SUFFOLK RAIL IMPACT STUDY

TECHNICAL APPENDIX

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

MAY 2007

T07-03

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SUFFOLK RAIL IMPACT STUDY

Technical Appendix

This report was included in the Work Program for Fiscal Year 2006-2007, which was approved by the Commission and the Metropolitan Planning Organization at their meetings of March 15, 2006.

PREPARED BY:

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

MAY 2007

T07-03

REPORT DOCUMENTATION

TITLE:
Suffolk Rail Impact Study

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GRANT/SPONSORING AGENCY:
FHWA/VDOT/LOCAL FUNDS

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ABSTRACT

The City of Suffolk requested that a rail impact study be undertaken to assess the effect of increased rail traffic due to the construction of the new Maersk/APM Terminal and Craney Island Terminal port facilities in Portsmouth, the Commonwealth Railway Mainline Safety Relocation Project (Median Rail Project), and Norfolk Southern's upgraded Heartland Corridor. Commonwealth Railway, Norfolk Southern, and CSX each run through Suffolk and will experience increases in train volumes from these developments.

This study analyzes the impacts to thirty-one (31) at-grade highway-rail crossings in Suffok that will experience an increase in rail traffic due to the new port facilities. Performance measures are used to evaluate the effects of this traffic on the impact areas of mobility and safety. Based on analysis using these performance measures, the crossings are ranked and improvement priority crossings are identified for both impact areas. Each priority crossing is assessed and improvement options are identified.

ACKNOWLEDGMENTS

This report was prepared by the Hampton Roads Planning District Commission (HRPDC) in cooperation with the City of Suffolk, the Virginia Department of Transportation (VDOT), and the Federal Highway Administration (FHWA). The contents of this report reflect the views of the staff of the Hampton Roads Area Metropolitan Planning Organization (MPO). The MPO staff is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the FHWA, VDOT, or HRPDC. This report does not constitute a standard, specification, or regulation. FHWA or VDOT acceptance of this report as evidence of fulfillment of the objectives of this planning study does not constitute endorsement/approval of the need for any recommended improvements nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

TABLE OF CONTENTS

REPORT DOCUMENTATION i

EXPOSURE INDEX. 1

EXPOSURE INDEX RANKINGS. 2

MINUTES CROSSING BLOCKED PER TRAIN 3

DAILY MINUTES CROSSING BLOCKED 4

DAILY MINUTES CROSSING BLOCKED RANKINGS 5

DAILY HOURS OF VEHICLE DELAY 6

DAILY HOURS OF VEHICLE DELAY RANKINGS 7

ECONOMIC DEVELOPMENT PRIORITY RANKINGS 8

ACCIDENT HISTORY 9

ACCIDENT HISTORY RANKINGS 10

HAZARD INDEX 11

HAZARD INDEX RANKINGS 12

EMERGENCY SERVICES SCORE 13

EMERGENCY SERVICES RANKINGS 14

DAILY MINUTES CROSSING BLOCKED - BUILD-OUT 15

DAILY HOURS OF VEHICLE DELAY - BUILD-OUT 16

RAIL TRAFFIC ANALYSIS FROM MOFFATT & NICHOL 17

SUFFOLK RAIL IMPACT STUDY

Exposure Index

Exposure Index (EI) = (V)(T)

V - Annual Average Daily Traffic

T - Average Daily Train Traffic

		2007						2010						2017					
			Baseline		APM Generated		Total		Baseline		APM Generated		Total		Baseline		APM & CI Generated		Total
No.	Crossing	V	T	EI	T	EI	EI 2007	V	T	EI	T	EI	EI 2010	V	T	EI	T	EI	EI 2017
Norfolk Southern (Isle of Wight CL to Commonwealth Rail)																			
1	Old Mill Road	290	22.0	6,380	2.0	580	**6,960**	300	22.0	6,600	3.0	900	**7,500**	300	22.0	6,600	6.0	1,800	**8,400**
2	Old Myrtle Road	490	22.0	10,780	2.0	980	**11,760**	500	22.0	11,000	3.0	1,500	**12,500**	550	22.0	12,100	6.0	3,300	**15,400**
3	Kings Fork Road	500	22.0	11,000	2.0	1,000	**12,000**	550	22.0	12,100	3.0	1,650	**13,750**	600	22.0	13,200	6.0	3,600	**16,800**
4	Lake Meade Drive	425	22.0	9,350	2.0	850	**10,200**	450	22.0	9,900	3.0	1,350	**11,250**	500	22.0	11,000	6.0	3,000	**14,000**
8	Wellons Street	2100	22.0	46,200	2.0	4,200	**50,400**	2150	22.0	47,300	3.0	6,450	**53,750**	2300	22.0	50,600	6.0	13,800	**64,400**
9	S Saratoga Street	4450	22.0	97,900	2.0	8,900	**106,800**	4700	22.0	103,400	3.0	14,100	**117,500**	5400	22.0	118,800	6.0	32,400	**151,200**
11	S Main Street	3200	22.0	70,400	2.0	6,400	**76,800**	3400	22.0	74,800	3.0	10,200	**85,000**	3600	22.0	79,200	6.0	21,600	**100,800**
12	Commerce Street	1550	22.0	34,100	2.0	3,100	**37,200**	1550	22.0	34,100	3.0	4,650	**38,750**	1600	22.0	35,200	6.0	9,600	**44,800**
13	E Washington Street	14250	22.0	313,500	2.0	28,500	**342,000**	15100	22.0	332,200	3.0	45,300	**377,500**	16100	22.0	354,200	6.0	96,600	**450,800**
14	Liberty Street	5700	22.0	125,400	2.0	11,400	**136,800**	5700	22.0	125,400	3.0	17,100	**142,500**	5700	22.0	125,400	6.0	34,200	**159,600**
Commonwealth Rail (Norfolk Southern to Chesapeake CL)																			
15	N 5th Street/Saul Street	2600	2.0	5,200	2.5	6,500	**11,700**	2750		0	3.5	9,625	**9,625**	2900		0	7.5	21,750	**21,750**
17	Saunders Drive	0	2.0	0	2.5	0	**0**	0		0	3.5	0	**0**	0		0	7.5	0	**0**
18	Suburban Drive	2800	2.0	5,600	2.5	7,000	**12,600**	2950		0	3.5	10,325	**10,325**	3100		0	7.5	23,250	**23,250**
19	Prospect Road	100	2.0	200	2.5	250	**450**	100		0	3.5	350	**350**	100		0	7.5	750	**750**
20	Olde Mill Creek Road	380	2.0	760	2.5	950	**1,710**	400		0	3.5	1,400	**1,400**	400		0	7.5	3,000	**3,000**
22	QVC Entrance	100	2.0	200	2.5	250	**450**	125		0	3.5	438	**438**	150		0	7.5	1,125	**1,125**
23	Progress Road	3800	2.0	7,600	2.5	9,500	**17,100**	4100		0	3.5	14,350	**14,350**	4300		0	7.5	32,250	**32,250**
24	Rodney Lane	0	2.0	0	2.5	0	**0**			0	3.5	0	**0**			0	7.5	0	**0**
25	Nansemond Parkway 2 (Wilroy)	5000	2.0	10,000	2.5	12,500	**22,500**	5200		0	3.5	18,200	**18,200**	5500		0	7.5	41,250	**41,250**
26	Sportsman Boulevard	75	2.0	150	2.5	188	**338**	75		0	3.5	263	**263**	80		0	7.5	600	**600**
27	Day Farm Lane	0	2.0	0	2.5	0	**0**	0		0	3.5	0	**0**	0		0	7.5	0	**0**
28	Nansemond Parkway 1	13900	2.0	27,800	2.5	34,750	**62,550**	14900		0	3.5	52,150	**52,150**	17400		0	7.5	130,500	**130,500**
29	Shoulders Hill Road	7000	2.0	14,000	2.5	17,500	**31,500**	7400		0	3.5	25,900	**25,900**	8300		0	7.5	62,250	**62,250**
CSX (Isle of Wight CL to Commonwealth Rail)																			
30	Kingsale Rd	600	5.0	3,000	0.5	300	**3,300**	650	6.0	3,900	0.5	325	**4,225**	700	8.0	5,600	1.5	1,050	**6,650**
31	Indian Trail	230	5.0	1,150	0.5	115	**1,265**	250	6.0	1,500	0.5	125	**1,625**	300	8.0	2,400	1.5	450	**2,850**
32	Buckhorn Dr	470	5.0	2,350	0.5	235	**2,585**	475	6.0	2,850	0.5	238	**3,088**	500	8.0	4,000	1.5	750	**4,750**
33	Kenyon Rd	950	5.0	4,750	0.5	475	**5,225**	1000	6.0	6,000	0.5	500	**6,500**	1100	8.0	8,800	1.5	1,650	**10,450**
35	W Constance Rd	9710	5.0	48,550	0.5	4,855	**53,405**	9800	6.0	58,800	0.5	4,900	**63,700**	9900	8.0	79,200	1.5	14,850	**94,050**
37	Pine Street	1700	5.0	8,500	0.5	850	**9,350**	1700	6.0	10,200	0.5	850	**11,050**	1700	8.0	13,600	1.5	2,550	**16,150**
38	N Main Street	21705	5.0	108,525	0.5	10,853	**119,378**	22550	6.0	135,300	0.5	11,275	**146,575**	24500	8.0	196,000	1.5	36,750	**232,750**
40	Liberty Street/Moore Ave	5700	5.0	28,500	0.5	2,850	**31,350**	5700	6.0	34,200	0.5	2,850	**37,050**	5700	8.0	45,600	1.5	8,550	**54,150**

Crossings 5, 6, 7, 10, 16, 21, 34, 36, 39 are grade-separated and have been excluded from analysis

Baseline traffic on Commonwealth Railway will effectively cease before 2010

Prepared by: Hampton Roads Planning District Commission

SUFFOLK RAIL IMPACT STUDY

Exposure Index Rankings

2007			
No.	Crossing	EI 2007	Rank 07
13	E Washington Street	342,000	1
14	Liberty Street	136,800	2
38	N Main Street	119,378	3
9	S Saratoga Street	106,800	4
11	S Main Street	76,800	5
28	Nansemond Parkway 1	62,550	6
35	W Constance Rd	53,405	7
8	Wellons Street	50,400	8
12	Commerce Street	37,200	9
29	Shoulders Hill Road	31,500	10
40	Liberty Street/Moore Ave	31,350	11
25	Nansemond Parkway 2 (Wilroy)	22,500	12
23	Progress Road	17,100	13
18	Suburban Drive	12,600	14
3	Kings Fork Road	12,000	15
2	Old Myrtle Road	11,760	16
15	N 5th Street/Saul Street	11,700	17
4	Lake Meade Drive	10,200	18
37	Pine Street	9,350	19
1	Old Mill Road	6,960	20
33	Kenyon Rd	5,225	21
30	Kingsale Rd	3,300	22
32	Buckhorn Dr	2,585	23
20	Olde Mill Creek Road	1,710	24
31	Indian Trail	1,265	25
19	Prospect Road	450	26
22	QVC Entrance	450	26
26	Sportsman Boulevard	338	28
17	Saunders Drive	0	29
24	Rodney Lane	0	29
27	Day Farm Lane	0	29

2010			
No.	Crossing	EI 2010	Rank 10
13	E Washington Street	377,500	1
38	N Main Street	146,575	2
14	Liberty Street	142,500	3
9	S Saratoga Street	117,500	4
11	S Main Street	85,000	5
35	W Constance Rd	63,700	6
8	Wellons Street	53,750	7
28	Nansemond Parkway 1	52,150	8
12	Commerce Street	38,750	9
40	Liberty Street/Moore Ave	37,050	10
29	Shoulders Hill Road	25,900	11
25	Nansemond Parkway 2 (Wilroy)	18,200	12
23	Progress Road	14,350	13
3	Kings Fork Road	13,750	14
2	Old Myrtle Road	12,500	15
4	Lake Meade Drive	11,250	16
37	Pine Street	11,050	17
18	Suburban Drive	10,325	18
15	N 5th Street/Saul Street	9,625	19
1	Old Mill Road	7,500	20
33	Kenyon Rd	6,500	21
30	Kingsale Rd	4,225	22
32	Buckhorn Dr	3,088	23
31	Indian Trail	1,625	24
20	Olde Mill Creek Road	1,400	25
22	QVC Entrance	438	26
19	Prospect Road	350	27
26	Sportsman Boulevard	263	28
17	Saunders Drive	0	29
24	Rodney Lane	0	29
27	Day Farm Lane	0	29

2017			
No.	Crossing	EI 2017	Rank 17
13	E Washington Street	450,800	1
38	N Main Street	232,750	2
14	Liberty Street	159,600	3
9	S Saratoga Street	151,200	4
28	Nansemond Parkway 1	130,500	5
11	S Main Street	100,800	6
35	W Constance Rd	94,050	7
8	Wellons Street	64,400	8
29	Shoulders Hill Road	62,250	9
40	Liberty Street/Moore Ave	54,150	10
12	Commerce Street	44,800	11
25	Nansemond Parkway 2 (Wilroy)	41,250	12
23	Progress Road	32,250	13
18	Suburban Drive	23,250	14
15	N 5th Street/Saul Street	21,750	15
3	Kings Fork Road	16,800	16
37	Pine Street	16,150	17
2	Old Myrtle Road	15,400	18
4	Lake Meade Drive	14,000	19
33	Kenyon Rd	10,450	20
1	Old Mill Road	8,400	21
30	Kingsale Rd	6,650	22
32	Buckhorn Dr	4,750	23
20	Olde Mill Creek Road	3,000	24
31	Indian Trail	2,850	25
22	QVC Entrance	1,125	26
19	Prospect Road	750	27
26	Sportsman Boulevard	600	28
17	Saunders Drive	0	29
24	Rodney Lane	0	29
27	Day Farm Lane	0	29

SUFFOLK RAIL IMPACT STUDY

Minutes Crossing Blocked Per Train

Minutes Blocked (B) = (W+(L/S))

W - Warning/Clearance Time (min)
L - Average Length of Trains (ft)
S - Speed of Trains (ft/min)

Rural Speed = 30 mph
Downtown Speed = 20 mph
Reduced Speed* = 10 mph

* Reduced speed on Commonwealth Railway and Norfolk Southern downtown crossings before median rail project

		Baseline Trains				APM Generated Trains 2007				APM Generated Trains 2010				APM/CI Generated Trains 2017			
No.	Crossing	L (ft)	S (ft/min)	W (min)	B (min)	L (ft)	S (ft/min)	W (min)	B (min)	L (ft)	S (ft/min)	W (min)	B (min)	L (ft)	S (ft/min)	W (min)	B (min)
Norfolk Southern (Isle of Wight CL to Commonwealth Rail)																	
1	Old Mill Road	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5
2	Old Myrtle Road	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5
3	Kings Fork Road	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5
4	Lake Meade Drive	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5
8	Wellons Street	7500	1760	0.675	4.9	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
9	S Saratoga Street	7500	1760	0.675	4.9	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
11	S Main Street	7500	1760	0.675	4.9	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
12	Commerce Street	7500	1760	0.675	4.9	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
13	E Washington Street	7500	1760	0.675	4.9	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
14	Liberty Street	7500	1760	0.675	4.9	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
Commonwealth Rail (Norfolk Southern to Chesapeake CL)																	
15	N 5th Street/Saul Street	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
17	Saunders Drive	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
18	Suburban Drive	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
19	Prospect Road	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
20	Olde Mill Creek Road	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
22	QVC Entrance	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
23	Progress Road	300	880	0.731	1.1	7500	880	0.731	9.3	7500	1760	0.682	4.9	7500	1760	0.682	4.9
24	Rodney Lane	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
25	Nansemond Parkway 2 (Wilroy)	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
26	Sportsman Boulevard	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
27	Day Farm Lane	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
28	Nansemond Parkway 1	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
29	Shoulders Hill Road	300	880	0.717	1.1	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
CSX (Isle of Wight CL to Commonwealth Rail)																	
30	Kingsale Rd	5000	2640	0.661	2.6	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5
31	Indian Trail	5000	2640	0.661	2.6	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5
32	Buckhorn Dr	5000	2640	0.661	2.6	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5
33	Kenyon Rd	5000	2640	0.661	2.6	7500	2640	0.661	3.5	7500	2640	0.661	3.5	7500	2640	0.661	3.5
35	W Constance Rd	5000	1760	0.675	3.5	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
37	Pine Street	5000	1760	0.675	3.5	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9
38	N Main Street	5000	1760	0.675	3.5	7500	880	0.745	9.3	7500	1760	0.689	5.0	7500	1760	0.689	5.0
40	Liberty Street/Moore Ave	5000	1760	0.675	3.5	7500	880	0.717	9.2	7500	1760	0.675	4.9	7500	1760	0.675	4.9

Crossings 5, 6, 7, 10, 16, 21, 34, 36, 39 are grade-separated and have been excluded from analysis

Baseline traffic on Commonwealth Railway will effectively cease before 2010

Prepared by: Hampton Roads Planning District Commission

SUFFOLK RAIL IMPACT STUDY

Daily Minutes Crossing Blocked

Minutes Blocked (B) = T (W+(L/S))

B - Daily Minutes Crossing Blocked (min)
T - Daily Number of Trains
L - Average Length of Trains (ft)
S - Speed of Trains (ft/min)
W - Warning/Clearance Time (min)

Rural Speed = 30 mph
Downtown Speed = 20 mph
Reduced Speed* = 10 mph

* Reduced speed on Commonwealth Railway and Norfolk Southern downtown crossings before median rail project

		2007											2010											2017										
		Baseline					APM Generated					Total	Baseline					APM Generated					Total	Baseline					APM & Craney Island Generated					Total
No.	Crossing	T -	L (ft)	S (ft/min)	W (min)	B (min)	T -	L (ft)	S (ft/min)	W (min)	B (min)	**B 2007 (min)**	T -	L (ft)	S (ft/min)	W (min)	B (min)	T -	L (ft)	S (ft/min)	W (min)	B (min)	**B 2010 (min)**	T -	L (ft)	S (ft/min)	W (min)	B (min)	T -	L (ft)	S (ft/min)	W (min)	B (min)	**B 2017 (min)**
Norfolk Southern (Isle of Wight CL to Commonwealth Rail)																																			
1	Old Mill Road	22.0	7500	2640	0.661	77.1	2.0	7500	2640	0.661	7.0	**84.1**	22.0	7500	2640	0.661	77.1	3.0	7500	2640	0.661	10.5	**87.6**	22.0	7500	2640	0.661	77.1	6.0	7500	2640	0.661	21.0	**98.1**
2	Old Myrtle Road	22.0	7500	2640	0.661	77.1	2.0	7500	2640	0.661	7.0	**84.1**	22.0	7500	2640	0.661	77.1	3.0	7500	2640	0.661	10.5	**87.6**	22.0	7500	2640	0.661	77.1	6.0	7500	2640	0.661	21.0	**98.1**
3	Kings Fork Road	22.0	7500	2640	0.661	77.1	2.0	7500	2640	0.661	7.0	**84.1**	22.0	7500	2640	0.661	77.1	3.0	7500	2640	0.661	10.5	**87.6**	22.0	7500	2640	0.661	77.1	6.0	7500	2640	0.661	21.0	**98.1**
4	Lake Meade Drive	22.0	7500	2640	0.661	77.1	2.0	7500	2640	0.661	7.0	**84.1**	22.0	7500	2640	0.661	77.1	3.0	7500	2640	0.661	10.5	**87.6**	22.0	7500	2640	0.661	77.1	6.0	7500	2640	0.661	21.0	**98.1**
8	Wellons Street	22.0	7500	1760	0.675	108.6	2.0	7500	880	0.717	18.5	**127.1**	22.0	7500	1760	0.675	108.6	3.0	7500	1760	0.675	14.8	**123.4**	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	**138.2**
9	S Saratoga Street	22.0	7500	1760	0.675	108.6	2.0	7500	880	0.717	18.5	**127.1**	22.0	7500	1760	0.675	108.6	3.0	7500	1760	0.675	14.8	**123.4**	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	**138.2**
11	S Main Street	22.0	7500	1760	0.675	108.6	2.0	7500	880	0.717	18.5	**127.1**	22.0	7500	1760	0.675	108.6	3.0	7500	1760	0.675	14.8	**123.4**	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	**138.2**
12	Commerce Street	22.0	7500	1760	0.675	108.6	2.0	7500	880	0.717	18.5	**127.1**	22.0	7500	1760	0.675	108.6	3.0	7500	1760	0.675	14.8	**123.4**	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	**138.2**
13	E Washington Street	22.0	7500	1760	0.675	108.6	2.0	7500	880	0.717	18.5	**127.1**	22.0	7500	1760	0.675	108.6	3.0	7500	1760	0.675	14.8	**123.4**	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	**138.2**
14	Liberty Street	22.0	7500	1760	0.675	108.6	2.0	7500	880	0.717	18.5	**127.1**	22.0	7500	1760	0.675	108.6	3.0	7500	1760	0.675	14.8	**123.4**	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	**138.2**
Commonwealth Rail (Norfolk Southern to Chesapeake CL)																																			
15	N 5th Street/Saul Street	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
17	Saunders Drive	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
18	Suburban Drive	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
19	Prospect Road	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
20	Olde Mill Creek Road	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
22	QVC Entrance	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
23	Progress Road	2.0	300	880	0.731	2.1	2.5	7500	880	0.731	23.1	**25.3**					0.0	3.5	7500	1760	0.682	17.3	**17.3**					0.0	7.5	7500	1760	0.682	37.1	**37.1**
24	Rodney Lane	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
25	Nansemond Parkway 2 (Wilroy)	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	38.1	**40.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
26	Sportsman Boulevard	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	38.1	**40.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
27	Day Farm Lane	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
28	Nansemond Parkway 1	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
29	Shoulders Hill Road	2.0	300	880	0.717	2.1	2.5	7500	880	0.717	23.1	**25.2**					0.0	3.5	7500	1760	0.675	17.3	**17.3**					0.0	7.5	7500	1760	0.675	37.0	**37.0**
CSX (Isle of Wight CL to Commonwealth Rail)																																			
30	Kingsale Rd	5.0	5000	2640	0.661	12.8	0.5	7500	2640	0.661	1.8	**14.5**	6.0	5000	2640	0.661	15.3	0.5	7500	2640	0.661	1.8	**17.1**	8.0	5000	2640	0.661	20.4	1.5	7500	2640	0.661	5.3	**25.7**
31	Indian Trail	5.0	5000	2640	0.661	12.8	0.5	7500	2640	0.661	1.8	**14.5**	6.0	5000	2640	0.661	15.3	0.5	7500	2640	0.661	1.8	**17.1**	8.0	5000	2640	0.661	20.4	1.5	7500	2640	0.661	5.3	**25.7**
32	Buckhorn Dr	5.0	5000	2640	0.661	12.8	0.5	7500	2640	0.661	1.8	**14.5**	6.0	5000	2640	0.661	15.3	0.5	7500	2640	0.661	1.8	**17.1**	8.0	5000	2640	0.661	20.4	1.5	7500	2640	0.661	5.3	**25.7**
33	Kenyon Rd	5.0	5000	2640	0.661	12.8	0.5	7500	2640	0.661	1.8	**14.5**	6.0	5000	2640	0.661	15.3	0.5	7500	2640	0.661	1.8	**17.1**	8.0	5000	2640	0.661	20.4	1.5	7500	2640	0.661	5.3	**25.7**
35	W Constance Rd	5.0	5000	1760	0.675	17.6	0.5	7500	880	0.717	4.6	**22.2**	6.0	5000	1760	0.675	21.1	0.5	7500	1760	0.675	2.5	**23.6**	8.0	5000	1760	0.675	28.1	1.5	7500	1760	0.675	7.4	**35.5**
37	Pine Street	5.0	5000	1760	0.675	17.6	0.5	7500	880	0.717	4.6	**22.2**	6.0	5000	1760	0.675	21.1	0.5	7500	1760	0.675	2.5	**23.6**	8.0	5000	1760	0.675	28.1	1.5	7500	1760	0.675	7.4	**35.5**
38	N Main Street	5.0	5000	1760	0.675	17.6	0.5	7500	880	0.745	4.6	**22.2**	6.0	5000	1760	0.675	21.1	0.5	7500	1760	0.689	2.5	**23.6**	8.0	5000	1760	0.675	28.1	1.5	7500	1760	0.689	7.4	**35.6**
40	Liberty Street/Moore Ave	5.0	5000	1760	0.675	17.6	0.5	7500	880	0.717	4.6	**22.2**	6.0	5000	1760	0.675	21.1	0.5	7500	1760	0.675	2.5	**23.6**	8.0	5000	1760	0.675	28.1	1.5	7500	1760	0.675	7.4	**35.5**

Crossings 5, 6, 7, 10, 16, 21, 34, 36, 39 are grade-separated and have been excluded from analysis

Baseline traffic on Commonwealth Railway will effectively cease before 2010

Prepared by: Hampton Roads Planning District Commission

SUFFOLK RAIL IMPACT STUDY

Minutes Crossing Blocked Rankings

2007			
No.	Crossing	B 2007	Rank 07
8	Wellons Street	127	1
9	S Saratoga Street	127	1
11	S Main Street	127	1
12	Commerce Street	127	1
13	E Washington Street	127	1
14	Liberty Street	127	1
1	Old Mill Road	84	7
2	Old Myrtle Road	84	7
3	Kings Fork Road	84	7
4	Lake Meade Drive	84	7
25	Nansemond Parkway 2 (Wilroy)	38	11
26	Sportsman Boulevard	38	11
15	N 5th Street/Saul Street	23	13
17	Saunders Drive	23	13
18	Suburban Drive	23	13
19	Prospect Road	23	13
20	Olde Mill Creek Road	23	13
22	QVC Entrance	23	13
23	Progress Road	23	13
24	Rodney Lane	23	13
27	Day Farm Lane	23	13
28	Nansemond Parkway 1	23	13
29	Shoulders Hill Road	23	13
35	W Constance Rd	22	24
37	Pine Street	22	24
38	N Main Street	22	24
40	Liberty Street/Moore Ave	22	24
30	Kingsale Rd	15	28
31	Indian Trail	15	28
32	Buckhorn Dr	15	28
33	Kenyon Rd	15	28

2010			
No.	Crossing	B 2010	Rank 10
8	Wellons Street	123	1
9	S Saratoga Street	123	1
11	S Main Street	123	1
12	Commerce Street	123	1
13	E Washington Street	123	1
14	Liberty Street	123	1
1	Old Mill Road	88	7
2	Old Myrtle Road	88	7
3	Kings Fork Road	88	7
4	Lake Meade Drive	88	7
35	W Constance Rd	24	11
37	Pine Street	24	11
38	N Main Street	24	11
40	Liberty Street/Moore Ave	24	11
15	N 5th Street/Saul Street	17	15
17	Saunders Drive	17	15
18	Suburban Drive	17	15
19	Prospect Road	17	15
20	Olde Mill Creek Road	17	15
22	QVC Entrance	17	15
23	Progress Road	17	15
24	Rodney Lane	17	15
25	Nansemond Parkway 2 (Wilroy)	17	15
26	Sportsman Boulevard	17	15
27	Day Farm Lane	17	15
28	Nansemond Parkway 1	17	15
29	Shoulders Hill Road	17	15
30	Kingsale Rd	17	15
31	Indian Trail	17	15
32	Buckhorn Dr	17	15
33	Kenyon Rd	17	15

2017			
No.	Crossing	B 2017	Rank 17
8	Wellons Street	138	1
9	S Saratoga Street	138	1
11	S Main Street	138	1
12	Commerce Street	138	1
13	E Washington Street	138	1
14	Liberty Street	138	1
1	Old Mill Road	98	7
2	Old Myrtle Road	98	7
3	Kings Fork Road	98	7
4	Lake Meade Drive	98	7
15	N 5th Street/Saul Street	37	11
17	Saunders Drive	37	11
18	Suburban Drive	37	11
19	Prospect Road	37	11
20	Olde Mill Creek Road	37	11
22	QVC Entrance	37	11
23	Progress Road	37	11
24	Rodney Lane	37	11
25	Nansemond Parkway 2 (Wilroy)	37	11
26	Sportsman Boulevard	37	11
27	Day Farm Lane	37	11
28	Nansemond Parkway 1	37	11
29	Shoulders Hill Road	37	11
35	W Constance Rd	36	24
37	Pine Street	36	24
38	N Main Street	36	24
40	Liberty Street/Moore Ave	36	24
30	Kingsale Rd	26	28
31	Indian Trail	26	28
32	Buckhorn Dr	26	28
33	Kenyon Rd	26	28

SUFFOLK RAIL IMPACT STUDY

Daily Hours of Vehicle Delay

Vehicle Delay (D) $=(V_{min})(B)(0.5B)/60$

D - Daily Minutes of Vehicle Delay (min)
V_{min} - Rate of Vehicles (veh/min)
B - Daily Minutes Crossing Blocked (min)

		2007							2010							2017						
			Baseline		APM Generated		Total			Baseline		APM Generated		Total			Baseline		APM & CI Generated		Total	
No.	Crossing	V_{min} (veh/min)	B (min)	D (min)	B (min)	D (min)	**D 2007 (min)**	**D 2007 (hr)**	V_{min} (veh/min)	B (min)	D (min)	B (min)	D (min)	**D 2010 (min)**	**D 2010 (hr)**	V_{min} (veh/min)	B (min)	D (min)	B (min)	D (min)	**D 2017 (min)**	**D 2017 (hr)**
Norfolk Southern (Isle of Wight CL to Commonwealth Rail)																						
1	Old Mill Road	0.2	77.1	598	7.0	5	**603**	**10.0**	0.2	77.1	618	10.5	11	**630**	**10.5**	0.2	77.1	618	21.0	46	**664**	**11.1**
2	Old Myrtle Road	0.3	77.1	1,010	7.0	8	**1,018**	**17.0**	0.3	77.1	1,031	10.5	19	**1,050**	**17.5**	0.4	77.1	1,134	21.0	84	**1,218**	**20.3**
3	Kings Fork Road	0.3	77.1	1,031	7.0	9	**1,039**	**17.3**	0.4	77.1	1,134	10.5	21	**1,155**	**19.2**	0.4	77.1	1,237	21.0	92	**1,329**	**22.1**
4	Lake Meade Drive	0.3	77.1	876	7.0	7	**883**	**14.7**	0.3	77.1	928	10.5	17	**945**	**15.7**	0.3	77.1	1,031	21.0	77	**1,107**	**18.5**
8	Wellons Street	1.5	108.6	8,601	18.5	249	**8,850**	**147.5**	1.5	108.6	8,806	14.8	164	**8,970**	**149.5**	1.6	108.6	9,420	29.6	701	**10,121**	**168.7**
9	S Saratoga Street	3.1	108.6	18,226	18.5	528	**18,754**	**312.6**	3.3	108.6	19,250	14.8	358	**19,608**	**326.8**	3.8	108.6	22,117	29.6	1,645	**23,762**	**396.0**
11	S Main Street	2.2	108.6	13,106	18.5	379	**13,486**	**224.8**	2.4	108.6	13,926	14.8	259	**14,185**	**236.4**	2.5	108.6	14,745	29.6	1,097	**15,841**	**264.0**
12	Commerce Street	1.1	108.6	6,348	18.5	184	**6,532**	**108.9**	1.1	108.6	6,348	14.8	118	**6,466**	**107.8**	1.1	108.6	6,553	29.6	487	**7,041**	**117.3**
13	E Washington Street	9.9	108.6	58,364	18.5	1,690	**60,054**	**1000.9**	10.5	108.6	61,846	14.8	1,150	**62,996**	**1049.9**	11.2	108.6	65,942	29.6	4,905	**70,846**	**1180.8**
14	Liberty Street	4.0	108.6	23,346	18.5	676	**24,022**	**400.4**	4.0	108.6	23,346	14.8	434	**23,780**	**396.3**	4.0	108.6	23,346	29.6	1,736	**25,082**	**418.0**
Commonwealth Rail (Norfolk Southern to Chesapeake CL)																						
15	N 5th Street/Saul Street	1.8	2.1	4	23.1	482	**486**	**8.1**	1.9	0.0	0	17.3	285	**285**	**4.8**	2.0	0.0	0	37.0	1,380	**1,380**	**23.0**
17	Saunders Drive	0.0	2.1	0	23.1	0	**0**	**0.0**	0.0	0.0	0	17.3	0	**0**	**0.0**	0.0	0.0	0	37.0	0	**0**	**0.0**
18	Suburban Drive	1.9	2.1	4	23.1	519	**523**	**8.7**	2.0	0.0	0	17.3	306	**306**	**5.1**	2.2	0.0	0	37.0	1,476	**1,476**	**24.6**
19	Prospect Road	0.1	2.1	0	23.1	19	**19**	**0.3**	0.1	0.0	0	17.3	10	**10**	**0.2**	0.1	0.0	0	37.0	48	**48**	**0.8**
20	Olde Mill Creek Road	0.3	2.1	1	23.1	70	**71**	**1.2**	0.3	0.0	0	17.3	41	**41**	**0.7**	0.3	0.0	0	37.0	190	**190**	**3.2**
22	QVC Entrance	0.1	2.1	0	23.1	19	**19**	**0.3**	0.1	0.0	0	17.3	13	**13**	**0.2**	0.1	0.0	0	37.0	71	**71**	**1.2**
23	Progress Road	2.6	2.1	6	23.1	706	**712**	**11.9**	2.8	0.0	0	17.3	426	**426**	**7.1**	3.0	0.0	0	37.1	2,052	**2,052**	**34.2**
24	Rodney Lane	0.0	2.1	0	23.1	0	**0**	**0.0**	0.0	0.0	0	17.3	0	**0**	**0.0**	0.0	0.0	0	37.0	0	**0**	**0.0**
25	Nansemond Parkway 2 (Wilroy)	3.5	2.1	8	38.1	2,522	**2,530**	**42.2**	3.6	0.0	0	17.3	539	**539**	**9.0**	3.8	0.0	0	37.0	2,618	**2,618**	**43.6**
26	Sportsman Boulevard	0.1	2.1	0	38.1	38	**38**	**0.6**	0.1	0.0	0	17.3	8	**8**	**0.1**	0.1	0.0	0	37.0	38	**38**	**0.6**
27	Day Farm Lane	0.0	2.1	0	23.1	0	**0**	**0.0**	0.0	0.0	0	17.3	0	**0**	**0.0**	0.0	0.0	0	37.0	0	**0**	**0.0**
28	Nansemond Parkway 1	9.7	2.1	22	23.1	2,575	**2,597**	**43.3**	10.3	0.0	0	17.3	1,545	**1,545**	**25.7**	12.1	0.0	0	37.0	8,282	**8,282**	**138.0**
29	Shoulders Hill Road	4.9	2.1	11	23.1	1,297	**1,308**	**21.8**	5.1	0.0	0	17.3	767	**767**	**12.8**	5.8	0.0	0	37.0	3,951	**3,951**	**65.8**
CSX (Isle of Wight CL to Commonwealth Rail)																						
30	Kingsale Rd	0.4	12.8	34	1.8	1	**35**	**0.6**	0.5	15.3	44	1.8	1	**45**	**0.7**	0.5	20.4	63	5.3	7	**70**	**1.2**
31	Indian Trail	0.2	12.8	13	1.8	0	**13**	**0.2**	0.2	15.3	17	1.8	0	**17**	**0.3**	0.2	20.4	27	5.3	3	**30**	**0.5**
32	Buckhorn Dr	0.3	12.8	27	1.8	1	**27**	**0.5**	0.3	15.3	32	1.8	1	**33**	**0.5**	0.3	20.4	45	5.3	5	**50**	**0.8**
33	Kenyon Rd	0.7	12.8	54	1.8	1	**55**	**0.9**	0.7	15.3	68	1.8	1	**69**	**1.2**	0.8	20.4	100	5.3	11	**110**	**1.8**
35	W Constance Rd	6.7	17.6	1,042	4.6	72	**1,114**	**18.6**	6.8	21.1	1,262	2.5	21	**1,283**	**21.4**	6.9	28.1	1,700	7.4	188	**1,889**	**31.5**
37	Pine Street	1.2	17.6	182	4.6	13	**195**	**3.3**	1.2	21.1	219	2.5	4	**223**	**3.7**	1.2	28.1	292	7.4	32	**324**	**5.4**
38	N Main Street	15.1	17.6	2,330	4.6	162	**2,491**	**41.5**	15.7	21.1	2,904	2.5	48	**2,952**	**49.2**	17.0	28.1	4,207	7.4	469	**4,676**	**77.9**
40	Liberty Street/Moore Ave	4.0	17.6	612	4.6	42	**654**	**10.9**	4.0	21.1	734	2.5	12	**746**	**12.4**	4.0	28.1	979	7.4	109	**1,087**	**18.1**

Crossings 5, 6, 7, 10, 16, 21, 34, 36, 39 are grade-separated and have been excluded from analysis

Baseline traffic on Commonwealth Railway will effectively cease before 2010

Prepared by: Hampton Roads Planning District Commission

SUFFOLK RAIL IMPACT STUDY

Daily Hours of Vehicle Delay Rankings

2007			
No.	Crossing	D 2007	Rank 07
13	E Washington Street	1000.9	1
14	Liberty Street	400.4	2
9	S Saratoga Street	312.6	3
11	S Main Street	224.8	4
8	Wellons Street	147.5	5
12	Commerce Street	108.9	6
28	Nansemond Parkway 1	43.3	7
25	Nansemond Parkway 2 (Wilroy)	42.2	8
38	N Main Street	41.5	9
29	Shoulders Hill Road	21.8	10
35	W Constance Rd	18.6	11
3	Kings Fork Road	17.3	12
2	Old Myrtle Road	17.0	13
4	Lake Meade Drive	14.7	14
23	Progress Road	11.9	15
40	Liberty Street/Moore Ave	10.9	16
1	Old Mill Road	10.0	17
18	Suburban Drive	8.7	18
15	N 5th Street/Saul Street	8.1	19
37	Pine Street	3.3	20
20	Olde Mill Creek Road	1.2	21
33	Kenyon Rd	0.9	22
26	Sportsman Boulevard	0.6	23
30	Kingsale Rd	0.6	24
32	Buckhorn Dr	0.5	25
19	Prospect Road	0.3	26
22	QVC Entrance	0.3	26
31	Indian Trail	0.2	28
17	Saunders Drive	0.0	29
24	Rodney Lane	0.0	29
27	Day Farm Lane	0.0	29

2010			
No.	Crossing	D 2010	Rank 10
13	E Washington Street	1049.9	1
14	Liberty Street	396.3	2
9	S Saratoga Street	326.8	3
11	S Main Street	236.4	4
8	Wellons Street	149.5	5
12	Commerce Street	107.8	6
38	N Main Street	49.2	7
28	Nansemond Parkway 1	25.7	8
35	W Constance Rd	21.4	9
3	Kings Fork Road	19.2	10
2	Old Myrtle Road	17.5	11
4	Lake Meade Drive	15.7	12
29	Shoulders Hill Road	12.8	13
40	Liberty Street/Moore Ave	12.4	14
1	Old Mill Road	10.5	15
25	Nansemond Parkway 2 (Wilroy)	9.0	16
23	Progress Road	7.1	17
18	Suburban Drive	5.1	18
15	N 5th Street/Saul Street	4.8	19
37	Pine Street	3.7	20
33	Kenyon Rd	1.2	21
30	Kingsale Rd	0.7	22
20	Olde Mill Creek Road	0.7	23
32	Buckhorn Dr	0.5	24
31	Indian Trail	0.3	25
22	QVC Entrance	0.2	26
19	Prospect Road	0.2	27
26	Sportsman Boulevard	0.1	28
17	Saunders Drive	0.0	29
24	Rodney Lane	0.0	29
27	Day Farm Lane	0.0	29

2017			
No.	Crossing	D 2017	Rank 17
13	E Washington Street	1180.8	1
14	Liberty Street	418.0	2
9	S Saratoga Street	396.0	3
11	S Main Street	264.0	4
8	Wellons Street	168.7	5
28	Nansemond Parkway 1	138.0	6
12	Commerce Street	117.3	7
38	N Main Street	77.9	8
29	Shoulders Hill Road	65.8	9
25	Nansemond Parkway 2 (Wilroy)	43.6	10
23	Progress Road	34.2	11
35	W Constance Rd	31.5	12
18	Suburban Drive	24.6	13
15	N 5th Street/Saul Street	23.0	14
3	Kings Fork Road	22.1	15
2	Old Myrtle Road	20.3	16
4	Lake Meade Drive	18.5	17
40	Liberty Street/Moore Ave	18.1	18
1	Old Mill Road	11.1	19
37	Pine Street	5.4	20
20	Olde Mill Creek Road	3.2	21
33	Kenyon Rd	1.8	22
22	QVC Entrance	1.2	23
30	Kingsale Rd	1.2	24
32	Buckhorn Dr	0.8	25
19	Prospect Road	0.8	26
26	Sportsman Boulevard	0.6	27
31	Indian Trail	0.5	28
17	Saunders Drive	0.0	29
24	Rodney Lane	0.0	29
27	Day Farm Lane	0.0	29

SUFFOLK RAIL IMPACT STUDY
Economic Development Priority Ranking

2007, 2010, 2017		
No.	Crossing	Rank
1	Old Mill Road	25
2	Old Myrtle Road	25
3	Kings Fork Road	25
4	Lake Meade Drive	25
8	Wellons Street	20
9	S Saratoga Street	20
11	S Main Street	20
12	Commerce Street	20
13	E Washington Street	5
14	Liberty Street	20
15	N 5th Street/Saul Street	10
17	Saunders Drive	10
18	Suburban Drive	20
19	Prospect Road	20
20	Olde Mill Creek Road	10
22	QVC Entrance	1
23	Progress Road	1
24	Rodney Lane	10
25	Nansemond Parkway 2 (Wilroy)	5
26	Sportsman Boulevard	10
27	Day Farm Lane	20
28	Nansemond Parkway 1	1
29	Shoulders Hill Road	1
30	Kingsale Rd	25
31	Indian Trail	25
32	Buckhorn Dr	25
33	Kenyon Rd	1
35	W Constance Rd	5
37	Pine Street	5
38	N Main Street	1
40	Liberty Street/Moore Ave	1

Crossings 5, 6, 7, 10, 16, 21, 34, 36, 39 are grade-separated and have been excluded from study

1 Highest Concern – Significant Business Activity in Close Proximity
5 High Concern – Important Corridor Crossing For Business Activity
10 Moderate Concern – Limited Business Activity in Close Proximity, Yet Major Detour Required or No Alternate Access for Mobility of Workforce
20 Low Concern – Within 0.5 mi of Grade-Separated Crossing, With Detour of Less Than 1 Mile
30 No Concern – Outside Urban/Suburban Development District, or a Grade Separated Crossing

SUFFOLK RAIL IMPACT STUDY
Accident History

Accident History			
		Summary 1996 - 2006	
No.	Crossing	Accidents	Injuries
Norfolk Southern			
1	Old Mill Road	0	0
2	Old Myrtle Road	0	0
3	Kings Fork Road	0	0
4	Lake Meade Drive	0	0
8	Wellons Street	2	0
9	S Saratoga Street	1	0
11	S Main Street	0	0
12	Commerce Street	0	0
13	E Washington Street	5	3
14	Liberty Street	2	0
Commonwealth Rail			
15	N 5th Street/Saul Street	0	0
17	Saunders Drive	0	0
18	Suburban Drive	0	0
19	Prospect Road	0	0
20	Olde Mill Creek Road	0	0
22	QVC Entrance	0	0
23	Progress Road	0	0
24	Rodney Lane	0	0
25	Nansemond Parkway 2 (Wilroy)	0	0
26	Sportsman Boulevard	0	0
27	Day Farm Lane	0	0
28	Nansemond Parkway 1	0	0
29	Shoulders Hill Road	0	0
CSX			
30	Kingsale Rd	0	0
31	Indian Trail	0	0
32	Buckhorn Dr	0	0
33	Kenyon Rd	0	0
35	W Constance Rd	0	0
37	Pine Street	0	0
38	N Main Street	0	0
40	Liberty Street/Moore Ave	4	1
Total		**14**	**4**

Crossings 5, 6, 7, 10, 16, 21, 34, 36, 39 are grade-separated and have been excluded from study

Source: FRA

SUFFOLK RAIL IMPACT STUDY
Accident History Rankings

2007, 2010, 2017			
No.	Crossing	No. Accidents	Rank
13	E Washington Street	5	1
40	Liberty Street/Moore Ave	4	2
8	Wellons Street	2	3
14	Liberty Street	2	3
9	S Saratoga Street	1	5
1	Old Mill Road	0	10
2	Old Myrtle Road	0	10
3	Kings Fork Road	0	10
4	Lake Meade Drive	0	10
11	S Main Street	0	10
12	Commerce Street	0	10
15	N 5th Street/Saul Street	0	10
17	Saunders Drive	0	10
18	Suburban Drive	0	10
19	Prospect Road	0	10
20	Olde Mill Creek Road	0	10
22	QVC Entrance	0	10
23	Progress Road	0	10
24	Rodney Lane	0	10
25	Nansemond Parkway 2 (Wilroy)	0	10
26	Sportsman Boulevard	0	10
27	Day Farm Lane	0	10
28	Nansemond Parkway 1	0	10
29	Shoulders Hill Road	0	10
30	Kingsale Rd	0	10
31	Indian Trail	0	10
32	Buckhorn Dr	0	10
33	Kenyon Rd	0	10
35	W Constance Rd	0	10
37	Pine Street	0	10
38	N Main Street	0	10

SUFFOLK RAIL IMPACT STUDY

Hazard Index

Hazard Index (HI) = (V)(T)P_f

V - Annual Average Daily Traffic

T - Average Daily Train Traffic

P_f - Protection Factor = 0.1 for automatic gates

= 0.6 for flashing lights

= 1.0 for signs only

			2007						2010						2017					
				Baseline		APM Generated		Total		Baseline		APM Generated		Total		Baseline		APM & CI Generated		Total
No.	Crossing	P_f	V	T	HI	T	HI	HI 2007	V	T	HI	T	HI	HI 2007	V	T	HI	T	HI	HI 2007
Norfolk Southern (Isle of Wight CL to Commonwealth Rail)																				
1	Old Mill Road	0.1	290	22.0	638	2.0	58	**696**	300	22.0	660	3.0	90	**750**	300	22.0	660	6.0	180	**840**
2	Old Myrtle Road	0.1	490	22.0	1,078	2.0	98	**1,176**	500	22.0	1,100	3.0	150	**1,250**	550	22.0	1,210	6.0	330	**1,540**
3	Kings Fork Road	0.1	500	22.0	1,100	2.0	100	**1,200**	550	22.0	1,210	3.0	165	**1,375**	600	22.0	1,320	6.0	360	**1,680**
4	Lake Meade Drive	0.1	425	22.0	935	2.0	85	**1,020**	450	22.0	990	3.0	135	**1,125**	500	22.0	1,100	6.0	300	**1,400**
8	Wellons Street	0.1	2100	22.0	4,620	2.0	420	**5,040**	2150	22.0	4,730	3.0	645	**5,375**	2300	22.0	5,060	6.0	1,380	**6,440**
9	S Saratoga Street	0.1	4450	22.0	9,790	2.0	890	**10,680**	4700	22.0	10,340	3.0	1,410	**11,750**	5400	22.0	11,880	6.0	3,240	**15,120**
11	S Main Street	0.1	3200	22.0	7,040	2.0	640	**7,680**	3400	22.0	7,480	3.0	1,020	**8,500**	3600	22.0	7,920	6.0	2,160	**10,080**
12	Commerce Street	0.1	1550	22.0	3,410	2.0	310	**3,720**	1550	22.0	3,410	3.0	465	**3,875**	1600	22.0	3,520	6.0	960	**4,480**
13	E Washington Street	0.1	14250	22.0	31,350	2.0	2,850	**34,200**	15100	22.0	33,220	3.0	4,530	**37,750**	16100	22.0	35,420	6.0	9,660	**45,080**
14	Liberty Street	0.1	5700	22.0	12,540	2.0	1,140	**13,680**	5700	22.0	12,540	3.0	1,710	**14,250**	5700	22.0	12,540	6.0	3,420	**15,960**
Commonwealth Rail (Norfolk Southern to Chesapeake CL)																				
15	N 5th Street/Saul Street	0.1	2600	2.0	520	2.5	650	**1,170**	2750		0	3.5	963	**963**	2900		0	7.5	2,175	**2,175**
17	Saunders Drive	1.0	0	2.0	0	2.5	0	**0**	0		0	3.5	0	**0**	0		0	7.5	0	**0**
18	Suburban Drive	0.1	2800	2.0	560	2.5	700	**1,260**	2950		0	3.5	1,033	**1,033**	3100		0	7.5	2,325	**2,325**
19	Prospect Road	-	100	2.0	0	2.5	0	**0**	100		0	3.5	0	**0**	100		0	7.5		**0**
20	Olde Mill Creek Road	0.1	380	2.0	76	2.5	95	**171**	400		0	3.5	140	**140**	400		0	7.5	300	**300**
22	QVC Entrance	0.1	100	2.0	20	2.5	25	**45**	125		0	3.5	44	**44**	150		0	7.5	113	**113**
23	Progress Road	0.1	3800	2.0	760	2.5	950	**1,710**	4100		0	3.5	1,435	**1,435**	4300		0	7.5	3,225	**3,225**
24	Rodney Lane	1.0	0	2.0	0	2.5	0	**0**	0		0	3.5	0	**0**	0		0	7.5	0	**0**
25	Nansemond Parkway 2 (Wilroy)	0.1	5000	2.0	1,000	2.5	1,250	**2,250**	5200		0	3.5	1,820	**1,820**	5500		0	7.5	4,125	**4,125**
26	Sportsman Boulevard	1.0	75	2.0	150	2.5	188	**338**	75		0	3.5	263	**263**	80		0	7.5	600	**600**
27	Day Farm Lane	-	0	2.0	0	2.5	0	**0**	0		0	3.5	0	**0**	0		0	7.5		**0**
28	Nansemond Parkway 1	0.1	13900	2.0	2,780	2.5	3,475	**6,255**	14900		0	3.5	5,215	**5,215**	17400		0	7.5	13,050	**13,050**
29	Shoulders Hill Road	0.1	7000	2.0	1,400	2.5	1,750	**3,150**	7400		0	3.5	2,590	**2,590**	8300		0	7.5	6,225	**6,225**
CSX (Isle of Wight CL to Commonwealth Rail)																				
30	Kingsale Rd	0.6	600	5.0	1,800	0.5	180	**1,980**	650	6.0	2,340	0.5	195	**2,535**	700	8.0	3,360	1.5	630	**3,990**
31	Indian Trail	0.1	230	5.0	115	0.5	12	**127**	250	6.0	150	0.5	13	**163**	300	8.0	240	1.5	45	**285**
32	Buckhorn Dr	0.1	470	5.0	235	0.5	24	**259**	475	6.0	285	0.5	24	**309**	500	8.0	400	1.5	75	**475**
33	Kenyon Rd	0.1	950	5.0	475	0.5	48	**523**	1000	6.0	600	0.5	50	**650**	1100	8.0	880	1.5	165	**1,045**
35	W Constance Rd	0.1	9710	5.0	4,855	0.5	486	**5,341**	9800	6.0	5,880	0.5	490	**6,370**	9900	8.0	7,920	1.5	1,485	**9,405**
37	Pine Street	0.6	1700	5.0	5,100	0.5	510	**5,610**	1700	6.0	6,120	0.5	510	**6,630**	1700	8.0	8,160	1.5	1,530	**9,690**
38	N Main Street	0.1	21705	5.0	10,853	0.5	1,085	**11,938**	22550	6.0	13,530	0.5	1,128	**14,658**	24500	8.0	19,600	1.5	3,675	**23,275**
40	Liberty Street/Moore Ave	0.6	5700	5.0	17,100	0.5	1,710	**18,810**	5700	6.0	20,520	0.5	1,710	**22,230**	5700	8.0	27,360	1.5	5,130	**32,490**

Crossings 5, 6, 7, 10, 16, 21, 34, 36, 39 are grade-separated and have been excluded from analysis

Baseline traffic on Commonwealth Railway will effectively cease before 2010

Prepared by: Hampton Roads Planning District Commission

SUFFOLK RAIL IMPACT STUDY

Hazard Index Rankings

2007			
No.	Crossing	HI 2007	Rank 07
13	E Washington Street	34200	1
40	Liberty Street/Moore Ave	18810	2
14	Liberty Street	13680	3
38	N Main Street	11938	4
9	S Saratoga Street	10680	5
11	S Main Street	7680	6
28	Nansemond Parkway 1	6255	7
37	Pine Street	5610	8
35	W Constance Rd	5341	9
8	Wellons Street	5040	10
12	Commerce Street	3720	11
29	Shoulders Hill Road	3150	12
25	Nansemond Parkway 2 (Wilroy)	2250	13
30	Kingsale Rd	1980	14
23	Progress Road	1710	15
18	Suburban Drive	1260	16
3	Kings Fork Road	1200	17
2	Old Myrtle Road	1176	18
15	N 5th Street/Saul Street	1170	19
4	Lake Meade Drive	1020	20
1	Old Mill Road	696	21
33	Kenyon Rd	523	22
26	Sportsman Boulevard	338	23
32	Buckhorn Dr	259	24
20	Olde Mill Creek Road	171	25
31	Indian Trail	127	26
22	QVC Entrance	45	27
17	Saunders Drive	0	28
19	Prospect Road	0	28
24	Rodney Lane	0	28
27	Day Farm Lane	0	28

2010			
No.	Crossing	HI 2010	Rank 10
13	E Washington Street	37750	1
40	Liberty Street/Moore Ave	22230	2
38	N Main Street	14658	3
14	Liberty Street	14250	4
9	S Saratoga Street	11750	5
11	S Main Street	8500	6
37	Pine Street	6630	7
35	W Constance Rd	6370	8
8	Wellons Street	5375	9
28	Nansemond Parkway 1	5215	10
12	Commerce Street	3875	11
29	Shoulders Hill Road	2590	12
30	Kingsale Rd	2535	13
25	Nansemond Parkway 2 (Wilroy)	1820	14
23	Progress Road	1435	15
3	Kings Fork Road	1375	16
2	Old Myrtle Road	1250	17
4	Lake Meade Drive	1125	18
18	Suburban Drive	1033	19
15	N 5th Street/Saul Street	963	20
1	Old Mill Road	750	21
33	Kenyon Rd	650	22
32	Buckhorn Dr	309	23
26	Sportsman Boulevard	263	24
31	Indian Trail	163	25
20	Olde Mill Creek Road	140	26
22	QVC Entrance	44	27
17	Saunders Drive	0	28
19	Prospect Road	0	28
24	Rodney Lane	0	28
27	Day Farm Lane	0	28

2017			
No.	Crossing	HI 2017	Rank 17
13	E Washington Street	45080	1
40	Liberty Street/Moore Ave	32490	2
38	N Main Street	23275	3
14	Liberty Street	15960	4
9	S Saratoga Street	15120	5
28	Nansemond Parkway 1	13050	6
11	S Main Street	10080	7
37	Pine Street	9690	8
35	W Constance Rd	9405	9
8	Wellons Street	6440	10
29	Shoulders Hill Road	6225	11
12	Commerce Street	4480	12
25	Nansemond Parkway 2 (Wilroy)	4125	13
30	Kingsale Rd	3990	14
23	Progress Road	3225	15
18	Suburban Drive	2325	16
15	N 5th Street/Saul Street	2175	17
3	Kings Fork Road	1680	18
2	Old Myrtle Road	1540	19
4	Lake Meade Drive	1400	20
33	Kenyon Rd	1045	21
1	Old Mill Road	840	22
26	Sportsman Boulevard	600	23
32	Buckhorn Dr	475	24
20	Olde Mill Creek Road	300	25
31	Indian Trail	285	26
22	QVC Entrance	113	27
17	Saunders Drive	0	28
19	Prospect Road	0	28
24	Rodney Lane	0	28
27	Day Farm Lane	0	28

SUFFOLK RAIL IMPACT STUDY
Emergency Services Score

Emergency Services Score 2007, 2010, 2017					
No.	Crossing	Access (0-20)	Evac. Route (0-5)	Schools (0-5)	Total (0-30)
1	Old Mill Road	10			10
2	Old Myrtle Road	10			10
3	Kings Fork Road	10			10
4	Lake Meade Drive	10			10
8	Wellons Street	0			0
9	S Saratoga Street	0			0
11	S Main Street	0			0
12	Commerce Street	0			0
13	E Washington Street	15		5	20
14	Liberty Street	0			0
15	N 5th Street/Saul Street	10			10
17	Saunders Drive	20			20
18	Suburban Drive	0			0
19	Prospect Road	0			0
20	Olde Mill Creek Road	10			10
22	QVC Entrance	10			10
23	Progress Road	0			0
24	Rodney Lane	20			20
25	Nansemond Parkway 2 (Wilroy)	15		5	20
26	Sportsman Boulevard	20			20
27	Day Farm Lane	0			0
28	Nansemond Parkway 1	15		5	20
29	Shoulders Hill Road	15		5	20
30	Kingsale Rd	10			10
31	Indian Trail	10			10
32	Buckhorn Dr	10			10
33	Kenyon Rd	10		5	15
35	W Constance Rd	0	5		5
37	Pine Street	0			0
38	N Main Street	0			0
40	Liberty Street/Moore Ave	0			0

20	highest concern - no alternative access
15	high concern - important corridor crossing
10	moderate concern - beyond 0.5 mi of grade-sep. crossing, detour of more than 1 mile
0	low concern - within 0.5 mi of grade-separated crossing, detour of less than 1 mile
-	no concern - grade-separated crossing

SUFFOLK RAIL IMPACT STUDY

Emergency Services Ranking

2007, 2010, 2017			
No.	Crossing	Score	Rank
13	E Washington Street	20	1
17	Saunders Drive	20	1
24	Rodney Lane	20	1
25	Nansemond Parkway 2 (Wilroy)	20	1
26	Sportsman Boulevard	20	1
28	Nansemond Parkway 1	20	1
29	Shoulders Hill Road	20	1
33	Kenyon Rd	15	10
1	Old Mill Road	10	15
2	Old Myrtle Road	10	15
3	Kings Fork Road	10	15
4	Lake Meade Drive	10	15
15	N 5th Street/Saul Street	10	15
20	Olde Mill Creek Road	10	15
22	QVC Entrance	10	15
30	Kingsale Rd	10	15
31	Indian Trail	10	15
32	Buckhorn Dr	10	15
35	W Constance Rd	5	20
8	Wellons Street	0	25
9	S Saratoga Street	0	25
11	S Main Street	0	25
12	Commerce Street	0	25
14	Liberty Street	0	25
18	Suburban Drive	0	25
19	Prospect Road	0	25
23	Progress Road	0	25
27	Day Farm Lane	0	25
37	Pine Street	0	25
38	N Main Street	0	25
40	Liberty Street/Moore Ave	0	25

SUFFOLK RAIL IMPACT STUDY
Daily Minutes Crossing Blocked - Build-Out

Minutes Blocked (B) = T (W+(L/S))

B - Daily Minutes Crossing Blocked (min)
T - Daily Number of Trains
L - Average Length of Trains (ft)
S - Speed of Trains (ft/min)
W - Warning/Clearance Time (min)

Rural Speed = 30 mph
Downtown Speed = 20 mph
Reduced Speed* = 10 mph

* Reduced speed on Commonwealth Railway and Norfolk Southern downtown crossings before median rail project

		2017											2032						Future					
		Baseline					APM & CI Generated					Total	APM & CI Generated					Total	APM & CI Generated					Total
No.	Crossing	T -	L (ft)	S (ft/min)	W (min)	B (min)	T -	L (ft)	S (ft/min)	W (min)	B (min)	**B 2017 (min)**	T -	L (ft)	S (ft/min)	W (min)	B (min)	**B 2032 (min)**	T -	L (ft)	S (ft/min)	W (min)	B (min)	**B Ultimate (min)**
Norfolk Southern (Isle of Wight CL to Commonwealth Rail)																								
1	Old Mill Road	22.0	7500	2640	0.661	77.1	6.0	7500	2640	0.661	21.0	98.1	10.0	7500	2640	0.661	35.0	133.1	15.0	7500	2640	0.661	52.5	185.6
2	Old Myrtle Road	22.0	7500	2640	0.661	77.1	6.0	7500	2640	0.661	21.0	98.1	10.0	7500	2640	0.661	35.0	133.1	15.0	7500	2640	0.661	52.5	185.6
3	Kings Fork Road	22.0	7500	2640	0.661	77.1	6.0	7500	2640	0.661	21.0	98.1	10.0	7500	2640	0.661	35.0	133.1	15.0	7500	2640	0.661	52.5	185.6
4	Lake Meade Drive	22.0	7500	2640	0.661	77.1	6.0	7500	2640	0.661	21.0	98.1	10.0	7500	2640	0.661	35.0	133.1	15.0	7500	2640	0.661	52.5	185.6
8	Wellons Street	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	138.2	10.0	7500	1760	0.675	49.4	187.6	15.0	7500	1760	0.675	74.1	261.6
9	S Saratoga Street	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	138.2	10.0	7500	1760	0.675	49.4	187.6	15.0	7500	1760	0.675	74.1	261.6
11	S Main Street	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	138.2	10.0	7500	1760	0.675	49.4	187.6	15.0	7500	1760	0.675	74.1	261.6
12	Commerce Street	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	138.2	10.0	7500	1760	0.675	49.4	187.6	15.0	7500	1760	0.675	74.1	261.6
13	E Washington Street	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	138.2	10.0	7500	1760	0.675	49.4	187.6	15.0	7500	1760	0.675	74.1	261.6
14	Liberty Street	22.0	7500	1760	0.675	108.6	6.0	7500	1760	0.675	29.6	138.2	10.0	7500	1760	0.675	49.4	187.6	15.0	7500	1760	0.675	74.1	261.6
Commonwealth Rail (Norfolk Southern to Chesapeake CL)																								
15	N 5th Street/Saul Street	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
17	Saunders Drive	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
18	Suburban Drive	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
19	Prospect Road	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
20	Olde Mill Creek Road	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
22	QVC Entrance	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
23	Progress Road	0	0	0	0	0.0	7.5	7500	1760	0.682	37.1	37.1	13.0	7500	1760	0.682	64.3	64.3	19.0	7500	1760	0.682	93.9	93.9
24	Rodney Lane	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
25	Nansemond Parkway 2 (Wilroy)	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
26	Sportsman Boulevard	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
27	Day Farm Lane	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
28	Nansemond Parkway 1	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
29	Shoulders Hill Road	0	0	0	0	0.0	7.5	7500	1760	0.675	37.0	37.0	13.0	7500	1760	0.675	64.2	64.2	19.0	7500	1760	0.675	93.8	93.8
CSX (Isle of Wight CL to Commonwealth Rail)																								
30	Kingsale Rd	8.0	5000	2640	0.661	20.4	1.5	7500	2640	0.661	5.3	25.7	3.0	7500	2640	0.661	10.5	36.2	4.0	7500	2640	0.661	14.0	50.2
31	Indian Trail	8.0	5000	2640	0.661	20.4	1.5	7500	2640	0.661	5.3	25.7	3.0	7500	2640	0.661	10.5	36.2	4.0	7500	2640	0.661	14.0	50.2
32	Buckhorn Dr	8.0	5000	2640	0.661	20.4	1.5	7500	2640	0.661	5.3	25.7	3.0	7500	2640	0.661	10.5	36.2	4.0	7500	2640	0.661	14.0	50.2
33	Kenyon Rd	8.0	5000	2640	0.661	20.4	1.5	7500	2640	0.661	5.3	25.7	3.0	7500	2640	0.661	10.5	36.2	4.0	7500	2640	0.661	14.0	50.2
35	W Constance Rd	8.0	5000	1760	0.675	28.1	1.5	7500	1760	0.675	7.4	35.5	3.0	7500	1760	0.675	14.8	50.3	4.0	7500	1760	0.675	19.7	70.1
37	Pine Street	8.0	5000	1760	0.675	28.1	1.5	7500	1760	0.675	7.4	35.5	3.0	7500	1760	0.675	14.8	50.3	4.0	7500	1760	0.675	19.7	70.1
38	N Main Street	8.0	5000	1760	0.675	28.1	1.5	7500	1760	0.689	7.4	35.6	3.0	7500	1760	0.689	14.9	50.4	4.0	7500	1760	0.689	19.8	70.2
40	Liberty Street/Moore Ave	8.0	5000	1760	0.675	28.1	1.5	7500	1760	0.675	7.4	35.5	3.0	7500	1760	0.675	14.8	50.3	4.0	7500	1760	0.675	19.7	70.1

SUFFOLK RAIL IMPACT STUDY
Daily Hours Vehicle Delay - Build-Out

Vehicle Delay (D) $=(V_{min})(B)(0.5B)/60$

D - Daily Minutes of Vehicle Delay (min)
V_{min} - Rate of Vehicles (veh/min)
B - Daily Minutes Crossing Blocked (min)

Note: There are no realiable traffic projections available for the year 2032 and beyond. The delay for 2032 and the "future" condition has been estimated based on roadway traffic projections for 2017.

			2017						2032				Future			
			Baseline		APM & CI Generated		Total		APM & CI Generated		Total		APM & CI Generated		Total	
No.	Crossing	V_{min} (veh/min)	B (min)	D (min)	B (min)	D (min)	**D 2017 (min)**	**D 2017 (hr)**	B (min)	D (min)	**D 2032 (min)**	**D 2032 (hr)**	B (min)	D (min)	**D Ultimate (min)**	**D Ultimate (hr)**
Norfolk Southern (Isle of Wight CL to Commonwealth Rail)																
1	Old Mill Road	0.2	77.1	618	21.0	46	664	11.1	35.0	128	746	12.4	52.5	287	906	15.1
2	Old Myrtle Road	0.4	77.1	1134	21.0	84	1218	20.3	35.0	234	1368	22.8	52.5	527	1661	27.7
3	Kings Fork Road	0.4	77.1	1237	21.0	92	1329	22.1	35.0	256	1492	24.9	52.5	575	1812	30.2
4	Lake Meade Drive	0.3	77.1	1031	21.0	77	1107	18.5	35.0	213	1244	20.7	52.5	479	1510	25.2
8	Wellons Street	1.6	108.6	9420	29.6	701	10121	168.7	49.4	1946	11367	189.4	74.1	4379	13799	230.0
9	S Saratoga Street	3.8	108.6	22117	29.6	1645	23762	396.0	49.4	4570	26687	444.8	74.1	10282	32399	540.0
11	S Main Street	2.5	108.6	14745	29.6	1097	15841	264.0	49.4	3046	17791	296.5	74.1	6854	21599	360.0
12	Commerce Street	1.1	108.6	6553	29.6	487	7041	117.3	49.4	1354	7907	131.8	74.1	3046	9600	160.0
13	E Washington Street	11.2	108.6	65942	29.6	4905	70846	1180.8	49.4	13624	79566	1326.1	74.1	30655	96596	1609.9
14	Liberty Street	4.0	108.6	23346	29.6	1736	25082	418.0	49.4	4824	28169	469.5	74.1	10853	34199	570.0
Commonwealth Rail (Norfolk Southern to Chesapeake CL)																
15	N 5th Street/Saul Street	2.0	0.0	0	37.0	1380	1380	23.0	64.2	4147	4147	69.1	93.8	8859	8859	147.7
17	Saunders Drive	0.0	0.0	0	37.0	0	0	0.0	64.2	0	0	0.0	93.8	0	0	0.0
18	Suburban Drive	2.2	0.0	0	37.0	1476	1476	24.6	64.2	4433	4433	73.9	93.8	9470	9470	157.8
19	Prospect Road	0.1	0.0	0	37.0	48	48	0.8	64.2	143	143	2.4	93.8	305	305	5.1
20	Olde Mill Creek Road	0.3	0.0	0	37.0	190	190	3.2	64.2	572	572	9.5	93.8	1222	1222	20.4
22	QVC Entrance	0.1	0.0	0	37.0	71	71	1.2	64.2	215	215	3.6	93.8	458	458	7.6
23	Progress Road	3.0	0.0	0	37.1	2052	2052	34.2	64.3	6167	6167	102.8	93.9	13172	13172	219.5
24	Rodney Lane	0.0	0.0	0	37.0	0	0	0.0	64.2	0	0	0.0	93.8	0	0	0.0
25	Nansemond Parkway 2 (Wilroy)	3.8	0.0	0	37.0	2618	2618	43.6	64.2	7866	7866	131.1	93.8	16802	16802	280.0
26	Sportsman Boulevard	0.1	0.0	0	37.0	38	38	0.6	64.2	114	114	1.9	93.8	244	244	4.1
27	Day Farm Lane	0.0	0.0	0	37.0	0	0	0.0	64.2	0	0	0.0	93.8	0	0	0.0
28	Nansemond Parkway 1	12.1	0.0	0	37.0	8282	8282	138.0	64.2	24884	24884	414.7	93.8	53155	53155	885.9
29	Shoulders Hill Road	5.8	0.0	0	37.0	3951	3951	65.8	64.2	11870	11870	197.8	93.8	25356	25356	422.6
CSX (Isle of Wight CL to Commonwealth Rail)																
30	Kingsale Rd	0.5	20.4	63	5.3	7	70	1.2	10.5	27	90	1.5	14.0	48	111	1.9
31	Indian Trail	0.2	20.4	27	5.3	3	30	0.5	10.5	11	39	0.6	14.0	20	48	0.8
32	Buckhorn Dr	0.3	20.4	45	5.3	5	50	0.8	10.5	19	65	1.1	14.0	34	79	1.3
33	Kenyon Rd	0.8	20.4	100	5.3	11	110	1.8	10.5	42	142	2.4	14.0	75	175	2.9
35	W Constance Rd	6.9	28.1	1700	7.4	188	1889	31.5	14.8	754	2454	40.9	19.7	1340	3041	50.7
37	Pine Street	1.2	28.1	292	7.4	32	324	5.4	14.8	129	421	7.0	19.7	230	522	8.7
38	N Main Street	17.0	28.1	4207	7.4	469	4676	77.9	14.9	1876	6084	101.4	19.8	3336	7543	125.7
40	Liberty Street/Moore Ave	4.0	28.1	979	7.4	109	1087	18.1	14.8	434	1413	23.5	19.7	772	1751	29.2

Crossings 5, 6, 7, 10, 16, 21, 34, 36, 39 are grade-separated and have been excluded from analysis

Baseline traffic on Commonwealth Railway will effectively cease before 2010

Prepared by: Hampton Roads Planning District Commission

MOFFATT & NICHOL ENGINEERS

Craney Island Marine Terminal
Rail Traffic Analysis
20-Sep-06
Last Revision - MTC

Intermodal Split

Existing	25%	
Likely	30%	
Goal	40%	
TEU/ft of Train	18	
Average TEU/ Train	360	
Average Train Length		6480
Train Service	6	Days/wk

	2007	2010	2017	2018	2033	Future Expansion
CIMT (Capacity)	-	-	792,880	792,880	2,667,240	5,000,000
Masersk (Estimated Forecast)	1000000	1300000	2000000	2100000	2100000	2100000
Potentail Trains / Year						
Existing Split	694	903	1939	2009	3311	4931
Likely Split	833	1083	2327	2411	3973	5917
Goal Split	1111	1444	3103	3214	5297	7889
Est. Trains / Day						
Existing Split	2.22	2.89	6.21	6.44	10.61	15.8
Likely Split	2.67	3.47	7.46	7.73	12.73	18.96
Goal Split	3.56	4.63	9.95	10.3	16.98	25.29

Notes:

Intermodal split is based on three cases. The first is based on the existing intermodal split of cargo moving through the port today. The second, "Likely Split" is based on M&N's assumption of what will move intermodal after rail improvements are made at the port. The "Goal Split" is based on the long term goal of the port, and the capacity that will be constructed on terminal to accommodate intermodal traffic

Only Trains generated our shown in the above charts. The movement of engines in and out of the facility(s) and ther repositioning of empty cars is not accounted for and will likely generated additional train movements over the rail system

Train volumes shown do not account for the Suffolk Marshalling yard to be used from 2007 to 2010. After completion of the Median Rail project, the Suffolk Marshalling yard will not be required to build trains arriving and departing from the APM facility. After the Median Rail Project is completed it is assumed that full unit trains will arrive and depart directly from APM