	83.0	32.3	64.3
Actuated g/C Ratio	0.64	0.64	0.38	0.69	0.27	0.54
v/c Ratio	0.97	0.45	0.69	0.67	0.88	0.40
Control Delay	51.1	11.3	36.1	12.5	54.4	15.0
Queue Delay	0.0	0.1	0.2	0.4	0.0	0.0
Total Delay	51.1	11.4	36.3	12.9	54.4	15.0
LOS	D	B	D	B	D	B
Approach Delay		24.3	25.6		42.4	
Approach LOS		C	C		D	
Queue Length 50th (ft)	252	236	268	205	294	121
Queue Length 95th (ft)	#446	205	353	65	#393	190
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	469	2101	1215	1049	898	852
Starvation Cap Reductn	0	0	55	82	0	0
Spillback Cap Reductn	0	257	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.51	0.72	0.72	0.86	0.40

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 83.1% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Welsh Road & Dresher Road



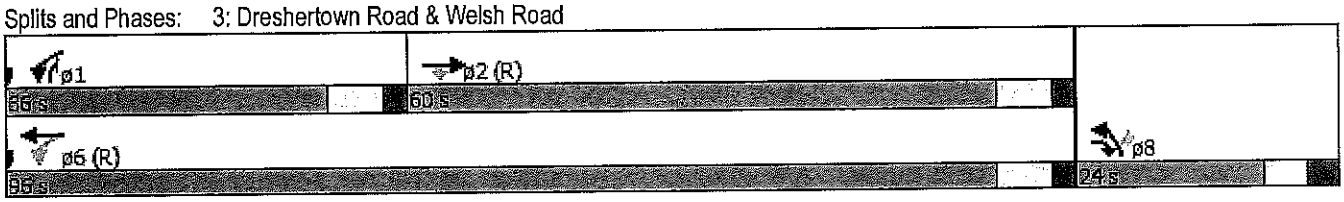
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (vph)	1000	619	370	1111	334	335
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		275	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3306	1650	1542	3304	3174	1626
Flt Permitted			0.177		0.950	
Satd. Flow (perm)	3306	1650	287	3304	3174	1626
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		260				52
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			523	760	
Travel Time (s)	8.3			7.9	13.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	3%	3%	4%	3%
Adj. Flow (vph)	1020	632	378	1134	341	342
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1020	632	378	1134	341	342
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	7.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	14.0	10.0	27.0	14.0	10.0
Total Split (s)	60.0	24.0	36.0	96.0	24.0	36.0
Total Split (%)	50.0%	20.0%	30.0%	80.0%	20.0%	30.0%
Maximum Green (s)	53.0	17.0	29.0	89.0	17.0	29.0
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	3.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1000	619	370	1111	334	335
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1800	1836	1739	1739	1722	1808
Adj Flow Rate, veh/h	1020	632	378	1134	341	259
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	3	3	3	4	3
Cap, veh/h	1967	1131	437	2478	477	423
Arrive On Green	1.00	1.00	0.04	0.25	0.15	0.15
Sat Flow, veh/h	3510	1560	1656	3391	3182	1537
Grp Volume(v), veh/h	1020	632	378	1134	341	259
Grp Sat Flow(s),veh/h/ln	1710	1560	1656	1652	1591	1537
Q Serve(g_s), s	0.0	0.0	10.3	35.0	12.2	17.6
Cycle Q Clear(g_c), s	0.0	0.0	10.3	35.0	12.2	17.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1967	1131	437	2478	477	423
V/C Ratio(X)	0.52	0.56	0.86	0.46	0.71	0.61
Avail Cap(c_a), veh/h	1967	1131	645	2478	477	423
HCM Platoon Ratio	2.00	2.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.72	0.72	1.00	1.00	0.89	0.89
Uniform Delay (d), s/veh	0.0	0.0	16.1	24.4	48.6	37.9
Incr Delay (d2), s/veh	0.7	1.4	8.1	0.6	4.5	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.8	19.4	22.8	9.4	12.1
LnGrp Delay(d),s/veh	0.7	1.4	24.3	25.1	53.1	40.3
LnGrp LOS	A	A	C	C	D	D
Approach Vol, veh/h	1652			1512	600	
Approach Delay, s/veh	1.0			24.9	47.5	
Approach LOS	A			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	21.0	75.0				96.0		24.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	29.0	53.0				89.0		17.0
Max Q Clear Time (g_c+I1), s	12.8	2.5				37.5		20.1
Green Ext Time (p_c), s	1.2	14.6				14.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

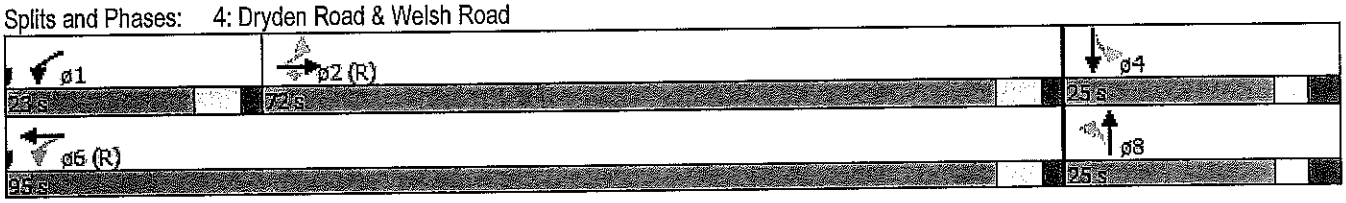
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1239	105	196	1457	1	90	0	115	2	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3403	1640	1573	3370	0	1661	1691	0	1710	1920	0
Flt Permitted	0.162			0.132			0.757			0.574		
Satd. Flow (perm)	274	3403	1640	218	3370	0	1324	1691	0	1033	1920	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109					259				
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		517			1416			754			960	
Travel Time (s)		7.8			21.5			20.6			26.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	1%	0%	2%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	1332	113	211	1567	1	97	0	124	2	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	1332	113	211	1568	0	97	124	0	2	0	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	5.0	21.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0	27.0	11.0	27.0		21.0	21.0		21.0	21.0	
Total Split (s)	72.0	72.0	72.0	23.0	95.0		25.0	25.0		25.0	25.0	
Total Split (%)	60.0%	60.0%	60.0%	19.2%	79.2%		20.8%	20.8%		20.8%	20.8%	
Maximum Green (s)	66.0	66.0	66.0	17.0	89.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	1239	105	196	1457	1	90	0	115	2	0	0
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1774	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	1	1332	111	211	1567	1	97	0	124	2	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	1	0	2	2	2	0	0	0	0	0	0
Cap, veh/h	262	2300	1081	314	2707	2	253	0	213	143	249	0
Arrive On Green	0.45	0.45	0.45	0.07	0.78	0.78	0.13	0.00	0.12	0.13	0.00	0.00
Sat Flow, veh/h	335	3403	1599	1689	3456	2	1447	0	1599	1287	1872	0
Grp Volume(v), veh/h	1	1332	111	211	764	804	97	0	124	2	0	0
Grp Sat Flow(s),veh/h/ln	335	1702	1599	1689	1685	1773	1447	0	1599	1287	1872	0
Q Serve(g_s), s	0.2	34.8	4.8	4.1	21.6	21.6	7.5	0.0	8.8	0.2	0.0	0.0
Cycle Q Clear(g_c), s	8.9	34.8	4.8	4.1	21.6	21.6	7.5	0.0	8.8	8.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	262	2300	1081	314	1320	1389	253	0	213	143	249	0
V/C Ratio(X)	0.00	0.58	0.10	0.67	0.58	0.58	0.38	0.00	0.58	0.01	0.00	0.00
Avail Cap(c_a), veh/h	262	2300	1081	456	1320	1389	301	0	267	186	312	0
HCM Platoon Ratio	0.67	0.67	0.67	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	0.00
Uniform Delay (d), s/veh	15.7	20.2	11.9	17.3	5.1	5.2	48.3	0.0	49.3	52.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	0.2	2.5	1.9	1.8	1.0	0.0	2.5	0.0	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(95%),veh/ln	0.0	23.4	3.9	8.8	15.7	16.4	5.5	0.0	7.2	0.1	0.0	0.0
LnGrp Delay(d),s/veh	15.7	21.2	12.1	19.8	7.0	6.9	49.3	0.0	51.9	52.7	0.0	0.0
LnGrp LOS	B	C	B	B	A	A	D		D	D		
Approach Vol, veh/h		1444			1779			221			2	
Approach Delay, s/veh		20.5			8.5			50.7			52.7	
Approach LOS		C			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	12.9	86.1		21.0		99.0		21.0
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	17.0	66.0		19.0		89.0		19.0
Max Q Clear Time (g_c+I1), s	6.6	37.3		11.0		24.1		10.8
Green Ext Time (p_c), s	0.3	13.1		0.5		16.1		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

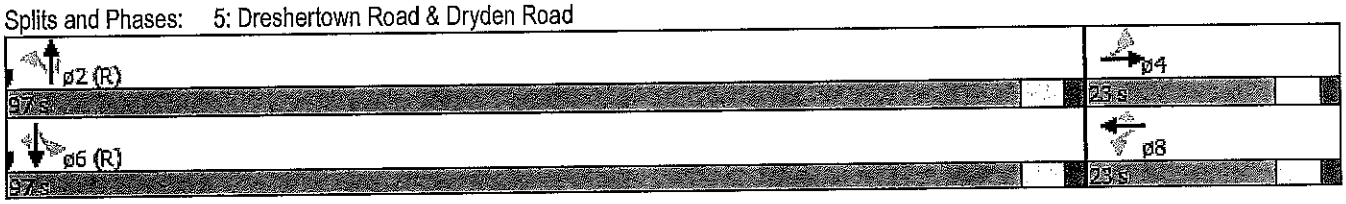
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	0	6	122	0	43	3	619	110	60	926	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	13	12	12	14	12	12	14	12	12	16
Grade (%)		0%			0%			1%			0%	
Storage Length (ft)	0		0	0		200	100		225	175		100
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.942				0.850			0.850			0.850
Flt Protected		0.972			0.950		0.950			0.950		
Satd. Flow (prot)	0	1703	0	0	1676	1600	1701	1739	1592	1676	1748	1734
Flt Permitted		0.842			0.748		0.232			0.381		
Satd. Flow (perm)	0	1475	0	0	1320	1600	416	1739	1592	672	1748	1734
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27				44			112			27
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		449			593			1212			760	
Travel Time (s)		12.2			16.2			20.7			13.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	3%	2%	2%	3%	0%
Adj. Flow (vph)	8	0	6	124	0	44	3	632	112	61	945	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	14	0	0	124	44	3	632	112	61	945	4
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	35		35	35	35	35	5	5	35	5	5
Trailing Detector (ft)	0	-5		-5	-5	-5	-5	0	0	-5	0	0
Detector 1 Position(ft)	0	-5		-5	-5	-5	-5	0	0	-5	0	0
Detector 1 Size(ft)	20	40		40	40	40	40	5	5	40	5	5
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	26.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	23.0	23.0		23.0	23.0	23.0	97.0	97.0	97.0	97.0	97.0	97.0
Total Split (%)	19.2%	19.2%		19.2%	19.2%	19.2%	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%
Maximum Green (s)	17.0	17.0		17.0	17.0	17.0	91.0	91.0	91.0	91.0	91.0	91.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 55 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

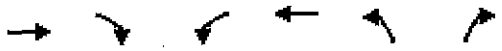
Splits and Phases: 5: Dreshertown Road & Dryden Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	0	6	122	0	43	3	619	110	60	926	4
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	1872	1872	1872	1800	1765	1835	1791	1739	1826	1765	1748	1872
Adj Flow Rate, veh/h	8	0	6	124	0	44	3	632	112	61	945	4
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	2	0	3	2	2	3	0
Cap, veh/h	63	13	22	222	0	226	361	1342	1198	518	1349	1228
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.77	0.77	0.77	0.77	0.77	0.77
Sat Flow, veh/h	111	91	151	1120	0	1560	597	1739	1552	713	1748	1591
Grp Volume(v), veh/h	14	0	0	124	0	44	3	632	112	61	945	4
Grp Sat Flow(s),veh/h/ln	353	0	0	1120	0	1560	597	1739	1552	713	1748	1591
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	3.0	0.3	15.6	2.1	4.0	32.2	0.1
Cycle Q Clear(g_c), s	14.4	0.0	0.0	13.8	0.0	3.0	32.5	15.6	2.1	19.7	32.2	0.1
Prop In Lane	0.57		0.43	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	0	0	222	0	226	361	1342	1198	518	1349	1228
V/C Ratio(X)	0.15	0.00	0.00	0.56	0.00	0.19	0.01	0.47	0.09	0.12	0.70	0.00
Avail Cap(c_a), veh/h	103	0	0	229	0	234	361	1342	1198	518	1349	1228
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Uniform Delay (d), s/veh	45.4	0.0	0.0	49.8	0.0	45.1	14.9	4.9	3.4	8.4	6.8	3.1
Incr Delay (d2), s/veh	0.7	0.0	0.0	2.8	0.0	0.4	0.0	1.2	0.2	0.3	2.3	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(95%),veh/ln	0.8	0.0	0.0	7.5	0.0	2.4	0.1	12.4	1.7	1.5	21.7	0.1
LnGrp Delay(d),s/veh	46.1	0.0	0.0	52.6	0.0	45.6	14.9	6.1	3.5	8.8	9.1	3.1
LnGrp LOS	D			D		D	B	A	A	A	A	A
Approach Vol, veh/h		14			168			747			1010	
Approach Delay, s/veh		46.1			50.7			5.7			9.0	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		97.6		22.4		97.6		22.4
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		91.0		17.0		91.0		17.0
Max Q Clear Time (g_c+I1), s		35.0		16.4		34.7		16.3
Green Ext Time (p_c), s		6.7		0.0		6.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Volume (vph)	1306	40	0	1547	0	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	12	12	12	12
Grade (%)	-1%			1%	0%	
Storage Length (ft)		225	0		0	0
Storage Lanes		1	0		0	1
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3403	1608	0	3336	0	1526
Flt Permitted						
Satd. Flow (perm)	3403	1608	0	3336	0	1526
Link Speed (mph)	45			45	25	
Link Distance (ft)	523			517	307	
Travel Time (s)	7.9			7.8	8.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	2%	0%	2%	0%	2%
Adj. Flow (vph)	1451	44	0	1719	0	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1451	44	0	1719	0	49
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1306	40	0	1547	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	225	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	1	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	2	0	2	0	2
Mvmt Flow	1451	44	0	1719	0	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1451	0	2310	726
Stage 1	-	-	-	-	1451	-
Stage 2	-	-	-	-	859	-
Critical Hdwy	-	-	4.1	-	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	2.9
Pot Cap-1 Maneuver	-	-	473	-	33	384
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	380	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	473	-	33	384
Mov Cap-2 Maneuver	-	-	-	-	127	-
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	380	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	384	-	-	473	-
HCM Lane V/C Ratio	0.127	-	-	-	-
HCM Control Delay (s)	15.7	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

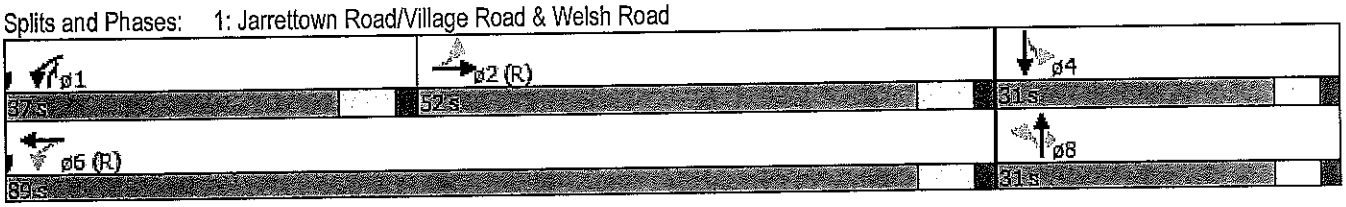
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	889	30	283	1066	15	22	21	282	42	94	108
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.998				0.850		0.940	
Flt Protected	0.950			0.950				0.975			0.991	
Satd. Flow (prot)	1761	3471	0	1645	1907	0	0	1764	1640	0	1826	0
Flt Permitted	0.167			0.205				0.632			0.935	
Satd. Flow (perm)	310	3471	0	355	1907	0	0	1143	1640	0	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1				42		30	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	23	926	31	295	1110	16	23	22	294	44	98	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	957	0	295	1126	0	0	45	294	0	254	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	52.0	52.0		37.0	89.0		31.0	31.0	37.0	31.0	31.0	
Total Split (%)	43.3%	43.3%		30.8%	74.2%		25.8%	25.8%	30.8%	25.8%	25.8%	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	45.0	45.0		30.0	82.0		25.0	25.0	30.0	25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 3 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

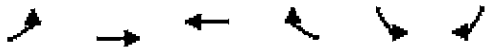
Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	889	30	283	1066	15	22	21	282	42	94	108
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1854	1836	1854	1791	1863	1863	1809	1809	1881	1863	1853	1863
Adj Flow Rate, veh/h	23	926	30	295	1110	15	23	22	273	44	98	98
Adj No. of Lanes	1	2	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	219	1976	64	478	1326	18	129	111	457	76	135	121
Arrive On Green	0.57	0.57	0.56	0.10	0.72	0.72	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	524	3449	112	1706	1833	25	455	598	1599	217	730	653
Grp Volume(v), veh/h	23	468	488	295	0	1125	45	0	273	240	0	0
Grp Sat Flow(s),veh/h/ln	524	1744	1817	1706	0	1858	1053	0	1599	1600	0	0
Q Serve(g_s), s	3.8	18.8	18.8	7.7	0.0	50.9	0.0	0.0	17.6	12.2	0.0	0.0
Cycle Q Clear(g_c), s	36.2	18.8	18.8	7.7	0.0	50.9	3.2	0.0	17.6	17.3	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.01	0.51		1.00	0.18		0.41
Lane Grp Cap(c), veh/h	219	999	1041	478	0	1344	231	0	457	318	0	0
V/C Ratio(X)	0.11	0.47	0.47	0.62	0.00	0.84	0.19	0.00	0.60	0.75	0.00	0.00
Avail Cap(c_a), veh/h	219	999	1041	748	0	1344	277	0	507	368	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.5	15.0	15.0	10.5	0.0	11.6	41.2	0.0	36.9	47.0	0.0	0.0
Incr Delay (d2), s/veh	1.0	1.6	1.5	1.3	0.0	6.3	0.4	0.0	1.6	7.4	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(95%),veh/ln	1.1	14.4	14.9	6.7	0.0	36.7	2.4	0.0	12.6	13.2	0.0	0.0
LnGrp Delay(d),s/veh	31.4	16.5	16.5	11.8	0.0	18.0	41.6	0.0	38.5	54.4	0.0	0.0
LnGrp LOS	C	B	B	B		B	D		D	D		
Approach Vol, veh/h		979			1420			318			240	
Approach Delay, s/veh		16.9			16.7			39.0			54.4	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	18.1	74.7		27.2		92.8		27.2
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	30.0	45.0		25.0		82.0		25.0
Max Q Clear Time (g_c+I1), s	10.2	38.7		19.3		52.9		20.1
Green Ext Time (p_c), s	0.9	6.2		1.2		28.2		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.2
HCM 2010 LOS	C



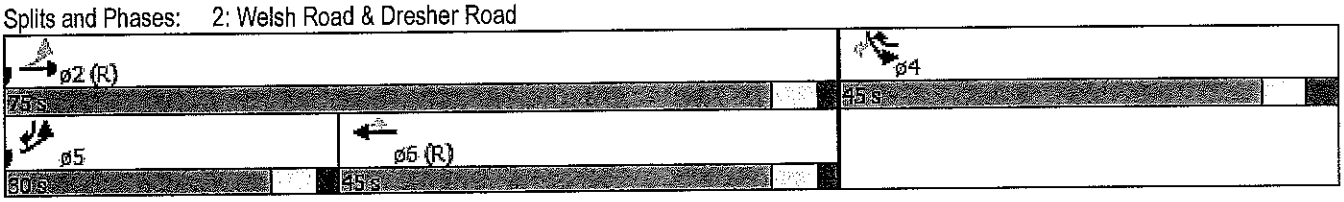
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	315	956	1003	654	959	426
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1588	3257	3257	1457	3268	1558
Flt Permitted	0.086				0.950	
Satd. Flow (perm)	144	3257	3257	1457	3268	1558
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				180		14
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	1%	1%	1%	1%
Adj. Flow (vph)	332	1006	1056	688	1009	448
Shared Lane Traffic (%)						
Lane Group Flow (vph)	332	1006	1056	688	1009	448
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	30.0	75.0	45.0	45.0	45.0	30.0
Total Split (%)	25.0%	62.5%	37.5%	37.5%	37.5%	25.0%
Maximum Green (s)	24.0	69.0	39.0	38.0	38.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	70.0	70.0	41.4	85.4	39.0	68.6
Actuated g/C Ratio	0.58	0.58	0.34	0.71	0.32	0.57
v/c Ratio	0.90	0.53	0.94	0.63	0.95	0.50
Control Delay	51.9	11.6	53.6	5.2	57.9	16.9
Queue Delay	0.0	0.2	0.1	0.2	2.3	0.3
Total Delay	51.9	11.8	53.7	5.4	60.2	17.2
LOS	D	B	D	A	E	B
Approach Delay		21.8	34.7		47.0	
Approach LOS		C	C		D	
Queue Length 50th (ft)	209	271	389	63	392	185
Queue Length 95th (ft)	#354	84	#562	134	#527	271
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	384	1899	1122	1088	1062	914
Starvation Cap Reductn	0	0	2	62	0	0
Spillback Cap Reductn	0	288	0	0	21	122
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.62	0.94	0.67	0.97	0.57

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 56 (47%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 34.8 Intersection LOS: C
Intersection Capacity Utilization 89.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Welsh Road & Dresher Road



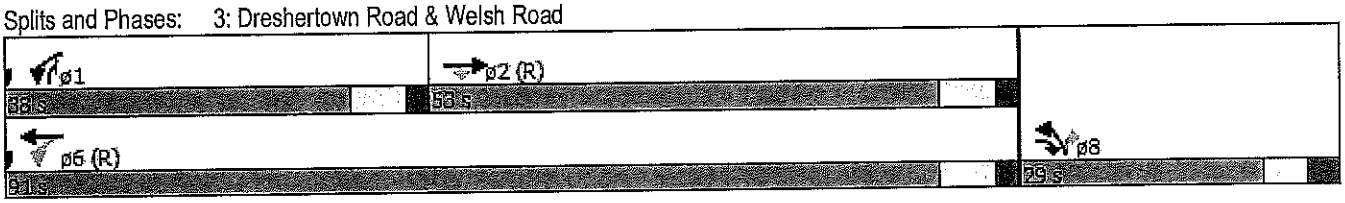
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1264	651	401	1164	492	405
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		275	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3274	1683	1557	3369	3268	1626
Flt Permitted			0.073		0.950	
Satd. Flow (perm)	3274	1683	120	3369	3268	1626
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		176				11
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			523	760	
Travel Time (s)	8.3			7.9	13.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	2%	1%	1%	3%
Adj. Flow (vph)	1317	678	418	1212	512	422
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1317	678	418	1212	512	422
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	7.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	14.0	10.0	27.0	14.0	10.0
Total Split (s)	53.0	29.0	38.0	91.0	29.0	38.0
Total Split (%)	44.2%	24.2%	31.7%	75.8%	24.2%	31.7%
Maximum Green (s)	46.0	22.0	31.0	84.0	22.0	31.0
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	3.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 5 (4%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	1264	651	401	1164	492	405
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1782	1872	1756	1773	1773	1808
Adj Flow Rate, veh/h	1317	652	418	1212	512	376
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	2	1	1	3
Cap, veh/h	1467	994	448	2387	628	641
Arrive On Green	0.14	0.14	0.45	1.00	0.19	0.19
Sat Flow, veh/h	3476	1591	1672	3458	3276	1537
Grp Volume(v), veh/h	1317	652	418	1212	512	376
Grp Sat Flow(s),veh/h/ln	1693	1591	1672	1685	1638	1537
Q Serve(g_s), s	45.9	32.3	22.8	0.0	18.0	22.7
Cycle Q Clear(g_c), s	45.9	32.3	22.8	0.0	18.0	22.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1467	994	448	2387	628	641
V/C Ratio(X)	0.90	0.66	0.93	0.51	0.82	0.59
Avail Cap(c_a), veh/h	1467	994	517	2387	628	641
HCM Platoon Ratio	0.33	0.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	1.00	1.00	0.76	0.76
Uniform Delay (d), s/veh	48.8	21.9	23.2	0.0	46.5	27.0
Incr Delay (d2), s/veh	5.7	2.0	22.5	0.8	6.4	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	28.7	28.0	21.8	0.5	12.9	14.3
LnGrp Delay(d),s/veh	54.5	23.9	45.8	0.8	52.8	28.1
LnGrp LOS	D	C	D	A	D	C
Approach Vol, veh/h	1969			1630	888	
Approach Delay, s/veh	44.4			12.3	42.4	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	33.0	58.0				91.0		29.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	31.0	46.0				84.0		22.0
Max Q Clear Time (g_c+I1), s	25.3	48.4				2.5		25.2
Green Ext Time (p_c), s	0.8	0.0				20.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

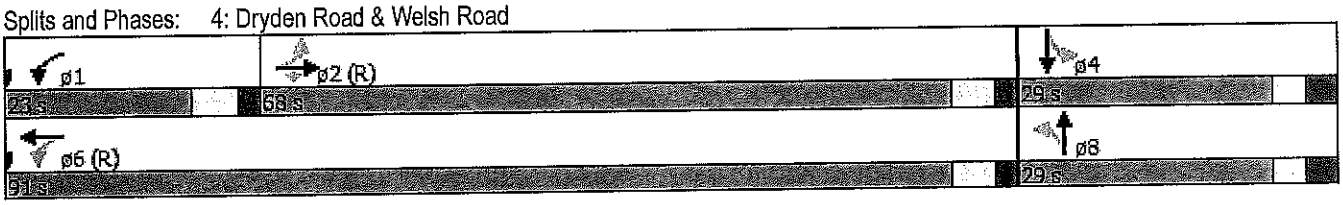
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1616	61	232	1356	0	202	8	156	3	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.857			0.850	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	1688	3403	1640	1604	3370	0	1661	1705	0	1710	1632	0
Flt Permitted				0.056			0.757			0.501		
Satd. Flow (perm)	1688	3403	1640	95	3370	0	1324	1705	0	902	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82					161			82	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		517			1416			754			960	
Travel Time (s)		7.8			21.5			20.6			26.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1666	63	239	1398	0	208	8	161	3	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1666	63	239	1398	0	208	169	0	3	1	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	5.0	21.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0	27.0	11.0	27.0		21.0	21.0		21.0	21.0	
Total Split (s)	68.0	68.0	68.0	23.0	91.0		29.0	29.0		29.0	29.0	
Total Split (%)	56.7%	56.7%	56.7%	19.2%	75.8%		24.2%	24.2%		24.2%	24.2%	
Maximum Green (s)	62.0	62.0	62.0	17.0	85.0		23.0	23.0		23.0	23.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1616	61	232	1356	0	202	8	156	3	0	1
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1791	1881	1809	1774	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	0	1666	61	239	1398	0	208	8	161	3	0	1
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	2	2	0	0	0	0	0	0
Cap, veh/h	60	2129	1000	372	2507	0	310	13	265	158	0	275
Arrive On Green	0.00	1.00	1.00	0.08	0.74	0.00	0.17	0.17	0.16	0.17	0.00	0.16
Sat Flow, veh/h	394	3403	1599	1723	3458	0	1446	76	1534	1236	0	1591
Grp Volume(v), veh/h	0	1666	61	239	1398	0	208	0	169	3	0	1
Grp Sat Flow(s),veh/h/ln	394	1702	1599	1723	1685	0	1446	0	1611	1236	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	5.4	21.8	0.0	16.7	0.0	11.7	0.3	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	5.4	21.8	0.0	16.7	0.0	11.7	11.5	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.95	1.00		1.00
Lane Grp Cap(c), veh/h	60	2129	1000	372	2507	0	310	0	278	158	0	275
V/C Ratio(X)	0.00	0.78	0.06	0.64	0.56	0.00	0.67	0.00	0.61	0.02	0.00	0.00
Avail Cap(c_a), veh/h	60	2129	1000	498	2507	0	349	0	322	192	0	318
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	5.5	6.7	0.0	48.0	0.0	46.3	51.0	0.0	41.5
Incr Delay (d2), s/veh	0.0	3.0	0.1	1.9	0.9	0.0	4.2	0.0	2.5	0.0	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(95%),veh/ln	0.0	1.6	0.1	4.8	15.5	0.0	11.4	0.0	9.2	0.2	0.0	0.1
LnGrp Delay(d),s/veh	0.0	3.0	0.1	7.4	7.6	0.0	52.2	0.0	48.9	51.0	0.0	41.5
LnGrp LOS		A	A	A	A		D		D	D		D
Approach Vol, veh/h		1727			1637			377			4	
Approach Delay, s/veh		2.9			7.6			50.7			48.6	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	14.2	80.1		25.7		94.3		25.7
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	17.0	62.0		23.0		85.0		23.0
Max Q Clear Time (g_c+I1), s	7.9	2.5		14.0		24.3		19.2
Green Ext Time (p_c), s	0.4	20.3		1.0		20.4		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

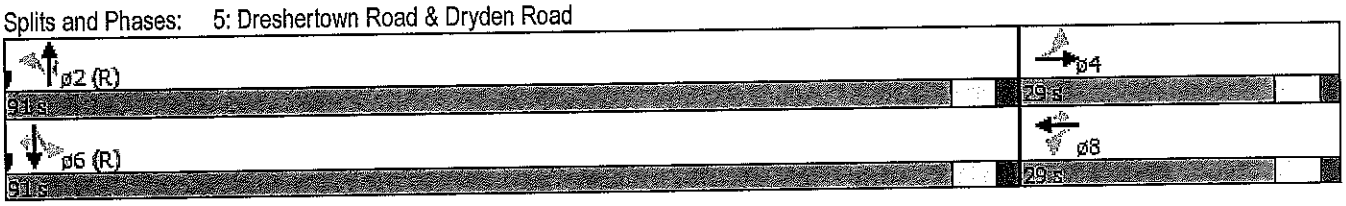
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	4	165	0	88	6	805	161	82	964	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	13	12	12	14	12	12	14	12	12	16
Grade (%)		0%			0%			1%			0%	
Storage Length (ft)	0		0	0		200	100		225	175		100
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.940				0.850			0.850			0.850
Flt Protected		0.973			0.950		0.950			0.950		
Satd. Flow (prot)	0	1701	0	0	1676	1600	1701	1756	1592	1676	1765	1734
Flt Permitted		0.862			0.752		0.186			0.264		
Satd. Flow (perm)	0	1507	0	0	1327	1600	333	1756	1592	466	1765	1734
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27				92			168			27
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		484			593			817			760	
Travel Time (s)		13.2			16.2			13.9			13.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	5	0	4	172	0	92	6	839	168	85	1004	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	172	92	6	839	168	85	1004	7
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	35		35	35	35	35	5	5	35	5	5
Trailing Detector (ft)	0	-5		-5	-5	-5	-5	0	0	-5	0	0
Detector 1 Position(ft)	0	-5		-5	-5	-5	-5	0	0	-5	0	0
Detector 1 Size(ft)	20	40		40	40	40	40	5	5	40	5	5
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	26.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	29.0	29.0		29.0	29.0	29.0	91.0	91.0	91.0	91.0	91.0	91.0
Total Split (%)	24.2%	24.2%		24.2%	24.2%	24.2%	75.8%	75.8%	75.8%	75.8%	75.8%	75.8%
Maximum Green (s)	23.0	23.0		23.0	23.0	23.0	85.0	85.0	85.0	85.0	85.0	85.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 60 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Dreshertown Road & Dryden Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	0	4	165	0	88	6	805	161	82	964	7
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	1872	1872	1872	1800	1765	1835	1791	1756	1826	1765	1765	1872
Adj Flow Rate, veh/h	5	0	4	172	0	92	6	839	168	85	1004	7
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	2	0	2	2	2	2	0
Cap, veh/h	62	13	23	269	0	310	255	1261	1114	316	1267	1142
Arrive On Green	0.19	0.00	0.19	0.20	0.00	0.20	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	76	68	115	1052	0	1560	564	1756	1552	557	1765	1591
Grp Volume(v), veh/h	9	0	0	172	0	92	6	839	168	85	1004	7
Grp Sat Flow(s),veh/h/ln	259	0	0	1052	0	1560	564	1756	1552	557	1765	1591
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	6.0	0.8	31.0	4.1	11.7	44.7	0.1
Cycle Q Clear(g_c), s	20.8	0.0	0.0	20.2	0.0	6.0	45.5	31.0	4.1	42.6	44.7	0.1
Prop In Lane	0.56		0.44	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	0	0	269	0	310	255	1261	1114	316	1267	1142
V/C Ratio(X)	0.09	0.00	0.00	0.64	0.00	0.30	0.02	0.67	0.15	0.27	0.79	0.01
Avail Cap(c_a), veh/h	98	0	0	271	0	312	255	1261	1114	316	1267	1142
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.62	0.62	0.62
Uniform Delay (d), s/veh	40.7	0.0	0.0	46.6	0.0	40.9	26.0	9.1	5.4	20.6	11.1	4.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	4.9	0.0	0.5	0.2	2.8	0.3	1.3	3.3	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(95%),veh/ln	0.5	0.0	0.0	9.9	0.0	4.8	0.3	22.4	3.3	3.4	28.8	0.1
LnGrp Delay(d),s/veh	41.1	0.0	0.0	51.6	0.0	41.5	26.1	11.9	5.6	21.9	14.3	4.8
LnGrp LOS	D			D		D	C	B	A	C	B	A
Approach Vol, veh/h		9			264			1013			1096	
Approach Delay, s/veh		41.1			48.0			11.0			14.9	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		91.2		28.8		91.2		28.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		85.0		23.0		85.0		23.0
Max Q Clear Time (g_c+I1), s		48.0		22.8		47.2		22.7
Green Ext Time (p_c), s		9.6		0.0		9.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Volume (vph)	1616	90	0	1564	0	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	12	12	12	12
Grade (%)	-1%			1%	0%	
Storage Length (ft)		225	0		0	0
Storage Lanes		1	0		0	1
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3403	1608	0	3336	0	1526
Flt Permitted						
Satd. Flow (perm)	3403	1608	0	3336	0	1526
Link Speed (mph)	45			45	25	
Link Distance (ft)	523			517	321	
Travel Time (s)	7.9			7.8	8.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	2%	0%	2%	0%	2%
Adj. Flow (vph)	1796	100	0	1738	0	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1796	100	0	1738	0	68
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1616	90	0	1564	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	225	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	1	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	2	0	2	0	2
Mvmt Flow	1796	100	0	1738	0	68

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1796	0	2665	898
Stage 1	-	-	-	-	1796	-
Stage 2	-	-	-	-	869	-
Critical Hdwy	-	-	4.1	-	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	2.9
Pot Cap-1 Maneuver	-	-	349	-	19	289
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	376	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	349	-	19	289
Mov Cap-2 Maneuver	-	-	-	-	89	-
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	376	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	289	-	-	349	-
HCM Lane V/C Ratio	0.235	-	-	-	-
HCM Control Delay (s)	21.2	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0	-

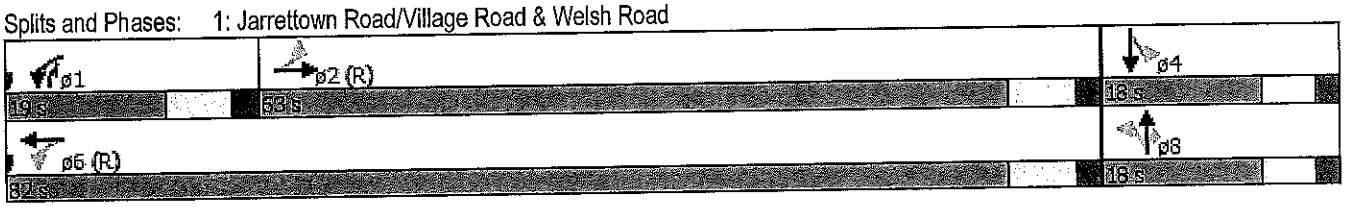
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	728	20	161	678	8	7	2	215	13	2	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	14	14	12	12	14	15	15	15
Grade (%)		-6%			1%			-1%			1%	
Storage Length (ft)	150		0	100		0	0		175	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.998				0.850		0.955	
Flt Protected	0.950			0.950				0.962			0.972	
Satd. Flow (prot)	1761	3452	0	1612	1907	0	0	1740	1640	0	1829	0
Flt Permitted	0.379			0.299				0.857			0.815	
Satd. Flow (perm)	703	3452	0	508	1907	0	0	1550	1640	0	1533	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			2				173		8	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1263			605			421			431	
Travel Time (s)		19.1			9.2			8.2			8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	25%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	12	800	22	177	745	9	8	2	236	14	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	822	0	177	754	0	0	10	236	0	24	0
Number of Detectors	1	2		1	2		1	1	1	1	1	
Detector Template	Left			Left			Left	Thru	Right	Left	Thru	
Leading Detector (ft)	5	330		35	330		20	35	35	20	35	
Trailing Detector (ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Position(ft)	0	0		-5	0		0	-5	-5	0	-5	
Detector 1 Size(ft)	5	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		324			324							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	1	4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		3.0	15.0		7.0	7.0	3.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		10.0	22.0		13.0	13.0	10.0	13.0	13.0	
Total Split (s)	63.0	63.0		19.0	82.0		18.0	18.0	19.0	18.0	18.0	
Total Split (%)	63.0%	63.0%		19.0%	82.0%		18.0%	18.0%	19.0%	18.0%	18.0%	

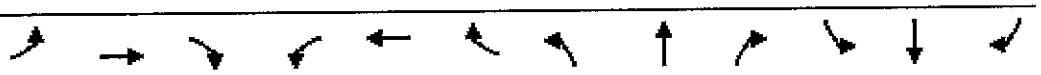
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	56.0	56.0		12.0	75.0		12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		4.0	4.0	5.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.0	6.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 26 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Splits and Phases: 1: Jarrettown Road/Village Road & Welsh Road

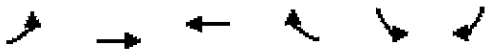




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	728	20	161	678	8	7	2	215	13	2	7
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	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	1854	1824	1854	1756	1863	1863	1809	1809	1881	1863	1863	1863
Adj Flow Rate, veh/h	12	800	21	177	745	9	8	2	138	14	2	3
Adj No. of Lanes	1	2	0	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	1	2	0	0	0	0	0	0	0	0
Cap, veh/h	540	2243	59	545	1428	17	194	42	288	170	27	25
Arrive On Green	0.65	0.65	0.64	0.07	0.78	0.77	0.10	0.11	0.11	0.10	0.11	0.10
Sat Flow, veh/h	742	3450	91	1672	1837	22	1152	376	1599	955	243	225
Grp Volume(v), veh/h	12	402	419	177	0	754	10	0	138	19	0	0
Grp Sat Flow(s),veh/h/ln	742	1733	1808	1672	0	1859	1529	0	1599	1423	0	0
Q Serve(g_s), s	0.6	10.6	10.6	3.0	0.0	15.2	0.0	0.0	7.7	0.3	0.0	0.0
Cycle Q Clear(g_c), s	2.5	10.6	10.6	3.0	0.0	15.2	0.5	0.0	7.7	1.0	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.01	0.80		1.00	0.74		0.16
Lane Grp Cap(c), veh/h	540	1126	1175	545	0	1445	221	0	288	208	0	0
V/C Ratio(X)	0.02	0.36	0.36	0.32	0.00	0.52	0.05	0.00	0.48	0.09	0.00	0.00
Avail Cap(c_a), veh/h	540	1126	1175	649	0	1445	248	0	316	233	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.9	8.0	8.0	4.9	0.0	4.2	40.0	0.0	36.8	40.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.9	0.8	0.3	0.0	1.3	0.1	0.0	1.2	0.2	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(95%),veh/ln	0.2	9.1	9.4	2.6	0.0	12.7	0.5	0.0	6.3	0.9	0.0	0.0
LnGrp Delay(d),s/veh	7.0	8.9	8.8	5.2	0.0	5.5	40.1	0.0	38.0	40.4	0.0	0.0
LnGrp LOS	A	A	A	A		A	D		D	D		
Approach Vol, veh/h		833			931			148			19	
Approach Delay, s/veh		8.8			5.5			38.2			40.4	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	12.8	71.0		16.2		83.8		16.2
Change Period (Y+Rc), s	7.0	7.0		6.0		7.0		6.0
Max Green Setting (Gmax), s	12.0	56.0		12.0		75.0		12.0
Max Q Clear Time (g_c+I1), s	5.5	13.1		3.0		17.2		10.2
Green Ext Time (p_c), s	0.3	35.1		0.3		44.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A



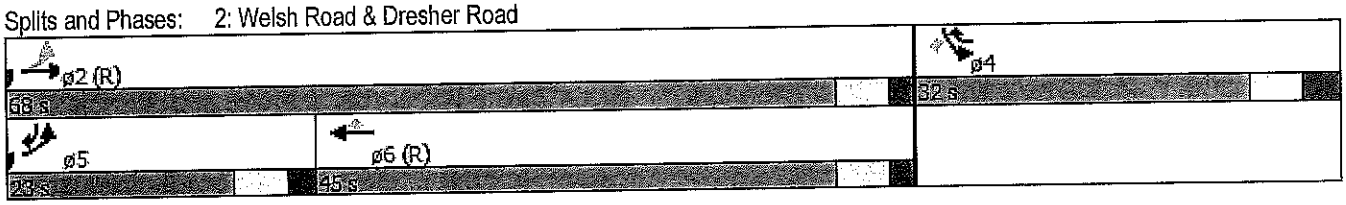
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	154	834	738	489	460	148
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	11	12	13
Grade (%)		-1%	1%		1%	
Storage Length (ft)	225			210	0	415
Storage Lanes	1			1	2	1
Taper Length (ft)	75				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1573	3290	3257	1472	3301	1542
Flt Permitted	0.258				0.950	
Satd. Flow (perm)	427	3290	3257	1472	3301	1542
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				526		77
Link Speed (mph)		45	45		35	
Link Distance (ft)		475	550		970	
Travel Time (s)		7.2	8.3		18.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	1%	1%	0%	0%	2%
Adj. Flow (vph)	166	897	794	526	495	159
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	897	794	526	495	159
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	35	5	5	5	35	35
Trailing Detector (ft)	-5	0	0	0	-5	-5
Detector 1 Position(ft)	-5	0	0	0	-5	-5
Detector 1 Size(ft)	40	5	5	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	3.0	20.0	20.0	7.0	7.0	3.0
Minimum Split (s)	9.0	26.0	26.0	14.0	14.0	9.0
Total Split (s)	23.0	68.0	45.0	32.0	32.0	23.0
Total Split (%)	23.0%	68.0%	45.0%	32.0%	32.0%	23.0%
Maximum Green (s)	17.0	62.0	39.0	25.0	25.0	17.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	3.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	6.0	6.0	5.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None	None
Act Effct Green (s)	66.7	66.7	51.0	78.3	22.3	39.0
Actuated g/C Ratio	0.67	0.67	0.51	0.78	0.22	0.39
v/c Ratio	0.41	0.41	0.48	0.42	0.67	0.25
Control Delay	9.7	6.5	20.1	4.7	40.0	10.4
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	9.7	6.5	20.1	4.9	40.0	10.4
LOS	A	A	C	A	D	B
Approach Delay		7.0	14.1		32.8	
Approach LOS		A	B		C	
Queue Length 50th (ft)	29	86	225	106	148	33
Queue Length 95th (ft)	52	116	310	187	194	67
Internal Link Dist (ft)		395	470		890	
Turn Bay Length (ft)	225			210		415
Base Capacity (vph)	490	2193	1659	1301	858	755
Starvation Cap Reductn	0	0	0	204	0	0
Spillback Cap Reductn	0	36	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.42	0.48	0.48	0.58	0.21

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 38 (38%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 57.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Welsh Road & Dresher Road



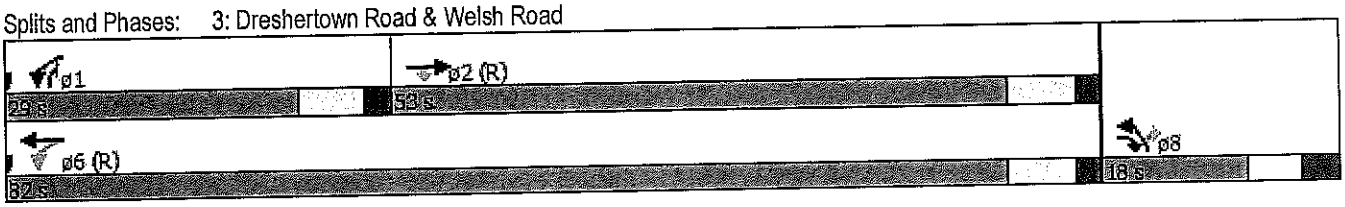
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1035	259	223	979	249	266
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	15	10	12	12	15
Grade (%)	-2%			1%	1%	
Storage Length (ft)		275	175		0	350
Storage Lanes		1	1		2	2
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3339	1683	1588	3403	3301	1675
Flt Permitted			0.163		0.950	
Satd. Flow (perm)	3339	1683	272	3403	3301	1675
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		285				42
Link Speed (mph)	45			45	40	
Link Distance (ft)	550			523	760	
Travel Time (s)	8.3			7.9	13.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	1137	285	245	1076	274	292
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1137	285	245	1076	274	292
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	5	5	35	5	35	35
Trailing Detector (ft)	0	0	-5	0	-5	-5
Detector 1 Position(ft)	0	0	-5	0	-5	-5
Detector 1 Size(ft)	5	5	40	5	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	20.0	7.0	3.0	20.0	7.0	3.0
Minimum Split (s)	27.0	14.0	10.0	27.0	14.0	10.0
Total Split (s)	53.0	18.0	29.0	82.0	18.0	29.0
Total Split (%)	53.0%	18.0%	29.0%	82.0%	18.0%	29.0%
Maximum Green (s)	46.0	11.0	22.0	75.0	11.0	22.0
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	5.0
All-Red Time (s)	2.0	3.0	2.0	2.0	3.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	None	None	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 28 (28%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Dreshertown Road & Welsh Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (veh/h)	1035	259	223	979	249	266
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1818	1872	1791	1791	1791	1863
Adj Flow Rate, veh/h	1137	285	245	1076	274	206
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	0	0	0	0
Cap, veh/h	2103	1160	460	2586	397	334
Arrive On Green	1.00	1.00	0.18	1.00	0.12	0.12
Sat Flow, veh/h	3545	1591	1706	3492	3309	1583
Grp Volume(v), veh/h	1137	285	245	1076	274	206
Grp Sat Flow(s),veh/h/ln	1727	1591	1706	1701	1655	1583
Q Serve(g_s), s	0.0	0.0	5.0	0.0	7.9	11.8
Cycle Q Clear(g_c), s	0.0	0.0	5.0	0.0	7.9	11.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2103	1160	460	2586	397	334
V/C Ratio(X)	0.54	0.25	0.53	0.42	0.69	0.62
Avail Cap(c_a), veh/h	2103	1160	696	2586	397	334
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	1.00	1.00	0.95	0.95
Uniform Delay (d), s/veh	0.0	0.0	4.1	0.0	42.2	35.8
Incr Delay (d2), s/veh	0.9	0.4	1.0	0.5	4.8	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.3	4.2	0.3	7.0	9.2
LnGrp Delay(d),s/veh	0.9	0.4	5.0	0.5	47.0	39.0
LnGrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	1422			1321	480	
Approach Delay, s/veh	0.8			1.3	43.5	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.1	66.9				82.0		18.0
Change Period (Y+Rc), s	7.0	7.0				7.0		7.0
Max Green Setting (Gmax), s	22.0	46.0				75.0		11.0
Max Q Clear Time (g_c+I1), s	7.5	2.5				2.5		14.3
Green Ext Time (p_c), s	0.6	11.5				12.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

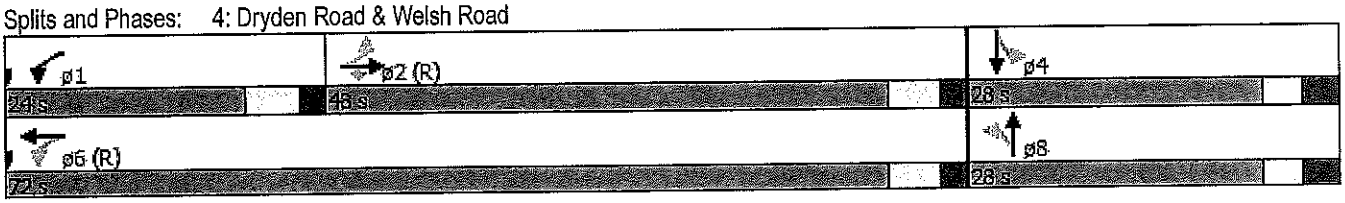
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	1124	86	282	1012	2	202	0	173	2	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	12	12	11	15	15	12	14	14
Grade (%)		-1%			-1%			-1%			0%	
Storage Length (ft)	150		225	175		0	110		0	150		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1604	3437	1640	1604	3437	0	1661	1691	0	1710	1632	0
Flt Permitted	0.253			0.088			0.757			0.502		
Satd. Flow (perm)	427	3437	1640	149	3437	0	1324	1691	0	904	1632	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98					342			119	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		517			1416			754			960	
Travel Time (s)		7.8			21.5			20.6			26.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	1249	96	313	1124	2	224	0	192	2	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1249	96	313	1126	0	224	192	0	2	2	0
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	5	5	5	5	5		35	35		35	35	
Trailing Detector (ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Position(ft)	0	0	0	0	0		-5	-5		-5	-5	
Detector 1 Size(ft)	5	5	5	5	5		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	21.0	21.0	21.0	5.0	21.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	27.0	27.0	27.0	11.0	27.0		21.0	21.0		21.0	21.0	
Total Split (s)	48.0	48.0	48.0	24.0	72.0		28.0	28.0		28.0	28.0	
Total Split (%)	48.0%	48.0%	48.0%	24.0%	72.0%		28.0%	28.0%		28.0%	28.0%	
Maximum Green (s)	42.0	42.0	42.0	18.0	66.0		22.0	22.0		22.0	22.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 4: Dryden Road & Welsh Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	1124	86	282	1012	2	202	0	173	2	0	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1809	1809	1881	1809	1809	1809	1809	1881	1881	1800	1872	1872
Adj Flow Rate, veh/h	2	1249	94	313	1124	2	224	0	192	2	0	2
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	352	1887	878	490	2497	4	347	0	305	174	0	303
Arrive On Green	1.00	1.00	1.00	0.11	0.71	0.70	0.19	0.00	0.18	0.19	0.00	0.18
Sat Flow, veh/h	511	3437	1599	1723	3520	6	1445	0	1599	1210	0	1591
Grp Volume(v), veh/h	2	1249	94	313	549	577	224	0	192	2	0	2
Grp Sat Flow(s),veh/h/ln	511	1719	1599	1723	1719	1808	1445	0	1599	1210	0	1591
Q Serve(g_s), s	0.0	0.0	0.0	7.0	13.6	13.6	14.9	0.0	11.1	0.2	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.0	13.6	13.6	14.9	0.0	11.1	10.8	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	352	1887	878	490	1219	1282	347	0	305	174	0	303
V/C Ratio(X)	0.01	0.66	0.11	0.64	0.45	0.45	0.64	0.00	0.63	0.01	0.00	0.01
Avail Cap(c_a), veh/h	352	1887	878	627	1219	1282	404	0	368	222	0	366
HCM Platoon Ratio	2.00	2.00	2.00	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	0.0	0.0	0.0	6.2	6.2	6.2	38.8	0.0	37.7	42.0	0.0	33.2
Incr Delay (d2), s/veh	0.0	1.8	0.2	1.4	1.2	1.1	2.8	0.0	2.5	0.0	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(95%),veh/ln	0.0	0.9	0.1	6.1	11.1	11.5	10.3	0.0	8.8	0.1	0.0	0.1
LnGrp Delay(d),s/veh	0.0	1.8	0.2	7.6	7.4	7.3	41.5	0.0	40.2	42.0	0.0	33.2
LnGrp LOS	A	A	A	A	A	A	D		D	D		C
Approach Vol, veh/h		1345			1439			416			4	
Approach Delay, s/veh		1.7			7.4			40.9			37.6	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	16.0	59.9		24.1		75.9		24.1
Change Period (Y+Rc), s	6.0	6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s	18.0	42.0		22.0		66.0		22.0
Max Q Clear Time (g_c+I1), s	9.5	2.5		13.3		16.1		17.4
Green Ext Time (p_c), s	0.5	10.1		1.1		10.4		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

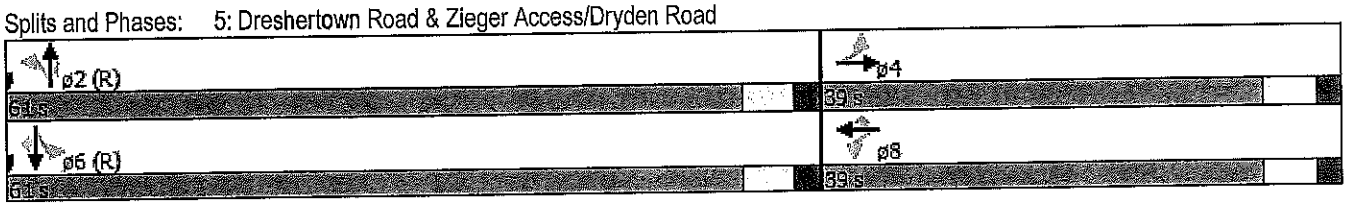
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	0	2	159	0	96	2	416	178	103	376	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	13	13	12	12	14	12	12	14	12	12	16
Grade (%)		0%			0%			1%			0%	
Storage Length (ft)	0		0	0		200	100		225	175		100
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.946				0.850			0.850			0.850
Flt Protected		0.971			0.950		0.950			0.950		
Satd. Flow (prot)	0	1709	0	0	1710	1632	1701	1791	1624	1710	1800	1734
Flt Permitted		0.872			0.754		0.490			0.462		
Satd. Flow (perm)	0	1534	0	0	1357	1632	878	1791	1624	832	1800	1734
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33				105			196			33
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		415			593			817			760	
Travel Time (s)		11.3			16.2			13.9			13.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	0	2	175	0	105	2	457	196	113	413	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	175	105	2	457	196	113	413	3
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	35		35	35	35	35	5	5	35	5	5
Trailing Detector (ft)	0	-5		-5	-5	-5	-5	0	0	-5	0	0
Detector 1 Position(ft)	0	-5		-5	-5	-5	-5	0	0	-5	0	0
Detector 1 Size(ft)	20	40		40	40	40	40	5	5	40	5	5
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	21.0	21.0		21.0	21.0	21.0	26.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	39.0	39.0		39.0	39.0	39.0	61.0	61.0	61.0	61.0	61.0	61.0
Total Split (%)	39.0%	39.0%		39.0%	39.0%	39.0%	61.0%	61.0%	61.0%	61.0%	61.0%	61.0%
Maximum Green (s)	33.0	33.0		33.0	33.0	33.0	55.0	55.0	55.0	55.0	55.0	55.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 5: Dreshertown Road & Zieger Access/Dryden Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	0	2	159	0	96	2	416	178	103	376	3
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	1872	1872	1872	1800	1800	1872	1791	1791	1863	1800	1800	1872
Adj Flow Rate, veh/h	3	0	2	175	0	105	2	457	196	113	413	3
Adj No. of Lanes	0	1	0	0	1	1	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	84	15	28	303	0	312	676	1261	1115	549	1268	1121
Arrive On Green	0.19	0.00	0.19	0.20	0.00	0.20	0.70	0.70	0.70	0.70	0.70	0.70
Sat Flow, veh/h	136	75	141	1177	0	1591	981	1791	1583	792	1800	1591
Grp Volume(v), veh/h	5	0	0	175	0	105	2	457	196	113	413	3
Grp Sat Flow(s),veh/h/ln	352	0	0	1177	0	1591	981	1791	1583	792	1800	1591
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	5.7	0.1	10.1	4.2	6.6	8.8	0.1
Cycle Q Clear(g_c), s	15.7	0.0	0.0	15.2	0.0	5.7	8.9	10.1	4.2	16.7	8.8	0.1
Prop In Lane	0.60		0.40	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	123	0	0	303	0	312	676	1261	1115	549	1268	1121
V/C Ratio(X)	0.04	0.00	0.00	0.58	0.00	0.34	0.00	0.36	0.18	0.21	0.33	0.00
Avail Cap(c_a), veh/h	331	0	0	510	0	541	676	1261	1115	549	1268	1121
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	33.9	0.0	0.0	38.4	0.0	34.6	7.4	5.9	5.0	9.2	5.7	4.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.7	0.0	0.6	0.0	0.8	0.3	0.8	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	0.0	8.3	0.0	4.6	0.0	9.0	3.4	2.8	7.9	0.0
LnGrp Delay(d),s/veh	34.0	0.0	0.0	40.2	0.0	35.3	7.4	6.7	5.3	10.0	6.3	4.4
LnGrp LOS	C			D		D	A	A	A	A	A	A
Approach Vol, veh/h		5			280			655			529	
Approach Delay, s/veh		34.0			38.3			6.3			7.1	
Approach LOS		C			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		75.4		24.6		75.4		24.6
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		55.0		33.0		55.0		33.0
Max Q Clear Time (g_c+I1), s		12.6		17.7		19.2		17.7
Green Ext Time (p_c), s		3.8		0.9		3.8		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱		↑↑		↱
Volume (vph)	1109	135	0	1216	0	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	12	12	12	12
Grade (%)	-1%			1%	0%	
Storage Length (ft)		225	0		0	0
Storage Lanes		1	0		0	1
Taper Length (ft)			75		75	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3437	1608	0	3403	0	1526
Flt Permitted						
Satd. Flow (perm)	3437	1608	0	3403	0	1526
Link Speed (mph)	45			45	25	
Link Distance (ft)	523			517	330	
Travel Time (s)	7.9			7.8	9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	0%	2%
Adj. Flow (vph)	1232	150	0	1351	0	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1232	150	0	1351	0	114
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	1109	135	0	1216	0	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	225	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	1	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	2	0	0	0	2
Mvmt Flow	1232	150	0	1351	0	114

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1232	0	1908	616
Stage 1	-	-	-	-	1232	-
Stage 2	-	-	-	-	676	-
Critical Hdwy	-	-	4.1	-	6.8	7.2
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	2.9
Pot Cap-1 Maneuver	-	-	573	-	62	459
Stage 1	-	-	-	-	242	-
Stage 2	-	-	-	-	472	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	573	-	62	459
Mov Cap-2 Maneuver	-	-	-	-	171	-
Stage 1	-	-	-	-	242	-
Stage 2	-	-	-	-	472	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	459	-	-	573	-
HCM Lane V/C Ratio	0.249	-	-	-	-
HCM Control Delay (s)	15.4	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0	-

APPENDIX M

Concept Plans

NOTES:

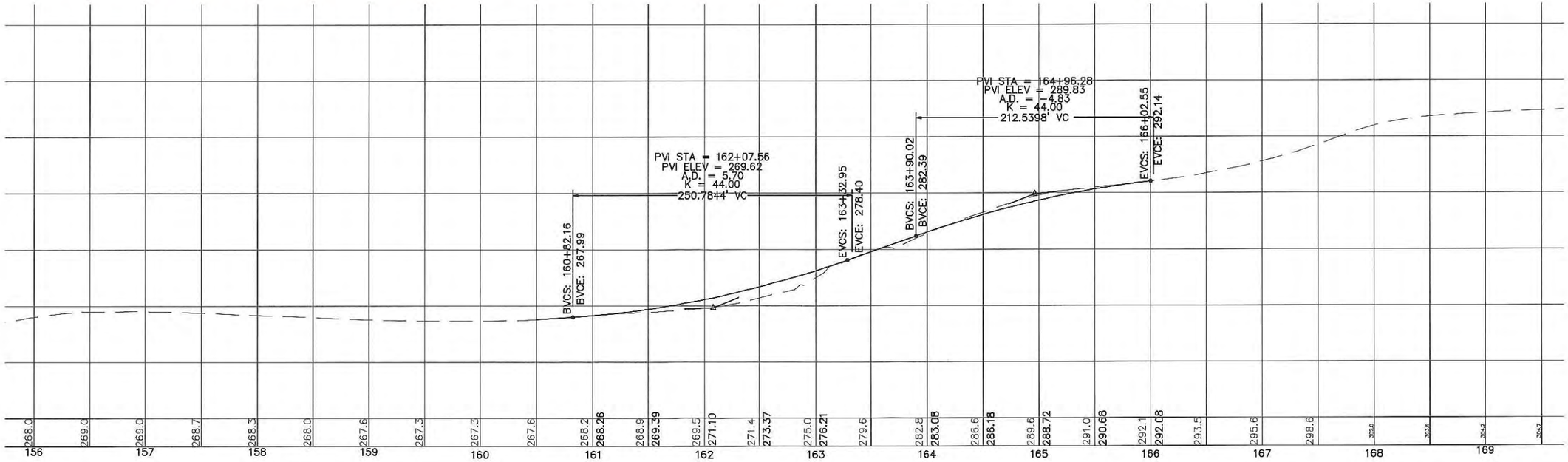
1. THE EXISTING TOPOGRAPHICAL SURVEY WAS PROVIDED BY TOLL BROTHERS ON 6/3/16.

2. THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. THE CONCEPTUAL DESIGN, INCLUDING ROADWAY GEOMETRY, TAPERS AND LANE SHIFT TRANSITIONS WERE BASED ON DESIGN SPEED OF 40 MPH.

3. THE POSTED SPEED LIMIT ON DRESHERTOWN ROAD IS 40 MPH.

LEGEND

- PROPOSED BITUMINOUS PAVEMENT – BET INVESTMENTS
- PROPOSED BITUMINOUS PAVEMENT – TOLL BROTHERS
- PAVEMENT MARKINGS TO BE INSTALLED BY TOLL BROTHERS
- PAVEMENT MARKINGS TO BE INSTALLED BY BET INVESTMENTS
- EXISTING PAVEMENT TO BE REMOVED
- PROPOSED BITUMINOUS DRIVEWAY ADJUSTMENT



SCALE

HORIZONTAL 50' 0 50'

VERTICAL 10' 0 10'

CONCEPTUAL ROADWAY PLAN

REVISION NUMBER	REVISIONS	DATE	BY

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

☒ 425 COMMERCE DRIVE
SUITE 200
FT. WASHINGTON, PA 19034
TELE: (215) 283-9444
FAX: (215) 283-9447

☐ 840 SPRINGDALE DRIVE
EXTON, PA 19341
TELE: (610) 594-9995
FAX: (610) 594-9565

☐ 840 W. HAMILTON STREET
SUITE 622
ALLENTOWN, PA 18101
TELE: (610) 628-2994
FAX: (610) 628-3755

DESIGN BY: BDD
DRAWN BY: RAS
CHECKED BY: BDD

JOB NO: 815367.11
DWG: CONCEPT PLAN
DATE: 2/8/17

BET INVESTMENTS, INC.
200 WITMER ROAD, SUITE 200
HORSHAM, PA 19044

PROPOSED AGE-RESTRICTED HOUSING DEVELOPMENT
DRESHERTOWN ROAD (SR 2024)
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY

MATCHLINE A–A

CONTINUED ON SHEET 3

CONTINUED ON SHEET 1

SAINT GEORGES ROAD

LOT 13
T.M.P.# 54-00-13859-60-4
N/F William P. & Rosine Poul
DB 4975 PG 1633

T.M.P.# 54-00-13859-622
N/F William A. Horn
DB 5022 PG 1276

100' TAPER
87' LEFT TURN LANE
8' WIDE BIT. WALKING PATH

SYCAMORE STREET

330'

Legal R/W Line

DRESHERTOWN ROAD
(S.R. 2024)

T.M.P.# 54-00-05242-005
N/F Prudential Ins. Co. of America
DB 4618 PG 75

T.M.P.# 54-00-05239-008
N/F Prudential Ins. Co. of America
DB 4550 PG 453

BET INVESTMENTS ACCESS

LEGEND

- PROPOSED BITUMINOUS PAVEMENT – BET INVESTMENTS
- PROPOSED BITUMINOUS PAVEMENT – TOLL BROTHERS
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- PAVEMENT MARKINGS TO BE INSTALLED BY BET INVESTMENTS
- PROPOSED BITUMINOUS DRIVEWAY ADJUSTMENT
- EXISTING PAVEMENT TO BE REMOVED

SCALE
50' 0 50'

CONCEPTUAL ROADWAY PLAN

REVISION NUMBER	REVISIONS	DATE	BY

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BET INVESTMENTS, INC.
200 WITMER ROAD, SUTE 200
HORSHAM, PA 19044

PROPOSED AGE-RESTRICTED HOUSING DEVELOPMENT
DRESHERTOWN ROAD (SR 2024)
UPPER DUBLIN TOWNSHIP MONTGOMERY COUNTY

CONTINUED ON SHEET 2

LEGEND

- PROPOSED BITUMINOUS PAVEMENT – BET INVESTMENTS
- EXISTING PAVEMENT TO BE REMOVED
- PROPOSED BITUMINOUS PAVEMENT – TOLL BROTHERS
- PROPOSED BITUMINOUS DRIVEWAY ADJUSTMENT
- PAVEMENT MARKINGS TO BE INSTALLED BY TOLL BROTHERS
- PAVEMENT MARKINGS TO BE INSTALLED BY BET INVESTMENTS

CONTINUED BELOW

CONTINUED ABOVE

SCALE
50' 0 50'

CONCEPTUAL ROADWAY PLAN

REVISION NUMBER	REVISIONS	DATE	BY

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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