

September 12, 2024

Mr. RW Smith
Bright Realty
4400 State Highway 121, Suite 900
Lewisville, TC 75056

RE: Bright Development – Roadway Capacity Study
Lewisville, Texas
BRL23003

Dear Mr. Smith,

ROADWAY CAPACITY STUDY

This letter presents a review of the roadway infrastructure surrounding the proposed Discovery at The Realm South development in Lewisville, Texas. The purpose of this letter is to summarize the anticipated roadway capacity and Average Daily Traffic (ADT) volumes of the roadways surrounding the proposed development. This study includes review of future traffic volumes along Essex Boulevard, Lady Tessala Avenue, and Lady Bettye Drive. Eight (8) development projects in total (including the proposed development) are planned by Bright Realty in the area which are included in these projected traffic volumes which accounts for a total of 217 single family attached homes, 4,599 multi-family mid-rise units, 19,000 square feet (sq .ft.) of restaurant space, 82,754 sq .ft. of retail space, 125 hotel rooms, and 510,000 sq .ft. of office space. Refer to Figure 1, in the attachments, for a map of the included developments and study roadways.

ROADWAY NETWORK

Essex Boulevard is currently striped as a two-lane roadway within the study area with an approximate width of 48 feet from back-of-curb to back-of-curb north of Banin Lane. South of Banin Lane, Essex Boulevard provides an approximate 15 foot landscaped median and a total of 65' of width from back-of-curb to back-of-curb. Essex Boulevard is a north/south roadway which provides localized connectivity between Highway 121 (Sam Rayburn Tollway) to the north and FM 544 (Parker Road) to the south. Due to the width of Essex Boulevard, on-street parking is allowed along the corridor.

Lady Bettye Drive is striped as a two-lane roadway within the study area with an approximate width of 28 feet from back-of-curb to back-of-curb. Lady Bettye Drive is an east/west roadway which provides localized connectivity between Essex Boulevard, Lady Tessala Avenue, and terminating at Lady Cavall Drive to the east. On-street parking is allowed along the corridor.

Lady Tessala Avenue is currently striped as a two-lane roadway within the study area with an approximate width of 30 feet from back-of-curb to back-of-curb north of Lady Bettye Drive. South of Lady Bettye Drive, Lady Tessala Avenue

provides an approximate 15 foot landscaped median and a total of 65’ of width from back-of-curb to back-of-curb. Lady Tessala Avenue is a north/south roadway which provides localized connectivity between Essex Boulevard to the south and Windhaven Parkway to the north. Due to the width of Lady tessala Avenue, on-street parking is allowed along the corridor.

FUTURE TRAFFIC VOLUME PROJECTIONS

Based on the Institute for Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition, trips for the proposed development were calculated for weekday daily, weekday AM peak hour, and weekday PM peak hour. Refer to Table 1 for the trip generation for the proposed land uses.

Land Use (ITE Code)	Density	Calculation Methodology	Daily Trips	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Single Family Attached Housing (215)	87 Units	Adjacent / Equation	612	10	30	40	28	20	48
Multifamily Mid-Rise Housing (221)	2,335 Units	Adjacent / Equation	11,091	234	782	1,016	556	355	911
TOTAL			11,703	244	812	1,056	584	375	959

The proposed development is expected to generate 11,703 trips during a typical 24-hour period as well as 1,056 trips (244 entering, 812 exiting) during the weekday AM peak hour, and 959 trips (584 entering, 375 exiting) during the weekday PM peak hour.

In order to account for future traffic growth due to the other seven (7) planned Bright Realty developments, trips for the future land uses were calculated for weekday daily, weekday AM peak hour, and weekday PM peak hour utilizing the Institute for Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition. Refer to Table 2, on the following page for the trip generation for the other planned future land uses.

TABLE 2: TRIP GENERATION – OTHER AREA BRIGHT REALTY DEVELOPMENTS									
Land Use (ITE Code)	Density	Calculation Methodology	Daily Trips	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Football									
Multifamily Mid-Rise Housing (221)	64 Units	Adjacent / Equation	259	4	13	17	15	10	25
High Turnover Sit-Down Restaurant (932)	9.5 KSF	Adjacent / Rates	1,018	50	41	91	52	34	86
Triangle									
Multifamily Mid-Rise Housing (221)	64 Units	Adjacent / Equation	259	4	13	17	15	10	25
High Turnover Sit-Down Restaurant (932)	9.5 KSF	Adjacent / Rates	1,018	50	41	91	52	34	86
Discovery Cottages									
Single Family Attached Housing (215)	33 Units	Adjacent / Equation	201	3	8	11	9	7	16
Windhaven Lots									
Single Family Attached Housing (215)	86 Units	Adjacent / Equation	605	10	29	39	28	20	48
Castle Hills Marketplace / Jefferson Place (Phases 1 & 2)									
Multifamily Mid-Rise Housing (221)	380 Units	Adjacent / Equation	1,766	36	120	156	91	58	149
Multifamily Mid-Rise Housing (221)	381 Units	Adjacent / Equation	1,771	36	120	156	91	58	149
General Retail [<40 KSF] (822)	7.704 KSF	Adjacent / Equation	555	15	9	24	32	33	65
The Realm / Discovery at The Realm									
Multifamily Mid-Rise Housing (221)	1,375 Units	Adjacent / Equation	6,512	136	457	593	327	210	537
Hotel (310)	125 Rooms	Adjacent / Equation	931	31	24	55	33	32	65
General Office Space (710)	510 KSF	Adjacent / Equation	4,788	598	82	680	109	533	642
General Retail w/ Supermarket (821)	75.05 KSF	Adjacent / Rate	7,091	164	101	265	325	353	678
Essex Townhomes									
Single Family Attached Housing (215)	11 Units	Adjacent / Equation*	33	1	4	5	4	2	6
TOTAL TRIPS			26,807	1,138	1,062	2,200	1,183	1,394	2,577

*Note: Rates used for determining the peak hour trips for Essex Townhomes due to limitations with the data range for LUC 215

The seven (7) other area planned developments included in this study are expected to generate 26,807 trips during a typical 24-hour period as well as 2,200 trips (1,138 entering, 1,062 exiting) during the weekday AM peak hour, and 2,577 trips (1,183 entering, 1,394 exiting) during the weekday PM peak hour. It should be noted that trip generation estimates reflected in Tables 1 and 2 above are shown without accounting for Internal Capture between the various existing and proposed land uses within the area. Due to the mixed-use nature of the planned development in the area

actual trip generation estimates are expected to be lower as non-vehicular trips are made between complimentary land uses.

ROADWAY VOLUME PROJECTIONS / CAPACITY REVIEW

In order to account for future traffic volumes along the study roadways, each roadway was subdivided into segments to allow for a more refined review of current and future traffic volumes. Existing (2024) traffic volumes were determined along these existing roadway segments by projecting weekday PM peak hour traffic volumes to daily traffic volume conditions by assuming that weekday PM peak hour conditions consisted of 10% of the daily traffic volume. These existing volumes were then projected into future full buildout conditions by distributing the future site trips previously calculated at all eight (8) developments throughout each roadway segment, with the distributions noted below.

Daily roadway capacity information published by the Florida Department of Transportation (FDOT), utilizing methodology contained in the Highway Capacity Manual (HCM), 6th Edition, to determine the anticipated roadway capacity for the roadways within the subject area. Excerpts from these roadway capacity reports are provided in the attachments. The future roadway volumes and roadway capacities for each segment were reviewed and are summarized in Table 3 for each roadway segment. Refer to Figure 2 in the attachments for a heat map of the study area, demonstrating the roadway segment capacities based on roadway segments that are expected to be under capacity (0% - 75% of capacity) in green, nearing capacity (75% - 100% of capacity) in yellow, and over capacity (greater than 100% of capacity) in red.

TABLE 3: VOLUME / CAPACITY PROJECTIONS									
Roadway	Segment	Current Street Section	Current Volume		Development Volume		Future Conditions		
			Peak Hour	ADT	Distribution %	Site Traffic	Future Volumes	Section Capacity	% of Capacity
			<i>Vehicles Per Hour</i>	<i>Vehicles Per Day</i>		<i>Vehicles Per Day</i>	<i>Vehicles Per Day</i>	<i>Vehicles Per Day</i>	
Essex Boulevard	1	Two-Lane	216	2,160	5%	1,926	4,086	13,900	29.4%
	2		155	1,550	10%	3,851	5,401	13,900	38.9%
	3		155	1,550	10%	3,851	5,401	13,900	38.9%
	4		154	1,540	10%	3,851	5,391	13,900	38.8%
	5		298	2,980	25%	9,628	12,608	13,900	90.7%
	6		298	2,980	25%	9,628	12,608	13,900	90.7%
Lady Tessala Avenue	7	Two-Lane	100	1,000	15%	5,777	6,777	13,900	48.8%
	8		100	1,000	15%	5,777	6,777	13,900	48.8%
	9		100	1,000	22.5%	8,665	9,665	13,900	69.5%
	10		100	1,000	22.5%	8,665	9,665	13,900	69.5%
Lady Bettye Drive	11	Two-Lane	154*	1,540	10%	3,851	5,391	13,900	38.8%
	12		154*	1,540	7.5%	2,888	4,428	13,900	31.9%
	13		154*	1,540	10%	3,851	5,391	13,900	38.8%

*Note: Peak Hour volume data was unavailable at Lady Bettye Drive at the time of preparation of this study. Volumes on this roadway are assumed to be compared to adjacent sections of Essex Boulevard.

Based on review of the future traffic volumes within the study area in Table 3, Essex Boulevard currently operates with a maximum expected ADT of 2,980 vehicles per day (VPD). Under full buildout conditions of the either (8) area developments, Essex Boulevard is expected to operate with an average ADT of 12,608 VPD at the most-congested section between FM 544 (Parker Road) and Lady Tessala Avenue. With a capacity of 13,900 VPD for the current two-lane configuration of Essex Boulevard, the subject roadway is expected to be operating near-capacity upon buildout of all planned future Bright Realty developments in the area, however, is not expected to exceed the roadway capacity.

Based on review of the future traffic volumes in Table 3, within the study area, Lady Tessala Avenue currently operates with a maximum of ADT of 1,000 vehicles per day (VPD). Under full buildout conditions of the eight (8) area developments, Lady Tessala Avenue is expected to operate with an average ADT of 9,665 VPD at the most congested section (assumed to be Sections 9 and 10). With a capacity of 13,900 VPD for the current two-lane configuration of Lady Tessala Avenue, the subject roadway is not expected to exceed capacity.

Peak Hour volume data for Lady Bettye Drive was unavailable at the time of preparation of this study, as a result, traffic volumes along this roadway were assumed to be comparable to that of the adjacent sections (Section 3 and 4) of Essex Boulevard, as this roadway was observed to carry more traffic than Lady Tessala Avenue under existing conditions. It is assumed that Lady Bettye Drive currently operates with a maximum expected ADT of 1,540 VPD. Under full buildout conditions of the eight (8) area developments, Lady Bettye Drive is expected to operate with an average ADT of 5,391 VPD at the most congested section (assumed to be Section 11 or 13). With a capacity of 13,900 VPD for the current two-lane configuration of Lady Bettye Drive, the subject roadway is not expected to exceed capacity.

With the future traffic volume and roadway capacity projections included in this study, these roadways are not expected to exceed capacity under buildout conditions of the eight (8) planned future Bright Realty area developments. It should be noted that although these roadway segments studied are not exceeding capacity, future capacity analysis of the surrounding intersections may result in recommendations for improvements as intersections experience traffic control delay (stop signs / traffic signals) resulting in reductions in capacity and necessitating localized improvements to mitigate these delay impacts. This study focused on the main line roadway segments and capacity of the cross-sections of these roadways.

SUMMARY

This letter presents traffic volume projections for the Essex Boulevard, Lady Tessala Avenue, and Lady Bettye Drive corridors, within the vicinity of the proposed Discovery at the Realm South development and includes a total of seven (7) other Bright Realty area developments within the future traffic volumes projections. Utilizing these traffic volume projections for segments of these roadways, the roadway capacities were reviewed, and it was determined that with buildout of these eight (8) total planned future developments, the subject roadways are not expected to exceed mainline capacity which would result in operations worse than LOS D conditions per daily roadway capacity information published by the Florida Department of Transportation based on methodology contained within the Highway Capacity Manual, 6th Edition. It should be noted however, that future capacity analysis of the surrounding intersections is recommended as future planned development continues to determine the potential intersection improvements that may be needed for delay and queueing impacts caused by intersection traffic control.

If you should have any questions or comments relative to this study, please feel free to contact me at 919.961.4065.

Sincerely,

MCADAMS



9/12/2024

Nate Bouquin, PE, PTOE
Traffic Engineering Lead



The John R. McAdams Company, Inc.
TX License #F-19762

Attachments:

- Figure 1 – Future Development Map
- Figure 2 – Corridor Heat Map
- FDOT Roadway Capacity Data
- Existing Traffic Volume Data



LEGEND

- Roadway Segment Boundary
- xx% Approximate Share of Planned Future Development Trip Generation
- Football (64 mid-rise multifamily units, 9,500 sq. ft. restaurant)
- Triangle (64 mid-rise multifamily units, 9,500 sq. ft. restaurant)
- Jefferson Place (761 mid-rise multifamily units, 7,704 sq. ft. retail space)
- The Realm / Discovery at The Realm (1,375 mid-rise multifamily units, 125-room hotel, 510,000 sq. ft. office space, 75,050 sq. ft. retail space)
- Discovery at The Realm South (87 single family attached homes, 2,335 mid-rise multifamily units)
- Windhaven Lots (86 single-family attached homes)
- Essex Townhomes (11 single family attached homes)
- Discovery Cottages (33 single family attached homes)





LEGEND

- Roadway Segment Boundary
- Under Capacity ($<0.75 v/c$ ratio)
- Near Capacity (0.75-1.0 v/c ratio)
- Over Capacity ($>1.0 v/c$ ratio)



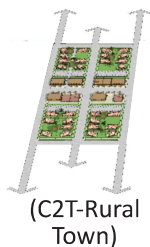
Castle Hills
 Future Roadway Capacity Map
 Scale: Not to Scale



Figure 2

C2T, C4, C5, & C6

Motor Vehicle Arterial Generalized Service Volume Tables



(C2T-Rural Town)

Peak Hour Directional

	B	C	D	E
1 Lane	*	720	940	**
2 Lane	*	1,140	1,640	**
3 Lane	*	2,120	2,510	**

Peak Hour Two-Way

	B	C	D	E
2 Lane	*	1,310	1,710	**
4 Lane	*	2,070	2,980	**
6 Lane	*	3,850	4,560	**

AADT

	B	C	D	E
2 Lane	*	13,800	18,000	**
4 Lane	*	21,800	31,400	**
6 Lane	*	40,500	48,000	**



(C4-Urban General)

	B	C	D	E
1 Lane	*	*	870	1,190
2 Lane	*	1,210	1,790	2,020
3 Lane	*	2,210	2,810	2,990
4 Lane	*	2,590	3,310	3,510

	B	C	D	E
2 Lane	*	*	1,580	2,160
4 Lane	*	2,200	3,250	3,670
6 Lane	*	4,020	5,110	5,440
8 Lane	*	4,710	6,020	6,380

	B	C	D	E
2 Lane	*	*	17,600	24,000
4 Lane	*	24,400	36,100	40,800
6 Lane	*	44,700	56,800	60,400
8 Lane	*	52,300	66,900	70,900

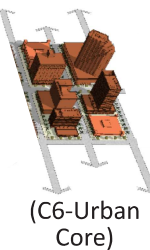


(C5-Urban Center)

	B	C	D	E
1 Lane	*	*	690	1,080
2 Lane	*	1,290	1,900	2,130
3 Lane	*	1,410	2,670	3,110
4 Lane	*	2,910	3,560	3,640

	B	C	D	E
2 Lane	*	*	1,250	1,960
4 Lane	*	2,350	3,450	3,870
6 Lane	*	2,560	4,850	5,650
8 Lane	*	5,290	6,470	6,620

	B	C	D	E
2 Lane	*	*	13,900	21,800
4 Lane	*	26,100	38,300	43,000
6 Lane	*	28,400	53,900	62,800
8 Lane	*	58,800	71,900	73,600



(C6-Urban Core)

	B	C	D	E
1 Lane	*	***	790	1,030
2 Lane	*	***	1,490	1,920
3 Lane	*	***	2,730	2,940
4 Lane	*	***	3,250	3,490

	B	C	D	E
2 Lane	*	***	1,440	1,870
4 Lane	*	***	2,710	3,490
6 Lane	*	***	4,960	5,350
8 Lane	*	***	5,910	6,350

	B	C	D	E
2 Lane	*	***	16,000	20,800
4 Lane	*	***	30,100	38,800
6 Lane	*	***	55,100	59,400
8 Lane	*	***	65,700	70,600

Adjustment Factors

The peak hour directional service volumes should be adjusted by multiplying by 1.2 for one-way facilities
 The AADT service volumes should be adjusted by multiplying 0.6 for one way facilities
 2 Lane Divided Roadway with an Exclusive Left Turn Lane(s): Multiply by 1.05
 2 lane Undivided Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.80

Exclusive right turn lane(s): Multiply by 1.05
 Multilane Undivided Roadway with an Exclusive Left Turn Lane(s): Multiply by 0.95
 Multilane Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.75
 Non-State Signalized Roadway: Multiply by 0.90

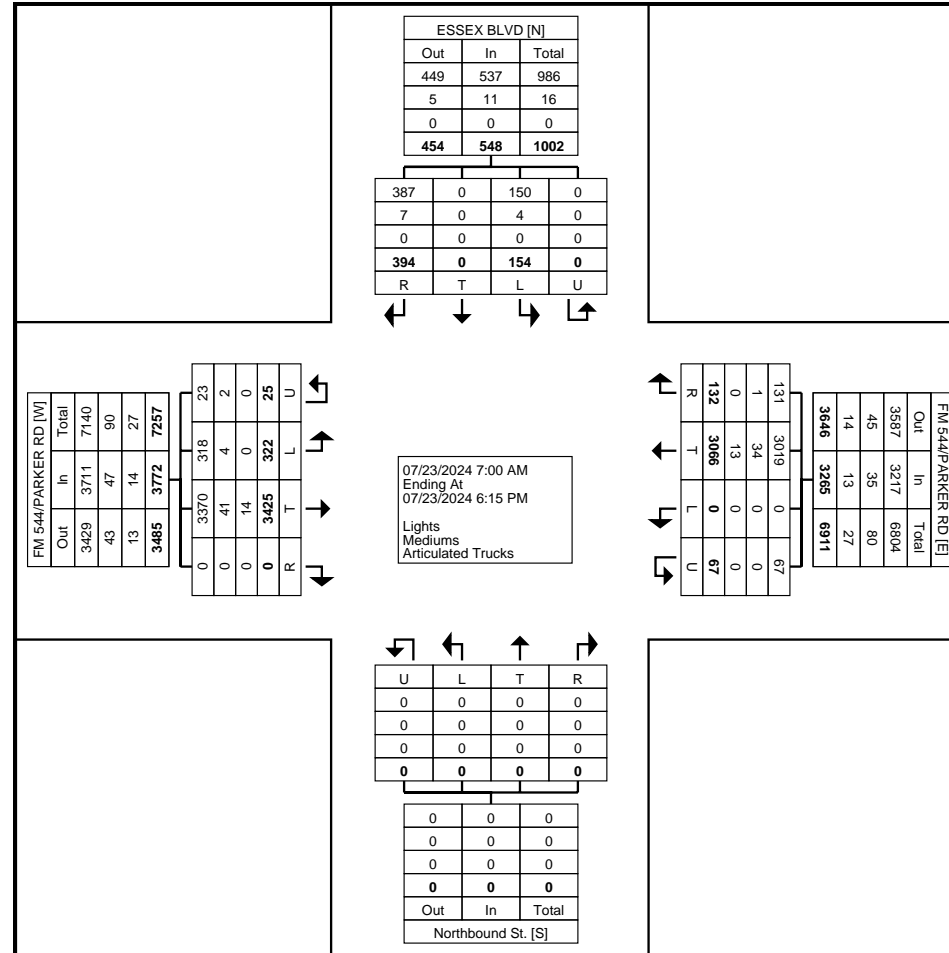
This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.
 *Cannot be achieved using table input value defaults. **Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached.
 ***LOS C thresholds are not applicable for C6 as C6 roadway facilities are neither planned nor designed to achieve automobile LOS C.

GRAM Traffic NTX Inc.
 1120 W. Lovers Lane
 Arlington, Texas, United States 76013
 817.265.8968 chase@gramntx.com

Count Name: FM 544/PARKER RD @ ESSEX
 BLVD
 Site Code:
 Start Date: 07/23/2024
 Page No: 1

Turning Movement Data

Start Time	ESSEX BLVD Southbound					FM 544/PARKER RD Westbound					Northbound St. Northbound					FM 544/PARKER RD Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:00 AM	9	0	7	0	16	2	160	0	4	166	0	0	0	0	0	0	127	8	3	138	320
7:15 AM	11	0	4	0	15	4	169	0	6	179	0	0	0	0	0	0	161	12	3	176	370
7:30 AM	43	0	8	0	51	1	187	0	8	196	0	0	0	0	0	0	171	11	4	186	433
7:45 AM	53	0	17	0	70	2	222	0	1	225	0	0	0	0	0	0	186	12	1	199	494
Hourly Total	116	0	36	0	152	9	738	0	19	766	0	0	0	0	0	0	645	43	11	699	1617
8:00 AM	55	0	14	0	69	5	198	0	5	208	0	0	0	0	0	0	168	15	0	183	460
8:15 AM	35	0	14	0	49	7	200	0	6	213	0	0	0	0	0	0	202	9	1	212	474
8:30 AM	24	0	15	0	39	8	171	0	7	186	0	0	0	0	0	0	223	11	1	235	460
8:45 AM	25	0	11	0	36	6	188	0	4	198	0	0	0	0	0	0	227	16	1	244	478
Hourly Total	139	0	54	0	193	26	757	0	22	805	0	0	0	0	0	0	820	51	3	874	1872
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	10	0	7	0	17	5	186	0	2	193	0	0	0	0	0	0	177	31	1	209	419
4:15 PM	19	0	5	0	24	6	180	0	5	191	0	0	0	0	0	0	192	15	0	207	422
4:30 PM	11	0	7	0	18	12	166	0	3	181	0	0	0	0	0	0	229	26	0	255	454
4:45 PM	19	0	9	0	28	14	189	0	2	205	0	0	0	0	0	0	264	34	1	299	532
Hourly Total	59	0	28	0	87	37	721	0	12	770	0	0	0	0	0	0	862	106	2	970	1827
5:00 PM	22	0	8	0	30	12	204	0	5	221	0	0	0	0	0	0	310	33	1	344	595
5:15 PM	19	0	6	0	25	14	226	0	4	244	0	0	0	0	0	0	291	27	2	320	589
5:30 PM	24	0	11	0	35	17	210	0	4	231	0	0	0	0	0	0	240	29	2	271	537
5:45 PM	15	0	11	0	26	17	210	0	1	228	0	0	0	0	0	0	257	33	4	294	548
Hourly Total	80	0	36	0	116	60	850	0	14	924	0	0	0	0	0	0	1098	122	9	1229	2269
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	394	0	154	0	548	132	3066	0	67	3265	0	0	0	0	0	0	3425	322	25	3772	7585
Approach %	71.9	0.0	28.1	0.0	-	4.0	93.9	0.0	2.1	-	0.0	0.0	0.0	0.0	-	0.0	90.8	8.5	0.7	-	-
Total %	5.2	0.0	2.0	0.0	7.2	1.7	40.4	0.0	0.9	43.0	0.0	0.0	0.0	0.0	0.0	0.0	45.2	4.2	0.3	49.7	-
Lights	387	0	150	0	537	131	3019	0	67	3217	0	0	0	0	0	0	3370	318	23	3711	7465
% Lights	98.2	-	97.4	-	98.0	99.2	98.5	-	100.0	98.5	-	-	-	-	-	-	98.4	98.8	92.0	98.4	98.4
Mediums	7	0	4	0	11	1	34	0	0	35	0	0	0	0	0	0	41	4	2	47	93
% Mediums	1.8	-	2.6	-	2.0	0.8	1.1	-	0.0	1.1	-	-	-	-	-	-	1.2	1.2	8.0	1.2	1.2
Articulated Trucks	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	14	0	0	14	27
% Articulated Trucks	0.0	-	0.0	-	0.0	0.0	0.4	-	0.0	0.4	-	-	-	-	-	-	0.4	0.0	0.0	0.4	0.4



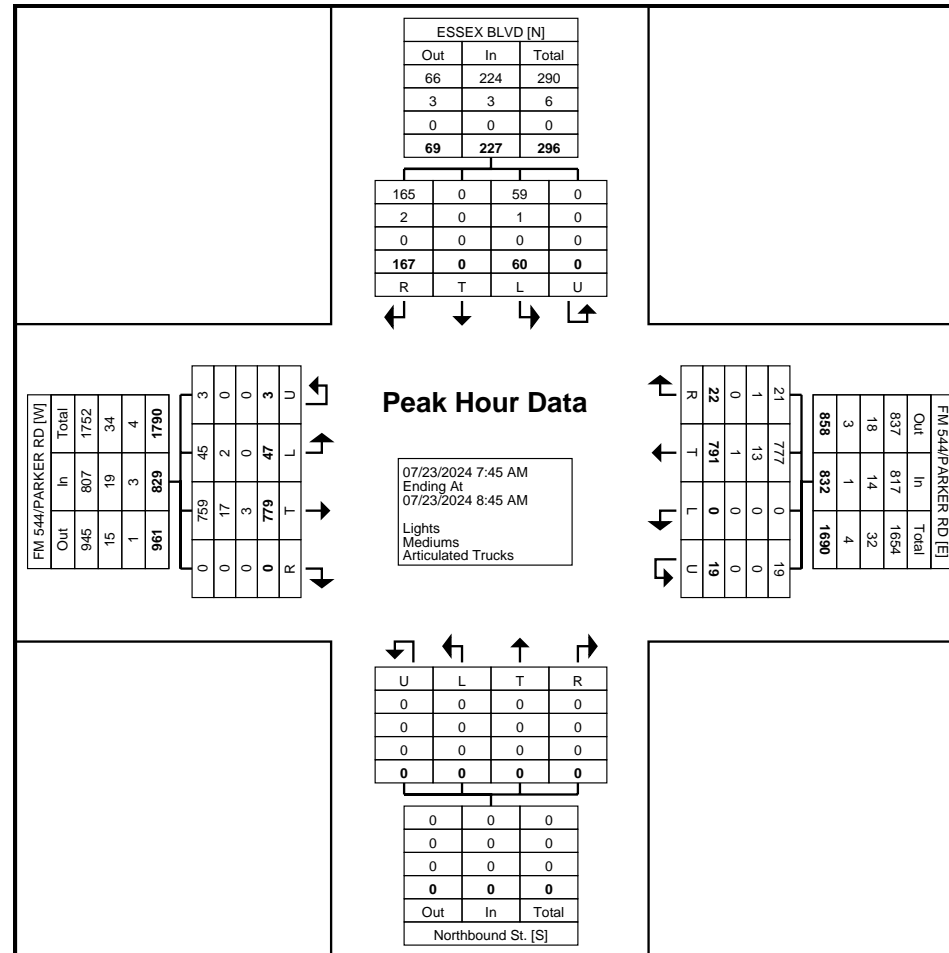
Turning Movement Data Plot

GRAM Traffic NTX Inc.
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Count Name: FM 544/PARKER RD @ ESSEX
 BLVD
 Site Code:
 Start Date: 07/23/2024
 Page No: 3

Turning Movement Peak Hour Data (7:45 AM)

Start Time	ESSEX BLVD Southbound					FM 544/PARKER RD Westbound					Northbound St. Northbound					FM 544/PARKER RD Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:45 AM	53	0	17	0	70	2	222	0	1	225	0	0	0	0	0	0	186	12	1	199	494
8:00 AM	55	0	14	0	69	5	198	0	5	208	0	0	0	0	0	0	168	15	0	183	460
8:15 AM	35	0	14	0	49	7	200	0	6	213	0	0	0	0	0	0	202	9	1	212	474
8:30 AM	24	0	15	0	39	8	171	0	7	186	0	0	0	0	0	0	223	11	1	235	460
Total	167	0	60	0	227	22	791	0	19	832	0	0	0	0	0	0	779	47	3	829	1888
Approach %	73.6	0.0	26.4	0.0	-	2.6	95.1	0.0	2.3	-	0.0	0.0	0.0	0.0	-	0.0	94.0	5.7	0.4	-	-
Total %	8.8	0.0	3.2	0.0	12.0	1.2	41.9	0.0	1.0	44.1	0.0	0.0	0.0	0.0	0.0	0.0	41.3	2.5	0.2	43.9	-
PHF	0.759	0.000	0.882	0.000	0.811	0.688	0.891	0.000	0.679	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.873	0.783	0.750	0.882	0.955
Lights	165	0	59	0	224	21	777	0	19	817	0	0	0	0	0	0	759	45	3	807	1848
% Lights	98.8	-	98.3	-	98.7	95.5	98.2	-	100.0	98.2	-	-	-	-	-	-	97.4	95.7	100.0	97.3	97.9
Mediums	2	0	1	0	3	1	13	0	0	14	0	0	0	0	0	0	17	2	0	19	36
% Mediums	1.2	-	1.7	-	1.3	4.5	1.6	-	0.0	1.7	-	-	-	-	-	-	2.2	4.3	0.0	2.3	1.9
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
% Articulated Trucks	0.0	-	0.0	-	0.0	0.0	0.1	-	0.0	0.1	-	-	-	-	-	-	0.4	0.0	0.0	0.4	0.2



Turning Movement Peak Hour Data Plot (7:45 AM)

GRAM Traffic NTX Inc.
 1120 W. Lovers Lane
 Arlington, Texas, United States 76013
 817.265.8968 chase@gramntx.com

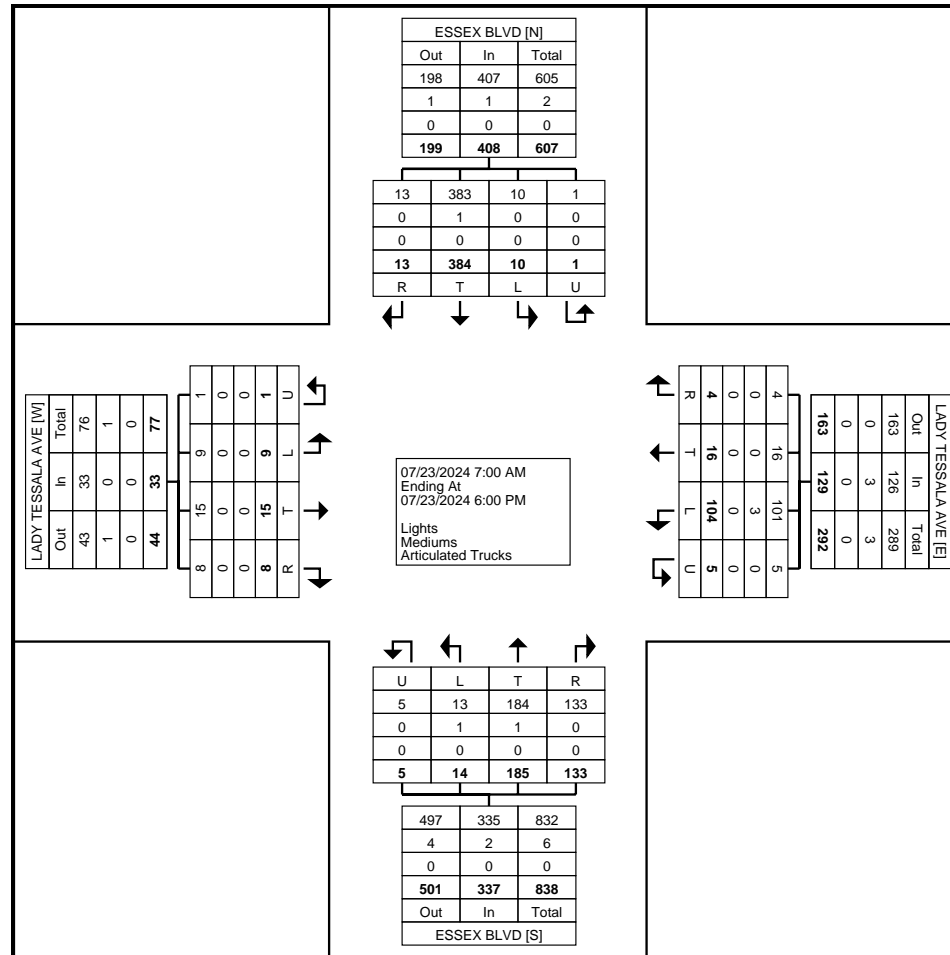
Count Name: FM 544/PARKER RD @ ESSEX
 BLVD
 Site Code:
 Start Date: 07/23/2024
 Page No: 5

Turning Movement Peak Hour Data (5:00 PM)

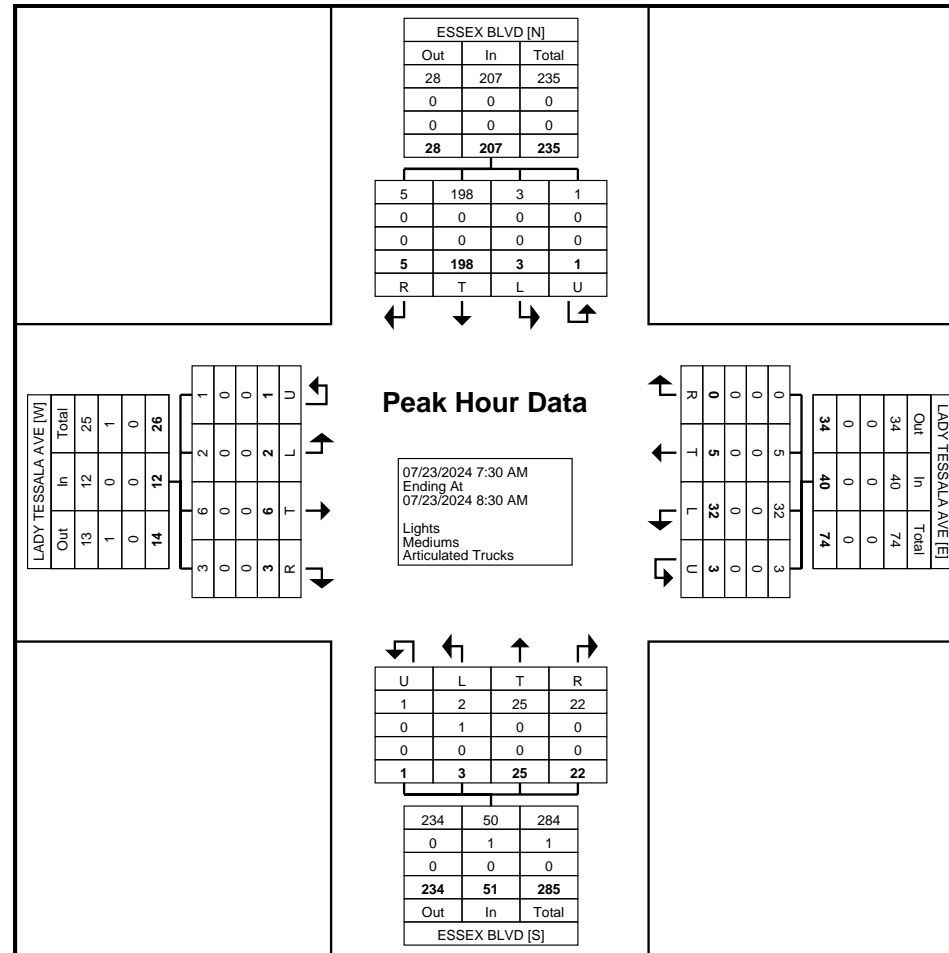
Start Time	ESSEX BLVD Southbound					FM 544/PARKER RD Westbound					Northbound St. Northbound					FM 544/PARKER RD Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
5:00 PM	22	0	8	0	30	12	204	0	5	221	0	0	0	0	0	0	310	33	1	344	595
5:15 PM	19	0	6	0	25	14	226	0	4	244	0	0	0	0	0	0	291	27	2	320	589
5:30 PM	24	0	11	0	35	17	210	0	4	231	0	0	0	0	0	0	240	29	2	271	537
5:45 PM	15	0	11	0	26	17	210	0	1	228	0	0	0	0	0	0	257	33	4	294	548
Total	80	0	36	0	116	60	850	0	14	924	0	0	0	0	0	0	1098	122	9	1229	2269
Approach %	69.0	0.0	31.0	0.0	-	6.5	92.0	0.0	1.5	-	0.0	0.0	0.0	0.0	-	0.0	89.3	9.9	0.7	-	-
Total %	3.5	0.0	1.6	0.0	5.1	2.6	37.5	0.0	0.6	40.7	0.0	0.0	0.0	0.0	0.0	0.0	48.4	5.4	0.4	54.2	-
PHF	0.833	0.000	0.818	0.000	0.829	0.882	0.940	0.000	0.700	0.947	0.000	0.000	0.000	0.000	0.000	0.000	0.885	0.924	0.563	0.893	0.953
Lights	76	0	34	0	110	60	838	0	14	912	0	0	0	0	0	0	1093	121	7	1221	2243
% Lights	95.0	-	94.4	-	94.8	100.0	98.6	-	100.0	98.7	-	-	-	-	-	-	99.5	99.2	77.8	99.3	98.9
Mediums	4	0	2	0	6	0	9	0	0	9	0	0	0	0	0	0	2	1	2	5	20
% Mediums	5.0	-	5.6	-	5.2	0.0	1.1	-	0.0	1.0	-	-	-	-	-	-	0.2	0.8	22.2	0.4	0.9
Articulated Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
% Articulated Trucks	0.0	-	0.0	-	0.0	0.0	0.4	-	0.0	0.3	-	-	-	-	-	-	0.3	0.0	0.0	0.2	0.3

Turning Movement Data

Start Time	ESSEX BLVD Southbound					LADY TESSALA AVE Westbound					ESSEX BLVD Northbound					LADY TESSALA AVE Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:00 AM	0	9	0	0	9	0	0	2	0	2	2	3	1	1	7	1	0	0	0	1	19
7:15 AM	0	12	0	0	12	0	0	4	0	4	1	9	1	0	11	1	0	1	0	2	29
7:30 AM	0	49	2	0	51	0	2	8	0	10	4	5	0	0	9	0	2	0	0	2	72
7:45 AM	2	66	1	0	69	0	1	9	0	10	5	5	0	1	11	2	1	1	0	4	94
Hourly Total	2	136	3	0	141	0	3	23	0	26	12	22	2	2	38	4	3	2	0	9	214
8:00 AM	1	50	0	0	51	0	0	6	1	7	9	9	1	0	19	0	0	0	0	0	77
8:15 AM	2	33	0	1	36	0	2	9	2	13	4	6	2	0	12	1	3	1	1	6	67
8:30 AM	0	25	1	0	26	0	1	5	1	7	7	5	1	0	13	0	2	0	0	2	48
8:45 AM	0	21	0	0	21	2	0	5	0	7	9	8	2	0	19	1	0	0	0	1	48
Hourly Total	3	129	1	1	134	2	3	25	4	34	29	28	6	0	63	2	5	1	1	9	240
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	1	8	2	0	11	0	1	7	1	9	11	14	1	0	26	0	1	0	0	1	47
4:15 PM	1	8	1	0	10	1	1	6	0	8	2	9	0	2	13	0	0	0	0	0	31
4:30 PM	0	18	0	0	18	0	1	2	0	3	10	15	2	0	27	1	2	2	0	5	53
4:45 PM	2	18	0	0	20	0	0	9	0	9	14	19	2	0	35	0	1	2	0	3	67
Hourly Total	4	52	3	0	59	1	3	24	1	29	37	57	5	2	101	1	4	4	0	9	198
5:00 PM	2	14	1	0	17	0	2	8	0	10	12	22	0	1	35	0	0	1	0	1	63
5:15 PM	0	15	0	0	15	1	2	8	0	11	12	18	0	0	30	0	1	0	0	1	57
5:30 PM	1	19	1	0	21	0	3	9	0	12	14	17	1	0	32	0	2	1	0	3	68
5:45 PM	1	19	1	0	21	0	0	7	0	7	17	21	0	0	38	1	0	0	0	1	67
Hourly Total	4	67	3	0	74	1	7	32	0	40	55	78	1	1	135	1	3	2	0	6	255
Grand Total	13	384	10	1	408	4	16	104	5	129	133	185	14	5	337	8	15	9	1	33	907
Approach %	3.2	94.1	2.5	0.2	-	3.1	12.4	80.6	3.9	-	39.5	54.9	4.2	1.5	-	24.2	45.5	27.3	3.0	-	-
Total %	1.4	42.3	1.1	0.1	45.0	0.4	1.8	11.5	0.6	14.2	14.7	20.4	1.5	0.6	37.2	0.9	1.7	1.0	0.1	3.6	-
Lights	13	383	10	1	407	4	16	101	5	126	133	184	13	5	335	8	15	9	1	33	901
% Lights	100.0	99.7	100.0	100.0	99.8	100.0	100.0	97.1	100.0	97.7	100.0	99.5	92.9	100.0	99.4	100.0	100.0	100.0	100.0	100.0	99.3
Mediums	0	1	0	0	1	0	0	3	0	3	0	1	1	0	2	0	0	0	0	0	6
% Mediums	0.0	0.3	0.0	0.0	0.2	0.0	0.0	2.9	0.0	2.3	0.0	0.5	7.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.7
Articulated Trucks	0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Turning Movement Data Plot



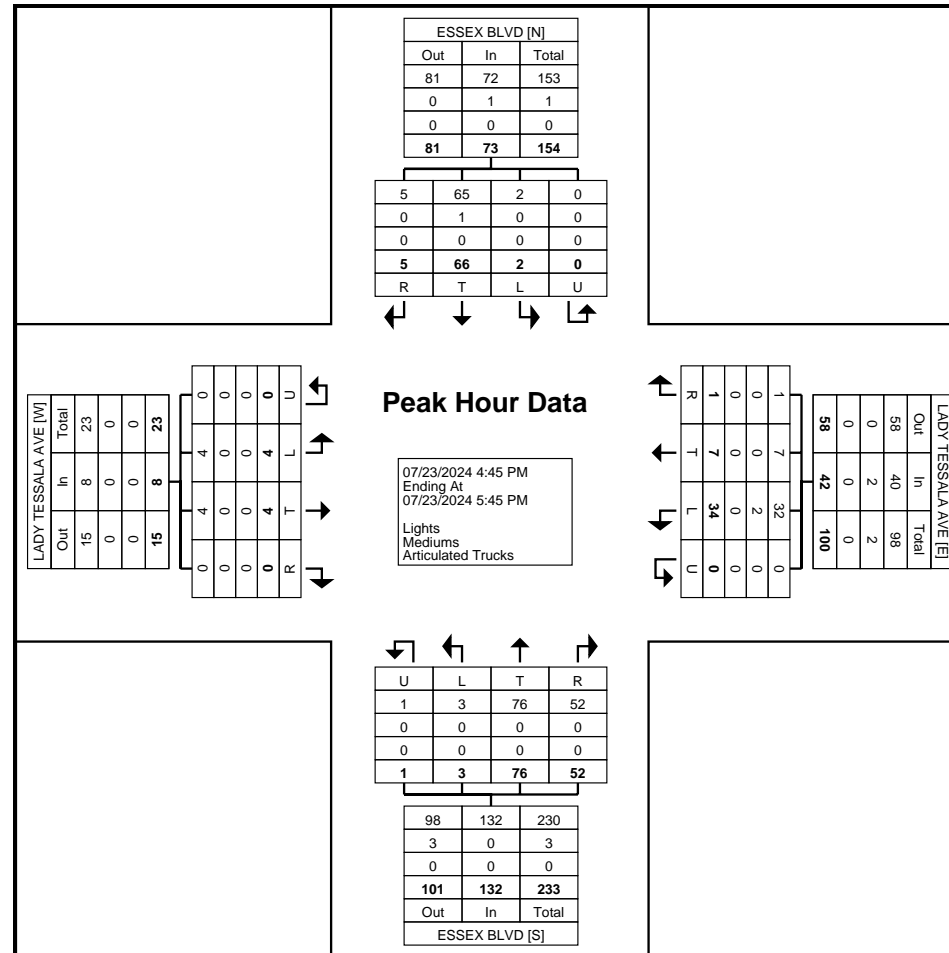
Turning Movement Peak Hour Data Plot (7:30 AM)

GRAM Traffic NTX Inc.
 1120 W. Lovers Lane
 Arlington, Texas, United States 76013
 817.265.8968 chase@gramntx.com

Count Name: ESSEX BLVD @ LADY TESSALA
 AVE
 Site Code:
 Start Date: 07/23/2024
 Page No: 5

Turning Movement Peak Hour Data (4:45 PM)

Start Time	ESSEX BLVD Southbound					LADY TESSALA AVE Westbound					ESSEX BLVD Northbound					LADY TESSALA AVE Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
4:45 PM	2	18	0	0	20	0	0	9	0	9	14	19	2	0	35	0	1	2	0	3	67
5:00 PM	2	14	1	0	17	0	2	8	0	10	12	22	0	1	35	0	0	1	0	1	63
5:15 PM	0	15	0	0	15	1	2	8	0	11	12	18	0	0	30	0	1	0	0	1	57
5:30 PM	1	19	1	0	21	0	3	9	0	12	14	17	1	0	32	0	2	1	0	3	68
Total	5	66	2	0	73	1	7	34	0	42	52	76	3	1	132	0	4	4	0	8	255
Approach %	6.8	90.4	2.7	0.0	-	2.4	16.7	81.0	0.0	-	39.4	57.6	2.3	0.8	-	0.0	50.0	50.0	0.0	-	-
Total %	2.0	25.9	0.8	0.0	28.6	0.4	2.7	13.3	0.0	16.5	20.4	29.8	1.2	0.4	51.8	0.0	1.6	1.6	0.0	3.1	-
PHF	0.625	0.868	0.500	0.000	0.869	0.250	0.583	0.944	0.000	0.875	0.929	0.864	0.375	0.250	0.943	0.000	0.500	0.500	0.000	0.667	0.938
Lights	5	65	2	0	72	1	7	32	0	40	52	76	3	1	132	0	4	4	0	8	252
% Lights	100.0	98.5	100.0	-	98.6	100.0	100.0	94.1	-	95.2	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	-	100.0	98.8
Mediums	0	1	0	0	1	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	3
% Mediums	0.0	1.5	0.0	-	1.4	0.0	0.0	5.9	-	4.8	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	1.2
Articulated Trucks	0	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	0.0	0.0	0.0	-	0.0	0.0	-	0.0	0.0



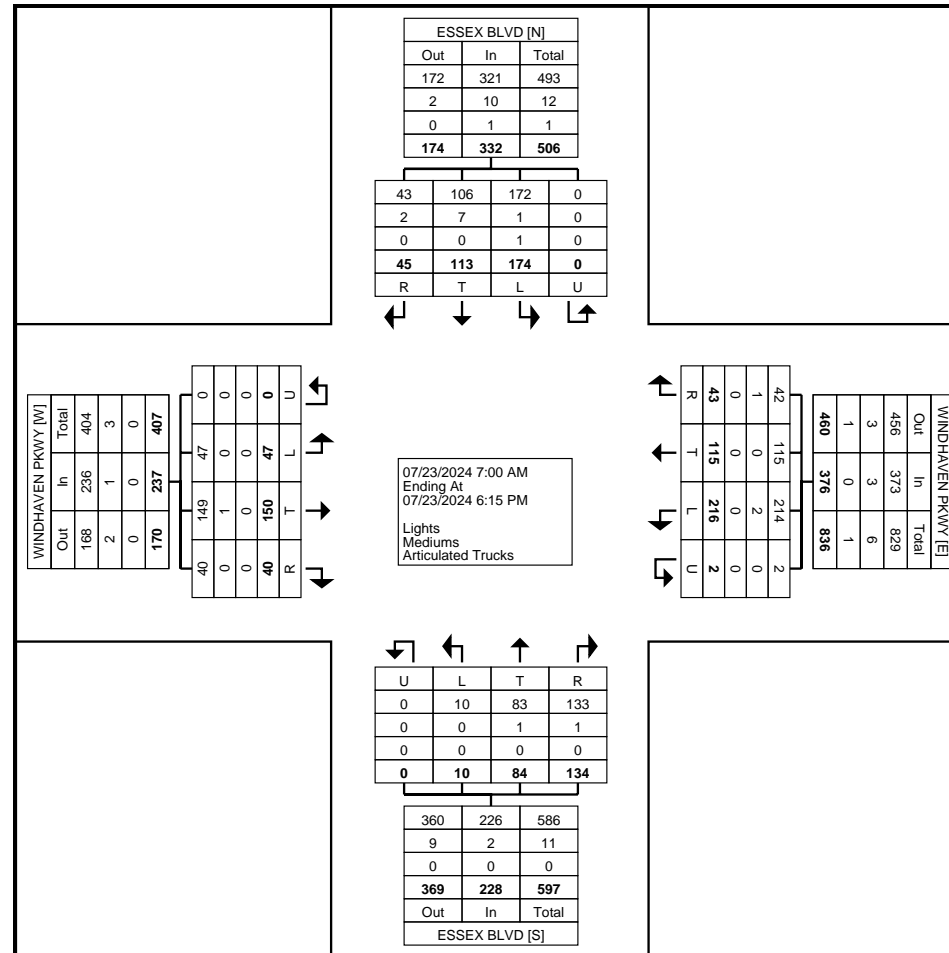
Turning Movement Peak Hour Data Plot (4:45 PM)

Turning Movement Data

Start Time	ESSEX BLVD Southbound					WINDHAVEN PKWY Westbound					ESSEX BLVD Northbound					WINDHAVEN PKWY Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:00 AM	0	2	3	0	5	0	0	1	0	1	0	5	0	0	5	0	2	1	0	3	14
7:15 AM	1	4	0	0	5	2	3	3	0	8	5	4	0	0	9	1	4	7	0	12	34
7:30 AM	0	4	1	0	5	0	12	36	0	48	9	4	0	0	13	4	15	6	0	25	91
7:45 AM	1	5	7	0	13	4	20	42	0	66	8	8	0	0	16	11	19	3	0	33	128
Hourly Total	2	15	11	0	28	6	35	82	0	123	22	21	0	0	43	16	40	17	0	73	267
8:00 AM	1	4	4	0	9	6	12	26	0	44	8	8	1	0	17	6	12	5	0	23	93
8:15 AM	2	5	9	0	16	1	3	17	0	21	8	5	0	0	13	5	4	3	0	12	62
8:30 AM	1	8	7	0	16	1	4	7	0	12	11	6	0	0	17	0	16	4	0	20	65
8:45 AM	2	4	8	0	14	2	4	8	0	14	10	12	0	0	22	1	6	2	0	9	59
Hourly Total	6	21	28	0	55	10	23	58	0	91	37	31	1	0	69	12	38	14	0	64	279
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	3	5	0	0	8	3	8	5	0	16	5	5	1	0	11	2	10	1	0	13	48
4:15 PM	3	8	5	0	16	1	9	6	0	16	8	2	0	0	10	1	7	0	0	8	50
4:30 PM	3	8	14	0	25	2	5	9	0	16	8	8	2	0	18	1	11	2	0	14	73
4:45 PM	7	6	12	0	25	4	5	17	0	26	11	3	4	0	18	1	6	3	0	10	79
Hourly Total	16	27	31	0	74	10	27	37	0	74	32	18	7	0	57	5	34	6	0	45	250
5:00 PM	8	13	17	0	38	2	9	6	1	18	10	5	0	0	15	3	10	3	0	16	87
5:15 PM	5	8	31	0	44	5	6	8	1	20	12	4	0	0	16	1	10	2	0	13	93
5:30 PM	3	15	36	0	54	6	7	12	0	25	11	3	1	0	15	1	13	4	0	18	112
5:45 PM	5	14	20	0	39	4	8	13	0	25	10	2	1	0	13	2	5	1	0	8	85
Hourly Total	21	50	104	0	175	17	30	39	2	88	43	14	2	0	59	7	38	10	0	55	377
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	45	113	174	0	332	43	115	216	2	376	134	84	10	0	228	40	150	47	0	237	1173
Approach %	13.6	34.0	52.4	0.0	-	11.4	30.6	57.4	0.5	-	58.8	36.8	4.4	0.0	-	16.9	63.3	19.8	0.0	-	-
Total %	3.8	9.6	14.8	0.0	28.3	3.7	9.8	18.4	0.2	32.1	11.4	7.2	0.9	0.0	19.4	3.4	12.8	4.0	0.0	20.2	-
Lights	43	106	172	0	321	42	115	214	2	373	133	83	10	0	226	40	149	47	0	236	1156
% Lights	95.6	93.8	98.9	-	96.7	97.7	100.0	99.1	100.0	99.2	99.3	98.8	100.0	-	99.1	100.0	99.3	100.0	-	99.6	98.6
Mediums	2	7	1	0	10	1	0	2	0	3	1	1	0	0	2	0	1	0	0	1	16
% Mediums	4.4	6.2	0.6	-	3.0	2.3	0.0	0.9	0.0	0.8	0.7	1.2	0.0	-	0.9	0.0	0.7	0.0	-	0.4	1.4
Articulated Trucks	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0.0	0.0	0.6	-	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.1

GRAM Traffic NTX Inc.
 1120 W. Lovers Lane
 Arlington, Texas, United States 76013
 817.265.8968 chase@gramntx.com

Count Name: WINDHAVEN PKWY @ ESSEX
 BLVD
 Site Code:
 Start Date: 07/23/2024
 Page No: 2



Turning Movement Data Plot

GRAM Traffic NTX Inc.
 1120 W. Lovers Lane
 Arlington, Texas, United States 76013
 817.265.8968 chase@gramntx.com

Count Name: WINDHAVEN PKWY @ ESSEX
 BLVD
 Site Code:
 Start Date: 07/23/2024
 Page No: 3

Turning Movement Peak Hour Data (7:30 AM)

Start Time	ESSEX BLVD Southbound					WINDHAVEN PKWY Westbound					ESSEX BLVD Northbound					WINDHAVEN PKWY Eastbound					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
7:30 AM	0	4	1	0	5	0	12	36	0	48	9	4	0	0	13	4	15	6	0	25	91
7:45 AM	1	5	7	0	13	4	20	42	0	66	8	8	0	0	16	11	19	3	0	33	128
8:00 AM	1	4	4	0	9	6	12	26	0	44	8	8	1	0	17	6	12	5	0	23	93
8:15 AM	2	5	9	0	16	1	3	17	0	21	8	5	0	0	13	5	4	3	0	12	62
Total	4	18	21	0	43	11	47	121	0	179	33	25	1	0	59	26	50	17	0	93	374
Approach %	9.3	41.9	48.8	0.0	-	6.1	26.3	67.6	0.0	-	55.9	42.4	1.7	0.0	-	28.0	53.8	18.3	0.0	-	-
Total %	1.1	4.8	5.6	0.0	11.5	2.9	12.6	32.4	0.0	47.9	8.8	6.7	0.3	0.0	15.8	7.0	13.4	4.5	0.0	24.9	-
PHF	0.500	0.900	0.583	0.000	0.672	0.458	0.588	0.720	0.000	0.678	0.917	0.781	0.250	0.000	0.868	0.591	0.658	0.708	0.000	0.705	0.730
Lights	3	15	21	0	39	11	47	120	0	178	32	24	1	0	57	26	50	17	0	93	367
% Lights	75.0	83.3	100.0	-	90.7	100.0	100.0	99.2	-	99.4	97.0	96.0	100.0	-	96.6	100.0	100.0	100.0	-	100.0	98.1
Mediums	1	3	0	0	4	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	7
% Mediums	25.0	16.7	0.0	-	9.3	0.0	0.0	0.8	-	0.6	3.0	4.0	0.0	-	3.4	0.0	0.0	0.0	-	0.0	1.9
Articulated Trucks	0	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	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0

GRAM Traffic NTX Inc.
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Count Name: WINDHAVEN PKWY @ ESSEX
 BLVD
 Site Code:
 Start Date: 07/23/2024
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Turning Movement Peak Hour Data (5:00 PM)

Start Time	ESSEX BLVD Southbound					WINDHAVEN PKWY Westbound					ESSEX BLVD Northbound					WINDHAVEN PKWY Eastbound					Int. Total	
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total		
5:00 PM	8	13	17	0	38	2	9	6	1	18	10	5	0	0	15	3	10	3	0	16	87	
5:15 PM	5	8	31	0	44	5	6	8	1	20	12	4	0	0	16	1	10	2	0	13	93	
5:30 PM	3	15	36	0	54	6	7	12	0	25	11	3	1	0	15	1	13	4	0	18	112	
5:45 PM	5	14	20	0	39	4	8	13	0	25	10	2	1	0	13	2	5	1	0	8	85	
Total	21	50	104	0	175	17	30	39	2	88	43	14	2	0	59	7	38	10	0	55	377	
Approach %	12.0	28.6	59.4	0.0	-	19.3	34.1	44.3	2.3	-	72.9	23.7	3.4	0.0	-	12.7	69.1	18.2	0.0	-	-	
Total %	5.6	13.3	27.6	0.0	46.4	4.5	8.0	10.3	0.5	23.3	11.4	3.7	0.5	0.0	15.6	1.9	10.1	2.7	0.0	14.6	-	
PHF	0.656	0.833	0.722	0.000	0.810	0.708	0.833	0.750	0.500	0.880	0.896	0.700	0.500	0.000	0.922	0.583	0.731	0.625	0.000	0.764	0.842	
Lights	20	49	103	0	172	17	30	39	2	88	43	14	2	0	59	7	38	10	0	55	374	
% Lights	95.2	98.0	99.0	-	98.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	99.2	
Mediums	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Mediums	4.8	2.0	0.0	-	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.5	
Articulated Trucks	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0.0	0.0	1.0	-	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.3	

