
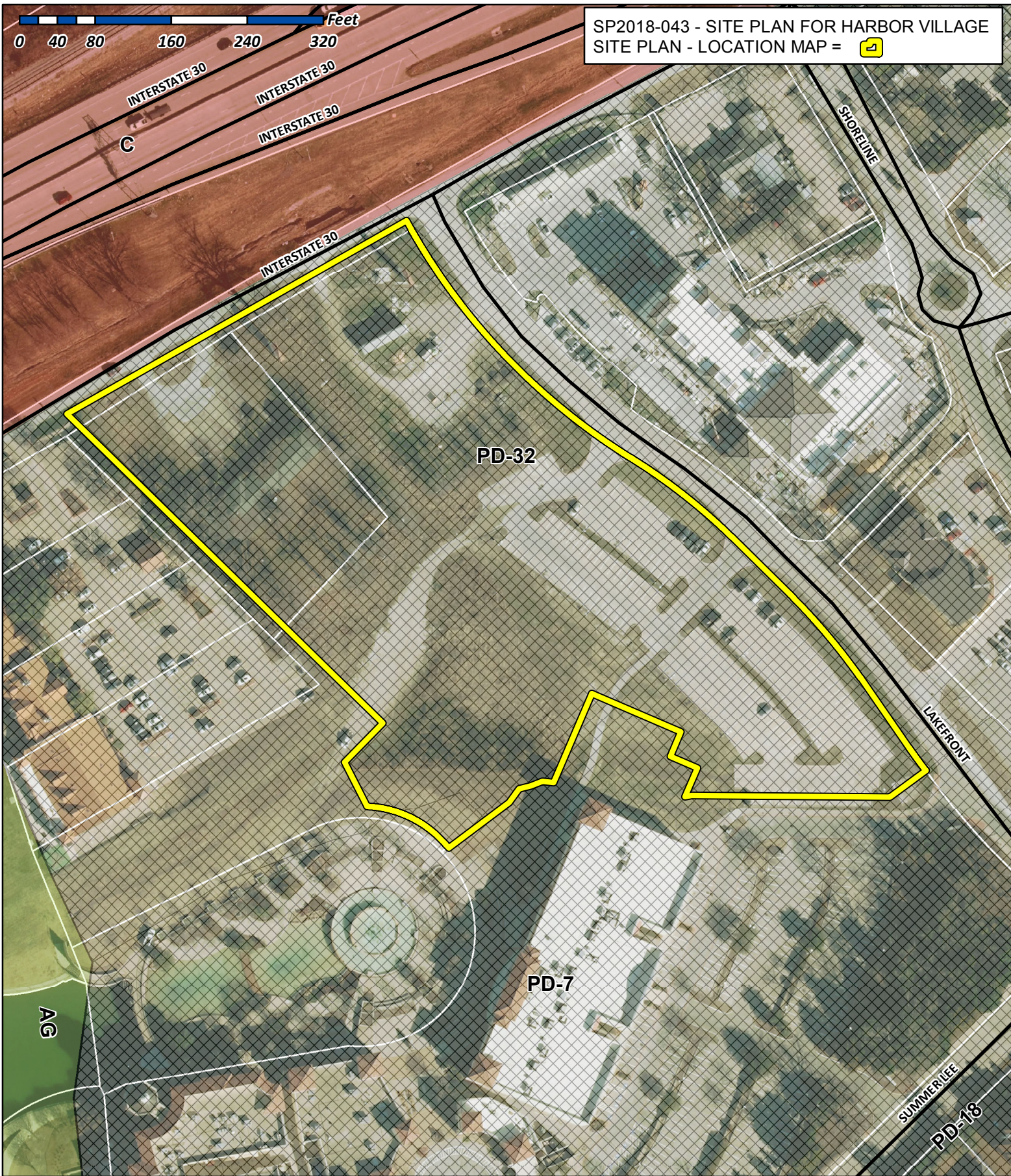


0 40 80 160 240 320 Feet

SP2018-043 - SITE PLAN FOR HARBOR VILLAGE
SITE PLAN - LOCATION MAP = 



City of Rockwall

Planning & Zoning Department
 385 S. Goliad Street
 Rockwall, Texas 75032
 (P): (972) 771-7745
 (W): www.rockwall.com

The City of Rockwall GIS maps are continually under development and therefore subject to change without notice. While we endeavor to provide timely and accurate information, we make no guarantees. The City of Rockwall makes no warranty, express or implied, including warranties of merchantability and fitness for a particular purpose. Use of the information is the sole responsibility of the user.



CURVE TABLE					
NO.	DELTA	RADIUS	LENGTH	CH. L	CH. B
C2	12°35'10"	620.00'	136.19'	135.92'	S51°48'46"E

LINE TABLE		
LINE #	BEARING	DISTANCE
L9	S79°07'41"W	7.21'
L10	N23°10'29"E	32.93'
L11	N66°36'24"W	31.00'
L12	N23°10'29"E	27.95'
L13	N82°38'15"W	11.76'
L14	S68°52'14"W	13.20'
L15	S75°08'27"W	12.97'
L16	S36°32'06"W	17.64'

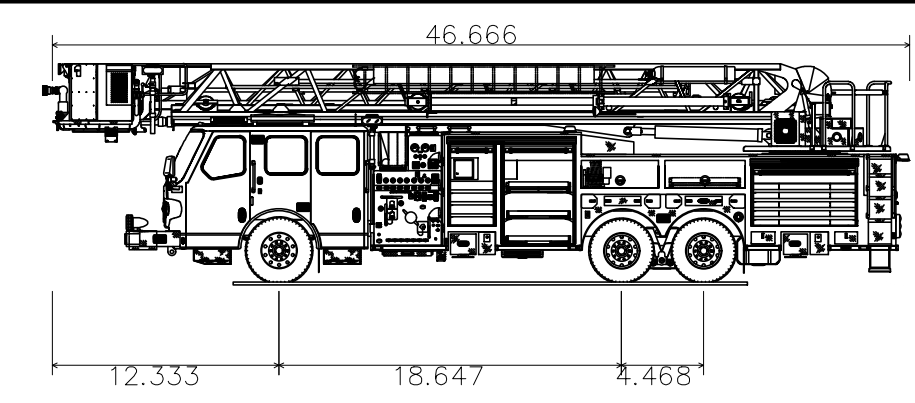
SITE DATA TABLE	
HARBOR VILLAGE - ROCKWALL	
HARBOR - ROCKWALL ADDITION	6.200 ACRES
LOT 9A, BLOCK A	270,065 SQ-FT
BUILDING AREA	127,000 SQ-FT
USE	DWELLING UNITS
COVERAGE	47.03%
TOTAL NUMBER OF UNITS	375 UNITS
REQUIRED PARKING RATIO	1.5 PER UNIT
PARKING REQUIRED	563 SPACES
OFF-STREET PARKING PROVIDED	563 SPACES
ON-STREET PARKING PROVIDED	32 SPACES
TOTAL PARKING PROVIDED	595 SPACES
OFF-STREET PROVIDED PARKING RATIO	1.5 PER UNIT
HANDICAP REQUIRED	12 SPACES
HANDICAP PROVIDED	12 SPACES
OVERFLOW PARKING PROVIDED	180 SPACES
* PARKING PROVIDED TOTAL INCLUDES ACCESSIBILITY PARKING	

**INTERSTATE HIGHWAY 30
(VARIABLE WIDTH RIGHT-OF-WAY)**

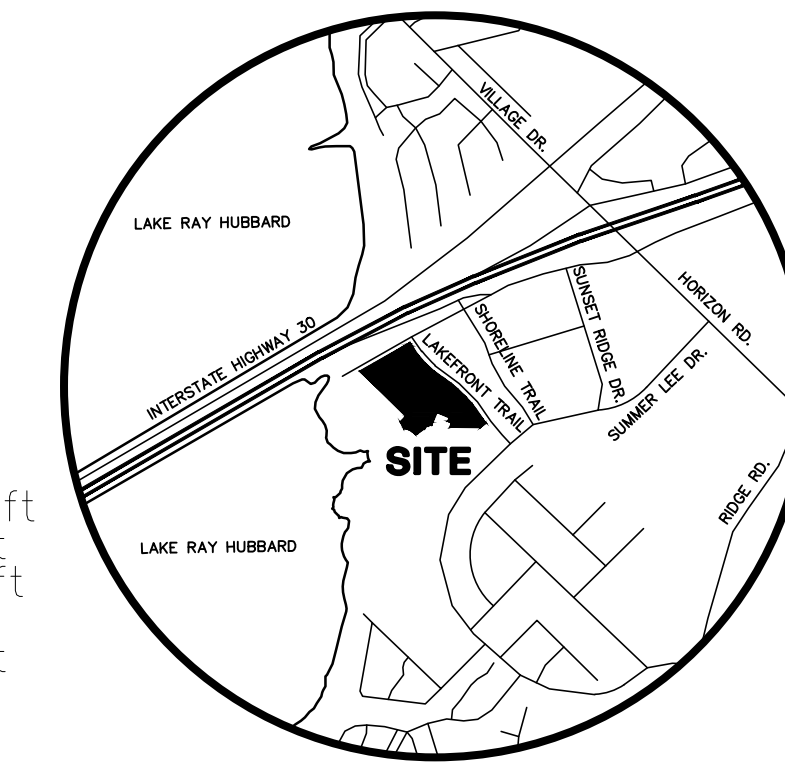
**LAKEFRONT TRAIL
(VARIABLE WIDTH RIGHT-OF-WAY)**

**LOT 9A, BLOCK A
6.200 AC.
(270,065 S.F.)**

**LOT 9B, BLOCK A
1.158 AC.
(50,453 S.F.)**



E-ONE HP100 Platform
Overall Length 46.666ft
Overall Width 12.333ft
Overall Body Height 18.647ft
Min Body Ground Clearance 4.468ft
Track Width 8.333ft
Lock-to-lock time 6.00s
Max Wheel Angle 45.00°



**VICINITY MAP
NOT TO SCALE**

*****NOTICES TO CONTRACTOR*****

EXISTING UNDERGROUND/BURIED PUBLIC, PRIVATE, AND FRANCHISE UTILITIES/FACILITIES AFFECT THIS SITE, AND ARE DEPICTED ON THE PLANS PER THE BEST AVAILABLE INFORMATION AT THE TIME THE PLANS WERE PRODUCED. WINKELMANN & ASSOC., INC. SHALL NOT BE RESPONSIBLE FOR KNOWING THE EXACT LOCATION OF ALL FACILITIES OR DEPICTING EXACT LOCATIONS OF SAID FACILITIES ON THE PLANS BEYOND WHAT IS STATED ABOVE.

CONTRACTOR(S) SHALL CALL "811" A MINIMUM OF 48 HOURS PRIOR TO BEGINNING WORK ON THE SITE, AND SHALL NOT BEGIN ANY EXCAVATION OR DEMOLITION ACTIVITIES UNTIL AFTER SAID FACILITIES HAVE BEEN MARKED AND/OR FLAGGED PER "811" OR THE FACILITY OWNERS.

CONTRACTOR(S) SHALL BE WHOLLY RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR TO SAID FACILITIES DUE TO WORK BEING DONE WITHOUT FOLLOWING THE PROCEDURES ABOVE.



Winkelmann & Associates, Inc.

CONSULTING CIVIL ENGINEERS
SURVEYORS
1100 HILLCREST PLAZA, SUITE 200, ROCKWALL, TX 75087
(972) 492-7999 FAX (972) 492-7999
Texas Engineers Registration No. 89,866-C
Professional Seal: Michael T. Duggett, P.E., License No. 120,147, State of Texas, Exp. 12/31/2018

THESE PLANS WERE PREPARED UNDER THE DIRECT SUPERVISION OF MICHAEL T. DOGGETT, P.E. #98628. THESE ARE ISSUED FOR INTERMEDIATE PURPOSES ONLY. THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.

12-14-2018

**SITE PLAN
HARBOR VILLAGE
ROCKWALL, TEXAS**

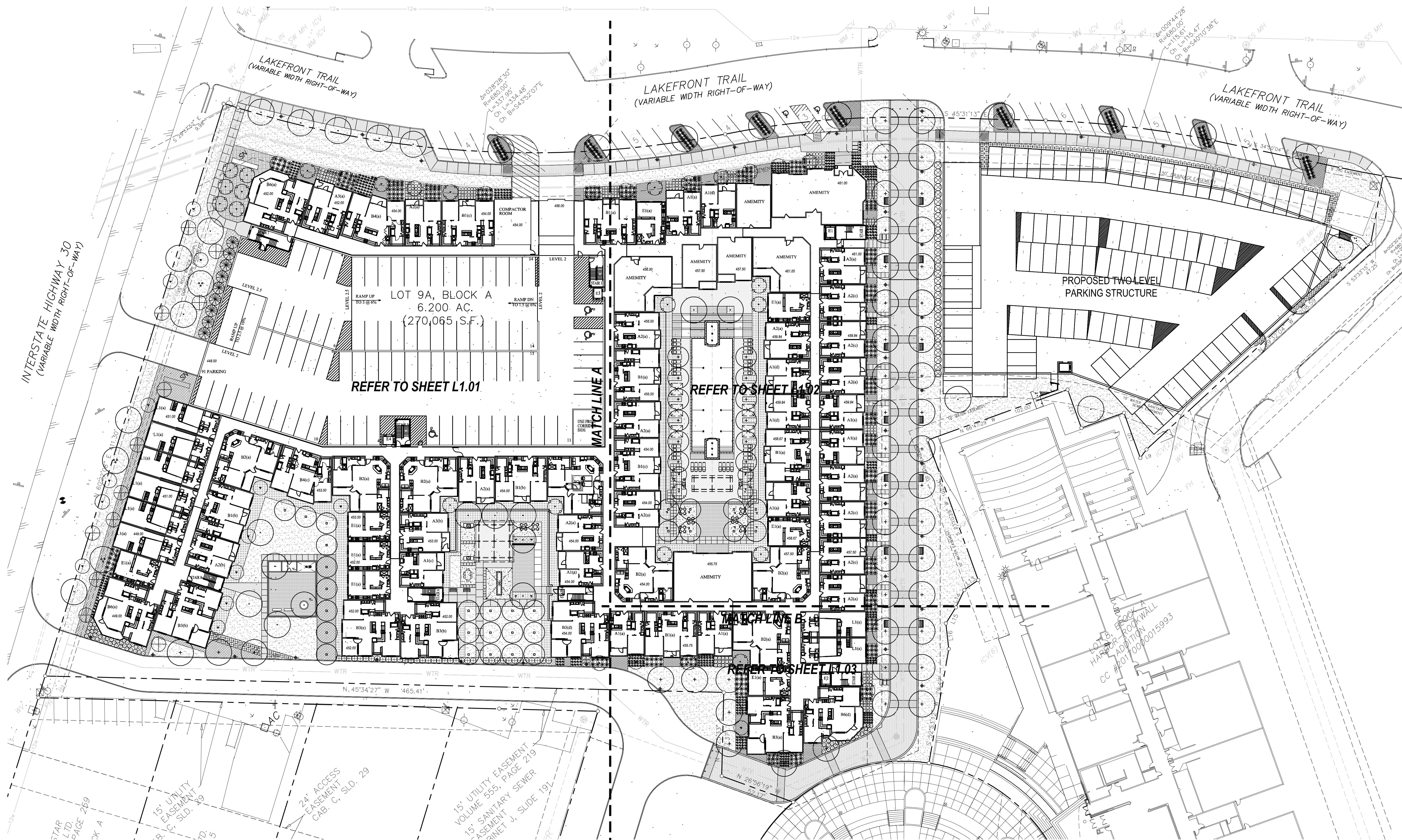
DEVELOPER
PEGASUS ABLON
KEVIN HICKMAN
8222 DOUGLAS AVENUE,
SUITE 390
DALLAS, TX 75225
214-389-6901

OWNER
ROCKWALL RENTAL PROPERTIES, LP
1608 WEST MOORE,
DRAWER B
TERREL, TX 75160
972-210-0331

LEGEND

PP	Power Pole	IRF	Iron Rod Found
CW	Guy Wire	IRS	Iron Rod Set
MH	Manhole	CIRS	Iron Rod Set w/ cap "WAI"
WV	Water Valve	CIRF	Iron Rod Found w/ cap
TP	Telephone Pedestal	XCS	X-cut in Concrete Set
WM	Water Meter	XCF	X-cut in Concrete Found
FH	Fire Hydrant	PKS	PK Nail Set
LP	Light Pole	PKF	PK Nail Found
IV	Irrigation Valve	SS	Sanitary Sewer
CO	Clean Out	SW	Storm Sewer
AC	Air Conditioner	TF	Transformer pad
TV	Cable Box	GM	Gas Meter
SB	Signal Box	GMK	Gas Marker
SP	Signal Pole	TSN	Traffic Sign
SN	Sign	UGC	Underground Cable Marker
CM	Control Monument	EM	Electric Meter

LAKE RAY HUBBARD



INTERSTATE HIGHWAY 30
(VARIABLE WIDTH RIGHT-OF-WAY)

LAKEFRONT TRAIL
(VARIABLE WIDTH RIGHT-OF-WAY)

LAKEFRONT TRAIL
(VARIABLE WIDTH RIGHT-OF-WAY)

LAKEFRONT TRAIL
(VARIABLE WIDTH RIGHT-OF-WAY)

LOT 9A, BLOCK A
6.200 AC.
(270,065 S.F.)
REFER TO SHEET L1.01

PROPOSED TWO LEVEL
PARKING STRUCTURE

NO.	DELTA	RADIUS	LENGTH	CH. L	CH. B
C2	12°35'10"	620.00'	136.19'	135.92'	S51°48'46"E

LINE #	BEARING	DISTANCE
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L15	S75°08'27"W	12.97'
L16	S36°32'06"W	17.64'

LANDSCAPE TABULATIONS: PD-32

SITE REQUIREMENTS (site area 270,065 s.f.)
Requirements: 15% site area to be landscaped

Required	Provided
40,059 s.f. (15%)	55,414 s.f. (20.5%)

STREET REQUIREMENTS:
Requirements: (2) canopy trees and (4) accent trees per 100 L.F. of IH 30 Frontage

IH 30 FRONTAGE ROAD (411.30 L.F. / IH 30 OVERLAY)

Required	Provided
(8) canopy trees, 4" cal.	(8) canopy trees, 4" cal.
(32) accent trees, 4" ht.	(32) accent trees, 8" ht. / 10' ht.

Requirements: (1) canopy tree, Live Oak; per 52 L.F. of frontage: PD 32

LAKE FRONT TRAIL (773.73 L.F.)

Required	Provided
(15) canopy trees	(16) canopy trees

PARKING LOT: N/A TWO STORY PARKING GARAGE

ALL TREES TO BE LOCATED 5' FROM WATER, SEWER AND STORM SEWER LINES

ALL TREES AND SHRUBS TO BE SETBACK 4' FROM ALL HEAD-IN PARKING

IRRIGATION WILL BE PROVIDED AND MEET UDC REQUIREMENTS

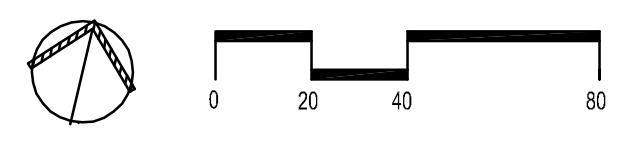
OWNER:
BHFS I & BHFS IV
15601 DALLAS PARKWAY STE. 600
ADDISON, TX 75001

DEVELOPER:
PEGASUS ABLON
8222 DOUGLAS AVENUE, SUITE 380 DALLAS, TX 75225
(214) 389-8901

ENGINEER/SURVEYOR:
WINKELMANN & ASSOCIATES INC. 6750
HILLCREST PLAZA DR., # 325 DALLAS, TEXAS
75230
(972) 490-7090



01 OVERALL LANDSCAPE SITE PLAN
SCALE: 1" = 40'-0"



NO.	DATE	DESCRIPTION

HARBOR VILLAGE

DWELLING UNITS IN ROCKWALL, TEXAS FOR
PEGASUS ABLON

smr
landscape architects, inc.
1708 N. Griffin Street
Dallas, Texas 75202
Tel: 214.871.0583
Fax: 214.871.0584
Email: smr@smr-la.com

BGO ARCHITECTS

4202 Beltway Drive
Addison, TX 75001
214.520.8878
bgoarchitects.com

DATE
12-14-18

PROJECT
17126

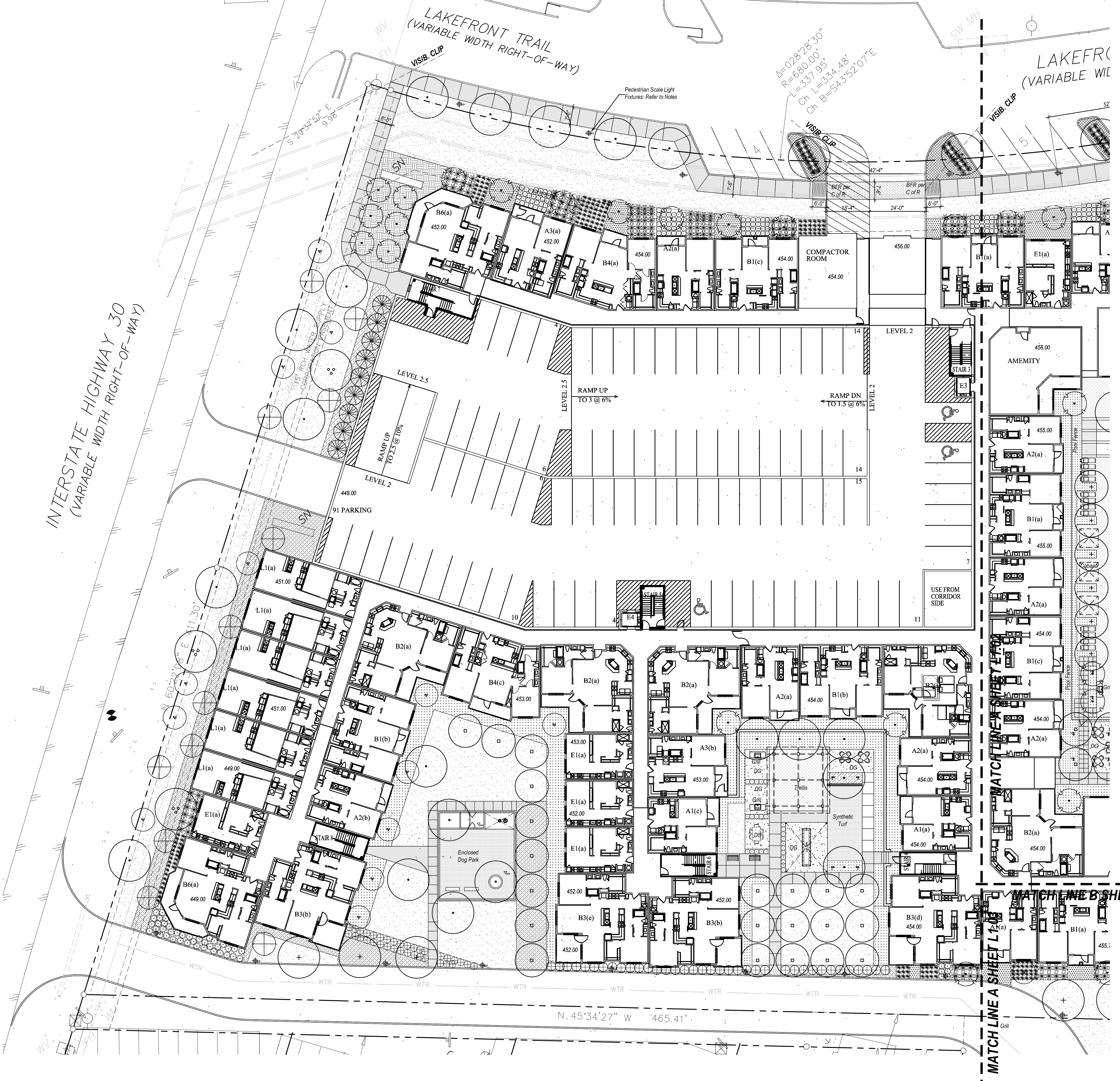
SHEET NUMBER
L1.00
SHEET # = SANSERIFF

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INTERSTATE HIGHWAY 30
(VARIABLE WIDTH RIGHT-OF-WAY)

LAKEFRONT TRAIL
(VARIABLE WIDTH RIGHT-OF-WAY)

LAKEFRONT TRAIL
(VARIABLE WIDTH RIGHT-OF-WAY)



LIGHTING NOTES

- Lights shall be:
 - Pedestrian Scale Light:
BEGA 9701 MH 100W MH
BEGA 1108 HR 11'-8" tapered round pole with integral banner arms
 - Tree uplights in ROW to be:
BK Lighting - B-K HP2-PAR2020-TR-59-SAP-11
- Contractor is responsible for supplying all material and labor to provide finished lighting as per plan.
- Contractor is responsible for providing all equipment necessary for the complete installation of the lighting system including, but not limited to: fixtures, lamps, switches, controls, wiring, conduits, etc.
- Contractor shall obtain all necessary permits and adhere to all Local, State and Federal Codes and Standards, and Development Guidelines (if any).
- Contractor is responsible for reviewing the Manufacturer's Specifications and installing lights and wires per such specifications.
- Contractor is responsible for wiring lights to timer and electric eye for operation, or as shown on the electrical drawings.

BENCHES

- Benches shall be:
LANDSCAPE FORMS
SCARBOROUGH SERIES BACKLESS 22 X 18 X 72
ALUMINUM, SURFACE MOUNT, MOSS GREY
TOTAL OF (22)
- Contractor shall provide turn-key installation of all benches including, but not limited to, shipment, handling, placement, etc.

BIKE RACK NOTES

- BIKE RACKS shall be:
FORMS + SURFACES:
TRICY Powdercoat: Moss Grey
embedded mount
Total of (6); two per rack

PET WASTE STATION NOTES

- Pet Waste Stations shall be:
ZERO WASTE USA
The Sentry Pet Waste Station (#LJ006) ZW Green
www.zerowasteusa.com / 1.800.789.2563
TOTAL OF (2) IN DOG PARK AREA
- Contractor shall provide turn-key installation including, but not limited to, shipment, handling, placement, etc.

BOLLARD NOTES

- BOLLARDS shall be:
HESS AMERICA:
PARIS 1100 - B' Removable
Powdercoat: Moss Grey / 43.3" ht. x 3.9" dia.
Total of (10)

GRAPHIC PLANT LEGEND

- BALD CYPRESS
- RED OAK
- CEDAR ELM
- LIVE OAK
- OCTOBER GLORY RED MAPLE
- VITEX
- REDBUD
- CREPE MYRTLE
- CHERRY LAUREL
- NELLIE R. STEVENS HOLLY
- HEAVY METAL SWITCHGRASS
- GULF MUHLY
- RED YUCCA
- HAMELN GRASS
- SALVIA
- MEXICAN FEATHER GRASS
- BERKELEY SEDGE
- WINTERCREEPER
- LAWN, SOLID SOD
- PLANTING BEDS
Shrubs and Groundcover

GRAPHIC SITE LEGEND

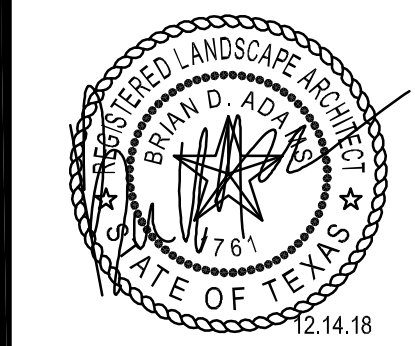
- PAVESTONE PAVER TYPE 'A'
'Holland 98 Parkway Provencia'
'Antique Terra-cotta': 8 cm
Herringbone Pattern on concrete sub-base
- PAVESTONE PAVER TYPE 'A'
'Holland 98 Parkway Provencia'
'Antique Terra-cotta': 8 cm
Running Bond Pattern on concrete sub-base
- PAVESTONE PAVER TYPE POOL COURTYARD
ON CONCRETE SUB-BASE
- CONCRETE WALK: Light Sandblast / Sawcut Joints
INTEGRAL COLOR: 'COACHELLA SAND'
- CONCRETE WALK: Light Sandblast / Sawcut Joints
INTEGRAL COLOR: 'CHARCOAL'
- PEDESTRIAN BENCHES
REFER TO NOTES
- PEDESTRIAN SCALE LIGHTS
REFER TO NOTES

REFER TO SHEET L1.03 FOR
PLANT LIST

REVISIONS

NO.	DATE	DESCRIPTION

HARBOR VILLAGE
DWELLING UNITS IN ROCKWALL, TEXAS FOR
PEGASUS ABLON



smr
landscape architects, inc.
1708 N. Griffin Street
Dallas, Texas 75202
Tel: 214.871.0583
Fax: 214.871.0584
Email: smr@smr-la.com

BGO ARCHITECTS
4202 Beltway Drive
Addison, TX 75001
214.520.8878
bgoarchitects.com

DATE
12-14-18

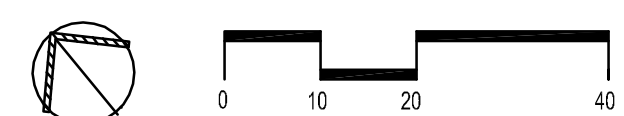
PROJECT
17126

SHEET NUMBER
L1.01

SHEET NAME
= SANSERIFF



01 LANDSCAPE PLAN
SCALE: 1" = 20'-0"



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CONCRETE NOTES

- All concrete shall be in accordance with the A.C.I. standard "Building Code Requirements for Reinforced Concrete" (A.C.I. 318) latest revision.
- All reinforcing steel shall be new domestic deformed billet steel conforming to ASTM A615, Grade 60 (60,000 PSI yield point).
- Reinforcing bar supports and spacers shall be provided in accordance with the Manual of Standard Practice by the Concrete Reinforcing Steel Institute.
- Concrete shall have a minimum compressive strength at 28 days of 3000 PSI.
- Grade beam concrete protection of reinforcement shall be 2" minimum top and sides, 3" minimum bottom.
- Maximum nominal coarse aggregate sizes for concrete in the slabs-on-grade shall be 3/4".
- Concrete slumps shall be 4" maximum, 2" minimum.
- Mortar for walls shall be Type M ASTM C-270, consisting of one (1) part hydrated Type S Lime, and not more than 3 3/4 parts well graded masonry sand with all proportions by volume.

PAVESTONE NOTES

- Contractor shall adhere to the Manufacturer's Installation Guidelines, Specifications, and any other requirements outlined by the Manufacturer for all paver installation.
- It shall be the responsibility of the Contractor to obtain a copy of the Manufacturer's Specifications prior to commencing any work.
- Type 'A' Pavers to be: Type and Color to be selected by Landscape Architect.
- Type 'B' Pavers to be: Type and Color to be selected by Landscape Architect.
- 'PAVESTONE' Pavers available from: Pavedstone Company
Mr. Joey Guedea (800) 245-7283.
- Pattern as indicated on drawings.
- Contractor shall submit a 'PAVESTONE' Standard Color Sample Board to the Landscape Architect / Owner for color selection prior to placing order.
- The final color selection shall be made by the Landscape Architect on-site.
- The Contractor shall construct a sample panel 10'-0" by 10'-0" on-site, at no expense to the Owner, for approval by the Landscape Architect / Owner prior to commencing work.
- The Landscape Architect reserves the right to reject any and all work executed by the Contractor which does not meet his/her expectations and the Manufacturer's Specifications.
- The Contractor shall make any modifications required by the Landscape Architect at no expense to the Owner.

INTEGRAL COLORED CONCRETE NOTES

- Color shall be integral concrete.
'Chromix Admixtures' or equal as supplied by:
L.M. Scofield Company
1-800-222-4100
- Contractor shall provide sample standard colors board and installation specifications from L.M. Scofield for review by the Architect and Owner prior to installation.
- Contractor shall adhere to Manufacturer's Installation Guidelines, Specifications, and other requirements for all Color-Conditioned Concrete installation.
- It shall be the responsibility of the Contractor to obtain a copy of the Manufacturer's Specifications prior to commencing any work.
- The architect reserves the right to reject any and all work executed by the Contractor which does not meet his/her expectations and Manufacturer's Specifications.
- The Contractor shall construct a sample panel 3'-0" x 3'-0" on site, at no expense to the Owner, for approval by the Architect / Owner prior to commencing work.

DECOMPOSED GRANITE NOTES

- Provide Decomposed Granite with 'Stabilizer' Binder additive surfacing as indicated on drawings.
- Submit representative samples of items specified for approval by Landscape Architect, Architect and Owner.
- Decomposed Granite base material shall consist of a natural material mix of granite aggregate not to exceed 1/8" diameter in size and various stages of decomposed earth base.
- Filter Fabric: Fabric shall be 'Miracscape', non-woven needle punched fabric made from polypropylene, non-biodegradable, inert to soil chemicals, acids and alkalines over a pH range of 3 - 12, as manufactured by MIRAFI Inc., or approved equal.
- 'Stabilizer' Binder additive to be provided by:
Stabilizer Solutions
1 (800) 336-2468; www.stabilizersolutions.com
Blend to be 12 - 16 lbs. of Stabilizer per ton of Decomposed Granite, thoroughly mixed throughout.
- Provide grade stakes at 10 foot centers to insure grade points indicated on drawings are met. Insure scope of subgrade and finish surface meets cross sections indicated in details.
- Prepare subgrade by excavating existing material soils to a maximum depth of 4".
- After excavation, rototill or scarify top 1 inch of subgrade and compact to 95% standard proctor using double drum, single drum or automatic hand tamper.
- Install filter fabric in bottom of excavation to limits of path.
- Place four (4) inches of Decomposed Granite with 'Stabilizer' Binder over a dry sub-base. Do not install on wet sub-base. Provide compaction of material to maximum limits with automatic hand tamper in one inch lifts, unless noted otherwise on details. Compact to achieve a light material matrix.
- Provide twenty (20) 50 lbs. bags of pre-mixed Decomposed Granite for future use in repair and maintenance.
- The Contractor shall construct a sample panel 5'-0" x 5'-0" on site, at no expense to the Owner, for approval by the Landscape Architect / Owner prior to commencing work.

GENERAL LAWN NOTES

- Fine grade areas to achieve final contours indicated on civil plans.
- Adjust contours to achieve positive drainage away from buildings. Provide uniform rounding at top and bottom of slopes and other breaks in grade. Correct irregularities and areas where water may stand.
- All lawn areas to receive solid sod shall be left in a maximum of 1" below final finish grade. Contractor to coordinate operations with on-site Construction Manager.
- Imported topsoil shall be natural, friable soil from the region, known as bottom and soil, free from lumps, clay, toxic substances, roots, debris, vegetation, stones, containing no salt and black to brown in color.
- All lawn areas to be fine graded, irrigation trenches completely settled, and finish grade approved by the Owner's Construction Manager or Architect prior to installation.
- All rocks 3/4" diameter and larger, dirt clods, sticks, concrete spoils, etc. shall be removed prior to placing topsoil and any lawn installation.
- Contractor shall provide (1") one inch of imported topsoil on all areas to receive lawn.

SOLID SOD NOTES

- Fine grade areas to achieve final contours indicated. Leave areas to receive topsoil 3" below final desired grade in planting areas and 1" below final grade in turf areas.
- Adjust contours to achieve positive drainage away from buildings. Provide uniform rounding at top and bottom of slopes and other breaks in grade. Correct irregularities and areas where water may stand.
- All lawn areas to receive solid sod shall be left in a maximum of 1" below final finish grade. Contractor to coordinate operations with on-site Construction Manager.
- Contractor to coordinate with on-site Construction Manager for availability of existing topsoil.
- Plant sod by hand to cover indicated area completely. Insure edges of sod are touching. Top dress joints by hand with topsoil to fill voids.
- Roll grass areas to achieve a smooth, even surface, free from unnatural undulations.
- Water sod thoroughly as sod operation progresses.
- Contractor shall maintain all lawn areas until final acceptance. This shall include, but not limited to: mowing, watering, weeding, cultivating, clearing and replacing dead or bare areas to keep plants in a vigorous, healthy condition.
- Contractor shall guarantee establishment of an acceptable turf area and shall provide replacement from local supply if necessary.
- If installation occurs between September 1 and March 1, all sod areas to be over-seeded with Winter Ryegrass, at a rate of (4) pounds per one thousand (1000) square feet.

IRRIGATION REPAIR SPECIFICATIONS: IF NEEDED FOR ANY OFF-SITE REPAIRS

- Contractor shall perform site visit prior to bidding and construction, to review extent of existing irrigation system.
- Contractor shall be responsible for verifying conditions of existing irrigation system. Contractor shall be responsible for maintaining the integrity of existing irrigation where possible, and if not, repair as needed, including but not limited to irrigation controller, meter, sleeving, etc.

LAWN REPAIR NOTES: IF NEEDED FOR ANY OFF-SITE REPAIRS

- All lawn areas damaged during construction to be repaired with solid sod and raked free of debris.
- Adjust damaged areas to achieve positive drainage away from buildings. Provide uniform rounding at top and bottom of slopes and other breaks in grade. Correct irregularities and areas where water may stand.
- All areas to be repaired must be planted by hand to cover area completely. Insure edges of sod are touching. Top dress joints by hand with compost to fill voids.
- Roll repaired areas to achieve a smooth, even surface, free from unnatural undulations.

LANDSCAPE NOTES

- Contractor shall verify all existing and proposed site elements and notify Architect of any discrepancies. Survey data of existing conditions was supplied by others.
- Contractor shall locate all existing underground utilities and notify Architect of any conflicts. Contractor shall exercise caution when working in the vicinity of underground utilities.
- Contractor is responsible for obtaining all required landscape and irrigation permits.
- Contractor to provide a minimum 2% slope away from all structures.
- All planting beds and lawn areas to be separated by steel edging. No steel to be installed adjacent to sidewalks or curbs.
- All landscape areas to be 100% irrigated with an underground automatic irrigation system and shall include rain and freeze sensors.
- All lawn areas to be Solid Sod Bermuda grass, unless otherwise noted on the drawings.

MAINTENANCE NOTES

- The Owner, tenant and their agent, if any, shall be jointly and severally responsible for the maintenance of all landscape.
- All landscape shall be maintained in a neat and orderly manner at all times. This shall include mowing, edging, pruning, fertilizing, watering, weeding and other such activities common to landscape maintenance.
- All landscape areas shall be kept free of trash, litter, weeds and other such material or plants not part of this plan.
- All plant material shall be maintained in a healthy and growing condition as is appropriate for the season of the year.
- All plant material which dies shall be replaced with plant material of equal or better value.
- Contractor shall provide separate bid proposal for one year's maintenance to begin after final acceptance.

PLANT LIST

TREES	QTY.	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
	56	Bald Cypress	Taxodium distichum	4" cal.	container grown, 15' ht., 5' spread min.
	36	Crape Myrtle 'Dallas Red'	Lagerstroemia indica 'Dallas Red'	2" cal.	container grown, 3-5 cans, no cross caning
	36	Live Oak	Quercus virginiana	4" cal.	container grown, 15' ht., 5' spread min.
	9	Magnolia 'DD Blanchard'	Magnolia sp. 'DD Blanchard'	12" ht.	container grown, full to base
	29	October Glory Red Maple	Acer sp. 'October Glory'	3" cal.	container grown, 13' ht., 4' spread min.
	3	Red Oak 'Shumard'	Quercus shumardii	4" cal.	B&B, 14" ht., 4'-5' spread min.
	15	Redbud	Cercis canadensis	2" cal.	B&B, single trunk, 10' ht. min.
	12	Vitex	Vitex agnes-castes	8" ht.	B&B or container, tree form, 3-5 cane

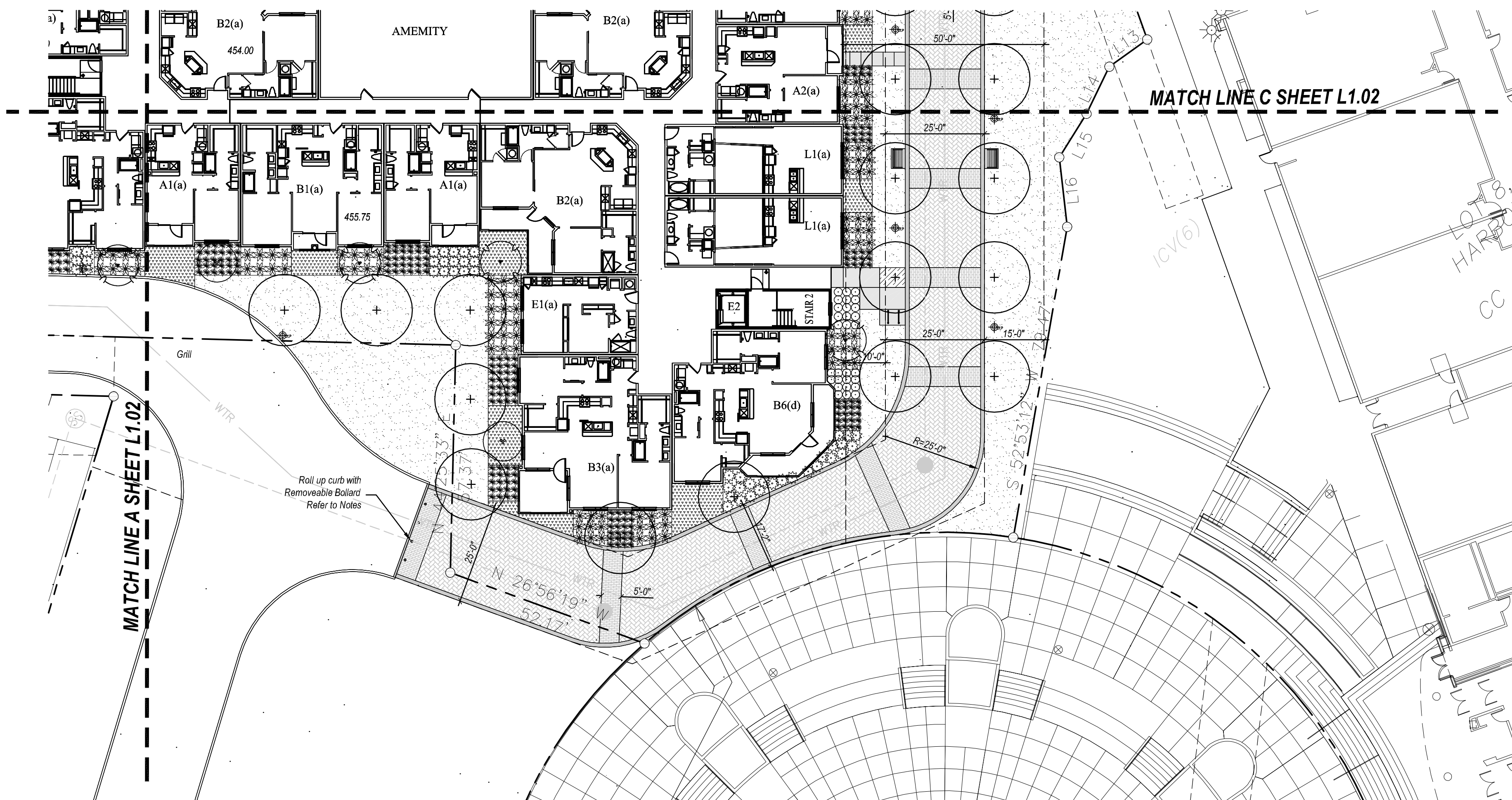
SHRUBS

QTY.	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
67	Cherry Laurel	Prunus caroliniana	5" ht.	container, full plant, 4" o.c.
157	Nellie R. Stevens holly	Ilex sp. 'Nellie R. Stevens'	36" ht.	container, full plant, 36" o.c.
360	Softleaf Yucca	Yucca recurvifolia	5 gal.	container, full plant, 36" o.c.
88	Switchgrass	Panicum sp. 'Heavy Metal'	3 gal.	container, full top of container, 36" o.c.
126	Gulf Muhly	Muhlenbergia capillaris	3 gal.	container, full top of container, 30" o.c.
493	Harmless Grass	Pennisetum alopecuroides	3 gal.	container, full top of container, 24" o.c.
265	Salvia 'Furman's Red'	Salvia greggii 'Furman's Red'	5 gal.	container, full plant, 24" o.c.
1053	Mexican Feathergrass	Nassella tenuisamma	3 gal.	container, full top of container, 18" o.c.

GROUNDCOVERS

QTY.	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
2249	Berkeley Sedge	Carex divisa	4" pots	container, full top of container, 12" o.c.
2548	Wintercreeper	Euzoymus fortunei coloratus	4" pots	container, (3) 12" runners min, 12" o.c.
	Common Bermudagrass	Cynodon dactylon	roll sod	solid sod, refer to notes

NOTE: Plant list is an aid to bidders only. Contractor shall verify all quantities on plan. All heights and spreads are minimums. All plant material shall meet or exceed remarks as indicated. All trees to have straight trunks and be matching within varieties.



GRAPHIC PLANT LEGEND

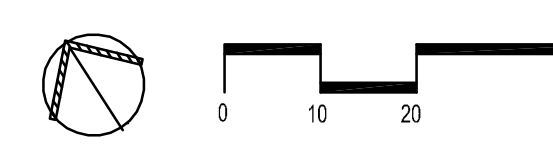
- ⊕ BALD CYPRESS
- ⊙ RED OAK
- ⊙ CEDAR ELM
- ⊙ LIVE OAK
- ⊙ OCTOBER GLORY RED MAPLE
- ⊕ VITEX
- ⊙ REDBUD
- ⊙ CREPE MYRTLE
- ⊗ CHERRY LAUREL
- ⊕⊕⊕ NELLIE R. STEVENS HOLLY
- ⊙⊙⊙ HEAVY METAL SWITCHGRASS
- ⊙⊙⊙ GULF MUHLY
- ⊙⊙⊙ RED YUCCA
- ⊙⊙⊙ HAMELN GRASS
- ⊙⊙⊙ SALVIA
- ⊙⊙⊙ MEXICAN FEATHER GRASS
- ⊙⊙⊙ BERKELEY SEDGE
- ⊙⊙⊙ WINTERCREEPER
- ⊙⊙⊙ LAWN, SOLID SOD
- ⊙⊙⊙ PLANTING BEDS
Shrubs and Groundcover

GRAPHIC SITE LEGEND

- PAVESTONE PAVER TYPE 'A'
'Holland 98 Parkway Provencaia'
'Antique Terra-cotta' 8 cm
Herringbone Pattern on concrete sub-base
- PAVESTONE PAVER TYPE 'A'
'Holland 98 Parkway Provencaia'
'Antique Terra-cotta' 8 cm
Running Band Pattern on concrete sub-base
- PAVESTONE PAVER TYPE POOL COURTYARD
ON CONCRETE SUB-BASE
- CONCRETE WALK: Light Sandblast / Sawcut Joints
INTEGRAL COLOR: 'COACHELLA SAND'
- CONCRETE WALK: Light Sandblast / Sawcut Joints
INTEGRAL COLOR: 'CHARCOAL'
- PEDESTRIAN BENCHES
REFER TO NOTES
- PEDESTRIAN SCALE LIGHTS
REFER TO NOTES



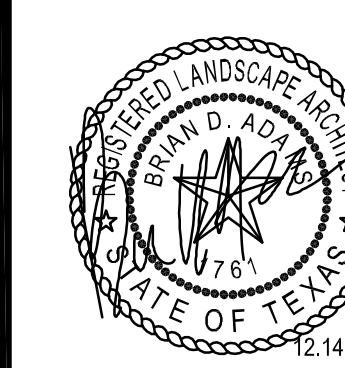
01 LANDSCAPE PLAN
SCALE: 1" = 20'-0"



REVISIONS

NO.	DATE	DESCRIPTION

HARBOR VILLAGE
DWELLING UNITS IN ROCKWALL, TEXAS FOR
PEGASUS ABLON



smr
landscape architects, inc.
1708 N. Griffin Street
Dallas, Texas 75202
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Fax: 214.871.0365
Email: smr@smr-la.com

BGO ARCHITECTS

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Addison, TX 75001
214.520.8878
bgoarchitects.com

DATE
12-14-18

PROJECT
17126

SHEET NUMBER
L1.03

SHEET NAME
= SANSEIRFF

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SECTION 02900 - LANDSCAPE

PART 1 - GENERAL

1.1 REFERENCED DOCUMENTS

Refer to bidding requirements, special provisions, and schedules for additional requirements.

1.2 DESCRIPTION OF WORK

Work included: Furnish all supervision, labor, materials, services, equipment and appliances required to complete the work covered in conjunction with the landscaping covered in these specifications and landscaping plans, including:

1. Planting (trees, shrubs, and grass)
2. Bed preparation and fertilization
3. Notification of sources
4. Water and Maintenance until final acceptance
5. Guarantee

1.3 REFERENCE STANDARDS

- A. American Standard for Nursery Stock published by American Association of Nurserymen: 27 October 1980, Edition; by American National Standards Institute, Inc. (Z60.1) - plant material.
- B. American Joint Committee on Horticultural Nomenclature: 1942 Edition of Standardized Plant Names.
- C. Texas Association of Nurserymen, Grades and Standards.
- D. Hortis Third, 1976 - Cornell University

1.4 NOTIFICATION OF SOURCES AND SUBMITTALS

- A. The Contractor shall, within ten (10) days following acceptance of bid, notify the Architect/Owner of the sources of plant materials and bed preparation required for the project.
- B. Samples: Provide representative quantities of sandy loam soil, mulch, bed mix material, gravel, and crushed stone. Samples shall be approved by Architect before use on project.
- C. Product Data: Submit complete product data and specifications on all other specified materials.
- D. Submit three representative samples of each variety of ornamental trees, shrubs, and groundcover plants for Architect's approval. When approved, tag, install, and maintain as representative samples for final installed plant materials.
- E. File Certificates of inspection of plant material by state, county, and federal authorities with Architect, if required.
- F. Soil Analysis: Provide sandy loam soil analysis if requested by the Architect.

PART 3 - EXECUTION

3.1 BED PREPARATION & FERTILIZATION

- A. Landscape Contractor to inspect all existing conditions and report any deficiencies to the Owner.
- B. All planting areas shall be conditioned as follows:
 1. Prepare new planting beds by scraping away existing grass and weeds as necessary. Till existing soil to a depth of six (6") inches prior to placing compost and fertilizer. Apply fertilizer as per manufacturers recommendations. Add six (6") inches of compost and till into a depth of six (6") inches of the topsoil. Apply organic fertilizer such as Sustane or Green Sense at the rate of twenty (20) pounds per one thousand (1,000) square feet.
 2. All planting areas shall receive a two (2") inch layer of specified mulch.
 3. Backfill for tree pits shall be as follows: Use existing top soil on site (use imported topsoil as needed) free from large clumps, rocks, debris, caliche, subsoils, etc., placed in nine (9") inch layers and watered in thoroughly.
- C. Grass Areas:
 1. Areas to be Solid Sod Bermudagrass: Blocks of sod should be laid joint to joint, (staggered joints) after fertilizing the ground first. Roll grass areas to achieve a smooth, even surface. The joints between the blocks of sod should be filled with topsoil where they are evidently gapped open, then watered thoroughly.
 2. Areas to be Hydromulch Common Bermudagrass: Hydromulch with bermudagrass seed at a rate of two (2) pounds per one thousand (1,000) square feet. Use a 4' x 8' board against the bed areas.

3.2 INSTALLATION

- A. Maintenance of plant materials shall begin immediately after each plant is delivered to the site and shall continue until all construction has been satisfactorily accomplished.
- B. Plant materials shall be delivered to the site only after the beds are prepared and area ready for planting. All shipments of nursery materials shall be thoroughly protected from the drying winds during transit. All plants which cannot be planted at once, after delivery to the site, shall be well protected against the possibility of drying by wind and sun. Balls of earth of B & B plants shall be kept covered with soil or other acceptable material. All plants remain the property of the Contractor until final acceptance.
- C. Position the trees and shrubs in their intended location as per plan.
- D. Notify the Landscape Architect for inspection and approval of all positioning of plant materials.
- E. Excavate pits with vertical sides and horizontal bottom. Tree pits shall be large enough to permit handling and planting without injury to balls of earth or roots and shall be of such depth that, when planted and settled, the crown of the plant shall bear the same relationship to the finish grade as it did to soil surface in original place of growth.

JOB CONDITIONS

- A. General Contractor to complete the following punch list: Prior to Landscape Contractor installing any portion of landscape installation, General Contractor shall leave planting bed areas three (3") inches below finish grade of sidewalks, drives and curbs as shown on the drawings. All lawn areas to receive solid sod shall be left one (1") inch below the finish grade of sidewalks, drives, and curbs. All construction debris shall be removed prior to Landscape Contractor beginning any work.
- B. General Contractor shall provide topsoil as described in Section 02200 - Earthwork.
- C. Storage of materials and equipment at the job site will be at the risk of the Landscape Contractor. The Owner cannot be held responsible for theft or damage.

1.6 MAINTENANCE AND GUARANTEE

- A. Maintenance:
 1. The Landscape Contractor will be held responsible for the maintenance of all work from the time of planting until final acceptance by the Owner. No trees, shrubs, groundcover or grass will be accepted unless they show a healthy growth and satisfactory foliage conditions.
 2. Maintenance shall include watering of trees and plants, cultivation, weeding spraying, edging, pruning of trees, mowing of grass, cleaning up and all other work necessary of maintenance.
 3. A written notice requesting final inspection and acceptance should be submitted to the Owner at least seven (7) days prior to completion. An on-site inspection by Owner and Landscape Contractor will be completed prior to written acceptance.
 4. After final acceptance of installation, the Landscape Contractor will not be required to do any of the above listed work.
- B. Guarantee:
 1. Trees shall be guaranteed for a twelve (12) month period after acceptance. Shrubs and groundcover shall be guaranteed for twelve (12) months. The Contractor shall replace all dead materials as soon as weather permits and upon notification of the Owner. Plants, including trees, which have partially died so that shape, size, or symmetry has been damaged, shall be considered subject to replacement. In such cases, the opinion of the Owner shall be final.
 - a. Plants used for replacement shall be of the same size and kind as those originally planted and shall be planted as originally specified. All work, including materials, labor and equipment used in replacements, shall carry a twelve (12) month guarantee. Any damage, including ruts in lawn or bed areas, incurred as a result of making replacements shall be immediately repaired.
 - b. At the direction of the Owner, plants may be replaced at the start of the next year's planting season. In such cases, dead plants shall be removed from the premises immediately.
 - c. When plant replacements are made, plants, soil mix, fertilizer and mulch are to be utilized as originally specified and inspected for full compliance with Contract requirements. All replacements are to be included under "Work" of this section.

1.7 QUALITY ASSURANCE

- A. General: Comply with applicable Federal, State, County and Local regulations governing landscape materials and work.
- B. Personnel: Employ only experienced personnel who are familiar with the required work. Provide full time supervision by a qualified foreman acceptable to Landscape Architect.
- C. Selection of Plant Material:
 1. Make contact with suppliers immediately upon obtaining notice of contract acceptance to select and book materials. Develop a program of maintenance (pruning and fertilization) which will insure the purchased materials will meet and/or exceed project specifications.
 2. Landscape Architect will provide a key identifying each tree location on site. Written verification will be required to document material selection, source and delivery schedules to site.
 3. Owner and/or Architect shall inspect all plant materials when reasonable at place of growth for compliance with requirements for genus, species, cultivar/variety, size and quality.
 4. Owner and/or Architect retains the right to further inspect all plant material upon arrival at the site and during installation for size and condition of root balls, limbs, branching habit, insects, injuries, and latent defects.
 5. Owner and/or Architect may reject unsatisfactory or defective material at any time during the process of work. Remove rejected materials from the site immediately. Plants damaged in transit or at job site shall be rejected.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

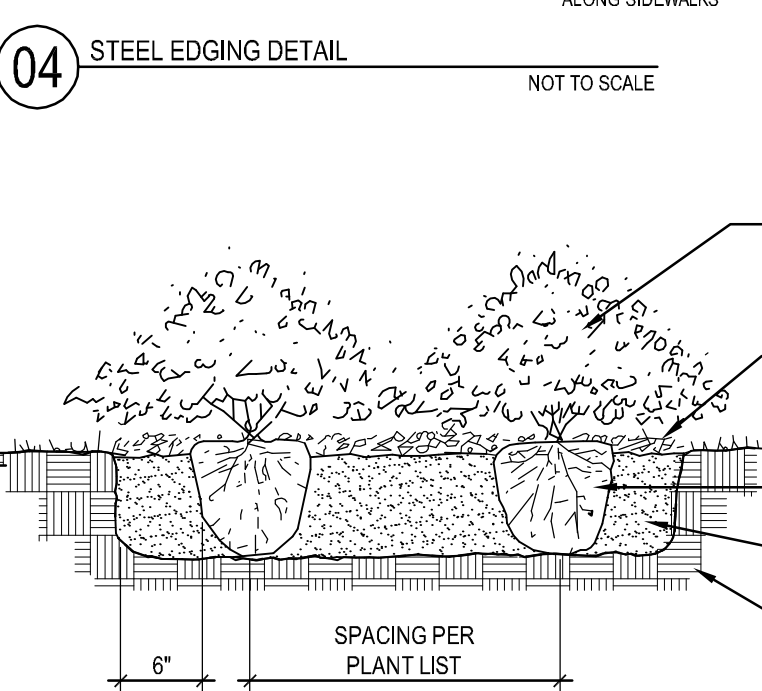
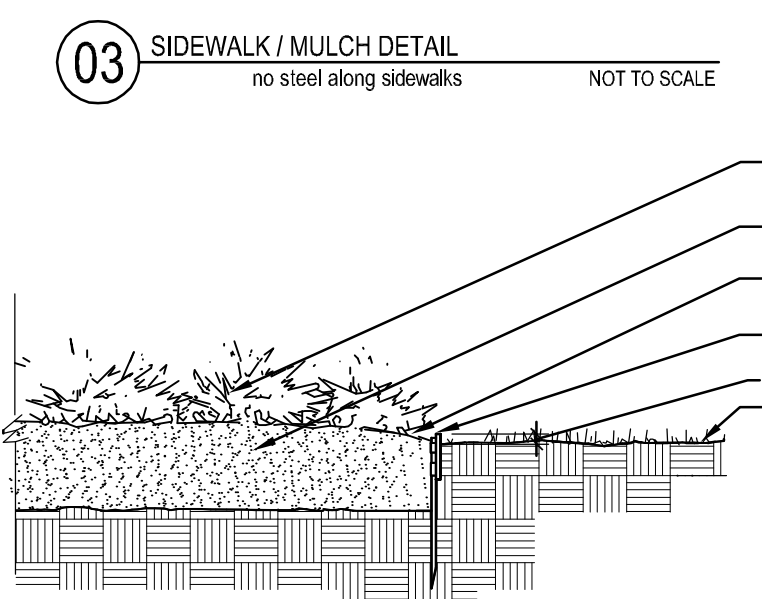
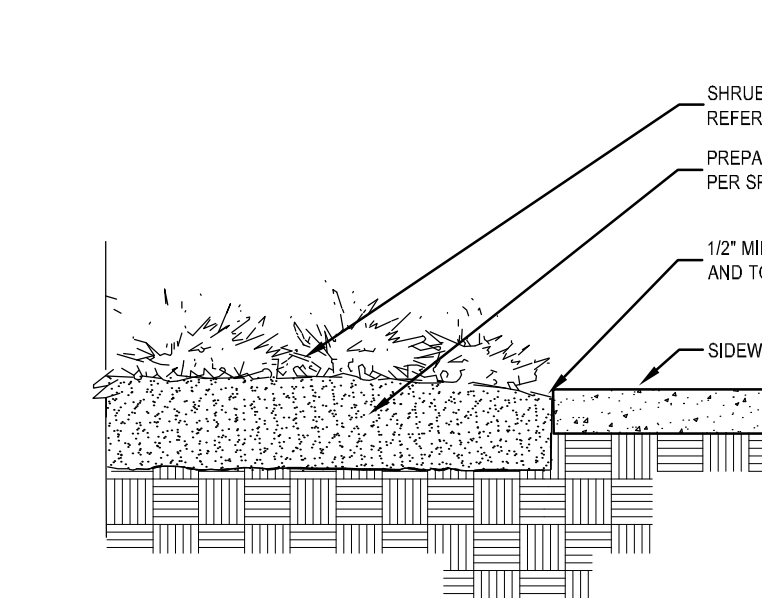
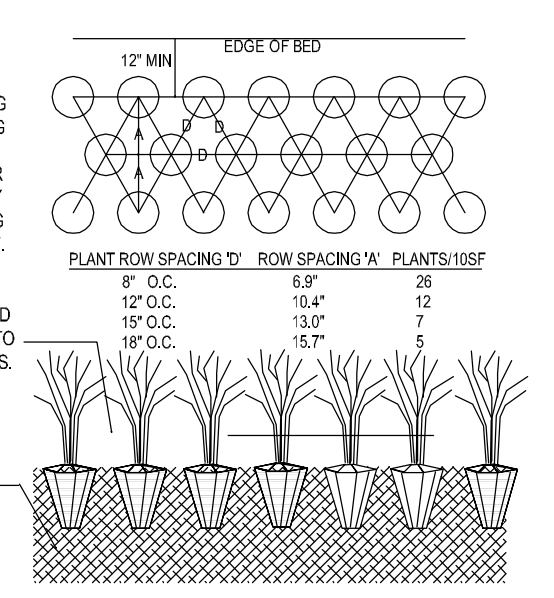
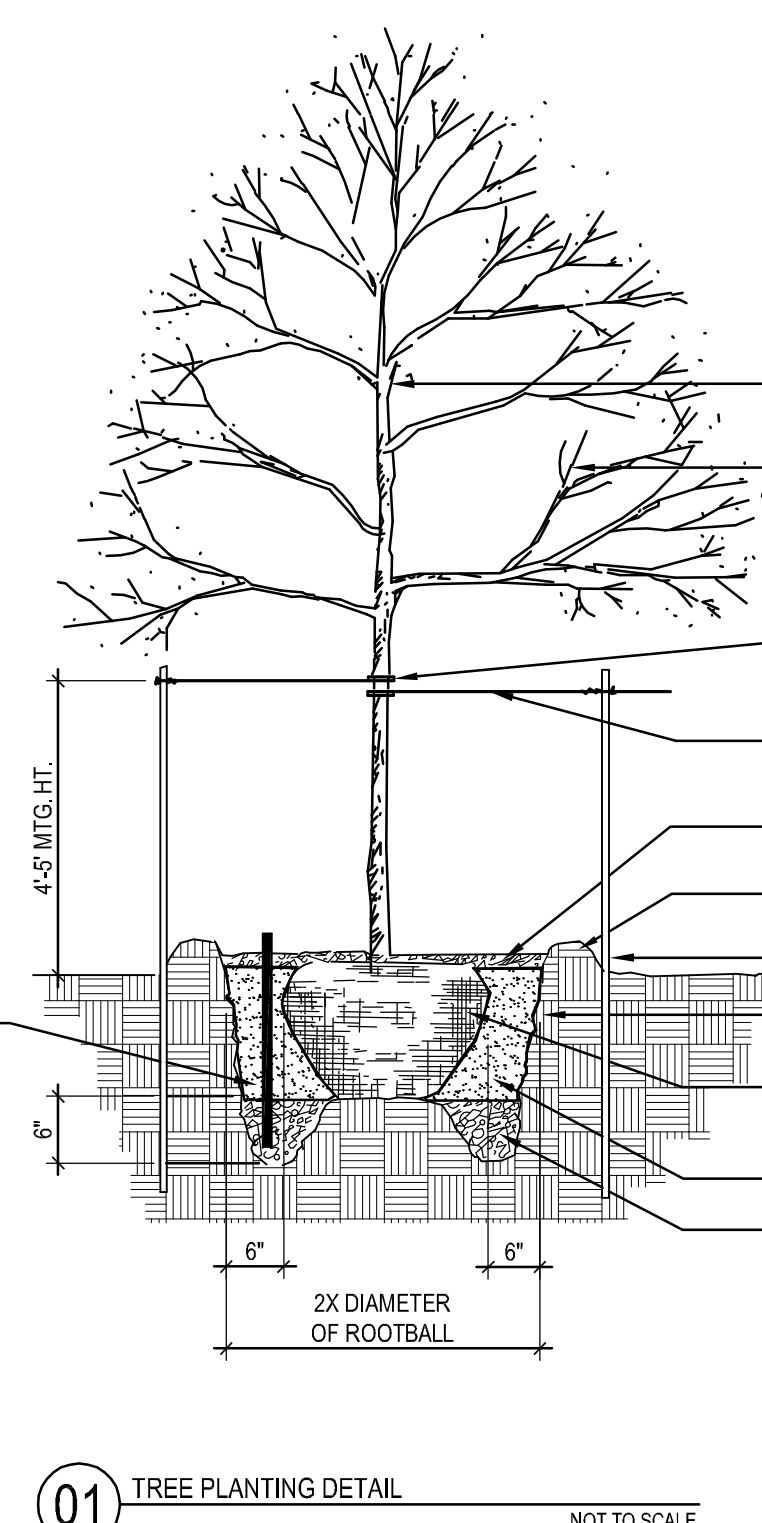
- A. Preparation:
 1. Balled and Burlapped (B&B) Plants: Dig and prepare shipment in a manner that will not damage roots, branches, shape, and future development.
 2. Container Grown Plants: Deliver plants in rigid container to hold ball shape and protect root mass.

2.2 SOIL PREPARATION MATERIALS

- A. Sandy Loam:
 1. Friable, fertile, dark, loamy soil, free of clay lumps, subsoil, stones and other extraneous material and reasonably free of weeds and foreign grasses. Loam containing Dalagrass or Nutgrass shall be rejected.
 2. Physical properties as follows:
 - Clay - between 7-27 percent
 - Silt - between 15-25 percent
 - Sand - less than 52 percent
 3. Organic matter shall be 3%-10% of total dry weight.
 4. If requested, provide a certified soil analysis conducted by an approved soil testing laboratory verifying that sandy loam meets the above requirements.
- B. Organic Material: Compost with a mixture of 80% vegetative matter and 20% animal waste. Ingredients should be a mix of course and fine textured material.
- C. Premixed Bedding Soil as supplied by Vital Earth Resources, Gladewater, Texas; Professional Bedding Soil as supplied by Living Earth Technology, Dallas, Texas or Acid Gro Municipal Mix as supplied by Soil Building Systems, Dallas, Texas or approved equal.
- D. Sharp Sand: Sharp sand must be free of seeds, soil particles and weeds.
- E. Mulch: Double Shredded Hardwood Mulch, partially decomposed, dark brown. Living Earth Technologies or approved equal.
- F. Organic Fertilizer: FertiLaid, Sustane, or Green Sense or equal as recommended for required applications. Fertilizer shall be delivered to the site in original unopened containers, each bearing the manufacturer's guaranteed statement of analysis.
- G. Commercial Fertilizer: 10-20-10 or similar analysis. Nitrogen source to be a minimum 50% slow release organic Nitrogen (SCU or UR) with a minimum 8% sulphur and 4% iron, plus micronutrients.
- H. Peat: Commercial sphagnum peat moss or partially decomposed shredded pine bark or other approved organic material.

2.3 MISCELLANEOUS MATERIALS

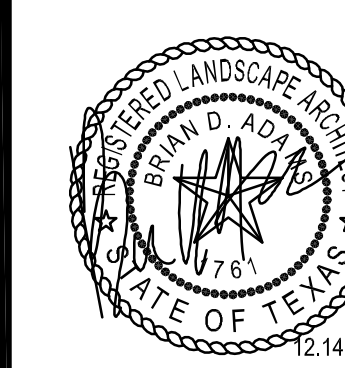
- A. Steel Edging: Shall be Ryerson "Estate Curbing", 1/8" x 4" with stakes 4' on center.
- B. Staking Material for Shade Trees:
 1. Post: Studded T-Post, #1 Armo with anchor plate; 6'-0" length; paint green.
 2. Wire: 12 gauge, single strand, galvanized wire.
 3. Rubber hose: 2 ply, fiber reinforced hose, minimum 1/2 inch inside diameter. Color: Black.
- C. Gravel: Washed native pea gravel, graded 1 in. to 1-1/2 in.
- D. Filter Fabric: Milford 140N by Celanese Fibers Marketing Company, available at Loftland Co., (214) 631-5250 or approved equal.



REVISIONS

NO.	DATE	DESCRIPTION

HARBOR VILLAGE
 DWELLING UNITS IN ROCKWALL, TEXAS FOR
PEGASUS ABLON



smr
 landscape architects, inc.
 1708 N. Griffin Street
 Dallas, Texas 75202
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 Fax 214.871.0364
 Email smr@smr-tx.com

BGO ARCHITECTS
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 Addison, TX 75001
 214.520.8878
 bgoarchitects.com

DATE
12-14-18

PROJECT
17126

SHEET NUMBER
L1.04
 SHEET # SANSERIFF
 SHEET NAME
 = SANSERIFF

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MRP LED LED Area Luminaire



Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

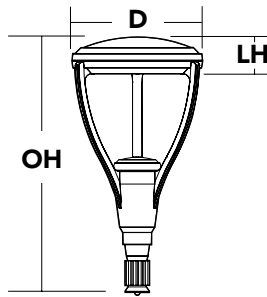
- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a **shaded background**. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability¹
- This luminaire is part of an A+ Certified solution for ROAM® or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a **shaded background**¹

To learn more about A+, visit www.acuitybrands.com/aplus.

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)

Specifications

EPA:	1.125 ft ² (0.105 m ²)
Luminaire Height:	6-3/8" (16.2 cm)
Overall Height:	32" (81.3 cm)
Diameter:	18" (45.7 cm)
Weight (max):	37.5 lbs (17 kg)



A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: MRP LED 42C 700 40K SR5 MVOLT DDBXD

MRP LED	Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting
MRP LED	42C	42 LEDs (one engine)	350 350mA 530 530mA 700 700mA 1000 1000mA (1A)	30K 3000K 40K 4000K 50K 5000K	SR2 Type II SR3 Type III SR4 Type IV SR5 Type V	MVOLT ¹ 277 ² 120 ² 347 ² 208 ² 480 ² 240 ²	Shipped included (blank) Fits 4"OD round pole Shipped separately ³ MRPT20 2-3/8" tenon slipfitter MRPT25 2-7/8" tenon slipfitter Shipped separately ³ MRPT30 3-1/2" tenon slipfitter MRPT35 4" tenon slipfitter MRPF3 3"OD round pole adapter MRPF5 5"OD round pole adapter ⁴
Control options			Other options			Finish (required)	
Shipped installed PER NEMA twist-lock receptacle only (control ordered separate) PER5 Five-wire receptacle only (control ordered separate) ⁵ PER7 Seven-wire receptacle only (control ordered separate) ⁵ BL30 Bi-level switched dimming, 30% ^{6,7} BL50 Bi-level switched dimming, 50% ^{6,7}			PNMTDD3 Part night, dim till dawn ⁷ PNMT5D3 Part night, dim 5 hrs ⁷ PNMT6D3 Part night, dim 6 hrs ⁷ PNMT7D3 Part night, dim 7 hrs ⁷			SF Single fuse (120, 277, 347V) ² DF Double fuse (208, 240, 480V) ² DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white	

Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ⁸
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ⁸
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ⁸
DSHORT SBK U	Shorting cap ⁸
MRPT20 DDBXD U	2-3/8" tenon slipfitter (specify finish)
MRPT25 DDBXD U	2-7/8" tenon slipfitter (specify finish)
MRPT30 DDBXD U	3-1/2" tenon slipfitter (specify finish)
MRPT35 DDBXD U	4" tenon slipfitter (specify finish)
MRPF3 DDBXD U	3" OD round pole adapter (specify finish)
MRPF5 DDBXD U	5" OD round pole adapter (specify finish) ³

For more control options, visit [DTL](#) and [ROAM](#) online.

NOTES

- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Also available as a separate accessory; see Accessories information at left.
- Maximum pole wall thickness is 0.156".
- If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls.
- Requires an additional switched line.
- Dimming driver standard. Not available with 347V, 480V, SF, DF, PER5 or PER7.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K					40K					50K				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
42C (42 LEDs)	530	75W	SR2	5,456	1	2	1	73	6,605	1	2	1	88	6,671	1	2	1	89
			SR3	5,436	1	1	1	72	6,581	1	1	2	88	6,647	1	1	2	89
			SR4	5,399	1	1	1	72	6,537	1	1	2	87	6,602	1	1	2	88
			SR5	5,748	3	1	3	77	6,959	3	1	3	83	7,029	3	1	3	94
	700	100W	SR2	6,630	1	2	1	66	8,026	2	2	2	80	8,106	2	2	2	81
			SR3	6,605	1	1	2	66	7,997	1	2	2	80	8,077	1	2	2	81
			SR4	6,561	1	1	2	66	7,943	1	2	2	79	8,022	1	2	2	80
			SR5	6,985	3	1	3	70	8,456	3	2	3	85	8,541	3	2	3	85
	1000	151W	SR2	8,165	2	2	2	54	9,885	2	2	2	65	9,983	2	2	2	66
			SR3	8,135	1	2	2	54	9,848	2	2	2	65	9,947	2	2	2	66
			SR4	8,080	2	2	2	54	9,782	2	2	2	65	9,880	2	2	2	65
			SR5	8,602	3	2	3	57	10,414	4	2	4	70	10,518	4	2	4	70

PER Table

Control	PER (3 wire)	PER5 (5 wire)		PER7 (7 wire)		
		Wire 4/Wire5	Wire 6/Wire7	Wire 4/Wire5	Wire 6/Wire7	
Photocontrol Only (On/Off)	✓	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM	⊘	✓	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM with Motion (ROAM on/off only)	⊘	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof*	⊘	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof* with Motion	⊘	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture

✓ Recommended

⊘ Will not work

⚠ Alternate

*Futureproof means: Ability to change controls in the future.

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.06
10°C	50°F	1.04
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.96

Projected LED Lumen Maintenance

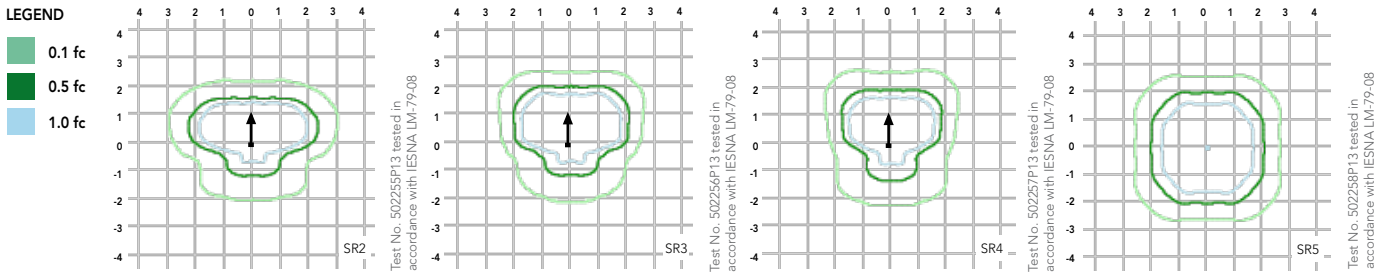
Data references the extrapolated performance projections for the **MRP LED 42C 700** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.96	0.92	0.85



Isofootcandle plots are considered to be representative of available optical distributions.



FEATURES & SPECIFICATIONS

INTENDED USE

Streets, walkways, parking lots and surrounding areas.

CONSTRUCTION

Single-piece die-cast aluminum housing with nominal wall thickness of .012". Die-cast top access doorframe has impact-resistant, tempered glass lens (3/16" thick). Doorframe is fully gasketed with one-piece tubular silicone.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum and white. Available in textured and non-textured finishes.

OPTICS

Precision acrylic refractive optics for optimum light distribution through the flat glass lens. Light engines are available in standard 3000K (70 CRI) or optional 4000K (70 CRI) or 5000K (70 CRI) configurations.

ELECTRICAL

Light engine consists of 42 high-efficacy LEDs mounted to a metal-core circuit board and aluminum heat sink, ensuring optimal thermal management and long life. Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low for operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Standard post-top mounting configuration fits into a 4" OD open pole top (round pole only). Multiple options and accessories are available for other mounting needs.

LISTINGS

CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. Rated for -40°C minimum ambient. **U.S. Patent No. D556,357.**

WARRANTY

5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



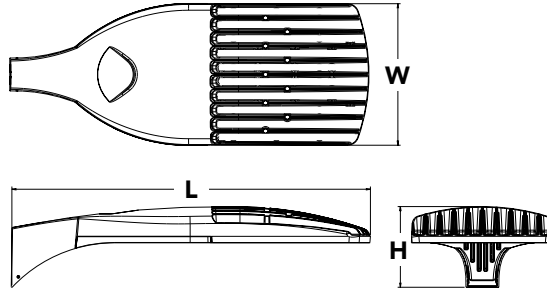
D-Series Size 1 LED Area Luminaire

d#series



Specifications

EPA:	1.01 ft ² (0.09 m ²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height:	7-1/2" (19.0 cm)
Weight (max):	27 lbs (12.2 kg)



A+ Capable options indicated by this color background.

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL[®] controls marked by a shaded background. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability¹
- This luminaire is part of an A+ Certified solution for ROAM[®] or XPoint[™] Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background¹

To learn more about A+, visit www.acuitybrands.com/aplus.

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA DDBXD

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	Forward optics P1 P4 P7 P2 P5 P8 P3 P6 P9 Rotated optics P10 ¹ P12 ¹ P11 ¹ P13 ¹	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted ²	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium TSVS Type V very short T5S Type V short T5M Type V medium T5W Type V wide BLC Backlight control ^{2,3} LCCO Left corner cutoff ^{2,3} RCCO Right corner cutoff ^{2,3}	MVOLT ^{4,5} 120 ⁶ 208 ^{5,6} 240 ^{5,6} 277 ⁶ 347 ^{5,6,7} 480 ^{5,6,7}	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor ⁸ RPUMBA Round pole universal mounting adaptor ⁸ Shipped separately KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) ⁹

Control options	Other options	Finish (required)
Shipped installed NLTAIR2 nLight AIR generation 2 enabled ¹⁰ PER NEMA twist-lock receptacle only (controls ordered separate) ¹¹ PER5 Five-wire receptacle only (controls ordered separate) ^{11,12} PER7 Seven-wire receptacle only (controls ordered separate) ^{11,12} DMG 0-10V dimming extend out back of housing for external control (leads exit fixture) DS Dual switching ^{13,14} PIR Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc ^{5,15,16} PIRH Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc ^{5,15,16} PIRHN Network, Bi-Level motion/ambient sensor ¹⁷ PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ^{5,15,16}	PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc ^{5,15,16} BL30 Bi-level switched dimming, 30% ^{5,14,18} BL50 Bi-level switched dimming, 50% ^{5,14,18} PNMTDD3 Part night, dim till dawn ^{5,19} PNMT5D3 Part night, dim 5 hrs ^{5,19} PNMT6D3 Part night, dim 6 hrs ^{5,19} PNMT7D3 Part night, dim 7 hrs ^{5,19} FAO Field adjustable output ²⁰	Shipped installed HS House-side shield ²¹ SF Single fuse (120, 277, 347V) ⁶ DF Double fuse (208, 240, 480V) ⁶ L90 Left rotated optics ¹ R90 Right rotated optics ¹ Shipped separately BS Bird spikes ²² EGS External glare shield ²²
		DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLTXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white



Ordering Information

Accessories

Ordered and shipped separately.

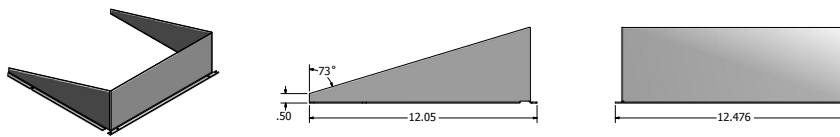
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ²³
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ²³
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ²³
DSHORT SBK U	Shorting cap ²³
DSX1HS 30C U	House-side shield for 30 LED unit ²¹
DSX1HS 40C U	House-side shield for 40 LED unit ²¹
DSX1HS 60C U	House-side shield for 60 LED unit ²¹
PUMBA DDBXD U*	Square and round pole universal mounting bracket (specify finish) ²⁴
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) ⁴

For more control options, visit [DTL](#) and [ROAM](#) online.

NOTES

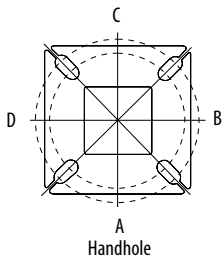
- P10, P11, P12 or P13 and rotated optics (L90, R90) only available together.
- AMBPC is not available with BLC, LCCO, RCCO or P4, P7, P8, P9 or P13.
- Not available with HS.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- Any PIRx with BL30, BL50 or PNMT, is not available with 208V, 240V, 347V, 480V or MVOLT. It is only available in 120V or 277V specified.
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Not available in P1 or P10. Not available with BL30, BL50 or PNMT options.
- Existing drilled pole only. Available as a separate combination accessory; for retrofit use only: PUMBA (finish) U; 1.5 G vibration load rating per ANCI C136.31.
- Must order fixture with SPA option. Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" mast arm (not included).
- Must be ordered with PIRHN.
- Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option. Shorting cap included.
- If ROAM[®] node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Not available with DCR. Node with integral dimming. Shorting cap included.
- Provides 50/50 fixture operation via (2) independent drivers. Not available with PER, PER5, PER7, PIR or PIRH. Not available P1, P2, P3, P4 or P5.
- Requires (2) separately switched circuits.
- Reference Motion Sensor table on page 3.
- Reference PER table on page 3 to see functionality.
- Must be ordered with NLTAIR2. For more information on nLight Air 2 visit [this link](#).
- Not available with 347V, 480V, PNMT, DS. For PER5 or PER7, see PER Table on page 3. Requires isolated neutral.
- Not available with 347V, 480V, DS, BL30, BL50. For PER5 or PER7, see PER Table on page 3. Separate Dusk to Dawn required.
- Not available with other dimming controls options
- Not available with BLC, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
- Must be ordered with fixture for factory pre-drilling.
- Requires luminaire to be specified with PER, PER5 or PER7 option. See PER Table on page 3.
- For retrofit use only.

External Glare Shield



Drilling

HANDHOLE ORIENTATION



Tenon Mounting Slipfitter**

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Pole drilling nomenclature: # of heads at degree from handhole (default side A)

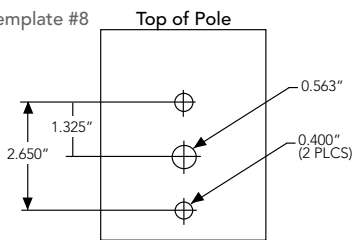
DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS
1 @ 90°	2 @ 280°	2 @ 90°	3 @ 120°	3 @ 90°	4 @ 90°
Side B	Side B & D	Side B & C	Round pole only	Side B, C, & D	Sides A, B, C, D

Note: Review luminaire spec sheet for specific nomenclature

Pole top or tenon O.D.	4.5" @ 90°	4" @ 90°	3.5" @ 90°	3" @ 90°	4.5" @ 120°	4" @ 120°	3.5" @ 120°	3" @ 120°
DSX SPA	Y	Y	Y	N	-	-	-	-
DSX RPA	Y	Y	N	N	Y	Y	Y	Y
DSX SPUMBA	Y	N	N	N	-	-	-	-
DSX RPUMBA	N	N	N	N	Y	Y	Y	N

*3 fixtures @120 require round pole top/tenon.

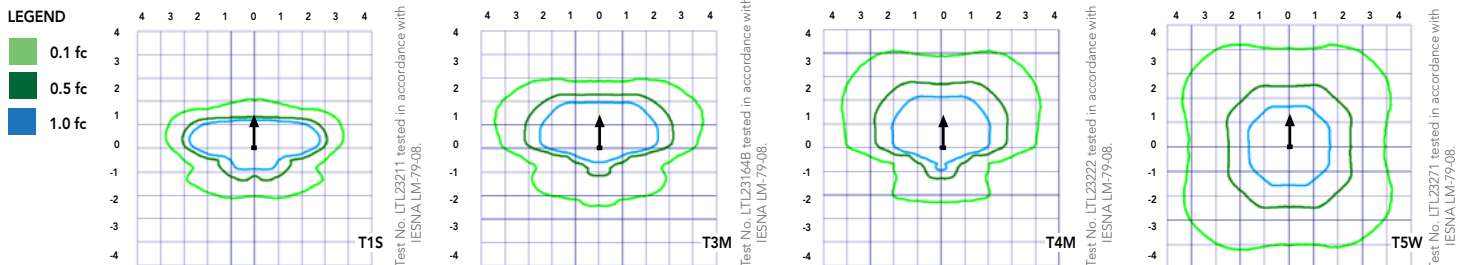
Template #8



Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [D-Series Area Size 1 homepage](#).

Isofootcandle plots for the DSX1 LED 60C 1000 40K. Distances are in units of mounting height (25').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25000	50000	100000
Lumen Maintenance Factor	1.00	0.96	0.92	0.85

Electrical Load

	Performance Package	LED Count	Drive Current	Wattage	Current (A)					
					120	208	240	277	347	480
Forward Optics (Non-Rotated)	P1	30	530	54	0.45	0.26	0.23	0.19	0.10	0.12
	P2	30	700	70	0.59	0.34	0.30	0.25	0.20	0.16
	P3	30	1050	102	0.86	0.50	0.44	0.38	0.30	0.22
	P4	30	1250	125	1.06	0.60	0.52	0.46	0.37	0.27
	P5	30	1400	138	1.16	0.67	0.58	0.51	0.40	0.29
	P6	40	1250	163	1.36	0.78	0.68	0.59	0.47	0.34
	P7	40	1400	183	1.53	0.88	0.76	0.66	0.53	0.38
	P8	60	1050	207	1.74	0.98	0.87	0.76	0.64	0.49
	P9	60	1250	241	2.01	1.16	1.01	0.89	0.70	0.51
Rotated Optics (Requires L90 or R90)	P10	60	530	106	0.90	0.52	0.47	0.43	0.33	0.27
	P11	60	700	137	1.15	0.67	0.60	0.53	0.42	0.32
	P12	60	1050	207	1.74	0.99	0.87	0.76	0.60	0.46
	P13	60	1250	231	1.93	1.12	0.97	0.86	0.67	0.49

Motion Sensor Default Settings

Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min

*for use with Inline Dusk to Dawn or timer.

PER Table

Control	PER (3 wire)	PER5 (5 wire)		PER7 (7 wire)		
		Wire 4/Wire5	Wire 4/Wire5	Wire 4/Wire5	Wire 6/Wire7	
Photocontrol Only (On/Off)	✓	▲	Wired to dimming leads on driver	▲	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM	✗	✓	Wired to dimming leads on driver	▲	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM with Motion (ROAM on/off only)	✗	▲	Wires Capped inside fixture	▲	Wires Capped inside fixture	Wires Capped inside fixture
Future-proof*	✗	▲	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture
Future-proof* with Motion	✗	▲	Wires Capped inside fixture	✓	Wires Capped inside fixture	Wires Capped inside fixture

✓ Recommended
✗ Will not work
▲ Alternate

*Future-proof means: Ability to change controls in the future.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics																									
LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)					
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	
30	530	P1	54W	T1S	6,457	2	0	2	120	6,956	2	0	2	129	7,044	2	0	2	130	3,640	1	0	1	70	
				T2S	6,450	2	0	2	119	6,949	2	0	2	129	7,037	2	0	2	130	3,813	1	0	1	73	
				T2M	6,483	1	0	1	120	6,984	2	0	2	129	7,073	2	0	2	131	3,689	1	0	1	71	
				T3S	6,279	2	0	2	116	6,764	2	0	2	125	6,850	2	0	2	127	3,770	1	0	1	73	
				T3M	6,468	1	0	2	120	6,967	1	0	2	129	7,056	1	0	2	131	3,752	1	0	1	72	
				T4M	6,327	1	0	2	117	6,816	1	0	2	126	6,902	1	0	2	128	3,758	1	0	1	72	
				TFTM	6,464	1	0	2	120	6,963	1	0	2	129	7,051	1	0	2	131	3,701	1	0	1	71	
				TSVS	6,722	2	0	0	124	7,242	3	0	0	134	7,334	3	0	0	136	3,928	2	0	0	76	
				TSS	6,728	2	0	1	125	7,248	2	0	1	134	7,340	2	0	1	136	3,881	2	0	0	75	
				T5M	6,711	3	0	1	124	7,229	3	0	1	134	7,321	3	0	2	136	3,930	2	0	1	76	
				T5W	6,667	3	0	2	123	7,182	3	0	2	133	7,273	3	0	2	135	3,820	3	0	1	73	
				BLC	5,299	1	0	1	98	5,709	1	0	2	106	5,781	1	0	2	107						
				LCCO	3,943	1	0	2	73	4,248	1	0	2	79	4,302	1	0	2	80						
				RCCO	3,943	1	0	2	73	4,248	1	0	2	79	4,302	1	0	2	80						
				30	700	P2	70W	T1S	8,249	2	0	2	118	8,886	2	0	2	127	8,999	2	0	2	129	4,561	1
T2S	8,240	2	0					2	118	8,877	2	0	2	127	8,989	2	0	2	128	4,777	1	0	1	70	
T2M	8,283	2	0					2	118	8,923	2	0	2	127	9,036	2	0	2	129	4,622	1	0	2	68	
T3S	8,021	2	0					2	115	8,641	2	0	2	123	8,751	2	0	2	125	4,724	1	0	1	69	
T3M	8,263	2	0					2	118	8,901	2	0	2	127	9,014	2	0	2	129	4,701	1	0	2	69	
T4M	8,083	2	0					2	115	8,708	2	0	2	124	8,818	2	0	2	126	4,709	1	0	2	69	
TFTM	8,257	2	0					2	118	8,896	2	0	2	127	9,008	2	0	2	129	4,638	1	0	2	68	
TSVS	8,588	3	0					0	123	9,252	3	0	0	132	9,369	3	0	0	134	4,922	2	0	0	72	
TSS	8,595	3	0					1	123	9,259	3	0	1	132	9,376	3	0	1	134	4,863	2	0	0	72	
T5M	8,573	3	0					2	122	9,236	3	0	2	132	9,353	3	0	2	134	4,924	3	0	1	72	
T5W	8,517	3	0					2	122	9,175	4	0	2	131	9,291	4	0	2	133	4,787	3	0	1	70	
BLC	6,770	1	0					2	97	7,293	1	0	2	104	7,386	1	0	2	106						
LCCO	5,038	1	0					2	72	5,427	1	0	2	78	5,496	1	0	2	79						
RCCO	5,038	1	0					2	72	5,427	1	0	2	78	5,496	1	0	2	79						
30	1050	P3	102W					T1S	11,661	2	0	2	114	12,562	3	0	3	123	12,721	3	0	3	125		
				T2S	11,648	2	0	2	114	12,548	3	0	3	123	12,707	3	0	3	125						
				T2M	11,708	2	0	2	115	12,613	2	0	2	124	12,773	2	0	2	125						
				T3S	11,339	2	0	2	111	12,215	3	0	3	120	12,370	3	0	3	121						
				T3M	11,680	2	0	2	115	12,582	2	0	2	123	12,742	2	0	2	125						
				T4M	11,426	2	0	3	112	12,309	2	0	3	121	12,465	2	0	3	122						
				TFTM	11,673	2	0	2	114	12,575	2	0	3	123	12,734	2	0	3	125						
				TSVS	12,140	3	0	1	119	13,078	3	0	1	128	13,244	3	0	1	130						
				TSS	12,150	3	0	1	119	13,089	3	0	1	128	13,254	3	0	1	130						
				T5M	12,119	4	0	2	119	13,056	4	0	2	128	13,221	4	0	2	130						
				T5W	12,040	4	0	3	118	12,970	4	0	3	127	13,134	4	0	3	129						
				BLC	9,570	1	0	2	94	10,310	1	0	2	101	10,440	1	0	2	102						
				LCCO	7,121	1	0	3	70	7,671	1	0	3	75	7,768	1	0	3	76						
				RCCO	7,121	1	0	3	70	7,671	1	0	3	75	7,768	1	0	3	76						
				30	1250	P4	125W	T1S	13,435	3	0	3	107	14,473	3	0	3	116	14,657	3	0	3	117		
T2S	13,421	3	0					3	107	14,458	3	0	3	116	14,641	3	0	3	117						
T2M	13,490	2	0					2	108	14,532	3	0	3	116	14,716	3	0	3	118						
T3S	13,064	3	0					3	105	14,074	3	0	3	113	14,252	3	0	3	114						
T3M	13,457	2	0					2	108	14,497	2	0	2	116	14,681	2	0	2	117						
T4M	13,165	2	0					3	105	14,182	2	0	3	113	14,362	2	0	3	115						
TFTM	13,449	2	0					3	108	14,488	2	0	3	116	14,672	2	0	3	117						
TSVS	13,987	4	0					1	112	15,068	4	0	1	121	15,259	4	0	1	122						
TSS	13,999	3	0					1	112	15,080	3	0	1	121	15,271	3	0	1	122						
T5M	13,963	4	0					2	112	15,042	4	0	2	120	15,233	4	0	2	122						
T5W	13,872	4	0					3	111	14,944	4	0	3	120	15,133	4	0	3	121						
BLC	11,027	1	0					2	88	11,879	1	0	2	95	12,029	1	0	2	96						
LCCO	8,205	1	0					3	66	8,839	1	0	3	71	8,951	1	0	3	72						
RCCO	8,205	1	0					3	66	8,839	1	0	3	71	8,951	1	0	3	72						
30	1400	P5	138W					T1S	14,679	3	0	3	106	15,814	3	0	3	115	16,014	3	0	3	116		
				T2S	14,664	3	0	3	106	15,797	3	0	3	114	15,997	3	0	3	116						
				T2M	14,739	3	0	3	107	15,878	3	0	3	115	16,079	3	0	3	117						
				T3S	14,274	3	0	3	103	15,377	3	0	3	111	15,572	3	0	3	113						
				T3M	14,704	2	0	3	107	15,840	3	0	3	115	16,040	3	0	3	116						
				T4M	14,384	2	0	3	104	15,496	3	0	3	112	15,692	3	0	3	114						
				TFTM	14,695	2	0	3	106	15,830	3	0	3	115	16,030	3	0	3	116						
				TSVS	15,283	4	0	1	111	16,464	4	0	1	119	16,672	4	0	1	121						
				TSS	15,295	3	0	1	111	16,477	4	0	1	119	16,686	4	0	1	121						
				T5M	15,257	4	0	2	111	16,435	4	0	2	119	16,644	4	0	2	121						
				T5W	15,157	4	0	3	110	16,328	4	0	3	118	16,534	4	0	3	120						
				BLC	12,048	1	0	2	87	12,979	1	0	2	94	13,143	1	0	2	95						
				LCCO	8,965	1	0	3	65	9,657	1	0	3	70	9,780	1	0	3	71						
									8,965	1	0	3	65	9,657	1	0	3	70	9,780	1	0	3	71		

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics																											
LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)							
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lu-mens	B	U	G	LPW			
40	1250	P6	163W	T1S	17,654	3	0	3	108	19,018	3	0	3	117	19,259	3	0	3	118								
				T2S	17,635	3	0	3	108	18,998	3	0	3	117	19,238	3	0	3	118								
				T2M	17,726	3	0	3	109	19,096	3	0	3	117	19,337	3	0	3	119								
				T3S	17,167	3	0	3	105	18,493	3	0	3	113	18,727	3	0	3	115								
				T3M	17,683	3	0	3	108	19,049	3	0	3	117	19,290	3	0	3	118								
				T4M	17,299	3	0	3	106	18,635	3	0	4	114	18,871	3	0	4	116								
				TFTM	17,672	3	0	3	108	19,038	3	0	4	117	19,279	3	0	4	118								
				TSVS	18,379	4	0	1	113	19,800	4	0	1	121	20,050	4	0	1	123								
				T5S	18,394	4	0	2	113	19,816	4	0	2	122	20,066	4	0	2	123								
				T5M	18,348	4	0	2	113	19,766	4	0	2	121	20,016	4	0	2	123								
				T5W	18,228	5	0	3	112	19,636	5	0	3	120	19,885	5	0	3	122								
				BLC	14,489	2	0	2	89	15,609	2	0	3	96	15,806	2	0	3	97								
				LCCO	10,781	1	0	3	66	11,614	1	0	3	71	11,761	2	0	3	72								
				RCCO	10,781	1	0	3	66	11,614	1	0	3	71	11,761	2	0	3	72								
				40	1400	P7	183W	T1S	19,227	3	0	3	105	20,712	3	0	3	113	20,975	3	0	3	115				
T2S	19,206	3	0					3	105	20,690	3	0	3	113	20,952	3	0	3	114								
T2M	19,305	3	0					3	105	20,797	3	0	3	114	21,060	3	0	3	115								
T3S	18,696	3	0					3	102	20,141	3	0	3	110	20,396	3	0	4	111								
T3M	19,258	3	0					3	105	20,746	3	0	3	113	21,009	3	0	3	115								
T4M	18,840	3	0					4	103	20,296	3	0	4	111	20,553	3	0	4	112								
TFTM	19,246	3	0					4	105	20,734	3	0	4	113	20,996	3	0	4	115								
TSVS	20,017	4	0					1	109	21,564	4	0	1	118	21,837	4	0	1	119								
T5S	20,033	4	0					2	109	21,581	4	0	2	118	21,854	4	0	2	119								
T5M	19,983	4	0					2	109	21,527	5	0	3	118	21,799	5	0	3	119								
T5W	19,852	5	0					3	108	21,386	5	0	3	117	21,656	5	0	3	118								
BLC	15,780	2	0					3	86	16,999	2	0	3	93	17,214	2	0	3	94								
LCCO	11,742	2	0					3	64	12,649	2	0	3	69	12,809	2	0	3	70								
RCCO	11,742	2	0					3	64	12,649	2	0	3	69	12,809	2	0	3	70								
60	1050	P8	207W					T1S	22,490	3	0	3	109	24,228	3	0	3	117	24,535	3	0	3	119				
				T2S	22,466	3	0	4	109	24,202	3	0	4	117	24,509	3	0	4	118								
				T2M	22,582	3	0	3	109	24,327	3	0	3	118	24,635	3	0	3	119								
				T3S	21,870	3	0	4	106	23,560	3	0	4	114	23,858	3	0	4	115								
				T3M	22,527	3	0	4	109	24,268	3	0	4	117	24,575	3	0	4	119								
				T4M	22,038	3	0	4	106	23,741	3	0	4	115	24,041	3	0	4	116								
				TFTM	22,513	3	0	4	109	24,253	3	0	4	117	24,560	3	0	4	119								
				TSVS	23,415	5	0	1	113	25,224	5	0	1	122	25,543	5	0	1	123								
				T5S	23,434	4	0	2	113	25,244	4	0	2	122	25,564	4	0	2	123								
				T5M	23,374	5	0	3	113	25,181	5	0	3	122	25,499	5	0	3	123								
				T5W	23,221	5	0	4	112	25,016	5	0	4	121	25,332	5	0	4	122								
				BLC	18,458	2	0	3	89	19,885	2	0	3	96	20,136	2	0	3	97								
				LCCO	13,735	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72								
				RCCO	13,735	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72								
				60	1250	P9	241W	T1S	25,575	3	0	3	106	27,551	3	0	3	114	27,900	3	0	3	116				
T2S	25,548	3	0					4	106	27,522	3	0	4	114	27,871	3	0	4	116								
T2M	25,680	3	0					3	107	27,664	3	0	3	115	28,014	3	0	3	116								
T3S	24,870	3	0					4	103	26,791	3	0	4	111	27,130	3	0	4	113								
T3M	25,617	3	0					4	106	27,597	3	0	4	115	27,946	3	0	4	116								
T4M	25,061	3	0					4	104	26,997	3	0	4	112	27,339	3	0	4	113								
TFTM	25,602	3	0					4	106	27,580	3	0	4	114	27,929	3	0	4	116								
TSVS	26,626	5	0					1	110	28,684	5	0	1	119	29,047	5	0	1	121								
T5S	26,648	4	0					2	111	28,707	5	0	2	119	29,070	5	0	2	121								
T5M	26,581	5	0					3	110	28,635	5	0	3	119	28,997	5	0	3	120								
T5W	26,406	5	0					4	110	28,447	5	0	4	118	28,807	5	0	4	120								
BLC	20,990	2	0					3	87	22,612	2	0	3	94	22,898	2	0	3	95								
LCCO	15,619	2	0					4	65	16,825	2	0	4	70	17,038	2	0	4	71								
									15,619	2	0	4	65	16,825	2	0	4	70	17,038	2	0	4	71				

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Rotated Optics																											
LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)					AMBPC (Amber Phosphor Converted)							
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW			
					60	530	P10	106W	T1S	13,042	3	0	3	123	14,050	3	0	3	133	14,228	3	0	3	134	7,167	2	0
T2S	12,967	4	0	4					122	13,969	4	0	4	132	14,146	4	0	4	133	7,507	2	0	2	76			
T2M	13,201	3	0	3					125	14,221	3	0	3	134	14,401	3	0	3	136	7,263	2	0	2	73			
T3S	12,766	4	0	4					120	13,752	4	0	4	130	13,926	4	0	4	131	7,424	2	0	2	75			
T3M	13,193	4	0	4					124	14,213	4	0	4	134	14,393	4	0	4	136	7,387	2	0	2	75			
T4M	12,944	4	0	4					122	13,945	4	0	4	132	14,121	4	0	4	133	7,400	2	0	2	75			
TFTM	13,279	4	0	4					125	14,305	4	0	4	135	14,486	4	0	4	137	7,288	1	0	2	74			
T5VS	13,372	3	0	1					126	14,405	4	0	1	136	14,588	4	0	1	138	7,734	3	0	1	78			
T5S	13,260	3	0	1					125	14,284	3	0	1	135	14,465	3	0	1	136	7,641	3	0	0	77			
T5M	13,256	4	0	2					125	14,281	4	0	2	135	14,462	4	0	2	136	7,737	3	0	2	78			
T5W	13,137	4	0	3					124	14,153	4	0	3	134	14,332	4	0	3	135	7,522	3	0	2	76			
BLC	10,906	3	0	3					103	11,749	3	0	3	111	11,898	3	0	3	112								
LCCO	7,789	1	0	3					73	8,391	1	0	3	79	8,497	1	0	3	80								
RCCO	7,779	4	0	4					73	8,380	4	0	4	79	8,486	4	0	4	80								
60	700	P11	137W	T1S					16,556	3	0	3	121	17,835	3	0	3	130	18,061	4	0	4	132	8,952	2	0	2
				T2S	16,461	4	0	4	120	17,733	4	0	4	129	17,957	4	0	4	131	9,377	2	0	2	72			
				T2M	16,758	4	0	4	122	18,053	4	0	4	132	18,281	4	0	4	133	9,072	2	0	2	69			
				T3S	16,205	4	0	4	118	17,457	4	0	4	127	17,678	4	0	4	129	9,273	2	0	2	71			
				T3M	16,748	4	0	4	122	18,042	4	0	4	132	18,271	4	0	4	133	9,227	2	0	2	70			
				T4M	16,432	4	0	4	120	17,702	4	0	4	129	17,926	4	0	4	131	9,243	2	0	2	71			
				TFTM	16,857	4	0	4	123	18,159	4	0	4	133	18,389	4	0	4	134	9,103	2	0	2	69			
				T5VS	16,975	4	0	1	124	18,287	4	0	1	133	18,518	4	0	1	135	9,661	3	0	1	74			
				T5S	16,832	4	0	1	123	18,133	4	0	1	132	18,362	4	0	1	134	9,544	3	0	1	73			
				T5M	16,828	4	0	2	123	18,128	4	0	2	132	18,358	4	0	2	134	9,665	3	0	2	74			
				T5W	16,677	4	0	3	122	17,966	5	0	3	131	18,193	5	0	3	133	9,395	4	0	2	72			
				BLC	13,845	3	0	3	101	14,915	3	0	3	109	15,103	3	0	3	110								
				LCCO	9,888	1	0	3	72	10,652	2	0	3	78	10,787	2	0	3	79								
				RCCO	9,875	4	0	4	72	10,638	4	0	4	78	10,773	4	0	4	79								
				60	1050	P12	207W	T1S	22,996	4	0	4	111	24,773	4	0	4	120	25,087	4	0	4	121				
T2S	22,864	4	0					4	110	24,631	5	0	5	119	24,943	5	0	5	120								
T2M	23,277	4	0					4	112	25,075	4	0	4	121	25,393	4	0	4	123								
T3S	22,509	4	0					4	109	24,248	5	0	5	117	24,555	5	0	5	119								
T3M	23,263	4	0					4	112	25,061	4	0	4	121	25,378	4	0	4	123								
T4M	22,824	5	0					5	110	24,588	5	0	5	119	24,899	5	0	5	120								
TFTM	23,414	5	0					5	113	25,223	5	0	5	122	25,543	5	0	5	123								
T5VS	23,579	5	0					1	114	25,401	5	0	1	123	25,722	5	0	1	124								
T5S	23,380	4	0					2	113	25,187	4	0	2	122	25,506	4	0	2	123								
T5M	23,374	5	0					3	113	25,181	5	0	3	122	25,499	5	0	3	123								
T5W	23,165	5	0					4	112	24,955	5	0	4	121	25,271	5	0	4	122								
BLC	19,231	4	0					4	93	20,717	4	0	4	100	20,979	4	0	4	101								
LCCO	13,734	2	0					3	66	14,796	2	0	4	71	14,983	2	0	4	72								
RCCO	13,716	4	0					4	66	14,776	4	0	4	71	14,963	4	0	4	72								
60	1250	P13	231W					T1S	25,400	4	0	4	110	27,363	4	0	4	118	27,709	4	0	4	120				
				T2S	25,254	5	0	5	109	27,205	5	0	5	118	27,550	5	0	5	119								
				T2M	25,710	4	0	4	111	27,696	4	0	4	120	28,047	4	0	4	121								
				T3S	24,862	5	0	5	108	26,783	5	0	5	116	27,122	5	0	5	117								
				T3M	25,695	5	0	5	111	27,680	5	0	5	120	28,031	5	0	5	121								
				T4M	25,210	5	0	5	109	27,158	5	0	5	118	27,502	5	0	5	119								
				TFTM	25,861	5	0	5	112	27,860	5	0	5	121	28,212	5	0	5	122								
				T5VS	26,043	5	0	1	113	28,056	5	0	1	121	28,411	5	0	1	123								
				T5S	25,824	4	0	2	112	27,819	5	0	2	120	28,172	5	0	2	122								
				T5M	25,818	5	0	3	112	27,813	5	0	3	120	28,165	5	0	3	122								
				T5W	25,586	5	0	4	111	27,563	5	0	4	119	27,912	5	0	4	121								
				BLC	21,241	4	0	4	92	22,882	4	0	4	99	23,172	4	0	4	100								
				LCCO	15,170	2	0	4	66	16,342	2	0	4	71	16,549	2	0	4	72								
									15,150	5	0	5	66	16,321	5	0	5	71	16,527	5	0	5	72				

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.01 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 3000 K, 4000 K and 5000 K (70 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L85/100,000 hours at 25°C). Class 1

electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern (template #8). Optional terminal block and NEMA photocontrol receptacle are also available.

LISTINGS

UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

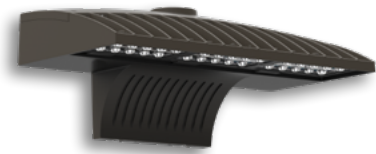
International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

WARRANTY

5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.





D-Series Size 2 LED Wall Luminaire



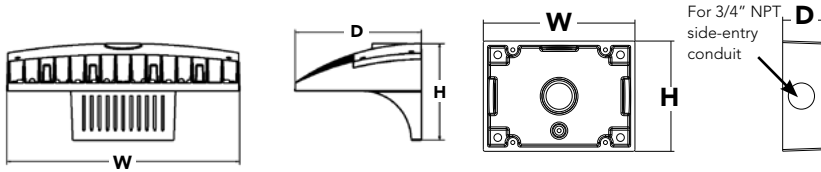
d^{series}

Specifications Luminaire

Width:	18-1/2" (47.0 cm)	Weight:	21 lbs (9.5 kg)
Depth:	10" (25.4 cm)		
Height:	7-5/8" (19.4 cm)		

Back Box (BBW)

Width:	5-1/2" (14.0 cm)	BBW Weight:	1 lbs (0.5 kg)
Depth:	1-1/2" (3.8 cm)		
Height:	4" (10.2 cm)		



Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL[®] controls marked by a **shaded background**. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability¹
- This luminaire is part of an A+ Certified solution for ROAM[®] or XPoint[™] Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a **shaded background**¹

To learn more about A+, visit www.acuitybrands.com/aplus.

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: DSXW2 LED 30C 700 40K T3M MVOLT DDBTXD

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options
DSXW2 LED							
DSXW2 LED	20C 20 LEDs (two engines) 30C 30 LEDs (three engines)	350 350 mA 530 530 mA 700 700 mA 1000 1000 mA ¹ (1 A)	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted ²	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium ASYDF Asymmetric diffuse	MVOLT ³ 120 ⁴ 208 ⁴ 240 ⁴ 277 ⁴ 347 ^{4,5} 480 ^{4,5}	Shipped included (blank) Surface mounting bracket Shipped separately⁶ BBW Surface-mounted back box (for conduit entry)	Shipped installed PE Photoelectric cell, button type ⁷ PER NEMA twist-lock receptacle only (control ordered separate) ⁸ PER5 Five-wire receptacle only (control ordered separate) ^{8,9} PER7 Seven-wire receptacle only (control ordered separate) ^{8,9} DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) PIR 180° motion/ambient light sensor, <15' mtg ht ^{10,11} PIRH 180° motion/ambient light sensor, 15-30' mtg ht ^{10,11} PIR1FC3V Motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ^{11,12} PIRH1FC3V Motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc ^{11,12}

Other Options

Finish (required)

Shipped installed	Shipped separately¹³	DDBXD Dark bronze	DSSXD Sandstone	DWHGXD Textured white
SF Single fuse (120, 277, 347V) ³	BSW Bird-deterrent spikes	DBLXD Black	DDBTXD Textured dark bronze	DSSTXD Textured sandstone
DF Double fuse (208, 240, 480V) ³	WG Wire guard	DNAXD Natural aluminum	DBLBXD Textured black	
HS House-side shield ⁴	VG Vandal guard	DWHXD White	DNATXD Textured natural aluminum	
SPD Separate surge protection ¹³				



Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photozell - SSL twist-lock (120-277V) ¹⁴
DLL347F 1.5 CUL JU	Photozell - SSL twist-lock (347V) ¹⁴
DLL480F 1.5 CUL JU	Photozell - SSL twist-lock (480V) ¹⁴
DSHORT SBK U	Shorting cap (Included when ordering PER, PERS or PER7) ¹⁴
DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXW2WG U	Wire guard accessory
DSXW2VG U	Vandal guard accessory
DSXW2BBW DB8XD U	Back box accessory (specify finish)

For more control options, visit [DTL](#) and [ROAM](#) online.

NOTES

- 1000mA is not available with AMBPC.
- AMBPC is not available with 1000mA.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
- Available with 30 LED/700mA options only (DSXW2 LED 30C 700). DMG option not available.
- Also available as a separate accessory; see Accessories information.
- Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
- Photozell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
- If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Shorting Cap included.
- Reference Motion Sensor table on page 3.
- Reference PER Table on page 3 for functionality.
- PIR and PIR1FC3V specify the [SensorSwitch SBGR-10-ODP](#) control; PIRH and PIRH1FC3V specify the [SensorSwitch SBGR-6-ODP](#) control; see [Motion Sensor Guide](#) for details. Dimming driver standard. Not available with PER5 or PER7. Separate on/off required.
- See the electrical section on page 2 for more details.
- Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item. See PER Table.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K					40K					50K				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
20C (20 LEDs)	350 mA	25W	T2S	2,783	1	0	1	111	2,989	1	0	1	120	3,008	1	0	1	120
			T2M	2,709	1	0	1	108	2,908	1	0	1	116	2,926	1	0	1	117
			T3S	2,748	1	0	1	110	2,951	1	0	1	118	2,969	1	0	1	119
			T3M	2,793	1	0	1	112	2,999	1	0	1	120	3,018	1	0	1	121
			T4M	2,756	1	0	1	110	2,959	1	0	1	118	2,977	1	0	1	119
			TFTM	2,753	1	0	1	110	2,956	1	0	1	118	2,975	1	0	1	119
	530 mA	36W	T2S	4,030	1	0	1	112	4,327	1	0	1	120	4,354	1	0	1	121
			T2M	3,920	1	0	1	109	4,210	1	0	1	117	4,236	1	0	1	118
			T3S	3,978	1	0	1	111	4,272	1	0	1	119	4,299	1	0	1	119
			T3M	4,044	1	0	2	112	4,343	1	0	2	121	4,370	1	0	2	121
			T4M	3,990	1	0	1	111	4,284	1	0	1	119	4,310	1	0	1	120
			TFTM	3,987	1	0	1	111	4,281	1	0	1	119	4,308	1	0	1	120
	700 mA	47W	T2S	5,130	1	0	1	109	5,509	1	0	1	117	5,544	1	0	1	118
			T2M	4,991	1	0	2	106	5,360	1	0	2	114	5,393	1	0	2	115
			T3S	5,066	1	0	1	108	5,440	1	0	1	116	5,474	1	0	1	116
			T3M	5,148	1	0	2	110	5,529	1	0	2	118	5,563	1	0	2	118
			T4M	5,080	1	0	2	108	5,455	1	0	2	116	5,488	1	0	2	117
			TFTM	5,075	1	0	2	108	5,450	1	0	2	116	5,484	1	0	2	117
	1000 mA	73W	T2S	7,147	2	0	2	98	7,675	2	0	2	105					
			T2M	6,954	2	0	2	95	7,467	2	0	2	102					
			T3S	7,057	1	0	2	97	7,579	1	0	2	104					
			T3M	7,172	2	0	3	98	7,702	2	0	3	106					
			T4M	7,076	1	0	2	97	7,599	1	0	2	104					
			TFTM	7,071	1	0	2	97	7,594	1	0	2	104					
30C (30 LEDs)	350 mA	36W	T2S	4,160	1	0	1	116	4,467	1	0	1	124	4,494	1	0	1	125
			T2M	4,048	1	0	1	112	4,346	1	0	2	121	4,373	1	0	2	121
			T3S	4,108	1	0	1	114	4,411	1	0	1	123	4,438	1	0	1	123
			T3M	4,174	1	0	2	116	4,483	1	0	2	125	4,510	1	0	2	125
			T4M	4,119	1	0	1	114	4,423	1	0	2	123	4,450	1	0	2	124
			TFTM	4,115	1	0	1	114	4,419	1	0	1	123	4,446	1	0	1	124
	530 mA	54W	T2S	6,001	1	0	1	111	6,444	1	0	1	119	6,484	1	0	1	120
			T2M	5,838	1	0	2	108	6,270	2	0	2	116	6,308	2	0	2	117
			T3S	5,926	1	0	2	110	6,364	1	0	2	118	6,403	1	0	2	119
			T3M	6,023	1	0	2	112	6,467	1	0	2	120	6,507	1	0	2	121
			T4M	5,942	1	0	2	110	6,380	1	0	2	118	6,420	1	0	2	119
			TFTM	5,937	1	0	2	110	6,376	1	0	2	118	6,415	1	0	2	119
	700 mA	71W	T2S	7,403	2	0	2	104	8,170	2	0	2	115	8,221	2	0	2	116
			T2M	7,609	2	0	2	107	7,949	2	0	2	112	7,998	2	0	2	113
			T3S	7,513	1	0	2	106	8,068	1	0	2	114	8,118	1	0	2	114
			T3M	7,635	2	0	3	108	8,199	2	0	3	115	8,250	2	0	3	116
			T4M	7,534	1	0	2	106	8,089	1	0	2	114	8,140	1	0	2	115
			TFTM	7,527	1	0	2	106	8,082	2	0	2	114	8,134	2	0	2	115
	1000 mA	109W	T2S	10,468	2	0	2	96	11,241	2	0	2	103					
			T2M	10,184	2	0	3	93	10,936	2	0	3	100					
			T3S	10,335	2	0	2	95	11,099	2	0	2	102					
			T3M	10,505	2	0	3	96	11,280	2	0	3	103					
			T4M	10,365	2	0	2	95	11,129	2	0	2	102					
			TFTM	10,356	2	0	2	95	11,121	2	0	3	102					

Note:

Available with phosphor-converted amber LED's (nomenclature AMBPC). These LED's produce light with 97+% >530 nm. Output can be calculated by applying a 0.7 factor to 4000 K lumen values and photometric files.



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.98

Electrical Load

LEDs	Drive Current (mA)	System Watts	Current (A)					
			120V	208V	240V	277V	347V	480V
20C	350	25 W	0.23	0.13	0.12	0.10	-	-
	530	36 W	0.33	0.19	0.17	0.14	-	-
	700	47 W	0.44	0.25	0.22	0.19	-	-
	1000	74 W	0.68	0.39	0.34	0.29	-	-
30C	350	36 W	0.33	0.19	0.17	0.14	-	-
	530	54 W	0.50	0.29	0.25	0.22	-	-
	700	71 W	0.66	0.38	0.33	0.28	0.23	0.16
	1000	109 W	1.01	0.58	0.50	0.44	-	-

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **DSXW2 LED 30C 1000** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.95	0.92	0.87

Motion Sensor Default Settings

Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
*PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min

*for use with Inline Dusk to Dawn or timer

PER Table

Control	PER (3 wire)	PER5 (5 wire)		PER7 (7 wire)		
			Wire 4/Wire5		Wire 4/Wire5	Wire 6/Wire7
Photocontrol Only (On/Off)	✓	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM	⊘	✓	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM with Motion	⊘	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof*	⊘	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof* with Motion	⊘	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture

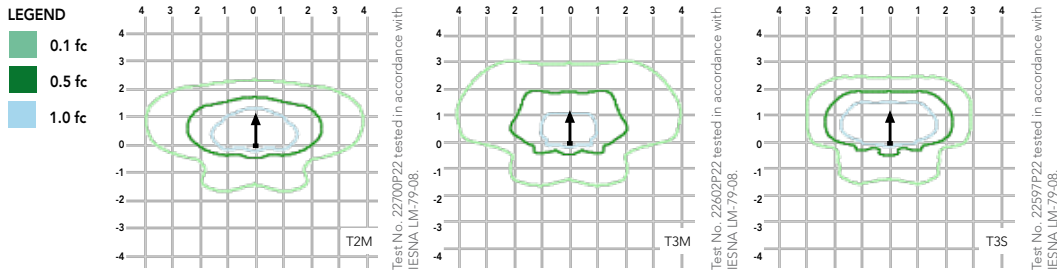
✓ Recommended

⊘ Will not work

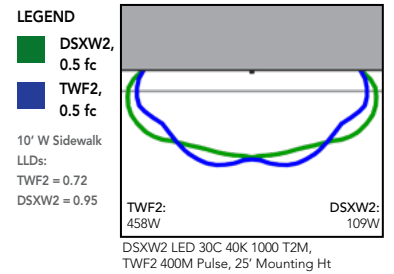
⚠ Alternate

*Futureproof means: Ability to change controls in the future.

Isofootcandle plots for the DSXW2 LED 30C 1000 40K. Distances are in units of mounting height (25').



Distribution overlay comparison to 400W metal halide.



FEATURES & SPECIFICATIONS

INTENDED USE

The energy savings, long life and easy-to-install design of the D-Series Wall Size 2 make it the smart choice for building-mounted doorway and pathway illumination for nearly any facility.

CONSTRUCTION

Two-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance. The LED driver is mounted to the door to thermally isolate it from the light engines for low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65).

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses provide multiple photometric distributions tailored specifically to building mounted applications. Light engines are available in 3000 K (70 min. CRI), 4000 K (70 min. CRI) or 5000 K (70 min. CRI) configurations.

ELECTRICAL

Light engine(s) consist of 10 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (L87/100,000 hrs at 25°C). Class 1 electronic drivers have a power factor >90%, THD <20%, and a minimum 2.5KV surge rating. When ordering the SPD option, a separate surge protection device is installed within the luminaire which meets a minimum Category C Low (per ANSI/IEEE C62.41.2).

INSTALLATION

Included universal mounting bracket attaches securely to any 4" round or square outlet box for quick and easy installation. Luminaire has a slotted gasket wireway and attaches to the mounting bracket via corrosion-resistant screws.

LISTINGS

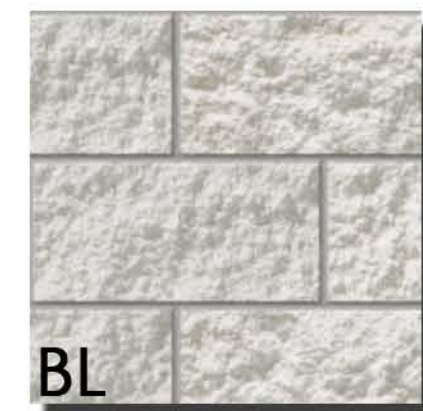
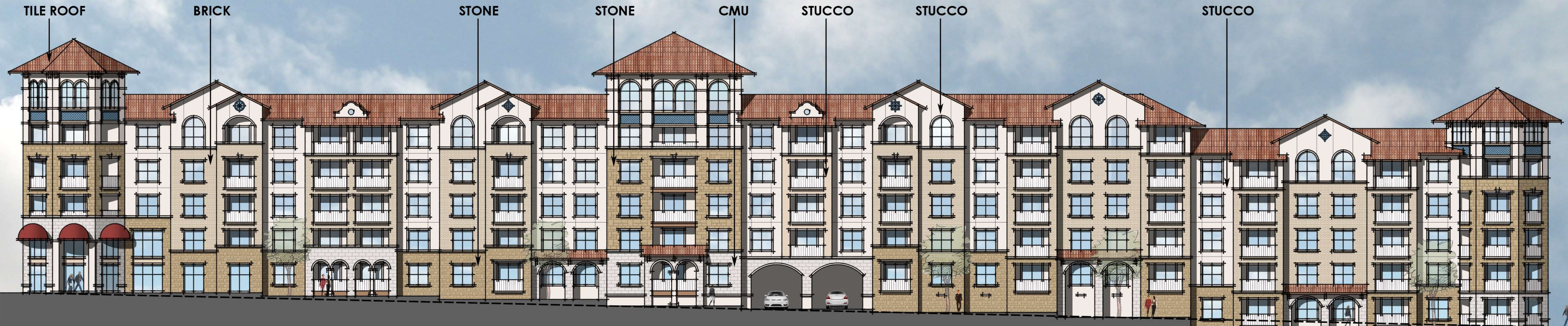
CSA certified to U.S. and Canadian standards. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

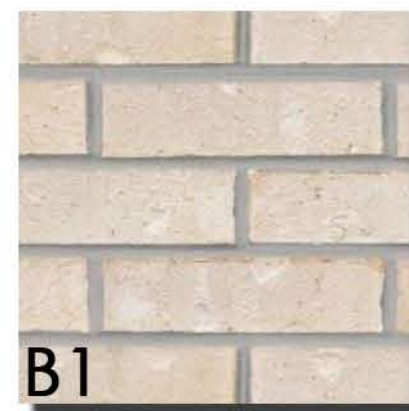
WARRANTY

Five-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



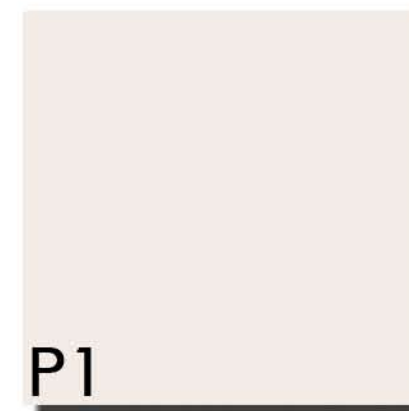
BL
BLOCK
FEATHERLINE
TEXAS CREAM



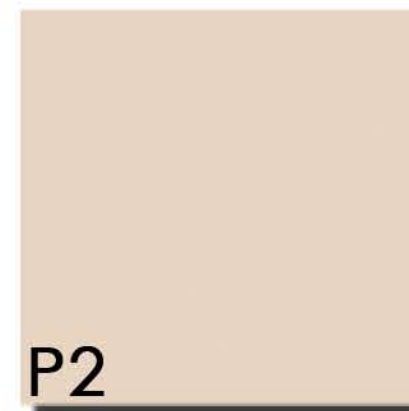
B1
BRICK
ACME
WINTERSTONE
KING SIZE



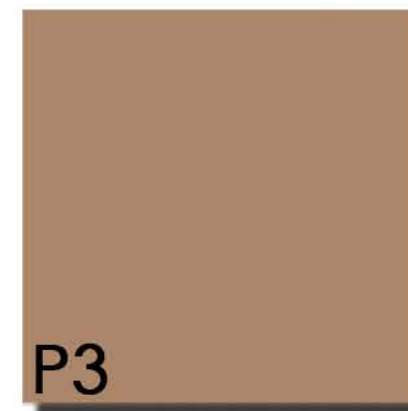
S1
STONE
NEVLSTONE
AUSTIN STONE
KALAHARI



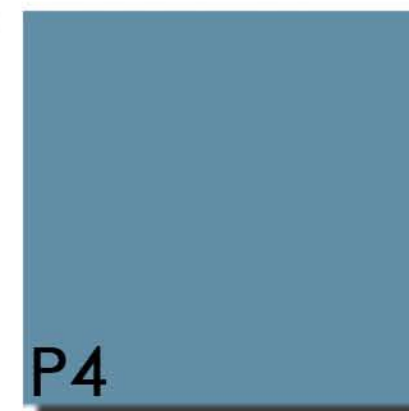
P1
STUCCO BODY, WINDOW
TRIM, DOOR TRIM
SHERWIN WILLIAMS
IBIS WHITE
SW 7000



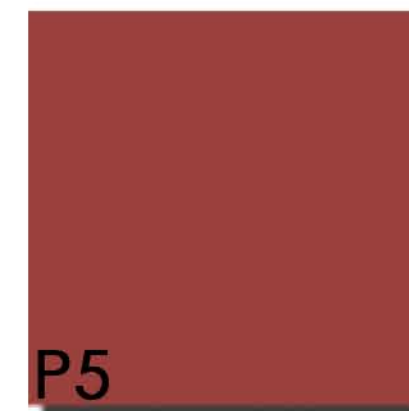
P2
STUCCO BODY, WINDOW
TRIM, BANDING
SHERWIN WILLIAMS
PATIENCE
SW 7555



P3
FASCIA, EAVES, SOFFIT,
GUTTER, BRACKETS, TRIM
SHERWIN WILLIAMS
MEADOWLARK
SW 7522



P4
ORNAMENTS, TILE
SHERWIN WILLIAMS
LEISURE BLUE
SW6515



P5
FABRIC AWNINGS
SHERWIN WILLIAMS
SALUTE
SW 7582



P6
RAILINGS, METAL FEATURE
SHERWIN WILLIAMS
GARRET GRAY
SW 6075



W1
WINDOWS
PLY-GEN OR EQUAL
WHITE



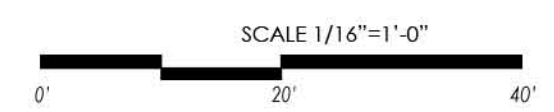
R1
BARREL CONCRETE ROOF
TILE
EAGLE ROOFING PRODUCTS
CAPISTRANO PROFILE
LCC 8806 TUSCON BLEND



D1
DOWNSPOUT
SENIX OR EQUAL
RAFFIA BEIGE

HARBOR VILLAGE DWELLING UNITS MATERIAL BOARD

ROCKWALL, TEXAS





Rockwall Harbor District TIA Update
Harbor Village Multifamily Development
Rockwall, Texas

December 5, 2018

Kimley-Horn and Associates, Inc.
Dallas, Texas

Project #064467103
Registered Firm F-928

Kimley»»Horn

MEMORANDUM

To: Ryan Miller, AICP
Director of Planning and Zoning, City of Rockwall

From: Scot A. Johnson, P.E., PTOE
Jake Halter, EIT
Kimley-Horn and Associates, Inc.

Date: December 5, 2018

Subject: Rockwall Harbor District TIA Update
Harbor Village Multifamily Development
Rockwall, TX



Introduction

The purpose of this study is to evaluate the impact of the Harbor Village Multifamily development on the Harbor District of the City of Rockwall, Texas. In 2011, a Traffic Impact Analysis (TIA) of the Rockwall Harbor District was performed by Kimley-Horn and Associates (KH). This study will serve as an update to that TIA, accounting for the addition of the Harbor Village development and the various developments that have been constructed since 2011, and also will evaluate the impact of the upcoming TxDOT IH-30 frontage road reconstruction on the Harbor District.

The Rockwall Harbor District TIA is attached to the end of this memo. Much of the background information and development descriptions are included in that TIA and will not be reproduced in this memo; only the relevant changes will be discussed.

Assumptions

There is an existing Harbor District development to the south of the site. This area was not included in the previous TIA and so will remain outside of the scope of this update. For the previous TIA, the analyzed Harbor District expansion area was considered to be vacant, with parking areas built across some portions for the existing Harbor District. Now, there are multiple new developments across the Harbor District expansion area including a health clinic, a hospital, a hotel, and various restaurant and retail centers.

Furthermore, the reconstruction of the IH-30 frontage roads has been under design by TxDOT. The draft schematic for the rebuild is available at the end of this memo. The previous TIA had analyzed the current scenario and a proposed ramp alteration scenario. The update analyzes the existing scenario, which is nearly the same as before, and a future scenario with the TxDOT road geometry with full frontage roads. Additionally, Lakefront Trail was originally planned to be reconstructed further west than it currently is, and the previous TIA took that into consideration. However, the update will analyze it where it currently lies, as it is no longer planned to alter its path.

Site Description

The proposed Harbor Village multifamily development includes 375 mid-rise apartment units. The development will have access to the surrounding street network via two driveways: the North Drive, which is a right-in/right-out driveway to the IH-30 eastbound frontage road; and the East Drive, which will be a full-access driveway to Lakefront Trail. The site driveways accessing the proposed eastbound IH-30 frontage road have been conceptually approved by TxDOT and should be reflected in the next version of the IH-30 reconstruction plan.

The site will replace part of an existing surface lot with a parking garage. This garage will not be used for the site's multifamily units; the units have their own garage on the complex. The replacement garage will compensate for the removed existing parking. The traffic from the existing parking lot was recorded in the existing traffic counts. The access to the parking lot is not significantly changing, so the parking lot was not explicitly modeled in this analysis.

Current Traffic Patterns and Future Adjustments

As shown in **Exhibit 5** of the TIA update, which is attached to the end of this memo, there are a considerable number of drivers using Shoreline Trail as a cut-through, presumably to avoid Ridge Road or the unsignalized turn from Summer Lee Drive to Horizon Road. There are 246 drivers using the northbound right-turn during the AM peak and 378 going south on Shoreline Trail from the frontage road during the PM peak. Similarly, when Lakefront Trail and Shoreline Trail are compared along Summer Lee Drive, during the AM and PM peaks, respectively, 10 and 9 drivers make a left-turn from Summer Lee Drive to Lakefront Trail while 191 and 222 drivers make the left-turn from Summer Lee Drive to Shoreline Trail. With the reconstruction of the IH-30 eastbound frontage road and the moving of the Horizon Road exit back a considerable distance before Lakefront Drive, the cut-through traffic was reassigned for the future 2026 scenario. 60% of the outbound (from Summer Lee Drive to the IH-30 eastbound frontage road) cut-through traffic was assumed to stay on Shoreline Trail, but 40% was redistributed to Lakefront Trail. For the inbound cut-through traffic, Lakefront Trail is much more attractive as it is a shorter path, not just another option with the same length. Two-thirds of the inbound cut-through traffic was reassigned to the eastbound right-turn from the IH-30 frontage road to Lakefront Trail, and one-third was left using the eastbound right-turn from the frontage road to Shoreline Trail.

The reconstruction of the IH-30 frontage road will also include a modification of the Horizon Road bridge over IH-30. Texas U-Turns will be added as well as one additional lane in each direction over the bridge. The existing and 2021 intersection geometry used in the TIA update can be found in **Exhibit 3**, and the geometry used in the 2026 scenario, which includes the IH-30 changes, can be found in **Exhibit 4**. To account for the addition of the U-Turn lanes, a portion of the eastbound left-turning traffic at the intersection of Horizon Road and the eastbound IH-30 frontage road was reassigned to the U-Turn lane and subsequently removed from the northbound left-turn lane at the intersection of Horizon Road with the westbound IH-30 frontage road.

The last major change included in the IH-30 reconstruction is the addition of a westbound on-ramp that will run from west of Ridge Road, under the Horizon Road bridge, and will enter the IH-30 main lanes on the west side of Horizon Road. This will remove nearly all of the westbound through traffic at the intersection of the IH-30 westbound frontage road and Horizon Road during the 2026 scenario.

Trip Generation

The trip generation used for the Rockwall Harbor District TIA is shown in **Table 1**. Much of the various uses have slightly changed, been built to less density than proposed, or have been replaced by the proposed Harbor Village multifamily development. To represent the expected growth in the short term for the TIA update, 60% of the Harbor District expansion trip generation was included in the background traffic for the 2021 scenario. For the 2026 scenario, all the Harbor District expansion trip generation from the 2011 TIA was included in the background. This represents a significant double counting of development areas like the hospital, the traffic from which is included in the existing counts and then is added again by the Harbor District expansion trip generation. **Table 2** shows the site-generated trips from the Harbor Village development, which are significantly lower than most of the uses in the previous TIA. The Harbor Village development trip generation is approximately 10% of the trip generation for the Harbor District expansion as a whole.

Table 1 – Trip Generation from Previous Harbor District Expansion TIA

Land Uses	Amount	Units	ITE Code	Daily Total	AM Peak Hour			PM Peak Hour		
					IN	OUT	TOTAL	IN	OUT	TOTAL
General Office	240,000	SF	710	2,618	333	45	378	59	289	348
Shopping Center/Retail	146,500	SF	820	8,704	118	75	193	403	419	822
Quality Restaurant	44,000	SF	931	3,958	18	18	36	221	109	330
Single-Family Detached Housing	49	DU	210	539	11	33	44	35	20	55
Residential Condominium	1,161	DU	230	5,430	62	305	367	301	148	449
Gross Trip Generation				21,249	542	476	1,018	1,019	985	2,004
Internal Trips				5,768	43	43	86	219	219	438
External Trips After Internal Capture				15,481	499	433	932	800	766	1,566

Table 2 – Trip Generation from the Harbor Village Multifamily Development

Land Uses	Amount	Units	ITE Code	Daily One-Way Trips	AM Peak Hour One-Way Trips			PM Peak Hour One-Way Trips		
					IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Mid-Rise)	375	Units	221	2,042	33	92	125	96	62	158

Trip Generation rates based on ITE's *Trip Generation Manual*, 10th Edition.

Traffic Operational Analysis

The traffic volumes for the 2018 existing, 2021 background and background plus site, and 2026 background and background plus site scenarios were analyzed using the *Synchro*TM software package and its associated *Intersection* reports for signalized intersections and *Highway Capacity Manual* reports for unsignalized intersections. The *Synchro*TM printouts are included at the end of this report. **Table 3** shows the traffic operational results from the *Synchro*TM analysis of the AM peak hour, and **Table 4** shows the results from the PM peak hour.

Table 3 – Traffic Operational Results – Weekday AM Peak Hour

INTERSECTION	APPROACH	2018 Background Traffic		2021 Background Traffic (Includes 60% Harbor District)		2021 Background plus Site Traffic		2026 Background Traffic (Includes Harbor District)		2026 Background plus Site Traffic	
		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
		DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS
IH-30 WBFR @ Horizon Road	WB	49.5	D	49.3	D	49.3	D	54.4	D	53.7	D
	NB	36.9	D	76.9	E	95.1	F	3.8	A	3.9	A
	SB	25.8	C	30.8	C	31.7	C	19.8	B	20.1	C
	Overall	38.8	D	64.3	E	76.0	E	13.2	B	13.3	B
IH-30 EBFR @ Horizon Road	EB	9.3	A	10.1	B	10.1	B	19.5	B	20.5	C
	NB	8.4	A	9.4	A	9.5	A	6.7	A	6.9	A
	SB	9.7	A	13.4	B	13.9	B	8.6	A	8.9	A
	Overall	13.1	B	15.3	B	16.2	B	15.2	B	15.8	B
Horizon Road @ Summer Lee Drive	NBL	8.2	A	8.8	A	8.9	A	9.2	A	9.3	A
	EBL*	14.3	B	21.6	C	24.2	C	39.6	E	51.0	F
	EBR*	9.4	A	9.6	A	9.7	A	10.0	A	10.0	A
Shoreline Trail @ Summer Lee Drive	EBL	7.7	A	7.9	A	8.0	A	7.8	A	7.8	A
	SBL*	13.6	B	16.1	C	16.8	C	12.5	B	12.9	B
	SBR*	9.2	A	9.6	A	9.7	A	10.0	A	10.0	A
Lakefront Trail @ Summer Lee Drive	EBL	7.7	A	7.9	A	7.9	A	8.4	A	8.5	A
	SB*	9.4	A	10.7	B	11.8	B	14.1	B	16.7	C
Lakefront Trail @ IH-30 EBFR	NBL*	8.7	A	8.9	A	9.3	A	-	-	-	-
	NBR*	8.4	A	8.5	A	8.9	A	24.7	C	28.6	D
	WBL	7.2	A	7.3	A	7.4	A	-	-	-	-
Shoreline Trail @ IH-30 EBFR	NB*	7.5	A	8.0	A	8.5	A	25.2	D	27.3	D
	EB*	12.2	B	13.6	B	15.4	C	-	-	-	-
Sunset Ridge Drive @ IH-30 EBFR	NBR*	13.1	B	15.0	B	15.6	C	18.5	C	19.5	C
North Drive @ IH-30 EBFR	NB*	-	-	-	-	8.6	A	-	-	17.5	C
	WBL	-	-	-	-	7.3	A	-	-	-	-
Lakefront Trail @ East Drive	NBL	-	-	-	-	7.3	A	-	-	7.6	A
	EB*	-	-	-	-	8.9	A	-	-	10.1	B

* Stop-Controlled Approach
 - No movements in Time Period

Signalized	Unsignalized
------------	--------------

Table 4 – Traffic Operational Results – Weekday PM Peak Hour

INTERSECTION	APPROACH	2018 Background Traffic		2021 Background Traffic (Includes 60% Harbor District)		2021 Background plus Site Traffic		2026 Background Traffic (Includes Harbor District)		2026 Background plus Site Traffic	
		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
		DELAY (SEC/VBH)	LOS	DELAY (SEC/VBH)	LOS	DELAY (SEC/VBH)	LOS	DELAY (SEC/VBH)	LOS	DELAY (SEC/VBH)	LOS
IH-30 WBFR @ Horizon Road	WB	49.4	D	47.8	D	46.6	D	31.0	C	30.6	C
	NB	43.0	D	124.0	F	140.9	F	9.3	A	9.9	A
	SB	27.1	C	31.3	C	31.8	C	30.0	C	30.0	C
	Overall	43.4	D	89.7	F	99.0	F	17.2	B	17.6	B
IH-30 EBFR @ Horizon Road	EB	11.2	B	21.7	C	23.7	C	40.7	D	41.9	D
	NB	17.9	B	20.1	C	20.3	C	21.1	C	21.8	C
	SB	16.2	B	20.9	C	22.0	C	18.9	B	20.6	C
	Overall	19.7	B	28.3	C	30.0	C	33.7	C	34.5	C
Horizon Road @ Summer Lee Drive	NBL	8.9	A	10.0	A	10.4	B	11.5	B	12.1	B
	EBL*	16.8	C	70.6	F	130.9	F	200.0+	F	200.0+	F
	EBR*	10.2	B	11.1	B	11.2	B	12.1	B	12.2	B
Shoreline Trail @ Summer Lee Drive	EBL	8.3	A	8.7	A	8.9	A	8.5	A	8.6	A
	SBL*	17.8	C	28.3	D	32.1	D	19.0	C	20.9	C
	SBR*	11.7	B	13.5	B	14.2	B	15.7	C	16.7	C
Lakefront Trail @ Summer Lee Drive	EBL	8.6	A	9.0	A	9.2	A	10.5	B	10.9	B
	SB*	12.4	B	15.8	C	18.5	C	35.0	D	54.4	F
Lakefront Trail @ IH-30 EBFR	NBL*	8.8	A	9.2	A	9.8	A	-	-	-	-
	NBR*	8.5	A	8.8	A	9.1	A	161.5	F	200.0+	F
	WBL	7.3	A	7.3	A	7.4	A	-	-	-	-
Shoreline Trail @ IH-30 EBFR	NB*	8.4	A	9.8	A	10.4	B	106.0	F	116.8	F
	EB*	16.0	C	22.2	C	27.7	D	-	-	-	-
Sunset Ridge Drive @ IH-30 EBFR	NBR*	19.8	C	36.0	E	39.2	E	145.8	F	161.7	F
North Drive @ IH-30 EBFR	NB*	-	-	-	-	8.6	A	-	-	26.1	D
	WBL	-	-	-	-	7.4	A	-	-	-	-
Lakefront Trail @ East Drive	NBL	-	-	-	-	7.4	A	-	-	8.0	A
	EB*	-	-	-	-	9.2	A	-	-	12.0	B
								Signalized		Unsignalized	

* Stop-Controlled Approach
 - No movements in Time Period
 + Movement Delay Exceeds 200 seconds

The intersection operational results from the previous TIA are available on pages 20 and 21 of the previous report, which is attached to the end of this memo. The updated intersection analysis shows that the IH-30 reconstruction greatly helps the Horizon Road intersections with the IH-30 frontage roads, improving them to LOS C or better during both peak hours of the 2026 scenario.

The intersection of Horizon Road and Summer Lee Drive was identified in the previous report as having large delays, reaching LOS F during the existing and background scenarios. A signal warrant analysis was conducted for the intersection and can be found on page 31 of the previous report. The warrant analysis found that the intersection would likely meet warrants but due to a lack of data did not currently meet them. This intersection is analyzed later in the **Mitigation Analysis**.

When the intersections are compared to the buildout year of the previous TIA, 2020, all perform similarly or better in the 2021 and 2026 scenarios, with three exceptions: The intersections of Lakefront Trail, Shoreline Trail, and Sunset Ridge Drive with the IH-30 eastbound frontage road.

The intersections of Lakefront Trail and Shoreline Trail with the eastbound IH-30 frontage road operate with delay higher than the previous TIA. While the IH-30 reconstruction is good for the region, it shifts the off-ramp for Horizon Road west past Lakefront Trail. This means that all the frontage road through traffic now travels past both Lakefront Trail and Shoreline Trail, which significantly increases the delay for each of these approaches. This can be seen in that the northbound approaches for both roads operate at LOS F during the 2026 background scenario and only slightly increase with the addition of Harbor Village site traffic. It is not uncommon for conditions to reach LOS F for minor streets accessing busy frontage roads like those along IH-30.

The intersection of Sunset Ridge Drive has higher levels of delay in this updated analysis due to an increased number of existing northbound right-turning vehicles during the PM peak hour especially. Sunset Ridge Drive appears to be not only another cut-through route, similar to Lakefront Trail and Shoreline Trail, but also handles much of the hospital traffic.

For each of these three intersections, the delay is not out of line with the expected of delay of minor streets accessing high-volume frontage roads in other areas of the Metroplex. However, a **Mitigation Analysis** will investigate possible solutions to the higher delays experienced.

Lastly, the southbound approach of the intersection of Lakefront Trail and Summer Lee Drive operates at LOS F during the PM peak hour with drivers experiencing just under 55 seconds of average delay. While adding a turn lane could help reduce the delay for vehicular traffic, the intersection of Summer Lee Drive and Lakefront Trail is very close to the existing Harbor District, residing between the District and its satellite parking lots. The current two-lane setup is beneficial for pedestrians crossing the roadway. The roadway could be widened but widening is not recommended so that pedestrian crossing distance is minimized and walkability is supported within the Harbor District. The delays experienced are not exceedingly large and the southbound approach still functions properly.

The remaining intersections and approaches operate at LOS D or better, which is acceptable by industry standards. The Harbor Village multifamily development does not increase the delays significantly above those recorded in the previous TIA, especially considering the 7-year increase in background traffic growth between the two studies.

The site driveways operate with very little delay during both peak hours of the 2026 buildout scenario. Each of their approaches operates at LOS D or better during all scenarios.

Right-Turn Lane Analysis

Where justified, the addition of right-turn deceleration lanes can help inbound turning vehicles separate from the through traffic, avoiding conflicts and smoothing traffic flow. TxDOT has identified right-turning volume thresholds where right-turn lanes are justified. **Table 5** shows the driveway locations with right-turn driveway access to the site, and how they compare with TxDOT standards. The high inbound volume occurs in the PM peak hour for both driveways in this analysis. With the projected maximum peak hour right-turn volume not meeting TxDOT criterion, a right-turn lane is not recommended for the either of the site driveways.

Table 5 – Right-Turn Lane Analysis – Site Driveways

Right-Turn Location	Projected Maximum Peak Hour Right-Turn Volume	TxDOT Threshold (Access Management Manual, Table 2-3)	Right-Turn Lane Recommended?
North Drive from IH-30 EBFR	43 vph	60 vph	No
East Drive from Lakefront Trail	5 vph	60 vph	No

Signal Warrant Analysis

A signal warrant analysis was performed for the intersection of Horizon Road and Summer Lee Drive in the previous TIA due to the high recorded delays. The TIA update confirmed the high delays.

Using the 2018 counts along Summer Lee Drive and the 2014 counts along Horizon Road, the signal warrant analysis shows that the intersection of Horizon Road and Summer Lee Drive do not currently meet any of the warrants. With the addition of background growth and the background Harbor District traffic volumes, Warrants 1B (Eight-Hour) and 2 (Four-Hour) are met. The Harbor Village site will contribute only a small amount of additional traffic to these warrant volumes.

	Warrant 1A (8 - Hour)		Warrant 1B (8 - Hour)		Warrant 2 (4 - Hour)	
	Hours Met	Satisfied?	Hours Met	Satisfied?	Hours Met	Satisfied?
Horizon Road @ Summer Lee Drive (Existing)	0	No	4	No	1	No
Horizon Road @ Summer Lee Drive (2021 Background without Harbor Village)	0	No	9	Yes	4	Yes

The signalization of Horizon Road and Summer Lee Drive has been desirable since the original TIA for the Harbor District expansion was created. It would provide a better path for the cut-through traffic along Lakefront Trail, Shoreline Trail, and Sunset Ridge Drive. Summer Lee Drive is located nearly halfway between the IH-30 eastbound frontage road and Ridge Road, which is the best spot between the two

to put a traffic signal along Horizon Road. The traffic conditions associated with the intersection’s signalization will be investigated in the **Mitigation Analysis**.

Mitigation Analysis

The following intersections will be analyzed for mitigation:

- Horizon Road at Summer Lee Drive
- Lakefront Trail at the IH-30 eastbound frontage road
- Shoreline Trail at the IH-30 eastbound frontage road
- Sunset Ridge Drive at the IH-30 eastbound frontage road

Table 6 – Traffic Operational Results – Mitigations

INTERSECTION	APPROACH	2026 Background Plus Site AM				2026 Background Plus Site PM			
		AS PROPOSED		MITIGATIONS		AS PROPOSED		MITIGATIONS	
		DELAY (SEC/VH)	LOS	DELAY (SEC/VH)	LOS	DELAY (SEC/VH)	LOS	DELAY (SEC/VH)	LOS
Horizon Road @ Summer Lee Drive (Unsignalized)	NBL	9.3	A	-	-	12.1	B	-	-
	EBL*	51.0	F	-	-	200.0+	F	-	-
	EBR*	10.0	A	-	-	12.2	B	-	-
Horizon Road @ Summer Lee Drive (Signalized)	NB	-	-	4.8	A	-	-	10.6	B
	EB	-	-	19.4	B	-	-	20.8	C
	SB	-	-	2.9	A	-	-	4.2	A
	Overall	-	-	5.6	A	-	-	9.4	A

As seen in **Table 6**, after the intersection of Horizon Road and Summer Lee Drive is signalized, the approaches operate very favorably at LOS C or better, and the intersection operates at LOS A during both peak hours. After signalization, there are no delay problems at this intersection.

The minor street access along the IH-30 eastbound frontage road operates with high delay. As demonstrated by the North Drive, which operates at LOS D or better, it is possible to access the IH-30 eastbound frontage road from a minor street. Much of the delay on the other streets is due to cut-through traffic. If drivers do not want to experience the higher delays of the cut-through routes, they may choose to divert their path to the low-delay signalized intersection of Horizon Road and Summer Lee Drive, which has the capacity to handle the diverted volumes. The cut-through drivers are already optimizing their paths and would quickly change when a better route is available.

Summary

Based on our update of the Harbor District TIA to include the Harbor Village multifamily development, we offer the following conclusions and recommendations:

- The Harbor Village multifamily development is compatible with the Harbor District before and after the IH-30 frontage road reconstruction and does not significantly affect local traffic conditions.
- The North and East Drives will function appropriately to provide access for the Harbor Village multifamily development.
- Due to background traffic, the intersection of Horizon Road and Summer Lee Drive should be planned for signalization as the Harbor District expansion continues, as was noted in the 2011 Harbor District Expansion TIA.
- This TIA update with the 2018 traffic counts confirms the general conditions projected for the Harbor District expansion in the 2011 TIA.
- IH-30 frontage road reconstruction is generally very favorable for Harbor District area traffic.
- The previously-envisioned relocation of Lakefront Trail is immaterial to traffic conditions either for Harbor District local traffic or the extra regional cut-through traffic it will attract after the IH-30 frontage road reconstruction.

Attachments

1. Exhibits 1-13
2. Rockwall Harbor District TIA
3. IH-30 Schematic
4. Signal Warrant Sheets
5. Traffic Count Sheets
6. Synchro Output Sheets



North
↑
North To Scale

LEGEND:
● = Study Intersection

EXHIBIT 1
Vicinity Map
Harbor Village - Rockwall, Texas
Kimley»Horn

INTERSTATE 30
HIGHWAY 30

**MULTI FAMILY
TABULATION:**

UNITS TABULATION:
1BD: 237 UNITS (63.20%)
2BD: 138 UNITS (36.80%)
TOTAL: 375 UNITS

PARKING TABULATION:

PARKING PROVIDED:
82 P/L X 7.5L = 615 PARKING
24 SURFACE PARKING
TOTAL: 639 PARKING
@ 1.70P PARKING/UNIT
@ 1.25P PARKING/BED

PARKING REQUIRED:
632 PARKING
(1.5P/1BD + 2.0P/2BD + 2.5P/3BD)



HARBOR VILLAGE MULTI FAMILY SCHEMATIC SITE PLAN - #9

ROCKWALL, TEXAS

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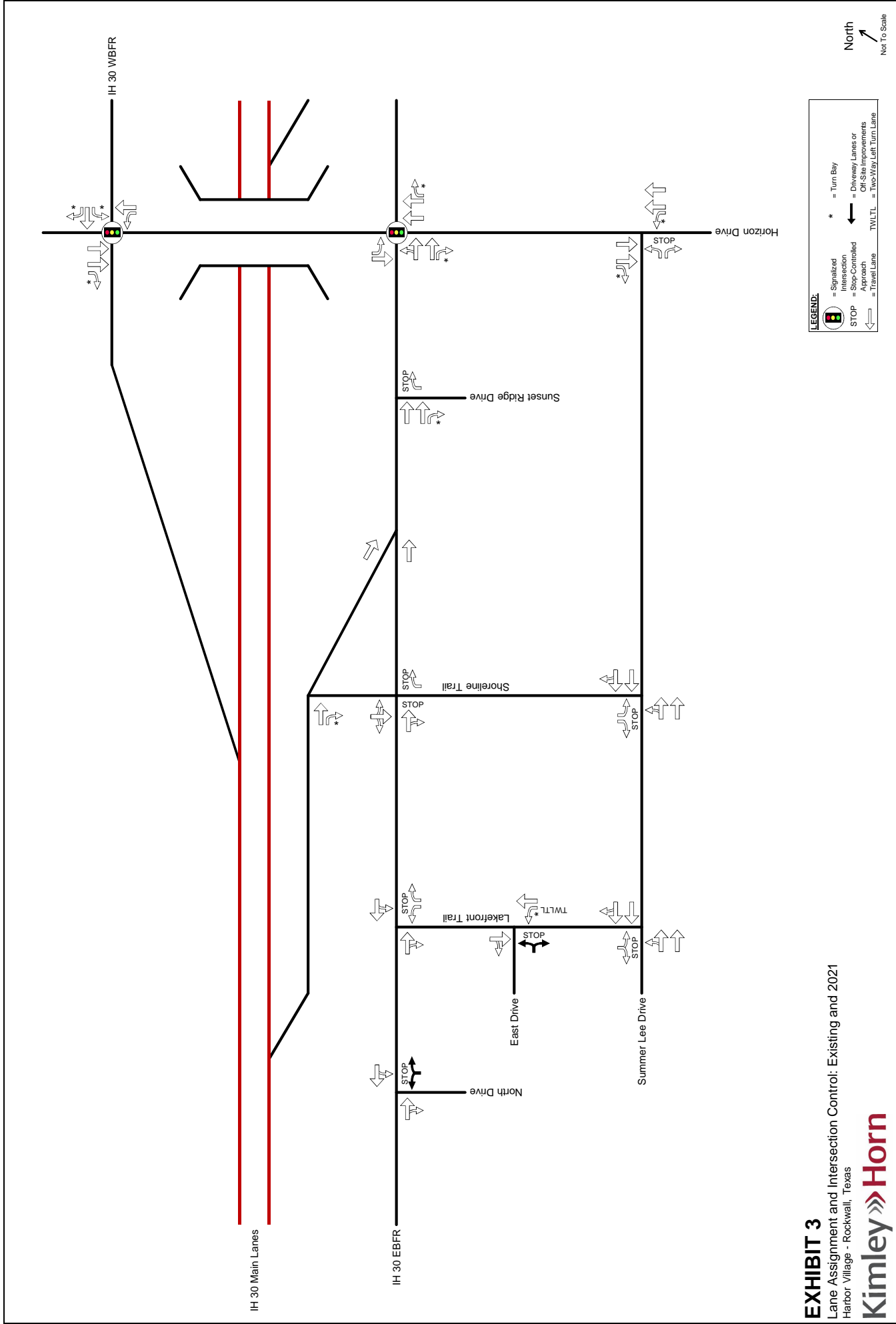
EXHIBIT 2
BGO
Conceptual Site Plan

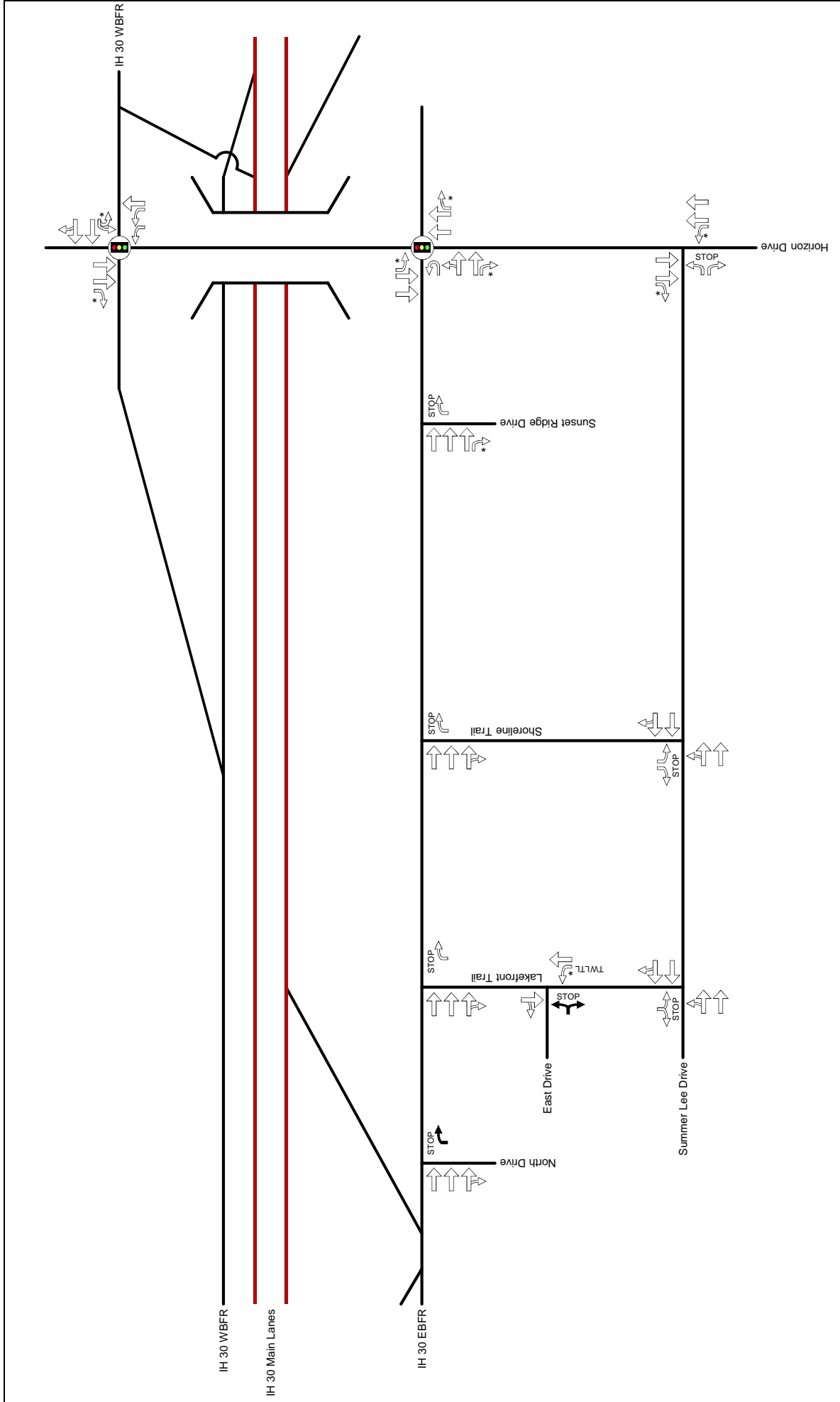
Harbor Village - Rockwall, Texas



17/26
07.11.2018
Regina Adams

North
North To Scale





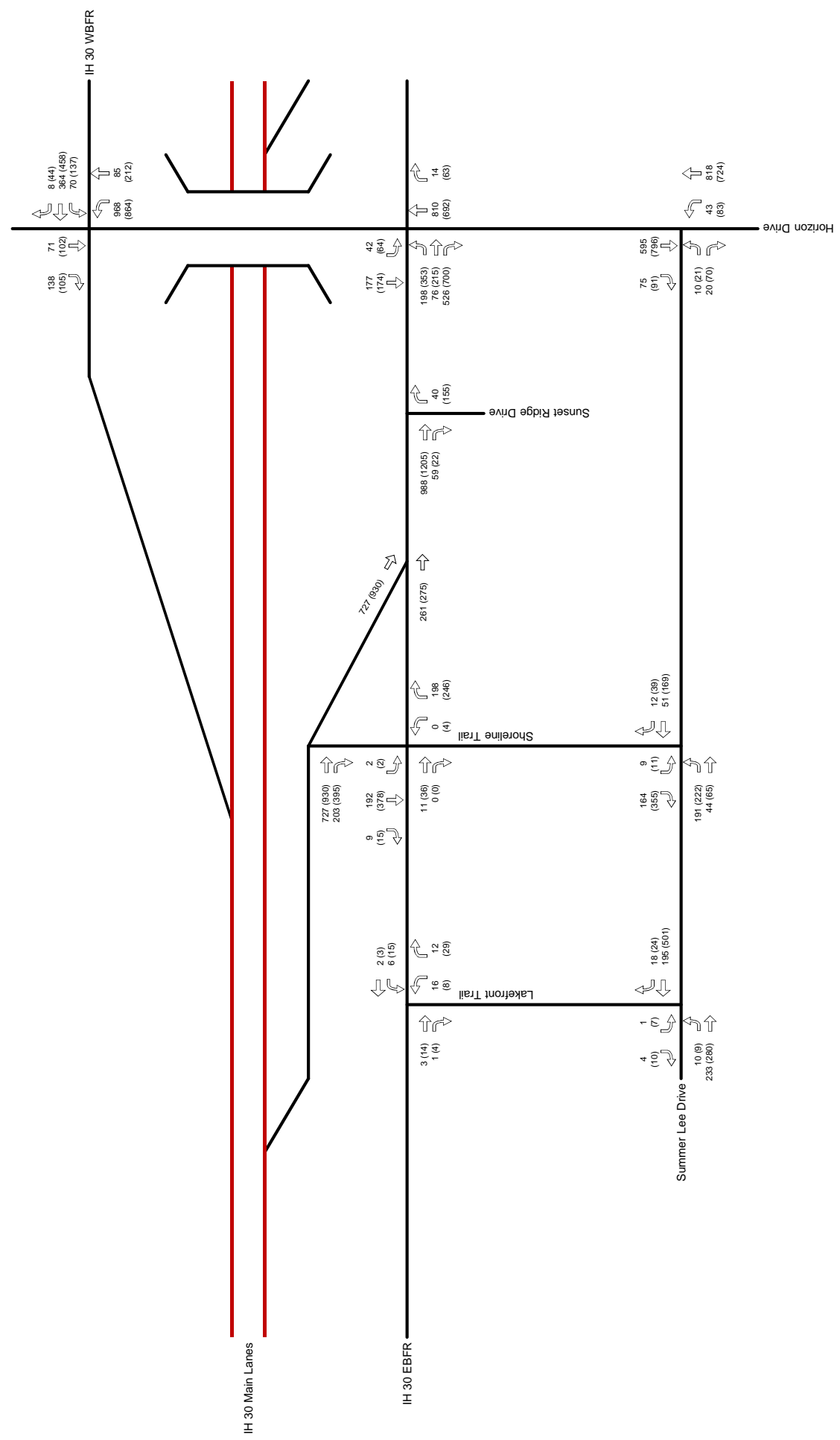
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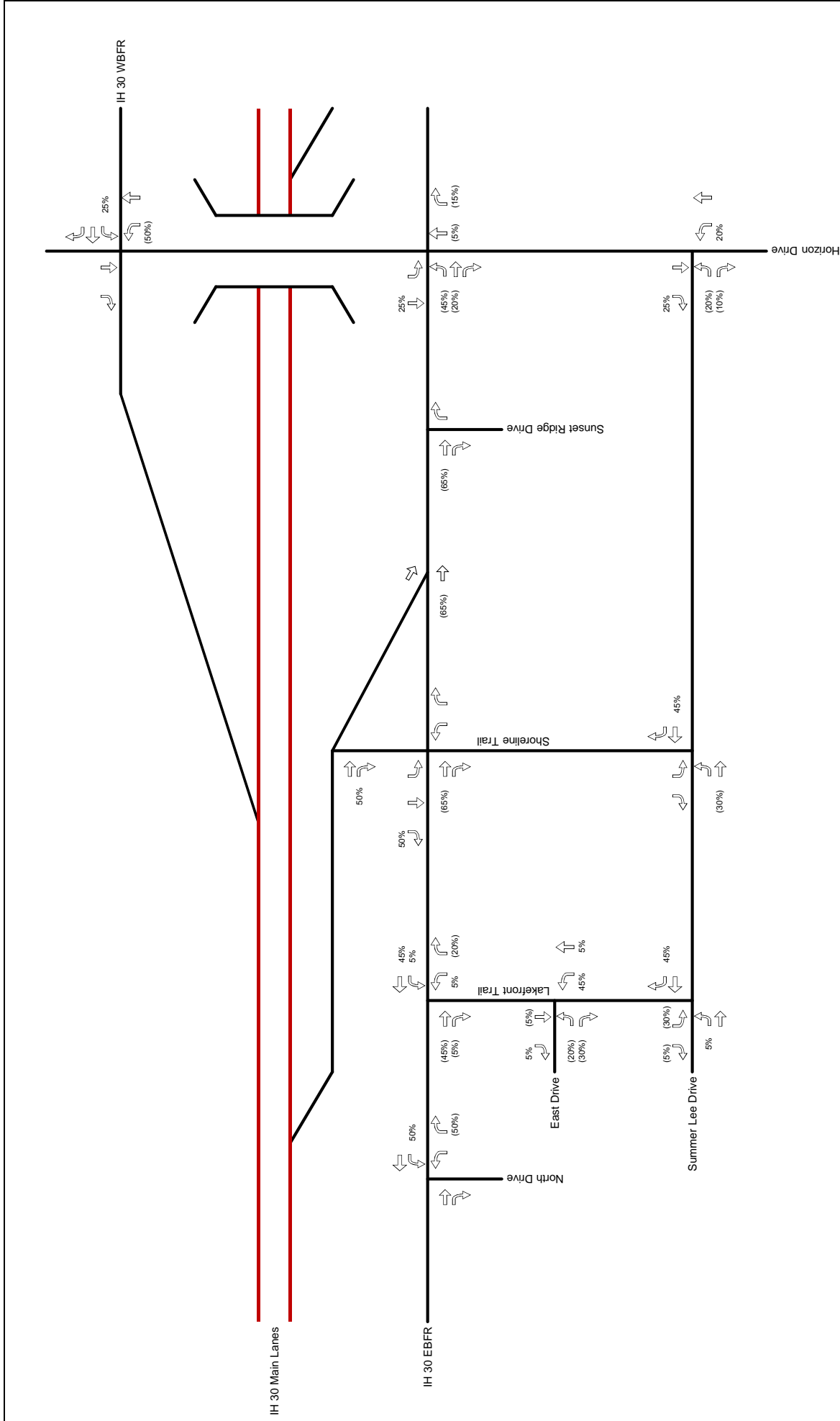
- = Signalized Intersection
- = Stop-Controlled Approach
- = Travel Lane
- = Turn Bay
- = Driveway Lanes or Off-Site Improvements
- = Two-Way Left Turn Lane

North

 Not To Scale

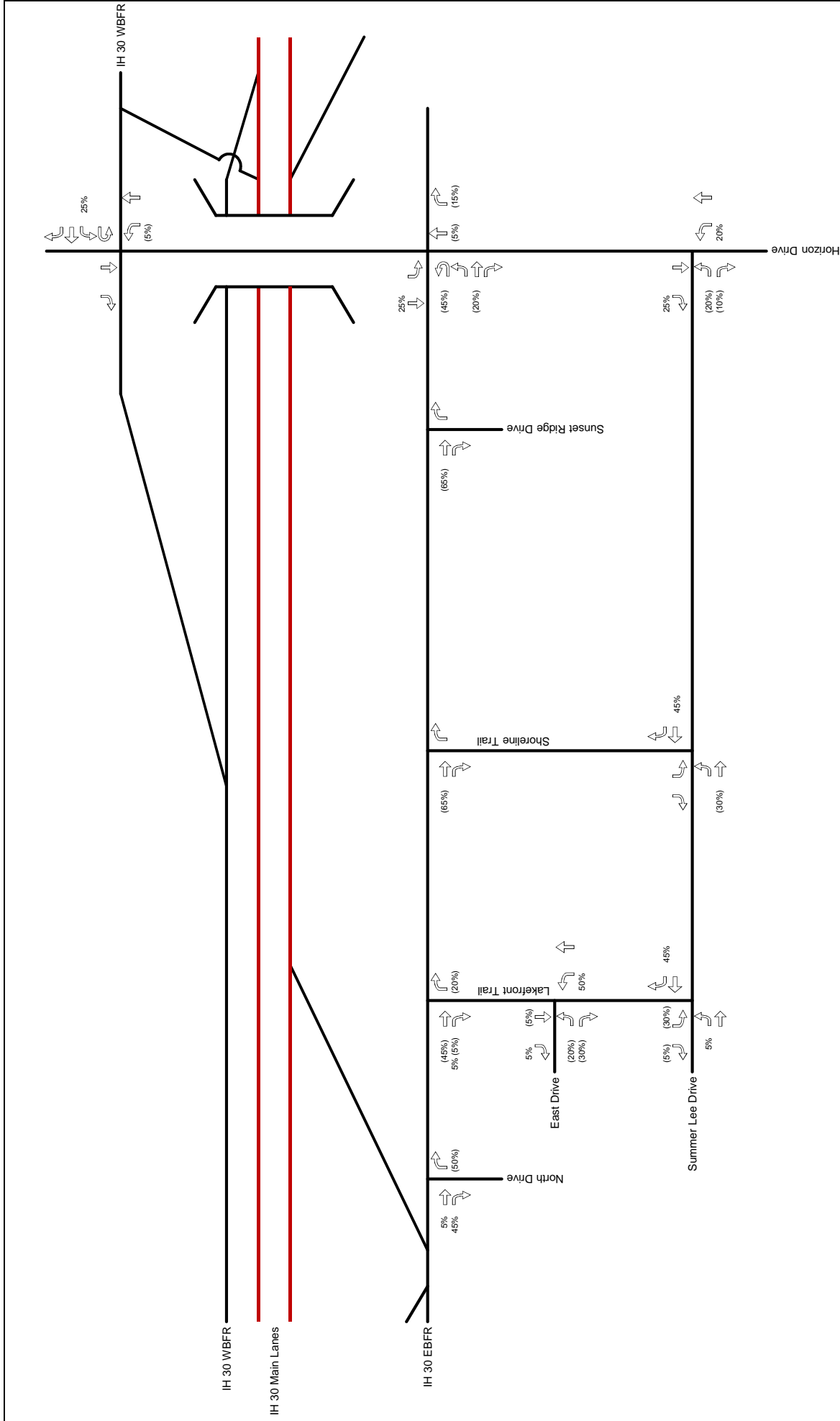
LEGEND:
 X(Y)
 X = Weekday AM Peak Hour Turning Movements
 Y = Weekday PM Peak Hour Turning Movements
 Volumes may not sum from point to point due to rounding
 and presence of smaller driveways not included in analysis.





LEGEND:
 XX(Y%)
 X% = Percentage of Inbound Site-Generated Traffic
 (Y%) = Percentage of Outbound Site-Generated Traffic





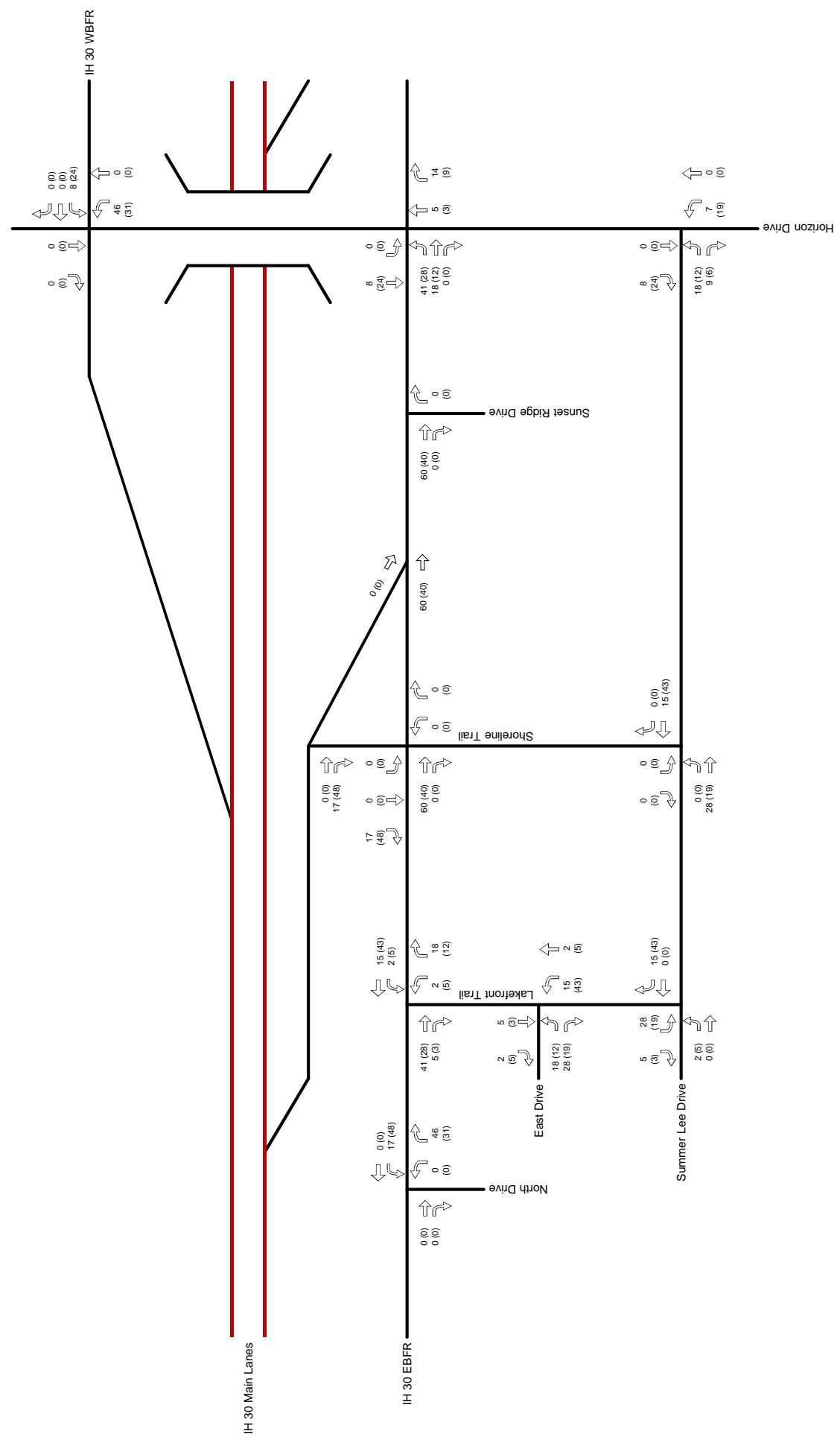
LEGEND:
 X% (Y%)
 X% = Percentage of Inbound Site-Generated Traffic
 (Y%) = Percentage of Outbound Site-Generated Traffic



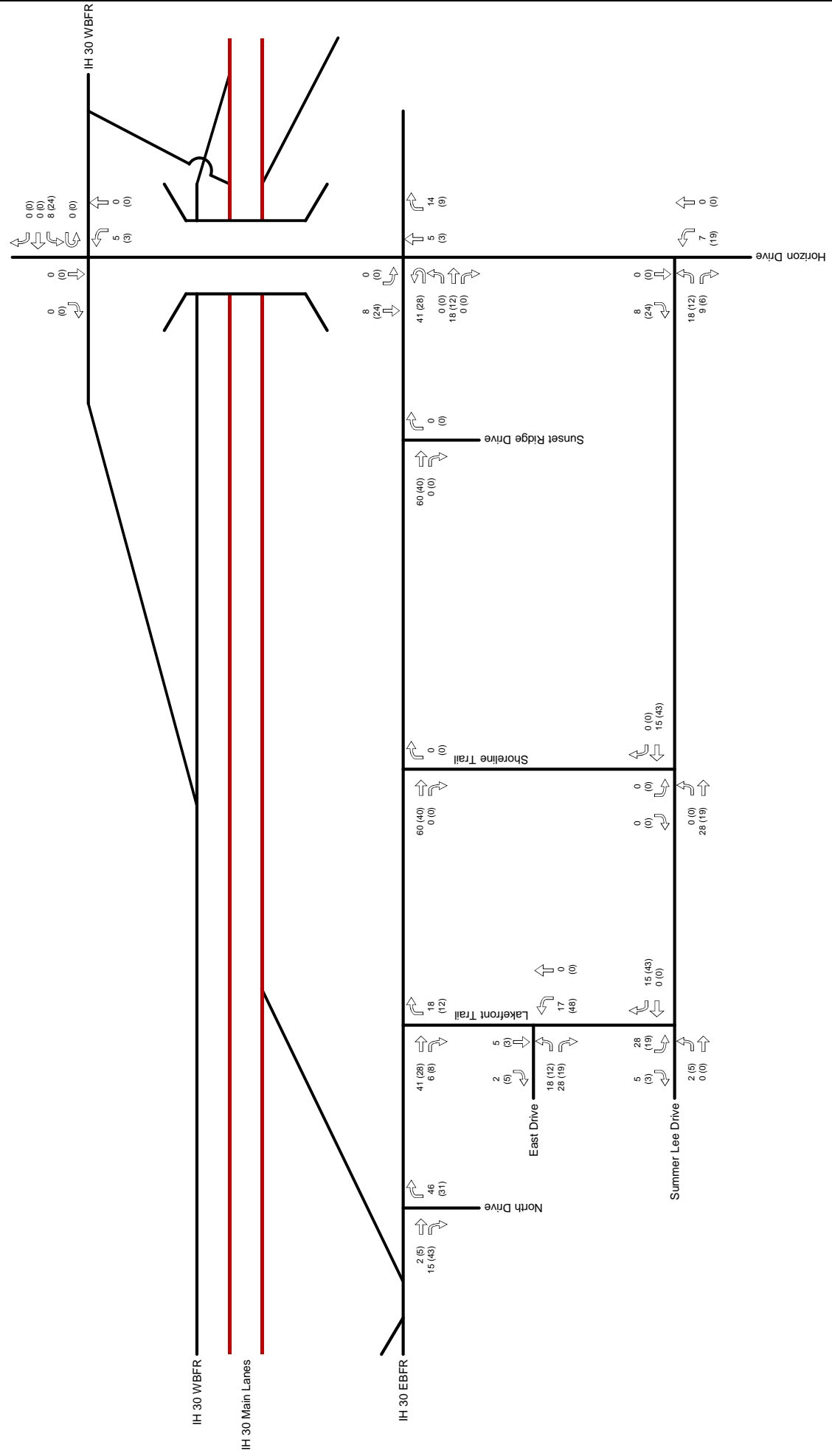
EXHIBIT 8
 Site-Generated Traffic Volumes: Existing and 2021
 Harbor Village - Rockwall, Texas



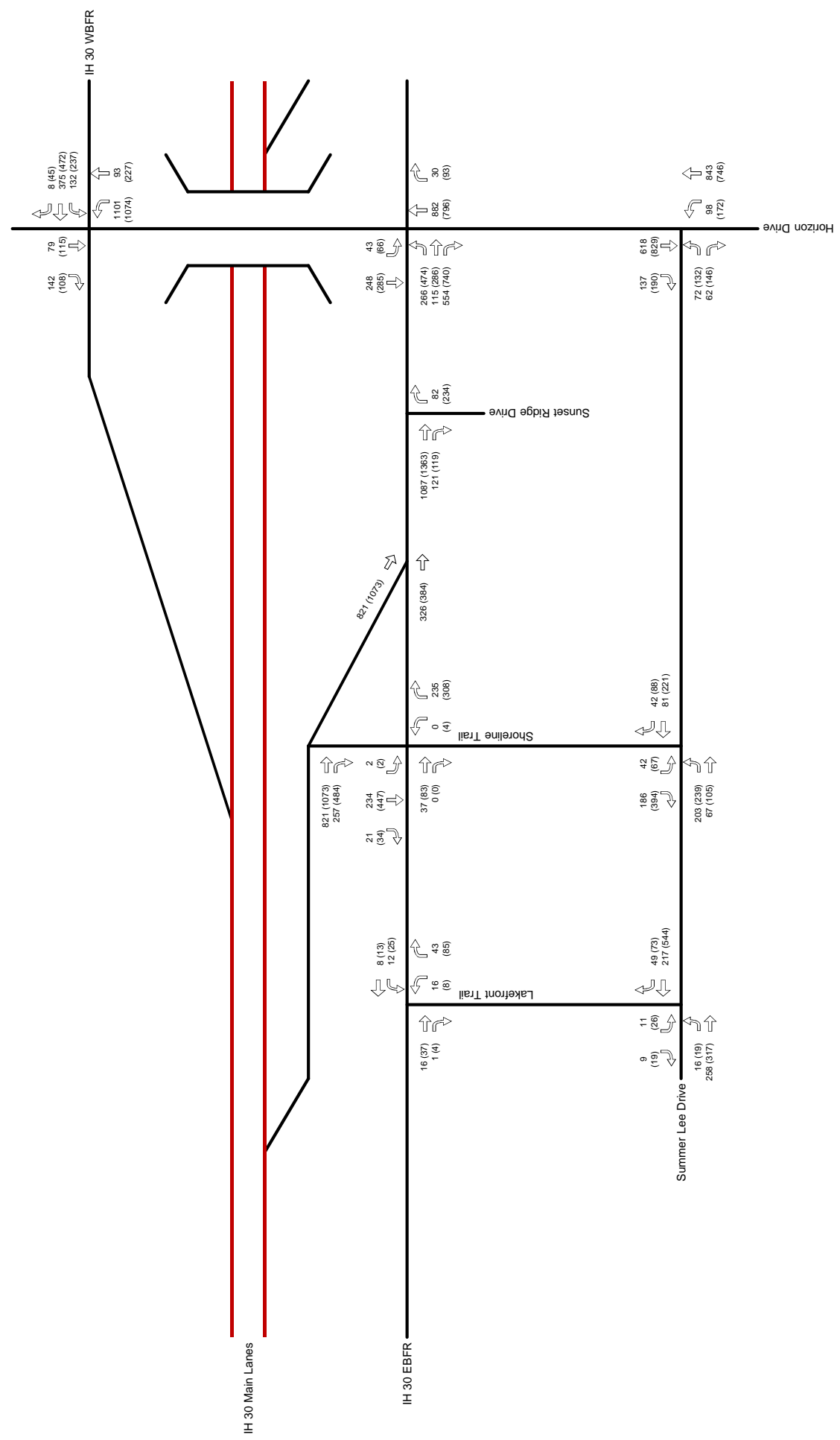
LEGEND:
 X(Y)
 X = Weekday AM Peak Hour Turning Movements
 Y = Weekday PM Peak Hour Turning Movements
 Volumes may not sum from point to point due to rounding
 and presence of smaller driveways not included in analysis.

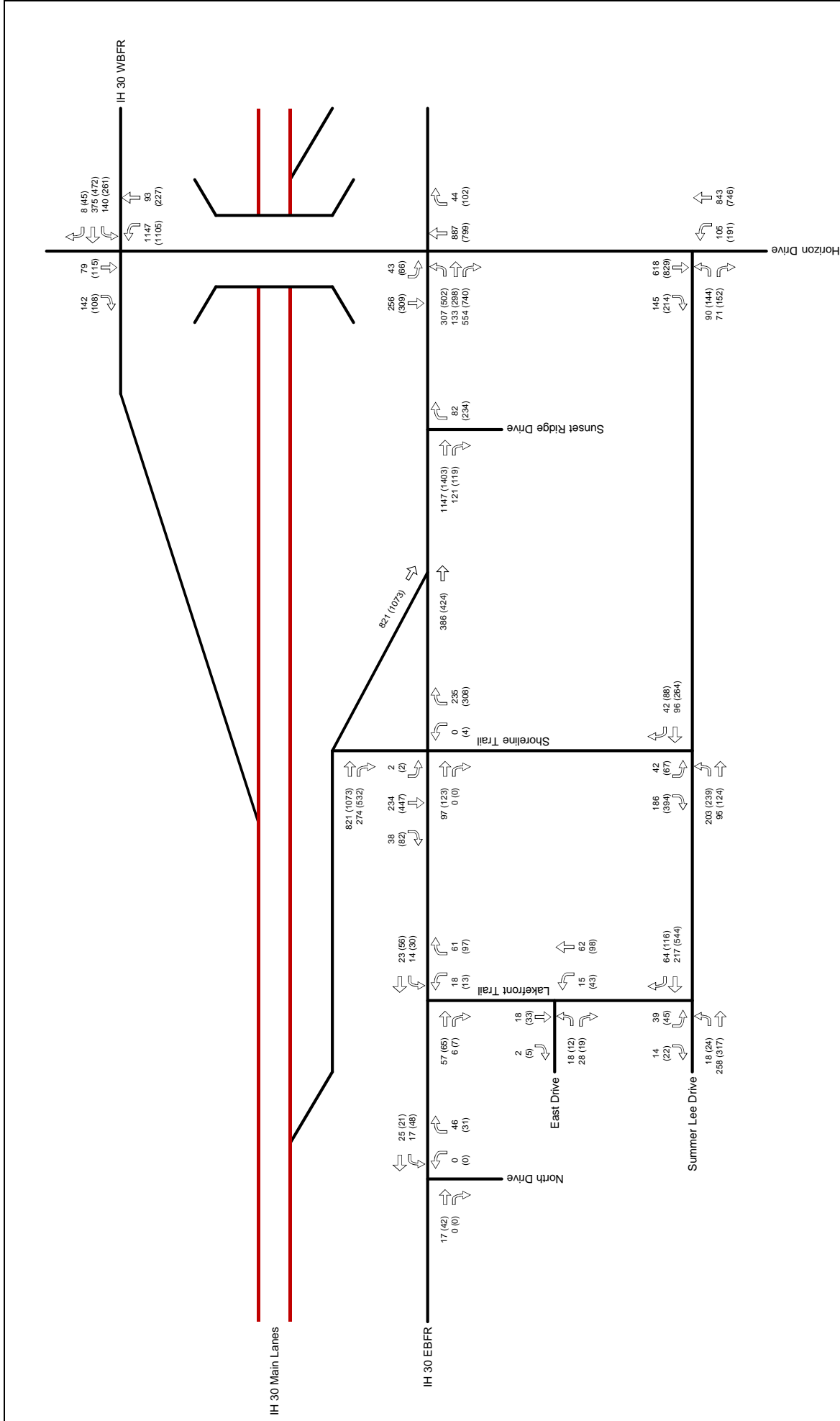


LEGEND:
 X(Y)
 X = Weekday AM Peak Hour Turning Movements
 Y = Weekday PM Peak Hour Turning Movements
 Volumes may not sum from point to point due to rounding
 and presence of smaller driveways not included in analysis.



LEGEND:
 X(Y)
 X = Weekday AM Peak Hour Turning Movements
 Y = Weekday PM Peak Hour Turning Movements
 Volumes may not sum from point to point due to rounding
 and presence of smaller driveways not included in analysis.





LEGEND:
 X(Y)
 X = Weekday AM Peak Hour Turning Movements
 Y = Weekday PM Peak Hour Turning Movements
 Volumes may not sum from point to point due to rounding
 and presence of smaller driveways not included in analysis.



LEGEND:
 X(Y)
 X = Weekday AM Peak Hour Turning Movements
 Y = Weekday PM Peak Hour Turning Movements
 Volumes may not sum from point to point due to rounding
 and presence of smaller driveways not included in analysis.

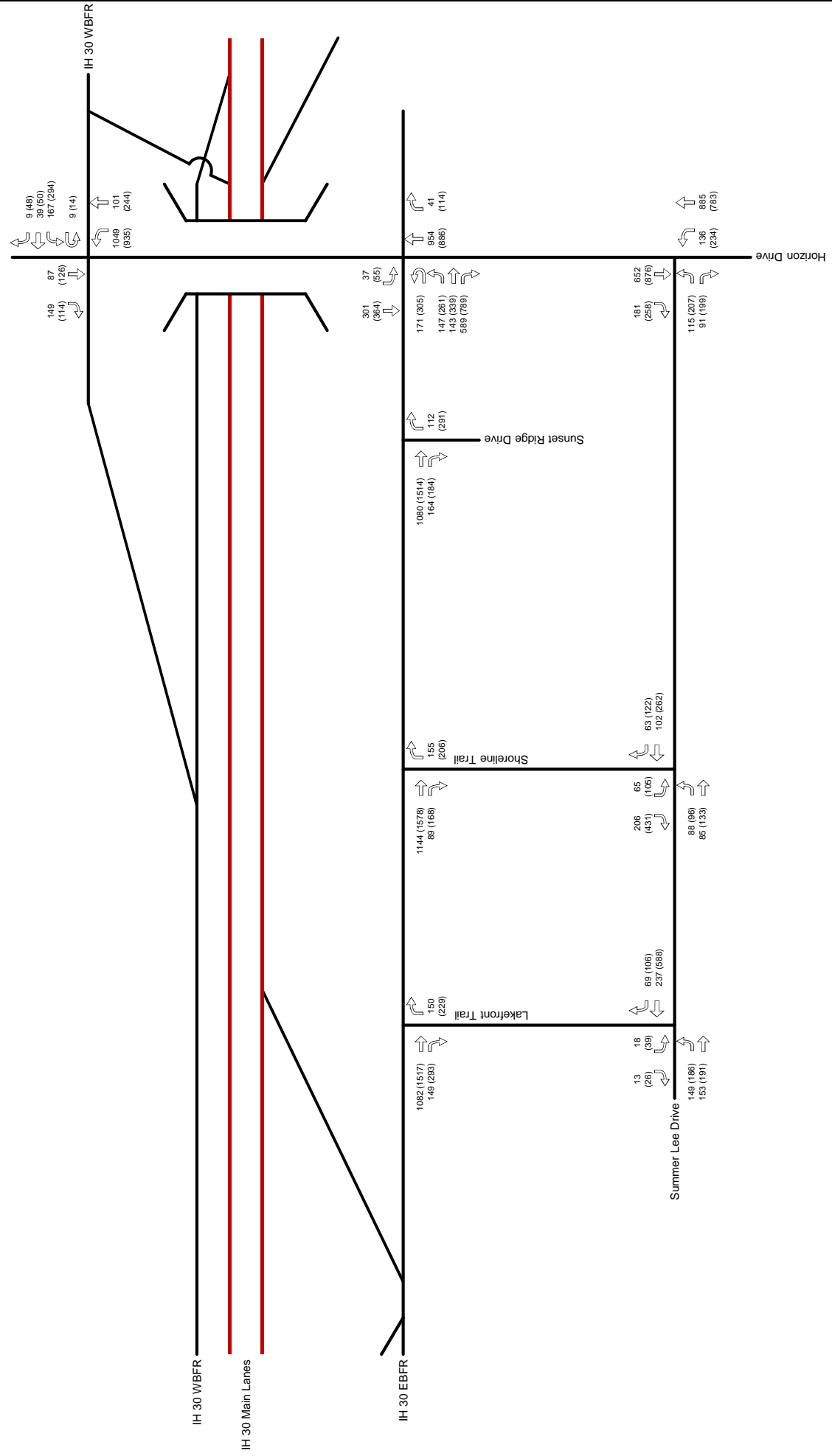


EXHIBIT 13
 2026 Background Plus Site-Generated Traffic Volumes

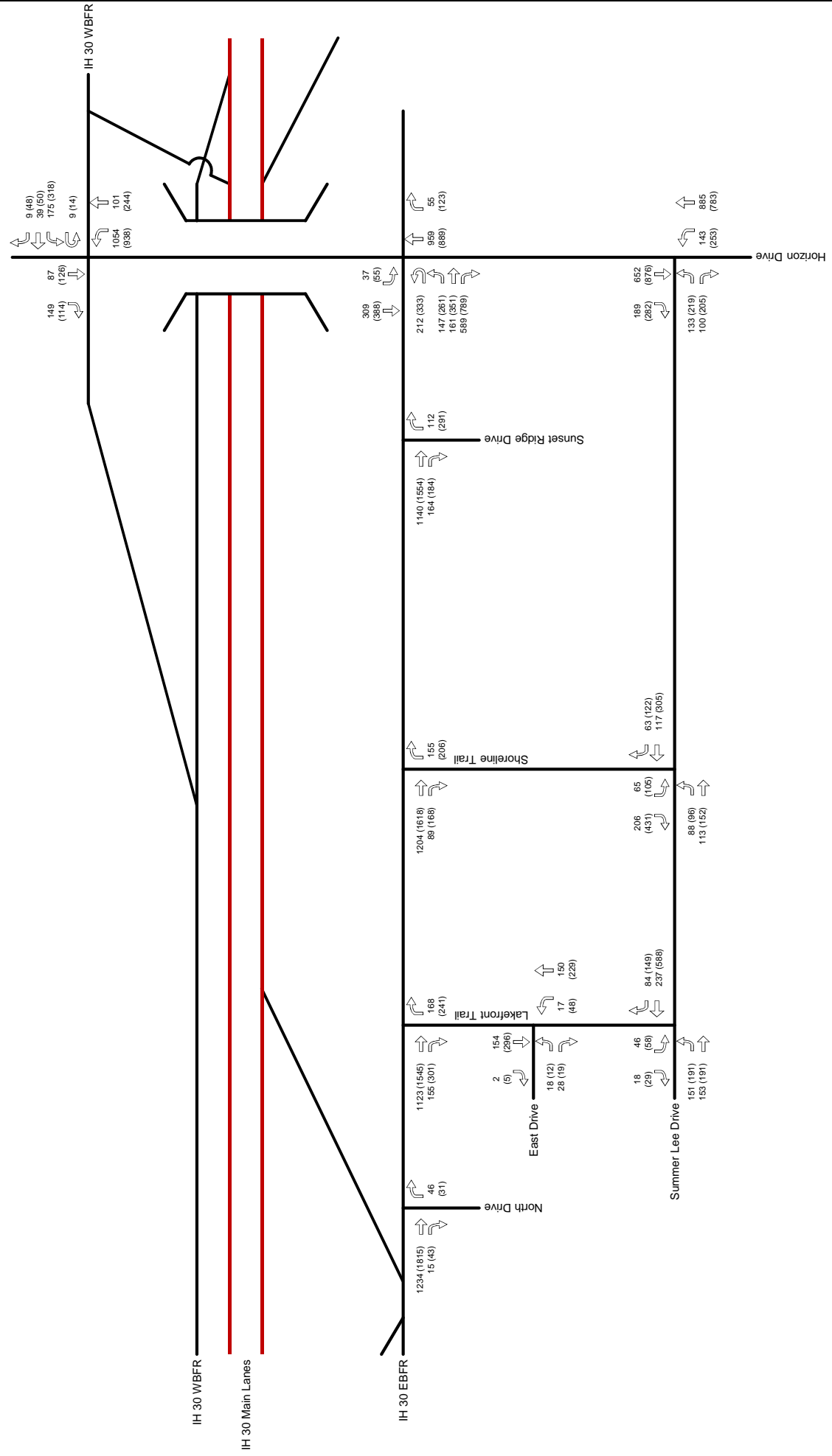
Harbor Village - Rockwall, Texas



LEGEND:
 X(Y)
 X = Weekday AM Peak Hour Turning Movements
 Y = Weekday PM Peak Hour Turning Movements
 Volumes may not sum from point to point due to rounding
 and presence of smaller driveways not included in analysis.



North
 Not To Scale





Appendix – 2011 Harbor District Expansion TIA



Traffic Impact Analysis

Rockwall Harbor District Rockwall, Texas

Prepared for:
The City of Rockwall

Prepared by:
Kimley-Horn and Associates, Inc.
Dallas, Texas

August 2011

KHA # 064420900



Kimley-Horn
and Associates, Inc.



2011 HARBOR DISTRICT EXPANSION TIA

Traffic Impact Analysis

Rockwall Harbor District

Rockwall, Texas

Prepared for:

The City of Rockwall

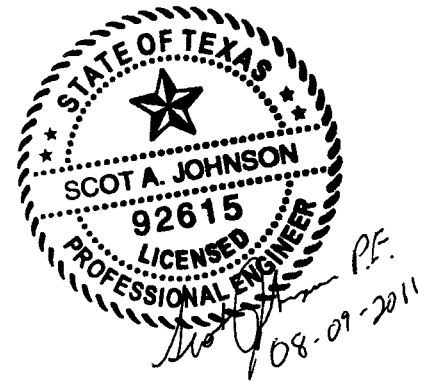
Prepared by:

Kimley-Horn and Associates, Inc.
12700 Park Central Drive, Suite 1800
Dallas, Texas 75251

Contact:

Scot Johnson, P.E., PTOE
972-770-1300

August 2011



2011 HARBOR DISTRICT EXPANSION TIA



Kimley-Horn
and Associates, Inc.

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2011 HARBOR DISTRICT EXPANSION TIA



Kimley-Horn
and Associates, Inc.

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2011 HARBOR DISTRICT EXPANSION TIA



Kimley-Horn
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EXECUTIVE SUMMARY

Kimley-Horn and Associates, Inc. (KHA) was retained to conduct a traffic impact analysis (TIA) of future traffic conditions associated with the proposed expansion of the Rockwall Harbor District, located generally on the southwest corner of IH 30 and Horizon Road in Rockwall, Texas. The proposed Harbor District master plan continues the existing Harbor District to fill the entire southwest corner of IH 30 and Horizon Road. Nine subdistricts were identified in the master plan, along with an open space area. Each subdistrict would have a defined character and set of design guidelines. The master planning effort also identified the roadway and utility infrastructure required to support the anticipated development. In addition to the existing access points at Lakefront Trail, Shoreline Trail, and Summer Lee Drive, additional driveways are proposed to the IH 30 eastbound frontage road (EBFR) and to Horizon Road. In this analysis the land uses were assumed to be approximately 190,500 SF of retail and restaurant area, 240,000 SF of office space, 49 single-family homes, and 1,161 residential condominiums.

After conservative internal capture reductions, the entire new development is expected to generate approximately 15,481 daily one-way trips, of which 932 occur in the AM peak hour and 1,566 occur during the PM peak hour.

The traffic study examined roadway and intersection conditions in 2015 and 2020, with and without the proposed Harbor District expansion.

Based on the 2015 and 2020 scenario analyses presented in this report, the proposed expansion of the Harbor District site can be successfully incorporated into the surrounding transportation network. The site is at the junction of several major vehicular corridors, spreading the traffic load across several roadways and preventing unreasonable impacts on any one roadway or intersection. Significant changes to the local roadway network are in progress, and additional mitigation measures are recommended to meet City standards. Of the local improvements which have been considered, widening the westbound on-ramp to allow northbound dual left turns from Horizon Road to westbound IH 30 would result in the most immediate positive impact to existing and future operations.

An additional analysis examined the impact of a proposed new westbound on-ramp to IH 30 between Ridge Road and Horizon Road. The new ramp would significantly reduce the westbound through volume at the westbound frontage road intersection with Horizon Road, a change which would have a correspondingly significant positive impact on the intersection operations.

To maintain acceptable traffic operational conditions, the following design guidelines, mitigation, and signalization steps are recommended:

General Harbor District Site Design Guidelines

Right-turn deceleration lanes are to be provided at all new driveways on IH 30 EBFR and Horizon Road. Driveways should meet TxDOT driveway spacing and ramp proximity standards.

For driveways at median openings, provide separate outbound left- and right-turn lanes.

Internal roadways within the Harbor District site to be designed in accordance with the Talley associates master plan.

Support the relocation of the IH 30 eastbound off-ramp to Horizon Road farther to the west.

2011 HARBOR DISTRICT EXPANSION TIA



Kimley-Horn
and Associates, Inc.

Signalization

The intersection of Horizon Road and Summer Lee Drive should be signalized during the buildout of the first phases of the Harbor District site. Signal warrants are met at the intersection in the 2015 background plus site traffic scenario.

Area Roadway Improvements

The following is a non-inclusive list of important roadway improvements which are underway or assumed to be in place by the 2015 study year.

1. Constructing Ridge Road / FM 740 south of Horizon Road as a four-lane, divided roadway.
2. Constructing Horizon Road / FM 3097 south of Ridge Road as a four-lane, divided roadway.

Area Roadway Background Recommendations

The following are additional improvements which are recommended to improve current network deficiencies and support future roadway operations:

1. Widen the westbound on-ramp west of Horizon Road so that it can accept dual left turns from Horizon Road and dual through lanes from the WBFR.
2. Add a westbound on-ramp to IH 30 between Ridge Road and Horizon Road.
3. Reconstruct the existing eastbound off-ramp from IH 30 to Horizon Road to a location farther west, and establish the eastbound frontage road as one-way for its entire length.

Site Recommendations - 2015

The following items are additional improvements which are recommended to support the 2015 background plus site conditions:

1. Widen the eastbound frontage road approach to Horizon Road to provide four total lanes at the intersection, with the following configuration: left-only, through, through-right, and right-only.

Site Recommendations - 2020

The following item is an improvement which is recommended to support the 2020 background plus site conditions:

1. Construct a southbound right-turn lane on Horizon Road at Ridge Road.

2011 HARBOR DISTRICT EXPANSION TIA



Kimley-Horn
and Associates, Inc.

I. INTRODUCTION

A. Purpose

Kimley-Horn and Associates, Inc. (KHA) was retained to conduct a traffic impact analysis (TIA) of future traffic conditions associated with the proposed expansion of the Rockwall Harbor District, located generally on the southwest corner of IH 30 and Horizon Road in Rockwall, Texas. **Exhibit 1** is a vicinity map illustrating the project location. The current conceptual master plan for the expansion is shown in **Exhibit 2**. The master plan was developed by Talley Associates and covers the expansion of the existing Harbor District to the north, along Summer Lee Drive and extending to IH 30 and Horizon Drive.

In accordance with the City of Rockwall requirements, this study is intended to identify traffic generation characteristics, identify potential traffic related impacts on the local street system, and to develop mitigation measures required for identified impacts.

B. Methodology

The traffic evaluation was comprised of five scenarios for which weekday AM and PM peak hour intersection level of service analyses were performed. Based on the project's anticipated completion date and surrounding development schedules, 2015 was assumed as the site buildout year using the existing roadway configurations, and 2020 was assumed as a future scenario with some other regional roadway changes. The first scenario analyzed existing traffic conditions (2009), the second scenario analyzed background traffic conditions in 2015; the third scenario analyzed total traffic (background plus site generated) conditions in 2015; the fourth scenario analyzed background traffic conditions in the buildout year 2020; and the fifth scenario analyzed total traffic conditions in the buildout year 2020. For both unsignalized and signalized intersections, the capacity analyses were conducted using the *Synchro*TM software package and its associated *Highway Capacity Manual* reports.

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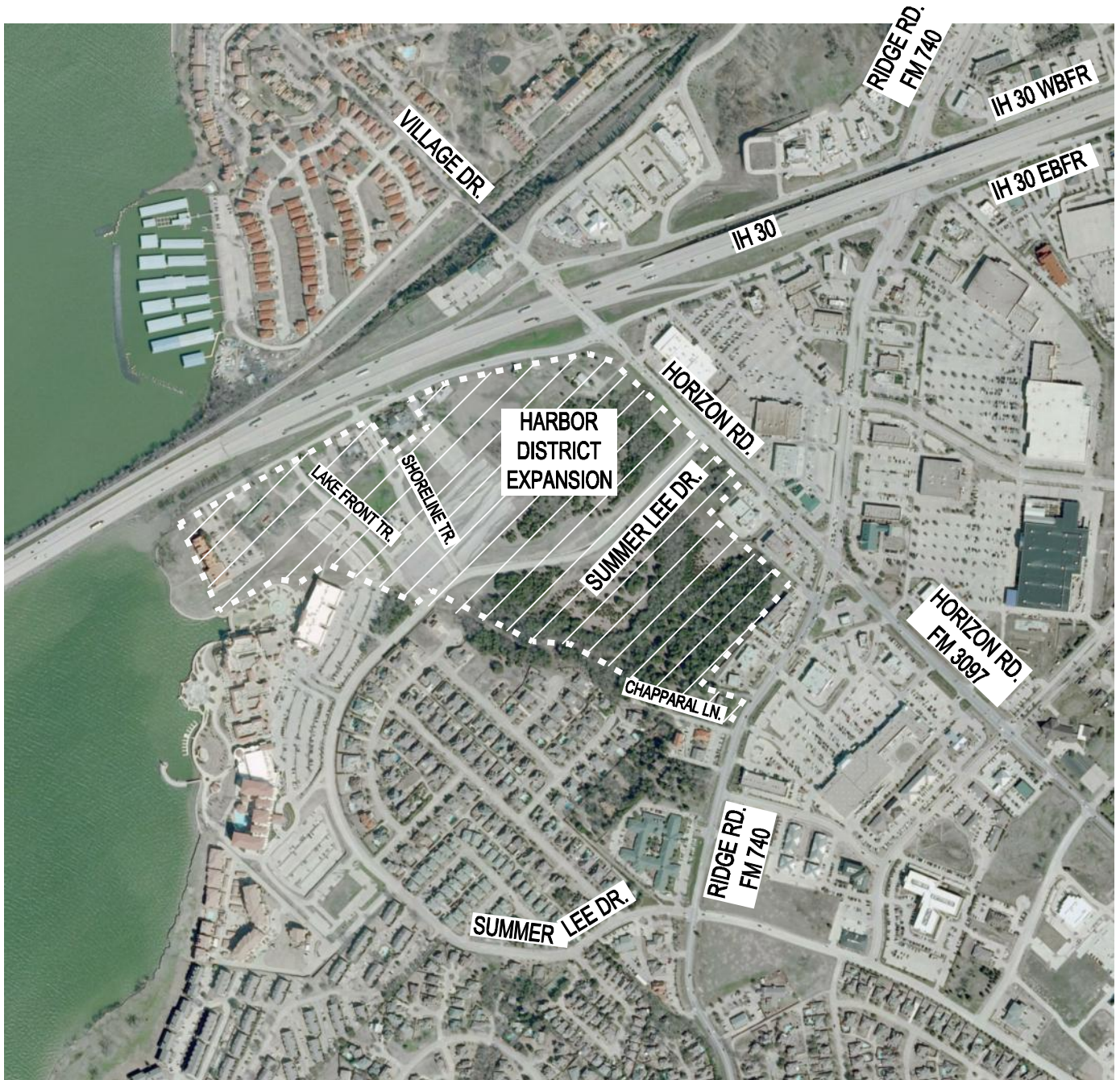
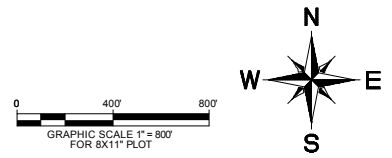


EXHIBIT 1 - Vicinity Map

Rockwall Harbor District TIA, Rockwall, TX



2011 HARBOR DISTRICT EXPANSION TIA



EXHIBIT 2 - Conceptual Master Plan

Rockwall Harbor District TIA, Rockwall, TX

By Talley Associates



Kimley-Horn
and Associates, Inc.



II. EXISTING AND FUTURE AREA CONDITIONS

A. Roadway Characteristics

Based on City of Rockwall staff requests, the following existing major intersections were evaluated as part of this study:

- Horizon Road at IH 30 Westbound Frontage Road (WBFR) (existing signal)
- Horizon Road at IH 30 Eastbound Frontage Road (EBFR) (existing signal)
- Horizon Road at Summer Lee Drive (existing stop-controlled)
- Horizon Road at Ridge Road (FM 740) (existing signal)
- Ridge Road at Summer Lee Drive (existing signal)
- Ridge Road at IH 30 EBFR (existing signal)
- Ridge Road at IH 30 WBFR (existing signal)

In addition, the following smaller unsignalized intersections or future driveway intersections formed by the Harbor District expansion were also evaluated:

- IH 30 EBFR at Lakefront Trail (existing stop-controlled)
- IH 30 EBFR at Shoreline Trail (existing stop-controlled)
- IH 30 EBFR at Hillside District Driveway (future stop-controlled right-in/right-out)
- Horizon Road at Summit District Driveway (future stop-controlled right-in/right-out)
- Ridge Road at Chaparral Lane (future stop-controlled)
- Summer Lee Drive at Lakefront Trail (existing stop-controlled)
- Summer Lee Drive at Shoreline Trail (existing stop-controlled)
- Summer Lee Drive at Interior District West Driveway (future stop-controlled)
- Summer Lee Drive at Hillside District Driveway (future stop-controlled)
- Summer Lee Drive at Interior District East Driveway (future stop-controlled)

The major surface roadways through the study area are described below.

IH 30 Frontage Roads – are currently two-lane frontage roads on each side of the IH 30 main lanes. Adjacent to the site, the speed limit on the frontage road is posted at 35 MPH. In the eastbound direction, separate single-lane off-ramps provide access from the main lanes to Horizon Road and Ridge Road, and the first eastbound on-ramp is east of Ridge Road. In the westbound direction, there is a westbound off-ramp to Ridge Road, and then a westbound on-ramp west of Horizon Road. On the eastbound side of IH 30, two-way operation is in place for the frontage road between the lake and Shoreline Trail, with one-way eastbound operation continuing east from Shoreline Trail. It is assumed that the two-way operation will be removed and the frontage road will be eastbound-only by the 2020 scenario.

There is a potential project to add a westbound on-ramp between Ridge Road and Horizon Road. This new ramp would allow the significant Ridge Road traffic volumes to reach westbound IH 30 without passing through the Horizon Road interchange. Potential effects of this addition to the frontage road intersections will be examined in this report.

Another potential project has been considered to widen the existing westbound on-ramp west of Horizon Road to two lanes, tapering to one lane before entering westbound IH 30. The ramp widening would allow more flexibility in lane assignments at the intersection of Horizon Road and

2011 HARBOR DISTRICT EXPANSION TIA



IH 30 WBFR. Conceptual schematics of the westbound ramp projects prepared by DT&A in 2007 are included in the **Appendix**.

A third potential modification in the area is the relocation farther to the west of the existing eastbound off-ramp to Horizon Road. A conceptual schematic developed by KHA can be found in the **Appendix**. This ramp modification would bring the eastbound off-ramp to join the EBFR earlier, improving traffic flow and access to properties along the frontage road, and allowing normal right-in/right-out access to Shoreline Trail. This modification would remove the current atypical intersection at Shoreline Trail and would facilitate the conversion of the frontage road to one-way operation for its entire length. Due to access control around the proposed relocated off-ramp junction, the current intersection of Lakefront Trail would be relocated to the west as well, to a position safely upstream of the proposed ramp junction.

Horizon Road – is currently a four-lane roadway that runs generally south from IH 30. North of IH 30, Horizon Road is called Village Drive and has a two-lane residential character. Horizon Road is on the Thoroughfare Plan as a four-lane undivided minor arterial between IH 30 and Ridge Road (FM 740), and as a four-lane divided minor arterial south of Ridge Road. The current four-lane undivided section between IH 30 and Ridge Road has a 40 MPH speed limit, and widens to provide left-turn lanes at the intersection with Summer Lee Drive. South of Ridge Road, Horizon Road is on the state system as FM 3097, and the current two-lane rural roadway has a 45 MPH speed limit. Preliminary engineering is underway to rebuild Horizon Road south of Ridge Road as a four-lane divided urban roadway. Funding has been identified and the project is scheduled for a 2014 letting.

Ridge Road (FM 740) – is a generally north-south state roadway paralleling the edge of the lake, and is on the Thoroughfare Plan as a four-lane divided minor arterial. North of Horizon Road, the roadway is built to its four-lane divided standard. South of Horizon Road, the current two-lane rural roadway with turn lanes is under construction to become a four-lane divided urban roadway. The speed limit is 45 MPH. The roadway has existing signalized intersections with the IH 30 frontage roads, Steger Towne Drive, and Horizon Road. For purposes of this report, the Ridge Road approaches at the intersection with Horizon Road are referred to as east-west, with Horizon Road remaining north-south. The existing intersection of Ridge Road and Horizon Road will be significantly improved after the completion of the Ridge Road construction widens the eastbound approach, and the Horizon Road/FM 3097 project widens the northbound approach.

Summer Lee Drive – is a local roadway which runs southwest from Horizon Road through the Rockwall Harbor District, then turns south and east to cross Ridge Road and continue to the south. The roadway is on the Thoroughfare Plan as a four-lane undivided collector. Between Horizon Road and the west edge of the Harbor District, Summer Lee Drive has four lanes, with a 35 MPH speed limit near Horizon Road and a 30 MPH speed limit west of Lakefront Trail. South of La Costa Drive and extending to Ridge Road, Summer Lee Drive operates as a wide two-lane collector, with a more residential character and a small number of houses fronting on the street. The roadway has been striped with parking lanes and a wide centerline in an attempt to visually narrow the travel lanes to encourage lower vehicle speeds. South of the existing signalized intersection with Ridge Road, Summer Lee Drive returns to a four-lane undivided section.

Exhibit 3 illustrates the intersection geometry assumed to be in place for the 2015 and 2020 analyses. The 2015 roadway geometry reflects the currently planned improvements on Ridge Road and Horizon Road/FM 3097. The 2020 geometry reflects the future improvements resulting from



the IH 30 eastbound off-ramp relocation, and an option for the new westbound on-ramp between Ridge Road and Horizon Road.

B. Existing Study Area

The project site is currently vacant land, or developed with remote surface parking areas for the existing Harbor District. The existing Harbor District mixed-use development is west of the site. South of the site and north of IH 30 are single-family detached neighborhoods. East of the site along Horizon Road and Ridge Road are established retail centers.

C. Proposed Harbor District Expansion Site

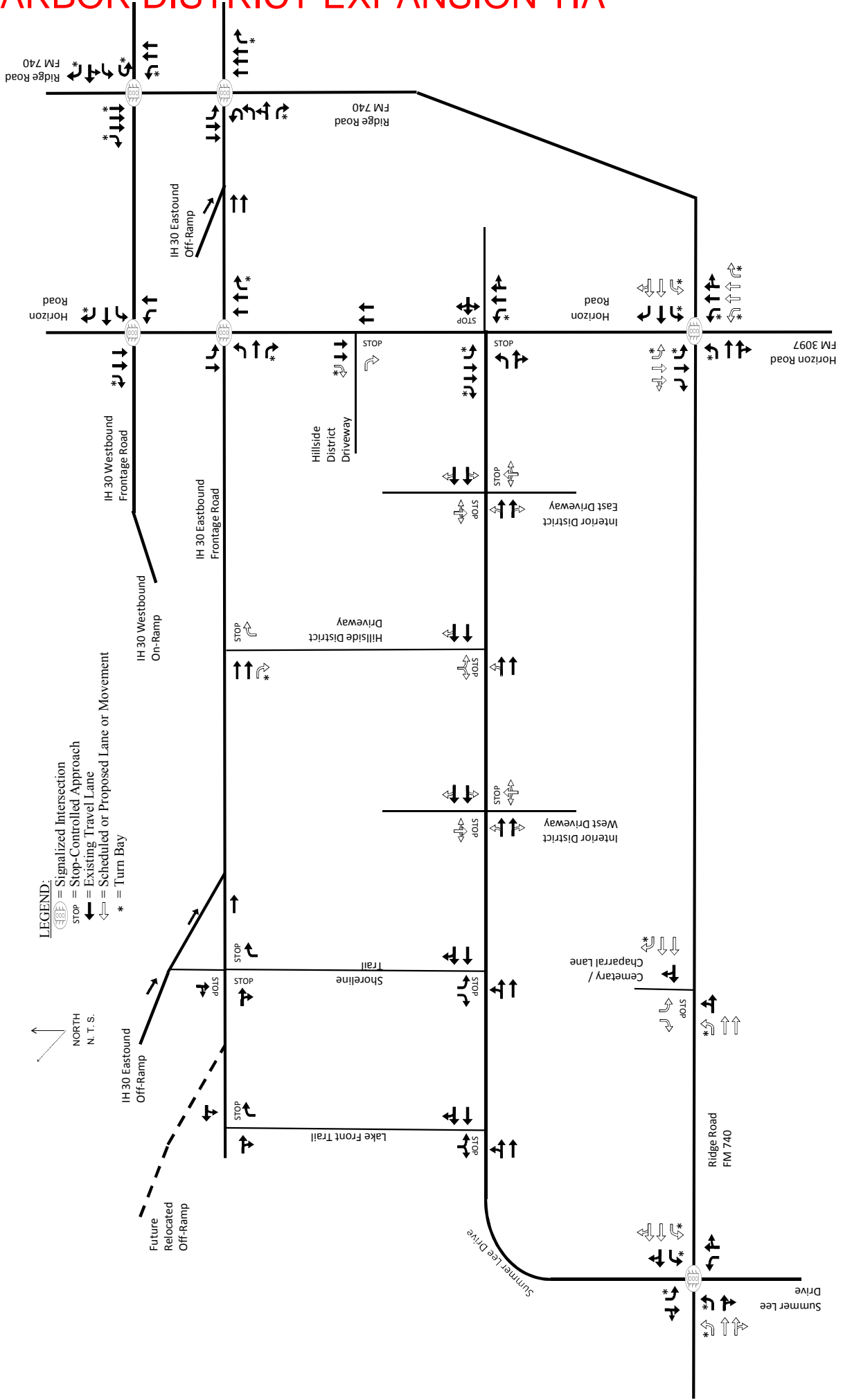
As shown in **Exhibit 2**, the proposed Harbor District master plan continues the existing Harbor District to fill the entire southwest corner of IH 30 and Horizon Road. Nine subdistricts were identified in the master plan, along with an open space area. Each subdistrict would have a defined character and set of design guidelines. The master planning effort also identified the roadway and utility infrastructure required to support the anticipated development. In addition to the existing access points at Lakefront Trail, Shoreline Trail, and Summer Lee Drive, additional driveways are proposed to the IH 30 EBFR and to Horizon Road.

D. Existing Traffic Volumes

AM and PM peak hour turning movement counts and 24-hour machine counts were collected in July 2009 at the aforementioned study intersections and along the major thoroughfares. The existing AM and PM peak hour traffic volumes can be seen in **Exhibit 4**, and the raw count sheets are provided in the **Appendix**. The 24-hour counts showed the following daily traffic:

- IH 30 eastbound off-ramp to Horizon Road: 12,081 vehicles per day (vpd)
- IH 30 EBFR between Horizon Road and the off-ramp to Ridge Road: 3,322 vpd
- IH 30 eastbound off-ramp to Ridge Road: 8,346 vpd
- IH 30 WBFR between Ridge Road and Horizon Road: 8,588 vpd
- Horizon Road between IH 30 and Summer Lee Drive: 21,690 vpd
- Horizon Road south of Ridge Road: 23,969 vpd
- Ridge Road between IH 30 and Horizon Road: 25,178 vpd
- Ridge Road south of Horizon Road: 19,463 vpd

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LEGEND:
 (S) = Signalized Intersection
 (STOP) = Stop-Controlled Approach
 ← = Existing Travel Lane
 ⇐ = Scheduled or Proposed Lane or Movement
 * = Turn Bay

NORTH
 N. T. S.

EXHIBIT 3

Lane Assignments and Intersection Control



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2011 HARBOR DISTRICT EXPANSION TIA

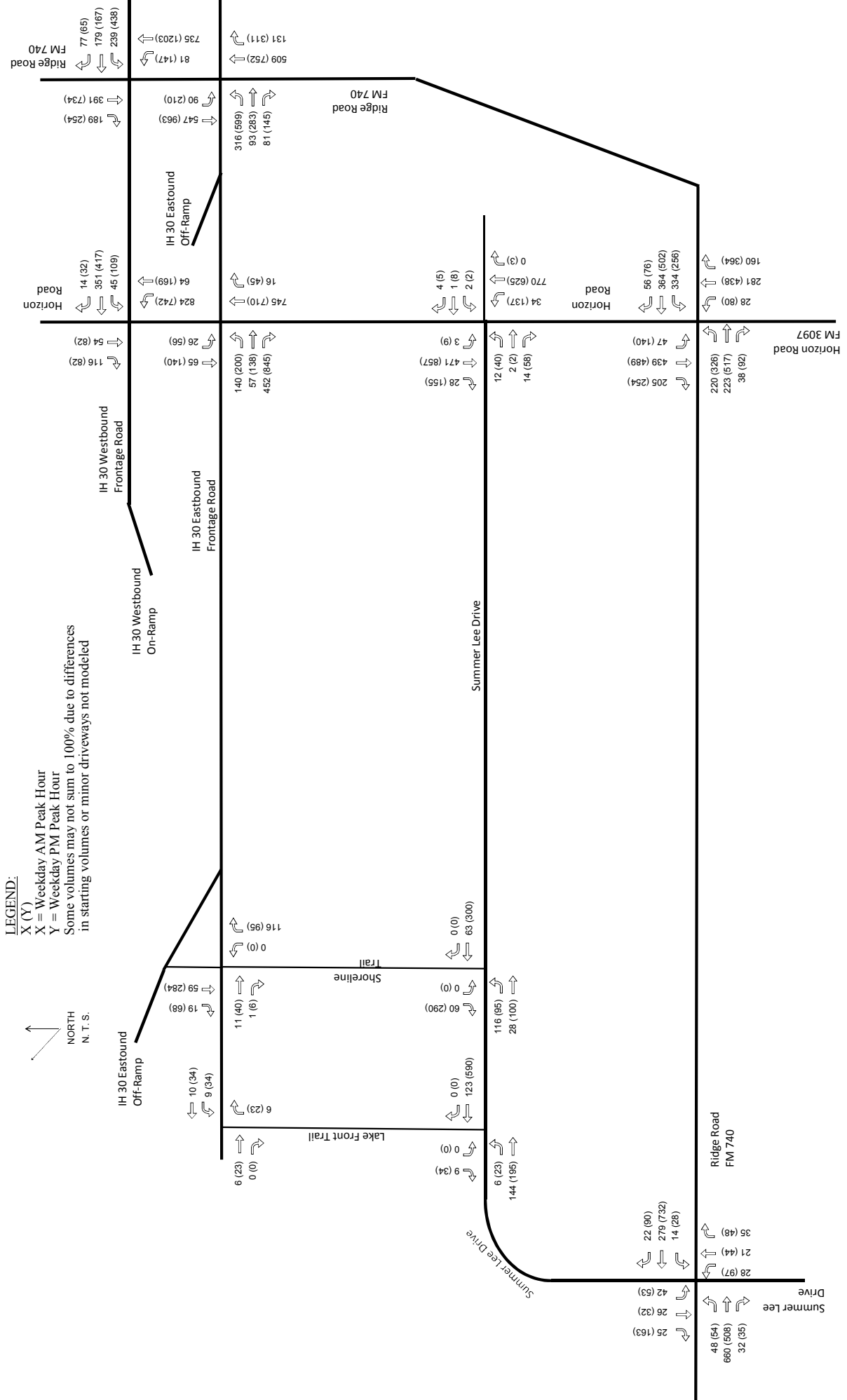


EXHIBIT 4 2009 Existing Traffic Volumes
 Rockwall Harbor District TIA, Rockwall, TX



III. PROJECT TRAFFIC CHARACTERISTICS

A. Site-Generated Traffic

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the current edition of *Trip Generation*¹ published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. Each trip shown is a “one-way trip” which is defined as the entry or exit of a vehicle from the site. Therefore each vehicle visiting the site is counted as two one-way trips, one inbound and one outbound.

Reductions to the base trip generation estimates are sometimes applied due to internal capture or pass-by trips. Internal capture is the tendency for customers or residents to visit several parts of the mixed-use development in one trip, but be counted twice in the trip generation since the formulae assumes the retail, office, and residential developments are isolated. Internal capture reductions are applied based on the procedures in the current edition of the *Trip Generation Handbook*, a companion manual to *Trip Generation* also published by ITE. The internal capture worksheets are included in the **Appendix**. Internal capture reduces the number of trips leaving the site, and results in a projection of internal trips and external trips.

Pass-by trips are vehicles already on the local roadway network that divert from their original path to use the site, and then return to their original journey. Although retail uses can generate significant pass-by trip percentages, in this case the mixed-use nature of the site will cause it to be a true destination for most users. Therefore, pass-by trips are not included in the analysis.

Table 1 shows the resulting trip generation for the full site buildout.

Table 1 – Trip Generation for Harbor District Expansion

Land Uses	Amount	Units	ITE Code	Daily Total	AM Peak Hour			PM Peak Hour		
					IN	OUT	TOTAL	IN	OUT	TOTAL
General Office	240,000	SF	710	2,618	333	45	378	59	289	348
Shopping Center/Retail	146,500	SF	820	8,704	118	75	193	403	419	822
Quality Restaurant	44,000	SF	931	3,958	18	18	36	221	109	330
Single-Family Detached Housing	49	DU	210	539	11	33	44	35	20	55
Residential Condominium	1,161	DU	230	5,430	62	305	367	301	148	449
Gross Trip Generation				21,249	542	476	1,018	1,019	985	2,004
Internal Trips				5,768	43	43	86	219	219	438
External Trips After Internal Capture				15,481	499	433	932	800	766	1,566

¹ Institute of Transportation Engineers, *Trip Generation: An Informational Report*, Eighth Edition, Washington DC, 2009.



B. Trip Distribution and Assignment

Distribution of site traffic onto the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated development in the surrounding areas, and the locations of the proposed driveway access to/from the site. The site has a number of potential approaches to and from the site, which will tend to dilute the traffic impact of the proposed development among a number of roadways.

To connect the directional distribution to the site driveways, an inbound and outbound traffic assignment is made, where the directional distribution is applied using the most probable paths to and from the site. **Exhibit 5** shows the traffic assignment assumed for the 2015 and 2020 scenarios.

Multiplying the trip generation for each area by the traffic assignment percentages results in the turning movements at each intersection. The site generated AM and PM peak hour turning movements for the 2015 scenario are shown in **Exhibit 6**, and for the 2020 scenario are shown in **Exhibit 6A**.

2011 HARBOR DISTRICT EXPANSION TIA

LEGEND:
 X% (Y%) = Percentage of Inbound Site Traffic
 X% (Y%) = Percentage of Outbound Site Traffic
 Y% = Percentage of Outbound Site Traffic
 Some volumes may not sum to 100% due to minor driveways not modeled

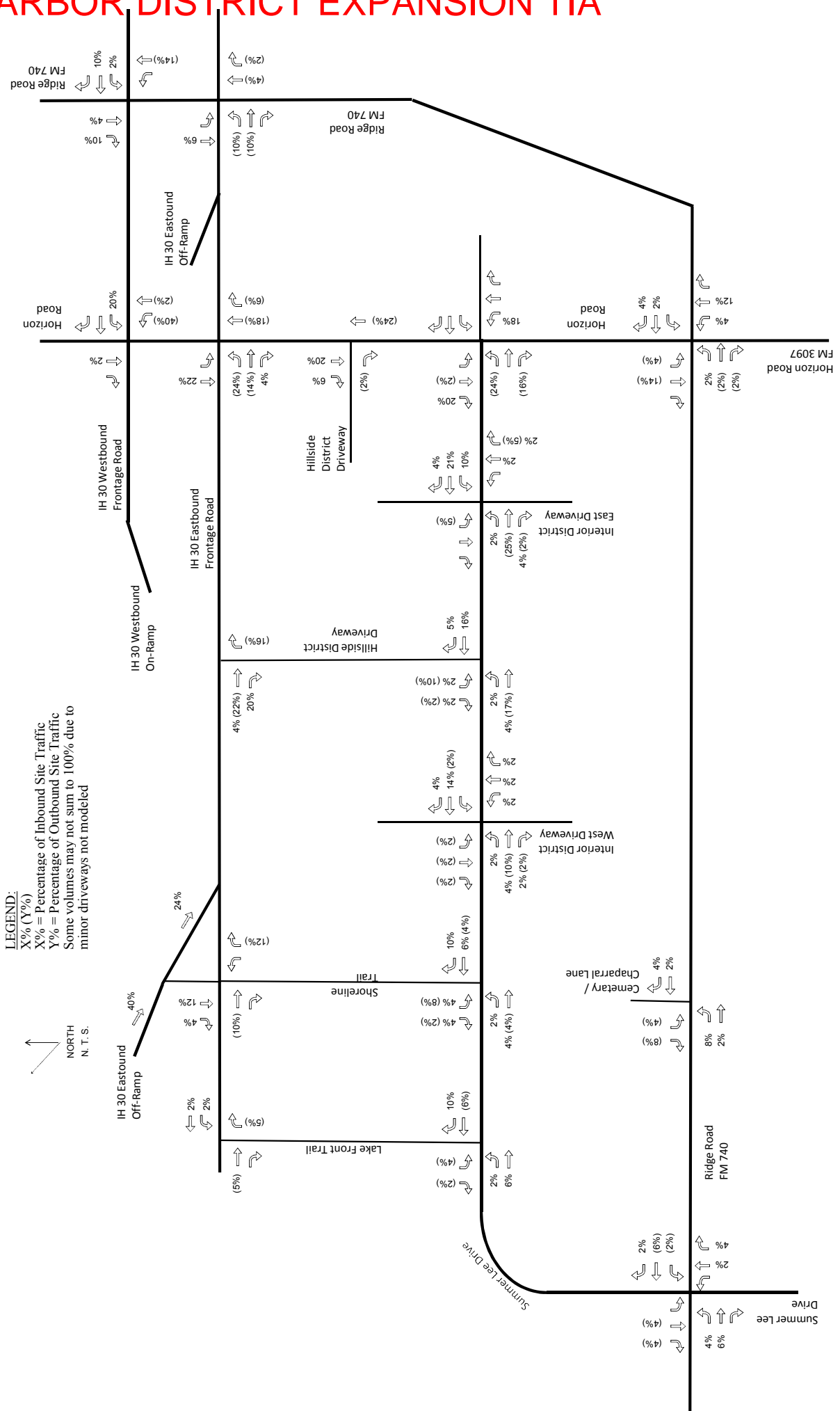
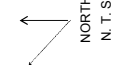


EXHIBIT 5 Traffic Assignment
 Rockwall Harbor District TIA, Rockwall, TX



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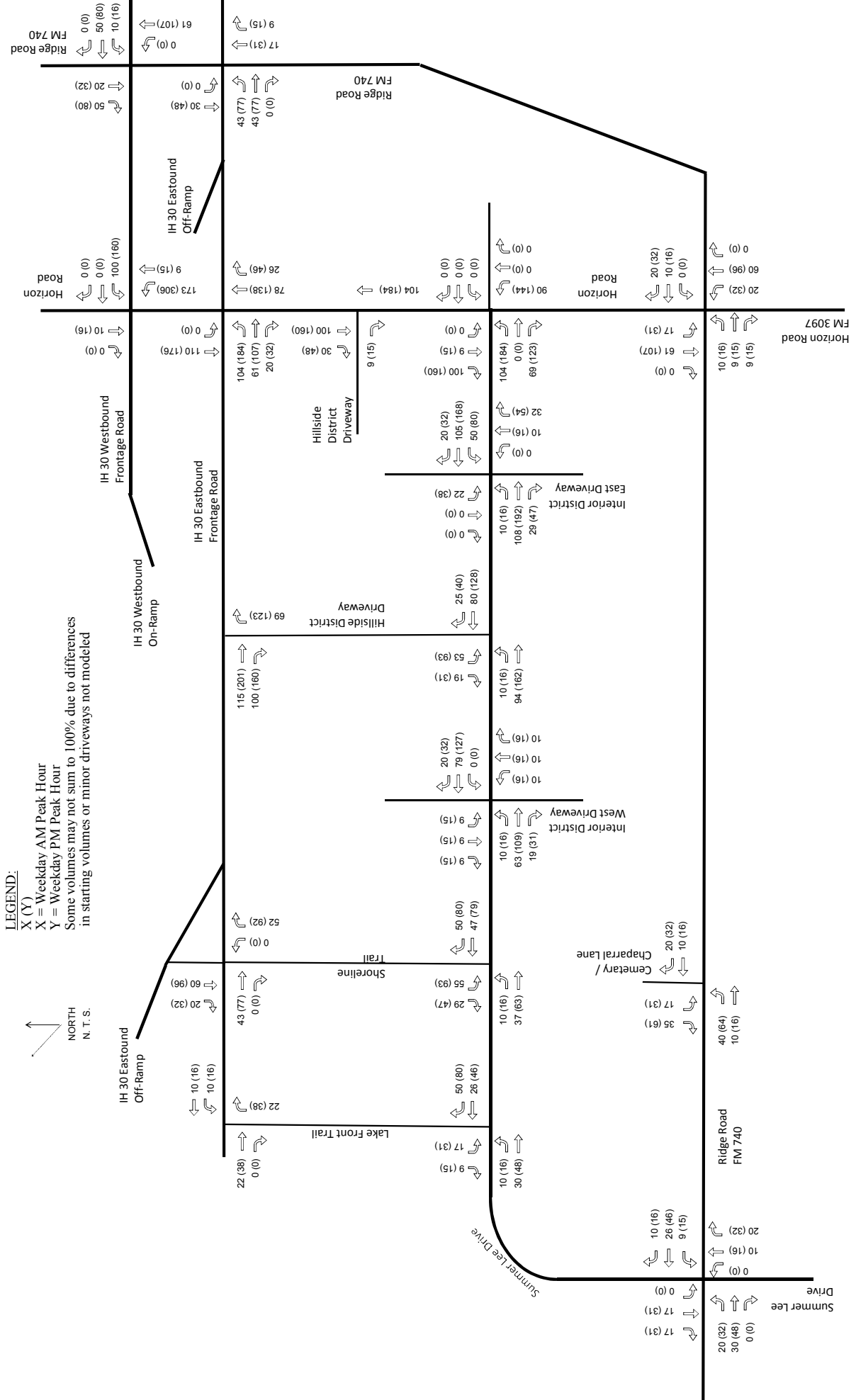


EXHIBIT 6 2015 Site-Generated Traffic Volumes
 Rockwall Harbor District TIA, Rockwall, TX





C. Development of 2015 Background Traffic

Historical traffic counts in the area show the daily traffic has been growing at a moderate rate in recent years (see table in the **Appendix**). Year 2030 NCTCOG traffic modeling projections show the daily volumes growing steadily on Ridge Road south of Horizon Road, but relatively flat elsewhere. To reflect the higher recent growth rates, a 3% annual growth rate was assumed. The 2015 background traffic volumes reflect the existing traffic with six years of 3% growth. The resulting 2015 background traffic volumes are shown in **Exhibit 7**.

D. Development of 2015 Background Plus Site Traffic

Harbor District site traffic volumes were added to the 2015 background volumes to represent the estimated total traffic conditions for the 2015 study. These 2015 AM and PM peak hour total traffic volumes are illustrated in **Exhibit 8**.

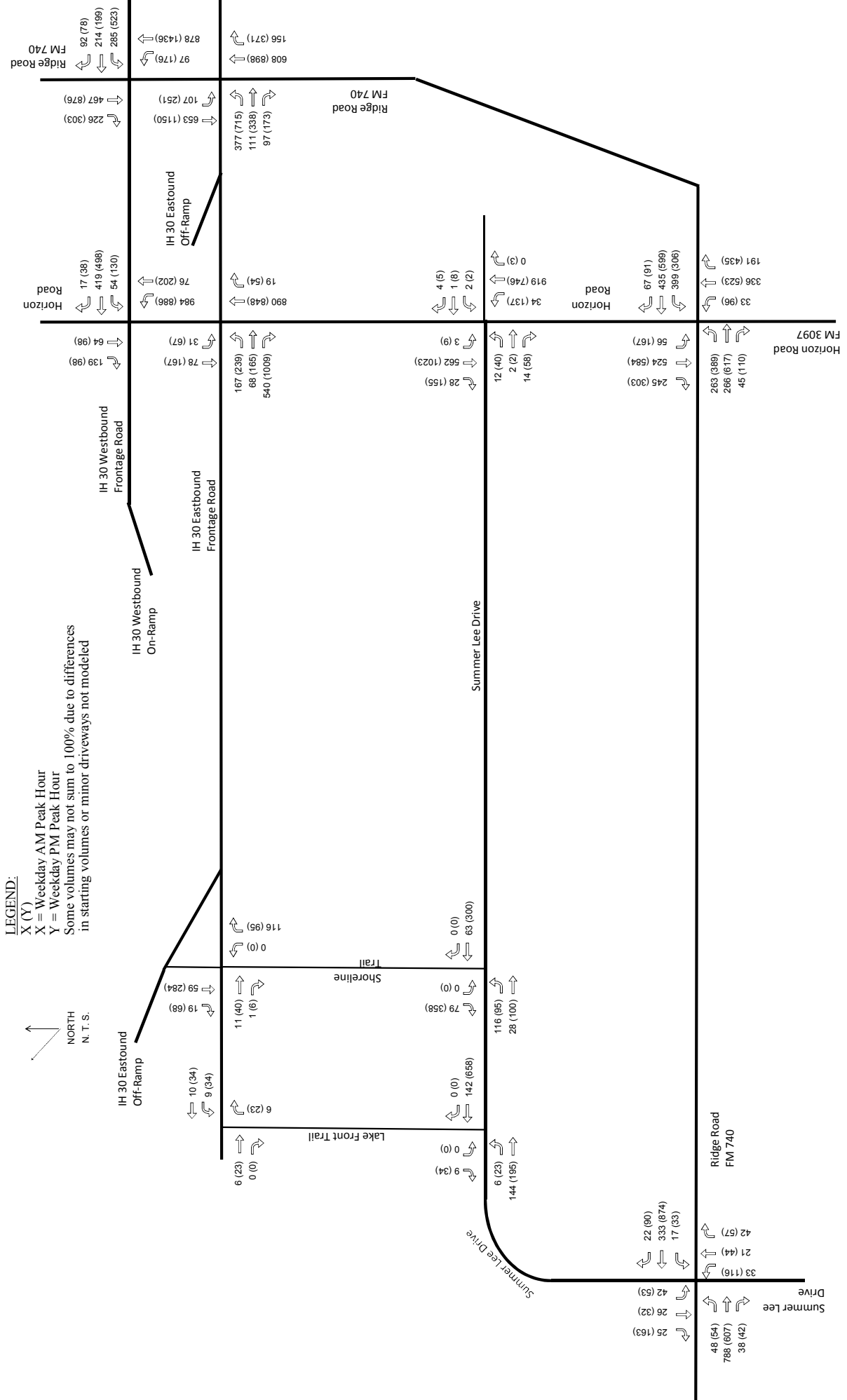
E. Development of 2020 Background Traffic

The 2020 background traffic includes the existing traffic with eleven years of 3% growth. With the IH 30 eastbound off-ramp assumed to be rebuilt and the one-way frontage road assumed in place by 2020, the volumes from the off-ramp to Lake Front Trail and Shoreline Trail were redistributed to reflect the new roadway geometry. The resulting 2020 background AM and PM peak hour traffic volumes are shown in **Exhibit 9**.

F. Development of 2020 Background Plus Site Traffic

Site traffic volumes for the Harbor District site were added to the 2020 background volumes to represent the estimated total traffic conditions for the 2020 study year. These total traffic volumes for the AM and PM peak hours are illustrated in **Exhibit 10**.

2011 HARBOR DISTRICT EXPANSION TIA



2011 HARBOR DISTRICT EXPANSION TIA

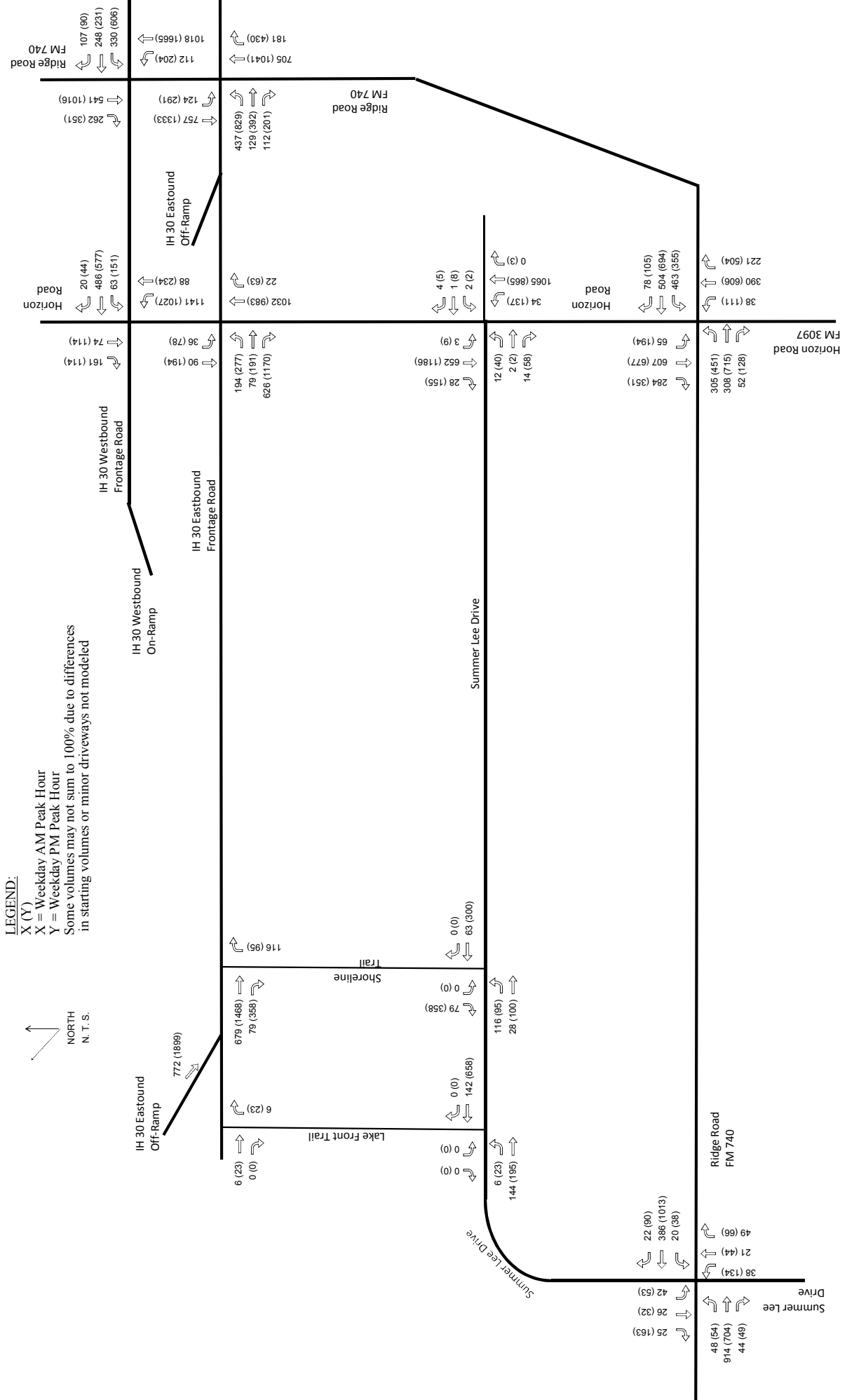


EXHIBIT 9 2020 Background Traffic Volumes
 Rockwall Harbor District TIA, Rockwall, TX



2011 HARBOR DISTRICT EXPANSION TIA

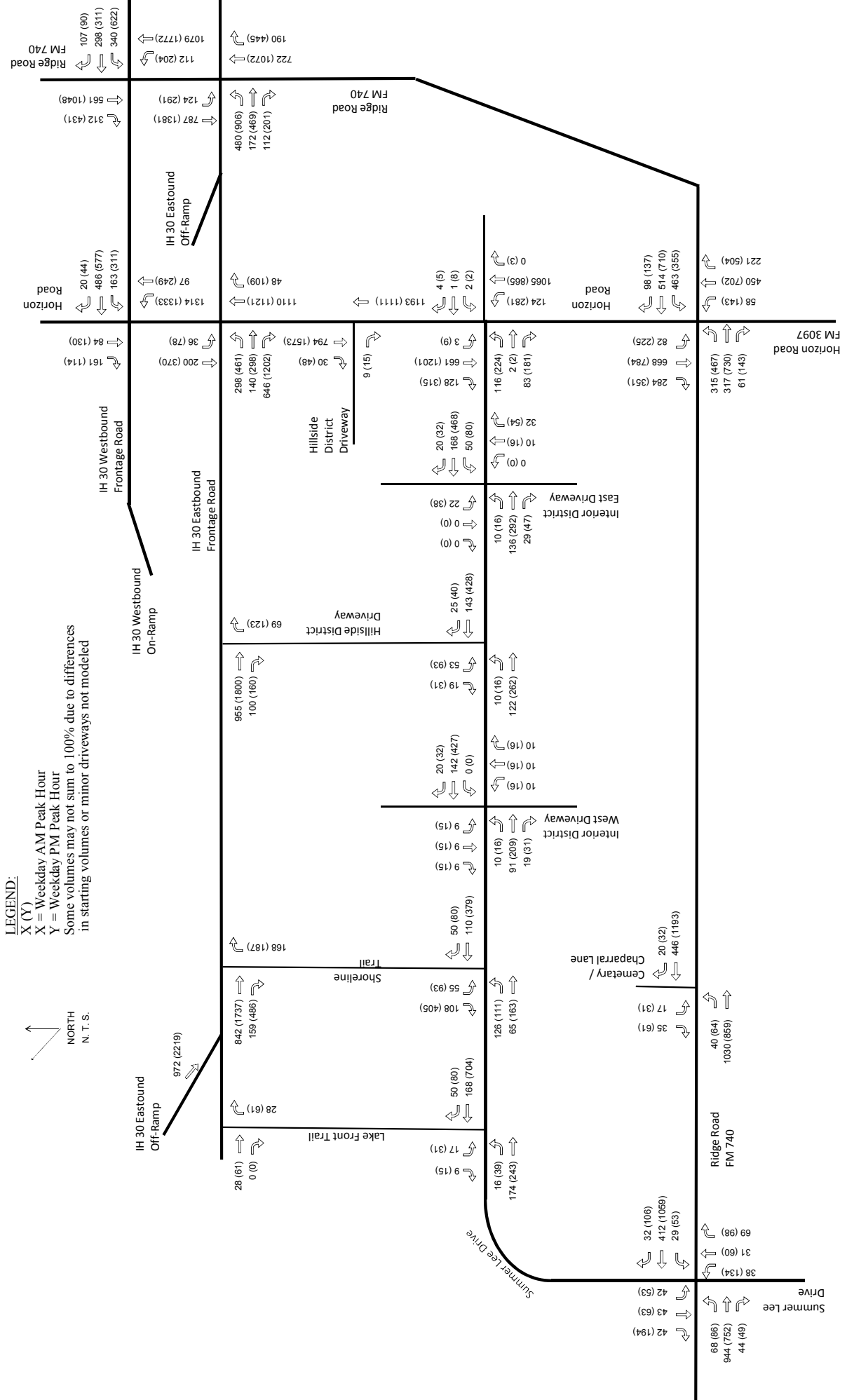


EXHIBIT 10 2020 Background Plus Site Traffic Volumes
 Rockwall Harbor District TIA, Rockwall, TX



IV. TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn conducted a traffic operations analysis to determine potential capacity deficiencies in the 2011, 2015, and 2020 study years at the identified key intersections. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual*².

A. Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). LOS D is considered as the threshold for acceptable conditions for signalized intersections. **Table 2** shows the definition of level of service for signalized and unsignalized intersections

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Definitions provided from the Highway Capacity Manual, Special Report 209, Transportation Research Board, 2000.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. For the unsignalized analysis, the level of service (LOS) for a stop controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service for a two-way stop-controlled intersection as a whole is not defined. Level of service for a signalized intersection is defined for the intersection as a whole.

Calculations for the level of service at the key intersections identified for study are provided in the **Appendix**. The 2011, 2015, and 2020 analyses assumed the lane geometry and intersection control shown in **Exhibits 3A** and **3B**.

Table 3 shows the intersection operational results for the AM peak hour and **Table 4** shows the results for the PM peak hour.

² Transportation Research Board, *Highway Capacity Manual*, Special Report 209, Washington DC, 2000.

2011 HARBOR DISTRICT EXPANSION TIA



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Table 3 – AM Peak Hour Intersection Results

Intersection	Approach	2009 Existing		2015 Background		2015 Background + Site		2015 Background + Site w/Mitigation		2020 Background		2020 Background + Site		2020 Background + Site w/Mitigation	
		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
		DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS
SIGNALIZED INTERSECTIONS															
IH 30 WBFR at Ridge Road (FM 740)	Overall	23.5	C	24.3	C	25.6	C	25.6	C	26.0	C	27.5	C	27.5	C
IH 30 EBFR at Ridge Road (FM 740)	Overall	19.2	B	18.9	B	25.7	C	25.8	C	19.6	B	26.1	C	26.9	C
IH 30 WBFR at Horizon Road	Overall	23.3	C	37.2	D	78.9	E	20.9	C	99.5	F	135.5	F	25.9	C
IH 30 EBFR at Horizon Road	Overall	20.5	C	20.9	C	26.3	C	22.7	C	22.9	C	30.6	C	22.9	C
Horizon Road at Summer Lee Drive	Overall	-	-	-	-	9.6	A	11.1	B	-	-	8.6	A	9.6	A
Horizon Road at Ridge Road (FM 740)	Overall	31.2	C	31.5	C	31.3	C	31.4	C	36.0	D	36.5	D	31.7	C
Ridge Road (FM 740) at Summer Lee Drive	Overall	14.3	B	12.5	B	12.8	B	12.8	B	11.1	B	12.3	B	12.7	B
UNSIGNALIZED INTERSECTIONS															
Horizon Road at Summer Lee Drive (Unsignalized)	EB*	18.9	C	23.8	C	-	-	-	-	31.9	D	-	-	-	-
	WB*	20.9	C	27.1	D	-	-	-	-	37.1	E	-	-	-	-
	NBL	8.7	A	9.0	A	-	-	-	-	0.3	A	-	-	-	-
	SBL	0.2	A	0.2	A	-	-	-	-	0.1	A	-	-	-	-
IH 30 EBFR at Lake Front Trail	WB	3.5	A	3.5	A	3.6	A	3.6	A	-	-	-	-	-	-
	NB*	8.4	A	8.4	A	8.6	A	8.6	A	8.4	A	8.6	A	8.6	A
IH 30 EBFR at Shoreline Trail	EB* Frontage Rd	7.4	A	7.4	A	8.0	A	8.0	A	-	-	-	-	-	-
	NB* Shoreline	6.9	A	6.9	A	7.5	A	7.5	A	12.2	B	14.8	B	14.8	B
	SB* From Off-Ramp	7.3	A	7.3	A	8.1	A	8.1	A	-	-	-	-	-	-
IH 30 EBFR at Hillside District Driveway	NBR*	-	-	-	-	12.6	B	12.6	B	-	-	13.4	B	13.4	B
Horizon Road at Summit District Driveway	EBR*	-	-	-	-	10.9	B	10.9	B	-	-	11.4	B	11.4	B
Ridge Road (FM 740) at Cemetery / Chapparral Lane	EB*	-	-	-	-	11.8	B	11.8	B	-	-	12.6	B	12.6	B
	WB*	-	-	-	-	0.0	A	0.0	A	-	-	0.0	A	0.0	A
	NBL	-	-	-	-	8.4	A	8.4	A	-	-	8.6	A	8.6	A
	SBL	-	-	-	-	0.0	A	0.0	A	-	-	0.0	A	0.0	A
Summer Lee Drive at Interior District East Driveway	EB*	-	-	-	-	8.7	A	8.7	A	-	-	8.7	A	8.7	A
	WB*	-	-	-	-	8.2	A	8.2	A	-	-	8.2	A	8.2	A
	NB*	-	-	-	-	7.8	A	7.8	A	-	-	7.8	A	7.8	A
	SB*	-	-	-	-	8.4	A	8.4	A	-	-	8.4	A	8.4	A
Summer Lee Drive at Hillside District Driveway	EB	-	-	-	-	0.6	A	0.6	A	-	-	0.6	A	0.6	A
	SB*	-	-	-	-	10.7	B	10.7	B	-	-	10.7	B	10.7	B
Summer Lee Drive at Interior District West Driveway	EB	-	-	-	-	0.7	A	0.7	A	-	-	0.7	A	0.7	A
	WB	-	-	-	-	0.0	A	0.0	A	-	-	0.0	A	0.0	A
	NB*	-	-	-	-	10.4	B	10.4	B	-	-	10.4	B	10.4	B
	SB*	-	-	-	-	10.5	B	10.5	B	-	-	10.5	B	10.5	B
Summer Lee Drive at Shoreline Trail	EB	6.1	A	6.1	A	5.4	A	5.4	A	6.1	A	5.4	A	5.4	A
	SB*	8.7	A	8.8	A	10.9	B	10.9	B	8.8	A	10.9	B	10.9	B
Summer Lee Drive at Lake Front Trail	EB	0.3	A	0.3	A	0.7	A	0.7	A	0.3	A	0.7	A	0.7	A
	SB*	8.7	A	0.0	A	10.9	B	10.9	B	0.0	A	10.9	B	10.9	B

* - Stop-Controlled Movement

- No movements in Time Period

2011 HARBOR DISTRICT EXPANSION TIA



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Table 4 – PM Peak Hour Intersection Results

Intersection	Approach	2009 Existing		2015 Background		2015 Background + Site		2015 Background + Site w/Mitigation		2020 Background		2020 Background + Site		2020 Background + Site w/Mitigation	
		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
		DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS
SIGNALIZED INTERSECTIONS															
IH 30 WBFR at Ridge Road (FM 740)	Overall	29.5	C	34.0	C	34.9	C	34.9	C	33.8	C	37.0	D	37.0	D
IH 30 EBFR at Ridge Road (FM 740)	Overall	20.7	C	24.7	C	34.4	C	34.4	C	32.9	C	39.0	D	38.2	D
IH 30 WBFR at Horizon Road	Overall	27.2	C	45.2	D	115.8	F	36.3	D	93.1	F	162.5	F	47.9	D
IH 30 EBFR at Horizon Road	Overall	27.7	C	43.4	D	96.1	F	30.8	C	98.9	F	164.0	F	32.4	C
Horizon Road at Summer Lee Drive	Overall	-	-	-	-	20.4	C	21.7	C	-	-	24.9	C	22.3	C
Horizon Road at Ridge Road (FM 740)	Overall	42.0	D	40.5	D	39.4	D	39.6	D	46.3	D	67.0	E	46.2	D
Ridge Road (FM 740) at Summer Lee Drive	Overall	21.6	C	16.8	B	17.7	B	17.6	B	17.0	B	17.6	B	23.3	C
UNSIGNALIZED INTERSECTIONS															
Horizon Road at Summer Lee Drive (Unsignalized)	EB*	112.4	F	200+	F	-	-	-	-	200+	F	-	-	-	-
	WB*	86.0	F	200+	F	-	-	-	-	200+	F	-	-	-	-
	NBL	12.5	B	14.2	B	-	-	-	-	16.5	C	-	-	-	-
	SBL	0.4	A	0.4	A	-	-	-	-	0.4	A	-	-	-	-
IH 30 EBFR at Lake Front Trail	WB	3.7	A	3.7	A	3.9	A	3.9	A	-	-	-	-	-	-
	NB*	8.5	A	8.5	A	8.9	A	8.9	A	8.5	A	8.9	A	8.9	A
IH 30 EBFR at Shoreline Trail	EB* Frontage Rd	8.2	A	8.2	A	9.9	A	9.9	A	-	-	-	-	-	-
	NB* Shoreline	7.3	A	7.3	A	8.7	A	8.7	A	20.9	C	53.4	F	53.4	F
	SB* From Off-Ramp	10.1	B	10.1	B	15.0	B	15.0	B	-	-	-	-	-	-
IH 30 EBFR at Hillside District Driveway	NBR*	-	-	-	-	26.3	D	26.3	D	-	-	34.9	D	34.9	D
Horizon Road at Summit District Driveway	EBR*	-	-	-	-	15.7	C	15.7	C	-	-	17.6	C	17.6	C
Ridge Road (FM 740) at Cemetary / Chapparral Lane	EB*	-	-	-	-	17.5	C	17.5	C	-	-	21.3	C	21.3	C
	WB*	-	-	-	-	0.0	A	0.0	A	-	-	0.0	A	0.0	A
	NBL	-	-	-	-	12.1	B	12.1	B	-	-	13.9	B	13.9	B
	SBL	-	-	-	-	0.0	A	0.0	A	-	-	0.0	A	0.0	A
Summer Lee Drive at Interior District East Driveway	EB*	-	-	-	-	14.0	B	14.0	B	-	-	14.0	B	14.0	B
	WB*	-	-	-	-	21.8	C	21.8	C	-	-	21.8	C	21.8	C
	NB*	-	-	-	-	9.7	A	9.7	A	-	-	9.7	A	9.7	A
Summer Lee Drive at Hillside District Driveway	SB*	-	-	-	-	10.2	B	10.2	B	-	-	10.2	B	10.2	B
	EB	-	-	-	-	0.6	A	0.6	A	-	-	0.6	A	0.6	A
	SB*	-	-	-	-	19.4	C	19.4	C	-	-	19.4	C	19.4	C
Summer Lee Drive at Interior District West Driveway	EB	-	-	-	-	0.7	A	0.7	A	-	-	0.7	A	0.7	A
	WB	-	-	-	-	0.0	A	0.0	A	-	-	0.0	A	0.0	A
	NB*	-	-	-	-	15.9	C	15.9	C	-	-	15.9	C	15.9	C
	SB*	-	-	-	-	16.5	C	16.5	C	-	-	16.5	C	16.5	C
Summer Lee Drive at Shoreline Trail	EB	4.1	A	4.1	A	4.2	A	4.2	A	4.1	A	4.2	A	4.2	A
	SB*	11.7	B	12.7	B	25.1	D	25.1	D	12.7	B	25.1	D	25.1	D
Summer Lee Drive at Lake Front Trail	EB	1.0	A	1.1	A	1.4	A	1.4	A	1.1	A	1.4	A	1.4	A
	SB*	10.6	B	0.0	A	23.8	C	23.8	C	0.0	A	23.8	C	23.8	C

* - Stop-Controlled Movement

- No movements in Time Period



B. 2009 Existing Traffic Conditions

Under 2011 existing traffic conditions, all signalized intersections operate at overall acceptable conditions. Horizon Road at Ridge Road operates at LOS D in the PM peak hour.

The unsignalized intersections operate at LOS B or better, except for the intersection of Horizon Road and Summer Lee Drive, where the stop-controlled approaches operate at LOS C in the AM peak hour and LOS F in the PM peak hour. The unsignalized approaches to Horizon Road experience excessive delay when waiting for gaps in the relatively heavy Horizon Road crossing traffic.

C. 2015 Background Traffic Conditions

Under the 2015 background traffic conditions, the growth in background traffic results in increased delay for nearly all the signalized intersections, with several changing from LOS C to LOS D performance. Both intersections of Horizon Road with the IH 30 frontage roads operate at LOS D in the PM peak hour, as does the intersection of Horizon Road and Ridge Road.

D. 2015 Background Plus Site Traffic Conditions

With the addition of the new Harbor District site traffic, additional delay is observed at most of the signalized intersections. Except for the intersections of Horizon Road at the IH 30 frontage roads, the signalized intersections remain at the same LOS conditions as the background traffic scenario. Horizon Road at the IH 30 WBFR falls to LOS E in the AM peak hour and LOS F in the PM peak hour. Horizon Road at the IH 30 EBFR joins it at LOS F in the PM peak hour.

Seeing the poor operations of the intersection of Horizon Road and Summer Lee Drive in the existing and 2015 background conditions, with the new Harbor District site that intersection is assumed to be signalized. The new signalized intersection operates at LOS C or better, and can be properly coordinated with the predominate direction of Horizon Road traffic in each peak hour.

The unsignalized intersections, including the new driveways serving the site, all operate at acceptable LOS, with most movements at LOS C or better. The intersection of IH 30 EBFR at Harbor District Driveway (the driveway between Shoreline Trail and Horizon Road) operates at LOS D delays for the traffic turning on to the frontage road. This level of delay is expected due to the large amount of through traffic on the frontage road. The resulting queue is only 55', or between 2 and 3 vehicles. The southbound approach at the intersection of Summer Lee Drive and Shoreline Trail also operates at an acceptable LOS D. Most of this delay comes from the large number of vehicles which use Shoreline Trail and then Summer Lee Drive as a short-cut to Ridge Road during the PM peak hour. Based on the number of vehicles turning in to the Harbor District from the IH 30 EBFR, and the number exiting to southbound Ridge Road, the number of vehicles following this cut-through path is thought to be approximately 150. With the development of the currently-vacant Harbor District areas slowing travel through the Harbor District, and the proposed improvements to Horizon Road and Ridge Road, this movement should be less attractive to cut-through traffic in the future.

To improve conditions at the intersection of Horizon Road at the IH 30 frontage roads in the 2015 scenarios, mitigation measures were identified at both intersections. At the Horizon Road intersection with the IH 30 WBFR, the westbound on-ramp should be modified so that it can accept two lines of vehicles before narrowing and merging in to westbound IH 30 as one lane. **Exhibit 11** shows the recommended lane configuration. Accepting two lines of vehicles will allow the

2011 HARBOR DISTRICT EXPANSION TIA

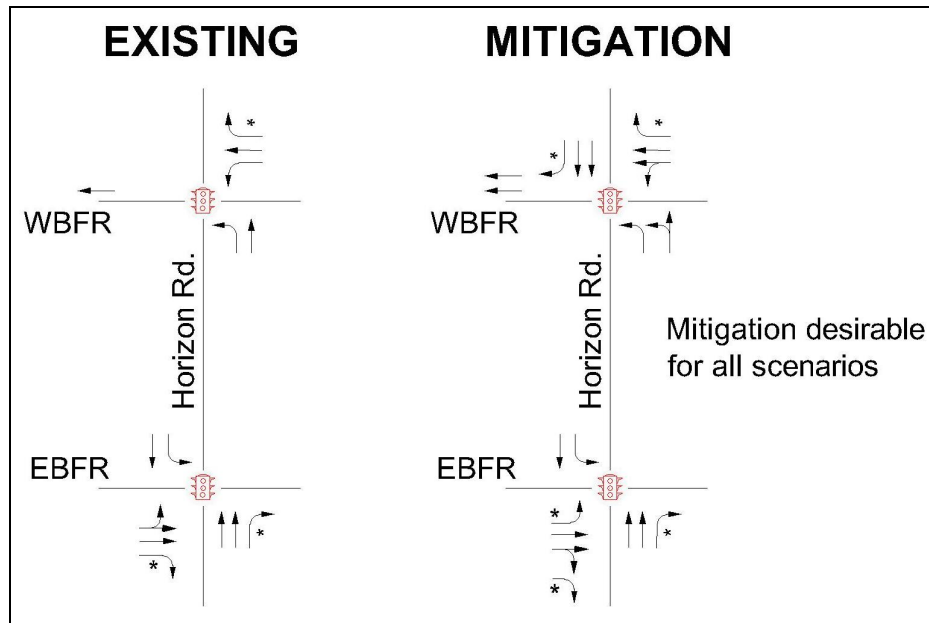


northbound Horizon Road approach to have dual left turns, serving the large northbound left-turn movement in both AM and PM peak hours. The westbound approach could also be modified to provide two through lanes. These lane assignment changes would improve conditions from LOS E in the AM peak hour to LOS C, and from LOS F in the PM peak hour to LOS D.

At the Horizon Road intersection with the IH 30 EBFR, the eastbound approach should be widened by one lane, to provide a total of four approach lanes configured as left, through, through-right (or right-only), and right. Having two right-turn lanes supports the heavy eastbound right-turning volume in the PM peak hour, and the dedicated left-turn lane supports the growth in eastbound left-turn traffic originating in the Harbor District.

With the mitigation measures in place, the intersection operations improve to LOS D or better in both time periods.

Exhibit 11: Horizon Road at IH 30 Frontage Roads Mitigation Lanes



E. 2020 Background Traffic Conditions

Under 2020 background traffic conditions the continuing background traffic growth (a combined 38% over the 2009 existing volumes) continues to add to the operational delays in the study area. In the AM peak hour, intersections continue to operate at LOS D or better, with the exception of Horizon Road at IH 30 WBFR which operates at LOS F. In the PM peak hour, both intersections of Horizon Road with the IH 30 frontage roads operate at LOS F.

F. 2020 Background Plus Site Traffic Conditions

By 2020 with the full Harbor District in place, some intersection delays grow significantly and some cross thresholds of acceptable LOS. As in the 2015 analysis, the intersections of Horizon Road and the IH 30 frontage roads operates at LOS F in the PM peak hour. The intersection of Horizon Road and Ridge Road falls to LOS E in the PM peak hour. Impacts are also seen at the intersections of Ridge Road and the IH 30 frontage roads, but operations remain at an acceptable

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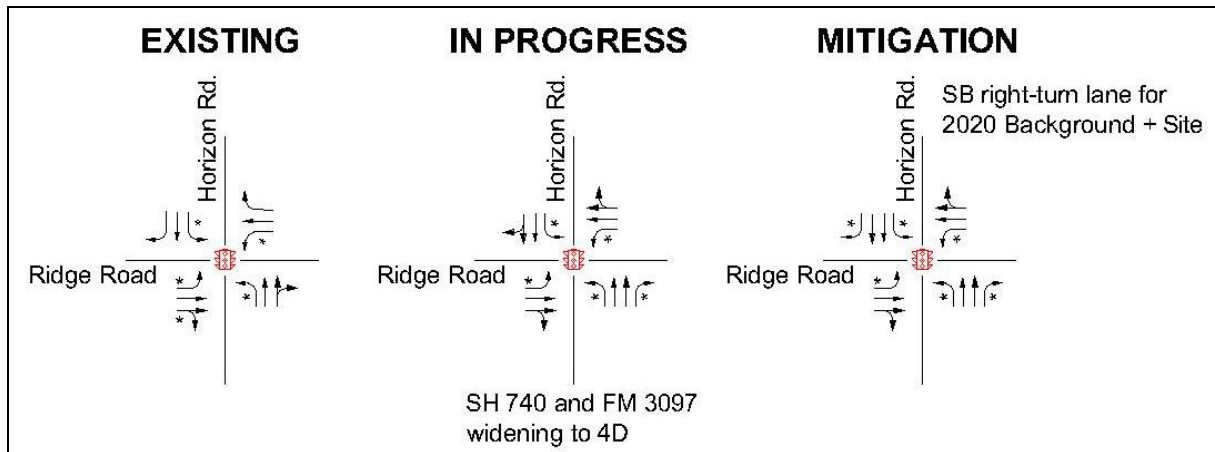


LOS D. The intersections of Summer Lee Drive with Horizon Road and with Ridge Road continue to operate at LOS C or better.

Operations at the unsignalized intersections and site driveways remain at acceptable levels, with the largest delay at the northbound approach of Shoreline Trail at IH 30 EBFR. This LOS F delay of 54 seconds is common when entering busy frontage roads. The maximum queue remains reasonable at 144', or about 7 vehicles. Should drivers view this delay as unreasonable, they can easily divert via the internal site roadways to Lake Front Trail, where the frontage road can easily be entered since it is upstream of the eastbound off-ramp merge.

At the intersections of Horizon Road and the IH 30 frontage roads, the same mitigation measures as identified in the 2015 scenario will bring the 2020 background plus site traffic scenario back to an acceptable LOS D or better. For the intersection of Horizon Road and Ridge Road, the addition of a southbound right-turn lane on Horizon Road will bring the intersection operations back to LOS D in the PM peak hour. **Exhibit 12** graphically shows the lane configuration. Since the Harbor District traffic makes up less than 7% of the intersection traffic, and the background plus site traffic conditions are only over the threshold to LOS E from the original LOS D, the magnitude of the impact is not excessive and the need for mitigation can be monitored.

Exhibit 12: Horizon Road at Ridge Road Mitigation Lanes





G. Westbound IH 30 On-Ramp Analysis

Adding a new westbound on-ramp to the IH 30 main lanes between Ridge Road and Horizon Road has been examined as a means of improving circulation and reducing congestion in the area. Currently, westbound traffic from Ridge Road must pass through the intersection at Horizon Road before being able to enter westbound IH 30. A new ramp would mirror the current configuration of the eastbound direction, which has separate off-ramps for Horizon Road and Ridge Road, and thus does not have a large volume of through traffic crossing Horizon Road. The new westbound on-ramp would remove a significant amount of westbound through traffic from the intersection with Horizon Road. A conceptual drawing of a possible configuration for the new westbound on-ramp is included in the **Appendix**.

To model the impact of the potential new on-ramp, additional 2015 and 2020 scenarios were analyzed with 75% of the westbound through traffic on IH 30 WBFR at Horizon Road removed from the intersection operations. The westbound left- and right-turn volumes are unchanged. This removal represents the new westbound on-ramp accommodating the majority of the westbound frontage road traffic that is bound for the westbound IH 30 main lanes. The remaining westbound through traffic is a conservatively-high total of those vehicles which may not have taken the new ramp for whatever reason, and those vehicles which entered the frontage road downstream of the new ramp. **Exhibit 13** shows the 2015 background traffic with the new ramp in place, and **Exhibit 14** shows the 2015 background plus Harbor District traffic with the new ramp in place. **Exhibit 15** shows the 2020 background traffic with the new ramp in place, and **Exhibit 16** shows the 2020 background plus Harbor District traffic with the new ramp in place. **Table 5** shows the resulting AM peak hour intersection operations, and **Table 6** shows the PM peak hour intersection operations.

The results show that traffic diversions due to the new westbound ramp significantly improve intersection operations at Horizon Road in the AM peak hour, and moderately improve operations in the PM peak hour. The 2020 background LOS F in the AM peak hour at Horizon Road and the IH 30 WBFR intersection becomes LOS C when the ramp removed much of the westbound through traffic. The ramp also improves the 2020 background LOS F in the PM peak hour to a LOS E condition, although the eastbound intersection is still LOS F. While the new ramp greatly improves the westbound approach, at least part of the mitigation identified for Horizon Road at the IH 30 frontage roads would still be necessary by the 2020 time frame, even without further development of the Harbor District site.

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Table 5 – AM Peak Hour Intersection Operations – New WB Ramp Analysis

Intersection	Approach	2015 Background		2015 Background w/New Ramp		2015 Background + Site w/New Ramp		2020 Background		2020 Background w/New Ramp		2015 Background + Site w/New Ramp	
		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
		DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS
SIGNALIZED INTERSECTIONS													
IH 30 WBFR at Ridge Road (FM 740)	Overall	24.3	C	24.3	C	25.6	C	26.0	C	26.0	C	27.5	C
IH 30 EBFR at Ridge Road (FM 740)	Overall	18.9	B	19.0	B	25.8	C	19.6	B	19.5	B	26.2	C
IH 30 WBFR at Horizon Road	Overall	37.2	D	17.4	B	44.4	D	99.5	F	30.2	C	77.7	E
IH 30 EBFR at Horizon Road	Overall	20.9	C	23.7	C	34.4	C	22.9	C	30.0	C	47.3	D

Table 6 – PM Peak Hour Intersection Operations – New WB Ramp Analysis

Intersection	Approach	2015 Background		2015 Background w/New Ramp		2015 Background + Site w/New Ramp		2020 Background		2020 Background w/New Ramp		2015 Background + Site w/New Ramp	
		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
		DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS	DELAY (SEC/VEH)	LOS
SIGNALIZED INTERSECTIONS													
IH 30 WBFR at Ridge Road (FM 740)	Overall	34.0	C	34.0	C	34.9	C	33.8	C	33.8	C	37.0	D
IH 30 EBFR at Ridge Road (FM 740)	Overall	24.7	C	24.7	C	34.4	C	32.9	C	32.9	C	39.0	D
IH 30 WBFR at Horizon Road	Overall	45.2	D	38.3	D	93.2	F	93.1	F	76.6	E	119.4	F
IH 30 EBFR at Horizon Road	Overall	43.4	D	46.2	D	105.2	F	98.9	F	98.9	F	177.3	F

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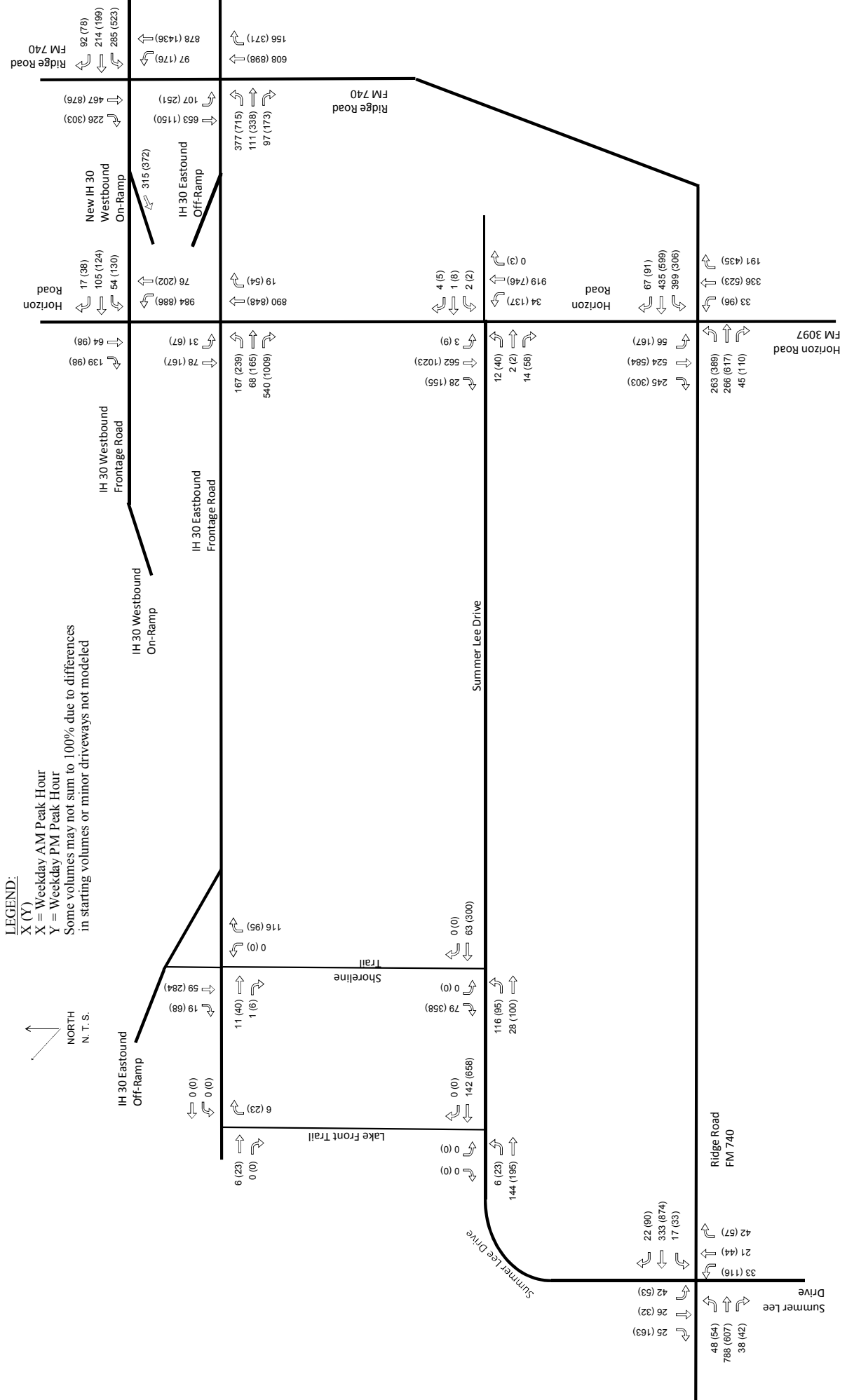


EXHIBIT 13 2015 Background Traffic Volumes With New Westbound On-Ramp
 Rockwall Harbor District TIA, Rockwall, TX



2011 HARBOR DISTRICT EXPANSION TIA

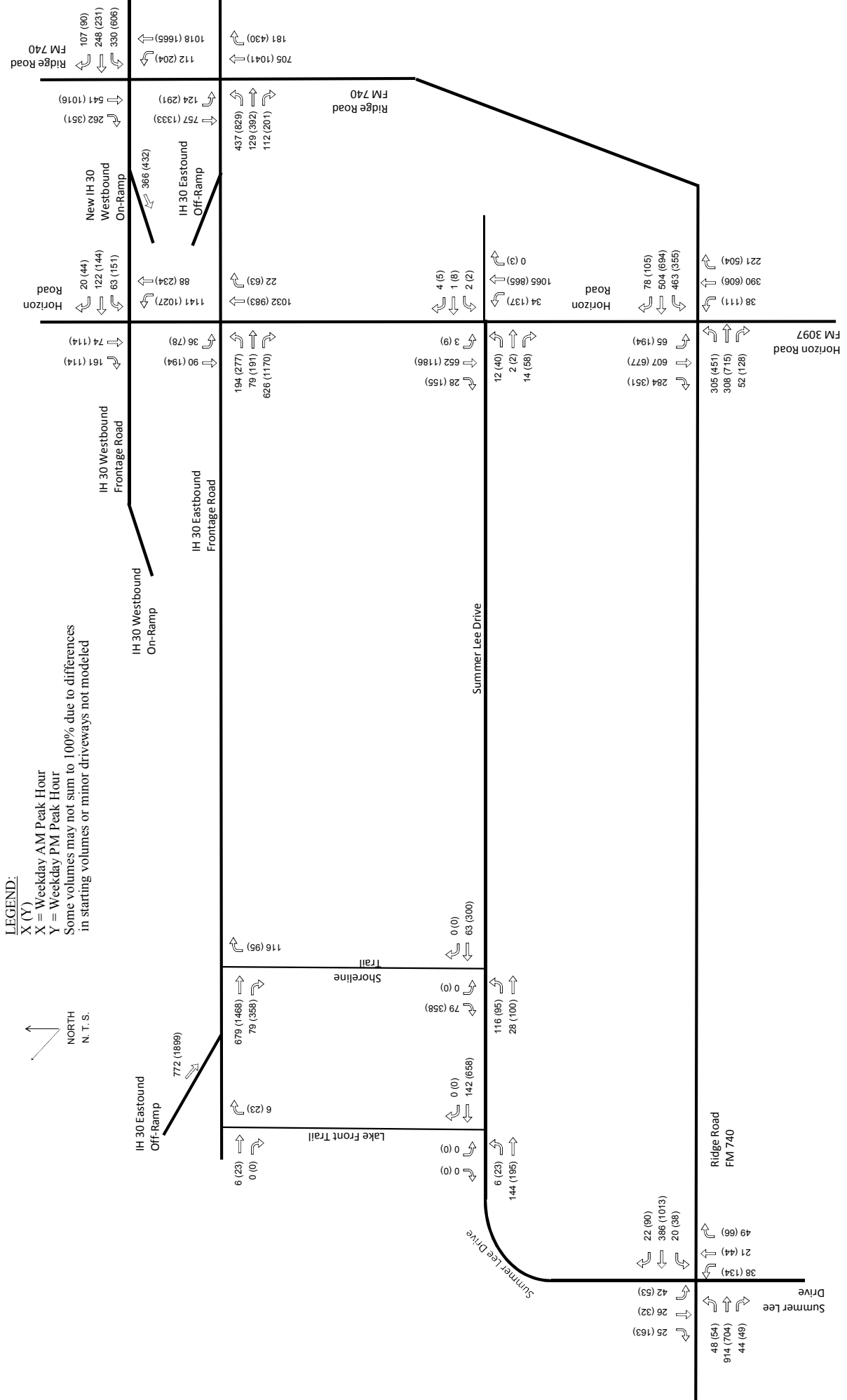


EXHIBIT 15 2020 Background Traffic Volumes With New Westbound On-Ramp
 Rockwall Harbor District TIA, Rockwall, TX





V. SIGNAL WARRANT ANALYSIS

A signalized intersection is proposed for Horizon Road at Summer Lee Drive. The 2006 Texas *Manual On Uniform Traffic Control Devices* (MUTCD) contains the appropriate warrant examination procedure. The following sections list the results of applying the warrants to each of the proposed signals, using the appropriate projected AM and PM peak hour background plus site traffic volumes for the given study year. Since only the AM and PM peak hour volumes are available, only the peak hour warrants were fully tested. Most of the peak hour data points easily meet the thresholds for the eight-hour and four-hour warrants, so it is likely that a full day of data would show those warrants met as well.

Detailed results of the warrant applications can be found in the **Appendix**. Since Horizon Road has a 40 MPH speed limit, the normal volume thresholds are applied with no reduction for higher speed, even though the 85% speed may be slightly higher.

A. Horizon Road at Summer Lee Drive

Warrant 3 – Peak Hour – MET

Based on Warrant 3, Peak Hour, the thresholds for meeting the warrant vary by the major roadway volume, down to a minimum of 150 minor roadway vehicles if the major roadway volume is in excess of 1,700 vehicles and the minor street has a two-lane approach. The projected 2015 background plus site-generated traffic volumes meet Warrant 3 in both peak hours.



VI. CONCLUSIONS AND RECOMMENDATIONS

Based on the 2015 and 2020 scenario analyses presented in this report, the proposed expansion of the Harbor District site can be successfully incorporated into the surrounding transportation network. The site is at the junction of several major vehicular corridors, spreading the traffic load across several roadways and preventing unreasonable impacts on any one roadway or intersection. Significant changes to the local roadway network are in progress, and additional mitigation measures are recommended to meet City standards. To maintain acceptable traffic operational conditions, the following driveway design guidelines and signalization steps are recommended.

General Site Design Guidelines

Right-turn deceleration lanes are to be provided at all new driveways on IH 30 EBFR and Horizon Road. Driveways should meet TxDOT driveway spacing and ramp proximity standards.

For driveways at median openings, provide separate outbound left- and right-turn lanes.

Internal roadways within the Harbor District site to be designed in accordance with the Talley associates master plan.

Support the relocation of the IH 30 eastbound off-ramp to Horizon Road farther to the west.

Signalization

The intersection of Horizon Road and Summer Lee Drive should be signalized during the buildout of the first phases of the Harbor District site. Signal warrants are met at the intersection in the 2015 background plus site traffic scenario.

Area Roadway Improvements

The following is a non-inclusive list of important roadway improvements which are underway or assumed to be in place by the 2015 study year.

1. Constructing Ridge Road / FM 740 south of Horizon Road as a four-lane, divided roadway.
2. Constructing Horizon Road / FM 3097 south of Ridge Road as a four-lane, divided roadway.

Area Roadway Background Recommendations

The following are additional improvements which are recommended to improve current network deficiencies and support future roadway operations:

1. Widen the westbound on-ramp west of Horizon Road so that it can accept dual left turns from Horizon Road and dual through lanes from the WBFR.
2. Add a westbound on-ramp to IH 30 between Ridge Road and Horizon Road.
3. Reconstruct the existing eastbound off-ramp from IH 30 to Horizon Road to a location farther west, and establish the eastbound frontage road as one-way for its entire length.

Site Recommendations - 2015

The following items are additional improvements which are recommended to support the 2015 background plus site conditions:

1. Widen the eastbound frontage road approach to Horizon Road to provide four total lanes at the intersection, with the following configuration: left-only, through, through-right, and right-only.

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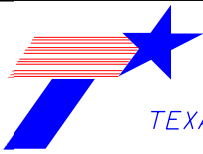
Site Recommendations - 2020

The following item is an improvement which is recommended to support the 2020 background plus site conditions:

1. Construct a southbound right-turn lane on Horizon Road at Ridge Road.



Appendix – TxDOT IH-30 Frontage Road Reconstruction Schematic Excerpt



TEXAS DEPARTMENT OF TRANSPORTATION

DALLAS DISTRICT
JAMES K. SELMAN, P.E., DISTRICT ENGINEER
DESIGN SCHEMATIC

INTERSTATE HIGHWAY 30
DALLAS / ROCKWALL COUNTIES

From Bass Pro Dr to Hunt C/L (West of FM 2642)

Project Length = 16.75 Miles

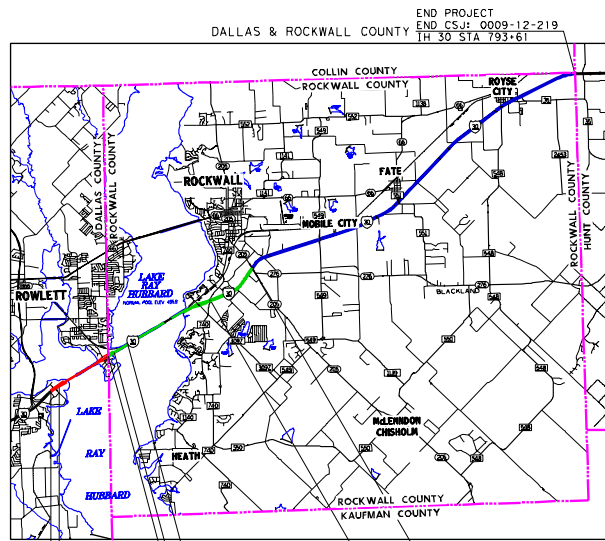
CSJ #

- 0009-11-238 0009-11-241
0009-12-215 0009-12-220
0009-12-219 0009-12-221

DESIGN SPEEDS

DESIGN SPEEDS AND FUNCTIONAL CLASSIFICATIONS:

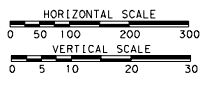
Table with 3 columns: ROADWAY, FUNCTIONAL CLASSIFICATION, DESIGN SPEED. Lists various road types and their corresponding speeds.



END PROJECT DALLAS & ROCKWALL COUNTY END CSJ: 0009-12-219 IH 30 STA 793+61
END CSJ: 0009-12-221 IH 30 STA 27+00
BEGIN CSJ: 0009-12-220 (FRONTAGE ROAD CONSTRUCTION) IH 30 STA 3+40
END CSJ: 0009-11-238 END CSJ: 0009-11-241 IH 30 STA 1767+00
BEGIN CSJ: 0009-12-215 BEGIN CSJ: 0009-12-221 IH 30 STA 0+00
BEGIN CSJ: 0009-11-238 (MAINLANE WIDENING) IH 30 STA 1695+00
BEGIN PROJECT BEGIN CSJ: 0009-11-241 IH 30 STA 1676+00

APPROVED SCHEMATIC NOT FOR CONSTRUCTION

SCHEMATIC PREPARED BY: BGE, INC. REGISTRATION NUMBER F-1046
THESE DOCUMENTS ARE NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION PURPOSES
Prepared by or under the Direct Supervision of:
MICHAEL H. GARRISON, P.E. 79285
NAME P.E. NUMBER
HOSSEIN M. HOSSEINY, P.E. 118668
NAME P.E. NUMBER
DATE 3/21/2018



ROLL 3 OF 14

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TBPE Registration No. F-1046
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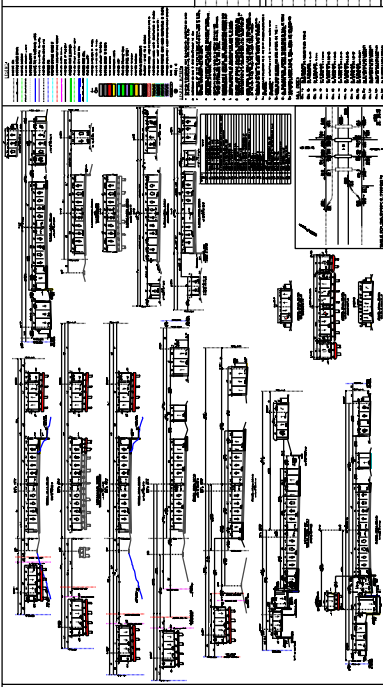
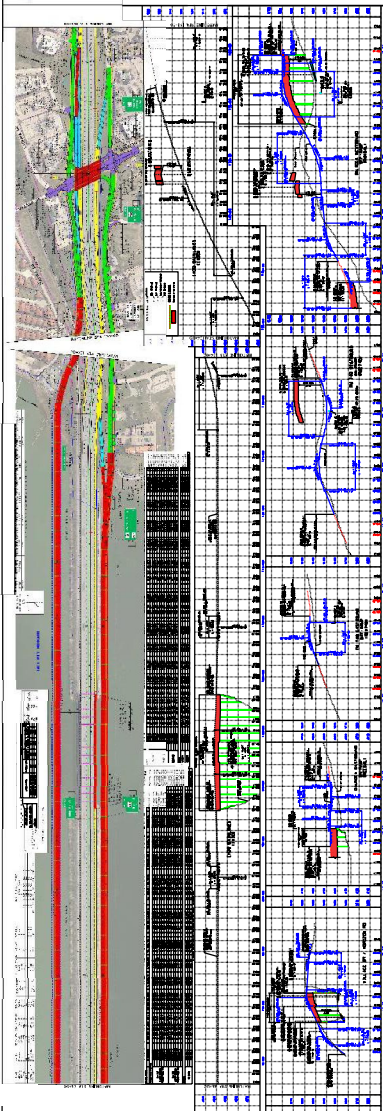


COUNTY: ROCKWALL
DATE: MARCH 2018

DESIGN SCHEMATIC
IH 30 ROCKWALL COUNTY

ROLL 3 OF 14

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From: Brenda Callaway <Brenda.Callaway@txdot.gov>
Date: November 7, 2018 at 9:16:35 AM CST
To: Michael Doggett <mdoggett@winkelmann.com>
Cc: Kevin Hickman <KHickman@PegasusAblon.com>, Mitchell Mulholland <mmulholland@winkelmann.com>, Danny Ficarra <dficarra@bgoarchitects.com>, Jeffrey Bush <Jeffrey.Bush@txdot.gov>, Travis Campbell <travis.campbell@txdot.gov>, "awilliams@rockwall.com" <awilliams@rockwall.com>, Jae Baag <Jae.Baag@txdot.gov>
Subject: RE: Harbor Village - Rockwall, TX - Meeting Request

Michael,

If we are looking at a construction start the Summer of 2019, the development will precede the frontage road construction.

Jae looked at the placement of the proposed driveways and they are not in an area where TxDOT needs to control the access by design, so the location works with regards to the proposed construction. He will change the plans from the current driveway configuration to the proposed configuration.

Please proceed with the permitting process through the City of Rockwall.

Thanks

Brenda Callaway, P.E.
Assistant Area Engineer
2750 S. Washington St.
Kaufman, Texas 75142

972-962-3617



Appendix – Signal Warrant Sheets

TRAFFIC SIGNAL WARRANT ANALYSIS (2011 TXMUTCD)

MAJOR STREET: Horizon Road NB SB # OF APPROACH LANES:

MINOR STREET: Summer Lee Drive EB # OF APPROACH LANES:

CITY, STATE: Richardson, TX

COMMENTS: Existing (2018) Traffic for Summer Lee Drive. 2014 traffic counts used for Horizon Road.
No site traffic.

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N):

85TH PERCENTILE SPEED OR POSTED SPEED LIMIT GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

			Horizon Road		Total	Summer Lee Drive		Minor Street Heavy Leg
			NB Approach	SB Approach		EB Approach		
06:00 AM	TO	07:00 AM	647	213	860	17		17
07:00 AM	TO	08:00 AM	794	551	1345	29		29
08:00 AM	TO	09:00 AM	873	657	1530	34		34
09:00 AM	TO	10:00 AM	730	469	1199	52		52
10:00 AM	TO	11:00 AM	679	492	1171	69		69
11:00 AM	TO	12:00 PM	684	434	1118	87		87
12:00 PM	TO	01:00 PM	680	556	1236	112		112
01:00 PM	TO	02:00 PM	632	614	1246	105		105
02:00 PM	TO	03:00 PM	659	654	1313	112		112
03:00 PM	TO	04:00 PM	667	736	1403	130		130
04:00 PM	TO	05:00 PM	745	842	1587	81		81
05:00 PM	TO	06:00 PM	787	909	1696	92		92
06:00 PM	TO	07:00 PM	646	792	1438	76		76
07:00 PM	TO	08:00 PM	460	562	1022	85		85
08:00 PM	TO	09:00 PM	270	389	659	85		85
09:00 PM	TO	10:00 PM	210	262	472	111		111

Warrant	Description	Warrant Met?
1	Eight-Hour Volume	Warrant NOT Met
2	Four-Hour Volume	Warrant NOT Met
3	Peak Hour Volume	N/A
4	Pedestrian Volume	Warrant NOT Met
5	School Crossing	N/A
6	Coordinated Signal System	N/A
7	Crash Experience	Warrant NOT Met
8	Roadway Network	Warrant NOT Met
9	Intersection Near a Grade Crossing	N/A

11/30/18

Kimley-Horn and Associates, Inc.

TRAFFIC SIGNAL WARRANT ANALYSIS (2011 TXMUTCD)

MAJOR STREET: Horizon Road NB SB # OF APPROACH LANES: 2

MINOR STREET: Summer Lee Drive EB # OF APPROACH LANES: 2

CITY, STATE: Richardson, TX

COMMENTS: Existing (2018) Traffic for Summer Lee Drive, 2014 traffic counts used for Horizon Road.
No site traffic.

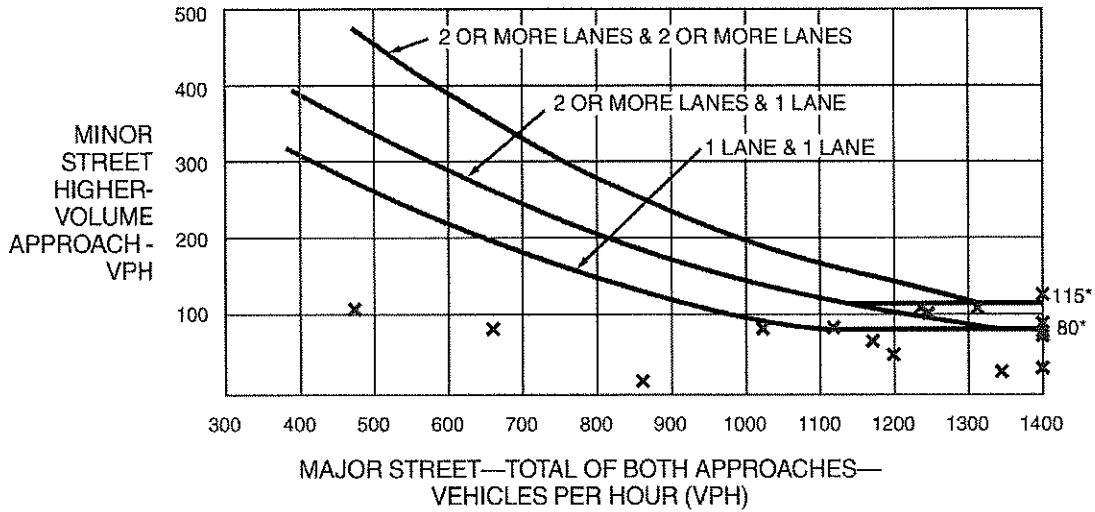
ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N
 85TH PERCENTILE SPEED OR POSTED SPEED LIMIT GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): N

THRESHOLD VALUES	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
06:00 AM TO 07:00 AM	860	17	Y	200	0	Y	900	100	0	Y	160	80	0	0	0	
07:00 AM TO 08:00 AM	1,345	29	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
08:00 AM TO 09:00 AM	1,530	34	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
09:00 AM TO 10:00 AM	1,199	52	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
10:00 AM TO 11:00 AM	1,171	69	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
11:00 AM TO 12:00 PM	1,118	87	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
12:00 PM TO 01:00 PM	1,236	112	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
01:00 PM TO 02:00 PM	1,246	105	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
02:00 PM TO 03:00 PM	1,313	112	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
03:00 PM TO 04:00 PM	1,403	130	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
04:00 PM TO 05:00 PM	1,587	81	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
05:00 PM TO 06:00 PM	1,696	92	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
06:00 PM TO 07:00 PM	1,438	76	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
07:00 PM TO 08:00 PM	1,022	85	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
08:00 PM TO 09:00 PM	659	85	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
09:00 PM TO 10:00 PM	472	111	Y	Y	0	Y	Y	Y	0	Y	Y	Y	0	0	0	
	19,295	1,277	15	0	0	13	5	4	15	0	0	14	10	8	0	
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B			4 HRS NEEDED			1	0
			NOT SATISFIED			NOT SATISFIED			NOT SATISFIED			NOT SATISFIED			NOT SATISFIED	NOT SATISFIED

11/30/18

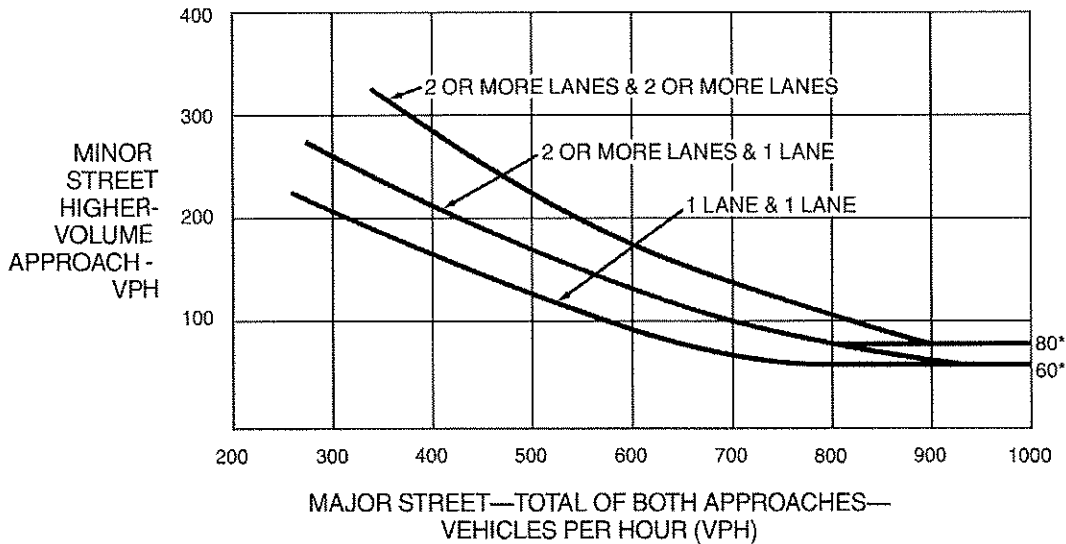
Kimley-Horn and Associates, Inc.

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



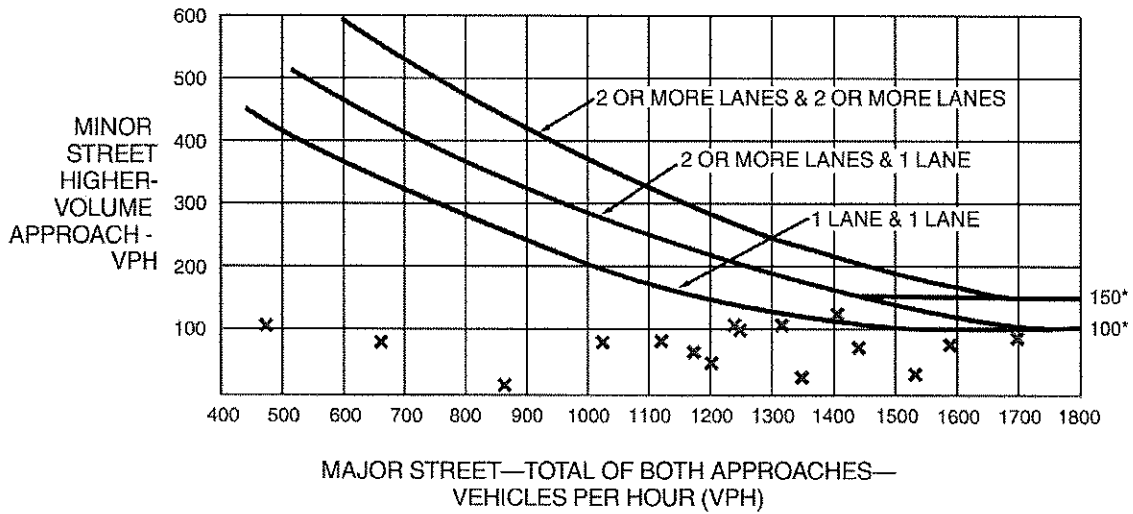
*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

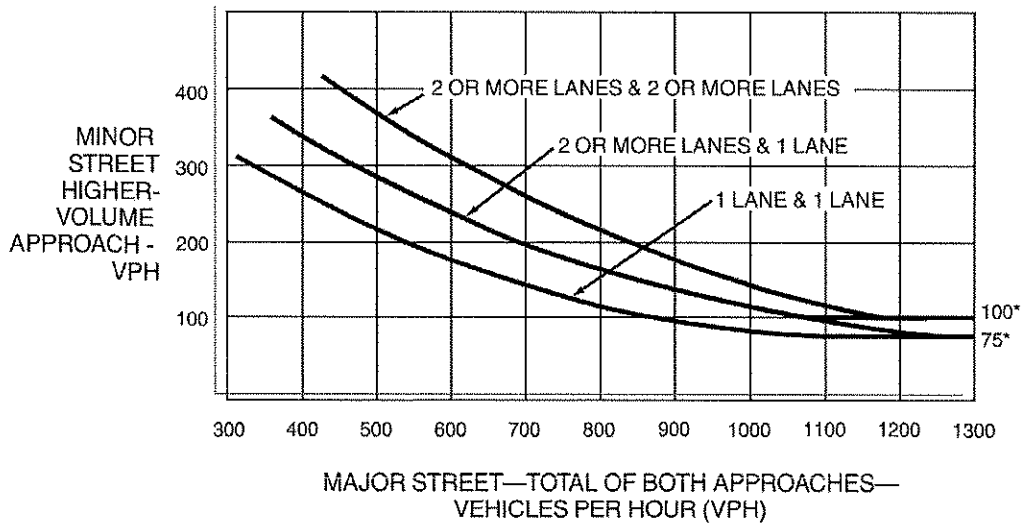
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

TRAFFIC SIGNAL WARRANT ANALYSIS (2011 TXMUTCD)

MAJOR STREET: Horizon Road NB SB # OF APPROACH LANES:

MINOR STREET: Summer Lee Drive EB # OF APPROACH LANES:

CITY, STATE: Richardson, TX

COMMENTS: Existing (2018) Traffic for Summer Lee Drive. 2014 traffic counts used for Horizon Road.
No site traffic added. Traffic volumes grown to 2021 and Harbor district background traffic added.

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N):

85TH PERCENTILE SPEED OR POSTED SPEED LIMIT GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

			Horizon Road		Total	Summer Lee Drive		Minor Street Heavy Leg
			NB Approach	SB Approach		EB Approach		
06:00 AM	TO	07:00 AM	647	213	860	29		29
07:00 AM	TO	08:00 AM	794	551	1345	51		51
08:00 AM	TO	09:00 AM	873	657	1530	53		53
09:00 AM	TO	10:00 AM	730	469	1199	66		66
10:00 AM	TO	11:00 AM	679	492	1171	81		81
11:00 AM	TO	12:00 PM	684	434	1118	102		102
12:00 PM	TO	01:00 PM	680	556	1236	128		128
01:00 PM	TO	02:00 PM	632	614	1246	120		120
02:00 PM	TO	03:00 PM	659	654	1313	130		130
03:00 PM	TO	04:00 PM	667	736	1403	150		150
04:00 PM	TO	05:00 PM	745	842	1587	106		106
05:00 PM	TO	06:00 PM	787	909	1696	123		123
06:00 PM	TO	07:00 PM	646	792	1438	100		100
07:00 PM	TO	08:00 PM	460	562	1022	106		106
08:00 PM	TO	09:00 PM	270	389	659	102		102
09:00 PM	TO	10:00 PM	210	262	472	125		125

Warrant	Description	Warrant Met?
1	Eight-Hour Volume	WARRANT MET
2	Four-Hour Volume	WARRANT MET
3	Peak Hour Volume	N/A
4	Pedestrian Volume	Warrant NOT Met
5	School Crossing	N/A
6	Coordinated Signal System	N/A
7	Crash Experience	Warrant NOT Met
8	Roadway Network	Warrant NOT Met
9	Intersection Near a Grade Crossing	N/A

TRAFFIC SIGNAL WARRANT ANALYSIS (2011 TXMUTCD)

MAJOR STREET: Horizon Road NB SB # OF APPROACH LANES: 2
 MINOR STREET: Summer Lee Drive EB EB # OF APPROACH LANES: 2

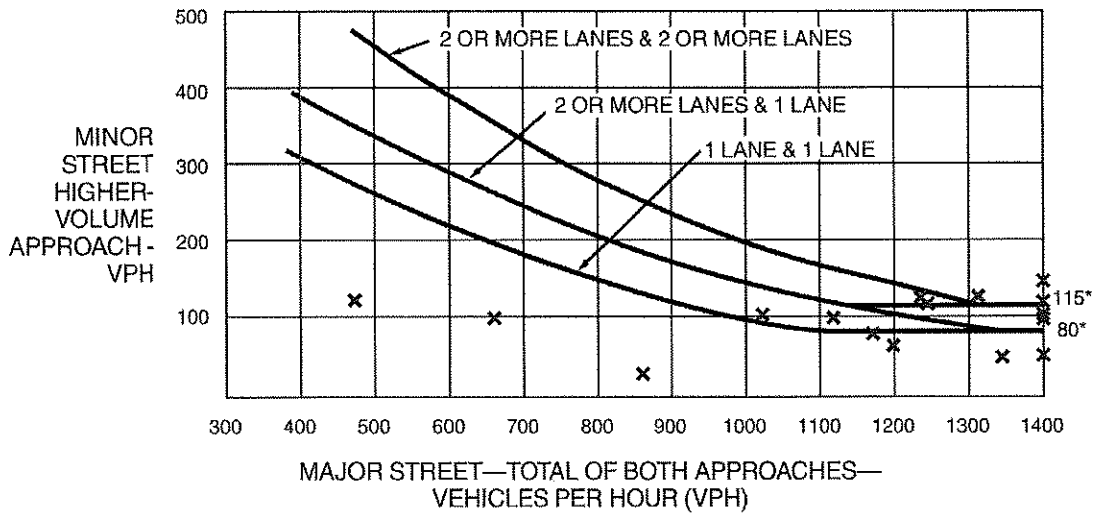
CITY, STATE: Richardson, TX

COMMENTS: Existing (2018) Traffic for Summer Lee Drive, 2014 traffic counts used for Horizon Road.
 No site traffic added. Traffic volumes grown to 2021 and Harbor district background traffic added.

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N
 85TH PERCENTILE SPEED OR POSTED SPEED LIMIT GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): N

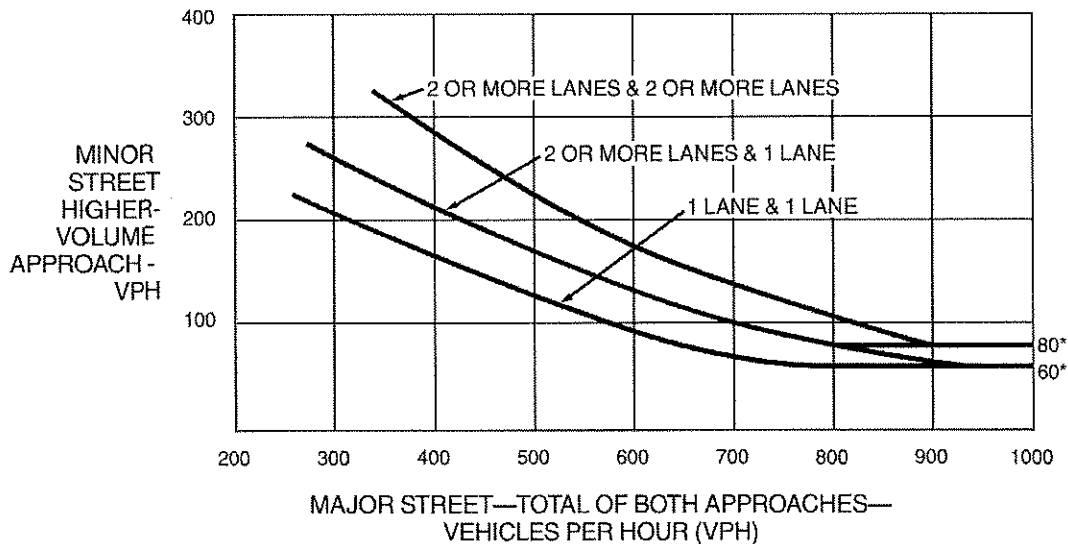
THRESHOLD VALUES	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour	
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET			
06:00 AM TO 07:00 AM	860	29	Y	200		Y	900	100		Y	160		Y	720	80		
07:00 AM TO 08:00 AM	1,345	51	Y			Y				Y			Y				
08:00 AM TO 09:00 AM	1,530	63	Y			Y				Y			Y				
09:00 AM TO 10:00 AM	1,199	66	Y			Y				Y			Y				
10:00 AM TO 11:00 AM	1,171	81	Y			Y				Y			Y				
11:00 AM TO 12:00 PM	1,118	102	Y			Y				Y			Y				
12:00 PM TO 01:00 PM	1,236	128	Y			Y				Y			Y				
01:00 PM TO 02:00 PM	1,246	120	Y			Y				Y			Y				
02:00 PM TO 03:00 PM	1,313	130	Y			Y				Y			Y				
03:00 PM TO 04:00 PM	1,403	150	Y			Y				Y			Y				
04:00 PM TO 05:00 PM	1,587	106	Y			Y				Y			Y				
05:00 PM TO 06:00 PM	1,696	123	Y			Y				Y			Y				
06:00 PM TO 07:00 PM	1,438	100	Y			Y				Y			Y				
07:00 PM TO 08:00 PM	1,022	106	Y			Y				Y			Y				
08:00 PM TO 09:00 PM	659	102	Y			Y				Y			Y				
09:00 PM TO 10:00 PM	472	125															
	19,295	1,572	15	0	0	13	11	9	15	0	14	12	10	4	0		
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B			4 HRS NEEDED			1 HR NEEDED		
			NOT SATISFIED			SATISFIED			NOT SATISFIED			SATISFIED			NOT SATISFIED		

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



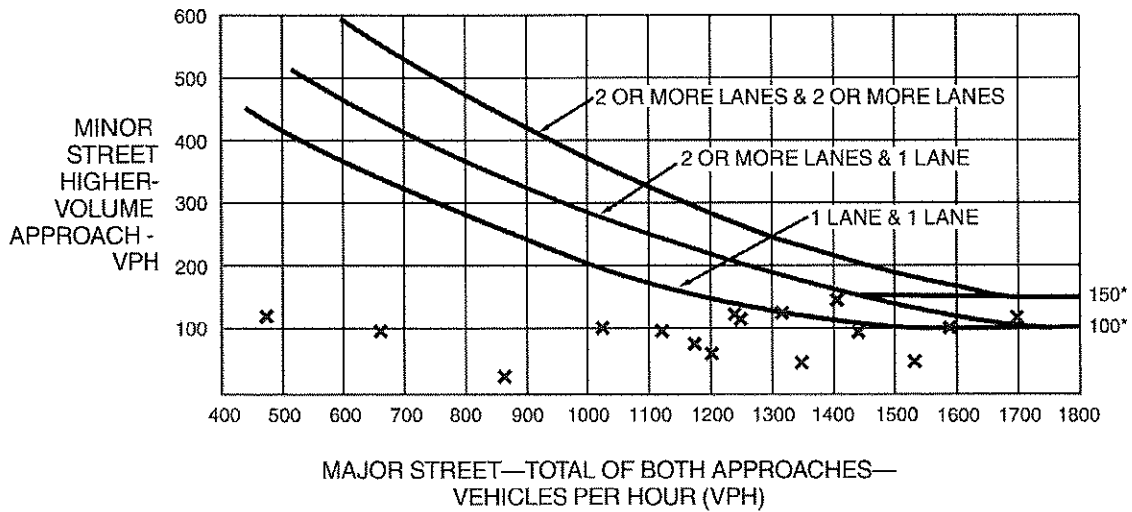
*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

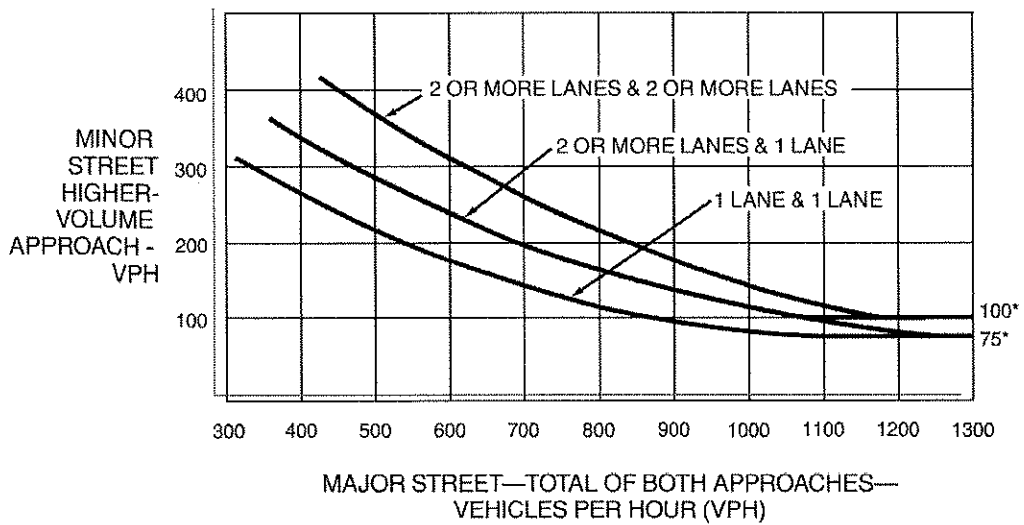
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.



Appendix – Traffic Volumes

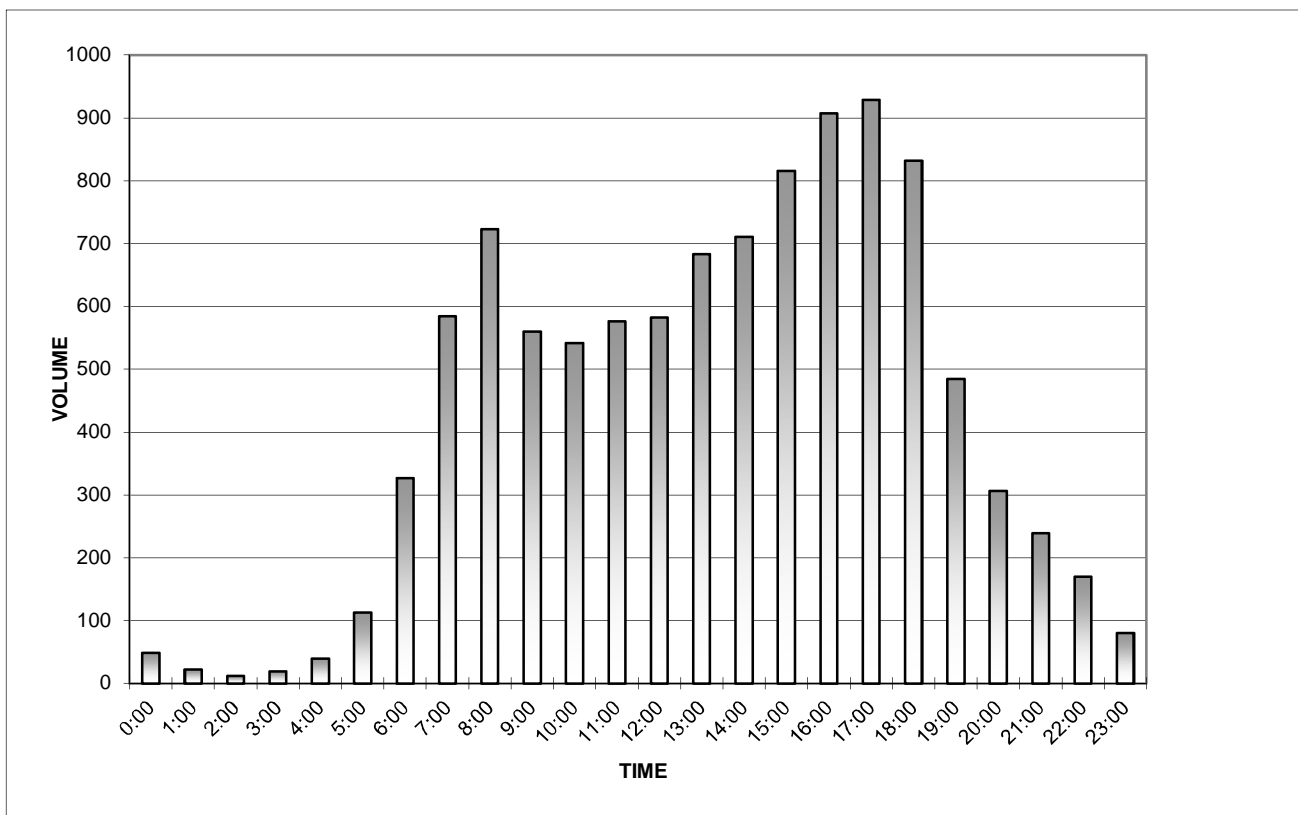
EB IH 30 Off Ramp

Date Began:
11/6/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	10	20	6	12	48
1:00	4	8	5	5	22
2:00	1	3	2	6	12
3:00	5	8	3	3	19
4:00	9	7	12	11	39
5:00	12	17	28	56	113
6:00	42	78	92	115	327
7:00	126	116	158	184	584
8:00	178	182	183	180	723
9:00	136	144	138	142	560
10:00	126	140	134	142	542
11:00	138	136	128	174	576
12:00	154	142	142	144	582
13:00	165	162	178	178	683
14:00	196	166	157	192	711
15:00	196	188	202	230	816
16:00	228	231	225	223	907
17:00	229	234	224	242	929
18:00	230	220	222	160	832
19:00	144	144	100	96	484
20:00	92	87	60	67	306
21:00	69	60	52	58	239
22:00	50	45	44	31	170
23:00	31	17	16	16	80

TOTAL: 10304

The A.M. peak hour from 7:45 to 8:45 is 727
The P.M. peak hour from 17:15 to 18:15 is 930

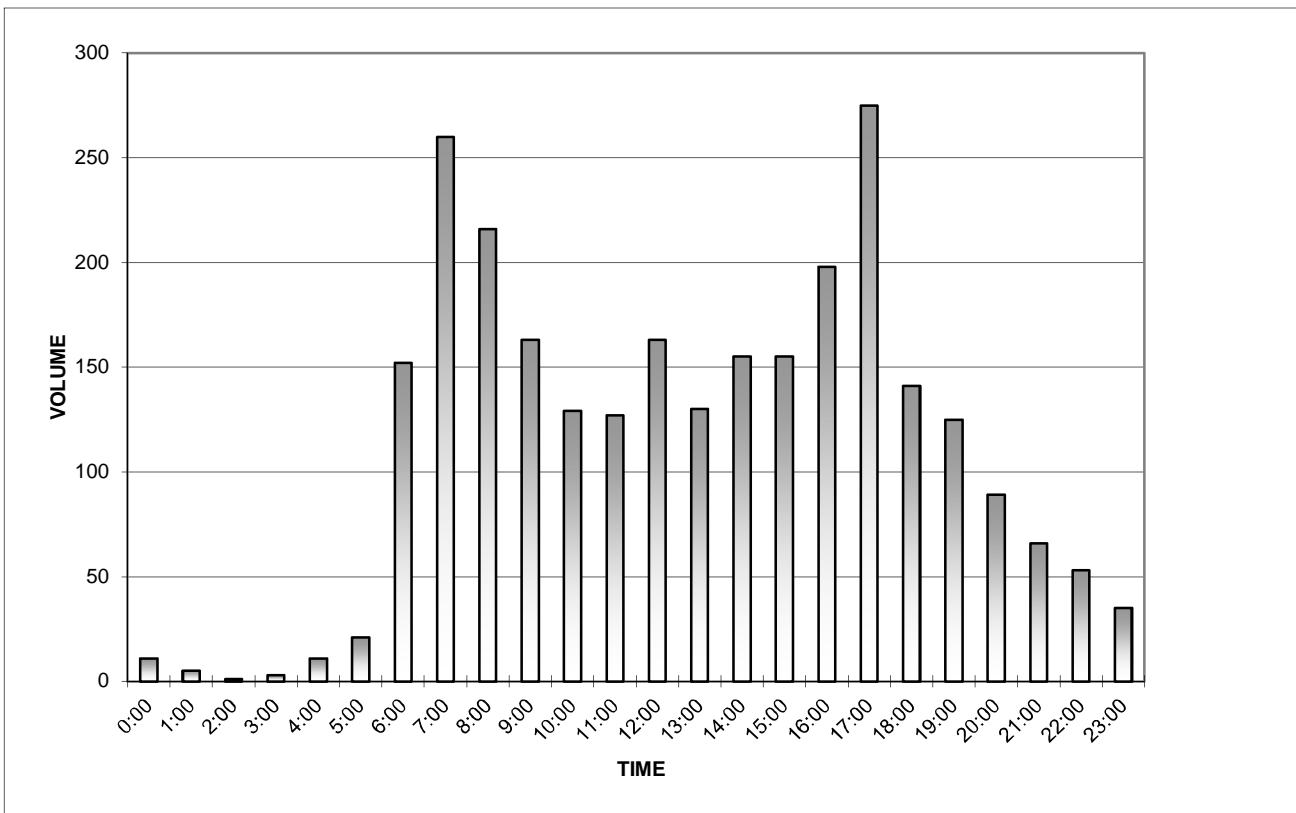


IH 30 EBFR East of Shoreline Trail

Date Began:
11/6/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	4	4	3	0	11
1:00	1	1	3	0	5
2:00	0	0	0	1	1
3:00	0	0	3	0	3
4:00	4	0	4	3	11
5:00	5	3	3	10	21
6:00	23	34	36	59	152
7:00	68	71	63	58	260
8:00	58	53	54	51	216
9:00	41	38	40	44	163
10:00	26	31	30	42	129
11:00	43	28	25	31	127
12:00	50	34	45	34	163
13:00	34	33	29	34	130
14:00	38	35	38	44	155
15:00	34	42	33	46	155
16:00	40	48	60	50	198
17:00	78	71	76	50	275
18:00	52	35	28	26	141
19:00	36	31	27	31	125
20:00	17	25	27	20	89
21:00	13	21	15	17	66
22:00	23	11	14	5	53
23:00	15	2	6	12	35
TOTAL:					2684

The A.M. peak hour from 6:45 to 7:45 is 261
The P.M. peak hour from 17:00 to 18:00 is 275

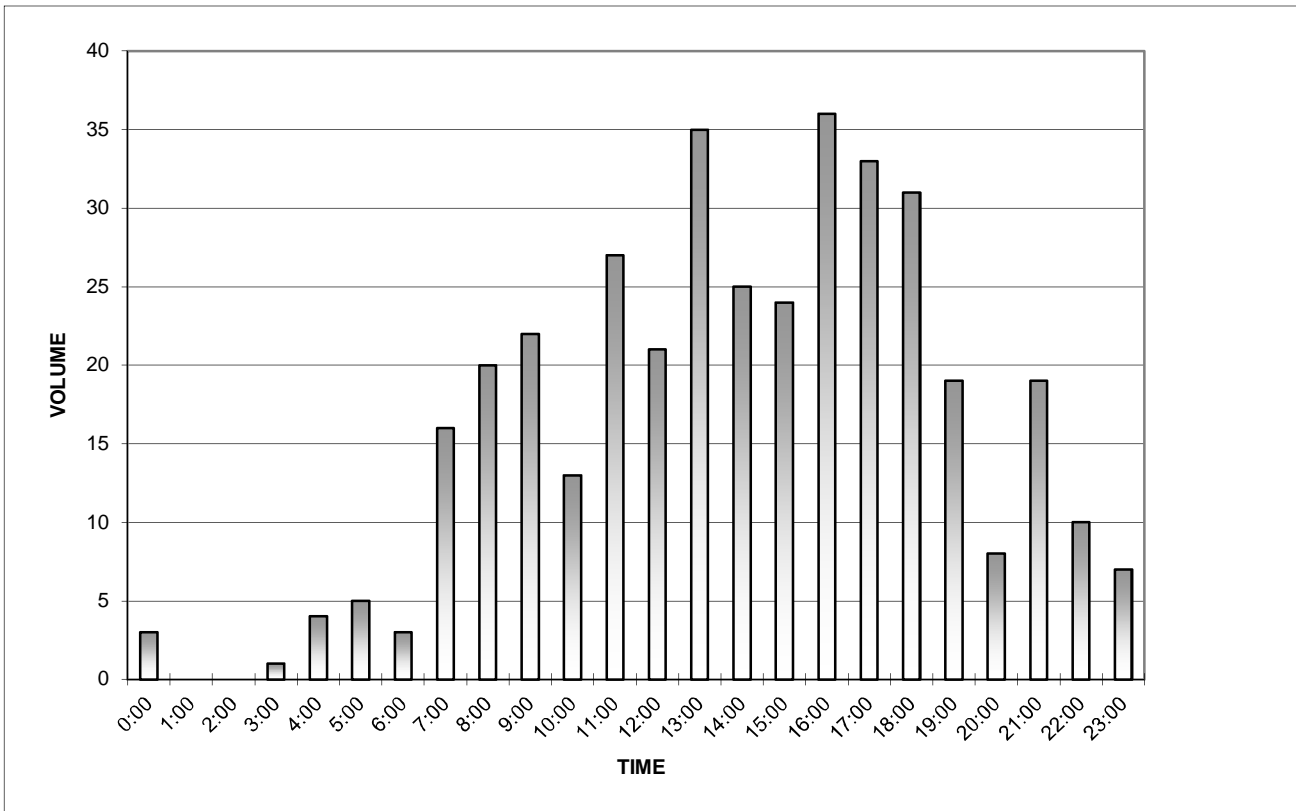


NB Lakefront Trail South of IH 30 EBFR

Date Began:
11/1/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	0	3	0	0	3
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	1	1
4:00	1	0	2	1	4
5:00	1	0	2	2	5
6:00	1	0	2	0	3
7:00	0	3	5	8	16
8:00	3	6	6	5	20
9:00	7	7	5	3	22
10:00	2	4	6	1	13
11:00	6	9	3	9	27
12:00	8	7	2	4	21
13:00	14	6	9	6	35
14:00	6	4	9	6	25
15:00	4	12	2	6	24
16:00	12	5	12	7	36
17:00	12	8	7	6	33
18:00	8	13	3	7	31
19:00	6	6	3	4	19
20:00	1	1	3	3	8
21:00	2	0	9	8	19
22:00	3	1	3	3	10
23:00	2	2	3	0	7
TOTAL:					382

The A.M. peak hour from 8:30 to 9:30 is 25
The P.M. peak hour from 16:30 to 17:30 is 39

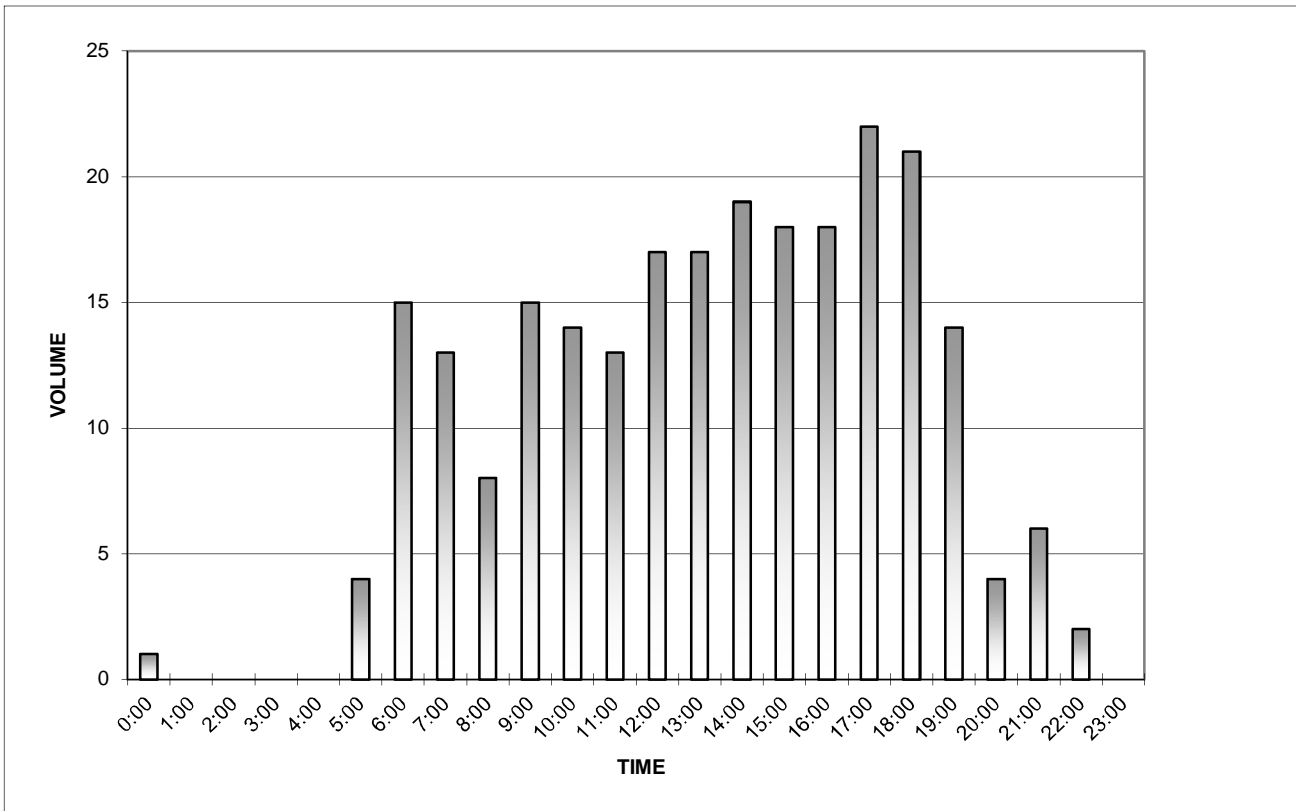


SB Lakefront Trail South of IH 30 EBFR

Date Began:
11/1/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	0	1	0	0	1
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	1	0	1	2	4
6:00	2	1	7	5	15
7:00	7	2	2	2	13
8:00	1	2	0	5	8
9:00	3	4	5	3	15
10:00	2	1	8	3	14
11:00	6	3	2	2	13
12:00	7	4	2	4	17
13:00	4	2	7	4	17
14:00	5	4	3	7	19
15:00	6	5	2	5	18
16:00	4	5	5	4	18
17:00	5	9	4	4	22
18:00	2	5	3	11	21
19:00	4	3	5	2	14
20:00	0	4	0	0	4
21:00	1	1	3	1	6
22:00	0	0	0	2	2
23:00	0	0	0	0	0
TOTAL:					241

The A.M. peak hour from 6:30 to 7:30 is 21
The P.M. peak hour from 18:45 to 19:45 is 23

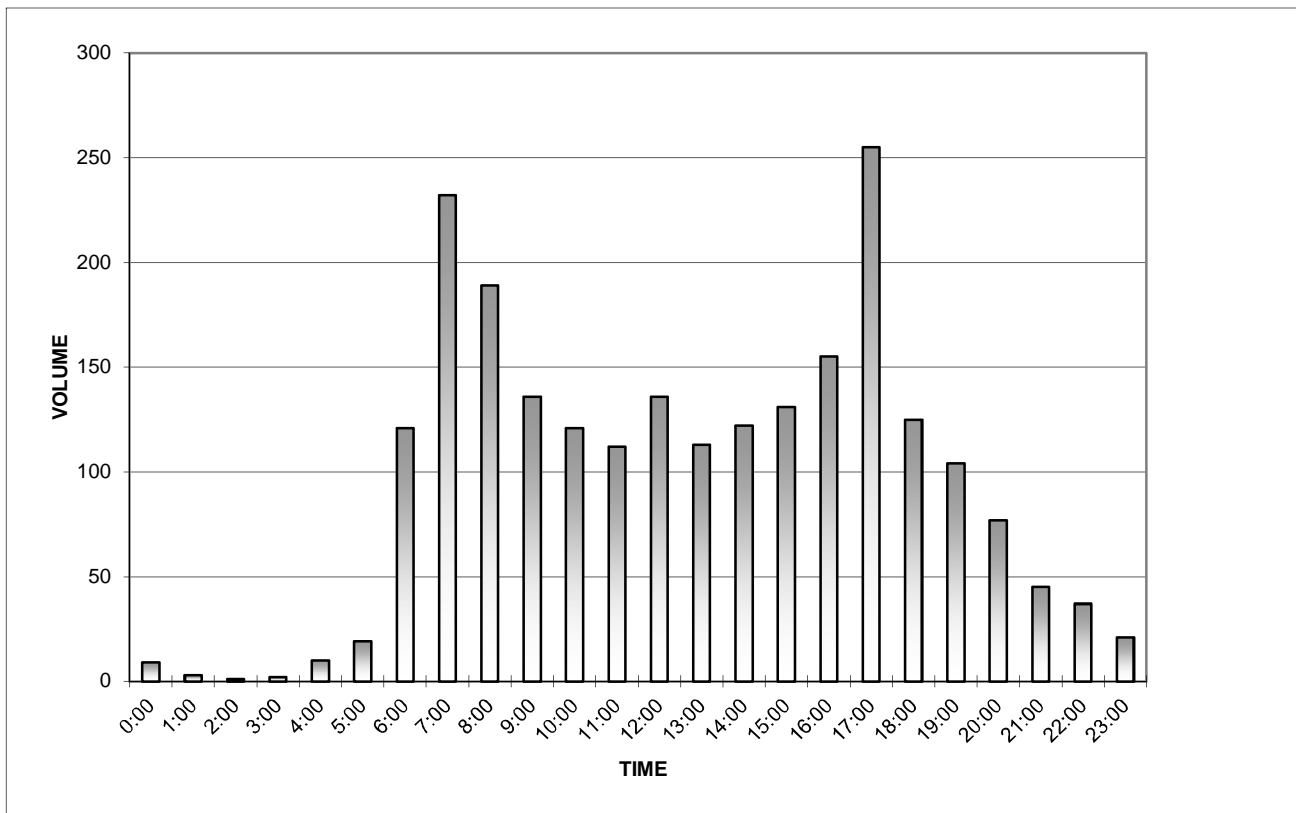


NB Shoreline Trail South of IH 30 EBFR

Date Began:
11/6/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	3	3	3	0	9
1:00	1	0	2	0	3
2:00	0	0	0	1	1
3:00	0	0	2	0	2
4:00	3	0	4	3	10
5:00	5	3	2	9	19
6:00	16	22	31	52	121
7:00	62	70	54	46	232
8:00	48	43	48	50	189
9:00	30	33	37	36	136
10:00	27	25	30	39	121
11:00	33	26	24	29	112
12:00	38	32	40	26	136
13:00	32	28	25	28	113
14:00	28	26	32	36	122
15:00	28	30	31	42	131
16:00	25	30	52	48	155
17:00	75	67	63	50	255
18:00	48	29	25	23	125
19:00	26	30	25	23	104
20:00	14	22	26	15	77
21:00	9	22	6	8	45
22:00	15	10	10	2	37
23:00	13	1	3	4	21
TOTAL:					2276

The A.M. peak hour from 6:45 to 7:45 is 238
The P.M. peak hour from 17:00 to 18:00 is 255

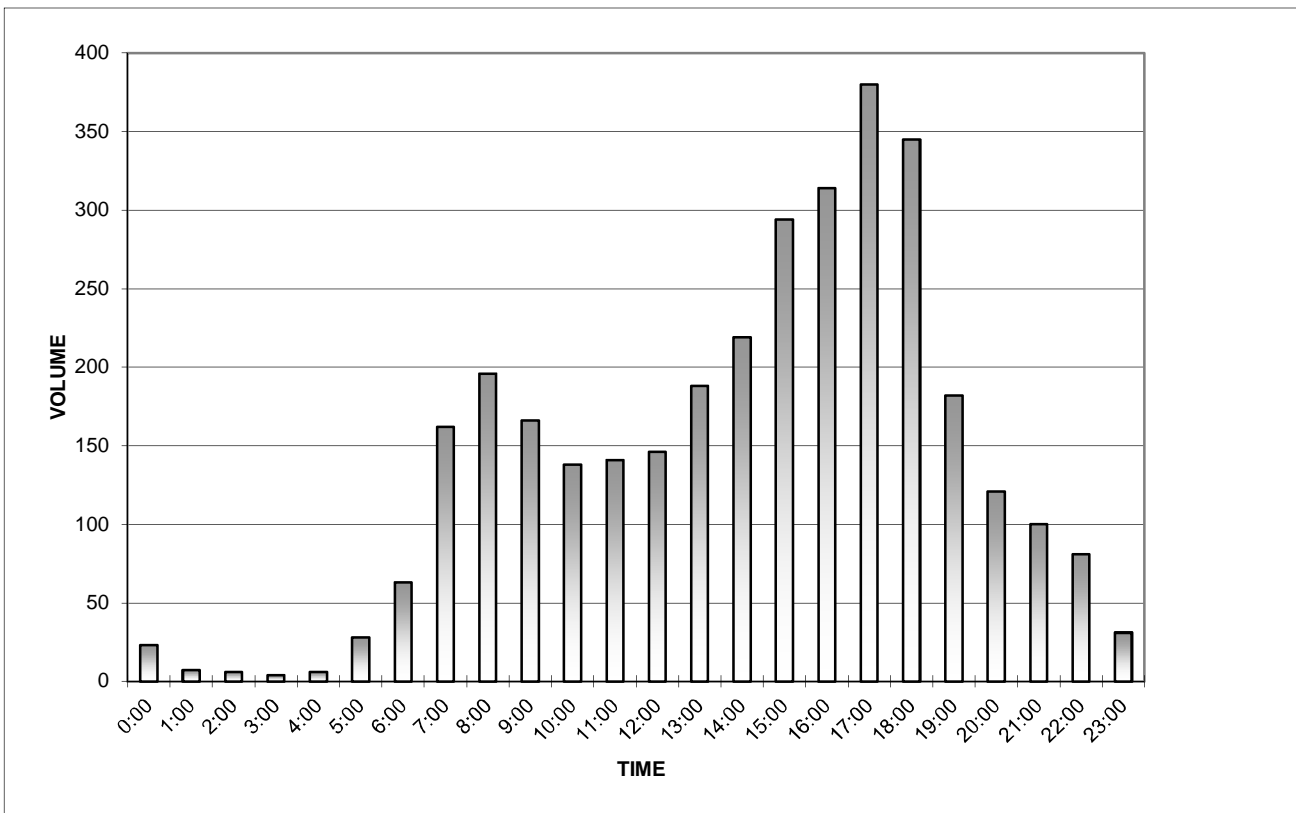


SB Shoreline Trail South of IH 30 EBFR

Date Began:
11/6/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	5	7	7	4	23
1:00	2	2	1	2	7
2:00	2	2	1	1	6
3:00	0	0	1	3	4
4:00	1	0	3	2	6
5:00	8	4	6	10	28
6:00	8	14	20	21	63
7:00	30	32	44	56	162
8:00	50	52	48	46	196
9:00	36	40	54	36	166
10:00	30	29	30	49	138
11:00	36	28	41	36	141
12:00	34	38	40	34	146
13:00	45	42	41	60	188
14:00	53	48	56	62	219
15:00	64	70	80	80	294
16:00	78	76	72	88	314
17:00	86	104	94	96	380
18:00	94	93	89	69	345
19:00	54	54	34	40	182
20:00	21	42	40	18	121
21:00	36	25	17	22	100
22:00	16	23	26	16	81
23:00	6	10	11	4	31
TOTAL:					3341

The A.M. peak hour from 7:45 to 8:45 is 206
The P.M. peak hour from 17:15 to 18:15 is 388

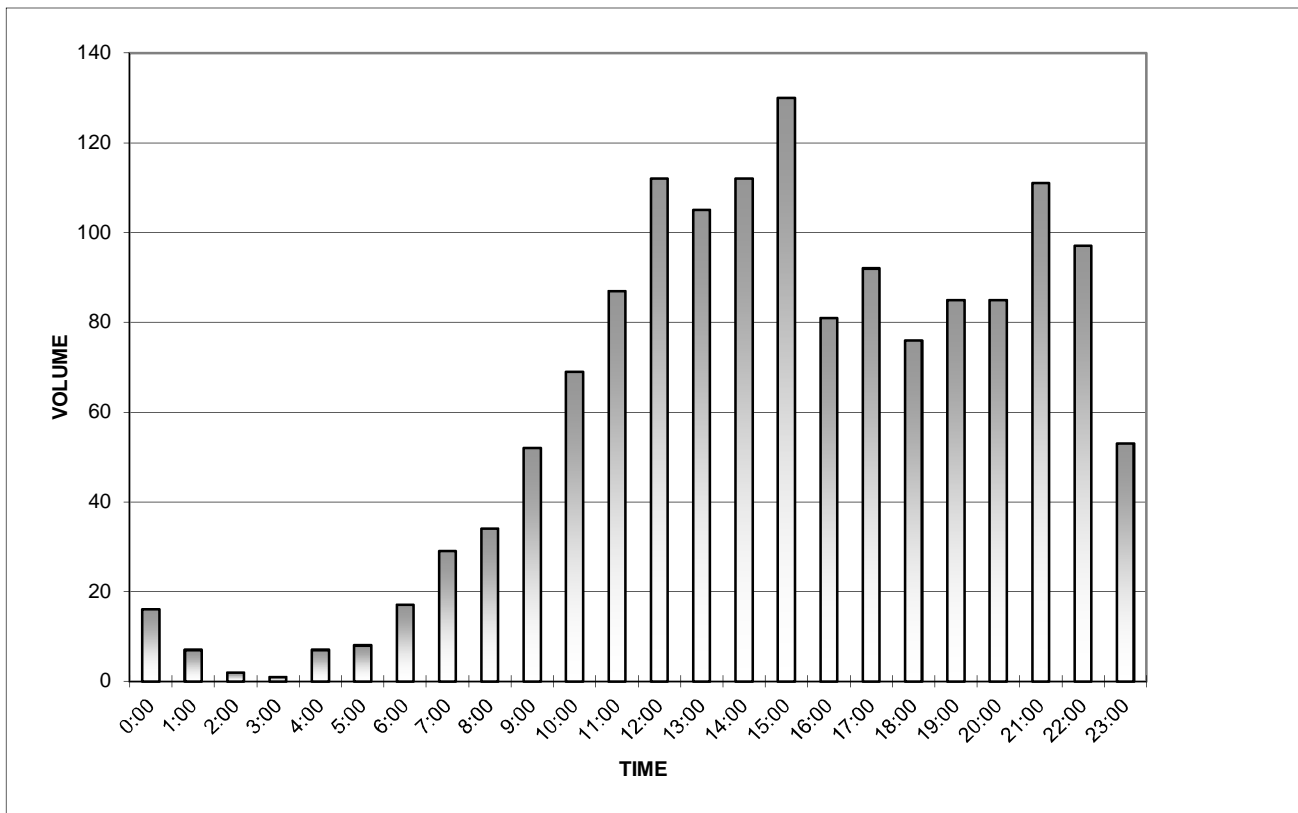


NB Summer Lee West of Horizon

Date Began:
11/6/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	3	6	4	3	16
1:00	0	5	2	0	7
2:00	1	0	0	1	2
3:00	0	0	1	0	1
4:00	2	2	2	1	7
5:00	3	2	2	1	8
6:00	1	5	5	6	17
7:00	4	8	7	10	29
8:00	8	8	8	10	34
9:00	8	11	17	16	52
10:00	17	23	14	15	69
11:00	19	28	19	21	87
12:00	26	34	26	26	112
13:00	21	26	35	23	105
14:00	28	31	21	32	112
15:00	26	30	41	33	130
16:00	11	26	21	23	81
17:00	24	22	19	27	92
18:00	20	19	14	23	76
19:00	20	24	22	19	85
20:00	12	21	36	16	85
21:00	30	26	29	26	111
22:00	48	17	19	13	97
23:00	14	5	13	21	53
TOTAL:					1468

The A.M. peak hour from 9:15 to 10:15 is 61
The P.M. peak hour from 15:00 to 16:00 is 130

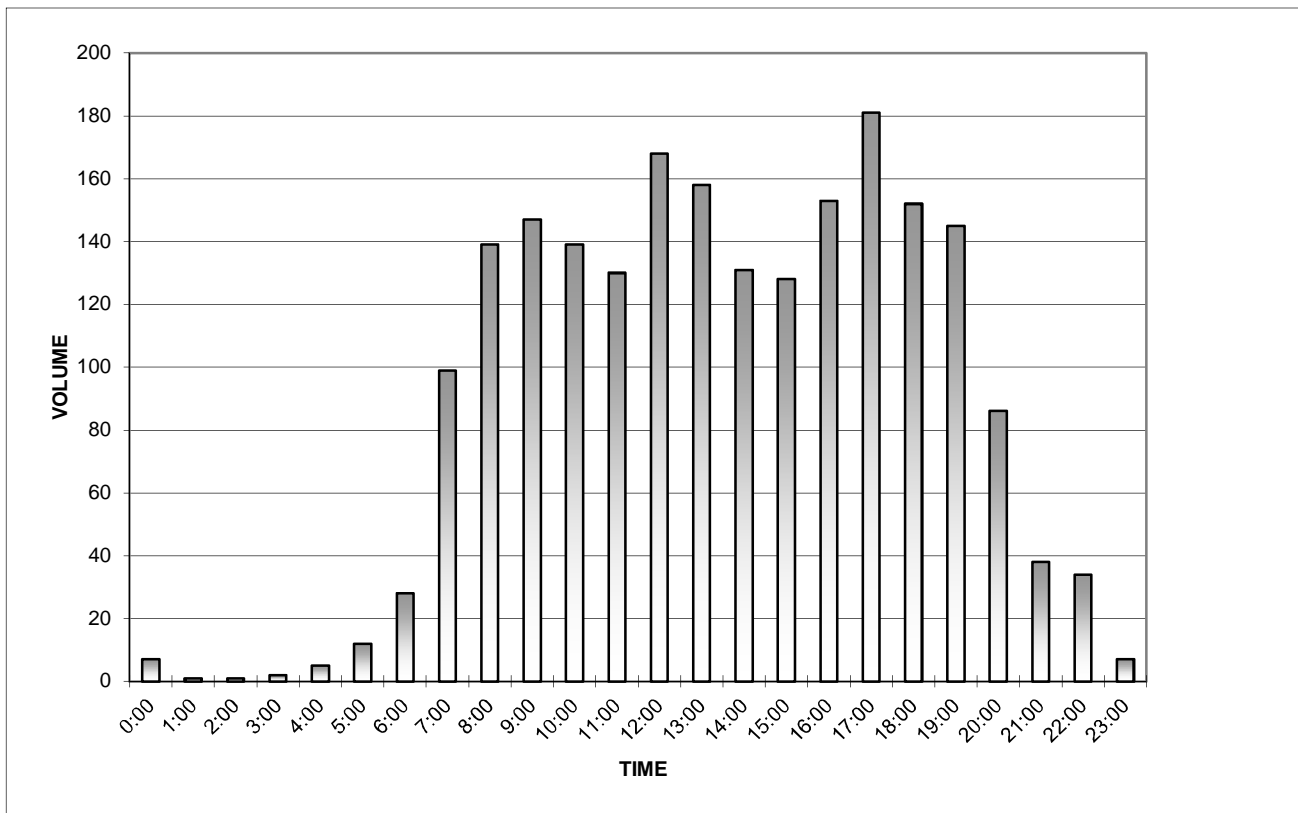


SB Summer Lee West of Horizon

Date Began:
11/6/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	2	2	2	1	7
1:00	0	1	0	0	1
2:00	0	0	0	1	1
3:00	1	0	0	1	2
4:00	0	0	0	5	5
5:00	2	2	4	4	12
6:00	7	4	11	6	28
7:00	13	18	24	44	99
8:00	32	29	28	50	139
9:00	37	35	40	35	147
10:00	35	35	27	42	139
11:00	31	31	28	40	130
12:00	29	39	47	53	168
13:00	45	46	35	32	158
14:00	34	34	34	29	131
15:00	32	40	27	29	128
16:00	31	34	41	47	153
17:00	37	41	57	46	181
18:00	48	35	36	33	152
19:00	46	38	34	27	145
20:00	28	20	21	17	86
21:00	8	5	12	13	38
22:00	8	12	9	5	34
23:00	4	0	2	1	7
TOTAL:					2091

The A.M. peak hour from 8:45 to 9:45 is 162
The P.M. peak hour from 17:15 to 18:15 is 192

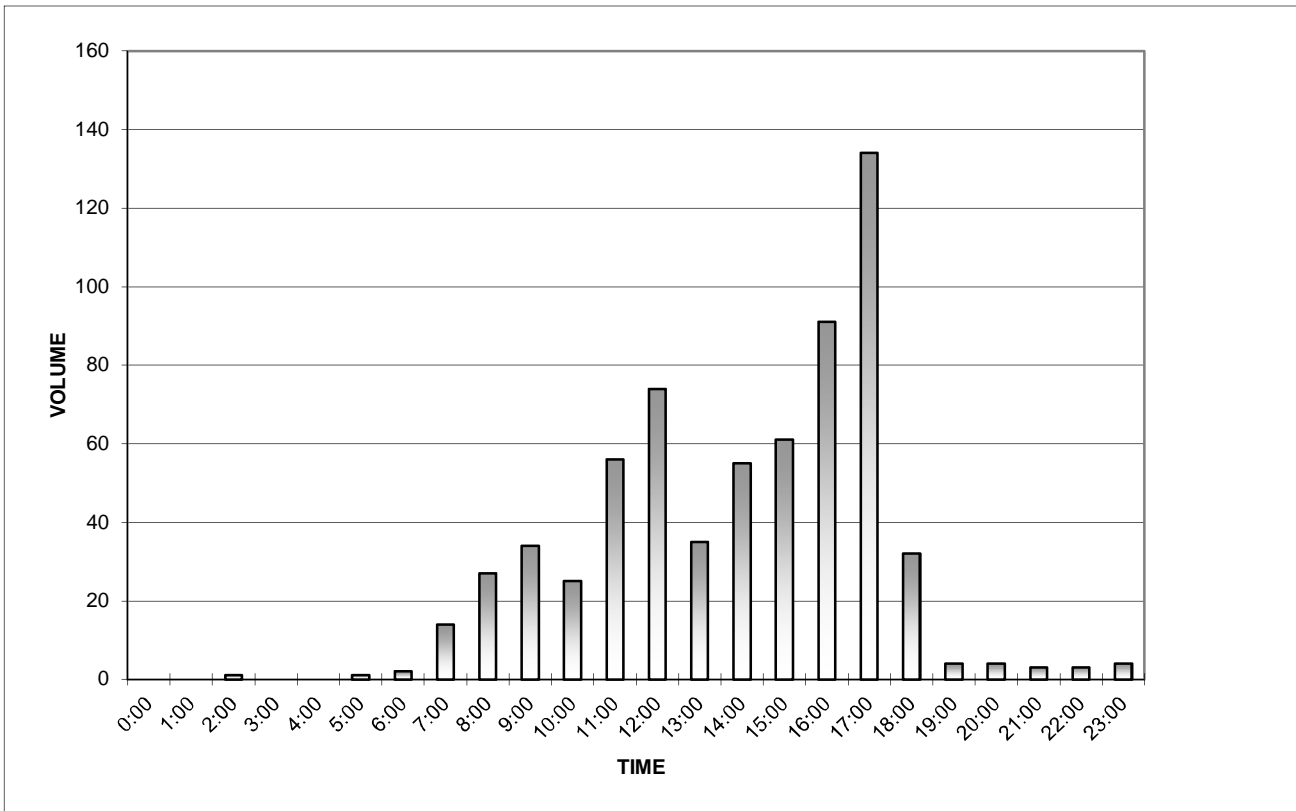


NB Sunset Ridge Drive South of IH 30 EBFR

Date Began:
11/1/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	1	0	1
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	1	0	0	1
6:00	0	0	0	2	2
7:00	4	4	4	2	14
8:00	8	3	10	6	27
9:00	13	11	5	5	34
10:00	6	6	6	7	25
11:00	8	16	16	16	56
12:00	29	17	17	11	74
13:00	12	10	5	8	35
14:00	10	8	15	22	55
15:00	9	15	19	18	61
16:00	18	14	33	26	91
17:00	60	36	30	8	134
18:00	12	10	7	3	32
19:00	1	1	1	1	4
20:00	2	2	0	0	4
21:00	0	2	1	0	3
22:00	2	0	1	0	3
23:00	0	4	0	0	4
TOTAL:					660

The A.M. peak hour from 8:30 to 9:30 is 40
The P.M. peak hour from 16:30 to 17:30 is 155

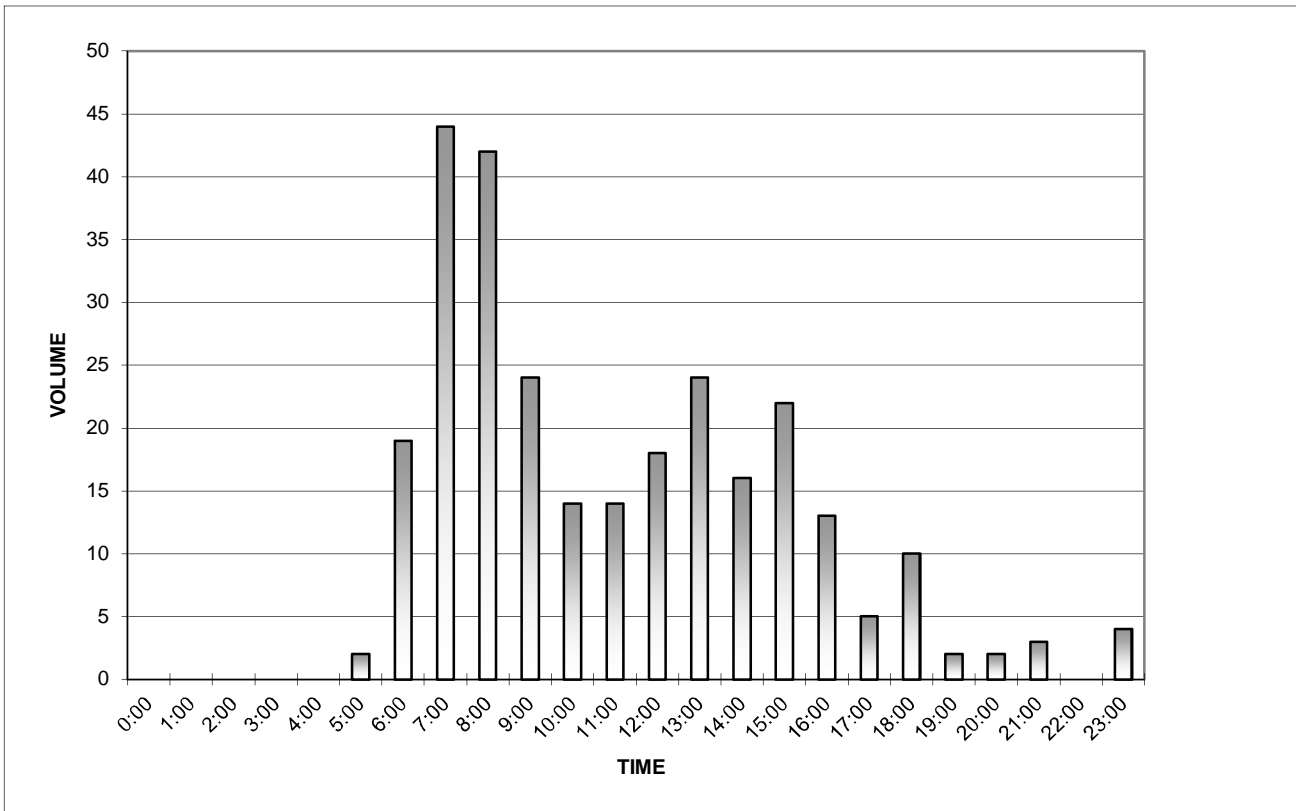


SB Sunset Ridge Drive South of IH 30 EBFR

Date Began:
11/1/2018

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	1	0	0	1	2
6:00	2	0	11	6	19
7:00	4	8	12	20	44
8:00	14	13	6	9	42
9:00	8	7	3	6	24
10:00	4	4	1	5	14
11:00	2	0	6	6	14
12:00	3	5	4	6	18
13:00	9	5	4	6	24
14:00	6	5	4	1	16
15:00	4	7	7	4	22
16:00	3	2	3	5	13
17:00	3	1	0	1	5
18:00	4	0	5	1	10
19:00	1	1	0	0	2
20:00	0	0	1	1	2
21:00	2	0	1	0	3
22:00	0	0	0	0	0
23:00	0	2	1	1	4
TOTAL:					278

The A.M. peak hour from 7:30 to 8:30 is 59
The P.M. peak hour from 15:00 to 16:00 is 22



1. Horizon Rd at IH 30 WBFR - TMC
 Thu Nov 1, 2018
 AM Peak (7AM-8AM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582276, Location: 32.89595, -96.476097, Site Code: 1

Leg	HB0 WBFR Eastbound				HB0 WBFR Westbound				Horizon Road Northbound				Horizon Road Southbound			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Time	2018-11-01 7:00AM	7:15AM	7:30AM	7:45AM	7:00AM	7:15AM	7:30AM	7:45AM	2018-11-01 7:00AM	7:15AM	7:30AM	7:45AM	2018-11-01 7:00AM	7:15AM	7:30AM	7:45AM
Approach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Total	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Lights	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Pedestrians	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Bicycles on Crosswalk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Total	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Lights	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Pedestrians	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Bicycles on Crosswalk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn

1. Horizon Rd at IH 30 WBFR - TMC
 Thu Nov 1, 2018
 PM Peak (4:30PM-6:30PM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582276, Location: 32.89595, -96.476097, Site Code: 1

Leg	HB0 WBFR Eastbound				HB0 WBFR Westbound				Horizon Road Northbound				Horizon Road Southbound			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Time	2018-11-01 4:30PM	4:45PM	5:00PM	5:15PM	4:30PM	4:45PM	5:00PM	5:15PM	2018-11-01 4:30PM	4:45PM	5:00PM	5:15PM	2018-11-01 4:30PM	4:45PM	5:00PM	5:15PM
Approach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Total	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Lights	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Pedestrians	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Bicycles on Crosswalk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Total	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Lights	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Pedestrians	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Bicycles on Crosswalk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn

Leg	Direction	WBFR					Horizon Road					WBFR					Horizon Road							
		L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*			
2018-11-01-4:45PM	0	0	0	0	0	29	68	13	0	130	0	211	52	0	0	263	0	21	16	0	37	0	430	
5:00PM	0	0	0	0	0	36	111	7	0	154	0	226	37	0	0	263	0	23	21	0	44	0	461	
5:15PM	0	0	0	0	0	47	134	9	0	190	0	213	66	0	0	282	0	37	51	0	88	0	540	
5:30PM	0	0	0	0	0	25	125	15	0	165	0	211	57	0	0	268	0	21	17	0	38	0	471	
Total	0	0	0	0	0	137	438	44	0	639	0	864	212	0	0	1076	0	102	105	0	207	0	1822	
% Approach	0%	0%	0%	0%	0%	21.4%	71.7%	6.9%	0%	0%	0%	80.3%	15.7%	0%	0%	0%	0%	49.3%	50.7%	0%	0%	0%		
% Total	0%	0%	0%	0%	0%	7.1%	23.8%	2.3%	0%	33.2%	45.0%	11.0%	0%	56.0%	0%	5.3%	5.8%	0%	10.8%	0%	0%	0%	0%	
PHF	0	0	0	0	0	0.729	0.854	0.723	0	0.841	0.666	0.603	0	0.954	0	0.689	0.515	0	0.688	0.859	0.859	0	0	0
Lights	0	0	0	0	0	135	447	43	0	625	852	209	0	0	1063	0	101	104	0	205	1893			
% Lights	0%	0%	0%	0%	0%	98.5%	97.6%	97.7%	0%	97.8%	98.9%	95.8%	0%	98.4%	0%	99.0%	99.0%	0%	98.0%	0%	0%	0%	0%	
Articulated Trucks	0	0	0	0	0	1	3	0	0	4	1	0	0	0	1	0	0	0	0	0	5			
% Articulated Trucks	0%	0%	0%	0%	0%	0.7%	0.7%	0%	0%	0.6%	0.1%	0%	0%	0%	0.1%	0%	0%	0%	0%	0%	0%	0%	0%	
Buses and Single-Unit Trucks	0	0	0	0	0	1	8	1	0	10	9	3	0	0	12	0	1	1	0	2	24			
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0.7%	1.7%	2.3%	0%	1.6%	1.0%	1.4%	0%	0%	1.1%	0%	1.0%	1.0%	0%	1.1%	1.2%			
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
% Pedestrians	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
% Bicycles on Crosswalk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn																								

Leg	Direction	EBFR					Horizon Road					EBFR					Horizon Road						
		L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*		
2018-11-01-7:00AM	47	8	80	0	135	0	0	0	0	0	237	4	0	241	0	8	19	0	24	0	482		
7:15AM	61	12	87	0	150	0	0	0	0	0	306	3	0	309	0	7	28	0	38	0	572		
7:30AM	58	17	106	0	181	0	0	0	0	0	207	3	0	210	0	6	38	0	43	0	438		
7:45AM	41	18	169	0	228	0	0	0	0	0	197	7	0	204	0	12	42	0	54	0	486		
Hourly Total	207	55	442	0	704	0	0	0	0	0	837	17	0	854	0	33	110	0	143	0	1701		
8:00AM	37	22	123	0	202	0	0	0	0	0	200	3	0	203	0	13	52	0	65	0	470		
8:15AM	42	19	128	0	189	0	0	0	0	0	206	1	0	207	0	10	45	0	55	0	451		
8:30AM	52	26	132	0	209	0	0	0	0	0	178	6	0	184	0	15	35	0	50	0	435		
8:45AM	47	22	141	0	210	0	0	0	0	0	191	6	0	197	0	13	32	0	46	0	435		
Hourly Total	208	89	504	0	801	0	0	0	0	0	775	16	0	791	0	51	164	0	216	0	1811		
% Approach	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
% Total	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
PHF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Lights	0	0	0	0	0	352	209	0	0	1063	852	209	0	0	1063	0	101	104	0	205	1893		
% Lights	0%	0%	0%	0%	0%	98.5%	97.6%	97.7%	0%	97.8%	98.9%	95.8%	0%	98.4%	0%	99.0%	99.0%	0%	98.0%	0%	0%	0%	0%
Articulated Trucks	0	0	0	0	0	1	3	0	0	4	1	0	0	0	1	0	0	0	0	0	5		
% Articulated Trucks	0%	0%	0%	0%	0%	0.7%	0.7%	0%	0%	0.6%	0.1%	0%	0%	0%	0.1%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	0	0	0	0	0	1	8	1	0	10	9	3	0	0	12	0	1	1	0	2	24		
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0.7%	1.7%	2.3%	0%	1.6%	1.0%	1.4%	0%	0%	1.1%	0%	1.0%	1.0%	0%	1.1%	1.2%		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Pedestrians	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Bicycles on Crosswalk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn																							

2. Horizon Road at IH 30 EBFR - TMC
 Thu Nov 1, 2018
 PM Peak (5PM - 6PM) - Overall Peak Hour
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements
 ID: 582277, Location: 32.895037, -96.475125, Site Code: 2

Leg	IH 30 EBFR Eastbound					IH 30 EBFR Westbound					Horizon Road Northbound					Horizon Road Southbound						
	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*		
Time	58	17	106	0	301	0	0	0	0	0	0	207	3	0	210	0	7	38	0	45	0	436
2018-11-01 5:00PM	41	18	169	0	228	0	0	0	0	0	0	197	7	0	204	0	12	42	0	54	0	486
7:45AM	57	22	123	0	202	0	0	0	0	0	0	200	3	0	203	0	13	52	0	65	0	470
8:00AM	42	19	128	0	188	0	0	0	0	0	0	206	1	0	207	0	10	45	0	55	0	451
8:15AM	59	76	576	0	800	0	0	0	0	0	0	810	14	0	824	0	42	177	0	219	0	1843
Total	248	76	576	0	800	0	0	0	0	0	0	810	14	0	824	0	42	177	0	219	0	1843
% Approach	24.8%	7.6%	57.6%	0%	80%	0%	0%	0%	0%	0%	0%	88.3%	1.7%	0%	88.3%	0%	48.2%	80.8%	0%	89%	0%	114%
% Total	10.7%	4.1%	23.5%	0%	33.4%	0%	0%	0%	0%	0%	0%	44.0%	0.6%	0%	44.7%	0%	2.3%	8.6%	0%	11.4%	0%	9.4%
PFV	0.853	0.864	0.778	-	0.877	-	-	-	-	-	0.978	0.500	-	0.981	-	0.808	0.851	-	0.842	-	0.948	
Lights	197	73	518	0	769	0	0	0	0	0	0	802	11	0	813	0	42	174	0	216	0	1818
% Lights	89.5%	96.1%	98.7%	0%	98.6%	0%	0%	0%	0%	0%	0%	99.0%	78.8%	0%	91.7%	0%	100%	98.3%	0%	98.4%	0%	98.6%
Articulated Trucks	0	0	2	0	2	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	0	5
% Articulated Trucks	0%	0%	0.4%	0%	0.3%	0%	0%	0%	0%	0%	0%	0.1%	7.1%	0%	0.2%	0%	0%	0.5%	0%	0.5%	0%	0.3%
Buses and Single-Unit Trucks	1	3	5	0	9	0	0	0	0	0	0	7	2	0	9	0	0	2	0	2	0	20
% Buses and Single-Unit Trucks	0.5%	3.8%	1.0%	0%	1.1%	0%	0%	0%	0%	0%	0%	0.9%	14.3%	0%	1.1%	0%	0%	1.1%	0%	0.9%	0%	1.1%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn

2. Horizon Road at IH 30 EBFR - TMC
 Thu Nov 1, 2018
 AM Peak (7:30AM - 8:30AM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements
 ID: 582277, Location: 32.895037, -96.475125, Site Code: 2

Leg	IH 30 EBFR Eastbound					IH 30 EBFR Westbound					Horizon Road Northbound					Horizon Road Southbound						
	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*		
Time	58	17	106	0	301	0	0	0	0	0	0	207	3	0	210	0	7	38	0	45	0	436
2018-11-01 7:30AM	41	18	169	0	228	0	0	0	0	0	0	197	7	0	204	0	12	42	0	54	0	486
7:45AM	57	22	123	0	202	0	0	0	0	0	0	200	3	0	203	0	13	52	0	65	0	470
8:00AM	42	19	128	0	188	0	0	0	0	0	0	206	1	0	207	0	10	45	0	55	0	451
8:15AM	59	76	576	0	800	0	0	0	0	0	0	810	14	0	824	0	42	177	0	219	0	1843
Total	248	76	576	0	800	0	0	0	0	0	0	810	14	0	824	0	42	177	0	219	0	1843
% Approach	24.8%	7.6%	57.6%	0%	80%	0%	0%	0%	0%	0%	0%	88.3%	1.7%	0%	88.3%	0%	48.2%	80.8%	0%	89%	0%	114%
% Total	10.7%	4.1%	23.5%	0%	33.4%	0%	0%	0%	0%	0%	0%	44.0%	0.6%	0%	44.7%	0%	2.3%	8.6%	0%	11.4%	0%	9.4%
PFV	0.853	0.864	0.778	-	0.877	-	-	-	-	-	0.978	0.500	-	0.981	-	0.808	0.851	-	0.842	-	0.948	
Lights	197	73	518	0	769	0	0	0	0	0	0	802	11	0	813	0	42	174	0	216	0	1818
% Lights	89.5%	96.1%	98.7%	0%	98.6%	0%	0%	0%	0%	0%	0%	99.0%	78.8%	0%	91.7%	0%	100%	98.3%	0%	98.4%	0%	98.6%
Articulated Trucks	0	0	2	0	2	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	0	5
% Articulated Trucks	0%	0%	0.4%	0%	0.3%	0%	0%	0%	0%	0%	0%	0.1%	7.1%	0%	0.2%	0%	0%	0.5%	0%	0.5%	0%	0.3%
Buses and Single-Unit Trucks	1	3	5	0	9	0	0	0	0	0	0	7	2	0	9	0	0	2	0	2	0	20
% Buses and Single-Unit Trucks	0.5%	3.8%	1.0%	0%	1.1%	0%	0%	0%	0%	0%	0%	0.9%	14.3%	0%	1.1%	0%	0%	1.1%	0%	0.9%	0%	1.1%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn



3. Horizon Road at Summer Lee Drive - TMC
 Thu Nov 1, 2018
 AM Peak (7:30AM - 8:30AM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582278, Location: 32.893569, -96.473468, Site Code: 3
 Provided by: C. J. Henscheid & Associates Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Leg Direction	Summer Lee Drive Eastbound				Horizon Road Northbound				Horizon Road Southbound					
	L	R	U	App Ped*	L	T	U	App Ped*	T	R	U	App Ped*	Int	
2018-11-01 7:30AM	2	2	0	4	0	9	211	0	220	0	114	20	0	358
7:45AM	3	6	0	9	0	14	196	0	210	0	183	15	0	417
8:00AM	3	6	0	9	0	9	209	0	218	0	145	21	0	393
8:15AM	2	6	0	8	0	11	202	0	213	0	153	19	0	384
Hourly Total	10	20	0	30	0	43	818	0	861	0	595	75	0	1561
% Approach	35.3%	66.7%	0%	-	-	5.0%	95.0%	0%	-	-	88.8%	11.2%	0%	-
% Total	0.6%	1.3%	0%	1.9%	-	2.8%	52.4%	0%	55.2%	-	82.1%	4.8%	0%	42.9%
PFH	0.833	0.833	-	0.833	-	0.768	0.969	-	0.978	-	0.813	0.893	-	0.936
Lights	8	19	0	27	-	42	812	0	854	-	585	74	0	1540
% Lights	80.0%	95.0%	0%	90.0%	-	97.7%	99.3%	0%	99.2%	-	98.3%	98.7%	0%	98.4%
Articulated Trucks	1	0	0	1	-	0	1	0	1	-	5	0	0	3
% Articulated Trucks	10.0%	0%	0%	3.3%	-	0%	0.1%	0%	0.1%	-	0.5%	0%	0%	0.4%
Buses and Single-Unit Trucks	1	1	0	2	-	1	5	0	6	-	7	1	0	16
% Buses and Single-Unit Trucks	10.0%	5.0%	0%	6.7%	-	2.3%	0.6%	0%	0.7%	-	1.2%	1.3%	0%	1.2%
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk L: Left, R: Right, T: Thru, U: U-Turn

3. Horizon Road at Summer Lee Drive - TMC
 Thu Nov 1, 2018
 PM Peak (4:30PM - 5:30PM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582278, Location: 32.893569, -96.473468, Site Code: 3
 Provided by: C. J. Henscheid & Associates Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Leg Direction	Summer Lee Drive Eastbound				Horizon Road Northbound				Horizon Road Southbound					
	L	R	U	App Ped*	L	T	U	App Ped*	T	R	U	App Ped*	Int	
2018-11-01 4:30PM	1	1	0	2	0	7	244	0	251	0	85	10	0	348
4:45PM	3	7	0	10	0	5	186	0	191	0	92	9	0	392
5:00PM	2	2	0	4	0	14	196	0	210	0	183	15	0	358
5:15PM	3	6	0	9	0	14	196	0	210	0	183	15	0	417
Hourly Total	9	16	0	25	0	35	837	0	872	0	474	54	0	1425
% Approach	35.3%	66.7%	0%	-	-	5.0%	95.0%	0%	-	-	88.8%	11.2%	0%	-
% Total	0.6%	1.3%	0%	1.9%	-	2.8%	52.4%	0%	55.2%	-	82.1%	4.8%	0%	42.9%
PFH	0.833	0.833	-	0.833	-	0.768	0.969	-	0.978	-	0.813	0.893	-	0.936
Lights	8	19	0	27	-	42	812	0	854	-	585	74	0	1540
% Lights	80.0%	95.0%	0%	90.0%	-	97.7%	99.3%	0%	99.2%	-	98.3%	98.7%	0%	98.4%
Articulated Trucks	1	0	0	1	-	0	1	0	1	-	5	0	0	3
% Articulated Trucks	10.0%	0%	0%	3.3%	-	0%	0.1%	0%	0.1%	-	0.5%	0%	0%	0.4%
Buses and Single-Unit Trucks	1	1	0	2	-	1	5	0	6	-	7	1	0	16
% Buses and Single-Unit Trucks	10.0%	5.0%	0%	6.7%	-	2.3%	0.6%	0%	0.7%	-	1.2%	1.3%	0%	1.2%
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk L: Left, R: Right, T: Thru, U: U-Turn



3. Horizon Road at Summer Lee Drive - TMC

Thu Nov 1, 2018
 PM Peak (5PM - 6PM) - Overall Peak Hour
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582278, Location: 32.893569, -96.473468, Site Code: 3

Leg Direction	Summer Lee Drive				Horizon Road				Horizon Road							
	Eastbound		Westbound		Northbound		Southbound		Northbound		Southbound					
Time	L	R	U	App Ped*	L	T	U	App Ped*	L	T	U	App Ped*	Int			
2018-11-01 5:00PM	4	18	0	22	0	24	187	0	211	0	195	21	0	216	0	449
5:15PM	0	25	1	26	0	19	183	0	202	0	207	34	0	241	0	468
5:30PM	6	14	0	20	0	19	179	0	198	0	176	15	0	191	0	409
5:45PM	8	13	2	23	0	21	175	0	196	0	218	21	0	239	0	458
Total	18	70	3	91	0	83	724	0	807	0	786	91	0	887	0	1785
% Approach	19.8%	76.9%	3.3%	-	-	10.3%	89.7%	0%	-	-	89.7%	10.3%	0%	-	-	-
% Total	1.0%	3.9%	0.2%	5.1%	-	4.6%	40.6%	0%	45.2%	-	44.6%	5.1%	0%	49.7%	-	0.851
PEE	0.563	0.700	0.375	0.875	-	0.865	0.968	-	0.956	-	0.913	0.889	-	0.920	-	0.951
Lights	18	70	3	91	-	83	715	0	798	-	794	91	0	885	-	1774
% Lights	100%	100%	100%	100%	-	100%	98.8%	0%	98.9%	-	99.7%	100%	0%	99.8%	-	99.4%
Articulated Trucks	0	0	0	0	-	0	3	0	3	-	0	0	0	0	-	3
% Articulated Trucks	0%	0%	0%	0%	-	0%	0.4%	0%	0.4%	-	0%	0%	0%	0%	-	0.2%
Buses and Single-Unit Trucks	0	0	0	0	-	0	6	0	6	-	2	0	0	2	-	8
% Buses and Single-Unit Trucks	0%	0%	0%	0%	-	0%	0.8%	0%	0.7%	-	0.3%	0%	0%	0.2%	-	0.4%
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Pedestrians on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn



4. Summer Lee Drive at Shoreline Trail - TMC

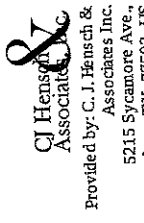
Thu Nov 1, 2018
 Full Length (7AM-9AM, 4:30PM-6:30PM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582280, Location: 32.891666, -96.477638, Site Code: 4

Leg Direction	Summer Lee Drive				Shoreline Trail										
	Eastbound		Westbound		Southbound		Northbound								
Time	L	R	U	App Ped*	L	T	U	App Ped*	L	T	U	App Ped*	Int		
2018-11-01 7:00AM	54	5	0	59	0	4	0	4	0	3	18	0	21	0	84
7:15AM	58	19	0	77	0	6	1	7	0	1	29	0	30	0	114
7:30AM	49	12	0	61	0	9	3	12	0	2	28	0	30	0	102
7:45AM	44	14	0	58	0	15	2	17	0	2	45	0	47	0	122
Hourly Total	205	50	0	255	0	34	6	48	0	6	120	0	128	0	423
8:00AM	40	9	0	49	0	8	1	9	0	3	37	0	37	0	95
8:15AM	47	11	0	58	0	15	4	19	0	3	52	0	55	0	132
8:30AM	60	10	0	70	0	13	5	18	0	4	30	0	34	0	122
8:45AM	34	7	0	41	0	14	4	18	0	0	43	0	43	0	102
Hourly Total	181	37	0	218	0	50	14	64	0	7	162	0	169	0	451
4:30PM	46	15	0	61	0	34	6	40	0	3	72	0	75	0	176
4:45PM	48	22	0	70	0	32	3	35	0	0	66	0	68	0	173
Hourly Total	94	37	0	131	0	66	9	75	0	3	140	0	143	0	349
5:00PM	57	17	0	74	0	43	10	53	0	2	86	0	88	0	215
5:15PM	65	18	1	84	0	57	11	68	0	3	95	0	98	0	241
5:30PM	56	15	0	71	0	30	13	43	0	4	84	0	91	0	212
5:45PM	43	15	0	58	0	39	5	44	0	2	89	0	91	0	193
Hourly Total	221	65	1	287	0	169	39	208	0	11	355	0	366	0	861
6:00PM	45	25	0	70	0	52	4	56	0	2	83	0	85	0	191
6:15PM	31	14	0	45	0	30	4	34	0	1	68	0	69	0	148
6:30PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	76	39	0	115	0	82	8	90	0	3	151	0	154	0	339
Total	777	228	1	1006	0	581	76	657	0	32	928	0	969	0	2423
% Approach	77.2%	22.7%	0.1%	-	-	83.4%	16.6%	0%	-	-	3.3%	56.7%	0%	-	-
% Total	32.1%	9.4%	0%	4.1%	-	15.7%	3.3%	0%	18.9%	-	1.9%	38.2%	0%	38.6%	-
Lights	768	224	1	993	-	375	75	450	-	30	918	0	948	-	2397
% Lights	98.8%	98.2%	100%	98.7%	-	98.4%	98.7%	0%	98.5%	-	93.8%	98.9%	0%	98.8%	-
Articulated Trucks	0	1	0	1	-	1	1	2	-	1	1	0	2	-	5
% Articulated Trucks	0%	0.4%	0%	0.1%	-	0.3%	1.3%	0%	0.4%	-	0.1%	0.1%	0%	0.2%	-
Buses and Single-Unit Trucks	9	9	0	12	-	5	0	5	-	1	9	0	10	-	27
% Buses and Single-Unit Trucks	1.2%	1.9%	0%	1.2%	-	1.3%	0%	0%	1.1%	-	3.1%	1.0%	0%	1.9%	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Pedestrians on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn

4. Summer Lee Drive at Shoreline Trail - TMC

Thu Nov 1, 2018
 AM Peak (7:45AM - 8:45AM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582280, Location: 32.891666, -96.477638, Site Code: 4



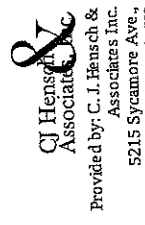
5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Leg Direction Time	Summer Lee Drive Eastbound				Summer Lee Drive Westbound				Shoreline Trail Southbound							
	L	T	U	App Ped*	L	R	U	App Ped*	L	R	U	App Ped* Int				
2018-11-01 7:45AM	44	14	0	58	0	15	2	0	17	0	2	45	0	47	0	122
8:00AM	40	9	0	49	0	8	1	0	9	0	0	37	0	37	0	95
8:15AM	47	11	0	58	0	15	4	0	19	0	3	52	0	55	0	132
8:30AM	60	10	0	70	0	13	5	0	18	0	4	30	0	34	0	122
Total	191	44	0	233	0	51	12	0	63	0	5	164	0	173	0	471
% Approach	81.3%	18.7%	0%	-	91.0%	19.0%	0%	-	91.0%	19.0%	0%	94.8%	0%	-	-	-
% Total	40.3%	9.3%	0%	49.9%	10.8%	2.5%	0%	13.4%	10.8%	2.5%	0%	34.4%	0%	34.7%	0%	88.2%
PFH	0.796	0.786	-	0.839	0.650	0.600	-	0.529	0.563	0.788	-	0.788	-	0.788	-	0.892
Lights	189	43	0	232	49	11	0	60	8	160	0	168	0	168	0	460
% Lights	99.0%	97.7%	0%	98.7%	86.1%	91.7%	0%	95.2%	88.9%	97.6%	0%	97.1%	0%	97.1%	0%	97.7%
Articulated Trucks	0	0	0	0	1	1	0	2	1	1	0	2	1	1	0	2
% Articulated Trucks	0%	0%	0%	0%	2.0%	8.3%	0%	3.2%	11.1%	0.6%	0%	1.2%	0%	1.2%	0%	0.8%
Buses and Single-Unit Trucks	2	1	0	3	1	0	0	1	0	3	0	3	0	3	0	7
% Buses and Single-Unit Trucks	1.0%	2.3%	0%	1.3%	2.0%	0%	0%	1.8%	0%	1.8%	0%	1.7%	0%	1.7%	0%	1.5%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn

4. Summer Lee Drive at Shoreline Trail - TMC

Thu Nov 1, 2018
 PM Peak (5PM - 6PM) - Overall Peak Hour
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582280, Location: 32.891666, -96.477638, Site Code: 4



5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Leg Direction Time	Summer Lee Drive Eastbound				Summer Lee Drive Westbound				Shoreline Trail Southbound							
	L	T	U	App Ped*	L	R	U	App Ped*	L	R	U	App Ped* Int				
2018-11-01 5:00PM	57	17	0	74	0	43	10	0	53	0	2	86	0	88	0	215
5:15PM	65	18	1	84	0	57	11	0	68	0	3	86	0	89	0	241
5:30PM	55	15	0	71	0	30	13	0	43	0	4	84	0	98	0	212
5:45PM	43	15	0	58	0	39	5	0	44	0	2	89	0	91	0	189
Total	221	65	1	287	0	169	39	0	208	0	11	355	0	366	0	861
% Approach	77.0%	22.6%	0.3%	-	81.3%	18.8%	0%	-	81.3%	18.8%	0%	97.0%	0%	-	-	-
% Total	25.7%	7.5%	0.1%	33.3%	19.6%	4.5%	0%	24.2%	19.6%	4.5%	0%	42.5%	0%	42.5%	0%	6.93%
PFH	0.850	0.903	0.250	0.854	0.741	0.750	-	0.765	0.741	0.750	-	0.683	0.544	-	0.524	-
Lights	221	65	1	287	168	39	0	207	168	39	0	207	11	354	0	659
% Lights	100%	100%	100%	100%	99.4%	100%	0%	95.3%	99.4%	100%	0%	95.3%	100%	99.7%	0%	99.8%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	0	0	0	0	1	0	0	1	1	0	0	1	0	1	0	2
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0.6%	0%	0%	0.3%	0.6%	0%	0%	0.3%	0%	0.3%	0%	0.2%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn

5. Summer Lee Drive at Lakefront Trail - TMC
 Thu Nov 1, 2018
 AM Peak (7:45AM - 8:45AM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582282, Location: 32.891271, -96.478196, Site Code: 5

Leg Direction	Summer Lee Drive Eastbound					Summer Lee Drive Westbound					Lakefront Trail Southbound					
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	Int
2018-11-01 7:45AM	3	56	0	59	0	55	4	0	59	0	0	1	0	1	0	119
8:00AM	4	49	0	53	0	44	2	0	46	0	1	1	0	2	0	101
8:15AM	1	58	0	59	0	59	7	0	66	0	0	1	0	1	0	126
8:30AM	2	70	0	72	0	37	5	0	42	0	0	1	0	1	0	115
Hourly Total	10	233	0	243	0	195	18	0	218	0	1	4	0	5	0	461
% Approach	4.1%	95.9%	0%	-	-	91.5%	8.5%	0%	-	-	20.0%	80.0%	0%	-	-	-
% Total	2.2%	50.5%	0%	52.7%	-	42.3%	3.9%	0%	46.2%	-	0.2%	0.9%	0%	1.1%	-	0.915
Ped*	0.623	0.852	-	0.844	-	0.826	0.643	-	0.407	-	0.250	1.000	-	0.625	-	0.453
Lights	100%	96.7%	0%	98.8%	-	98.5%	88.9%	0%	97.7%	-	100%	100%	0%	100%	-	98.2%
Articulated Trucks	0%	0%	0%	0%	-	1	1	0	2	-	0	0	0	0	-	2
Buses and Single-Unit Trucks	0%	0%	0%	0%	-	0.5%	5.6%	0%	0.9%	-	0%	0%	0%	0%	-	0.4%
% Buses and Single-Unit Trucks	0%	1.3%	0%	1.2%	-	1.0%	5.6%	0%	1.4%	-	0%	0%	0%	0%	-	1.3%
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
% Pedestrians on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

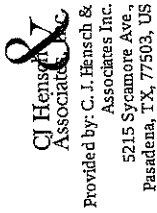
5. Summer Lee Drive at Lakefront Trail - TMC
 Thu Nov 1, 2018
 Full Length (7AM-9AM, 4:30PM-6:30PM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582282, Location: 32.891271, -96.478196, Site Code: 5

Leg Direction	Summer Lee Drive Eastbound					Summer Lee Drive Westbound					Lakefront Trail Southbound					
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	Int
2018-11-01 7:00AM	0	57	0	73	0	21	1	0	22	0	3	2	0	5	0	84
7:15AM	1	72	0	73	0	30	2	0	32	0	2	1	0	3	0	108
7:30AM	1	58	0	59	0	32	6	0	38	0	0	1	0	1	0	98
7:45AM	3	56	0	59	0	55	4	0	59	0	0	1	0	1	0	119
Hourly Total	5	243	0	248	0	138	13	0	151	0	5	5	0	10	0	409
8:00AM	4	49	0	53	0	44	2	0	46	0	1	1	0	2	0	101
8:15AM	1	58	0	59	0	59	7	0	66	0	0	1	0	1	0	126
8:30AM	2	70	0	72	0	37	5	0	42	0	0	1	0	1	0	115
8:45AM	3	41	0	44	0	56	2	0	58	0	1	4	0	5	2	103
Hourly Total	10	218	0	228	0	196	16	0	212	0	1	4	0	5	2	445
9:00AM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
Hourly Total	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
4:30PM	3	58	0	61	0	104	5	0	109	0	0	2	0	2	0	172
4:45PM	6	67	0	73	0	95	5	0	100	0	4	4	0	8	0	181
Hourly Total	9	125	0	134	0	199	10	0	209	0	4	6	0	10	0	353
5:00PM	2	73	0	75	0	117	11	0	128	0	1	1	0	2	0	205
5:15PM	3	81	0	84	0	137	8	0	145	0	3	5	0	6	0	237
5:30PM	1	72	0	73	0	122	2	0	124	0	0	3	0	3	0	200
5:45PM	3	54	0	57	0	125	3	0	128	0	3	1	0	4	0	189
Hourly Total	9	280	0	289	0	501	24	0	525	0	7	10	0	17	0	831
6:00PM	2	68	0	70	0	108	5	0	113	0	2	4	0	6	1	189
6:15PM	1	45	0	46	0	94	5	0	99	0	0	2	0	2	0	147
6:30PM	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	2
Hourly Total	3	113	0	116	0	203	10	0	213	0	2	7	0	9	1	338
Total	36	979	0	1015	0	1238	73	0	1311	0	19	32	0	51	3	2377
% Approach	3.5%	86.5%	0%	-	-	94.4%	5.6%	0%	-	-	37.3%	62.7%	0%	-	-	-
% Total	1.5%	41.2%	0%	42.7%	-	52.1%	3.1%	0%	55.2%	-	0.8%	1.3%	0%	2.1%	-	-
Lights	35	966	0	1001	-	1227	70	0	1297	-	18	31	0	49	-	2347
% Lights	97.2%	98.7%	0%	98.6%	-	99.1%	95.9%	0%	98.9%	-	94.7%	96.9%	0%	96.1%	-	95.7%
Articulated Trucks	0	1	0	1	-	1	1	0	2	-	0	0	0	0	-	3
% Articulated Trucks	0%	0.1%	0%	0.1%	-	0.1%	1.4%	0%	0.2%	-	0%	0%	0%	0%	-	0.1%
Buses and Single-Unit Trucks	1	12	0	13	-	10	2	0	12	-	1	1	0	2	-	27
% Buses and Single-Unit Trucks	2.8%	1.2%	0%	1.3%	-	0.8%	2.7%	0%	0.9%	-	5.3%	9.1%	0%	3.9%	-	1.1%
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
% Pedestrians on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5. Summer Lee Drive at Lakefront Trail - TMC

Thu Nov 1, 2018
 PM Peak (3PM - 6PM) - Overall Peak Hour
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582282, Location: 32.891271, -96.478196, Site Code: 5



5215 Sycamore Ave.
 Pasadena, TX, 77503, US

Leg Direction	Summer Lee Drive Eastbound				Summer Lee Drive Westbound				Lakefront Trail Southbound							
	L	R	U	App Ped*	T	R	U	App Ped*	L	R	U	App Ped* Int				
2018-11-01 5:00PM	2	73	0	75	0	117	11	0	128	0	1	1	0	2	0	205
5:15PM	3	81	0	84	0	137	8	0	145	0	3	5	0	8	0	237
5:30PM	1	72	0	73	0	122	2	0	124	0	0	3	0	3	0	200
5:45PM	3	54	0	57	0	125	3	0	128	0	3	1	0	4	0	189
Hourly Total	9	280	0	289	0	501	24	0	525	0	7	10	0	17	0	831
% Approach	3.1%	95.9%	0%	-	95.4%	4.6%	0%	-	41.2%	58.8%	0%	-	-	-	-	-
% Total	1.3%	32.7%	0%	34.8%	60.3%	2.9%	0%	63.1%	0.3%	1.5%	0%	2.0%	-	-	-	0.877
PFH	0.750	0.864	-	0.860	0.914	0.545	-	0.905	0.583	0.500	-	0.531	-	-	-	0.877
Lights	9	280	0	289	500	24	0	524	7	10	0	17	0	17	0	830
% Lights	100%	100%	0%	100%	99.8%	100%	0%	99.8%	100%	100%	0%	100%	0%	100%	0%	99.9%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0.2%	0%	0%	0.2%	0%	0%	0%	0%	0%	0%	0%	0.1%
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk L: Left, R: Right, T: Thru, U: U-Turn

6. Lakefront Trail at IH 30 EBFR - TMC

Thu Nov 1, 2018
 Full Length (7AM-9AM, 4:30PM-6:30PM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582283, Location: 32.893443, -96.480426, Site Code: 6



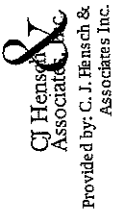
5215 Sycamore Ave.
 Pasadena, TX, 77503, US

Leg Direction	IH 30 EBFR Eastbound				IH 30 EBFR Westbound				Lakefront Trail Northbound				
	T	R	U	App Ped*	L	T	U	App Ped*	L	R	U	App Ped* Int	
2018-11-01 7:00AM	0	0	0	0	4	0	0	7	0	0	0	0	7
7:15AM	0	0	0	0	7	0	0	4	0	1	1	0	2
7:30AM	0	0	0	0	2	0	0	2	0	4	7	0	11
7:45AM	3	0	0	3	0	0	0	2	0	5	1	0	6
Hourly Total	3	0	0	3	13	0	0	13	0	10	9	0	37
8:00AM	0	0	0	0	1	2	0	3	0	1	2	0	3
8:15AM	0	1	0	1	1	0	0	1	0	6	2	0	8
8:30AM	3	0	0	3	1	2	0	3	0	2	2	0	4
8:45AM	1	0	1	0	3	0	0	3	0	2	2	0	4
Hourly Total	4	1	0	5	6	4	0	10	0	11	6	0	17
9:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30PM	3	2	0	5	2	1	0	3	0	2	9	0	11
4:45PM	3	0	0	3	4	0	0	4	0	1	5	0	6
Hourly Total	6	2	0	8	6	1	0	7	0	3	14	0	17
5:00PM	2	0	0	2	4	0	0	4	0	4	9	0	13
5:15PM	6	2	0	8	5	2	0	7	0	1	6	0	7
5:30PM	4	1	0	5	3	0	0	3	0	2	5	0	7
5:45PM	2	1	0	3	2	1	0	3	0	4	3	0	7
Hourly Total	14	4	0	18	14	3	0	17	0	11	29	0	34
6:00PM	2	0	0	2	2	0	0	2	0	0	10	0	10
6:15PM	0	4	0	4	1	0	0	1	0	2	9	0	11
6:30PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	2	4	0	6	3	0	0	3	0	2	19	0	21
Total	29	11	0	40	44	8	0	52	0	37	71	0	108
% Approach	72.5%	27.5%	0%	-	84.6%	15.4%	0%	-	34.3%	65.7%	0%	-	-
% Total	14.3%	5.5%	0%	20.0%	22.0%	4.0%	0%	26.0%	18.5%	35.5%	0%	54.0%	19.6
Lights	29	11	0	40	42	8	0	50	0	37	69	0	106
% Lights	100%	100%	0%	100%	95.5%	100%	0%	96.2%	100%	97.2%	0%	98.1%	98.0%
Articulated Trucks	0	0	0	0	1	0	0	1	0	0	1	0	1
% Articulated Trucks	0%	0%	0%	0%	2.3%	0%	0%	1.9%	0%	1.4%	0%	0.9%	1.0%
Buses and Single-Unit Trucks	0	0	0	0	1	0	0	1	0	0	1	0	1
% Buses and Single-Unit Trucks	0%	0%	0%	0%	2.3%	0%	0%	1.9%	0%	1.4%	0%	0.9%	1.0%
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk L: Left, R: Right, T: Thru, U: U-Turn

6. Lakefront Trail at IH 30 EBFR - TMC

Thu Nov 1, 2018
 AM Peak (7:30AM - 8:30AM)
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582283, Location: 32.893443, -96.480426, Site Code: 6



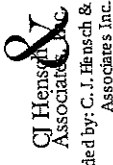
Provided by: C. J. Hensel & Associates Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Leg Direction	IH 30 EBFR Eastbound				IH 30 EBFR Westbound				Lakefront Trail Northbound				
	T	R	U	App Ped*	L	T	U	App Ped*	L	R	U	App Ped*	Int
2018-11-01 7:30AM	0	0	0	0	2	0	0	2	0	0	0	11	0
7:45AM	3	0	0	3	2	0	0	2	5	1	0	6	0
8:00AM	0	0	0	0	1	2	0	3	1	2	0	3	0
8:15AM	0	1	0	1	0	0	1	0	6	2	0	8	0
Total	3	1	0	4	6	2	0	6	16	12	0	28	0
% Approach	75.0%	25.0%	0%	0%	75.0%	25.0%	0%	0%	57.1%	42.9%	0%	0%	0%
% Total	7.5%	2.5%	0%	10.0%	15.0%	5.0%	0%	20.0%	40.0%	30.0%	0%	70.0%	0%
PFH	0.250	0.250	-	0.333	0.750	0.250	-	0.667	0.667	0.429	-	0.656	0.765
Lights	3	1	0	4	6	2	0	6	16	12	0	28	0
% Lights	100%	100%	0%	100%	100%	100%	0%	100%	100%	100%	0%	100%	0%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk L: Left, R: Right, T: Thru, U: U-Turn

6. Lakefront Trail at IH 30 EBFR - TMC

Thu Nov 1, 2018
 PM Peak (4:30PM - 5:30PM) - Overall Peak Hour
 All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
 All Movements
 ID: 582283, Location: 32.893443, -96.480426, Site Code: 6



Provided by: C. J. Hensel & Associates Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Leg Direction	IH 30 EBFR Eastbound				IH 30 EBFR Westbound				Lakefront Trail Northbound				
	T	R	U	App Ped*	L	T	U	App Ped*	L	R	U	App Ped*	Int
2018-11-01 4:30PM	3	2	0	5	0	2	1	0	3	0	2	9	0
4:45PM	3	0	0	3	0	4	0	0	4	0	1	5	0
5:00PM	2	0	0	2	0	4	0	0	4	0	4	9	0
5:15PM	6	2	0	8	0	5	2	0	7	0	1	6	0
Total	14	4	0	18	0	15	3	0	18	0	8	29	0
% Approach	77.8%	22.2%	0%	0%	83.3%	16.7%	0%	0%	21.6%	78.4%	0%	0%	0%
% Total	19.2%	5.5%	0%	24.7%	20.5%	4.1%	0%	24.7%	11.0%	35.7%	0%	59.7%	0%
PFH	0.583	0.500	-	0.583	0.750	0.275	-	0.643	0.500	0.806	-	0.712	0.830
Lights	14	4	0	18	0	14	3	0	17	0	8	27	0
% Lights	100%	100%	0%	100%	93.3%	100%	0%	94.4%	100%	93.1%	0%	84.8%	95.9%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	6.7%	0%	0%	5.6%	0%	3.4%	0%	2.7%	2.7%
Buses and Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	3.4%	0%	2.7%	1.4%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk L: Left, R: Right, T: Thru, U: U-Turn

7. Shoreline Trail at IH 30 EBFR - TMC

Thu Nov 1, 2018
Full Length (7:00AM-6:30PM)
All Classes (Lghts, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

CI Hensel & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Provided by: C. J. Hensel & Associates Inc.

All Movements

ID: 582284, Location: 32.893957, -96.479222, Site Code: 7

Leg Direction	IH 30 EBFR Southbound					IH 30 EBFR Westbound					Shoreline Trail Northbound					Shoreline Trail Southbound				
	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*
2018-1-01 7:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30AM	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30PM	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45PM	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00PM	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15PM	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30PM	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00PM	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15PM	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	99	0	1	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach	0%	99.0%	0%	1.0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Total	0%	5.0%	0%	0.1%	5.1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lights	0	98	0	1	99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Lights	0%	98.0%	0%	1.0%	99.0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses and Single-Unit Trucks	0%	1.0%	0%	0%	1.0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

*Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn

7. Shoreline Trail at IH 30 EBFR - TMC

Thu Nov 1, 2018
AM Peak (7:45AM - 8:45AM)
All Classes (Lghts, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

CI Hensel & Associates Inc.
5215 Sycamore Ave.,
Pasadena, TX, 77503, US

Provided by: C. J. Hensel & Associates Inc.

All Movements

ID: 582284, Location: 32.893957, -96.479222, Site Code: 7

Leg Direction	IH 30 EBFR Southbound					IH 30 EBFR Westbound					Shoreline Trail Northbound					Shoreline Trail Southbound				
	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*
2018-1-01 7:45AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach	0%	91.7%	0%	0%	91.7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Total	0%	2.7%	0%	0%	2.7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lights	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Lights	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

*Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn

7. Shoreline Trail at IH 30 EBFR - TMC

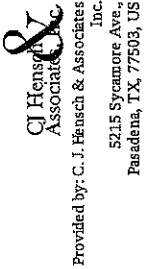
Thu Nov 1, 2018

PM Peak (5PM - 6PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalks)

All Movements

ID: 582284, Location: 32.893957, -96.479222, Site Code: 7



Leg Direction	IH 30 EBFR Eastbound				IH 30 EBFR Westbound				Shoreline Trail Northbound				Shoreline Trail Southbound			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Time	0	10	0	0	0	0	0	0	0	0	0	0	0	50	3	0
20:18-11:01:5:00PM	0	10	0	0	0	0	0	0	1	0	69	1	0	50	3	0
5:15PM	0	12	0	0	0	0	0	0	1	0	71	0	1	57	6	0
5:30PM	0	10	0	0	0	0	0	0	0	0	65	0	0	50	3	0
5:45PM	0	4	0	0	0	0	0	0	0	0	43	1	1	101	3	0
Total	0	36	0	0	0	0	0	0	2	0	246	2	2	378	15	0
% Approach	0%	100%	0%	0%	0%	0%	0%	0%	0.8%	0%	58.4%	0.8%	0.5%	95.7%	3.8%	0%
% Trucks	0%	5.3%	0%	0%	0%	0%	0%	0%	0.3%	0%	36.1%	0.2%	0.3%	55.5%	2.2%	0%
PHF	-0.750	-	-0.750	-	-	-	-	-	-0.500	-	0.500	0.000	-0.500	0.958	0.625	-
Lights	0	36	0	0	0	0	0	0	2	0	244	2	2	376	15	0
% Lights	0%	100%	0%	0%	0%	0%	0%	0%	100%	0%	99.2%	100%	100%	99.5%	100%	0%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.8%	0%	0%	0.5%	0%	0%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk: L: Left, R: Right, T: Thru, U: U-Turn



Appendix – Synchro Outputs for Analysis Scenarios

Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - AM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	70	364	8	968	85	0	0	71	138
Future Volume (vph)	0	0	0	70	364	8	968	85	0	0	71	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	0	0	0	0	0	100
Storage Lanes	0	0	0	1	1	1	1	1	0	0	0	1
Taper Length (ft)	25	0	0	25	0	25	0	0	0	25	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ft				0.850							0.850	
Fill Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	1770	1863	1583	1770	1863	0	0	3539	1583
Fill Permitted				0.950		0.704						
Satd. Flow (perm)	0	0	0	1770	1863	1583	1311	1863	0	0	3539	1583
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)						82						123
Link Speed (mph)	45	9.5	45	45	12.6	45	40	40	40	40	40	40
Link Distance (ft)	625	625	834	834	834	461	461	461	461	257	257	257
Travel Time (s)	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0	0	0	76	396	9	1052	92	0	0	77	150
Adj. Flow (vph)												
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	76	396	9	1052	92	0	0	77	150
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Left	Right
Median Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+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	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	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	0.0
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	8	5	5	5	5	6	6	6	6
Permitted Phases	8	8	8	8	5	5	5	5	6	6	6	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Spill (s)	36.0	36.0	36.0	36.0	63.0	63.0	63.0	63.0	21.0	21.0	21.0	21.0

Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - AM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Satd. Flow (prot)			
Fill Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.0	20.0	20.0
Total Spill (s)	9.0	75.0	36.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	52.5%				17.5%	17.5%
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	59.0				17.0	17.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5				3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5				0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0				4.0	4.0
Lead/Lag							Lag				Lead	Lead
Lead/Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	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	None	None				C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0				5.0	5.0
Flash Don't Walk (s)	0	0	0	0	0	0	0				11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0				0	0
Act Effct Green (s)	29.0	29.0	29.0	29.0	29.0	29.0	79.0				20.0	20.0
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.24	0.24	0.66				0.17	0.17
v/c Ratio	0.18	0.88	0.02	0.97	0.07	0.07	0.13				0.13	0.41
Control Delay	29.9	54.4	0.1	37.5	4.1	4.1	44.9				16.0	16.0
Queue Delay	0.0	0.0	0.0	2.3	0.0	0.0	0.0				0.0	0.0
Total Delay	29.9	54.4	0.1	39.8	4.1	4.1	44.9				16.0	16.0
LOS	C	D	A	D	A	D	A				D	B
Approach Delay				49.5			36.9				25.8	
Approach LOS				D			D				C	
Queue Length 50th (ft)	34	189	0	675	14	14	27				27	18
Queue Length 95th (ft)	74	#417	m0	#1108	25	25	51				51	82
Internal Link Dist (ft)				754			381				177	
Turn Bay Length (ft)				200			100				100	
Base Capacity (vph)	472	496	482	1088	1288	1288	589				366	
Stallion Cap Reductn	0	0	0	16	0	0	0				0	0
Spillback Cap Reductn	0	0	0	0	0	0	0				0	0
Storage Cap Reductn	0	0	0	0	0	0	0				0	0
Reduced v/c Ratio	0.16	0.80	0.02	0.98	0.07	0.07	0.13				0.13	0.41

Intersection Summary

Area Type: Other

Cycle Length: 120

Actual Cycle Length: 120

Offset: 20 (17%), Referenced to phase 2:NBSB and 6: Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 38.8

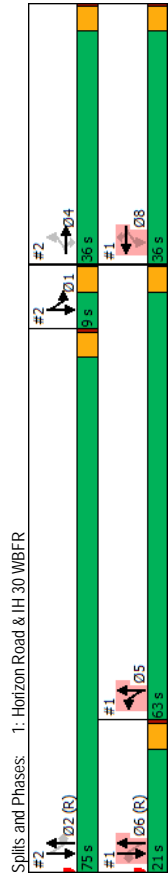
Intersection Capacity Utilization 82.8%

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.



Spillis and Phases: 1: Horizon Road & IH 30 WBFR

Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - AM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	63%	30%
Maximum Green (s)	5.0	71.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)	5.0	5.0	
Flash Don't Walk (s)	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Slantion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

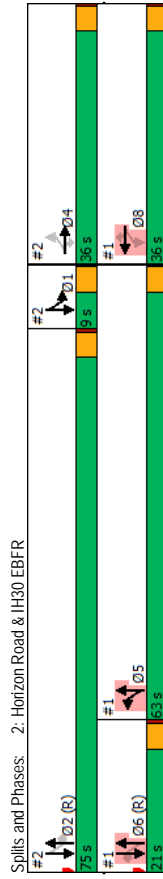
Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - AM
2: Horizon Road & IH 30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	76	526	0	0	0	0	0	810	14	42	177
Future Volume (vph)	198	76	526	0	0	0	0	0	810	14	42	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	0	100	0	0	0
Storage Lanes	0	1	0	0	0	0	0	0	1	1	1	0
Taper Length (ft)	25		25			25			25		25	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.850						0.850				
Flt Protected		0.965						0.950				
Satd. Flow (prot)	0	3415	1583	0	0	0	0	3539	1583	1770	1863	0
Flt Permitted		0.965						0.271				
Satd. Flow (perm)	0	3415	1583	0	0	0	0	3539	1583	505	1863	0
Right Turn on Red		Yes			Yes			Yes				Yes
Satd. Flow (RTOR)		572			572			45				40
Link Speed (mph)		35			35			40				40
Link Distance (ft)		557			558			726				461
Travel Time (s)		10.9			10.9			12.4				7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	83	572	0	0	0	0	880	15	46	192	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	298	572	0	0	0	0	880	15	46	192	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right
Median Width (ft)		0			0			12				12
Link Offset (ft)		0			0			0				0
Crosswalk Width (ft)		16			16			16				16
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	D.P+P	NA
Protected Phases		4			4			2		1	1	2
Permitted Phases	4	4	4	4	4	4	4	2	2	2	2	2
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	8.0
Total Spill (s)	36.0	36.0	36.0	36.0	36.0	36.0	36.0	75.0	75.0	75.0	9.0	9.0

Lane Group	Ø5	Ø6	Ø8	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				30.0%	30.0%	30.0%						62.5%	62.5%	7.5%	
Traffic Volume (vph)				32.0	32.0	32.0						71.0	71.0	5.0	
Future Volume (vph)				3.5	3.5	3.5						3.5	3.5	3.5	
Ideal Flow (vphpl)				0.5	0.5	0.5						0.5	0.5	0.5	
Storage Length (ft)				0.0	0.0	0.0						0.0	0.0	0.0	
Storage Lanes				4.0	4.0	4.0						4.0	4.0	4.0	
Taper Length (ft)															
Lane Util. Factor															
Frt				3.0	3.0	3.0						3.0	3.0	3.0	
Flt Protected				None	None	None						C-Max	C-Max	None	
Said. Flow (prot)				5.0	5.0	5.0						5.0	5.0	5.0	
Flt Permitted				11.0	11.0	11.0						11.0	11.0	11.0	
Said. Flow (perm)				0	0	0						0	0	0	
Right Turn on Red				29.0	29.0	29.0						74.0	74.0	79.0	83.0
Said. Flow (RTOR)				0.24	0.24	0.24						0.62	0.62	0.66	0.69
Link Speed (mph)				0.36	0.36	0.36						0.40	0.40	0.42	0.45
Link Distance (ft)				39.0	39.0	39.0						8.3	8.3	10.8	9.5
Travel Time (s)				0.0	0.0	0.0						0.2	0.2	0.0	0.0
Peak Hour Factor				39.0	39.0	39.0						8.5	8.5	10.8	9.5
Adj. Flow (vph)				D	A	A						A	A	B	A
Shared Lane Traffic (%)				18.9	18.9	18.9						8.3	8.3	9.7	9.7
Lane Group Flow (vph)				B	B	B						A	A	A	A
Enter Blocked Intersection				99	8	8						117	0	14	65
Lane Alignment				140	102	102						142	m0	30	103
Median Width (ft)				477	477	477						646	646	381	381
Link Offset (ft)				200	200	200						100	100	1288	1288
Crosswalk Width (ft)				910	841	841						2182	993	385	385
Two Way Left Turn Lane				0	0	0						0	0	0	0
Headway Factor				0	0	0						444	0	0	0
Turning Speed (mph)				0	0	0						0	0	0	0
Number of Detectors				0	0	0						0	0	0	0
Detector Template				0.33	0.68	0.68						0.51	0.02	0.12	0.15
Leading Detector (ft)															
Trailing Detector (ft)															
Detector 1 Position (ft)															
Detector 1 Size (ft)															
Detector 1 Type															
Detector 1 Channel															
Detector 1 Extend (s)															
Detector 1 Queue (s)															
Detector 1 Delay (s)															
Turn Type				5	6	8									
Protected Phases															
Permitted Phases															
Detector Phase															
Switch Phase															
Minimum Initial (s)				4.0	4.0	4.0									
Minimum Split (s)				8.0	20.0	20.0									
Total Split (s)				63.0	21.0	36.0									

Lane Group	Ø5	Ø6	Ø8	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				30.0%	30.0%	30.0%						62.5%	62.5%	7.5%	
Traffic Volume (vph)				32.0	32.0	32.0						71.0	71.0	5.0	
Future Volume (vph)				3.5	3.5	3.5						3.5	3.5	3.5	
Ideal Flow (vphpl)				0.5	0.5	0.5						0.5	0.5	0.5	
Storage Length (ft)				0.0	0.0	0.0						0.0	0.0	0.0	
Storage Lanes				4.0	4.0	4.0						4.0	4.0	4.0	
Taper Length (ft)															
Lane Util. Factor															
Frt				3.0	3.0	3.0						3.0	3.0	3.0	
Flt Protected				None	None	None						C-Max	C-Max	None	
Said. Flow (prot)				5.0	5.0	5.0						5.0	5.0	5.0	
Flt Permitted				11.0	11.0	11.0						11.0	11.0	11.0	
Said. Flow (perm)				0	0	0						0	0	0	
Right Turn on Red				29.0	29.0	29.0						74.0	74.0	79.0	83.0
Said. Flow (RTOR)				0.24	0.24	0.24						0.62	0.62	0.66	0.69
Link Speed (mph)				0.36	0.36	0.36						0.40	0.40	0.42	0.45
Link Distance (ft)				39.0	39.0	39.0						8.3	8.3	10.8	9.5
Travel Time (s)				0.0	0.0	0.0						0.2	0.2	0.0	0.0
Peak Hour Factor				39.0	39.0	39.0						8.5	8.5	10.8	9.5
Adj. Flow (vph)				D	A	A						A	A	B	A
Shared Lane Traffic (%)				18.9	18.9	18.9						8.3	8.3	9.7	9.7
Lane Group Flow (vph)				B	B	B						A	A	A	A
Enter Blocked Intersection				99	8	8						117	0	14	65
Lane Alignment				140	102	102						142	m0	30	103
Median Width (ft)				477	477	477						646	646	381	381
Link Offset (ft)				200	200	200						100	100	1288	1288
Crosswalk Width (ft)				910	841	841						2182	993	385	385
Two Way Left Turn Lane				0	0	0						0	0	0	0
Headway Factor				0	0	0						444	0	0	0
Turning Speed (mph)				0	0	0						0	0	0	0
Number of Detectors				0	0	0						0	0	0	0
Detector Template				0.33	0.68	0.68						0.51	0.02	0.12	0.15
Leading Detector (ft)															
Trailing Detector (ft)															
Detector 1 Position (ft)															
Detector 1 Size (ft)															
Detector 1 Type															
Detector 1 Channel															
Detector 1 Extend (s)															
Detector 1 Queue (s)															
Detector 1 Delay (s)															
Turn Type				5	6	8									
Protected Phases															
Permitted Phases															
Detector Phase															
Switch Phase															
Minimum Initial (s)				4.0	4.0	4.0									
Minimum Split (s)				8.0	20.0	20.0									
Total Split (s)				63.0	21.0	36.0									



Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	53%	18%	30%
Maximum Green (s)	59.0	17.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Don't Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBR	NBL	NBT	SBT	SBR	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	10	20	43	818	595	75	191	44	51	12	9	164
Future Vol, veh/h	10	20	43	818	595	75	191	44	51	12	9	164
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None
Storage Length	0	0	200	-	-	200	-	-	-	-	100	0
Yeh in Median Storage, #	1	-	-	0	0	-	-	0	0	-	0	-
Grade, %	0	-	-	0	0	-	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	22	47	889	647	82	208	48	55	13	10	178
Major/Minor	Minor2	Major1	Minor2	Major2	Minor2	Major1	Minor2	Major1	Major2	Minor2	Minor2	Minor2
Conflicting Flow All	1186	324	729	0	-	0	68	0	-	0	502	34
Stage 1	647	-	-	-	-	-	-	-	-	-	62	-
Stage 2	539	-	-	-	-	-	-	-	-	-	440	-
Critical Hdwy	6.84	6.94	4.14	-	-	-	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	5.84	-	-	-	-	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-	-	-	-	-	5.84	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-	2.22	-	-	-	3.52	3.32
Pd Cap-1 Maneuver	*300	*848	1167	-	-	-	1531	-	-	-	499	1032
Stage 1	*800	-	-	-	-	-	-	-	-	-	953	-
Stage 2	*549	-	-	-	-	-	-	-	-	-	616	-
Platoon blocked, %	1	1	1	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	*288	*848	1167	-	-	-	1531	-	-	-	429	1032
Mov Cap-2 Maneuver	*398	-	-	-	-	-	-	-	-	-	429	-
Stage 1	*768	-	-	-	-	-	-	-	-	-	820	-
Stage 2	*549	-	-	-	-	-	-	-	-	-	616	-
Approach	EB	NB	SB	EB	WB	SB	EB	WB	WB	SB	SB	SB
HCM Control Delay, s	11	0.4	0	6.3	0	9.4	6.3	0	0	9.4	9.4	9.4
HCM LOS	B	B	B	A	A	A	A	A	A	A	A	A
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1167	-	398	848	-	-	1531	-	-	-	429	1032
HCM Lane V/C Ratio	0.04	-	0.027	0.026	-	-	0.136	-	-	-	0.023	0.173
HCM Control Delay (s)	8.2	-	14.3	9.4	-	-	7.7	0.1	-	-	13.6	9.2
HCM Lane LOS	A	-	B	A	-	-	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	0.1	0.1	-	-	0.5	-	-	-	0.1	0.6

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

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	WBT	WBR	SBL	SBR	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	191	44	51	12	9	164	191	44	51	12	9	164
Future Vol, veh/h	191	44	51	12	9	164	191	44	51	12	9	164
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None	-	None	-	None	-	None
Storage Length	-	-	-	-	-	100	-	-	-	-	100	0
Yeh in Median Storage, #	-	0	0	0	-	0	-	0	0	-	0	-
Grade, %	-	0	0	0	-	0	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	208	48	55	13	10	178	208	48	55	13	10	178
Major/Minor	Major1	Major2	Minor2	Major2	Minor2	Major1	Minor2	Major1	Major2	Minor2	Minor2	Minor2
Conflicting Flow All	68	0	-	0	502	34	68	0	-	0	502	34
Stage 1	-	-	-	-	62	-	-	-	-	-	62	-
Stage 2	-	-	-	-	440	-	-	-	-	-	440	-
Critical Hdwy	4.14	-	-	-	6.84	6.94	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32	2.22	-	-	-	3.52	3.32
Pd Cap-1 Maneuver	1531	-	-	-	499	1032	1531	-	-	-	499	1032
Stage 1	-	-	-	-	953	-	-	-	-	-	953	-
Stage 2	-	-	-	-	616	-	-	-	-	-	616	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1531	-	-	-	429	1032	1531	-	-	-	429	1032
Mov Cap-2 Maneuver	-	-	-	-	429	-	-	-	-	-	429	-
Stage 1	-	-	-	-	820	-	-	-	-	-	820	-
Stage 2	-	-	-	-	616	-	-	-	-	-	616	-
Approach	EB	WB	SB	EB	WB	SB	EB	WB	WB	SB	SB	SB
HCM Control Delay, s	6.3	0	9.4	6.3	0	9.4	6.3	0	0	9.4	9.4	9.4
HCM LOS	A	A	A	A	A	A	A	A	A	A	A	A
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1531	-	-	-	429	1032	1531	-	-	-	429	1032
HCM Lane V/C Ratio	0.136	-	-	-	0.023	0.173	0.136	-	-	-	0.023	0.173
HCM Control Delay (s)	7.7	0.1	-	-	13.6	9.2	7.7	0.1	-	-	13.6	9.2
HCM Lane LOS	A	A	-	-	B	A	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.5	-	-	-	0.1	0.6	0.5	-	-	-	0.1	0.6

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

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	10	233	195	18	1	4						
Traffic Vol, veh/h	10	233	195	18	1	4						
Future Vol, veh/h	0	0	0	0	0	0						
Conflicting Peds, #/hr	Free	Free	Free	Free	Stop	Stop						
Sign Control	-	None	-	None	-	None						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	0	-						
Veh in Median Storage, #	-	0	0	-	0	-						
Grade, %	-	0	0	-	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	11	253	212	20	1	4						
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	232	0	0	371	116							
Stage 1	-	-	-	222	-							
Stage 2	-	-	-	149	-							
Critical Hdwy	4.14	-	-	6.84	6.94							
Critical Hdwy Stg 1	-	-	-	5.84	-							
Critical Hdwy Stg 2	-	-	-	5.84	-							
Follow-up Hdwy	2.22	-	-	3.52	3.32							
Pd Cap-1 Maneuver	1333	-	-	603	914							
Stage 1	-	-	-	794	-							
Stage 2	-	-	-	863	-							
Platoon blocked, %	-	-	-	-	-							
Mov Cap-1 Maneuver	1333	-	-	597	914							
Mov Cap-2 Maneuver	-	-	-	597	-							
Stage 1	-	-	-	786	-							
Stage 2	-	-	-	863	-							
Approach	EB	WB	SB									
HCM Control Delay, s	0.3	0	9.4									
HCM LOS	A	A	A									
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR						
Capacity (veh/h)	1333	-	-	-	-	826						
HCM Lane V/C Ratio	0.008	-	-	-	-	0.007						
HCM Control Delay (s)	7.7	0	-	-	-	9.4						
HCM Lane LOS	A	A	A	A	A	A						
HCM 95th %tile Q(veh)	0	-	-	-	-	0						

Intersection												
Int Delay, s/veh	7.1											
Movement	EBT	EBR	WBT	WBR	NBL	NBR						
Lane Configurations	3	1	6	2	16	12						
Traffic Vol, veh/h	3	1	6	2	16	12						
Future Vol, veh/h	3	1	6	2	16	12						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	0	0						
Veh in Median Storage, #	0	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	3	1	7	2	17	13						
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	0	0	4	0	20	4						
Stage 1	-	-	-	-	4	-						
Stage 2	-	-	-	-	16	-						
Critical Hdwy	-	-	4.12	-	6.42	6.22						
Critical Hdwy Stg 1	-	-	-	-	5.42	-						
Critical Hdwy Stg 2	-	-	-	-	5.42	-						
Follow-up Hdwy	-	-	2.218	-	3.518	3.318						
Pd Cap-1 Maneuver	-	-	1618	-	997	1080						
Stage 1	-	-	-	-	1019	-						
Stage 2	-	-	-	-	1007	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	1618	-	993	1080						
Mov Cap-2 Maneuver	-	-	-	-	993	-						
Stage 1	-	-	-	-	1015	-						
Stage 2	-	-	-	-	1007	-						
Approach	EB	WB	NB									
HCM Control Delay, s	0	5.4	8.6									
HCM LOS	A	A	A									
Minor Lane/Major Mvmt	NBL	NBLn2	EBT	EBR	WBL	WBT						
Capacity (veh/h)	993	1080	-	-	1618	-						
HCM Lane V/C Ratio	0.018	0.012	-	-	0.004	-						
HCM Control Delay (s)	8.7	8.4	-	-	7.2	0						
HCM Lane LOS	A	A	A	A	A	A						
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-						

Harbor Village TIA
 HCM 6th TWSC

2018 - Existing - AM
 7: Shoreline Trail & IH30 EBFR

Intersection													
Int Delay, s/veh	0.4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	0	11	0	0	0	0	0	0	198	2	192	9	4
Traffic Vol, veh/h	0	11	0	0	0	0	0	198	2	192	9	9	
Future Vol, veh/h	0	11	0	0	0	0	0	198	2	192	9	9	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	0	0	0	0	0	0	215	2	209	10	

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	433	214	331	215
Stage 1	218	-	108	-
Stage 2	215	-	223	-
Critical Hdwy	6.52	6.22	6.52	4.12
Critical Hdwy Stg 1	5.52	-	5.52	-
Critical Hdwy Stg 2	5.52	-	5.52	-
Follow-up Hdwy	4,018	3,318	4,018	2,218
Pd Cap-1 Maneuver	0	516	826	0
Stage 1	0	723	0	806
Stage 2	0	725	0	719
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	515	826	587	1,355
Mov Cap-2 Maneuver	515	-	587	-
Stage 1	722	-	806	-
Stage 2	725	-	718	-

Approach	EB	WB	NB	SB			
HCM Control Delay, s	12.2	0	0	0.1			
HCM LOS	B	A	A				
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	515	-	1355	-	-
HCM Lane V/C Ratio	-	-	0.023	-	0.002	-	-
HCM Control Delay (\$)	-	-	12.2	0	7.7	0	-
HCM Lane LOS	-	-	B	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	-	0	-	-

Harbor Village TIA
 HCM 6th TWSC

2018 - Existing - AM
 8: North Drive & IH30 EBFR

Intersection									
Int Delay, s/veh	0								
Movement	EBT	EBR	WBL	WBT	NBL	NBR	NBR	NBR	NBR
Lane Configurations	4	0	0	0	18	0	0	0	4
Traffic Vol, veh/h	4	0	0	0	18	0	0	0	4
Future Vol, veh/h	4	0	0	0	18	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	-	-	-	-	-	-
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	0	0	0	0
Grade, %	0	-	-	-	0	0	0	0	0
Peak Hour Factor	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	0	0	20	0	0	0	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	4
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.12	-
Critical Hdwy Stg 1	-	-	6.22
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2,218	-
Pd Cap-1 Maneuver	-	1618	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1618	-
Mov Cap-2 Maneuver	-	-	1080
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB		
HCM Control Delay, s	0	0	0		
HCM LOS	A	A	A		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1618	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (\$)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection													
Int Delay, s/veh	0												
Movement	EBL	EBR	NBL	NBT	SBT	SBR							
Lane Configurations	↔	↔	↔	↔	↔	↔							
Traffic Vol, veh/h	0	0	0	28	7	0							
Future Vol, veh/h	0	0	0	28	7	0							
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	-	150	-	-	-							
Veh in Median Storage, #	0	-	0	0	0	-							
Grade, %	0	-	0	0	0	-							
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	0	0	0	30	8	0							
Major/Minor	Minor2	Major1	Minor1	Major2									
Conflicting Flow All	38	8	8	0	-	0							
Stage 1	8	-	-	-	-	-							
Stage 2	30	-	-	-	-	-							
Critical Hdwy	6.42	6.22	4.12	-	-	-							
Critical Hdwy Stg 1	5.42	-	-	-	-	-							
Critical Hdwy Stg 2	5.42	-	-	-	-	-							
Follow-up Hdwy	3.518	3.318	2.218	-	-	-							
Pd Cap-1 Maneuver	974	1074	1612	-	-	-							
Stage 1	1015	-	-	-	-	-							
Stage 2	993	-	-	-	-	-							
Platoon blocked, %	-	-	-	-	-	-							
Mov Cap-1 Maneuver	974	1074	1612	-	-	-							
Mov Cap-2 Maneuver	974	-	-	-	-	-							
Stage 1	1015	-	-	-	-	-							
Stage 2	993	-	-	-	-	-							
Approach	EB	NB	SB										
HCM Control Delay, s	0	0	0										
HCM LOS	A												
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR								
Capacity (veh/h)	1612	-	-	-	-								
HCM Lane V/C Ratio	-	-	-	-	-								
HCM Control Delay (s)	0	-	0	-	-								
HCM Lane LOS	A	-	A	-	-								
HCM 95th %tile Q(veh)	0	-	-	-	-								

Intersection														
Int Delay, s/veh	0.5													
Movement	EBT	EBR	WBL	WBT	NBL	NBR								
Lane Configurations	↔	↔	↔	↔	↔	↔								
Traffic Vol, veh/h	988	59	0	0	0	40								
Future Vol, veh/h	988	59	0	0	0	40								
Conflicting Peds, #/hr	0	0	0	0	0	0								
Sign Control	Free	Free	Stop	Stop	Stop	Stop								
RT Channelized	-	None	-	None	-	None								
Storage Length	-	150	-	-	-	0								
Veh in Median Storage, #	0	-	-	16983	0	-								
Grade, %	0	-	0	0	0	-								
Peak Hour Factor	92	92	92	92	92	92								
Heavy Vehicles, %	2	2	2	2	2	2								
Mvmt Flow	1074	64	0	0	0	43								
Major/Minor	Major1	Minor1												
Conflicting Flow All	0	0	-	-	-	-	537							
Stage 1	-	-	-	-	-	-	-							
Stage 2	-	-	-	-	-	-	-							
Critical Hdwy	-	-	-	-	-	-	6.94							
Critical Hdwy Stg 1	-	-	-	-	-	-	-							
Critical Hdwy Stg 2	-	-	-	-	-	-	-							
Follow-up Hdwy	-	-	-	-	-	-	3.32							
Pd Cap-1 Maneuver	-	-	-	-	-	-	0	488						
Stage 1	-	-	-	-	-	-	0	-						
Stage 2	-	-	-	-	-	-	0	-						
Platoon blocked, %	-	-	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	488						
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-	-	-						
Approach	EB	NB	NB											
HCM Control Delay, s	0	0	13.1											
HCM LOS	B													
Minor Lane/Major Mvmt	NBLn1	EBT	EBR											
Capacity (veh/h)	488	-	-											
HCM Lane V/C Ratio	0.089	-	-											
HCM Control Delay (s)	13.1	-	-											
HCM Lane LOS	B	-	-											
HCM 95th %tile Q(veh)	0.3	-	-											

Intersection	
Intersection Delay - s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔							↔			↔
Traffic Vol. veh/h	0	11	0	0	0	0	0	0	198	2	192	9
Future Vol. veh/h	0	11	0	0	0	0	0	0	198	2	192	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	0	0	0	0	0	0	215	2	209	10
Number of Lanes	0	1	0	0	0	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.9	7.5	8.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	0%	1%
Vol Thru, %	0%	100%	95%
Vol Right, %	100%	0%	4%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	198	11	203
LT Vol	0	0	2
Through Vol	0	11	192
RT Vol	198	0	9
Lane Flow Rate	215	12	221
Geometry Grp	1	1	1
Degree of Util (X)	0.21	0.016	0.251
Departure Headway (Hd)	3.519	4.799	4.091
Convergence, Y/N	Yes	Yes	Yes
Cap	1009	750	878
Service Time	1.575	2.799	2.117
HCM Lane V/C Ratio	0.213	0.016	0.252
HCM Control Delay	7.5	7.9	8.5
HCM Lane LOS	A	A	A
HCM 95th-ile Q	0.8	0	1

Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - PM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	137	458	44	864	212	0	0	102	105
Future Volume (vph)	0	0	0	137	458	44	864	212	0	0	102	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	0	0	0	0	0	100
Storage Lanes	0	0	0	1	1	1	0	0	0	0	0	1
Taper Length (ft)	25	0	0	25	0	25	0	0	0	25	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ft				0.850								0.850
Fill Protected				0.950			0.950					
Said. Flow (prot)	0	0	0	1770	1863	1583	1770	1863	0	0	3539	1583
Fill Permitted				0.950			0.682					
Said. Flow (perm)	0	0	0	1770	1863	1583	1270	1863	0	0	3539	1583
Right Turn on Red			Yes			Yes		Yes	Yes			Yes
Said. Flow (RTOR)						95						114
Link Speed (mph)	45	45	45	45	45	45	40	40	40	40	40	40
Link Distance (ft)	625	912	912	912	912	912	613	613	257	257	257	257
Travel Time (s)	9.5	13.8	13.8	10.4	10.4	10.4	4.4	4.4	4.4	4.4	4.4	4.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	149	498	48	939	230	0	0	111	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	149	498	48	939	230	0	0	111	114
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Left	Right
Median Width(ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+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	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	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	0.0
Turn Type	Perm	NA	Perm	NA	D.P+P	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	8	8	8	5	5	5	6	6	6
Permitted Phases	8	8	8	8	8	8	5	5	5	6	6	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	8.5	8.5	20.5	20.5	20.5	20.5
Total Spill (s)	45.0	45.0	45.0	45.0	45.0	45.0	53.0	53.0	22.0	22.0	22.0	22.0

Harbor Village TIA
Lanes, Volumes, Timings

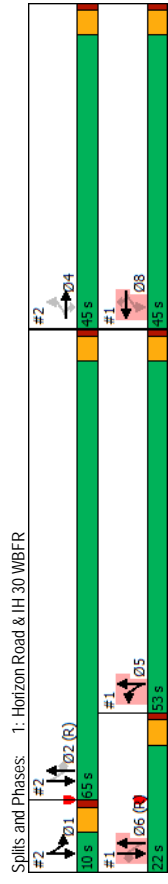
2018 - Existing - PM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Said. Flow (prot)			
Fill Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.5	20.5	20.5
Total Spill (s)	10.0	65.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - PM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)				37.5%	37.5%	37.5%	44.2%				18.3%	18.3%
Maximum Green (s)				40.5	40.5	40.5	48.5				17.5	17.5
Yellow Time (s)				3.5	3.5	3.5	3.5				3.5	3.5
All-Red Time (s)				1.0	1.0	1.0	1.0				1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)				4.5	4.5	4.5	4.5				4.5	4.5
Lead/Lag							Lag				Lead	
Lead/Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				3.0	3.0	3.0	3.0				3.0	3.0
Recall Mode				None	None	None	None				C-Max	C-Max
Walk Time (s)				5.0	5.0	5.0					5.0	5.0
Flash Don't Walk (s)				11.0	11.0	11.0					11.0	11.0
Pedestrian Calls (#/hr)				0	0	0					0	0
Act Effct Green (s)				36.2	36.2	36.2	70.3				21.8	21.8
Actuated g/C Ratio				0.30	0.30	0.30	0.59				0.18	0.18
v/c Ratio				0.28	0.89	0.09	0.99				0.17	0.30
Control Delay				33.3	58.8	2.4	51.4				44.2	10.5
Queue Delay				0.0	0.0	0.0	0.0				0.0	0.0
Total Delay				33.3	58.8	2.4	51.4				44.2	10.5
LOS				C	E	A	D				A	D
Approach Delay				49.4			43.0				27.1	
Approach LOS				D			D				C	
Queue Length 50th (ft)				97	385	0	-767				39	0
Queue Length 95th (ft)				138	#438	m5	#1067				68	53
Internal Link Dist (ft)				545			533				177	
Turn Bay Length (ft)						200						100
Base Capacity (vph)				597	628	597	945				642	381
Slantion 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				0.25	0.79	0.08	0.99				0.17	0.30
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actual Cycle Length:	120											
Offset: 2 (2%), Referenced to phase 2:NBSB and 6: Start of Green												
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.99											
Intersection Signal Delay:	43.4											
Intersection Capacity Utilization:	89.7%											
Analysis Period (min):	15											
<ul style="list-style-type: none"> Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles. 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles. Volume for 95th percentile queue is metered by upstream signal. 												



Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - PM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	54%	38%
Maximum Green (s)	5.5	60.5	40.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)	5.0	5.0	
Flash Don't Walk (s)	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - PM
2: Horizon Road & IH 30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	4					4	4			
Traffic Volume (vph)	353	215	700	0	0	0	0	692	63	64	174	0
Future Volume (vph)	353	215	700	0	0	0	0	692	63	64	174	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	0	100	0	0	0
Storage Lanes	0	1	0	0	0	0	0	0	1	1	1	0
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.850						0.850				
Flt Protected	0.970									0.950		
Satd. Flow (prot)	0	3433	1583	0	0	0	0	3539	1583	1770	1863	0
Flt Permitted	0.970									0.300		
Satd. Flow (perm)	0	3433	1583	0	0	0	0	3539	1583	559	1863	0
Right Turn on Red		Yes			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)		724						55				
Link Speed (mph)		35			35			40				40
Link Distance (ft)		578			561			724				613
Travel Time (s)		11.3			10.9			12.3				10.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	384	234	761	0	0	0	0	752	68	70	189	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	618	761	0	0	0	0	752	68	70	189	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right	Left	Right
Median Width (ft)		0			0			12				12
Link Offset (ft)		0			0			0				0
Crosswalk Width (ft)		16			16			16				16
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm					NA	Perm	D.P+P	NA	
Protected Phases		4						2		1		1 2
Permitted Phases	4	4	4	4	4	4	4	2	2	1	2	1 2
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	8.5
Total Spill (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	65.0	65.0	65.0	10.0	10.0

Harbor Village TIA
Lanes, Volumes, Timings

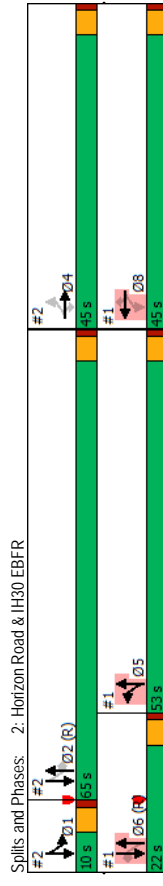
2018 - Existing - PM
2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	8.5	20.5	20.5
Total Split (s)	53.0	22.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2018 - Existing - PM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	37.5%	37.5%	37.5%				54.2%	54.2%	54.2%	8.3%		
Maximum Green (s)	40.5	40.5	40.5				60.5	60.5	60.5	5.5		
Yellow Time (s)	3.5	3.5	3.5				5.0	5.0	5.0	3.5		
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5				4.5	4.5	4.5	4.5		
Lead/Lag							Lag	Lag	Lag	Lead		
Lead/Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0		
Recall Mode	None	None	None				C-Max	C-Max	C-Max	None		
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0				0	0	0			
Act Effct Green (s)	36.2	36.2	36.2				63.2	63.2	63.2	70.3	74.8	
Actuated g/C Ratio	0.30	0.30	0.30				0.53	0.53	0.53	0.59	0.62	
v/c Ratio	0.60	0.77	0.77				0.40	0.40	0.40	0.18	0.16	
Control Delay	37.0	8.9	8.9				18.6	7.2	7.2	16.5	16.1	
Queue Delay	0.0	0.0	0.0				0.3	0.0	0.0	0.0	0.0	
Queue Length	37.0	8.9	8.9				18.9	7.2	7.2	16.5	16.1	
LOS	D	A	A				B	A	A	B	B	
Approach Delay	21.5						17.9			16.2		
Approach LOS	C						B			B		
Queue Length 50th (ft)	206	13	13				241	11	11	32	88	
Queue Length 95th (ft)	260	145	145				m281	m18	m56	133		
Internal Link Dist (ft)	498						481			644		533
Turn Bay Length (ft)	200									100		
Base Capacity (vph)	1158	1013	1013				1864	860	398	1161		
Stallion Cap Reductn	0	0	0				0	0	0	0		0
Spillback Cap Reductn	0	0	0				477	0	0	0		0
Storage Cap Reductn	0	0	0				0	0	0	0		0
Reduced v/c Ratio	0.53	0.75	0.75				0.54	0.08	0.18	0.18	0.16	
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset: 2 (2%), Referenced to phase 2:NBSB and 6: Start of Green												
Natural Cycle:	90											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.99											
Intersection Signal Delay:	19.7											
Intersection Capacity Utilization:	89.7%											
ICU Level of Service:	E											
Analysis Period (min):	15											
m Volume for 95th percentile queue is metered by upstream signal.												



Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	44%	18%	38%
Maximum Green (s)	48.5	17.5	40.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Don't Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	21	70	83	724	796	91						
Future Vol, veh/h	21	70	83	724	796	91						
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	0	200	-	-	200						
Yeh in Median Storage, #	1	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	23	76	90	787	865	99						
Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	1439	433	964	0	-	0						
Stage 1	865	-	-	-	-	-						
Stage 2	574	-	-	-	-	-						
Critical Hdwy	6.84	6.94	4.14	-	-	-						
Critical Hdwy Stg 1	5.84	-	-	-	-	-						
Critical Hdwy Stg 2	5.84	-	-	-	-	-						
Follow-up Hdwy	3.52	3.32	2.22	-	-	-						
Pd Cap-1 Maneuver	227	**771	1025	-	-	-						
Stage 1	727	-	-	-	-	-						
Stage 2	527	-	-	-	-	-						
Platoon blocked, %	1	1	1	-	-	-						
Mov Cap-1 Maneuver	207	**771	1025	-	-	-						
Mov Cap-2 Maneuver	329	-	-	-	-	-						
Stage 1	663	-	-	-	-	-						
Stage 2	527	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	11.7	0.9	0									
HCM LOS	B											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR						
Capacity (veh/h)	1025	-	329	771	-	-						
HCM Lane V/C Ratio	0.088	-	0.069	0.099	-	-						
HCM Control Delay (s)	8.9	-	16.8	10.2	-	-						
HCM Lane LOS	A	-	C	B	-	-						
HCM 95th %tile Q(veh)	0.3	-	0.2	0.3	-	-						
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	222	65	169	39	11	355						
Future Vol, veh/h	222	65	169	39	11	355						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	-	100						
Yeh in Median Storage, #	-	0	0	-	0	-						
Grade, %	-	0	0	-	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	241	71	184	42	12	386						
Major/Minor	Major1	Major2		Minor2								
Conflicting Flow All	226	0	-	0	723	113						
Stage 1	-	-	-	-	205	-						
Stage 2	-	-	-	-	518	-						
Critical Hdwy	4.14	-	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	-	3.52	3.32						
Pd Cap-1 Maneuver	1340	-	-	-	361	918						
Stage 1	-	-	-	-	809	-						
Stage 2	-	-	-	-	563	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1340	-	-	-	293	918						
Mov Cap-2 Maneuver	-	-	-	-	293	-						
Stage 1	-	-	-	-	658	-						
Stage 2	-	-	-	-	563	-						
Approach	EB	WB	SB									
HCM Control Delay, s	6.4	0	11.9									
HCM LOS	B											
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2						
Capacity (veh/h)	1340	-	-	-	293	918						
HCM Lane V/C Ratio	0.18	-	-	-	0.041	0.42						
HCM Control Delay (s)	8.3	0.1	-	-	17.8	11.7						
HCM Lane LOS	A	A	-	-	C	B						
HCM 95th %tile Q(veh)	0.7	-	-	-	0.1	2.1						

Intersection													
Int Delay, s/veh	0.4												
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations	9	280	501	24	7	10							
Traffic Vol, veh/h	9	280	501	24	7	10							
Future Vol, veh/h	0	0	0	0	0	0							
Conflicting Peds, #/hr	Free	Free	Free	Free	Stop	Stop							
Sign Control	- None - None - None												
RT Channelized	- None - None												
Storage Length	100						0						
Veh in Median Storage, #	- 0 0 - 0 - 0 -												
Grade, %	- 0 0 - 0 - 0 -												
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	10	304	545	26	8	11							

Major/Minor	Major1	Major2	Minor2									
Conflicting Flow All	571	0	0	730	286							
Stage 1	-	-	-	558	-							
Stage 2	-	-	-	172	-							
Critical Hdwy	4.14	-	-	6.84	6.94							
Critical Hdwy Stg 1	-	-	-	5.84	-							
Critical Hdwy Stg 2	-	-	-	5.84	-							
Follow-up Hdwy	2.22	-	-	3.52	3.32							
Pd Cap-1 Maneuver	998	-	-	357	711							
Stage 1	-	-	-	537	-							
Stage 2	-	-	-	841	-							
Platoon blocked, %												
Mov Cap-1 Maneuver	998	-	-	353	711							
Mov Cap-2 Maneuver	-	-	-	353	-							
Stage 1	-	-	-	531	-							
Stage 2	-	-	-	841	-							

Approach	EB	WB	SB									
HCM Control Delay, s	0.3	0	12.4									
HCM LOS	B											

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR						
Capacity (veh/h)	998	-	-	-	502	-						
HCM Lane V/C Ratio	0.01	-	-	-	0.037	-						
HCM Control Delay (s)	8.6	0	-	-	12.4	-						
HCM Lane LOS	A	A	-	-	B	-						
HCM 95th %tile Q(veh)	0	-	-	-	0.1	-						

Intersection												
Int Delay, s/veh	5.9											
Movement	EBT	EBR	WBL	WBT	NBL	NBR						
Lane Configurations	14	4	15	3	8	29						
Traffic Vol, veh/h	14	4	15	3	8	29						
Future Vol, veh/h	0	0	0	0	0	0						
Conflicting Peds, #/hr	Free	Free	Free	Free	Stop	Stop						
Sign Control	- None - None - None											
RT Channelized	- None - None											
Storage Length	- - - - - 0 0											
Veh in Median Storage, #	0 - - - 0 0 -											
Grade, %	0 - - - 0 0 -											
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	15	4	16	3	9	32						

Major/Minor	Major1	Major2	Minor1									
Conflicting Flow All	0	0	19	0	52	17						
Stage 1	-	-	-	17	-							
Stage 2	-	-	-	35	-							
Critical Hdwy	-	-	4.12	-	6.42	6.22						
Critical Hdwy Stg 1	-	-	-	-	5.42	-						
Critical Hdwy Stg 2	-	-	-	-	5.42	-						
Follow-up Hdwy	-	-	2.218	-	3518	3318						
Pd Cap-1 Maneuver	-	-	1597	-	957	1062						
Stage 1	-	-	-	-	1006	-						
Stage 2	-	-	-	-	987	-						
Platoon blocked, %												
Mov Cap-1 Maneuver	-	-	1597	-	947	1062						
Mov Cap-2 Maneuver	-	-	-	-	947	-						
Stage 1	-	-	-	-	996	-						
Stage 2	-	-	-	-	987	-						

Approach	EB	WB	NB									
HCM Control Delay, s	0	6.1	8.6									
HCM LOS	A											

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT						
Capacity (veh/h)	947	1062	-	-	1597	-						
HCM Lane V/C Ratio	0.009	0.03	-	-	0.01	-						
HCM Control Delay (s)	8.8	8.5	-	-	7.3	0						
HCM Lane LOS	A	A	-	-	A	A						
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-						

Intersection													
Int Delay, s/veh	0.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	0	36	0	0	0	0	0	0	246	2	378	15	4
Traffic Vol, veh/h	0	36	0	0	0	0	0	0	246	2	378	15	
Future Vol, veh/h	0	36	0	0	0	0	0	0	246	2	378	15	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	39	0	0	0	0	0	0	267	2	411	16	
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	- 690	419	- 565	- 134	- 431	- 412	- 267	0	0	0	0	0	0
Stage 1	- 423	- 267	- 431	- 412	- 267	- 412	- 267	0	0	0	0	0	0
Stage 2	- 267	- 431	- 412	- 267	- 412	- 267	- 412	- 267	- 412	- 267	- 412	- 267	- 412
Critical Hdwy	- 6.52	6.22	- 6.52	- 5.52	- 5.52	- 4.12	- 4.12	- 4.12	- 4.12	- 4.12	- 4.12	- 4.12	- 4.12
Critical Hdwy Stg 1	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52
Critical Hdwy Stg 2	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52	- 5.52
Follow-up Hdwy	- 4.018	3.318	- 4.018	- 4.018	- 4.018	- 2.218	- 2.218	- 2.218	- 2.218	- 2.218	- 2.218	- 2.218	- 2.218
Pd Cap-1 Maneuver	0	368	634	0	434	0	0	0	0	0	0	0	0
Stage 1	0	588	- 0	785	0	0	0	0	0	0	0	0	0
Stage 2	0	688	- 0	583	0	0	0	0	0	0	0	0	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	- 367	634	- 433	- 433	- 433	- 1297	- 1297	- 1297	- 1297	- 1297	- 1297	- 1297	- 1297
Mov Cap-2 Maneuver	- 367	- 367	- 433	- 433	- 433	- 433	- 433	- 433	- 433	- 433	- 433	- 433	- 433
Stage 1	- 587	- 587	- 785	- 785	- 785	- 785	- 785	- 785	- 785	- 785	- 785	- 785	- 785
Stage 2	- 688	- 688	- 582	- 582	- 582	- 582	- 582	- 582	- 582	- 582	- 582	- 582	- 582
Approach	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	16	0	0	0	0	0	0						
HCM LOS	C	A	A	A	A	A	A						
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR						
Capacity (veh/h)	-	-	367	-	1297	-	-						
HCM Lane V/C Ratio	-	-	0.107	-	0.002	-	-						
HCM Control Delay (s)	-	-	16	0	7.8	0	-						
HCM Lane LOS	-	-	C	A	A	A	A						
HCM 95th %tile Q(veh)	-	-	0.4	-	0	-	-						

Intersection													
Int Delay, s/veh	0												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	18	0	0	0	11	0	0	0	0	0	0	0	0
Traffic Vol, veh/h	18	0	0	0	11	0	0	0	0	0	0	0	0
Future Vol, veh/h	18	0	0	0	11	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	0	-	-	0	-	-	0	-
Grade, %	0	-	-	-	0	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	0	0	0	12	0	0	0	0	0	0	0	0
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	- 0	0	0	20	0	- 20	- 20	0	0	0	0	0	0
Stage 1	- 0	0	0	20	0	- 20	- 20	0	0	0	0	0	0
Stage 2	- 20	- 20	- 20	- 20	- 20	- 20	- 20	- 20	- 20	- 20	- 20	- 20	- 20
Critical Hdwy	-	-	-	4.12	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	2.218	-	-	-	-	-	-	-	-	-
Pd Cap-1 Maneuver	-	-	-	1596	-	0	1058	-	1058	-	0	1058	-
Stage 1	-	-	-	-	-	0	0	-	0	-	0	-	0
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1596	-	-	1058	-	1058	-	-	1058	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	0	0	0	0	0	0	0						
HCM LOS	A	A	A	A	A	A	A						
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	WBR	NBR						
Capacity (veh/h)	-	-	-	-	-	-	1596						
HCM Lane V/C Ratio	-	-	-	-	-	-	-						
HCM Control Delay (s)	-	-	-	-	-	-	0						
HCM Lane LOS	-	-	-	-	-	-	A						
HCM 95th %tile Q(veh)	-	-	-	-	-	-	0						

Intersection													
Int Delay, s/veh	0												
Movement	EBL	EBR	NBL	NBT	SBT	SBR							
Lane Configurations	↔	↔	↔	↔	↔	↔							
Traffic Vol, veh/h	0	0	0	37	19	0							
Future Vol, veh/h	0	0	0	37	19	0							
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	-	150	-	-	-							
Veh in Median Storage, #	0	-	0	0	0	-							
Grade, %	0	-	0	0	0	-							
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	0	0	0	40	21	0							
Major/Minor	Minor2	Major1	Minor2	Major1	Minor2	Major1							
Conflicting Flow All	61	21	21	0	-	0							
Stage 1	-	-	-	-	-	-							
Stage 2	40	-	-	-	-	-							
Critical Hdwy	6.42	6.22	4.12	-	-	-							
Critical Hdwy Stg 1	5.42	-	-	-	-	-							
Critical Hdwy Stg 2	5.42	-	-	-	-	-							
Follow-up Hdwy	3.518	3.318	2.218	-	-	-							
Pd Cap-1 Maneuver	945	1056	1595	-	-	-							
Stage 1	1002	-	-	-	-	-							
Stage 2	982	-	-	-	-	-							
Platoon blocked, %	-	-	-	-	-	-							
Mov Cap-1 Maneuver	945	1056	1595	-	-	-							
Mov Cap-2 Maneuver	945	-	-	-	-	-							
Stage 1	1002	-	-	-	-	-							
Stage 2	982	-	-	-	-	-							
Approach	EB	NB	SB										
HCM Control Delay, s	0	0	0										
HCM LOS	A												
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR								
Capacity (veh/h)	1595	-	-	-	-								
HCM Lane V/C Ratio	-	-	-	-	-								
HCM Control Delay (s)	0	-	0	-	-								
HCM Lane LOS	A	-	A	-	-								
HCM 95th %tile Q(veh)	0	-	-	-	-								

Intersection												
Int Delay, s/veh	2.2											
Movement	EBT	EBR	WBL	WBT	NBL	NBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	1205	22	0	0	0	155						
Future Vol, veh/h	1205	22	0	0	0	155						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Stop	Stop	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	150	-	-	-	0						
Veh in Median Storage, #	0	-	-	16983	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	1310	24	0	0	0	168						
Major/Minor	Major1	Minor1										
Conflicting Flow All	0	0	-	-	-	655						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	-	-	-	-	6.94						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	-	-	-	-	3.32						
Pd Cap-1 Maneuver	-	-	-	-	-	409						
Stage 1	-	-	-	-	-	0						
Stage 2	-	-	-	-	-	0						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	409						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Approach	EB	NB										
HCM Control Delay, s	0	19.8										
HCM LOS	C	C										
Minor Lane/Major Mvmt	NBLn1	EBT	EBR									
Capacity (veh/h)	409	-	-									
HCM Lane V/C Ratio	0.412	-	-									
HCM Control Delay (s)	19.8	-	-									
HCM Lane LOS	C	-	-									
HCM 95th %tile Q(veh)	2	-	-									

Intersection	
Intersection Delay - s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol. veh/h	0	36	0	0	0	0	0	0	246	2	378	15
Future Vol. veh/h	0	36	0	0	0	0	0	0	246	2	378	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	39	0	0	0	0	0	0	267	2	411	16
Number of Lanes	0	1	0	0	0	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach			
Opposing Lanes	0	SB	NB
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.7	8.4	11.5
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	0%	1%
Vol Thru, %	0%	100%	96%
Vol Right, %	100%	0%	4%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	246	36	395
LT Vol	0	0	2
Through Vol	0	36	378
RT Vol	246	0	15
Lane Flow Rate	267	39	429
Geometry Grp	1	1	1
Degree of Utl (X)	0.287	0.058	0.499
Departure Headway (Hd)	3.866	5.356	4.183
Convergence, Y/N	Yes	Yes	Yes
Cap	933	671	850
Service Time	1.873	3.372	2.273
HCM Lane V/C Ratio	0.286	0.058	0.505
HCM Control Delay	8.4	8.7	11.5
HCM Lane LOS	A	A	B
HCM 95th-ile Q	1.2	0.2	2.8

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - AM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	132	375	8	1101	93	0	0	79	142
Future Volume (vph)	0	0	0	132	375	8	1101	93	0	0	79	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	0	0	0	0	0	100
Storage Lanes	0	0	0	1	1	1	1	1	0	0	0	1
Taper Length (ft)	25	0	0	25	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ft				0.850							0.850	
Fill Protected				0.950								
Said. Flow (prot)	0	0	0	1770	1863	1583	1770	1863	0	0	3539	1583
Fill Permitted				0.950		0.698						
Said. Flow (perm)	0	0	0	1770	1863	1583	1300	1863	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Said. Flow (RTOR)			82			82						101
Link Speed (mph)	45	45	45	45	45	45	40	40	40	40	40	40
Link Distance (ft)	625	625	625	834	834	834	461	461	461	257	257	257
Travel Time (s)	9.5	9.5	9.5	12.6	12.6	12.6	7.9	7.9	7.9	4.4	4.4	4.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	143	408	9	1197	101	0	0	86	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	143	408	9	1197	101	0	0	86	154
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Left	Right
Median Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	5	5	5	5	5	5	5	5	6
Permitted Phases	8	8	8	8	8	8	8	8	8	8	8	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Spill (s)	36.0	36.0	36.0	36.0	36.0	36.0	63.0	63.0	63.0	21.0	21.0	21.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - AM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Said. Flow (prot)			
Fill Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.0	20.0	20.0
Total Spill (s)	9.0	75.0	36.0

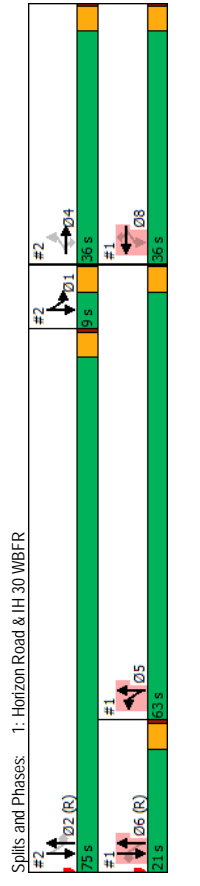
Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - AM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	52.5%				17.5%	17.5%
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	59.0				17.0	17.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5				3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5				0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0				4.0	4.0
Lead/Lag							Lag				Lead	
Lead/Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	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	None	None				C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0				5.0	5.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0				11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0				0	0
Act Effct Green (s)	29.6	29.6	29.6	29.6	29.6	29.6	78.4				19.4	19.4
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.25	0.65				0.16	0.16
v/c Ratio	0.33	0.89	0.02	1.11	0.08						0.15	0.45
Control Delay	32.3	56.3	0.1	83.0	4.6						45.4	22.7
Queue Delay	0.0	0.0	0.0	0.1	0.0						0.0	0.0
Total Delay	32.3	56.3	0.1	83.0	4.6						45.4	22.7
LOS	C	E	A	F	A						D	C
Approach Delay				49.3			76.9				30.8	
Approach LOS				D			E				C	
Queue Length 50th (ft)	66	204	0	-1102	18						31	37
Queue Length 95th (ft)	125	#439	m0	#1352	32						56	105
Internal Link Dist (ft)		545		754			381				177	
Turn Bay Length (ft)				200							100	
Base Capacity (vph)	472	496	482	1080	1280						573	340
Storage Cap Reductn	0	0	0	0	16		0				0	0
Spillback Cap Reductn	0	0	0	0	0		0				0	0
Storage Cap Reductn	0	0	0	0	0		0				0	0
Reduced v/c Ratio	0.30	0.82	0.02	1.13	0.08						0.15	0.45

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - AM
1: Horizon Road & IH 30 WBFR



Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - AM
1: Horizon Road & IH 30 WBFR

Area Type	Other
Cycle Length	120
Actual Cycle Length	120
Offset: 20 (17%)	Referenced to phase 2:NBSB and 6: Start of Green
Natural Cycle	130
Control Type	Actuated-Coordinated
Maximum v/c Ratio	1.11
Intersection Signal Delay	64.3
Intersection Capacity Utilization	87.4%
Analysis Period (min)	15
ICU Level of Service	E

~ Volume exceeds capacity, queue is theoretically infinite.
 ~ Queue shown is maximum after two cycles.
 # 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.

Harbor Village TIA
Lanes, Volumes, Timings

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - AM
1: Horizon Road & IH 30 WBFR

2021 - Background - AM
2: Horizon Road & IH 30 EBFR

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	63%	30%
Maximum Green (s)	5.0	71.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)	5.0	5.0	
Flash Don't Walk (s)	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	115	554	0	0	0	0	882	30	43	248	0
Future Volume (vph)	266	115	554	0	0	0	0	882	30	43	248	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	1	0	0	0	0	0	1	1	1	0	0
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected			0.966							0.950		
Satd. Flow (prot)	0	3419	1583	0	0	0	0	3539	1583	1770	1863	0
Flt Permitted			0.966							0.241		
Satd. Flow (perm)	0	3419	1583	0	0	0	0	3539	1583	449	1863	0
Right Turn on Red			Yes			Yes		Yes	Yes		Yes	Yes
Satd. Flow (RTOR)			602					45				
Link Speed (mph)			35					40				40
Link Distance (ft)			557			558		726				461
Travel Time (s)			10.9			10.9		12.4				7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	289	125	602	0	0	0	0	959	33	47	270	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	414	602	0	0	0	0	959	33	47	270	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right
Median Width (ft)			0			0		12			12	
Link Offset (ft)			0			0		0			0	
Crosswalk Width (ft)			16			16		16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	D.P+P	NA	NA
Protected Phases		4						2		1	1	1
Permitted Phases	4	4	4	4	4	4	4	2	2	2	2	2
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	8.0
Total Spill (s)	36.0	36.0	36.0	36.0	36.0	36.0	36.0	75.0	75.0	75.0	9.0	9.0

Harbor Village TIA
Lanes, Volumes, Timings

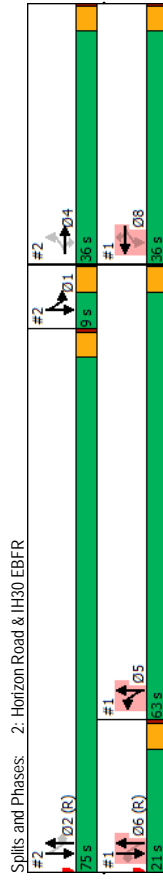
2021 - Background - AM
2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0
Total Split (s)	63.0	21.0	36.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - AM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	30.0%	30.0%	30.0%				62.5%	62.5%	62.5%	7.5%		
Maximum Green (s)	32.0	32.0	32.0				71.0	71.0	71.0	5.0		
Yellow Time (s)	3.5	3.5	3.5				3.5	3.5	3.5	3.5		
All-Red Time (s)	0.5	0.5	0.5				0.5	0.5	0.5	0.5		
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0				4.0	4.0	4.0	4.0		
Lead/Lag							Lead	Lead	Lead	Lag		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0		
Recall Mode	None	None	None				C-Max	C-Max	C-Max	None		
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0				0	0	0			
Act Effct Green (s)	29.6	29.6	29.6				73.4	73.4	73.4	78.4		
Actuated g/C Ratio	0.25	0.25	0.25				0.61	0.61	0.61	0.65		
v/c Ratio	0.49	0.71	0.71				0.44	0.03	0.14	0.21		
Control Delay	40.9	8.5	8.5				9.4	0.6	14.3	13.3		
Queue Delay	0.0	0.0	0.0				0.3	0.0	0.0	0.0		
Total Delay	40.9	8.5	8.5				9.7	0.6	14.3	13.3		
LOS	D	A	A				A	A	A	B		
Approach Delay	21.7						9.4			13.5		
Approach LOS	C						A			B		
Queue Length 50th (ft)	142	6	6				150	0	18	124		
Queue Length 95th (ft)	192	107	107				173	m2	39	258		
Internal Link Dist (ft)	477						646			381		
Turn Bay Length (ft)	200						200			100		
Base Capacity (vph)	911	863	863				2165	985	348	1280		
Stallion Cap Reductn	0	0	0				0	0	0	0		
Spillback Cap Reductn	0	0	0				564	0	0	0		
Storage Cap Reductn	0	0	0				0	0	0	0		
Reduced v/c Ratio	0.45	0.70	0.70				0.60	0.03	0.14	0.21		
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset:	20 (17%), Referenced to phase 2:NBSB and 6:, Start of Green											
Natural Cycle:	130											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	1.11											
Intersection Signal Delay:	15.3											
Intersection Capacity Utilization:	87.4%											
ICU Level of Service:	E											
Analysis Period (min):	15											
m	Volume for 95th percentile queue is metered by upstream signal.											



Harbor Village TIA
 Lanes, Volumes, Timings

2021 - Background - AM

2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	53%	18%	30%
Maximum Green (s)	59.0	17.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Don't Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	72	62	98	843	618	137						
Future Vol, veh/h	72	62	98	843	618	137						
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	0	200	-	-	200						
Yeh in Median Storage, #	1	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	78	67	107	916	672	149						

Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	1344	336	821	0	-	0						
Stage 1	672	-	-	-	-	-						
Stage 2	672	-	-	-	-	-						
Critical Hdwy	6.84	6.94	4.14	-	-	-						
Critical Hdwy Stg 1	5.84	-	-	-	-	-						
Critical Hdwy Stg 2	5.84	-	-	-	-	-						
Follow-up Hdwy	3.52	3.32	2.22	-	-	-						
Pd Cap-1 Maneuver	222	*848	1057	-	-	-						
Stage 1	777	-	-	-	-	-						
Stage 2	469	-	-	-	-	-						
Platoon blocked, %	1	1	1	-	-	-						
Mov Cap-1 Maneuver	200	*848	1057	-	-	-						
Mov Cap-2 Maneuver	294	-	-	-	-	-						
Stage 1	698	-	-	-	-	-						
Stage 2	469	-	-	-	-	-						

Approach	EB	NB	SB						
HCM Control Delay, s	16	0.9	0						
HCM LOS	C								

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR						
Capacity (veh/h)	1057	-	294	848	-	-						
HCM Lane V/C Ratio	0.101	-	0.266	0.079	-	-						
HCM Control Delay (s)	8.8	-	21.6	9.6	-	-						
HCM Lane LOS	A	-	C	A	-	-						
HCM 95th %tile Q(veh)	0.3	-	1	0.3	-	-						

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

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	203	67	81	42	42	186						
Future Vol, veh/h	203	67	81	42	42	186						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	-	100						
Yeh in Median Storage, #	-	0	0	0	0	-						
Grade, %	-	0	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	221	73	88	46	46	202						

Major/Minor	Major1	Major2	Minor2									
Conflicting Flow All	134	0	-	0	590	67						
Stage 1	-	-	-	-	111	-						
Stage 2	-	-	-	-	479	-						
Critical Hdwy	4.14	-	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	-	3.52	3.32						
Pd Cap-1 Maneuver	1448	-	-	-	439	983						
Stage 1	-	-	-	-	901	-						
Stage 2	-	-	-	-	589	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1448	-	-	-	369	983						
Mov Cap-2 Maneuver	-	-	-	-	369	-						
Stage 1	-	-	-	-	758	-						
Stage 2	-	-	-	-	589	-						

Approach	EB	WB	SB						
HCM Control Delay, s	6	0	10.8						
HCM LOS		B							

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2						
Capacity (veh/h)	1448	-	-	-	369	983						
HCM Lane V/C Ratio	0.152	-	-	-	0.124	0.206						
HCM Control Delay (s)	7.9	0.1	-	-	16.1	9.6						
HCM Lane LOS	A	A	-	-	C	A						
HCM 95th %tile Q(veh)	0.5	-	-	-	0.4	0.8						

Intersection		0.7									
Int Delay, s/veh											
Movement	EBL	EBT	WBT	WBR	SBL	SBR					
Lane Configurations	16	258	217	49	11	9					
Traffic Vol, veh/h	16	258	217	49	11	9					
Future Vol, veh/h	0	0	0	0	0	0					
Conflicting Peds, #/hr	0	0	0	0	0	0					
Sign Control	Free	Free	Free	Free	Stop	Stop					
RT Channelized	-	None	-	None	-	None					
Storage Length	-	-	-	-	-	0					
Veh in Median Storage, #	-	0	0	-	0	-					
Grade, %	-	0	0	-	0	-					
Peak Hour Factor	92	92	92	92	92	92					
Heavy Vehicles, %	2	2	2	2	2	2					
Mvmt Flow	17	280	236	53	12	10					
Major/Minor	Major1	Major2	Minor1								
Conflicting Flow All	289	0	0	437	145						
Stage 1	-	-	-	263	-						
Stage 2	-	-	-	174	-						
Critical Hdwy	4.14	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	3.52	3.32						
Pd Cap-1 Maneuver	1270	-	-	548	876						
Stage 1	-	-	-	757	-						
Stage 2	-	-	-	839	-						
Platoon blocked, %	-	-	-	-	-						
Mov Cap-1 Maneuver	1270	-	-	539	876						
Mov Cap-2 Maneuver	-	-	-	539	-						
Stage 1	-	-	-	745	-						
Stage 2	-	-	-	839	-						
Approach	EB	WB	SB								
HCM Control Delay, s	0.6	0	10.7								
HCM LOS	B										
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR					
Capacity (veh/h)	1270	-	-	-	-	652					
HCM Lane V/C Ratio	0.014	-	-	-	-	0.033					
HCM Control Delay (s)	7.9	0.1	-	-	-	10.7					
HCM Lane LOS	A	A	-	-	-	B					
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1					

Intersection		6.2									
Int Delay, s/veh											
Movement	EBT	EBR	WBT	WBR	NBL	NBR					
Lane Configurations	16	1	12	8	16	43					
Traffic Vol, veh/h	16	1	12	8	16	43					
Future Vol, veh/h	0	0	0	0	0	0					
Conflicting Peds, #/hr	0	0	0	0	0	0					
Sign Control	Free	Free	Free	Free	Stop	Stop					
RT Channelized	-	None	-	None	-	None					
Storage Length	-	-	-	-	0	0					
Veh in Median Storage, #	0	-	-	0	0	-					
Grade, %	-	0	-	0	0	-					
Peak Hour Factor	92	92	92	92	92	92					
Heavy Vehicles, %	2	2	2	2	2	2					
Mvmt Flow	17	1	13	9	17	47					
Major/Minor	Major1	Major2	Minor1								
Conflicting Flow All	0	0	18	0	53	18					
Stage 1	-	-	-	-	18	-					
Stage 2	-	-	-	-	35	-					
Critical Hdwy	-	-	4.12	-	6.42	6.22					
Critical Hdwy Stg 1	-	-	-	-	5.42	-					
Critical Hdwy Stg 2	-	-	-	-	5.42	-					
Follow-up Hdwy	-	-	2.218	-	3.518	3.318					
Pd Cap-1 Maneuver	-	-	1599	-	955	1061					
Stage 1	-	-	-	-	1005	-					
Stage 2	-	-	-	-	987	-					
Platoon blocked, %	-	-	-	-	-	-					
Mov Cap-1 Maneuver	-	-	1599	-	947	1061					
Mov Cap-2 Maneuver	-	-	-	-	947	-					
Stage 1	-	-	-	-	997	-					
Stage 2	-	-	-	-	987	-					
Approach	EB	WB	NB								
HCM Control Delay, s	0	4.4	8.6								
HCM LOS	A										
Minor Lane/Major Mvmt	NBL	NBLn2	EBT	EBR	WBL	WBT					
Capacity (veh/h)	947	1061	-	-	1599	-					
HCM Lane V/C Ratio	0.018	0.044	-	-	0.008	-					
HCM Control Delay (s)	8.9	8.5	-	-	7.3	0					
HCM Lane LOS	A	A	-	-	A	A					
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-					

Harbor Village TIA
 HCM 6th TWSC

2021 - Background - AM
 7: Shoreline Trail & IH30 EBFR

Intersection													
Int Delay, s/veh													1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	0	37	0	0	0	0	0	0	235	2	234	21	4
Traffic Vol, veh/h	0	37	0	0	0	0	0	0	235	2	234	21	
Future Vol, veh/h	0	37	0	0	0	0	0	0	235	2	234	21	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	40	0	0	0	0	0	0	255	2	254	23	
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	-	525	266	-	409	-	-	0	0	255	0	0	
Stage 1	-	270	-	-	128	-	-	-	-	-	-	-	
Stage 2	-	255	-	-	281	-	-	-	-	-	-	-	
Critical Hdwy	-	6.52	6.22	-	6.52	-	-	-	-	4.12	-	-	
Critical Hdwy Stg 1	-	5.52	-	-	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	5.52	-	-	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	-	4,018	3,318	-	4,018	-	-	-	-	2,218	-	-	
Pd Cap-1 Maneuver	0	458	773	0	532	0	0	-	-	1,310	-	-	
Stage 1	0	686	-	0	790	0	0	-	-	-	-	-	
Stage 2	0	696	-	0	678	0	0	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	-	457	773	-	531	-	-	-	-	1,310	-	-	
Mov Cap-2 Maneuver	-	457	-	-	531	-	-	-	-	-	-	-	
Stage 1	-	685	-	-	790	-	-	-	-	-	-	-	
Stage 2	-	696	-	-	677	-	-	-	-	-	-	-	
Approach	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	13.6	0	0	0	0	0.1	0.1						
HCM LOS	B	A	A										
Minor Lane/Major Mvmt	NBT	NBR	EBL	WBL	NBL	SBL	SBT	SBR					
Capacity (veh/h)	-	-	457	-	1310	-	-	-					
HCM Lane V/C Ratio	-	-	0.088	-	0.002	-	-	-					
HCM Control Delay (s)	-	-	13.6	0	7.8	0	-	-					
HCM Lane LOS	-	-	B	A	A	A	A	A					
HCM 95th %tile Q(veh)	-	-	0.3	-	0	-	-	-					

Harbor Village TIA
 HCM 6th TWSC

2021 - Background - AM
 8: North Drive & IH30 EBFR

Intersection													
Int Delay, s/veh													0
Movement	EBT	EBR	WBL	WBT	NBL	NBR							
Lane Configurations	1	1	0	0	25	0	0	0	0	0	0	0	0
Traffic Vol, veh/h	17	0	0	0	25	0	0	0	0	0	0	0	0
Future Vol, veh/h	17	0	0	0	25	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	-	None	-	None	-	-	None	-	-	0
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	0	-	-	0	0	-	-	-
Grade, %	0	-	-	-	0	0	-	-	0	0	-	-	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	0	0	27	0	0	0	0	0	0	0	0
Major/Minor	Major1	Major2	Minor1										
Conflicting Flow All	0	0	18	0	-	-	-	-	-	-	-	-	18
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	-	-	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2,218	-	-	-	-	-	-	-	-	-	3,318
Pd Cap-1 Maneuver	-	-	1,599	-	0	1,061	-	-	-	-	-	-	-
Stage 1	-	-	-	-	0	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	0	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1,599	-	-	1,061	-	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB	WB	WB	NB	NB								
HCM Control Delay, s	0	0	0	0	0								
HCM LOS	A	A	A										
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT								
Capacity (veh/h)	-	-	-	-	-	1,599	-	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	0	0	0	-	-	-	-	-	-	-	-
HCM Lane LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
HCM 95th %tile Q(veh)	-	-	-	-	-	0	-	-	-	-	-	-	-

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	0	0	0	60	13	0						
Future Vol, veh/h	0	0	0	60	13	0						
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	-	150	-	-	-						
Veh in Median Storage, #	0	-	0	0	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	0	0	0	65	14	0						
Major/Minor	Minor2	Major1	Minor1	Major2								
Conflicting Flow All	79	14	14	0	-	0						
Stage 1	14	-	-	-	-	-						
Stage 2	65	-	-	-	-	-						
Critical Hdwy	6.42	6.22	4.12	-	-	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	2.218	-	-	-						
Pd Cap-1 Maneuver	924	1066	1604	-	-	-						
Stage 1	1009	-	-	-	-	-						
Stage 2	958	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	924	1066	1604	-	-	-						
Mov Cap-2 Maneuver	924	-	-	-	-	-						
Stage 1	1009	-	-	-	-	-						
Stage 2	958	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	0	0	0									
HCM LOS	A											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR							
Capacity (veh/h)	1604	-	-	-	-							
HCM Lane V/C Ratio	-	-	-	-	-							
HCM Control Delay (s)	0	-	0	-	-							
HCM Lane LOS	A	-	A	-	-							
HCM 95th %tile Q(veh)	0	-	-	-	-							

Intersection												
Int Delay, s/veh	1											
Movement	EBT	EBR	WBL	WBT	NBL	NBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	1087	121	0	0	0	82						
Future Vol, veh/h	1087	121	0	0	0	82						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Stop	Stop	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	150	-	-	-	0						
Veh in Median Storage, #	0	-	-	16983	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	1182	132	0	0	0	89						
Major/Minor	Major1	Minor1										
Conflicting Flow All	0	0	-	-	-	591						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	-	-	-	-	6.94						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	-	-	-	-	3.32						
Pd Cap-1 Maneuver	-	-	-	-	-	450						
Stage 1	-	-	-	-	-	0						
Stage 2	-	-	-	-	-	0						
Platoon blocked, %	-	-	-	-	-	0						
Mov Cap-1 Maneuver	-	-	-	-	-	450						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Approach	EB	NB										
HCM Control Delay, s	0	15										
HCM LOS	C	C										
Minor Lane/Major Mvmt	NBLn1	EBT	EBR									
Capacity (veh/h)	450	-	-									
HCM Lane V/C Ratio	0.198	-	-									
HCM Control Delay (s)	15	-	-									
HCM Lane LOS	C	-	-									
HCM 95th %tile Q(veh)	0.7	-	-									

Intersection	
Intersection Delay - s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔							↔		↔	
Traffic Vol. veh/h	0	37	0	0	0	0	0	0	235	2	234	21
Future Vol. veh/h	0	37	0	0	0	0	0	0	235	2	234	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	40	0	0	0	0	0	0	255	2	254	23
Number of Lanes	0	1	0	0	0	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.3	8	9.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	0%	1%
Vol Thru, %	0%	100%	91%
Vol Right, %	100%	0%	8%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	235	37	257
LT Vol	0	0	2
Through Vol		0	37
RT Vol	235	0	21
Lane Flow Rate	255	40	279
Geometry Grp	1	1	1
Degree of Utl (X)	0.264	0.056	0.322
Departure Headway (Hd)	3.714	5.007	4.15
Convergence, Y/N	Yes	Yes	Yes
Cap	973	717	858
Service Time	1.718	3.021	2.223
HCM Lane V/C Ratio	0.262	0.056	0.325
HCM Control Delay	8	8.3	9.2
HCM Lane LOS	A	A	A
HCM 95th-ile Q	1.1	0.2	1.4

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	237	472	45	1074	227	0	0	115	108
Future Volume (vph)	0	0	0	237	472	45	1074	227	0	0	115	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	0	0	0	0	0	100
Storage Lanes	0	0	0	1	1	1	1	1	0	0	1	1
Taper Length (ft)	25	0	0	25	0	25	0	0	0	25	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ft				0.850							0.850	
Fill Protected				0.950								
Satd. Flow (prot)	0	0	0	1770	1863	1583	1770	1863	0	0	3539	1583
Fill Permitted				0.950		0.673						
Satd. Flow (perm)	0	0	0	1770	1863	1583	1254	1863	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)				95		95						94
Link Speed (mph)	45	45	45	45	45	45	40	40	40	40	40	40
Link Distance (ft)	625	912	912	912	912	912	613	613	257	257	257	257
Travel Time (s)	9.5	13.8	13.8	10.4	10.4	10.4	4.4	4.4	4.4	4.4	4.4	4.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	258	513	49	1167	247	0	0	125	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	258	513	49	1167	247	0	0	125	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Left	Right	Left	Right	Left	Right
Median Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+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	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	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	0.0
Turn Type	Perm	NA	Perm	D.P+P	NA	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	8	8	8	5	5	5	6	6	6
Permitted Phases	8	8	8	8	8	8	5	5	5	6	6	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
Total Spill (s)	45.0	45.0	45.0	45.0	45.0	45.0	53.0	53.0	53.0	22.0	22.0	22.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Satd. Flow (prot)			
Fill Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.5	20.5	20.5
Total Spill (s)	10.0	65.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	37.5%	37.5%	37.5%	44.2%	44.2%	44.2%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%
Maximum Green (s)	40.5	40.5	40.5	48.5	48.5	48.5	3.5	3.5	3.5	3.5	3.5	3.5
Yellow Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	4.5	4.5	4.5	4.5	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	37.5	37.5	37.5	69.0	69.0	69.0	20.5	20.5	20.5	20.5	20.5	20.5
Actuated g/C Ratio	0.31	0.31	0.31	0.58	0.58	0.58	0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.47	0.88	0.09	1.26	0.22	0.22	0.21	0.34	0.21	0.34	0.21	0.34
Control Delay	36.9	57.6	2.1	148.3	9.2	16.5	45.2	16.5	45.2	16.5	45.2	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	57.6	2.1	148.3	9.2	16.5	45.2	16.5	45.2	16.5	45.2	16.5
LOS	D	E	A	F	A	F	A	A	D	D	D	B
Approach Delay	47.7			124.0			31.3					
Approach LOS	D			F			C					
Queue Length 50th (ft)	172	390	1	-1190	78	45	45	16				
Queue Length 95th (ft)	227	#527	m5	#1456	m112	75	75	71				
Internal Link Dist (ft)	545			533			177					
Turn Bay Length (ft)				200			100					
Base Capacity (vph)	597	628	597	929	1140	604	348					
Storage Cap Reductn	0	0	0	0	0	0	0					
Spillback Cap Reductn	0	0	0	0	0	0	0					
Storage Cap Reductn	0	0	0	0	0	0	0					
Reduced v/c Ratio	0.43	0.82	0.08	1.26	0.22	0.21	0.34					

Intersection Summary

Area Type: Other

Cycle Length: 120

Actual Cycle Length: 120

Offset: 2 (2%), Referenced to phase 2:NBSB and 6: Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.26

Intersection Signal Delay: 89.7

Intersection Capacity Utilization 97.0%

Analysis Period (min) 15

ICU Level of Service F

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Volume for 95th percentile queue is metered by upstream signal.

Spills and Phases: 1: Horizon Road & IH 30 WBFR

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	54%	38%
Maximum Green (s)	5.5	60.5	40.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)	5.0	5.0	5.0
Flash Don't Walk (s)	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	474	286	740	0	0	0	0	796	93	66	285	0
Future Volume (vph)	474	286	740	0	0	0	0	796	93	66	285	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	1	0	0	0	0	0	1	1	1	1	0
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.970									0.950		
Satd. Flow (prot)	0	3433	1583	0	0	0	0	3539	1583	1770	1863	0
Flt Permitted	0.970									0.247		
Satd. Flow (perm)	0	3433	1583	0	0	0	0	3539	1583	460	1863	0
Right Turn on Red			Yes			Yes		Yes	Yes			Yes
Satd. Flow (RTOR)			554					67				
Link Speed (mph)			35			35		40				40
Link Distance (ft)			578			561		724				613
Travel Time (s)			11.3			10.9		12.3				10.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	515	311	804	0	0	0	0	865	101	72	310	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	826	804	0	0	0	0	865	101	72	310	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right
Median Width (ft)			0			0		12			12	
Link Offset (ft)			0			0		0			0	
Crosswalk Width (ft)			16			16		16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	D.P+P	NA
Protected Phases		4						2			1	1
Permitted Phases	4	4	4	4	4	4	4	2	2	2	1	1
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	8.5	8.5
Total Spill (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	65.0	65.0	65.0	10.0	10.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
2: Horizon Road & IH30 EBFR

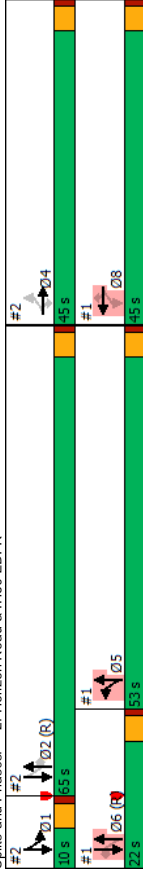
Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Said. Flow (prot)			
Flt Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	8.5	20.5	20.5
Total Split (s)	53.0	22.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Total Spill (%)	37.5%	37.5%	37.5%				54.2%	54.2%	54.2%	8.3%	
Maximum Green (s)	40.5	40.5	40.5				60.5	60.5	60.5	5.5	
Yellow Time (s)	3.5	3.5	3.5				5.0	5.0	5.0	3.5	
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5				4.5	4.5	4.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0	
Recall Mode	None	None	None				C-Max	C-Max	C-Max	None	
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0		
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0	11.0		
Pedestrian Calls (#/hr)	0	0	0				0	0	0		
Act Effct Green (s)	37.5	37.5	37.5				61.6	61.6	61.6	69.0	73.5
Actuated g/C Ratio	0.31	0.31	0.31				0.51	0.51	0.51	0.58	0.61
v/c Ratio	0.93	0.92	0.92				0.48	0.48	0.48	0.21	0.27
Control Delay	41.9	27.8	27.8				20.9	20.9	20.9	18.2	21.5
Queue Delay	0.0	0.0	0.0				0.7	0.7	0.7	0.0	0.0
Total Delay	41.9	27.8	27.8				21.6	21.6	21.6	18.2	21.5
LOS	D	C	C				C	C	C	A	B
Approach Delay	34.9						20.1			20.9	
Approach LOS	C						C			C	
Queue Length 50th (ft)	292	213	213				288	15	39	175	
Queue Length 95th (ft)	m367	m#504	m#504				m333	m30	69	345	
Internal Link Dist (ft)	498			481			644			533	
Turn Bay Length (ft)	200						100				
Base Capacity (vph)	1158	901					1818	845	344	1140	
Stallion Cap Reductn	0	0					0	0	0	0	
Spillback Cap Reductn	0	0					573	0	0	0	
Storage Cap Reductn	0	0					0	0	0	0	
Reduced v/c Ratio	0.71	0.89					0.69	0.12	0.21	0.27	
Intersection Summary											
Area Type:	Other										
Cycle Length:	120										
Actuated Cycle Length:	120										
Offset: 2 (2%):	Referenced to phase 2:NBSB and 6: Start of Green										
Natural Cycle:	130										
Control Type:	Actuated-Coordinated										
Maximum v/c Ratio:	1.26										
Intersection Signal Delay:	28.3										
Intersection Capacity Utilization:	97.0%										
Analysis Period (min):	15										
# 95th percentile volume exceeds capacity, queue may be longer.											
Queue shown is maximum after two cycles.											
Volume for 95th percentile queue is metered by upstream signal.											
Default Left Lane. Recode with 1 through lane as a left lane.											

Spills and Phases: 2: Horizon Road & IH30 EBFR



Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	44%	18%	38%
Maximum Green (s)	48.5	17.5	40.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Dont Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Elct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	132	146	172	746	829	190						
Future Vol, veh/h	132	146	172	746	829	190						
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	0	200	-	-	200						
Yeh in Median Storage, #	1	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	143	159	187	811	901	207						
Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	1681	451	1108	0	-	0						
Stage 1	901	-	-	-	-	-						
Stage 2	780	-	-	-	-	-						
Critical Hdwy	6.84	6.94	4.14	-	-	-						
Critical Hdwy Stg 1	5.84	-	-	-	-	-						
Critical Hdwy Stg 2	5.84	-	-	-	-	-						
Follow-up Hdwy	3.52	3.32	2.22	-	-	-						
Pd Cap-1 Maneuver	*145	*746	902	-	-	-						
Stage 1	*704	-	-	-	-	-						
Stage 2	*412	-	-	-	-	-						
Platoon blocked, %	1	1	1	-	-	-						
Mov Cap-1 Maneuver	*115	*746	902	-	-	-						
Mov Cap-2 Maneuver	*185	-	-	-	-	-						
Stage 1	*558	-	-	-	-	-						
Stage 2	*412	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	39.4	1.9	0									
HCM LOS	E											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR						
Capacity (veh/h)	902	-	185	746	-	-						
HCM Lane V/C Ratio	0.207	-	0.776	0.213	-	-						
HCM Control Delay (s)	10	-	70.6	11.1	-	-						
HCM Lane LOS	B	-	F	B	-	-						
HCM 95th %tile Q(veh)	0.8	-	5.2	0.8	-	-						

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

Intersection												
Int Delay, s/veh	8.4											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	239	105	221	88	67	394						
Future Vol, veh/h	239	105	221	88	67	394						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	-	100						
Yeh in Median Storage, #	-	0	0	-	0	-						
Grade, %	-	0	0	-	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	260	114	240	96	73	428						
Major/Minor	Major1	Major2				Minor2						
Conflicting Flow All	336	0	-	0	865	168						
Stage 1	-	-	-	-	288	-						
Stage 2	-	-	-	-	577	-						
Critical Hdwy	4.14	-	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	-	3.52	3.32						
Pd Cap-1 Maneuver	1220	-	-	-	293	847						
Stage 1	-	-	-	-	735	-						
Stage 2	-	-	-	-	525	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1220	-	-	-	226	847						
Mov Cap-2 Maneuver	-	-	-	-	226	-						
Stage 1	-	-	-	-	567	-						
Stage 2	-	-	-	-	525	-						
Approach	EB	WB	SB									
HCM Control Delay, s	6.1	0	15.7									
HCM LOS	C											
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2						
Capacity (veh/h)	1220	-	-	-	226	847						
HCM Lane V/C Ratio	0.213	-	-	-	0.322	0.506						
HCM Control Delay (s)	8.7	0.2	-	-	28.3	13.5						
HCM Lane LOS	A	A	-	-	D	B						
HCM 95th %tile Q(veh)	0.8	-	-	-	1.3	2.9						

Harbor Village TIA
 HCM 6th TWSC

2021 - Background - PM
 5: Summer Lee & Lake Front Trail

Intersection										
Int Delay, s/veh	0.9									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	19	317	544	73	26	19	↑↑			
Traffic Vol, veh/h	19	317	544	73	26	19				
Future Vol, veh/h	0	0	0	0	0	0				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	- None	- None	- None	- None	- None	- None				
Storage Length	100	-	-	-	0	0				
Yeh in Median Storage, #	0	0	0	0	0	0				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	21	345	591	79	28	21				
Major/Minor	Major1	Major2	Minor1	Minor2						
Conflicting Flow All	670	0	0	846	335					
Stage 1	-	-	-	631	-					
Stage 2	-	-	-	215	-					
Critical Hdwy	4.14	-	-	6.84	6.94					
Critical Hdwy Stg 1	-	-	-	5.84	-					
Critical Hdwy Stg 2	-	-	-	5.84	-					
Follow-up Hdwy	2.22	-	-	3.52	3.32					
Pd Cap-1 Maneuver	916	-	-	301	661					
Stage 1	-	-	-	492	-					
Stage 2	-	-	-	800	-					
Platoon blocked, %	-	-	-	-	-					
Mov Cap-1 Maneuver	916	-	-	293	661					
Mov Cap-2 Maneuver	-	-	-	293	-					
Stage 1	-	-	-	478	-					
Stage 2	-	-	-	800	-					
Approach	EB	WB	SB							
HCM Control Delay, s	0.6	0	15.8							
HCM LOS	C									
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR				
Capacity (veh/h)	916	-	-	-	-	383				
HCM Lane V/C Ratio	0.023	-	-	-	-	0.128				
HCM Control Delay (s)	9	0.1	-	-	-	15.8				
HCM Lane LOS	A	A	-	-	-	C				
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.4				

Harbor Village TIA
 HCM 6th TWSC

2021 - Background - PM
 6: Lake Front Trail & IH30 EBFR

Intersection										
Int Delay, s/veh	5.8									
Movement	EBT	EBR	WBT	WBR	NBL	NBR				
Lane Configurations	↑	↑	↑	↑	↑	↑	↑			
Traffic Vol, veh/h	37	4	25	13	8	85				
Future Vol, veh/h	37	4	25	13	8	85				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	- None	- None	- None	- None	- None	- None				
Storage Length	-	-	-	-	0	0				
Yeh in Median Storage, #	0	-	-	0	0	-				
Grade, %	0	-	-	0	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	40	4	27	14	9	92				
Major/Minor	Major1	Major2	Minor1							
Conflicting Flow All	0	0	44	0	110	42				
Stage 1	-	-	-	-	42	-				
Stage 2	-	-	-	-	68	-				
Critical Hdwy	-	-	4.12	-	6.42	6.22				
Critical Hdwy Stg 1	-	-	-	-	5.42	-				
Critical Hdwy Stg 2	-	-	-	-	5.42	-				
Follow-up Hdwy	-	-	2.218	-	3.518	3.318				
Pd Cap-1 Maneuver	-	-	1564	-	887	1029				
Stage 1	-	-	-	-	980	-				
Stage 2	-	-	-	-	955	-				
Platoon blocked, %	-	-	-	-	-	-				
Mov Cap-1 Maneuver	-	-	1564	-	872	1029				
Mov Cap-2 Maneuver	-	-	-	-	872	-				
Stage 1	-	-	-	-	963	-				
Stage 2	-	-	-	-	955	-				
Approach	EB	WB	NB							
HCM Control Delay, s	0	4.8	8.8							
HCM LOS	A									
Minor Lane/Major Mvmt	NBL	NBLn2	EBT	EBR	WBL	WBT				
Capacity (veh/h)	872	1029	-	-	1564	-				
HCM Lane V/C Ratio	0.01	0.09	-	-	0.017	-				
HCM Control Delay (s)	9.2	8.8	-	-	7.3	0				
HCM Lane LOS	A	A	-	-	A	A				
HCM 95th %tile Q(veh)	0	0.3	-	-	0.1	-				

Intersection													
Int Delay, s/veh													
2.1													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	0	83	0	0	0	0	0	0	308	2	447	34	44
Traffic Vol, veh/h	0	83	0	0	0	0	0	0	308	2	447	34	34
Future Vol, veh/h	0	83	0	0	0	0	0	0	308	2	447	34	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	90	0	0	0	0	0	0	335	2	486	37	37
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	- 844	505	- 695	- 0	0	335	0	0					
Stage 1	- 509	-	- 768	-	-	-	-	-					
Stage 2	- 335	-	- 527	-	-	-	-	-					
Critical Hdwy	- 6.52	6.22	- 6.52	-	-	-	-	4.12					
Critical Hdwy Stg 1	- 5.52	-	- 5.52	-	-	-	-	-					
Critical Hdwy Stg 2	- 5.52	-	- 5.52	-	-	-	-	-					
Follow-up Hdwy	- 4.018	3.318	- 4.018	-	-	-	-	2.218					
Pd Cap-1 Maneuver	0	300	567	0	366	0	0	-	1224				
Stage 1	0	538	- 0	759	0	0	-	-	-				
Stage 2	0	643	- 0	528	0	0	-	-	-				
Platoon blocked, %	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	- 299	567	- 365	-	-	-	-	-	1224				
Mov Cap-2 Maneuver	- 299	-	- 365	-	-	-	-	-	-				
Stage 1	- 537	-	- 759	-	-	-	-	-	-				
Stage 2	- 643	-	- 527	-	-	-	-	-	-				
Approach	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	22.2	0	0	0	0	0	0						
HCM LOS	C	A	A										
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR						
Capacity (veh/h)	-	-	299	-	1224	-	-						
HCM Lane V/C Ratio	-	-	0.302	-	0.002	-	-						
HCM Control Delay (s)	-	-	22.2	0	7.9	0	-						
HCM Lane LOS	-	-	C	A	A	A	A						
HCM 95th %tile Q(veh)	-	-	1.2	-	0	-	-						

Intersection														
Int Delay, s/veh														
0														
Movement	EBT	EBR	WBL	WBT	NBL	NBR								
Lane Configurations	4	4	0	0	21	0	0							
Traffic Vol, veh/h	42	0	0	0	21	0	0							
Future Vol, veh/h	42	0	0	0	21	0	0							
Conflicting Peds, #/hr	0	0	0	0	0	0	0							
Sign Control	Free	Free	Free	Free	Free	Stop	Stop							
RT Channelized	-	None	-	-	None	-	None							
Storage Length	-	-	-	-	-	-	0							
Veh in Median Storage, #	0	-	-	-	0	0	-							
Grade, %	0	-	-	-	0	0	-							
Peak Hour Factor	92	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2	2							
Mvmt Flow	46	0	0	0	23	0	0							
Major/Minor	Major1	Major2	Minor1											
Conflicting Flow All	0	0	46	0	-	-	-	46						
Stage 1	-	-	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-	-	-						
Critical Hdwy	-	-	4.12	-	-	-	-	6.22						
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-						
Follow-up Hdwy	-	-	2.218	-	-	-	-	3.318						
Pd Cap-1 Maneuver	-	-	1562	-	0	1023	-	-						
Stage 1	-	-	-	-	-	-	0	-						
Stage 2	-	-	-	-	-	-	0	-						
Platoon blocked, %	-	-	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	1562	-	-	-	-	1023						
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-	-	-						
Approach	EB	WB	WB	NB	NB									
HCM Control Delay, s	0	0	0	0	0									
HCM LOS	A	A	A											
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT									
Capacity (veh/h)	-	-	-	-	-	1562	-							
HCM Lane V/C Ratio	-	-	-	-	-	-	-							
HCM Control Delay (s)	0	0	0	0	0	-	-							
HCM Lane LOS	A	A	A	A	A	A	A							
HCM 95th %tile Q(veh)	-	-	-	-	-	0	-							

Intersection													
Int Delay, s/veh	0												
Movement	EBL	EBR	NBL	NBT	SBT	SBR							
Lane Configurations	↔	↔	↔	↔	↔	↔							
Traffic Vol, veh/h	0	0	0	93	30	0							
Future Vol, veh/h	0	0	0	93	30	0							
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	-	150	-	-	-							
Veh in Median Storage, #	0	-	0	0	0	-							
Grade, %	0	-	0	0	0	-							
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	0	0	0	101	33	0							
Major/Minor	Minor2	Major1	Minor1	Major2									
Conflicting Flow All	134	33	33	0	-	0							
Stage 1	33	-	-	-	-	-							
Stage 2	101	-	-	-	-	-							
Critical Hdwy	6.42	6.22	4.12	-	-	-							
Critical Hdwy Stg 1	5.42	-	-	-	-	-							
Critical Hdwy Stg 2	5.42	-	-	-	-	-							
Follow-up Hdwy	3.518	3.318	2.218	-	-	-							
Pd Cap-1 Maneuver	860	1041	1579	-	-	-							
Stage 1	989	-	-	-	-	-							
Stage 2	923	-	-	-	-	-							
Platoon blocked, %	-	-	-	-	-	-							
Mov Cap-1 Maneuver	860	1041	1579	-	-	-							
Mov Cap-2 Maneuver	860	-	-	-	-	-							
Stage 1	989	-	-	-	-	-							
Stage 2	923	-	-	-	-	-							
Approach	EB	NB	SB										
HCM Control Delay, s	0	0	0										
HCM LOS	A												
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR								
Capacity (veh/h)	1579	-	-	-	-								
HCM Lane V/C Ratio	-	-	-	-	-								
HCM Control Delay (s)	0	-	0	-	-								
HCM Lane LOS	A	-	A	-	-								
HCM 95th %tile Q(veh)	0	-	-	-	-								

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBR	WBL	WBT	NBL	NBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	1363	119	0	0	0	234						
Future Vol, veh/h	1363	119	0	0	0	234						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Stop	Stop	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	150	-	-	-	0						
Veh in Median Storage, #	0	-	-	16983	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	1482	129	0	0	0	254						
Major/Minor	Major1	Minor1										
Conflicting Flow All	0	0	-	-	-	741						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	-	-	-	-	6.94						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	-	-	-	-	3.32						
Pd Cap-1 Maneuver	-	-	-	-	-	359						
Stage 1	-	-	-	-	-	0						
Stage 2	-	-	-	-	-	0						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	359						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Approach	EB	NB										
HCM Control Delay, s	0	36										
HCM LOS	E	E										
Minor Lane/Major Mvmt	NBLn1	EBT	EBR									
Capacity (veh/h)	359	-	-									
HCM Lane V/C Ratio	0.708	-	-									
HCM Control Delay (s)	36	-	-									
HCM Lane LOS	E	-	-									
HCM 95th %tile Q(veh)	5.2	-	-									

Intersection											
Intersection Delay - s/veh	13										
Intersection LOS	B										

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔							↔		↔	↔
Traffic Vol. veh/h	0	83	0	0	0	0	0	0	308	2	447	34
Future Vol. veh/h	0	83	0	0	0	0	0	0	308	2	447	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	90	0	0	0	0	0	0	335	2	486	37
Number of Lanes	0	1	0	0	0	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach	SB	NB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.8	9.8	15.6
HCM LOS	A	A	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	0%	100%	93%
Vol Right, %	100%	0%	7%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	308	83	483
LT Vol	0	0	2
Through Vol	0	83	447
RT Vol	308	0	34
Lane Flow Rate	335	90	525
Geometry Grp	1	1	1
Degree of Utl (X)	0.386	0.143	0.653
Departure Headway (Hd)	4.152	5.713	4.479
Convergence, Y/N	Yes	Yes	Yes
Cap	864	623	803
Service Time	2.194	3.791	2.519
HCM Lane V/C Ratio	0.388	0.144	0.654
HCM Control Delay	9.8	9.8	15.6
HCM Lane LOS	A	A	C
HCM 95th-ile C	1.8	0.5	4.9

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - AM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	140	375	8	1147	93	0	0	79	142
Future Volume (vph)	0	0	0	140	375	8	1147	93	0	0	79	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	0	0	0	0	0	100
Storage Lanes	0	0	0	1	1	1	1	1	0	0	0	1
Taper Length (ft)	25	0	0	25	0	25	0	0	0	25	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ft				0.850						0.850		0.850
Fill Protected				0.950								
Said. Flow (prot)	0	0	0	1770	1863	1770	1863	0	0	0	3539	1583
Fill Permitted				0.950		0.698						
Said. Flow (perm)	0	0	0	1770	1863	1583	1300	1863	0	0	3539	1583
Right Turn on Red			Yes			Yes		Yes				Yes
Said. Flow (RTOR)						82						96
Link Speed (mph)	45	45	45	45	45	45	40	40	40	40	40	40
Link Distance (ft)	625	625	625	834	834	834	461	461	461	257	257	4.4
Travel Time (s)	9.5	9.5	9.5	12.6	12.6	12.6	7.9	7.9	7.9	4.4	4.4	4.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	152	408	9	1247	101	0	0	86	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	152	408	9	1247	101	0	0	86	154
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Left	Right
Median Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+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	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	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	0.0
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	8	5	5	5	5	5	5	6	6
Permitted Phases	8	8	8	8	5	5	5	5	5	5	6	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Spill (s)	36.0	36.0	36.0	36.0	36.0	36.0	63.0	63.0	63.0	21.0	21.0	21.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - AM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Said. Flow (prot)			
Fill Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.0	20.0	20.0
Total Spill (s)	9.0	75.0	36.0

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	52.5%				17.5%	17.5%
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	59.0				17.0	17.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5				3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5				0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0				4.0	4.0
Lead/Lag							Lag				Lead	
Lead/Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	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	None	None				C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0				5.0	5.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0				11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0				0	0
Act Effct Green (s)	29.6	29.6	29.6	29.6	29.6	29.6	78.4				19.4	19.4
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.25	0.69				0.16	0.16
v/c Ratio	0.35	0.89	0.02	1.15	0.08	0.15	0.46				0.15	0.46
Control Delay	32.8	56.5	0.1	102.4	4.9	45.4	24.1				45.4	24.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0				0.0	0.0
Total Delay	32.8	56.5	0.1	102.4	4.9	45.4	24.1				45.4	24.1
LOS	C	E	A	F	A	F	A				D	C
Approach Delay				49.2			95.1				31.7	
Approach LOS				D			F				C	
Queue Length 50th (ft)	71	206	0	-1185	20	31	41				31	41
Queue Length 95th (ft)	131	#443	m0	#1439	35	56	109				56	109
Internal Link Dist (ft)		545		754		381					177	
Turn Bay Length (ft)				200								100
Base Capacity (vph)	472	496	482	1080	1280						573	336
Storage Cap Reductn	0	0	0	0	16	0	0				0	0
Spillback Cap Reductn	0	0	0	0	0	0	0				0	0
Storage Cap Reductn	0	0	0	0	0	0	0				0	0
Reduced v/c Ratio	0.32	0.82	0.02	1.17	0.08						0.15	0.46

Intersection Summary

Area Type: Other

Cycle Length: 120

Actual Cycle Length: 120

Offset: 20 (17%), Referenced to phase 2:NBSB and 6: Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 76.0

Intersection Capacity Utilization: 87.5%

Analysis Period (min): 15

ICU Level of Service: E

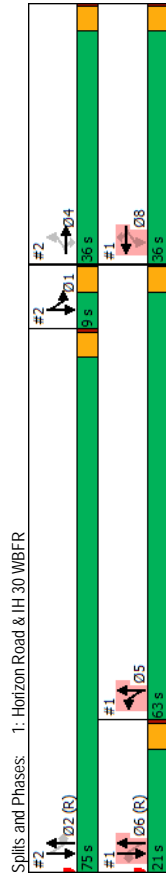
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Volume for 95th percentile queue is metered by upstream signal.



Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - AM
2: Horizon Road & IH30 EBFR

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	63%	30%
Maximum Green (s)	5.0	71.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)	5.0	5.0	
Flash Don't Walk (s)	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - AM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	133	554	0	0	0	0	887	44	43	256	0
Future Volume (vph)	307	133	554	0	0	0	0	887	44	43	256	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	1	0	0	0	0	0	1	1	1	1	0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected		0.966								0.950		
Satd. Flow (prot)	0	3419	1583	0	0	0	0	3539	1583	1770	1863	0
Flt Permitted		0.966								0.239		
Satd. Flow (perm)	0	3419	1583	0	0	0	0	3539	1583	445	1863	0
Right Turn on Red		Yes			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)		602						45				
Link Speed (mph)		35		35				40				40
Link Distance (ft)		557		558				726				461
Travel Time (s)		10.9		10.9				12.4				7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	334	145	602	0	0	0	0	964	48	47	278	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	479	602	0	0	0	0	964	48	47	278	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Right	Left	Left	Right
Median Width (ft)		0		0				12				12
Link Offset (ft)		0		0				0				0
Crosswalk Width (ft)		16		16				16				16
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	0	0	0	0	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm	Perm	Perm	Perm	Perm	NA	Perm	D.P+P	NA	NA
Protected Phases		4						2		1		1 2
Permitted Phases	4	4	4	4	4	4	4	2	2	2	2	1 2
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	8.0
Total Spill (s)	36.0	36.0	36.0	36.0	36.0	36.0	36.0	75.0	75.0	75.0	9.0	9.0

Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Said. Flow (prot)			
Flt Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type	5	6	8
Protected Phases			
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0
Total Split (s)	63.0	21.0	36.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)												
Maximum Green (s)	30.0%	30.0%	30.0%				62.5%	62.5%	62.5%	7.5%		
Yellow Time (s)	3.5	3.5	3.5				71.0	71.0	71.0	5.0		
All-Red Time (s)	0.5	0.5	0.5				0.5	0.5	0.5	0.5		
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0				4.0	4.0	4.0	4.0		
Lead/Lag							Lead	Lead	Lead	Lag		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0		
Recall Mode	None	None	None				C-Max	C-Max	C-Max	None		
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0				0	0	0			
Act Effct Green (s)	29.6	29.6	29.6				73.4	73.4	73.4	78.4		
Actuated g/C Ratio	0.25	0.25	0.25				0.61	0.61	0.61	0.65		
v/c Ratio	0.57	0.71	0.71				0.45	0.05	0.14	0.22		
Control Delay	42.0	8.1	8.1				9.6	1.5	14.7	13.8		
Queue Delay	0.0	0.0	0.0				0.3	0.0	0.0	0.0		
Total Delay	42.0	8.1	8.1				9.9	1.5	14.7	13.8		
LOS	D	A	A				A	A	A	B		
Approach Delay	23.2						9.5			14.0		
Approach LOS	C						A			B		
Queue Length 50th (ft)	166	3					153	0	19	131		
Queue Length 95th (ft)	222	102					177	m6	41	268		
Internal Link Dist (ft)	477						646			381		
Turn Bay Length (ft)	200						200			100		
Base Capacity (vph)	911	863					2165	985	346	1280		
Stallion Cap Reductn	0	0					0	0	0	0		
Spillback Cap Reductn	0	0					589	0	0	0		
Storage Cap Reductn	0	0					0	0	0	0		
Reduced v/c Ratio	0.63	0.70					0.61	0.05	0.14	0.22		
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actuated Cycle Length:	120											
Offset:	20 (17%), Referenced to phase 2:NBSB and 6:, Start of Green											
Natural Cycle:	130											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	1.15											
Intersection Signal Delay:	16.2											
Intersection Capacity Utilization:	87.5%											
ICU Level of Service:	E											
Analysis Period (min):	15											
m	Volume for 95th percentile queue is metered by upstream signal.											



Harbor Village TIA
 Lanes, Volumes, Timings

2021 - Background + Site - AM
 2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	53%	18%	30%
Maximum Green (s)	59.0	17.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Don't Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	90	71	105	843	618	145						
Future Vol, veh/h	90	71	105	843	618	145						
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	0	200	-	-	200						
Yeh in Median Storage, #	1	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	98	77	114	916	672	158						

Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	1358	336	830	0	-	0						
Stage 1	672	-	-	-	-	-						
Stage 2	686	-	-	-	-	-						
Critical Hdwy	6.84	6.94	4.14	-	-	-						
Critical Hdwy Stg 1	5.84	-	-	-	-	-						
Critical Hdwy Stg 2	5.84	-	-	-	-	-						
Follow-up Hdwy	3.52	3.32	2.22	-	-	-						
Pd. Cap-1 Maneuver	217	848	1047	-	-	-						
Stage 1	777	-	-	-	-	-						
Stage 2	461	-	-	-	-	-						
Platoon blocked, %	1	1	1	-	-	-						
Mov Cap-1 Maneuver	193	848	1047	-	-	-						
Mov Cap-2 Maneuver	284	-	-	-	-	-						
Stage 1	692	-	-	-	-	-						
Stage 2	461	-	-	-	-	-						

Approach	EB	NB	SB									
HCM Control Delay, s	17.8	1	0									
HCM LOS	C											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR						
Capacity (veh/h)	1047	-	284	848	-	-						
HCM Lane V/C Ratio	0.109	-	0.344	0.091	-	-						
HCM Control Delay (s)	8.9	-	24.2	9.7	-	-						
HCM Lane LOS	A	-	C	A	-	-						
HCM 95th %tile Q(veh)	0.4	-	1.5	0.3	-	-						

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

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	203	95	96	42	42	186						
Future Vol, veh/h	203	95	96	42	42	186						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	-	100						
Yeh in Median Storage, #	-	0	0	-	0	-						
Grade, %	-	0	0	-	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	221	103	104	46	46	202						

Major/Minor	Major1	Major2	Minor2									
Conflicting Flow All	150	0	-	0	621	75						
Stage 1	-	-	-	-	127	-						
Stage 2	-	-	-	-	494	-						
Critical Hdwy	4.14	-	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	-	3.52	3.32						
Pd. Cap-1 Maneuver	1429	-	-	-	419	971						
Stage 1	-	-	-	-	885	-						
Stage 2	-	-	-	-	579	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1429	-	-	-	350	971						
Mov Cap-2 Maneuver	-	-	-	-	350	-						
Stage 1	-	-	-	-	740	-						
Stage 2	-	-	-	-	579	-						

Approach	EB	WB	SB									
HCM Control Delay, s	5.5	0	11									
HCM LOS		B										
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2						
Capacity (veh/h)	1429	-	-	-	350	971						
HCM Lane V/C Ratio	0.154	-	-	-	0.13	0.208						
HCM Control Delay (s)	8	0.1	-	-	16.8	9.7						
HCM Lane LOS	A	A	-	-	C	A						
HCM 95th %tile Q(veh)	0.5	-	-	-	0.4	0.8						

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - AM
 5: Summer Lee & Lakefront Trail

Intersection										
Int Delay, s/veh	1.3									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	18	258	217	64	39	14	↕ ↕ ↕			
Traffic Vol, veh/h	18	258	217	64	39	14				
Future Vol, veh/h	0	0	0	0	0	0				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	-	-	-	-	0	0				
Veh in Median Storage, #	-	0	0	-	0	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	20	280	236	70	42	15				
Major/Minor	Major1	Major2	Minor1	Minor2						
Conflicting Flow All	306	0	0	451	153					
Stage 1	-	-	-	271	-					
Stage 2	-	-	-	180	-					
Critical Hdwy	4.14	-	-	6.84	6.94					
Critical Hdwy Stg 1	-	-	-	5.84	-					
Critical Hdwy Stg 2	-	-	-	5.84	-					
Follow-up Hdwy	2.22	-	-	3.52	3.32					
Pd Cap-1 Maneuver	1252	-	-	537	866					
Stage 1	-	-	-	750	-					
Stage 2	-	-	-	833	-					
Platoon blocked, %	-	-	-	-	-					
Mov Cap-1 Maneuver	1252	-	-	527	866					
Mov Cap-2 Maneuver	-	-	-	527	-					
Stage 1	-	-	-	736	-					
Stage 2	-	-	-	833	-					
Approach	EB	WB	SB							
HCM Control Delay, s	0.6	0	11.8							
HCM LOS	B									
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR				
Capacity (veh/h)	1252	-	-	-	-	588				
HCM Lane V/C Ratio	0.016	-	-	-	-	0.098				
HCM Control Delay (s)	7.9	0.1	-	-	-	11.8				
HCM Lane LOS	A	A	-	-	-	B				
HCM 95th %tile Q(veh)	0	-	-	-	-	0.3				

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - AM
 6: Lakefront Trail & IH30 EBFR

Intersection										
Int Delay, s/veh	4.6									
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↕	↕	6	14	23	18	61	↕	↕	
Traffic Vol, veh/h	57	6	14	23	18	61				
Future Vol, veh/h	57	6	14	23	18	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	-	-	-	-	0	0				
Veh in Median Storage, #	0	-	-	0	0	-				
Grade, %	0	-	-	0	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	62	7	15	25	20	66				
Major/Minor	Major1	Major2	Minor1	Minor2						
Conflicting Flow All	0	0	69	0	121	66				
Stage 1	-	-	-	-	66	-				
Stage 2	-	-	-	-	55	-				
Critical Hdwy	-	-	4.12	-	6.42	6.22				
Critical Hdwy Stg 1	-	-	-	-	5.42	-				
Critical Hdwy Stg 2	-	-	-	-	5.42	-				
Follow-up Hdwy	-	-	2.218	-	3.518	3.318				
Pd Cap-1 Maneuver	-	-	1532	-	874	998				
Stage 1	-	-	-	-	957	-				
Stage 2	-	-	-	-	968	-				
Platoon blocked, %	-	-	-	-	-	-				
Mov Cap-1 Maneuver	-	-	1532	-	865	998				
Mov Cap-2 Maneuver	-	-	-	-	865	-				
Stage 1	-	-	-	-	947	-				
Stage 2	-	-	-	-	968	-				
Approach	EB	WB	NB							
HCM Control Delay, s	0	2.8	9							
HCM LOS	A									
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT				
Capacity (veh/h)	865	998	-	-	1532	-				
HCM Lane V/C Ratio	0.023	0.066	-	-	0.01	-				
HCM Control Delay (s)	9.3	8.9	-	-	7.4	0				
HCM Lane LOS	A	A	-	-	A	A				
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-				

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - AM
 7: Shoreline Trail & IH30 EBFR

Intersection													
Int Delay, s/veh													
2.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SBR
Lane Configurations	0	97	0	0	0	0	0	0	235	2	234	38	4
Traffic Vol, veh/h	0	97	0	0	0	0	0	0	235	2	234	38	4
Future Vol, veh/h	0	97	0	0	0	0	0	0	235	2	234	38	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	-
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	105	0	0	0	0	0	0	255	2	254	41	
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	-	534	275	-	427	-	-	0	0	255	0	0	
Stage 1	-	279	-	-	128	-	-	-	-	-	-	-	
Stage 2	-	255	-	-	299	-	-	-	-	-	-	-	
Critical Hdwy	-	6.52	6.22	-	6.52	-	-	-	4.12	-	-	-	
Critical Hdwy Stg 1	-	5.52	-	-	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	5.52	-	-	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	-	4,018	3,318	-	4,018	-	-	-	2,218	-	-	-	
Pd Cap-1 Maneuver	0	452	764	0	520	0	0	-	1,310	-	-	-	
Stage 1	0	680	-	0	790	0	0	-	-	-	-	-	
Stage 2	0	696	-	0	666	0	0	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	-	451	764	-	519	-	-	-	1,310	-	-	-	
Mov Cap-2 Maneuver	-	451	-	-	519	-	-	-	-	-	-	-	
Stage 1	-	679	-	-	790	-	-	-	-	-	-	-	
Stage 2	-	696	-	-	665	-	-	-	-	-	-	-	
Approach	EB	WB	WB	NB	NB	SB	SB						
HCM Control Delay, s	15.4	0	0	0	0	0.1	0.1						
HCM LOS	C	A	A	A	A	A	A						
Minor Lane/Major Mvmt	NBT	NBR	EBLnTWBLn1	SBL	SBT	SBR	SBR						
Capacity (veh/h)	-	-	451	-	1310	-	-						
HCM Lane V/C Ratio	-	-	0.234	-	0.002	-	-						
HCM Control Delay (s)	-	-	15.4	0	7.8	0	-						
HCM Lane LOS	-	-	C	A	A	A	A						
HCM 95th %tile Q(veh)	-	-	0.9	-	0	-	-						

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - AM
 8: North Drive & IH30 EBFR

Intersection														
Int Delay, s/veh														
4.9														
Movement	EBT	EBR	WBL	WBT	NBL	NBR								
Lane Configurations	17	0	17	25	0	46								
Traffic Vol, veh/h	17	0	17	25	0	46								
Future Vol, veh/h	17	0	17	25	0	46								
Conflicting Peds, #/hr	0	0	0	0	0	0								
Sign Control	Free	Free	Free	Free	Stop	Stop								
RT Channelized	-	None	-	None	-	None								
Storage Length	-	-	-	-	-	0								
Yeh in Median Storage, #	0	-	-	0	0	-								
Grade, %	0	-	-	0	0	-								
Peak Hour Factor	92	92	92	92	92	92								
Heavy Vehicles, %	2	2	2	2	2	2								
Mvmt Flow	18	0	18	27	0	50								
Major/Minor	Major1	Major2	Minor1											
Conflicting Flow All	0	0	18	0	-	18								
Stage 1	-	-	-	-	-	-								
Stage 2	-	-	-	-	-	-								
Critical Hdwy	-	-	4.12	-	-	6.22								
Critical Hdwy Stg 1	-	-	-	-	-	-								
Critical Hdwy Stg 2	-	-	-	-	-	-								
Follow-up Hdwy	-	-	2,218	-	-	3,318								
Pd Cap-1 Maneuver	-	-	1599	-	0	1061								
Stage 1	-	-	-	-	0	-								
Stage 2	-	-	-	-	0	-								
Platoon blocked, %	-	-	-	-	-	-								
Mov Cap-1 Maneuver	-	-	1599	-	-	1061								
Mov Cap-2 Maneuver	-	-	-	-	-	-								
Stage 1	-	-	-	-	-	-								
Stage 2	-	-	-	-	-	-								
Approach	EB	WB	WB	NB	NB									
HCM Control Delay, s	0	0	2.9	8.6	8.6									
HCM LOS	A	A	A	A	A									
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT									
Capacity (veh/h)	1061	-	-	1599	-									
HCM Lane V/C Ratio	0.047	-	-	0.012	-									
HCM Control Delay (s)	8.6	-	-	7.3	0									
HCM Lane LOS	A	-	-	A	A									
HCM 95th %tile Q(veh)	0.1	-	-	0	-									

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - AM
 9: Lakefront Trail & East Drive

2021 - Background + Site - AM
 12: Sunset Ridge & IH30 EBFR

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	18	28	15	62	18	2						
Future Vol, veh/h	18	28	15	62	18	2						
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	-	150	-	-	-						
Veh in Median Storage, #	0	-	0	0	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	20	30	16	67	20	2						
Major/Minor	Minor2	Minor1	Major2									
Conflicting Flow All	120	21	22	0	-	0						
Stage 1	-	21	-	-	-	-						
Stage 2	99	-	-	-	-	-						
Critical Hdwy	6.42	6.22	4.12	-	-	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	2.218	-	-	-						
Pd Cap-1 Maneuver	876	1056	1593	-	-	-						
Stage 1	1002	-	-	-	-	-						
Stage 2	925	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	867	1056	1593	-	-	-						
Mov Cap-2 Maneuver	867	-	-	-	-	-						
Stage 1	992	-	-	-	-	-						
Stage 2	925	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	8.9	1.4	0									
HCM LOS	A											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR							
Capacity (veh/h)	1593	-	973	-	-							
HCM Lane V/C Ratio	0.01	-	0.051	-	-							
HCM Control Delay (s)	7.3	-	8.9	-	-							
HCM Lane LOS	A	-	A	-	-							
HCM 95th %tile Q(veh)	0	-	0.2	-	-							

Intersection													
Int Delay, s/veh	0.9												
Movement	EBT	EBR	WBL	WBT	NBL	NBR							
Lane Configurations	↔	↔	↔	↔	↔	↔							
Traffic Vol, veh/h	1147	121	0	0	0	82							
Future Vol, veh/h	1147	121	0	0	0	82							
Conflicting Peds, #/hr	0	0	0	0	0	0							
Sign Control	Free	Free	Stop	Stop	Stop	Stop							
RT Channelized	-	None	-	None	-	None							
Storage Length	-	150	-	-	-	0							
Veh in Median Storage, #	0	-	16983	0	0	-							
Grade, %	0	-	0	0	0	-							
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	1247	132	0	0	0	89							
Major/Minor	Major1						Minor1						
Conflicting Flow All	0	0	0	-	-	624							
Stage 1	-	-	-	-	-	-							
Stage 2	-	-	-	-	-	-							
Critical Hdwy	-	-	-	-	-	6.94							
Critical Hdwy Stg 1	-	-	-	-	-	-							
Critical Hdwy Stg 2	-	-	-	-	-	-							
Follow-up Hdwy	-	-	-	-	-	3.32							
Pd Cap-1 Maneuver	-	-	-	-	-	428							
Stage 1	-	-	-	-	-	0							
Stage 2	-	-	-	-	-	0							
Platoon blocked, %	-	-	-	-	-	-							
Mov Cap-1 Maneuver	-	-	-	-	-	428							
Mov Cap-2 Maneuver	-	-	-	-	-	-							
Stage 1	-	-	-	-	-	-							
Stage 2	-	-	-	-	-	-							
Approach	EB	NB											
HCM Control Delay, s	0	15.6											
HCM LOS		C											
Minor Lane/Major Mvmt	NBLn1	EBT	EBR										
Capacity (veh/h)	428	-	-										
HCM Lane V/C Ratio	0.208	-	-										
HCM Control Delay (s)	15.6	-	-										
HCM Lane LOS	C	-	-										
HCM 95th %tile Q(veh)	0.8	-	-										

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔							↔			↔
Traffic Vol, veh/h	0	97	0	0	0	0	0	0	235	2	234	38
Future Vol, veh/h	0	97	0	0	0	0	0	0	235	2	234	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	105	0	0	0	0	0	0	255	2	254	41
Number of Lanes	0	1	0	0	0	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9	8.5	9.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	0%	1%
Vol Thru, %	0%	100%	85%
Vol Right, %	100%	0%	14%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	235	97	274
LT Vol	0	0	2
Through Vol	0	97	234
RT Vol	235	0	38
Lane Flow Rate	255	105	298
Geometry Grp	1	1	1
Degree of Utl (X)	0.278	0.149	0.362
Departure Headway (Hd)	3.923	5.074	4.37
Convergence, Y/N	Yes	Yes	Yes
Cap	914	705	825
Service Time	1.949	3.116	2.395
HCM Lane V/C Ratio	0.279	0.149	0.361
HCM Control Delay	8.5	9	9.9
HCM Lane LOS	A	A	A
HCM 95th-ile Q	1.1	0.5	1.7

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - PM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	261	472	45	1105	227	0	0	115	108
Future Volume (vph)	0	0	0	261	472	45	1105	227	0	0	115	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	200	0	0	0	0	0	100
Storage Lanes	0	0	0	1	1	1	1	1	0	0	1	1
Taper Length (ft)	25	1.00	1.00	25	1.00	1.00	25	1.00	1.00	1.00	25	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ft				0.850							0.850	
Fill Protected				0.950								
Said. Flow (prot)	0	0	0	1770	1863	1583	1770	1863	0	0	3539	1583
Fill Permitted				0.950		0.673						
Said. Flow (perm)	0	0	0	1770	1863	1583	1254	1863	0	0	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Said. Flow (RTOR)				95		95						92
Link Speed (mph)	45	45	45	45	45	45	40	40	40	40	40	40
Link Distance (ft)	625	912	912	912	912	912	613	613	257	257	257	257
Travel Time (s)	9.5	13.8	13.8	10.4	10.4	10.4	4.4	4.4	4.4	4.4	4.4	4.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	284	513	49	1201	247	0	0	125	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	284	513	49	1201	247	0	0	125	117
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+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	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	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	0.0
Turn Type	Perm	NA	Perm	D,P+P	NA	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	8	8	8	5	5	5	6	6	6
Permitted Phases	8	8	8	8	8	8	5	5	5	6	6	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	8.5	8.5	8.5	20.5	20.5	20.5
Total Spill (s)	45.0	45.0	45.0	45.0	45.0	45.0	53.0	53.0	53.0	22.0	22.0	22.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - PM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Said. Flow (prot)			
Fill Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.5	20.5	20.5
Total Spill (s)	10.0	65.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - PM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	37.5%	37.5%	37.5%	44.2%	37.5%	37.5%	44.2%	37.5%	37.5%	18.3%	18.3%	18.3%
Maximum Green (s)	40.5	40.5	40.5	48.5	40.5	40.5	48.5	40.5	40.5	17.5	17.5	17.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag				Lag			Lag			Lead		Lead
Lead/Lag Optimize?				Yes			Yes			Yes		Yes
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	3.0
Recall Mode	None	None	None	None	None	None	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	38.1	38.1	38.1	68.4	38.1	38.1	68.4	38.1	38.1	19.9	19.9	19.9
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.17	0.17	0.17
v/c Ratio	0.51	0.87	0.09	1.30	0.22	0.22	1.30	0.22	0.22	0.21	0.21	0.35
Control Delay	37.7	55.7	2.0	167.9	9.4	9.4	167.9	9.4	9.4	45.6	45.6	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	55.7	2.0	167.9	9.4	9.4	167.9	9.4	9.4	45.6	45.6	17.1
LOS	D	E	A	F	A	F	A	F	A	D	D	B
Approach Delay				46.5			140.9			31.8		
Approach LOS				D			F			C		
Queue Length 50th (ft)	192	388	1	-1244	81	81	45	17	17	45	45	17
Queue Length 95th (ft)	250	#527	m5	#1512	m114	m114	75	73	73	75	75	73
Internal Link Dist (ft)		545		832		533				177		
Turn Bay Length (ft)				200								100
Base Capacity (vph)	597	628	597	923	1131	1131	586	339	339	586	339	339
Slantion Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.82	0.08	1.30	0.22	0.22	1.30	0.22	0.22	0.21	0.21	0.35

Intersection Summary

Area Type: Other

Cycle Length: 120

Actual Cycle Length: 120

Offset: 2 (2%), Referenced to phase 2:NBSB and 6: Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.30

Intersection Signal Delay: 99.0

Intersection Capacity Utilization 97.1%

Analysis Period (min) 15

ICU Level of Service F

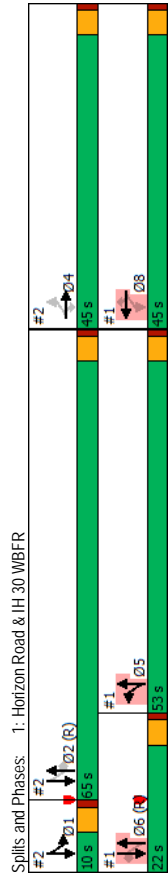
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Volume for 95th percentile queue is metered by upstream signal.



Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - PM
2: Horizon Road & IH30 EBFR

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	54%	38%
Maximum Green (s)	5.5	60.5	40.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)	5.0	5.0	5.0
Flash Don't Walk (s)	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - PM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4↑	4↑	↑					↑	↑	↑	↑	↑
Traffic Volume (vph)	502	298	740	0	0	0	0	799	102	66	309	0
Future Volume (vph)	502	298	740	0	0	0	0	799	102	66	309	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	1	0	0	0	0	0	1	1	1	1	0
Taper Length (ft)	25		25				25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected	0.970									0.950		
Satd. Flow (prot)	0	3433	1583	0	0	0	0	3539	1583	1770	1863	0
Flt Permitted	0.970									0.244		
Satd. Flow (perm)	0	3433	1583	0	0	0	0	3539	1583	455	1863	0
Right Turn on Red			Yes			Yes		Yes	Yes			Yes
Satd. Flow (RTOR)			523					73				
Link Speed (mph)		35		35				40				40
Link Distance (ft)		578		561				724				613
Travel Time (s)		11.3		10.9				12.3				10.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	546	324	804	0	0	0	0	868	111	72	336	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	870	804	0	0	0	0	868	111	72	336	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width (ft)		0		0		0		12			12	
Link Offset (ft)		0		0		0		0			0	
Crosswalk Width (ft)		16		16				16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm	Perm	Perm	Perm	Perm	NA	Perm	D.P+P	NA	NA
Protected Phases		4						2		1	1	2
Permitted Phases	4	4	4	4	4	4	4	2	2	2	2	2
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	8.5
Total Spill (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	65.0	65.0	65.0	10.0	10.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - PM
2: Horizon Road & IH30 EBFR

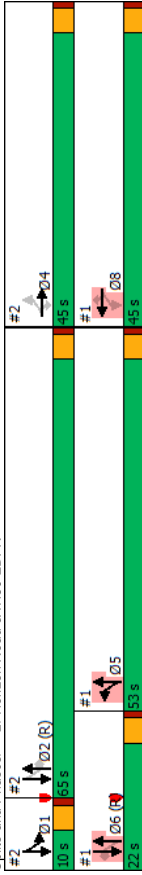
Lane Group	Ø5	Ø6	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Said. Flow (prot)			
Flt Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	8.5	20.5	20.5
Total Split (s)	53.0	22.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background + Site - PM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Total Spill (%)	37.5%	37.5%	37.5%				54.2%	54.2%	54.2%	8.3%	
Maximum Green (s)	40.5	40.5	40.5				60.5	60.5	60.5	5.5	
Yellow Time (s)	3.5	3.5	3.5				1.0	1.0	1.0	3.5	
All-Red Time (s)	1.0	1.0	1.0				0.0	0.0	0.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5				4.5	4.5	4.5	4.5	
Lead/Lag							Lag	Lag	Lag	Lead	
Lead/Lag Optimize?							Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0	
Recall Mode	None	None	None				C-Max	C-Max	C-Max	None	
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0		
Flash Don't Walk (s)	11.0	11.0	11.0				11.0	11.0	11.0		
Pedestrian Calls (#/hr)	0	0	0				0	0	0		
Act Effct Green (s)	38.1	38.1	38.1				61.2	61.2	68.4	72.9	
Actuated g/C Ratio	0.32	0.32	0.32				0.51	0.51	0.51	0.61	
v/c Ratio	0.97/dl	0.94					0.48	0.13	0.21	0.30	
Control Delay	42.9	32.0					21.2	6.9	18.5	22.8	
Queue Delay	0.0	0.0					0.8	0.0	0.0	0.0	
Total Delay	42.9	32.0					22.0	6.9	18.5	22.8	
LOS	D	C					C	A	B	C	
Approach Delay	37.7						20.3			22.1	
Approach LOS	D						C			C	
Queue Length 50th (ft)	313	246					286	21	40	271	
Queue Length 95th (ft)	m392	m#538					m333	m33	71	372	
Internal Link Dist (ft)	498			481			644			533	
Turn Bay Length (ft)	200						1805	843	337	1131	
Base Capacity (vph)	1158	880					0	0	0	0	
Stallion Cap Reductn	0	0					592	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	0.75	0.91					0.72	0.13	0.21	0.30	
Intersection Summary											
Area Type:	Other										
Cycle Length:	120										
Actuated Cycle Length:	120										
Offset:	2 (2%), Referenced to phase 2NBSB and 6; Start of Green										
Natural Cycle:	130										
Control Type:	Actuated-Coordinated										
Maximum v/c Ratio:	1.30										
Intersection Signal Delay:	30.0										
Intersection Capacity Utilization:	97.1%										
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 through lane as a left lane.											

Spills and Phases: 2: Horizon Road & IH30 EBFR



Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	44%	18%	38%
Maximum Green (s)	48.5	17.5	40.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Don't Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	9.9											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	144	152	191	746	829	214						
Future Vol, veh/h	144	152	191	746	829	214						
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	0	200	-	-	200						
Yeh in Median Storage, #	1	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	157	165	208	811	901	233						
Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	1723	451	1134	0	-	0						
Stage 1	901	-	-	-	-	-						
Stage 2	822	-	-	-	-	-						
Critical Hdwy	6.84	6.94	4.14	-	-	-						
Critical Hdwy Stg 1	5.84	-	-	-	-	-						
Critical Hdwy Stg 2	5.84	-	-	-	-	-						
Follow-up Hdwy	3.52	3.32	2.22	-	-	-						
Pd Cap-1 Maneuver	*133	*746	873	-	-	-						
Stage 1	*704	-	-	-	-	-						
Stage 2	*392	-	-	-	-	-						
Platoon blocked, %	1	1	1	-	-	-						
Mov Cap-1 Maneuver	*101	*746	873	-	-	-						
Mov Cap-2 Maneuver	*156	-	-	-	-	-						
Stage 1	*536	-	-	-	-	-						
Stage 2	*392	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	69.4	2.1	0									
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR						
Capacity (veh/h)	873	-	156	746	-	-						
HCM Lane V/C Ratio	0.238	-	1.003	0.221	-	-						
HCM Control Delay (s)	10.4	-	130.9	11.2	-	-						
HCM Lane LOS	B	-	F	B	-	-						
HCM 95th %tile Q(veh)	0.9	-	7.7	0.8	-	-						

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

Intersection												
Int Delay, s/veh	8.4											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	239	124	264	88	67	394						
Future Vol, veh/h	239	124	264	88	67	394						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	-	100						
Yeh in Median Storage, #	-	0	0	-	0	-						
Grade, %	-	0	0	-	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	260	135	287	96	73	428						
Major/Minor	Major1	Major2				Minor2						
Conflicting Flow All	383	0	-	0	923	192						
Stage 1	-	-	-	-	335	-						
Stage 2	-	-	-	-	588	-						
Critical Hdwy	4.14	-	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	-	3.52	3.32						
Pd Cap-1 Maneuver	1172	-	-	-	269	817						
Stage 1	-	-	-	-	697	-						
Stage 2	-	-	-	-	518	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1172	-	-	-	204	817						
Mov Cap-2 Maneuver	-	-	-	-	204	-						
Stage 1	-	-	-	-	530	-						
Stage 2	-	-	-	-	518	-						
Approach	EB	WB	SB									
HCM Control Delay, s	6	0	16.8									
HCM LOS			C									
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2						
Capacity (veh/h)	1172	-	-	-	204	817						
HCM Lane V/C Ratio	0.222	-	-	-	0.357	0.524						
HCM Control Delay (s)	8.9	0.2	-	-	32.1	14.2						
HCM Lane LOS	A	A	-	-	D	B						
HCM 95th %tile Q(veh)	0.8	-	-	-	1.5	3.1						

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - PM
 5. Summer Lee & Lake Front Trail

Intersection										
Int Delay, s/veh	1.4									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	←←	←←	←←	←←	←←	←←				
Traffic Vol, veh/h	24	317	544	116	45	22				
Future Vol, veh/h	24	317	544	116	45	22				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	100	-	-	-	0	-				
Yeh in Median Storage, #	-	0	0	-	0	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	26	345	591	126	49	24				

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	717	0	0	879	359
Stage 1	-	-	-	654	-
Stage 2	-	-	-	225	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pd. Cap-1 Maneuver	880	-	-	287	638
Stage 1	-	-	-	479	-
Stage 2	-	-	-	791	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	880	-	-	276	638
Mov Cap-2 Maneuver	-	-	-	276	-
Stage 1	-	-	-	461	-
Stage 2	-	-	-	791	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR
Capacity (veh/h)	880	-	-	-	-	339
HCM Lane V/C Ratio	0.03	-	-	-	-	0.215
HCM Control Delay (s)	9.2	0.1	-	-	-	18.5
HCM Lane LOS	A	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.8

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - PM
 6. Lake Front Trail & IH30 EBFR

Intersection										
Int Delay, s/veh	4.6									
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	←	←	←	←	←	←				
Traffic Vol, veh/h	65	7	30	56	13	97				
Future Vol, veh/h	65	7	30	56	13	97				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	-	-	-	-	0	0				
Yeh in Median Storage, #	0	-	-	0	0	-				
Grade, %	0	-	-	0	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	71	8	33	61	14	105				

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	79	0	202
Stage 1	-	-	-	-	75
Stage 2	-	-	-	-	127
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pd. Cap-1 Maneuver	-	-	1519	-	787
Stage 1	-	-	-	-	948
Stage 2	-	-	-	-	899
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1519	-	770
Mov Cap-2 Maneuver	-	-	-	-	770
Stage 1	-	-	-	-	927
Stage 2	-	-	-	-	899

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBL	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	770	986	-	-	1519	-
HCM Lane V/C Ratio	0.018	0.107	-	-	0.021	-
HCM Control Delay (s)	9.8	9.1	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0.1	-

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - PM
 7: Shoreline Trail & IH30 EBFR

Harbor Village TIA
 HCM 6th TWSC

2021 - Background + Site - PM
 8: North Drive & IH30 EBFR

Intersection													
Int Delay, s/veh													
3.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	0	123	0	0	0	0	0	0	308	2	447	82	
Traffic Vol, veh/h	0	123	0	0	0	0	0	0	308	2	447	82	
Future Vol, veh/h	0	123	0	0	0	0	0	0	308	2	447	82	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Yeh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	0	134	0	0	0	0	0	0	335	2	486	89	
Major/Minor	Minor2	Minor1	Major1	Major2									
Conflicting Flow All	-	870	531	-	747	-	-	0	0	335	0	0	
Stage 1	-	535	-	-	768	-	-	-	-	-	-	-	
Stage 2	-	335	-	-	579	-	-	-	-	-	-	-	
Critical Hdwy	-	6.52	6.22	-	6.52	-	-	-	4.12	-	-	-	
Critical Hdwy Stg 1	-	5.52	-	-	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	5.52	-	-	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	-	4.018	3.318	-	4.018	-	-	-	2.218	-	-	-	
Pd Cap-1 Maneuver	0	290	548	0	341	0	0	0	-	1224	-	-	
Stage 1	0	524	-	0	759	0	0	-	-	-	-	-	
Stage 2	0	643	-	0	501	0	0	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	-	289	548	-	340	-	-	-	-	1224	-	-	
Mov Cap-2 Maneuver	-	289	-	-	340	-	-	-	-	-	-	-	
Stage 1	-	523	-	-	759	-	-	-	-	-	-	-	
Stage 2	-	643	-	-	500	-	-	-	-	-	-	-	
Approach	EB	WB	WB	NB	SB	SB							
HCM Control Delay, s	27.7	0	0	0	0	0							
HCM LOS	D	A	A										
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR						
Capacity (veh/h)	-	-	289	-	1224	-	-						
HCM Lane V/C Ratio	-	-	0.463	-	0.002	-	-						
HCM Control Delay (s)	-	-	27.7	0	7.9	0	-						
HCM Lane LOS	-	-	D	A	A	A	A						
HCM 95th %tile Q(veh)	-	-	2.3	-	0	-	-						

Intersection													
Int Delay, s/veh													
4.4													
Movement	EBT	EBR	WBL	WBT	NBL	NBR							
Lane Configurations	0	123	0	0	0	0							
Traffic Vol, veh/h	42	0	48	21	0	31							
Future Vol, veh/h	42	0	48	21	0	31							
Conflicting Peds, #/hr	0	0	0	0	0	0							
Sign Control	Free	Free	Free	Free	Free	Stop							
RT Channelized	-	None	-	None	-	None							
Storage Length	-	-	-	-	-	-							
Yeh in Median Storage, #	0	-	-	0	0	0							
Grade, %	0	-	-	0	0	0							
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	46	0	52	23	0	34							
Major/Minor	Major1	Major2	Minor1										
Conflicting Flow All	0	0	46	0	-	46							
Stage 1	-	-	-	-	-	-							
Stage 2	-	-	-	-	-	-							
Critical Hdwy	-	-	4.12	-	-	6.22							
Critical Hdwy Stg 1	-	-	-	-	-	-							
Critical Hdwy Stg 2	-	-	-	-	-	-							
Follow-up Hdwy	-	-	2.218	-	-	3.318							
Pd Cap-1 Maneuver	-	-	1562	-	0	1023							
Stage 1	-	-	-	-	0	-							
Stage 2	-	-	-	-	0	-							
Platoon blocked, %	-	-	-	-	-	-							
Mov Cap-1 Maneuver	-	-	1562	-	-	1023							
Mov Cap-2 Maneuver	-	-	-	-	-	-							
Stage 1	-	-	-	-	-	-							
Stage 2	-	-	-	-	-	-							
Approach	EB	WB	WB	NB									
HCM Control Delay, s	0	5.1	8.6	8.6									
HCM LOS	A	A	A	A									
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT								
Capacity (veh/h)	1023	-	-	1562	-								
HCM Lane V/C Ratio	0.033	-	-	0.033	-								
HCM Control Delay (s)	8.6	-	-	7.4	0								
HCM Lane LOS	A	-	-	A	A								
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-								

Harbor Village TIA
 HCM 6th TWSC
 2021 - Background + Site - PM
 9: Lake Front Trail & East Drive

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	12	19	43	98	33	5						
Future Vol, veh/h	12	19	43	98	33	5						
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	-	150	-	-	-						
Veh in Median Storage, #	0	-	0	0	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	13	21	47	107	36	5						

Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	240	39	41	0	-	0						
Stage 1	39	-	-	-	-	-						
Stage 2	201	-	-	-	-	-						
Critical Hdwy	6.42	6.22	4.12	-	-	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	2.218	-	-	-						
Pd Cap-1 Maneuver	748	1033	1568	-	-	-						
Stage 1	983	-	-	-	-	-						
Stage 2	833	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	726	1033	1568	-	-	-						
Mov Cap-2 Maneuver	726	-	-	-	-	-						
Stage 1	954	-	-	-	-	-						
Stage 2	833	-	-	-	-	-						

Approach	EB	NB	SB						
HCM Control Delay, s	9.2	2.2	0						
HCM LOS	A								

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR						
Capacity (veh/h)	1568	-	888	-	-						
HCM Lane V/C Ratio	0.03	-	0.038	-	-						
HCM Control Delay (s)	7.4	-	9.2	-	-						
HCM Lane LOS	A	-	A	-	-						
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-						

Harbor Village TIA
 HCM 6th TWSC
 2021 - Background + Site - PM
 12: IH30 EBFR

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBR	NBL	NBT	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	1403	119	0	0	0	234						
Future Vol, veh/h	1403	119	0	0	0	234						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Stop	Stop	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	0	-	150	-	-	0						
Veh in Median Storage, #	0	-	16983	0	-	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	1525	129	0	0	0	254						

Major/Minor	Major1	Minor1										
Conflicting Flow All	0	0	-	-	-	763						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	-	-	-	-	6.94						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	-	-	-	-	3.32						
Pd Cap-1 Maneuver	-	-	-	-	-	347						
Stage 1	-	-	-	-	-	0						
Stage 2	-	-	-	-	-	0						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	347						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						

Approach	EB	NB						
HCM Control Delay, s	0	39.2						
HCM LOS		E						

Minor Lane/Major Mvmt	NBLn1	EBT	EBR						
Capacity (veh/h)	347	-	-						
HCM Lane V/C Ratio	0.733	-	-						
HCM Control Delay (s)	39.2	-	-						
HCM Lane LOS	E	-	-						
HCM 95th %tile Q(veh)	5.6	-	-						

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔							↔			↔
Traffic Vol, veh/h	0	123	0	0	0	0	0	0	308	2	447	82
Future Vol, veh/h	0	123	0	0	0	0	0	0	308	2	447	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	134	0	0	0	0	0	0	335	2	486	89
Number of Lanes	0	1	0	0	0	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	10.6	10.4	19.4
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	0%	100%	84%
Vol Right, %	100%	0%	15%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	308	123	531
LT Vol	0	0	2
Through Vol	0	123	447
RT Vol	308	0	82
Lane Flow Rate	335	134	577
Geometry Grp	1	1	1
Degree of Util (X)	0.406	0.221	0.734
Departure Headway (Hd)	4.363	5.957	4.581
Convergence, Y/N	Yes	Yes	Yes
Cap	814	607	785
Service Time	2.444	3.957	2.654
HCM Lane V/C Ratio	0.412	0.221	0.735
HCM Control Delay	10.4	10.6	19.4
HCM Lane LOS	B	B	C
HCM 95th-ile C	2	0.8	6.6

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background - AM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	167	39	9	1049	101	0	0	87	149
Future Volume (vph)	0	0	0	167	39	9	1049	101	0	0	87	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	200	0	0	0	0	0	0	0	100
Storage Lanes	0	0	0	1	0	0	2	0	0	0	0	1
Taper Length (ft)	25	0	0	25	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.97	1.00	1.00	1.00	0.95	1.00
Ft				0.971								0.850
Fill Protected				0.950			0.950					
Said. Flow (prot)	0	0	0	1770	3437	0	3433	1863	0	0	3539	1583
Fill Permitted				0.950			0.692					
Said. Flow (perm)	0	0	0	1770	3437	0	2501	1863	0	0	3539	1583
Right Turn on Red			Yes		Yes	Yes		Yes	Yes			Yes
Said. Flow (RTOR)			10									162
Link Speed (mph)	45	9.5	45	12.6	7.9	40	40	40	40	40	40	40
Link Distance (ft)	625	834	625	834	461	257	461	257	461	257	461	257
Travel Time (s)	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0	0	0	182	42	10	1140	110	0	0	95	162
Adj. Flow (vph)												
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	182	52	0	1140	110	0	0	95	162
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right	Left	Right	Left	Left	Left	Right
Median Width (ft)	12	12	12	24	24	24	24	24	24	24	24	24
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+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	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	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	0.0
Turn Type	Perm	NA	NA	pm+pt	NA	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	5	5	5	5	5	5	5	5	6
Permitted Phases	8	8	8	5	5	5	5	5	5	5	5	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.0	20.0	20.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	20.0
Total Spill (s)	36.0	36.0	36.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	21.0

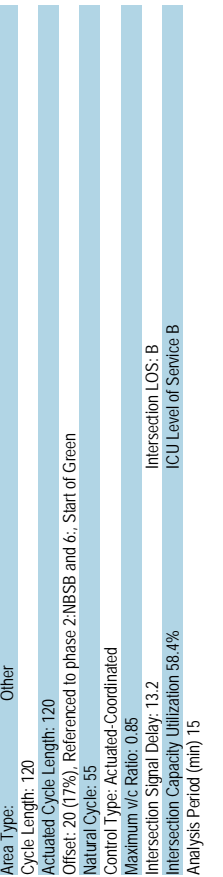
Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background - AM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Said. Flow (prot)			
Fill Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.0	20.0	20.0
Total Spill (s)	9.0	75.0	36.0

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	63%	30%
Maximum Green (s)	5.0	71.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Dont Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	30.0%	30.0%	30.0%	52.5%	52.5%	52.5%	17.5%	17.5%	17.5%	17.5%	17.5%	17.5%
Maximum Green (s)	32.0	32.0	32.0	59.0	59.0	59.0	17.0	17.0	17.0	17.0	17.0	17.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	None	None	None	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	87.6	91.6	87.6	28.6	28.6	28.6	28.6	28.6	28.6
Pedestrian Calls (#/hr)	0	0	0	0.73	0.76	0.73	0.24	0.24	0.24	0.24	0.24	0.24
Act Effct Green (s)	20.4	20.4	20.4	0.50	0.08	0.50	0.11	0.32	0.11	0.32	0.11	0.32
Actuated g/C Ratio	0.17	0.17	0.17	0.60	0.09	0.60	0.11	0.32	0.11	0.32	0.11	0.32
v/c Ratio	61.1	38.2	3.9	2.0	2.0	39.1	8.6	8.6	8.6	8.6	8.6	8.6
Control Delay	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	61.1	38.2	4.0	2.0	2.0	39.1	8.6	8.6	8.6	8.6	8.6	8.6
Total Delay	E	D	A	A	A	D	D	A	D	D	A	A
LOS												
Approach Delay	56.0		3.8			19.9						
Approach LOS	E		A			B						
Queue Length 50th (ft)	135	16	11	64	11	29						
Queue Length 95th (ft)	148	25	20	77	20	61						
Internal Link Dist (ft)	545		381			177						
Turn Bay Length (ft)												
Base Capacity (vph)	472	923	2284	1422		843						
Stallion Cap Reductn	0	0	149	0		0						
Spillback Cap Reductn	0	0	0	0		0						
Storage Cap Reductn	0	0	0	0		0						
Reduced v/c Ratio	0.39	0.06	0.53	0.08		0.11						0.32
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actual Cycle Length:	120											
Offset:	20 (17%), Referenced to phase 2:NBSB and 6: Start of Green											
Natural Cycle:	35											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.85											
Intersection Signal Delay:	13.2											
Intersection Capacity Utilization:	58.4%											
ICU Level of Service:	B											
Analysis Period (min):	15											



Spills and Phases: 1: Horizon Road & IH 30 WBFR

Spills and Phases: 1: Horizon Road & IH 30 WBFR

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background - AM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4↑	4↑	4↑	0	0	0	0	0	0	0	0	0
Traffic Volume (vph)	147	143	589	0	0	0	0	954	41	37	301	0
Future Volume (vph)	147	143	589	0	0	0	0	954	41	37	301	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200	0	0	0	0	0	100	0	0	0
Storage Lanes	0	0	1	0	0	0	0	0	1	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ft	0.850											
Fill Protected	0.975											
Said. Flow (prot)	0	3451	1583	0	0	0	0	3539	1583	1770	3539	0
Fill Permitted	0.975											
Said. Flow (perm)	0	3451	1583	0	0	0	0	3539	1583	438	3539	0
Right Turn on Red	Yes											
Said. Flow (RTOR)	582											
Link Speed (mph)	35											
Link Distance (ft)	557											
Travel Time (s)	10.9											
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	160	155	640	0	0	0	0	1037	45	40	327	0
Shared Lane Traffic (%)	0											
Lane Group Flow (vph)	0	315	640	0	0	0	0	1037	45	40	327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	0											
Link Offset(ft)	0											
Crosswalk Width(ft)	16											
Two way Left Turn Lane	0											
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	CI+EX											
Leading Detector (ft)	50	50	50	0	0	0	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX
Detector 1 Channel	0.0											
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	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	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	0.0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	D.P+P	NA	NA
Protected Phases	4											
Permitted Phases	4	4	4	4	4	4	2	2	2	2	2	2
Detector Phase	4											
Switch Phase	4											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	36.0	36.0	36.0	36.0	36.0	36.0	75.0	75.0	75.0	9.0	9.0	9.0

Harbor Village TIA
Lanes, Volumes, Timings

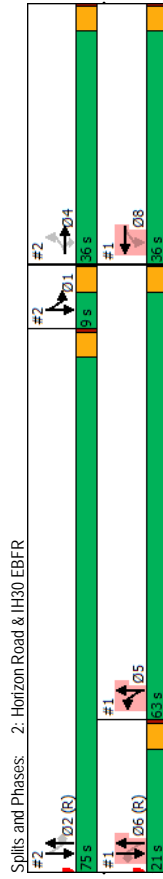
2026 - Background - AM
2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Lane Configurations	0		
Traffic Volume (vph)	0		
Future Volume (vph)	0		
Ideal Flow (vphpl)	1900		
Storage Length (ft)	0		
Storage Lanes	0		
Taper Length (ft)	0		
Lane Util. Factor	0.95		
Ft	0.850		
Fill Protected	0.975		
Said. Flow (prot)	0		
Fill Permitted	0.975		
Said. Flow (perm)	0		
Right Turn on Red	Yes		
Said. Flow (RTOR)	582		
Link Speed (mph)	35		
Link Distance (ft)	557		
Travel Time (s)	10.9		
Peak Hour Factor	0.92	0.92	0.92
Adj. Flow (vph)	160	155	640
Shared Lane Traffic (%)	0		
Lane Group Flow (vph)	0	315	640
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)	0		
Link Offset(ft)	0		
Crosswalk Width(ft)	16		
Two way Left Turn Lane	0		
Headway Factor	1.00	1.00	1.00
Turning Speed (mph)	15	9	15
Number of Detectors	1	1	1
Detector Template	CI+EX		
Leading Detector (ft)	50	50	50
Trailing Detector (ft)	0	0	0
Detector 1 Position(ft)	0	0	0
Detector 1 Size(ft)	50	50	50
Detector 1 Type	CI+EX	CI+EX	CI+EX
Detector 1 Channel	0.0		
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Turn Type	Perm	NA	Perm
Protected Phases	5		
Permitted Phases	5	6	8
Detector Phase	4		
Switch Phase	4		
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0
Total Split (s)	63.0	21.0	36.0

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background - AM
2: Horizon Road & IH30 EBFR

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	30.0%	30.0%	30.0%				62.5%	62.5%	62.5%	7.5%		
Total Spill (%)	32.0	32.0	32.0				71.0	71.0	71.0	5.0		
Maximum Green (s)	3.5	3.5	3.5				3.5	3.5	3.5	3.5		
Yellow Time (s)	0.5	0.5	0.5				0.5	0.5	0.5	0.5		
All-Red Time (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Lost Time Adjust (s)	4.0	4.0	4.0				4.0	4.0	4.0	4.0		
Total Lost Time (s)												
Lead/Lag							Lead	Lead	Lead	Lag		
Lead/Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0		
Recall Mode	None	None	None				C-Max	C-Max	C-Max	None		
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0	5.0		
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0	11.0	11.0		
Pedestrian Calls (#/hr)	0	0	0				0	0	0	0		
Act Effct Green (s)	20.4	20.4	20.4				82.6	82.6	82.6	87.6	91.6	
Actuated g/C Ratio	0.17	0.17	0.17				0.69	0.69	0.69	0.73	0.76	
v/c Ratio	0.54	0.85	0.85				0.43	0.04	0.11	0.12		
Control Delay	47.8	17.5	17.5				6.9	1.3	11.4	8.2		
Queue Delay	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Total Delay	47.8	17.5	17.5				6.9	1.3	11.4	8.2		
LOS	D	B	B				A	A	A	B	A	
Approach Delay							6.7	6.7	6.7	8.5		
Approach LOS							A	A	A	A		
Queue Length 50th (ft)	121	40	40				103	0	14	73		
Queue Length 95th (ft)	146	177	177				203	m6	37	110		
Internal Link Dist (ft)	477			478			646			381		
Turn Bay Length (ft)							200		100			
Base Capacity (vph)	920	848	848				2435	1103	375	2701		
Stallion Cap Reductn	0	0	0				0	0	0	0	0	
Spillback Cap Reductn	0	0	0				0	0	0	0	0	
Storage Cap Reductn	0	0	0				0	0	0	0	0	
Reduced v/c Ratio	0.34	0.75	0.75				0.43	0.04	0.11	0.12		
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actual Cycle Length:	120											
Offset:	20 (17%), Referenced to phase 2:NBSB and 6:, Start of Green											
Natural Cycle:	35											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.85											
Intersection Signal Delay:	15.2											
Intersection Capacity Utilization:	58.4%											
Analysis Period (min):	15											
m. Volume for 95th percentile queue is metered by upstream signal.												



Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background - AM
2: Horizon Road & IH30 EBFR

	Ø5	Ø6	Ø8
Lane Group	53%	18%	30%
Total Spill (%)	59.0	17.0	32.0
Maximum Green (s)	3.5	3.5	3.5
Yellow Time (s)	0.5	0.5	0.5
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)	4.0	4.0	4.0
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	115	91	136	885	652	181						
Future Vol, veh/h	115	91	136	885	652	181						
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	0	200	-	-	200						
Yeh in Median Storage, #	1	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	125	99	148	962	709	197						

Major/Minor	Minor2	Major1	Minor2	Major2								
Conflicting Flow All	1486	355	906	0	-	0						
Stage 1	709	-	-	-	-	-						
Stage 2	777	-	-	-	-	-						
Critical Hdwy	6.84	6.94	4.14	-	-	-						
Critical Hdwy Stg 1	5.84	-	-	-	-	-						
Critical Hdwy Stg 2	5.84	-	-	-	-	-						
Follow-up Hdwy	3.52	3.32	2.22	-	-	-						
Pd Cap-1 Maneuver	*181	*822	1003	-	-	-						
Stage 1	*716	-	-	-	-	-						
Stage 2	*414	-	-	-	-	-						
Platoon blocked, %	1	1	1	-	-	-						
Mov Cap-1 Maneuver	*154	*822	1003	-	-	-						
Mov Cap-2 Maneuver	*224	-	-	-	-	-						
Stage 1	*661	-	-	-	-	-						
Stage 2	*414	-	-	-	-	-						

Approach	EB	NB	SB								
HCM Control Delay, s	26.5	1.2	0								
HCM LOS	D										

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR						
Capacity (veh/h)	1003	-	224	822	-	-						
HCM Lane V/C Ratio	0.147	-	0.558	0.12	-	-						
HCM Control Delay (\$)	9.2	-	39.6	10	-	-						
HCM Lane LOS	A	-	E	B	-	-						
HCM 95th %tile Q(veh)	0.5	-	3	0.4	-	-						

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

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	88	85	102	63	65	206						
Future Vol, veh/h	88	85	102	63	65	206						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	-	100						
Yeh in Median Storage, #	-	0	0	-	0	-						
Grade, %	-	0	0	-	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	96	92	111	68	71	224						

Major/Minor	Major1	Major2	Minor2									
Conflicting Flow All	179	0	-	0	383	90						
Stage 1	-	-	-	-	145	-						
Stage 2	-	-	-	-	238	-						
Critical Hdwy	4.14	-	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	-	3.52	3.32						
Pd Cap-1 Maneuver	1394	-	-	-	592	950						
Stage 1	-	-	-	-	867	-						
Stage 2	-	-	-	-	779	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1394	-	-	-	549	950						
Mov Cap-2 Maneuver	-	-	-	-	549	-						
Stage 1	-	-	-	-	804	-						
Stage 2	-	-	-	-	779	-						

Approach	EB	WB	SB								
HCM Control Delay, s	4	0	10.6								
HCM LOS		B									

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2						
Capacity (veh/h)	1394	-	-	-	549	950						
HCM Lane V/C Ratio	0.069	-	-	-	0.129	0.236						
HCM Control Delay (\$)	7.8	0.1	-	-	12.5	10						
HCM Lane LOS	A	A	-	-	B	B						
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.9						

Intersection										
Int Delay, s/veh	2.7									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	149	153	237	69	18	13				
Traffic Vol, veh/h	149	153	237	69	18	13				
Future Vol, veh/h	0	0	0	0	0	0				
Conflicting Peds, #/hr	Free	Free	Free	Free	Stop	Stop				
Sign Control	- None	- None	- None	- None	- None	- None				
RT Channelized	-	-	-	-	-	-				
Storage Length	-	-	-	-	-	-				
Veh in Median Storage, #	-	0	0	-	0	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	162	166	258	75	20	14				
Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	333	0	-	0	703	167				
Stage 1	-	-	-	-	296	-				
Stage 2	-	-	-	-	407	-				
Critical Hdwy	4.14	-	-	-	6.84	6.94				
Critical Hdwy Stg 1	-	-	-	-	5.84	-				
Critical Hdwy Stg 2	-	-	-	-	5.84	-				
Follow-up Hdwy	2.22	-	-	-	3.52	3.32				
Pd Cap-1 Maneuver	1223	-	-	-	372	848				
Stage 1	-	-	-	-	729	-				
Stage 2	-	-	-	-	641	-				
Platoon blocked, %	-	-	-	-	-	-				
Mov Cap-1 Maneuver	1223	-	-	-	318	848				
Mov Cap-2 Maneuver	-	-	-	-	318	-				
Stage 1	-	-	-	-	623	-				
Stage 2	-	-	-	-	641	-				
Approach	EB	WB	WB	SB						
HCM Control Delay, s	4.2	0	0	14.1						
HCM LOS					B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR				
Capacity (veh/h)	1223	-	-	-	-	431				
HCM Lane V/C Ratio	0.132	-	-	-	-	0.078				
HCM Control Delay (s)	8.4	0.2	-	-	-	14.1				
HCM Lane LOS	A	A	-	-	-	B				
HCM 95th %tile Q(veh)	0.5	-	-	-	-	0.3				

Intersection										
Int Delay, s/veh	2.7									
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑	↑↑↑	0	0	0	150				
Traffic Vol, veh/h	1082	149	0	0	0	150				
Future Vol, veh/h	1082	149	0	0	0	150				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	- None	- None	- None	- None	- None	- None				
Storage Length	-	-	-	-	-	0				
Veh in Median Storage, #	0	-	-	16983	0	-				
Grade, %	-	0	-	0	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	1176	162	0	0	0	163				
Major/Minor	Major1			Minor1						
Conflicting Flow All	0	0	-	-	-	669				
Stage 1	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	-				
Critical Hdwy	-	-	-	-	-	7.14				
Critical Hdwy Stg 1	-	-	-	-	-	-				
Critical Hdwy Stg 2	-	-	-	-	-	-				
Follow-up Hdwy	-	-	-	-	-	3.92				
Pd Cap-1 Maneuver	-	-	-	-	0	343				
Stage 1	-	-	-	-	0	-				
Stage 2	-	-	-	-	0	-				
Platoon blocked, %	-	-	-	-	-	-				
Mov Cap-1 Maneuver	-	-	-	-	-	343				
Mov Cap-2 Maneuver	-	-	-	-	-	-				
Stage 1	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	-				
Approach	EB	EB	NB							
HCM Control Delay, s	0	0	24.7							
HCM LOS				C						
Minor Lane/Major Mvmt	NBLn1	EBT	EBR							
Capacity (veh/h)	343	-	-							
HCM Lane V/C Ratio	0.475	-	-							
HCM Control Delay (s)	24.7	-	-							
HCM Lane LOS	C	-	-							
HCM 95th %tile Q(veh)	2.5	-	-							

Harbor Village TIA
 HCM 6th TWSC

2026 - Background - AM
 7: Shoreline Trail & IH30 EBFR

2026 - Background - AM
 8: North Drive & IH30 EBFR

Intersection									
Int Delay, s/veh	2.8								
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑					↑			
Traffic Vol, veh/h	1144	89	0	0	0	155			
Future Vol, veh/h	1144	89	0	0	0	155			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Free	Free	Stop	Stop	Stop	Stop			
RT Channelized	-	None	-	None	-	None			
Storage Length	-	-	-	-	-	0			
Veh in Median Storage, #	0	-	-	16983	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	1243	97	0	0	0	168			
Major/Minor	Major1					Minor1			
Conflicting Flow All	0	0	0	0	0	-	670		
Stage 1	-	-	-	-	-	-	-		
Stage 2	-	-	-	-	-	-	-		
Critical Hdwy	-	-	-	-	-	-	7.14		
Critical Hdwy Stg 1	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	-	-	-	-	-	-	-		
Follow-up Hdwy	-	-	-	-	-	-	3.92		
Pd Cap-1 Maneuver	-	-	-	-	-	0	343		
Stage 1	-	-	-	-	-	0	-		
Stage 2	-	-	-	-	-	0	-		
Platoon blocked, %	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	-	343		
Mov Cap-2 Maneuver	-	-	-	-	-	-	-		
Stage 1	-	-	-	-	-	-	-		
Stage 2	-	-	-	-	-	-	-		
Approach	EB					NB			
HCM Control Delay, s	0	0	0	0	0	25.2			
HCM LOS						D			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR						
Capacity (veh/h)	343	-	-						
HCM Lane V/C Ratio	0.491	-	-						
HCM Control Delay (s)	25.2	-	-						
HCM Lane LOS	D	-	-						
HCM 95th %tile Q(veh)	2.6	-	-						

Intersection									
Int Delay, s/veh	0								
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑					↑			
Traffic Vol, veh/h	1232	0	0	0	0	0			
Future Vol, veh/h	1232	0	0	0	0	0			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Stop	Stop			
RT Channelized	-	None	-	None	-	None			
Storage Length	-	-	-	-	-	0			
Veh in Median Storage, #	0	-	-	16983	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	1339	0	0	0	0	0			
Major/Minor	Major1					Minor1			
Conflicting Flow All	0	0	0	0	0	-	670		
Stage 1	-	-	-	-	-	-	-		
Stage 2	-	-	-	-	-	-	-		
Critical Hdwy	-	-	-	-	-	-	7.14		
Critical Hdwy Stg 1	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	-	-	-	-	-	-	-		
Follow-up Hdwy	-	-	-	-	-	-	3.92		
Pd Cap-1 Maneuver	-	-	-	-	-	0	343		
Stage 1	-	-	-	-	-	0	-		
Stage 2	-	-	-	-	-	0	-		
Platoon blocked, %	-	-	-	-	-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	-	343		
Mov Cap-2 Maneuver	-	-	-	-	-	-	-		
Stage 1	-	-	-	-	-	-	-		
Stage 2	-	-	-	-	-	-	-		
Approach	EB					NB			
HCM Control Delay, s	0	0	0	0	0	0			
HCM LOS						A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR						
Capacity (veh/h)	-	-	-						
HCM Lane V/C Ratio	-	-	-						
HCM Control Delay (s)	0	-	-						
HCM Lane LOS	A	-	-						
HCM 95th %tile Q(veh)	-	-	-						

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	0	0	0	150	149	0						
Future Vol, veh/h	0	0	0	150	149	0						
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	-	150	-	-	-						
Veh in Median Storage, #	0	-	0	0	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	0	0	0	163	162	0						

Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	325	162	162	0	-	0						
Stage 1	162	-	-	-	-	-						
Stage 2	163	-	-	-	-	-						
Critical Hdwy	6.42	6.22	4.12	-	-	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	2.218	-	-	-						
Pd Cap-1 Maneuver	669	883	1417	-	-	-						
Stage 1	867	-	-	-	-	-						
Stage 2	866	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	669	883	1417	-	-	-						
Mov Cap-2 Maneuver	669	-	-	-	-	-						
Stage 1	867	-	-	-	-	-						
Stage 2	866	-	-	-	-	-						

Approach	EB	NB	SB									
HCM Control Delay, s	0	0	0									
HCM LOS	A											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR							
Capacity (veh/h)	1417	-	-	-	-							
HCM Lane V/C Ratio	-	-	-	-	-							
HCM Control Delay (\$)	0	-	0	-	-							
HCM Lane LOS	A	-	A	-	-							
HCM 95th %tile Q(veh)	0	-	-	-	-							

Intersection												
Int Delay, s/veh	1.5											
Movement	EBT	EBR	WBL	WBT	NBL	NBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	1080	164	0	0	0	112						
Future Vol, veh/h	1080	164	0	0	0	112						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Stop	Stop	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	150	-	-	-	0						
Veh in Median Storage, #	0	-	-	16983	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	1174	178	0	0	0	122						

Major/Minor	Major1	Minor1										
Conflicting Flow All	0	0	-	-	-	587						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	-	-	-	-	7.14						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	-	-	-	-	3.92						
Pd Cap-1 Maneuver	-	-	-	-	-	388						
Stage 1	-	-	-	-	-	0						
Stage 2	-	-	-	-	-	0						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	388						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						

Approach	EB	NB	EBR									
HCM Control Delay, s	0	18.5	18.5									
HCM LOS		C	C									
Minor Lane/Major Mvmt	NBLn1	EBT	EBR									
Capacity (veh/h)	388	-	-									
HCM Lane V/C Ratio	0.314	-	-									
HCM Control Delay (\$)	18.5	-	-									
HCM Lane LOS	C	-	-									
HCM 95th %tile Q(veh)	1.3	-	-									

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	294	50	48	935	244	0	0	126	114
Future Volume (vph)	0	0	0	294	50	48	935	244	0	0	126	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	200	0	0	0	0	0	0	0	100
Storage Lanes	0	0	0	1	0	0	2	0	0	0	0	1
Taper Length (ft)	25	0	0	25	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.97	1.00	1.00	1.00	0.95	1.00
Ft				0.926								0.850
Fill Protected				0.950			0.950					
Said. Flow (prot)	0	0	0	1770	3277	0	3433	1863	0	0	3539	1583
Fill Permitted				0.950			0.665					
Said. Flow (perm)	0	0	0	1770	3277	0	2403	1863	0	0	3539	1583
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	Yes
Said. Flow (RTOR)			52		52							124
Link Speed (mph)	45	45	45	45	45	45	40	40	40	40	40	40
Link Distance (ft)	625	625	625	912	912	912	613	613	613	613	257	257
Travel Time (s)	9.5	9.5	9.5	13.8	13.8	13.8	10.4	10.4	10.4	10.4	4.4	4.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	320	54	52	1016	265	0	0	137	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	320	106	0	1016	265	0	0	137	124
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Left	Right
Median Width (ft)	12	12	12	12	24	24	24	24	24	24	24	24
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+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	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	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	0.0
Turn Type	Perm	NA	NA	D,P+P	NA	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	5	5	5	5	5	5	5	5	6
Permitted Phases	8	8	8	6	6	6	6	6	6	6	6	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
Total Spill (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
1: Horizon Road & IH 30 WBFR

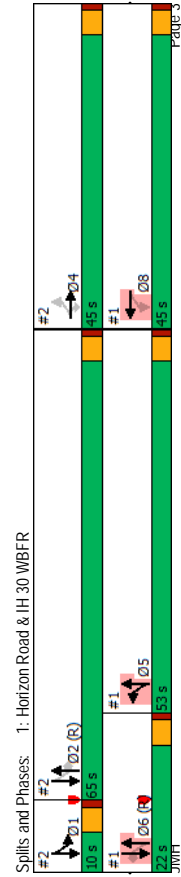
Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Said. Flow (prot)			
Fill Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.5	20.5	20.5
Total Spill (s)	10.0	65.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	37.5%	37.5%	37.5%	44.2%	44.2%	44.2%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%
Maximum Green (s)	40.5	40.5	40.5	48.5	48.5	48.5	17.5	17.5	17.5	17.5	17.5	17.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Calls (#/hr)	40.5	40.5	40.5	66.0	66.0	66.0	70.5	70.5	70.5	70.5	70.5	70.5
Act Effct Green (s)	0.34	0.34	0.34	0.58	0.58	0.58	0.59	0.59	0.59	0.59	0.59	0.59
Actuated g/C Ratio	0.54	0.54	0.54	0.58	0.58	0.58	0.24	0.24	0.27	0.27	0.37	0.37
v/c Ratio	38.5	38.5	38.5	16.6	16.6	16.6	9.8	7.5	47.1	11.2	11.2	11.2
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	38.5	38.5	16.6	16.6	16.6	9.8	7.5	47.1	11.2	11.2	11.2
LOS	D	B	B	A	A	A	A	A	D	D	D	B
Approach Delay	33.1	33.1	33.1	9.3	9.3	9.3	30.1	30.1	30.1	30.1	30.1	30.1
Approach LOS	C	C	C	A	A	A	C	C	C	C	C	C
Queue Length 50th (ft)	228	18	113	55	55	55	50	50	50	50	50	50
Queue Length 95th (ft)	278	37	133	79	79	79	82	82	82	82	82	82
Internal Link Dist (ft)	545	545	545	533	533	533	177	177	177	177	177	177
Turn Bay Length (ft)	597	1140	1737	1094	1094	1094	516	516	516	516	516	516
Base Capacity (vph)	0	0	22	0	0	0	0	0	0	0	0	0
Stallion Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.09	0.59	0.24	0.24	0.24	0.27	0.27	0.27	0.27	0.27	0.27

Area Type:	Other
Cycle Length:	120
Actual Cycle Length:	120
Offset:	2 (2%), Referenced to phase 2:NBSB and 6: Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	17.2
Intersection Capacity Utilization:	66.4%
ICU Level of Service:	C
Analysis Period (min):	15



Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
1: Horizon Road & IH 30 WBFR

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	54%	38%
Maximum Green (s)	5.5	60.5	40.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0	0	0
Total Lost Time (s)	0	0	0
Lead/Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0
Act Effct Green (s)	0	0	0
Actuated g/C Ratio	0	0	0
v/c Ratio	0	0	0
Control Delay	0	0	0
Queue Delay	0	0	0
Total Delay	0	0	0
LOS	A	A	A
Approach Delay	33.1	33.1	33.1
Approach LOS	C	C	C
Queue Length 50th (ft)	228	18	113
Queue Length 95th (ft)	278	37	133
Internal Link Dist (ft)	545	545	545
Turn Bay Length (ft)	597	1140	1737
Base Capacity (vph)	0	22	0
Stallion Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.54	0.09	0.59

Intersection Summary	
Area Type:	Other
Cycle Length:	120
Actual Cycle Length:	120
Offset:	2 (2%), Referenced to phase 2:NBSB and 6: Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	17.2
Intersection Capacity Utilization:	66.4%
ICU Level of Service:	C
Analysis Period (min):	15



Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
2: Horizon Road & IH30 EBFR

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations		4↑	4↑				4↑	4↑	4↑	4↑	4↑	4↑
Traffic Volume (vph)	261	339	789	0	0	0	0	886	114	55	364	0
Future Volume (vph)	261	339	789	0	0	0	0	886	114	55	364	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	1	0	0	0	0	0	1	1	1	1	0
Taper Length (ft)	25		25			25			25		25	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ft		0.850					0.850					
Fill Protected		0.979							0.950			
Satd. Flow (prot)	0	3465	1583	0	0	0	0	3539	1583	1770	3539	0
Fill Permitted		0.979							0.205			
Satd. Flow (perm)	0	3465	1583	0	0	0	0	3539	1583	382	3539	0
Right Turn on Red		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)		458						74				
Link Speed (mph)		35		35			40		40		40	
Link Distance (ft)		578		561			724		613		613	
Travel Time (s)		11.3		10.9			12.3		10.4		10.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	368	858	0	0	0	0	963	124	60	396	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	652	858	0	0	0	0	963	124	60	396	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	0	0	0	0	0	0	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	0	0	0	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	D.P+P	NA	D.P+P	NA
Protected Phases		4					2		2	1	1	2
Permitted Phases	4	4	4	4	4	4	2	2	2	1	1	2
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	8.5	8.5	20.5
Total Spill (s)	45.0	45.0	45.0	45.0	45.0	45.0	65.0	65.0	65.0	10.0	10.0	45.0

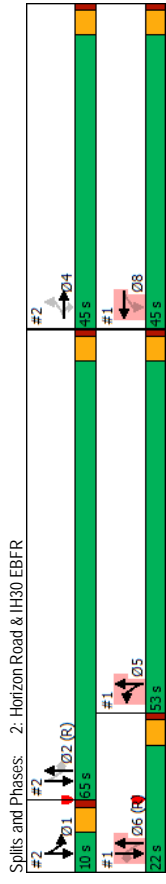
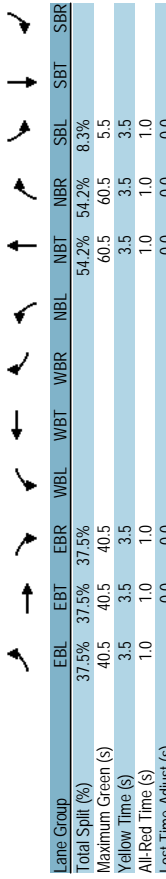
Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
2: Horizon Road & IH30 EBFR

	Ø5	Ø6	Ø8
Lane Group			
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Satd. Flow (prot)			
Fill Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.5	20.5	20.5
Total Spill (s)	53.0	22.0	45.0

Harbor Village TIA
Lanes, Volumes, Timings

2021 - Background - PM
2: Horizon Road & IH30 EBFR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	37.5%	37.5%	37.5%				54.2%	54.2%	54.2%	8.3%		
Maximum Green (s)	40.5	40.5	40.5				60.5	60.5	60.5	3.5		
Yellow Time (s)	3.5	3.5	3.5				3.5	3.5	3.5	3.5		
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5				4.5	4.5	4.5	4.5		
Lead/Lag							Lag	Lag	Lag	Lead		
Lead/Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0		
Recall Mode	None	None	None				C-Max	C-Max	None	None		
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0			
Flash Don't Walk (s)	0	0	0				11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0				0	0	0			
Act Effct Green (s)	40.5	40.5	40.5				60.5	60.5	60.5	66.0		
Actuated g/C Ratio	0.34	0.34	0.34				0.50	0.50	0.50	0.55		
v/c Ratio	0.56	1.03	1.03				0.54	0.15	0.22	0.19		
Control Delay	34.7	56.8	56.8				22.9	7.1	17.9	19.0		
Queue Delay	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Delay	34.7	56.8	56.8				22.9	7.1	17.9	19.0		
LOS	C	E	E				C	C	A	B		
Approach Delay	47.2						21.1			18.9		
Approach LOS	D						C			B		
Queue Length 50th (ft)	215	-456					332	23	34	120		
Queue Length 95th (ft)	276	#705					m378	m41	m59	158		
Internal Link Dist (ft)	498			481			644			533		
Turn Bay Length (ft)			200						100			
Base Capacity (vph)	1169	837					1784	834	273	2079		
Slantion 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	0.56	1.03					0.54	0.15	0.22	0.19		
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actual Cycle Length:	120											
Offset: 2 (2%), Referenced to phase 2:NBSB and 6: Start of Green												
Natural Cycle:	65											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	1.03											
Intersection Signal Delay:	33.7											
Intersection Capacity Utilization:	66.4%											
Analysis Period (min):	15											
<p># Volume exceeds capacity, queue is theoretically infinite.</p> <p># Queue shown is maximum after two cycles.</p> <p># 95th percentile volume exceeds capacity, queue may be longer.</p> <p># Queue shown is maximum after two cycles.</p> <p>m Volume for 95th percentile queue is metered by upstream signal.</p>												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	37.5%	37.5%	37.5%				54.2%	54.2%	54.2%	8.3%		
Maximum Green (s)	40.5	40.5	40.5				60.5	60.5	60.5	3.5		
Yellow Time (s)	3.5	3.5	3.5				3.5	3.5	3.5	3.5		
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5				4.5	4.5	4.5	4.5		
Lead/Lag							Lag	Lag	Lag	Lead		
Lead/Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0		
Recall Mode	None	None	None				C-Max	C-Max	None	None		
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0			
Flash Don't Walk (s)	0	0	0				11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0				0	0	0			
Act Effct Green (s)	40.5	40.5	40.5				60.5	60.5	60.5	66.0		
Actuated g/C Ratio	0.34	0.34	0.34				0.50	0.50	0.50	0.55		
v/c Ratio	0.56	1.03	1.03				0.54	0.15	0.22	0.19		
Control Delay	34.7	56.8	56.8				22.9	7.1	17.9	19.0		
Queue Delay	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Delay	34.7	56.8	56.8				22.9	7.1	17.9	19.0		
LOS	C	E	E				C	C	A	B		
Approach Delay	47.2						21.1			18.9		
Approach LOS	D						C			B		
Queue Length 50th (ft)	215	-456					332	23	34	120		
Queue Length 95th (ft)	276	#705					m378	m41	m59	158		
Internal Link Dist (ft)	498			481			644			533		
Turn Bay Length (ft)			200						100			
Base Capacity (vph)	1169	837					1784	834	273	2079		
Slantion 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	0.56	1.03					0.54	0.15	0.22	0.19		
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actual Cycle Length:	120											
Offset: 2 (2%), Referenced to phase 2:NBSB and 6: Start of Green												
Natural Cycle:	65											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	1.03											
Intersection Signal Delay:	33.7											
Intersection Capacity Utilization:	66.4%											
Analysis Period (min):	15											
<p># Volume exceeds capacity, queue is theoretically infinite.</p> <p># Queue shown is maximum after two cycles.</p> <p># 95th percentile volume exceeds capacity, queue may be longer.</p> <p># Queue shown is maximum after two cycles.</p> <p>m Volume for 95th percentile queue is metered by upstream signal.</p>												

Harbor Village TIA
 Lanes, Volumes, Timings

2021 - Background - PM
 2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	44%	18%	38%
Maximum Green (s)	48.5	17.5	40.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Don't Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	77.3											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	207	199	234	783	876	258						
Future Vol, veh/h	207	199	234	783	876	258						
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	0	200	-	-	200						
Yeh in Median Storage, #	1	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	225	216	254	851	952	280						
Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	1886	476	1232	0	-	0						
Stage 1	952	-	-	-	-	-						
Stage 2	934	-	-	-	-	-						
Critical Hdwy	6.84	6.94	4.14	-	-	-						
Critical Hdwy Stg 1	5.84	-	-	-	-	-						
Critical Hdwy Stg 2	5.84	-	-	-	-	-						
Follow-up Hdwy	3.52	3.32	2.22	-	-	-						
Pd Cap-1 Maneuver	*98	*720	808	-	-	-						
Stage 1	*680	-	-	-	-	-						
Stage 2	*343	-	-	-	-	-						
Platoon blocked, %	1	1	1	-	-	-						
Mov Cap-1 Maneuver	*67	*720	808	-	-	-						
Mov Cap-2 Maneuver	*80	-	-	-	-	-						
Stage 1	*466	-	-	-	-	-						
Stage 2	*343	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, \$	480.2	2.6	0									
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR						
Capacity (veh/h)	808	-	80	720	-	-						
HCM Lane V/C Ratio	0.315	-	2.813	0.3	-	-						
HCM Control Delay (\$)	11.5	-	\$ 930.3	12.1	-	-						
HCM Lane LOS	B	-	F	B	-	-						
HCM 95th %tile Q(veh)	1.4	-	22	1.3	-	-						

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

Intersection												
Int Delay, s/veh	8.3											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	96	133	262	122	105	431						
Future Vol, veh/h	96	133	262	122	105	431						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	100	0						
Yeh in Median Storage, #	-	0	0	-	0	-						
Grade, %	-	0	0	-	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	104	145	285	133	114	468						
Major/Minor	Major1	Major2		Minor2								
Conflicting Flow All	418	0	-	0	633	209						
Stage 1	-	-	-	-	352	-						
Stage 2	-	-	-	-	281	-						
Critical Hdwy	4.14	-	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	-	3.52	3.32						
Pd Cap-1 Maneuver	1138	-	-	-	412	797						
Stage 1	-	-	-	-	683	-						
Stage 2	-	-	-	-	741	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	1138	-	-	-	371	797						
Mov Cap-2 Maneuver	-	-	-	-	371	-						
Stage 1	-	-	-	-	615	-						
Stage 2	-	-	-	-	741	-						
Approach	EB	WB	SB									
HCM Control Delay, s	3.7	0	16.3									
HCM LOS	C		C									
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2						
Capacity (veh/h)	1138	-	-	-	371	797						
HCM Lane V/C Ratio	0.092	-	-	-	0.308	0.588						
HCM Control Delay (\$)	8.5	0.2	-	-	19	15.7						
HCM Lane LOS	A	A	-	-	C	C						
HCM 95th %tile Q(veh)	0.3	-	-	-	1.3	3.9						

Harbor Village TIA
 HCM 6th TWSC

2021 - Background - PM
 5: Summer Lee & Lake Front Trail

Intersection										
Int Delay, s/veh	3.8									
Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	186	191	588	106	39	26				
Traffic Vol, veh/h	186	191	588	106	39	26				
Future Vol, veh/h	0	0	0	0	0	0				
Conflicting Peds, #/hr	Free	Free	Free	Free	Stop	Stop				
Sign Control	- None	- None	- None	- None	- None	- None				
RT Channelized	- None	- None	- None	- None	- None	- None				
Storage Length	100	-	-	-	0	-				
Yeh in Median Storage, #	-	0	0	-	0	-				
Grade, %	-	0	0	-	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	202	208	639	115	42	28				
Major/Minor	Major1	Major2	Minor2							
Conflicting Flow All	754	0	0	1205	377					
Stage 1	-	-	-	697	-					
Stage 2	-	-	-	508	-					
Critical Hdwy	4.14	-	-	6.84	6.94					
Critical Hdwy Stg 1	-	-	-	5.84	-					
Critical Hdwy Stg 2	-	-	-	5.84	-					
Follow-up Hdwy	2.22	-	-	3.52	3.32					
Pd Cap-1 Maneuver	852	-	-	176	621					
Stage 1	-	-	-	455	-					
Stage 2	-	-	-	569	-					
Platoon blocked, %	-	-	-	-	-					
Mov Cap-1 Maneuver	852	-	-	129	621					
Mov Cap-2 Maneuver	-	-	-	129	-					
Stage 1	-	-	-	333	-					
Stage 2	-	-	-	569	-					
Approach	EB	WB	SB							
HCM Control Delay, s	5.5	0	35							
HCM LOS	E	E	E							
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR				
Capacity (veh/h)	852	-	-	-	-	189				
HCM Lane V/C Ratio	0.237	-	-	-	-	0.374				
HCM Control Delay (s)	10.5	0.5	-	-	-	35				
HCM Lane LOS	B	A	-	-	-	E				
HCM 95th %tile Q(veh)	0.9	-	-	-	-	1.6				

Harbor Village TIA
 HCM 6th TWSC

2021 - Background - PM
 6: Lake Front Trail & IH30 EBFR

Intersection										
Int Delay, s/veh	18.1									
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑	↑↑↑	0	0	0	↑				
Traffic Vol, veh/h	1517	293	0	0	0	229				
Future Vol, veh/h	1517	293	0	0	0	229				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	- None	- None	- None	- None	- None	- None				
Storage Length	-	-	-	-	-	0				
Yeh in Median Storage, #	0	-	-	16983	0	-				
Grade, %	0	-	-	0	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	1649	318	0	0	0	249				
Major/Minor	Major1	Minor1								
Conflicting Flow All	0	0	-	-	-	984				
Stage 1	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	-				
Critical Hdwy	-	-	-	-	-	7.14				
Critical Hdwy Stg 1	-	-	-	-	-	-				
Critical Hdwy Stg 2	-	-	-	-	-	-				
Follow-up Hdwy	-	-	-	-	-	3.92				
Pd Cap-1 Maneuver	-	-	-	-	0	-213				
Stage 1	-	-	-	-	0	-				
Stage 2	-	-	-	-	0	-				
Platoon blocked, %	-	-	-	-	-	-				
Mov Cap-1 Maneuver	-	-	-	-	-	-213				
Mov Cap-2 Maneuver	-	-	-	-	-	-				
Stage 1	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	-				
Approach	EB	NB								
HCM Control Delay, s	0	161.5								
HCM LOS	F	F								
Minor Lane/Major Mvmt	NBLn1	EBT	EBR							
Capacity (veh/h)	213	-	-							
HCM Lane V/C Ratio	1.169	-	-							
HCM Control Delay (s)	161.5	-	-							
HCM Lane LOS	F	-	-							
HCM 95th %tile Q(veh)	12.2	-	-							

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

Harbor Village TIA
 HCM 6th TWSC

2021 - Background - PM
 7: Shoreline Trail & IH30 EBFR

Intersection									
Int Delay, s/veh	11.2								
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑					↑			
Traffic Vol, veh/h	1578	168	0	0	0	206			
Future Vol, veh/h	1578	168	0	0	0	206			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Free	Free	Stop	Stop	Stop	Stop			
RT Channelized	-	None	-	None	-	None			
Storage Length	-	-	-	-	-	0			
Veh in Median Storage, #	0	-	-	16983	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	1715	183	0	0	0	224			

Major/Minor	Major1	Minor1		
Conflicting Flow All	0	0	0	949
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pd Cap-1 Maneuver	-	-	0	224
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	224
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB		
HCM Control Delay, s	0	106		
HCM LOS		F		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	224	-	-
HCM Lane V/C Ratio	1	-	-
HCM Control Delay (s)	106	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	9.2	-	-

Harbor Village TIA
 HCM 6th TWSC

2021 - Background - PM
 8: North Drive & IH30 EBFR

Intersection									
Int Delay, s/veh	0								
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑					↑			
Traffic Vol, veh/h	1810	0	0	0	0	0			
Future Vol, veh/h	1810	0	0	0	0	0			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Stop	Stop			
RT Channelized	-	None	-	None	-	None			
Storage Length	-	-	-	-	-	0			
Veh in Median Storage, #	0	-	-	16983	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	1967	0	0	0	0	0			

Major/Minor	Major1	Minor1		
Conflicting Flow All	0	0	0	984
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pd Cap-1 Maneuver	-	-	0	213
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	213
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB		
HCM Control Delay, s	0	0		
HCM LOS		A		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	0	0	0	229	293	0						
Future Vol, veh/h	0	0	0	229	293	0						
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	-	150	-	-	-						
Veh in Median Storage, #	0	-	0	0	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	0	0	0	249	318	0						
Major/Minor	Minor2	Major1	Minor2	Major1	Minor2	Major1						
Conflicting Flow All	567	318	318	0	-	0						
Stage 1	318	-	-	-	-	-						
Stage 2	249	-	-	-	-	-						
Critical Hdwy	6.42	6.22	4.12	-	-	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	2.218	-	-	-						
Pd Cap-1 Maneuver	485	723	1242	-	-	-						
Stage 1	738	-	-	-	-	-						
Stage 2	792	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	485	723	1242	-	-	-						
Mov Cap-2 Maneuver	485	-	-	-	-	-						
Stage 1	738	-	-	-	-	-						
Stage 2	792	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	0	0	0									
HCM LOS	A											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR							
Capacity (veh/h)	1242	-	-	-	-							
HCM Lane V/C Ratio	-	-	-	-	-							
HCM Control Delay (\$)	0	-	0	-	-							
HCM Lane LOS	A	-	A	-	-							
HCM 95th %tile Q(veh)	0	-	-	-	-							

Intersection													
Int Delay, s/veh	21.3												
Movement	EBT	EBR	WBL	WBT	NBL	NBR							
Lane Configurations	↔	↔	↔	↔	↔	↔							
Traffic Vol, veh/h	1514	184	0	0	0	291							
Future Vol, veh/h	1514	184	0	0	0	291							
Conflicting Peds, #/hr	0	0	0	0	0	0							
Sign Control	Free	Free	Stop	Stop	Stop	Stop							
RT Channelized	-	None	-	None	-	None							
Storage Length	-	150	-	-	-	0							
Veh in Median Storage, #	0	-	-	16983	0	-							
Grade, %	0	-	-	0	0	-							
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	1646	200	0	0	0	316							
Major/Minor	Major1						Minor1						
Conflicting Flow All	0	0	0	-	-	823							
Stage 1	-	-	-	-	-	-							
Stage 2	-	-	-	-	-	-							
Critical Hdwy	-	-	-	-	-	7.14							
Critical Hdwy Stg 1	-	-	-	-	-	-							
Critical Hdwy Stg 2	-	-	-	-	-	-							
Follow-up Hdwy	-	-	-	-	-	3.92							
Pd Cap-1 Maneuver	-	-	-	-	0	-272							
Stage 1	-	-	-	-	0	-							
Stage 2	-	-	-	-	0	-							
Platoon blocked, %	-	-	-	-	-	-							
Mov Cap-1 Maneuver	-	-	-	-	-	-272							
Mov Cap-2 Maneuver	-	-	-	-	-	-							
Stage 1	-	-	-	-	-	-							
Stage 2	-	-	-	-	-	-							
Approach	EB	NB											
HCM Control Delay, s	0	145.8											
HCM LOS	F	F											
Minor Lane/Major Mvmt	NBLn1	EBT	EBR										
Capacity (veh/h)	272	-	-										
HCM Lane V/C Ratio	1.163	-	-										
HCM Control Delay (\$)	145.8	-	-										
HCM Lane LOS	F	-	-										
HCM 95th %tile Q(veh)	14	-	-										

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

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background + Site - AM
1: Horizon Road & IH 30 WBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	175	39	9	1054	101	0	0	87	149
Future Volume (vph)	0	0	0	175	39	9	1054	101	0	0	87	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	200	0	0	0	0	0	0	0	100
Storage Lanes	0	0	0	1	0	2	0	0	0	0	0	1
Taper Length (ft)	25	0	0	25	0	0	25	0	0	25	0	0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	0.97	1.00	1.00	1.00	0.95	1.00
Ft				0.971								0.850
Fill Protected				0.950								
Satd. Flow (prot)	0	0	0	1770	3437	0	3433	1863	0	0	3539	1583
Fill Permitted				0.950			0.692					
Satd. Flow (perm)	0	0	0	1770	3437	0	2501	1863	0	0	3539	1583
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	Yes
Satd. Flow (RTOR)			10									162
Link Speed (mph)	45	45	45	45	45	40	40	40	40	40	40	40
Link Distance (ft)	625	625	834	834	834	461	461	461	461	461	257	257
Travel Time (s)	9.5	9.5	12.6	12.6	12.6	7.9	7.9	7.9	7.9	7.9	4.4	4.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	190	42	10	1146	110	0	0	95	162
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	190	52	0	1146	110	0	0	95	162
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Left	Right
Median Width (ft)	12	12	12	12	24	24	24	24	24	24	24	24
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+Ex	C+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	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	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	0.0
Turn Type	Perm	NA	NA	pm+pt	NA	NA	NA	NA	NA	NA	NA	Perm
Protected Phases	8	8	8	5	5	5	5	5	5	5	6	6
Permitted Phases	8	8	8	5	5	5	5	5	5	5	6	6
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Spill (s)	36.0	36.0	36.0	36.0	36.0	36.0	63.0	63.0	63.0	21.0	21.0	21.0

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background + Site - AM
1: Horizon Road & IH 30 WBFR

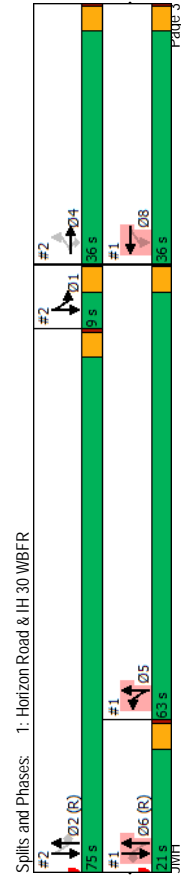
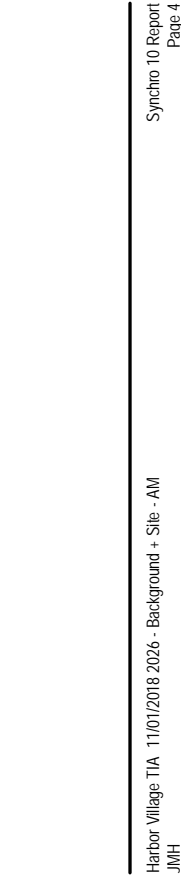
Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Satd. Flow (prot)			
Fill Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.0	20.0	20.0
Total Spill (s)	9.0	75.0	36.0

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	63%	30%
Maximum Green (s)	5.0	71.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Dont Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)				30.0%	30.0%	52.5%				17.5%	17.5%	17.5%
Maximum Green (s)				32.0	32.0	59.0				17.0	17.0	17.0
Yellow Time (s)				3.5	3.5	3.5				3.5	3.5	3.5
All-Red Time (s)				0.5	0.5	0.5				0.5	0.5	0.5
Lost Time Adjust (s)				0.0	0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)				4.0	4.0	4.0				4.0	4.0	4.0
Lead/Lag				Lag	Lead	Lead				Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes				Yes	Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0				3.0	3.0	3.0
Recall Mode				None	None	None				C-Max	C-Max	C-Max
Walk Time (s)				5.0	5.0	5.0				5.0	5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0				11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0	0				0	0	0
Act Effct Green (s)				20.9	20.9	87.1				28.1	28.1	28.1
Actuated g/C Ratio				0.17	0.17	0.73				0.23	0.23	0.23
v/c Ratio				0.62	0.09	0.50				0.11	0.33	0.33
Control Delay				60.2	37.0	4.0				2.0	39.5	8.7
Queue Delay				0.0	0.0	0.1				0.0	0.0	0.0
Total Delay				60.2	37.0	4.1				2.0	39.5	8.7
LOS				E	D	A				A	D	A
Approach Delay				55.2		3.9				20.1		
Approach LOS				E		A				C		
Queue Length 50th (ft)				139	15	64				11		
Queue Length 95th (ft)				154	25	77				20		
Internal Link Dist (ft)				545		381				177		
Turn Bay Length (ft)												100
Base Capacity (vph)				472	923	2272				1413		827
Stallion Cap Reductn				0	0	143				0		494
Spillback Cap Reductn				0	0	0				0		0
Storage Cap Reductn				0	0	0				0		0
Reduced v/c Ratio				0.40	0.06	0.54				0.08		0.11
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actual Cycle Length:	120											
Offset:	20 (17%), Referenced to phase 2:NBSB and 6: Start of Green											
Natural Cycle:	35											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.86											
Intersection Signal Delay:	13.3											
Intersection Capacity Utilization:	59.0%											
Analysis Period (min):	15											

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	63%	30%
Maximum Green (s)	5.0	71.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Dont Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)				30.0%	30.0%	52.5%				17.5%	17.5%	17.5%
Maximum Green (s)				32.0	32.0	59.0				17.0	17.0	17.0
Yellow Time (s)				3.5	3.5	3.5				3.5	3.5	3.5
All-Red Time (s)				0.5	0.5	0.5				0.5	0.5	0.5
Lost Time Adjust (s)				0.0	0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)				4.0	4.0	4.0				4.0	4.0	4.0
Lead/Lag				Lag	Lead	Lead				Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes				Yes	Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0				3.0	3.0	3.0
Recall Mode				None	None	None				C-Max	C-Max	C-Max
Walk Time (s)				5.0	5.0	5.0				5.0	5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0				11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0	0				0	0	0
Act Effct Green (s)				20.9	20.9	87.1				28.1	28.1	28.1
Actuated g/C Ratio				0.17	0.17	0.73				0.23	0.23	0.23
v/c Ratio				0.62	0.09	0.50				0.11	0.33	0.33
Control Delay				60.2	37.0	4.0				2.0	39.5	8.7
Queue Delay				0.0	0.0	0.1				0.0	0.0	0.0
Total Delay				60.2	37.0	4.1				2.0	39.5	8.7
LOS				E	D	A				A	D	A
Approach Delay				55.2		3.9				20.1		
Approach LOS				E		A				C		
Queue Length 50th (ft)				139	15	64				11		
Queue Length 95th (ft)				154	25	77				20		
Internal Link Dist (ft)				545		381				177		
Turn Bay Length (ft)												100
Base Capacity (vph)				472	923	2272				1413		827
Stallion Cap Reductn				0	0	143				0		494
Spillback Cap Reductn				0	0	0				0		0
Storage Cap Reductn				0	0	0				0		0
Reduced v/c Ratio				0.40	0.06	0.54				0.08		0.11
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actual Cycle Length:	120											
Offset:	20 (17%), Referenced to phase 2:NBSB and 6: Start of Green											
Natural Cycle:	35											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.86											
Intersection Signal Delay:	13.3											
Intersection Capacity Utilization:	59.0%											
Analysis Period (min):	15											



Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background + Site - AM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4↑	4↑	4↑	0	0	0	0	0	0	0	0	0
Traffic Volume (vph)	147	161	589	0	0	0	0	959	55	37	309	0
Future Volume (vph)	147	161	589	0	0	0	0	959	55	37	309	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	1	0	0	0	0	0	1	1	1	1	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ft	0.850											
Fill Protected	0.977											
Satd. Flow (prot)	0	3458	1583	0	0	0	0	3539	1583	1770	3539	0
Fill Permitted	0.977											
Satd. Flow (perm)	0	3458	1583	0	0	0	0	3539	1583	434	3539	0
Right Turn on Red	Yes											
Satd. Flow (RTOR)	572											
Link Speed (mph)	35											
Link Distance (ft)	557											
Travel Time (s)	10.9											
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	160	175	640	0	0	0	0	1042	60	40	336	0
Shared Lane Traffic (%)	0											
Lane Group Flow (vph)	0	335	640	0	0	0	0	1042	60	40	336	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Left	Right
Median Width(ft)	0											
Link Offset(ft)	0											
Crosswalk Width(ft)	16											
Two way Left Turn Lane	0											
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Ch+Ex											
Leading Detector (ft)	50	50	50	0	0	0	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel	0.0											
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	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	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	0.0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	D.P+P	NA	NA
Protected Phases	4											
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4	4
Detector Phase	2											
Switch Phase	2											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Spill (s)	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0

Harbor Village TIA
Lanes, Volumes, Timings

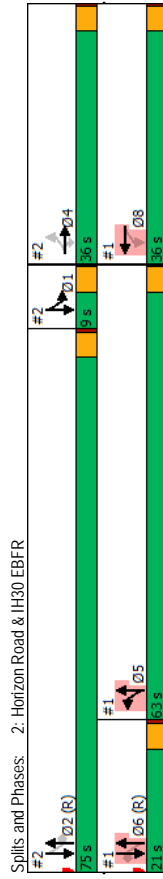
2026 - Background + Site - AM
2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Lane Configurations	0		
Traffic Volume (vph)	0	0	0
Future Volume (vph)	0	0	0
Ideal Flow (vphpl)	1900	1900	1900
Storage Length (ft)	0	0	0
Storage Lanes	0	0	0
Taper Length (ft)	0	0	0
Lane Util. Factor	0.95	0.95	0.95
Ft	0.850		
Fill Protected	0.977		
Satd. Flow (prot)	0	3458	1583
Fill Permitted	0.977		
Satd. Flow (perm)	0	3458	1583
Right Turn on Red	Yes		
Satd. Flow (RTOR)	572		
Link Speed (mph)	35		
Link Distance (ft)	557		
Travel Time (s)	10.9		
Peak Hour Factor	0.92	0.92	0.92
Adj. Flow (vph)	160	175	640
Shared Lane Traffic (%)	0		
Lane Group Flow (vph)	0	335	640
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)	0		
Link Offset(ft)	0		
Crosswalk Width(ft)	16		
Two way Left Turn Lane	0		
Headway Factor	1.00	1.00	1.00
Turning Speed (mph)	15	9	15
Number of Detectors	1	1	1
Detector Template	Ch+Ex		
Leading Detector (ft)	50	50	50
Trailing Detector (ft)	0	0	0
Detector 1 Position(ft)	0	0	0
Detector 1 Size(ft)	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel	0.0		
Detector 1 Extend (s)	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0
Turn Type	Perm	NA	Perm
Protected Phases	4		
Permitted Phases	4	4	4
Detector Phase	2		
Switch Phase	2		
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	20.0	20.0	20.0
Total Spill (s)	36.0	36.0	36.0

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background + Site - AM
2: Horizon Road & IH30 EBFR

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)	30.0%	30.0%	30.0%				62.5%	62.5%	62.5%	7.5%		
Maximum Green (s)	32.0	32.0	32.0				71.0	71.0	71.0	5.0		
Yellow Time (s)	3.5	3.5	3.5				3.5	3.5	3.5	3.5		
All-Red Time (s)	0.5	0.5	0.5				0.5	0.5	0.5	0.5		
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0				4.0	4.0	4.0	4.0		
Lead/Lag							Lead	Lead	Lead	Lag		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0		
Recall Mode	None	None	None				C-Max	C-Max	C-Max	None		
Walk Time (s)	5.0	5.0	5.0				5.0	5.0	5.0	5.0		
Flash Dont Walk (s)	11.0	11.0	11.0				11.0	11.0	11.0	11.0		
Pedestrian Calls (#/hr)	0	0	0				0	0	0	0		
Act Effct Green (s)	20.9	20.9	20.9				82.1	82.1	82.1	87.1	91.1	
Actuated g/C Ratio	0.17	0.17	0.17				0.68	0.68	0.68	0.73	0.76	
v/c Ratio	0.56	0.86	0.86				0.43	0.05	0.11	0.13		
Control Delay	47.8	18.2	47.8				7.2	2.1	11.7	8.6		
Queue Delay	0.0	0.0	0.0				0.0	0.0	0.0	0.0		
Total Delay	47.8	18.2	47.8				7.2	2.1	11.7	8.6		
LOS	D	B	B				A	A	A	B	A	
Approach Delay	28.4						6.9			8.9		
Approach LOS	C						A			A		
Queue Length 50th (ft)	129	47	107				0	0	15	75		
Queue Length 95th (ft)	155	189	206				m12	37	115			
Internal Link Dist (ft)	477		478				646		381			
Turn Bay Length (ft)	200						100					
Base Capacity (vph)	922	841	2420				1096	370	2685			
Stallion Cap Reductn	0	0	0				0	0	0	0		
Spillback Cap Reductn	0	0	0				0	0	0	0		
Storage Cap Reductn	0	0	0				0	0	0	0		
Reduced v/c Ratio	0.36	0.76	0.76				0.43	0.05	0.11	0.13		
Intersection Summary												
Area Type:	Other											
Cycle Length:	120											
Actual Cycle Length:	120											
Offset:	20 (17%), Referenced to phase 2:NBSB and 6: Start of Green											
Natural Cycle:	35											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.86											
Intersection Signal Delay:	15.8											
Intersection Capacity Utilization:	59.0%											
Analysis Period (min):	15											
m. Volume for 95th percentile queue is metered by upstream signal.												



Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background + Site - AM
2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	53%	18%	30%
Maximum Green (s)	59.0	17.0	32.0
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Dont Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection													
Int Delay, s/veh	4.3												
Movement	EBL	EBR	NBL	NBT	SBT	SBR							
Lane Configurations	↖	↗	↖	↗	↖	↗							
Traffic Vol, veh/h	133	100	143	885	652	189							
Future Vol, veh/h	133	100	143	885	652	189							
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	0	200	-	-	200							
Yeh in Median Storage, #	1	-	-	0	0	-							
Grade, %	0	-	-	0	0	-							
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	145	109	155	962	709	205							
Major/Minor	Minor2	Major1	Major2										
Conflicting Flow All	1500	355	914	0	-	0							
Stage 1	709	-	-	-	-	-							
Stage 2	791	-	-	-	-	-							
Critical Hdwy	6.84	6.94	4.14	-	-	-							
Critical Hdwy Stg 1	5.84	-	-	-	-	-							
Critical Hdwy Stg 2	5.84	-	-	-	-	-							
Follow-up Hdwy	3.52	3.32	2.22	-	-	-							
Pd Cap-1 Maneuver	*175	*822	994	-	-	-							
Stage 1	*716	-	-	-	-	-							
Stage 2	*407	-	-	-	-	-							
Platoon blocked, %	1	1	1	-	-	-							
Mov Cap-1 Maneuver	*148	*822	994	-	-	-							
Mov Cap-2 Maneuver	*214	-	-	-	-	-							
Stage 1	*655	-	-	-	-	-							
Stage 2	*407	-	-	-	-	-							
Approach	EB	NB	SB										
HCM Control Delay, s	33.4	1.3	0										
HCM LOS	D												
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR							
Capacity (veh/h)	994	-	214	822	-	-							
HCM Lane V/C Ratio	0.156	-	0.676	0.132	-	-							
HCM Control Delay (\$)	9.3	-	51	10	-	-							
HCM Lane LOS	A	-	F	B	-	-							
HCM 95th %tile Q(veh)	0.6	-	4.2	0.5	-	-							
Notes	-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection													
Int Delay, s/veh	5.5												
Movement	EBL	EBT	WBT	WBR	SBL	SBR							
Lane Configurations	↖	↗	↖	↗	↖	↗							
Traffic Vol, veh/h	88	113	117	63	65	206							
Future Vol, veh/h	88	113	117	63	65	206							
Conflicting Peds, #/hr	0	0	0	0	0	0							
Sign Control	Free	Free	Free	Free	Stop	Stop							
RT Channelized	-	None	-	None	-	None							
Storage Length	-	-	-	-	-	100							
Yeh in Median Storage, #	-	0	0	-	0	-							
Grade, %	-	0	0	-	0	-							
Peak Hour Factor	92	92	92	92	92	92							
Heavy Vehicles, %	2	2	2	2	2	2							
Mvmt Flow	96	123	127	68	71	224							
Major/Minor	Major1	Major2				Minor2							
Conflicting Flow All	195	0	-	0	415	98							
Stage 1	-	-	-	-	761	-							
Stage 2	-	-	-	-	254	-							
Critical Hdwy	4.14	-	-	-	6.84	6.94							
Critical Hdwy Stg 1	-	-	-	-	5.84	-							
Critical Hdwy Stg 2	-	-	-	-	5.84	-							
Follow-up Hdwy	2.22	-	-	-	3.52	3.32							
Pd Cap-1 Maneuver	1375	-	-	-	566	939							
Stage 1	-	-	-	-	851	-							
Stage 2	-	-	-	-	765	-							
Platoon blocked, %	-	-	-	-	-	-							
Mov Cap-1 Maneuver	1375	-	-	-	524	939							
Mov Cap-2 Maneuver	-	-	-	-	524	-							
Stage 1	-	-	-	-	787	-							
Stage 2	-	-	-	-	765	-							
Approach	EB	WB	SB										
HCM Control Delay, s	3.5	0	10.7										
HCM LOS	B												
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2							
Capacity (veh/h)	1375	-	-	-	524	939							
HCM Lane V/C Ratio	0.07	-	-	-	0.135	0.238							
HCM Control Delay (\$)	7.8	0.1	-	-	12.9	10							
HCM Lane LOS	A	A	-	-	B	B							
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	0.9							

Intersection									
Int Delay, s/veh	3.4								
Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations	151	153	237	84	46	18			
Traffic Vol, veh/h	151	153	237	84	46	18			
Future Vol, veh/h	0	0	0	0	0	0			
Conflicting Peds, #/hr	Free	Free	Free	Free	Stop	Stop			
Sign Control	- None	- None	- None	- None	- None	- None			
RT Channelized	-	-	-	-	-	-			
Storage Length	-	-	-	-	-	-			
Veh in Median Storage, #	-	0	0	-	0	-			
Grade, %	-	0	0	-	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	164	166	258	91	50	20			

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	349	0	0	715	175
Stage 1	-	-	-	304	-
Stage 2	-	-	-	411	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pd Cap-1 Maneuver	1207	-	-	365	838
Stage 1	-	-	-	722	-
Stage 2	-	-	-	638	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1207	-	-	310	838
Mov Cap-2 Maneuver	-	-	-	310	-
Stage 1	-	-	-	614	-
Stage 2	-	-	-	638	-

Approach	EB	WB	SB		
HCM Control Delay, s	4.3	0	16.7		
HCM LOS	C				

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR		
Capacity (veh/h)	1207	-	-	-	-	377		
HCM Lane V/C Ratio	0.136	-	-	-	-	0.185		
HCM Control Delay (s)	8.5	0.2	-	-	-	16.7		
HCM Lane LOS	A	A	-	-	-	C		
HCM 95th %tile Q(veh)	0.5	-	-	-	-	0.7		

Intersection									
Int Delay, s/veh	3.3								
Movement	EBL	EBT	WBL	WBT	NBL	NBR			
Lane Configurations	1123	155	0	0	0	168			
Traffic Vol, veh/h	1123	155	0	0	0	168			
Future Vol, veh/h	0	0	0	0	0	0			
Conflicting Peds, #/hr	Free	Free	Free	Free	Stop	Stop			
Sign Control	- None	- None	- None	- None	- None	- None			
RT Channelized	-	-	-	-	-	-			
Storage Length	-	-	-	-	-	-			
Veh in Median Storage, #	0	-	-	16983	0	-			
Grade, %	-	0	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	1221	168	0	0	0	183			

Major/Minor	Major1	Minor1		
Conflicting Flow All	0	0	-	695
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.92
Pd Cap-1 Maneuver	-	-	0	330
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	330
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	NB		
HCM Control Delay, s	0	28.6		
HCM LOS	D			

Minor Lane/Major Mvmt	NBLn1	EBT	EBR		
Capacity (veh/h)	330	-	-		
HCM Lane V/C Ratio	0.553	-	-		
HCM Control Delay (s)	28.6	-	-		
HCM Lane LOS	D	-	-		
HCM 95th %tile Q(veh)	3.2	-	-		

Harbor Village TIA
 HCM 6th TWSC

2026 - Background + Site - AM
 7: Shoreline Trail & IH30 EBFR

2026 - Background + Site - AM
 8: North Drive & IH30 EBFR

Intersection									
Int Delay, s/veh	2.9								
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑					↑			
Traffic Vol, veh/h	1204	89	0	0	0	155			
Future Vol, veh/h	1204	89	0	0	0	155			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Free	Free	Stop	Stop	Stop	Stop			
RT Channelized	-	None	-	None	-	None			
Storage Length	-	-	-	-	-	0			
Veh in Median Storage, #	0	-	-	16983	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	1309	97	0	0	0	168			

Major/Minor	Major1	Minor1	
Conflicting Flow All	0	0	703
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	7.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	3.92
Pd Cap-1 Maneuver	-	0	326
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	326
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	
HCM Control Delay, s	0	27.3	
HCM LOS		D	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	326	-	-
HCM Lane V/C Ratio	0.517	-	-
HCM Control Delay (s)	27.3	-	-
HCM Lane LOS	D	-	-
HCM 95th %tile Q(veh)	2.8	-	-

Intersection									
Int Delay, s/veh	0.6								
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑					↑			
Traffic Vol, veh/h	1234	15	0	0	0	46			
Future Vol, veh/h	1234	15	0	0	0	46			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Stop	Stop			
RT Channelized	-	None	-	None	-	None			
Storage Length	-	-	-	-	-	0			
Veh in Median Storage, #	0	-	-	16983	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	1341	16	0	0	0	50			

Major/Minor	Major1	Minor1	
Conflicting Flow All	0	0	679
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	7.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	3.92
Pd Cap-1 Maneuver	-	0	338
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	338
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	
HCM Control Delay, s	0	17.5	
HCM LOS		C	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR
Capacity (veh/h)	338	-	-
HCM Lane V/C Ratio	0.148	-	-
HCM Control Delay (s)	17.5	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.5	-	-

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	18	28	17	150	154	2						
Future Vol, veh/h	18	28	17	150	154	2						
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	-	150	-	-	-						
Veh in Median Storage, #	0	-	0	0	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	20	30	18	163	167	2						
Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	367	168	169	0	-	0						
Stage 1	168	-	-	-	-	-						
Stage 2	199	-	-	-	-	-						
Critical Hdwy	6.42	6.22	4.12	-	-	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	2.218	-	-	-						
Pd Cap-1 Maneuver	633	876	1409	-	-	-						
Stage 1	862	-	-	-	-	-						
Stage 2	835	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	625	876	1409	-	-	-						
Mov Cap-2 Maneuver	625	-	-	-	-	-						
Stage 1	851	-	-	-	-	-						
Stage 2	835	-	-	-	-	-						
Approach	EB	NB	SB									
HCM Control Delay, s	10.1	0.8	0									
HCM LOS	B	C										
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR							
Capacity (veh/h)	1409	-	757	-	-							
HCM Lane V/C Ratio	0.013	-	0.066	-	-							
HCM Control Delay (s)	7.6	-	10.1	-	-							
HCM Lane LOS	A	-	B	-	-							
HCM 95th %tile Q(veh)	0	-	0.2	-	-							

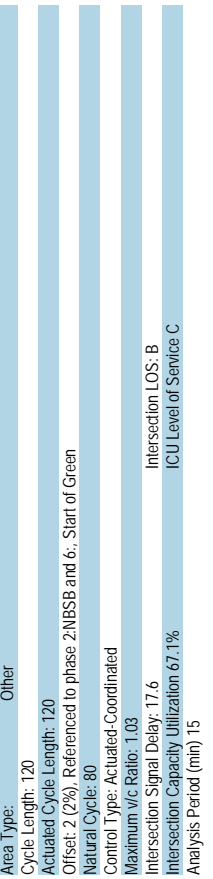
Intersection												
Int Delay, s/veh	1.5											
Movement	EBT	EBR	WBL	WBT	NBL	NBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	1140	164	0	0	0	112						
Future Vol, veh/h	1140	164	0	0	0	112						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Stop	Stop	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	150	-	-	-	0						
Veh in Median Storage, #	0	-	-	16983	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	1239	178	0	0	0	122						
Major/Minor	Major1	Minor1										
Conflicting Flow All	0	0	-	-	-	620						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	-	-	-	-	7.14						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	-	-	-	-	3.92						
Pd Cap-1 Maneuver	-	-	-	-	-	0	369					
Stage 1	-	-	-	-	-	0	-					
Stage 2	-	-	-	-	-	0	-					
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	369					
Mov Cap-2 Maneuver	-	-	-	-	-	-	-					
Stage 1	-	-	-	-	-	-	-					
Stage 2	-	-	-	-	-	-	-					
Approach	EB	NB	NB									
HCM Control Delay, s	0	19.5	C									
HCM LOS	C											
Minor Lane/Major Mvmt	NBLn1	EBT	EBR									
Capacity (veh/h)	369	-	-									
HCM Lane V/C Ratio	0.33	-	-									
HCM Control Delay (s)	19.5	-	-									
HCM Lane LOS	C	-	-									
HCM 95th %tile Q(veh)	1.4	-	-									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	318	50	48	938	244	0	0	126	114
Future Volume (vph)	0	0	0	318	50	48	938	244	0	0	126	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	200	0	0	0	0	0	0	0	100
Storage Lanes	0	0	0	1	0	2	0	0	0	0	0	1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	0.95	1.00
Ft				0.926								0.850
Fill Protected				0.950			0.950					
Said. Flow (prot)	0	0	0	1770	3277	0	3433	1863	0	0	3539	1583
Fill Permitted				0.950			0.665					
Said. Flow (perm)	0	0	0	1770	3277	0	2403	1863	0	0	3539	1583
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	Yes
Said. Flow (RTOR)			52		52							124
Link Speed (mph)	45		45		45		40		40		40	
Link Distance (ft)	625		912		912		613		257		257	
Travel Time (s)	9.5		13.8		10.4		4.4		4.4		4.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	346	54	52	1020	265	0	0	137	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	346	106	0	1020	265	0	0	137	124
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Left	Right
Median Width (ft)	12		12		24		24		24		24	
Link Offset (ft)	0		0		0		0		0		0	
Crosswalk Width (ft)	16		16		16		16		16		16	
Two Way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9		15		9		15		15	
Number of Detectors	1		1		1		1		1		1	
Detector Template												
Leading Detector (ft)	50		50		50		50		50		50	
Trailing Detector (ft)	0		0		0		0		0		0	
Detector 1 Position (ft)	0		0		0		0		0		0	
Detector 1 Size (ft)	50		50		50		50		50		50	
Detector 1 Type	C+Ex		C+Ex		C+Ex		C+Ex		C+Ex		C+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	Perm		NA		D,P+P		NA		NA		NA	Perm
Protected Phases	8		8		5		5		5		6	
Permitted Phases	8		8		5		5		5		6	
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0		4.0		4.0		4.0		4.0		4.0	
Minimum Spill (s)	20.5		20.5		8.5		8.5		20.5		20.5	
Total Spill (s)	47.0		47.0		51.0		51.0		22.0		22.0	

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Said. Flow (prot)			
Fill Permitted			
Said. Flow (perm)			
Right Turn on Red			
Said. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width (ft)			
Link Offset (ft)			
Crosswalk Width (ft)			
Two Way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position (ft)			
Detector 1 Size (ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.5	20.5	20.5
Total Spill (s)	10.0	63.0	47.0

Lane Group	Ø1	Ø2	Ø4
Total Spill (%)	8%	53%	39%
Maximum Green (s)	5.5	58.5	42.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Dont Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stallion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Spill (%)				39.2%	39.2%	42.5%				18.3%	18.3%	18.3%
Maximum Green (s)				42.5	42.5	46.5				17.5	17.5	17.5
Yellow Time (s)				3.5	3.5	3.5				3.5	3.5	3.5
All-Red Time (s)				1.0	1.0	1.0				1.0	1.0	1.0
Lost Time Adjust (s)				0.0	0.0	0.0				0.0	0.0	0.0
Total Lost Time (s)				4.5	4.5	4.5				4.5	4.5	4.5
Lead/Lag				Lag	Lag	Lead				Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes				Yes	Yes	Yes
Vehicle Extension (s)				3.0	3.0	3.0				3.0	3.0	3.0
Recall Mode				None	None	None				C-Max	C-Max	C-Max
Walk Time (s)				5.0	5.0	5.0				5.0	5.0	5.0
Flash Dont Walk (s)				11.0	11.0	11.0				11.0	11.0	11.0
Pedestrian Calls (#/hr)				0	0	64.0				68.5	68.5	68.5
Act Effct Green (s)				42.5	42.5	0.53				0.57	0.15	0.15
Actuated g/C Ratio				0.35	0.35	0.61				0.27	0.37	0.37
v/c Ratio				0.55	0.09	0.25				0.27	0.37	0.37
Control Delay				37.5	15.8	10.4				47.1	11.2	11.2
Queue Delay				0.0	0.0	0.0				0.0	0.0	0.0
Total Delay				37.5	15.8	10.4				47.1	11.2	11.2
LOS				D	B	B				A	D	B
Approach Delay				32.4		9.9				30.1		
Approach LOS				C		A				C		
Queue Length 50th (ft)				245	18	114				50		0
Queue Length 95th (ft)				297	37	134				82		55
Internal Link Dist (ft)				545		832				177		
Turn Bay Length (ft)												100
Base Capacity (vph)				626	1194	1680				516		336
Stallion Cap Reductn				0	0	12				0		0
Spillback Cap Reductn				0	0	0				0		0
Storage Cap Reductn				0	0	0				0		0
Reduced v/c Ratio				0.55	0.09	0.61				0.27		0.37
Intersection Summary												
Area Type: Other												
Cycle Length: 120												
Actual Cycle Length: 120												
Offset: 2 (2%), Referenced to phase 2:NBSB and 6: Start of Green												
Natural Cycle: 80												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.03												
Intersection Signal Delay: 17.6												
Intersection Capacity Utilization 67.1%												
ICU Level of Service C												
Analysis Period (min) 15												



Spills and Phases: 1: Horizon Road & IH 30 WBFR

Spills and Phases: 1: Horizon Road & IH 30 WBFR

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background + Site - PM
2: Horizon Road & IH30 EBFR

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations		4↑	↑				↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	261	351	789	0	0	0	0	889	123	55	388	0
Future Volume (vph)	261	351	789	0	0	0	0	889	123	55	388	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	200	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	1	0	0	0	0	0	1	1	1	1	0
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ft		0.850					0.850					
Fill Protected		0.979						0.950				
Satd. Flow (prot)	0	3465	1583	0	0	0	0	3539	1583	1770	3539	0
Fill Permitted		0.979						0.197				
Satd. Flow (perm)	0	3465	1583	0	0	0	0	3539	1583	367	3539	0
Right Turn on Red		Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)		421						77				
Link Speed (mph)		35		35			40		40		40	
Link Distance (ft)		578		561			724		613		613	
Travel Time (s)		11.3		10.9			12.3		10.4		10.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	382	858	0	0	0	0	966	134	60	422	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	666	858	0	0	0	0	966	134	60	422	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right	Left	Right	Right	Left	Left	Right
Median Width(ft)	0	0	0	0	0	0	12	12	12	12	12	12
Link Offset(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width(ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	0	0	0	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	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	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	0.0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	D.P+P	NA	NA
Protected Phases		4					2		2	1	1	2
Permitted Phases	4	4	4	4	4	4	2	2	2	1	1	2
Detector Phase												
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Spill (s)	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	8.5	8.5	8.5
Total Spill (s)	47.0	47.0	47.0	47.0	47.0	47.0	63.0	63.0	63.0	10.0	10.0	10.0

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background + Site - PM
2: Horizon Road & IH30 EBFR

	Ø5	Ø6	Ø8
Lane Group			
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ft			
Fill Protected			
Satd. Flow (prot)			
Fill Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Number of Detectors			
Detector Template			
Leading Detector (ft)			
Trailing Detector (ft)			
Detector 1 Position(ft)			
Detector 1 Size(ft)			
Detector 1 Type			
Detector 1 Channel			
Detector 1 Extend (s)			
Detector 1 Queue (s)			
Detector 1 Delay (s)			
Turn Type			
Protected Phases	5	6	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Spill (s)	8.5	20.5	20.5
Total Spill (s)	51.0	22.0	47.0

Harbor Village TIA
 Lanes, Volumes, Timings

2026 - Background + Site - PM
 2: Horizon Road & IH30 EBFR

Lane Group	Ø5	Ø6	Ø8
Total Spill (%)	43%	18%	39%
Maximum Green (s)	46.5	17.5	42.5
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lead	
Lead/Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	C-Max	None
Walk Time (s)		5.0	5.0
Flash Don't Walk (s)		11.0	11.0
Pedestrian Calls (#/hr)		0	0
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Stantion Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Intersection												
Int Delay, s/veh	174											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	219	205	253	783	876	282						
Future Vol, veh/h	219	205	253	783	876	282						
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	0	200	-	-	200						
Yeh in Median Storage, #	1	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	238	223	275	851	952	307						

Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	1928	476	1259	0	-	0						
Stage 1	952	-	-	-	-	-						
Stage 2	976	-	-	-	-	-						
Critical Hdwy	6.84	6.94	4.14	-	-	-						
Critical Hdwy Stg 1	5.84	-	-	-	-	-						
Critical Hdwy Stg 2	5.84	-	-	-	-	-						
Follow-up Hdwy	3.52	3.32	2.22	-	-	-						
Pd Cap-1 Maneuver	*.89	*720	780	-	-	-						
Stage 1	*680	-	-	-	-	-						
Stage 2	*326	-	-	-	-	-						
Platoon blocked, %	1	1	1	-	-	-						
Mov Cap-1 Maneuver	*.58	*720	780	-	-	-						
Mov Cap-2 Maneuver	*.46	-	-	-	-	-						
Stage 1	*440	-	-	-	-	-						
Stage 2	*326	-	-	-	-	-						

Approach	EB	NB	SB									
HCM Control Delay, s	\$ 1067	3	0									
HCM LOS	F											
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR						
Capacity (veh/h)	780	-	46	720	-	-						
HCM Lane V/C Ratio	0.353	-	5.175	0.309	-	-						
HCM Control Delay (\$)	12.1	\$ 2054.4	12.2	-	-	-						
HCM Lane LOS	B	-	F	B	-	-						
HCM 95th %tile Q(veh)	1.6	-	27.3	1.3	-	-						

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

Intersection												
Int Delay, s/veh	8.5											
Movement	EBL	EBT	WBT	WBR	SBL	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	96	152	305	122	105	431						
Future Vol, veh/h	96	152	305	122	105	431						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	-	100						
Yeh in Median Storage, #	-	0	0	-	0	-						
Grade, %	-	0	0	-	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	104	165	332	133	114	468						

Major/Minor	Major1	Major2	Minor2								
Conflicting Flow All	465	0	0	690	233						
Stage 1	-	-	-	399	-						
Stage 2	-	-	-	291	-						
Critical Hdwy	4.14	-	-	6.84	6.94						
Critical Hdwy Stg 1	-	-	-	5.84	-						
Critical Hdwy Stg 2	-	-	-	5.84	-						
Follow-up Hdwy	2.22	-	-	3.52	3.32						
Pd Cap-1 Maneuver	1093	-	-	379	769						
Stage 1	-	-	-	647	-						
Stage 2	-	-	-	733	-						
Platoon blocked, %	-	-	-	-	-						
Mov Cap-1 Maneuver	1093	-	-	339	769						
Mov Cap-2 Maneuver	-	-	-	339	-						
Stage 1	-	-	-	579	-						
Stage 2	-	-	-	733	-						

Approach	EB	WB	SB									
HCM Control Delay, s	3.5	0	17.5									
HCM LOS	C		C									
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2						
Capacity (veh/h)	1093	-	-	-	339	769						
HCM Lane V/C Ratio	0.095	-	-	-	0.337	0.609						
HCM Control Delay (\$)	8.6	0.2	-	20.9	16.7	-						
HCM Lane LOS	A	A	-	C	-	-						
HCM 95th %tile Q(veh)	0.3	-	-	1.4	4.2	-						

Harbor Village TIA
 HCM 6th TWSC

2026 - Background + Site - PM
 5: Summer Lee & Lake Front Trail

2026 - Background + Site - PM
 6: Lake Front Trail & IH30 EBFR

Intersection									
Int Delay, s/veh	5.7								
Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations	191	191	588	149	58	29			
Traffic Vol, veh/h	191	191	588	149	58	29			
Future Vol, veh/h	0	0	0	0	0	0			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Stop	Stop			
RT Channelized	- None	- None	- None	- None	- None	- None			
Storage Length	100	-	-	-	0	-			
Yeh in Median Storage, #	0	0	0	0	0	0			
Grade, %	-	0	0	-	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	208	208	639	162	63	32			

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	801	0	0
Stage 1	-	-	720
Stage 2	-	-	520
Critical Hdwy	4.14	-	6.84
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	2.22	-	3.52
Pd Cap-1 Maneuver	818	-	167
Stage 1	-	-	443
Stage 2	-	-	561
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	818	-	119
Mov Cap-2 Maneuver	-	-	316
Stage 1	-	-	316
Stage 2	-	-	561

Approach	EB	WB	SB
HCM Control Delay, s	5.7	0	54.4
HCM LOS	F	F	F
Minor Lane/Major Mvmt	EBL	EBT	WBR
Capacity (veh/h)	818	-	162
HCM Lane V/C Ratio	0.254	-	0.584
HCM Control Delay (\$)	10.9	0.5	54.4
HCM Lane LOS	B	A	F
HCM 95th %tile Q(veh)	1	-	3.1

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

Intersection									
Int Delay, s/veh	23.2								
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑↑	↑↑↑	0	0	0	0			
Traffic Vol, veh/h	1545	301	0	0	0	241			
Future Vol, veh/h	1545	301	0	0	0	241			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Stop	Stop			
RT Channelized	- None	- None	- None	- None	- None	- None			
Storage Length	-	-	-	-	-	0			
Yeh in Median Storage, #	0	-	-	-	16983	0			
Grade, %	0	-	-	-	0	0			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2			
Mvmt Flow	1679	327	0	0	0	262			

Major/Minor	Major1	Minor1
Conflicting Flow All	0	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	7.14
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	3.92
Pd Cap-1 Maneuver	-	0
Stage 1	-	0
Stage 2	-	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	EB	NB
HCM Control Delay, s	0	200.8
HCM LOS	F	F
Minor Lane/Major Mvmt	NBLn1	EBT
Capacity (veh/h)	206	-
HCM Lane V/C Ratio	1.272	-
HCM Control Delay (\$)	200.8	-
HCM Lane LOS	F	-
HCM 95th %tile Q(veh)	14	-

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

Harbor Village TIA
 HCM 6th TWSC

2026 - Background + Site - PM
 7: Shoreline Trail & IH30 EBFR

2026 - Background + Site - PM
 8: North Drive & IH30 EBFR

Intersection										
Int Delay, s/veh	EBT	EBR	WBL	WBT	NBL	NBR				
	12.1									
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑					↑				
Traffic Vol, veh/h	1618	168	0	0	0	206				
Future Vol, veh/h	1618	168	0	0	0	206				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Stop	Stop	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	-	-	-	-	-	0				
Veh in Median Storage, #	0	-	-	16983	0	-				
Grade, %	0	-	-	0	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	1759	183	0	0	0	224				
Major/Minor	Major1						Minor1			
Conflicting Flow All	0	0	0	0	0	971				
Stage 1	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	-				
Critical Hdwy	-	-	-	-	-	7.14				
Critical Hdwy Stg 1	-	-	-	-	-	-				
Critical Hdwy Stg 2	-	-	-	-	-	-				
Follow-up Hdwy	-	-	-	-	-	3.92				
Pd Cap-1 Maneuver	-	-	-	-	-	0	-	217		
Stage 1	-	-	-	-	-	0				
Stage 2	-	-	-	-	-	0				
Platoon blocked, %	-	-	-	-	-	-				
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	217		
Mov Cap-2 Maneuver	-	-	-	-	-	-				
Stage 1	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	-				
Approach	EB						NB			
HCM Control Delay, s	0						116.8			
HCM LOS							F			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR							
Capacity (veh/h)	217	-	-							
HCM Lane V/C Ratio	1.032	-	-							
HCM Control Delay (s)	116.8	-	-							
HCM Lane LOS	F	-	-							
HCM 95th %tile Q(veh)	9.6	-	-							
Notes	-									
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon										

Intersection										
Int Delay, s/veh	EBT	EBR	WBL	WBT	NBL	NBR				
	0.4									
Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑					↑				
Traffic Vol, veh/h	1815	43	0	0	0	31				
Future Vol, veh/h	1815	43	0	0	0	31				
Conflicting Peds, #/hr	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Stop	Stop				
RT Channelized	-	None	-	None	-	None				
Storage Length	-	-	-	-	-	0				
Veh in Median Storage, #	0	-	-	16983	0	-				
Grade, %	0	-	-	0	0	-				
Peak Hour Factor	92	92	92	92	92	92				
Heavy Vehicles, %	2	2	2	2	2	2				
Mvmt Flow	1973	47	0	0	0	34				
Major/Minor	Major1						Minor1			
Conflicting Flow All	0	0	0	0	0	1010				
Stage 1	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	-				
Critical Hdwy	-	-	-	-	-	7.14				
Critical Hdwy Stg 1	-	-	-	-	-	-				
Critical Hdwy Stg 2	-	-	-	-	-	-				
Follow-up Hdwy	-	-	-	-	-	3.92				
Pd Cap-1 Maneuver	-	-	-	-	-	0	-	204		
Stage 1	-	-	-	-	-	0				
Stage 2	-	-	-	-	-	0				
Platoon blocked, %	-	-	-	-	-	-				
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	204		
Mov Cap-2 Maneuver	-	-	-	-	-	-				
Stage 1	-	-	-	-	-	-				
Stage 2	-	-	-	-	-	-				
Approach	EB						NB			
HCM Control Delay, s	0						26.1			
HCM LOS							D			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR							
Capacity (veh/h)	204	-	-							
HCM Lane V/C Ratio	0.165	-	-							
HCM Control Delay (s)	26.1	-	-							
HCM Lane LOS	D	-	-							
HCM 95th %tile Q(veh)	0.6	-	-							

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	12	19	48	229	296	5						
Future Vol, veh/h	12	19	48	229	296	5						
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	-	150	-	-	-						
Veh in Median Storage, #	0	-	0	0	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	13	21	52	249	322	5						

Major/Minor	Minor2	Major1	Major2									
Conflicting Flow All	678	325	327	0	-	0						
Stage 1	325	-	-	-	-	-						
Stage 2	353	-	-	-	-	-						
Critical Hdwy	6.42	6.22	4.12	-	-	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	2.218	-	-	-						
Pd Cap-1 Maneuver	418	716	1233	-	-	-						
Stage 1	732	-	-	-	-	-						
Stage 2	711	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	400	716	1233	-	-	-						
Mov Cap-2 Maneuver	400	-	-	-	-	-						
Stage 1	701	-	-	-	-	-						
Stage 2	711	-	-	-	-	-						

Approach	EB	NB	SB						
HCM Control Delay, s	12	1.4	0						
HCM LOS	B								

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR						
Capacity (veh/h)	1233	-	548	-	-						
HCM Lane V/C Ratio	0.042	-	0.061	-	-						
HCM Control Delay (\$)	8	-	12	-	-						
HCM Lane LOS	A	-	B	-	-						
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-						

Intersection												
Int Delay, s/veh	23.2											
Movement	EBT	EBR	WBL	WBT	NBL	NBR						
Lane Configurations	↔	↔	↔	↔	↔	↔						
Traffic Vol, veh/h	1554	184	0	0	0	291						
Future Vol, veh/h	1554	184	0	0	0	291						
Conflicting Peds, #/hr	0	0	0	0	0	0						
Sign Control	Free	Free	Stop	Stop	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	150	-	-	-	0						
Veh in Median Storage, #	0	-	-	16983	0	-						
Grade, %	0	-	0	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Mvmt Flow	1689	200	0	0	0	316						

Major/Minor	Major1	Minor1										
Conflicting Flow All	0	0	-	-	-	845						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						
Critical Hdwy	-	-	-	-	-	7.14						
Critical Hdwy Stg 1	-	-	-	-	-	-						
Critical Hdwy Stg 2	-	-	-	-	-	-						
Follow-up Hdwy	-	-	-	-	-	3.92						
Pd Cap-1 Maneuver	-	-	-	-	-	0 - 263						
Stage 1	-	-	-	-	-	0						
Stage 2	-	-	-	-	-	0						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	- 263						
Mov Cap-2 Maneuver	-	-	-	-	-	-						
Stage 1	-	-	-	-	-	-						
Stage 2	-	-	-	-	-	-						

Approach	EB	NB						
HCM Control Delay, s	0	161.7						
HCM LOS		F						

Minor Lane/Major Mvmt	NBLn1	EBT	EBR						
Capacity (veh/h)	263	-	-						
HCM Lane V/C Ratio	1.203	-	-						
HCM Control Delay (\$)	161.7	-	-						
HCM Lane LOS	F	-	-						
HCM 95th %tile Q(veh)	14.7	-	-						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	133	100	143	885	652	189
Traffic Volume (vph)	133	100	143	885	652	189
Future Volume (vph)	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0	0	200	200	200	200
Storage Length (ft)	1	1	2	2	2	1
Storage Lanes	25	25	25	25	25	25
Taper Length (ft)	1.00	1.00	1.00	0.95	0.95	1.00
Lane Util. Factor	0.850	0.850	0.950	0.850	0.850	0.850
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950	0.950	0.379	0.950	0.950	0.950
Satd. Flow (perm)	1770	1583	706	3539	3539	1583
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	109	109	40	40	40	205
Link Speed (mph)	30	30	40	40	40	205
Link Distance (ft)	1450	1450	878	878	878	726
Travel Time (s)	33.0	33.0	15.0	15.0	12.4	12.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	109	155	962	709	205
Shared Lane Traffic (%)	145	109	155	962	709	205
Lane Group Flow (vph)	No	No	No	No	No	No
Enter Blocked Intersection	Left	Right	Left	Left	Left	Right
Lane Alignment	12	12	12	12	12	12
Median Width(ft)	0	0	0	0	0	0
Link Offset(ft)	16	16	16	16	16	16
Crosswalk Width(ft)	1.00	1.00	1.00	1.00	1.00	1.00
Two way Left Turn Lane	15	9	15	15	15	9
Headway Factor	1	1	1	1	1	1
Turning Speed (mph)	50	50	50	50	50	50
Number of Detectors	0	0	0	0	0	0
Detector Template	0	0	0	0	0	0
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel	0.0	0.0	0.0	0.0	0.0	0.0
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	Prot	Perm	NA	NA	NA	Perm
Protected Phases	4	4	2	2	6	6
Permitted Phases	4	4	2	2	6	6
Detector Phase	4.0	4.0	4.0	4.0	4.0	4.0
Switch Phase	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	16.0	16.0	44.0	44.0	44.0	44.0
Total Split (s)						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Spill (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	12.0	12.0	40.0	40.0	40.0	40.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead/Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	9.7	9.7	45.1	45.1	45.1	45.1
Actuated g/C Ratio	0.16	0.16	0.75	0.75	0.75	0.75
v/c Ratio	0.51	0.31	0.29	0.36	0.27	0.17
Control Delay	29.0	6.5	6.0	4.6	3.4	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	6.5	6.0	4.6	3.4	0.9
LOS	C	A	A	A	A	A
Approach Delay	19.4		4.8	2.9		
Approach LOS	B		A	A		
Queue Length 50th (ft)	51	1	17	56	24	0
Queue Length 95th (ft)	83	28	m56	136	78	m16
Internal Link Dist (ft)	1370		798	646		
Turn Bay Length (ft)			200			200
Base Capacity (vph)	354	403	531	2661	2661	1241
Stallion 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	0.41	0.27	0.29	0.36	0.27	0.17
Intersection Summary						
Area Type:	Other					
Cycle Length:	60					
Actuated Cycle Length:	60					
Offset:	25 (42%). Referenced to phase 2-NBTL and 6-SBT. Start of Green					
Natural Cycle:	45					
Control Type:	Actuated-Coordinated					
Maximum v/c Ratio:	0.51					
Intersection Signal Delay:	5.6					
Intersection Capacity Utilization:	43.3%					
Analysis Period (min):	15					
m	Volume for 95th percentile queue is metered by upstream signal.					

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Volume (vph)	219	205	253	783	876	282
Future Volume (vph)	219	205	253	783	876	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			200
Storage Lanes	1	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.850					0.850
Flt Protected	0.950		0.950			
Said. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.270			
Said. Flow (perm)	1770	1583	503	3539	3539	1583
Right Turn on Red		Yes				Yes
Said. Flow (RTOR)		135				307
Link Speed (mph)	30		40	40		40
Link Distance (ft)	1458		1001	724		724
Travel Time (s)	33.1		17.1	12.3		12.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	238	223	275	851	952	307
Shared Lane Traffic (%)						
Lane Group Flow (vph)	238	223	275	851	952	307
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12		12	12	12	
Link Offset(ft)	0	0	0	0	0	0
Crosswalk Width(ft)	16		16	16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	1	1	1
Detector Template						
Leading Detector (ft)	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50
Detector 1 Type	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+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	Prot	Perm	NA	NA	NA	Perm
Protected Phases	4	4	2	2	6	6
Permitted Phases	4	4	2	2	6	6
Detector Phase						
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	40.0	40.0	40.0	40.0

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Spill (%)	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Maximum Green (s)	16.0	16.0	36.0	36.0	36.0	36.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						
Lead/Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	12.7	12.7	39.3	39.3	39.3	39.3
Actuated g/C Ratio	0.21	0.21	0.66	0.66	0.66	0.66
v/c Ratio	0.63	0.50	0.84	0.37	0.41	0.27
Control Delay	29.2	11.9	30.4	4.2	5.2	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	11.9	30.4	4.2	5.2	1.2
LOS	C	B	C	A	A	A
Approach Delay	20.8		10.6	4.2		
Approach LOS	C		B	A		
Queue Length 50th (ft)	80	29	56	67	105	10
Queue Length 95th (ft)	m112	m58	m#296	m135	m113	m17
Internal Link Dist (ft)	1378		921	644		
Turn Bay Length (ft)		200				200
Base Capacity (vph)	472	521	329	2315	2315	1141
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	0.50	0.43	0.84	0.37	0.41	0.27
Intersection Summary						
Area Type:	Other					
Cycle Length:	60					
Actuated Cycle Length:	60					
Offset:	0 (0%), Referenced to phase 2:NBL and 6:SBT, Start of Green					
Natural Cycle:	70					
Control Type:	Actuated-Coordinated					
Maximum v/c Ratio:	0.84					
Intersection Signal Delay:	9.4					
Intersection Capacity Utilization:	60.4%					
Analysis Period (min):	15					
# 95th percentile volume exceeds capacity, queue may be longer.	m					
Queue shown is maximum after two cycles.	m					
Volume for 95th percentile queue is metered by upstream signal.	m					

Harbor Village TIA
Lanes, Volumes, Timings

2026 - Background + Site - PM - Mitigation
3: Horizon Road & Summer Lee

