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TRAFFIC AND TRANSPORTATION STUDY

SFC YONKERS

CITY OF YONKERS, NEW YORK

JOB NO. 281 MAY 10, 2007 REVISED: MARCH 12, 2008

TABLE OF CONTENTS

A.	INTRODUCTION	1
B.	PROJECT DESCRIPTION AND LOCATION	1
C.	STUDY AREA	3
D.	CITY OF YONKERS COMPUTERIZED TRAFFIC SIGNAL SYSTEM	15
E.	YEAR 2006 EXISTING TRAFFIC VOLUMES	17
F.	SCHOOL RELATED TRAFFIC	18
G.	EMERGENCY SERVICES	18
H.	YEAR 2012 NO-BUILD TRAFFIC VOLUMES	20
I.	PROJECT GENERATED TRAFFIC VOLUMES	22
J.	ARRIVAL/DEPARTURE DISTRIBUTIONS	28
K.	YEAR 2012 BUILD TRAFFIC VOLUMES	31
L.	EVALUATION OF BALLPARK	32
M.	DESCRIPTION OF ANALYSIS	53
N.	CAPACITY ANALYSIS AND RESULTS – (PRIMARY LOCATIONS)	55
0.	DRIVEWAY EVALUATION	76
P.	RECOMMENDED IMPROVEMENTS	80
Q.	ALTERNATE ROUTES EVALUATION	104
R.	PEDESTRIAN ACTIVITY	106
S.	PUBLIC TRANSPORTATION	110
Τ.	ACCIDENT DATA	115
U.	SYNCHRO ANALYSIS	121
V.	PARKING	123

LIST OF FIGURES

Figure	No
TIZUIC	INU.

SITE LOCATION AND STUDY AREA INTERSECTIONS	1
EXISTING GEOMETRY	1A -1F
TOTAL INTERSECTION VOLUMES – AM	2A -2F
TOTAL INTERSECTION VOLUMES – PM	3A -3F
TOTAL INTERSECTION VOLUMES – SAT	4A -4F
OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS – AM	5A -5F
OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS – PM	6A -6F
OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS – SAT	7A -7F
DRIVEWAY GEOMETRY AND TRAFFIC CONTROL	8
DRIVEWAY LEVELS OF SERVICE AND DELAYS	8A
DRIVEWAY LEVELS OF SERVICE AND DELAYS W/ BALLPARK	8B
EXISTING AND PROPOSED CIRCULATION	9
TRUCK LOADING/UNLOADING	9A-9D
RECOMMENDED IMPROVEMENTS	10A -10F
PRIMARY ROUTES – BALLPARK PARKING AREAS	11
AVAILABLE BUS ROUTES	12
PROPOSED TROLLEY LOOP	13

LIST OF TABLES

Table No.

ROAD AND RIGHT-OF-WAY WIDTHS	1
PROJECT GENERATED TRAFFIC VOLUMES	2
RECOMMENDED IMPROVEMENTS – PRIMARY INTERSECTIONS	3A
ACCIDENT SUMMARY BY ROADWAY SEGMENT	4A
ACCIDENT SUMMARY BY LOCATION	4B

APPENDICES

- APPENDIX A TRAFFIC VOLUME FIGURES
- APPENDIX B LEVEL OF SERVICE SUMMARY TABLES & LOS STANDARDS
- APPENDIX C OTHER PLANNED DEVELOPMENTS
- APPENDIX D PEDESTRIAN DATA
- APPENDIX E PUBLIC TRANSPORTATION
- APPENDIX F ACCIDENT SUMMARY TABLES
- APPENDIX G TRAFFIC COUNT DATA
- APPENDIX H DESCRIPTION OF PRIMARY STUDY AREA INTERSECTIONS
- APPENDIX I DRIVEWAY EVALUATION
- APPENDIX J ALTERNATE ROUTES EVALUATION
- APPENDIX K-1 CAPACITY ANALYSIS PRIMARY INTERSECTIONS
- APPENDIX K-2 CAPACITY ANALYSIS DRIVEWAYS
- APPENDIX K-3 CAPACITY ANALYSIS ALTERNATE ROUTE INTERSECTIONS
- APPENDIX L SYNCHRO ANALYSIS

A. <u>INTRODUCTION</u>

This study has been prepared to evaluate traffic, parking and transportation aspects of the proposed SFC Yonkers Project on the adjoining/surrounding roadway systems. The following sections provide a description of the proposed SFC Yonkers Project and the tasks undertaken in completing the study.

B. <u>PROJECT DESCRIPTION AND LOCATION</u>

For the purpose of this study, the SFC Yonkers Project has been broken into four development components consisting of the River Park Center which also includes a 6,500 seat Ballpark, the Cacace Center, the Government Center Garage and Palisades Point. The following is a description of each of the development components.

RIVER PARK CENTER

The River Park Center is proposed in the area bounded by Nepperhan Avenue, Palisade Avenue, Elm Street and New Main Street. The River Park Center is proposed to consist of 950 residential units, 325,000 s.f. of office space, 555,000 s.f. of retail/restaurants space, a 2,000 seat multiplex movie theater and a 6,500 seat Ballpark with parking provided on-site. The proposed parking garage is proposed to consist of some 2510 public parking spaces (including the Palisade Avenue Office garage) and some 475 private parking spaces for the residential units. The Ballpark has been analyzed as a special event condition as discussed in Section L.

CACACE CENTER

The Cacace Center is proposed in the area bounded by Nepperhan Avenue to the north, South Broadway to the west and New Main Street to the east. The Cacace Center is proposed to consist of 150,000 s.f. of office space and a 150 room hotel with parking provided on-site. The proposed parking garage is proposed to consist of some 1349 public parking spaces. This parking garage will also be used by the new Fire Headquarters and the existing Cacace Center.

PALISADES POINT

Palisades Point is proposed in the area to the west of the railroad along the Hudson River. Palisades Point is proposed to consist of 436 residential units and 8,700 s.f. of ancillary retail with parking provided on-site. The proposed parking structure is proposed to consist of some 670 private parking spaces. This parking structure will provide parking for the Palisades Point development and Scrimshaw House. In addition, there will be some 57 at-grade public parking spaces on the south side of the Project.

GOVERNMENT CENTER GARAGE

The Government Center Garage is proposed in the area north of Nepperhan Avenue and west of New Main Street. The proposed Government Center Garage is proposed to consist of some 1048 public parking spaces and some 475 private parking spaces for the residential units.

C. <u>STUDY AREA</u>

Downtown Yonkers is served by the Saw Mill River Parkway and the Cross County Parkway located approximately 1 mile east of the downtown area. Access to the area is also provided by a number of major arterials including Yonkers Avenue, Nepperhan Avenue, Warburton Avenue, Ashburton Avenue, Riverdale Avenue and South Broadway. These roadways generally have parking and sidewalks on both sides of the streets and have operating speeds between 30 mph and 40 mph.

Numerous local street including Main Street, New Main Street, Palisade Avenue, Elm Street, etc. provide additional access within the downtown area. Parking and sidewalks are also provided along these streets and have operating speeds of 30 mph.

Table No. 1 lists the primary area roadways pavement width (curb to curb) and right-ofway based on information supplied by the City of Yonkers.

To evaluate Existing, Future No-Build and Future Build Conditions within the study area, some 60 intersections (51 Primary Intersections and 9 Alternate Route Intersections) were identified by the City and are listed below. The Site Location and Study Area Intersections are shown on Figure No. 1.

- 1. Nepperhan Avenue/Elm Street (signalized)
- 2. Nepperhan Avenue/New School Street (signalized)
- 3. Nepperhan Avenue/New Main Street (signalized)
- 4. Nepperhan Avenue/South Broadway (signalized)
- 5. South Broadway/Hudson Street (all-way stop)

- 6. South Broadway/Main Street (signalized)
- 7. Main Street/Palisade Avenue (signalized)
- 8. Palisade Avenue/Locust Hill Avenue (all-way stop)
- 9. Palisade Avenue/Elm Street/New School Street (signalized)
- 10. Ashburton Avenue/Warburton Avenue (signalized)
- 11. Ashburton Avenue/North Broadway (signalized)
- 12. Ashburton Avenue/Locust Hill Avenue (unsignalized)
- 13. Ashburton Avenue/Palisade Avenue (signalized)
- 14. Ashburton Avenue/Nepperhan Avenue (signalized)
- 15. Ashburton Avenue/NYS Route 9A/Walnut Street (signalized)
- 16. Yonkers Avenue/Walnut Street (signalized)
- 17. Yonkers Avenue/Prescott Street (signalized)
- 18. Yonkers Avenue/Ashburton Avenue (signalized)
- 19. Yonkers Avenue/Saw Mill River Parkway SB Ramp (unsignalized)
- 20. Yonkers Avenue/Saw Mill River Parkway NB Ramp (signalized)
- 21. Buena Vista Avenue/Dock Street (all-way stop)
- 22. Buena Vista Avenue/Main Street (signalized)
- 23. Buena Vista Avenue/Hudson Street (unsignalized)
- 24. Warburton Avenue/Dock Street/Nepperhan Street (signalized)
- 25. Warburton Avenue/Riverdale Avenue/Main Street (signalized)
- 26. Riverdale Avenue/Hudson Street (signalized)
- 27. Riverdale Avenue/Prospect Street (signalized)
- 28. Riverdale Avenue/Vark Street (signalized)
- 29. Riverdale Avenue/Herriot Street (signalized)
- 30. Riverdale Avenue/Ludlow Street (signalized)
- 31. Riverdale Avenue/Radford Street (signalized)
- 32. Riverdale Avenue/Valentine Lane (signalized)
- 33. South Broadway/Vark Street (signalized)
- 34. South Broadway/Herriot Street (signalized)
- 35. South Broadway/Bright Place (signalized)
- 36. South Broadway/Ludlow Street (signalized)
- 37. South Broadway/McLean Avenue (signalized)

- 38. South Broadway/Radford Street (signalized)
- 39. South Broadway/Valentine Lane (signalized)
- 40. Yonkers Avenue/Midland Avenue West (signalized)
- 41. Yonkers Avenue/Midland Avenue East (signalized)
- 42. Yonkers Avenue/Seminary Avenue (signalized)
- 43. Yonkers Avenue/Central Park Avenue SB (signalized)
- 44. Yonkers Avenue/Central Park Avenue NB (signalized)
- 45. Warburton Avenue/Glenwood Avenue (signalized)
- 46. Warburton Avenue/Lamartine Avenue (signalized)
- 47. North Broadway/Glenwood Avenue (signalized)
- 48. North Broadway/Lamartine Avenue (signalized)
- 49. Nepperhan Avenue/Lake Avenue (signalized)
- 50. Buena Vista Avenue/Prospect Street (unsignalized)
- 51. Prospect Street/Hawthorne Avenue (unsignalized)

In addition, as part of the Alternate Routes Evaluation, an additional 9 intersections were analyzed and is discussed in Section L of this Study.

- 52. Rumsey Road/Saw Mill River Pkwy/Cross County Pkwy Ramps (signalized)
- 53. Rumsey Road/Spruce Street (signalized)
- 54. Spruce Street/Van Cortlandt Park Avenue (all-way stop)
- 55. Van Cortlandt Park Avenue/Elm Street (unsignalized)
- 56. Elm Street/Walnut Street (signalized)
- 57. Elm Street/Linden Place (all-way stop)
- 58. Saw Mill River Parkway SB On/Off Ramp/Lockwood Avenue (unsignalized)
- 59. Saw Mill River Parkway NB On/Off Ramp/Palmer Road (unsignalized)
- 60. Nepperhan Avenue/Executive Boulevard (signalized)

In addition, the site driveways were also evaluated for the Future Build Conditions.

The existing lane geometry and type of traffic control for each of the Primary Study Area Intersections are shown on Figures No. 1A through 1F. These Figures follow this Section.

The existing lane geometry and type of traffic control for each of the Alternate Route Intersections are shown on Figures No. 1G and 1H in Appendix "J" of this Study.



S.F.C. YONKERS YONKERS, NEW YORK

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SITE LOCATION AND STUDY AREA INTERSECTIONS

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO.

ROAD AND RIGHT-OF-WAY WIDTHS

		Pavement Width Curb to Curb	Right-of-Way
1	NEPPERHAN AVENUE (BETWEEN SOUTH BROADWAY AND YONKERS AVENUE)	108'	142'
2	ELM STREET (BETWEEN NEPPERHAN AVENUE AND PALISADE AVENUE/SCHOOL STREET)	34'	50'
3	PALISADE AVENUE (BETWEEN ELM STREET/SCHOOL STREET AND MAIN STREET)	32'	50'
4	BUENA VISTA AVENUE (BETWEEN DOCK STREET AND PROSPECT STREET)	34'	50'
5	YONKERS AVENUE (BETWEEN NEPPERHAN AVENUE AND THE SAW MILL PARKWAY RAMPS)	68'	90'
6	YONKERS AVENUE (BETWEEN THE SAW MILL PARKWAY RAMPS AND CENTRAL PARK AVENUE)	64'	104'
7	ASHBURTON AVENUE (BETWEEN WARBURTON AVENUE AND YONKERS AVENUE)	36'	50'
8	WARBURTON AVENUE (BETWEEN GLENWOOD AVENUE AND RIVERDALE AVENUE)	30'	43'
9	RIVERDALE AVENUE (BETWEEN NEPPERHAN AVENUE/PROSPECT STREET AND VALENTINE LANE)	81'	100'
10	NORTH BROADWAY (BETWEEN GLENWOOD AVENUE AND MAIN STREET)	43'	60'
11	SOUTH BROADWAY (BETWEEN NORTH BROADWAY AND VALENTINE AVENUE)	65'	85'

THE PRIMARY AREA ROADWAYS PAVEMENT WIDTH (CURB TO CURB) AND RIGHT OF WAY ARE BASED ON INFORMATION SUPPLIED BY THE CITY OF YONKERS



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PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 1A



EXISTING GEOMETRY

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EXISTING GEOMETRY

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK



EXISTING GEOMETRY

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PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 1D



EXISTING GEOMETRY

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PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 1E



EXISTING GEOMETRY

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 1F

D. <u>CITY OF YONKERS COMPUTERIZED TRAFFIC SIGNAL SYSTEM</u>

The City of Yonkers has implemented a central computerized traffic signal system for a limited number of NYSDOT traffic signals in the City (primarily in the Cross County Shopping Center, Central Park Avenue, Stew Leonard's, and Yonkers Raceway areas). The system is monitored by the City's Traffic Department. The current system has limited capabilities (and is not monitored seven days a week), but is capable of remote viewing (limited view, not video) and can accommodate different signal timing plans for different times of the day. This system will provide a real-time communication linkage to the central database as well as the local controllers via a wireless communication.

System upgrades are currently in progress (NYS Grant Upgrades) that would increase the system communication speeds, the number of intersections monitored along the Central Avenue Corridor to include some 21 locations (none within the study area), and would also include hardware upgrades. Signal upgrades along the Yonkers Avenue/Nepperhan Avenue Corridor are also in progress to incorporate additional signals into the system and would include the following 11 locations:

- Nepperhan Avenue/Elm Street
- Nepperhan Avenue/New School Street
- Nepperhan Avenue/New Main Street
- Nepperhan Avenue/South Broadway
- Yonkers Avenue/Walnut Street
- Yonkers Avenue/Prescott Street
- Yonkers Avenue/Ashburton Avenue

- Yonkers Avenue/Saw Mill River Parkway NB Ramp
- Yonkers Avenue/Fox Terrace/Grace Avenue
- Yonkers Avenue/Midland Avenue West
- Yonkers Avenue/Midland Avenue East

The system is capable of accommodating other traffic signals, as required.

E. <u>YEAR 2006 EXISTING TRAFFIC VOLUMES</u>

In order to determine Weekday AM and Weekday PM Peak Conditions, traffic count data was obtained from the City of Yonkers. This traffic count data was supplemented with Weekday and Saturday manual and machine counts conducted by representatives of John Collins Engineers, P.C. Based on a review of this traffic count data and based on discussions with the City, it was determined that 80% of the Weekday Peak PM Hour was representative of Saturday Peak Conditions. Based on this data, the following peak hours were generally identified as follows:

0	Weekday Peak AM Highway Hour	 7:30 AM – 8:30 AM
0	Weekday Peak PM Highway Hour	 4:30 PM – 5:30 PM
0	Saturday Peak Hour	 1:00 PM – 2:00 PM

Appendix "A" of this Study contains the Year 2006 Existing Traffic Volumes by individual turning movement. For comparison, the 2006 Existing Total Intersection Volume passing through each of the study area intersections are summarized on Figures No. 2A through 2F for the Weekday Peak AM Highway Hour, are summarized on Figures No. 3A through 3F for the Weekday Peak PM Highway Hour and are shown on Figures No. 4A through 4F for the Saturday Peak Hour. These Figures follow Section L of this Study.

A copy of the traffic count data (manual/machine) is contained in Appendix G of this study.

F. <u>SCHOOL RELATED TRAFFIC</u>

The existing traffic counts included school bus traffic on the area roadways and have been considered in the Existing, No-Build and Build analysis. It should be noted that as the school population changes, bus routes and bus pick-up/drop-off locations also change. For the area, school buses generally stop mid-block to pick-up/drop-off children using the on-bus safety system including flashing light and stop signs. As is typical with school bus activity on the area roads, traffic stops in both directions allowing safe pick-up/dropoff of children. Similar school bus operation will continue under Future No-Build and Future Build Conditions.

G. <u>EMERGENCY SERVICES</u>

Emergency services (fire, police and ambulance) to the Getty Square/Chicken Island Area are currently served by a series of one-way and two-way streets. The existing Firehouse is located on New School Street. Currently, there are no Pre-Emption devices at the adjacent traffic signals to aid access to/from the existing roadway network. Similar conditions will continue under Future No-Build Conditions.

Emergency services in this area will not be significantly impacted by the proposed Project. The reversal of New Main Street, Palisade Avenue and Elm Street will keep the existing one-way pattern except in the opposite direction. The removal of parking along these streets will also reduce the potential for "blockage" in the area. Other roadways will remain as is with progression along the major arteries, i.e., Nepperhan Avenue and Yonkers Avenue. As part of the Project, a new state of the art Firehouse will be constructed at the southwest corner of New Main Street and Nepperhan Avenue. This Firehouse will have a greater number of bays than the existing Firehouse located on New School Street. Access to the Firehouse will be on New Main Street with a Pre-Emption device installed at the Nepperhan Avenue/New Main Street traffic signal.

H. <u>YEAR 2012 NO-BUILD TRAFFIC VOLUMES</u>

For the purpose of analysis, a Design Year of 2012 has been utilized for this Study.

In order to develop the Year 2012 No-Build Traffic Volumes (Future Traffic Volumes without the Project), the 2006 Existing Traffic Volumes were increased by a background growth factor (which has been established at 1% per year) to the 2012 Design Year. In addition traffic for other planned developments for the area was included as discussed below.

The City of Yonkers provided a list of planned developments for the area and is included in Appendix "C" of this Study. These developments are distributed throughout the downtown Yonkers area. Based on a review of this list and discussions with the City, due to the size and/or distance from the study area certain developments were included as part of the total background growth of 6%.

For other projects in the area which would have a greater impact within the study area, traffic was added to the roadway network. These developments include Yonkers Green, Ashburton Avenue, Redevelopment, i_Park Phase 2, Collins Phase 2, Greystone, Main Street Lofts, Homes for America and Buena Vista Phase 1 & 2. The other development traffic volumes for these specific developments are contained in Appendix "C" of this Study.

Appendix "A" of this Study contains the Year 2012 No-Build Traffic Volumes by individual turning movement. For comparison, the 2012 No-Build Total Intersection Volume passing through each of the study area intersections are summarized on Figures No. 2A through 2F for the Weekday Peak AM Highway Hour, are summarized on Figures No. 3A through 3F for the Weekday Peak PM Highway Hour and are shown on Figures No. 4A through 4F for the Saturday Peak Hour. These Figures follow Section L of this Study.

I. <u>PROJECT GENERATED TRAFFIC VOLUMES</u>

In order to estimate the amount of traffic to be generated by the SFC Yonkers Project, information contained in the Institute of Transportation Engineers (ITE) "Trip Generation Handbook," 7th Edition was referenced. A 30% credit was taken to account for mass transit usage, interplay between uses and pass-by trips. The anticipated Project Generated Traffic Volumes are summarized on Table No. 2 following this Section.

HOURLY TRIP GENERATION RATES AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

SFC YONKERS

		ENTRY			EXIT			TOTALS	
RIVER PARK CENTER	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"
DEVELOPMENT A RESIDENTIAL - 475 UNITS (ITE LAND USE 230) WEEKDAY PEAK AM HIGHWAY HOUR WEEKDAY PEAK PM HIGHWAY HOUR SATURDAY PEAK HOUR	0.08 0.33 0.25	38 157 119	(1) 27 110 83	0.36 0.19 0.22	171 90 105	(1) 120 63 74	0.44 0.52 0.47	209 247 224	(1) 147 173 157
DEVELOPMENT B RESIDENTIAL - 475 UNITS (ITE LAND USE 230) WEEKDAY PEAK AM HIGHWAY HOUR WEEKDAY PEAK PM HIGHWAY HOUR SATURDAY PEAK HOUR	0.08 0.33 0.25	38 157 119	(1) 27 110 83	0.36 0.19 0.22	171 90 105	(1) 120 63 74	0.44 0.52 0.47	209 247 224	(1) 147 173 157
DEVELOPMENT C OFFICE - 325,000 S.F. (ITE LAND USE 710) WEEKDAY PEAK AM HIGHWAY HOUR WEEKDAY PEAK PM HIGHWAY HOUR SATURDAY PEAK HOUR	1.36 0.25 0.22	442 81 72	(1) 310 57 50	0.19 1.24 0.19	62 403 62	(1) 43 282 43	1.55 1.49 0.41	504 484 134	(1) 353 339 93
DEVELOPMENT D RETAIL + RESTAURANT - 555,000 S.F. (ITE LAND USE 820) WEEKDAY PEAK AM HIGHWAY HOUR WEEKDAY PEAK PM HIGHWAY HOUR SATURDAY PEAK HOUR	0.63 1.80 2.58	350 999 1432	(1) 245 699 1003	0.40 1.95 2.39	222 1082 1326	(1) 155 758 928	1.03 3.75 4.97	572 2081 2758	(1) 400 1457 1931
DEVELOPMENT E MULTI-PLEX MOVIE THEATER - 2000 SEATS (ITE LAND USE 445) WEEKDAY PEAK AM HIGHWAY HOUR WEEKDAY PEAK PM HIGHWAY HOUR SATURDAY PEAK HOUR	 0.05 0.05	 100 100	(1) 70 70	 0.05 0.05	 100 100	(1) 70 70	 0.10 0.10	 200 200	(1) 140 140

		ENTRY			EXIT			TOTALS	
TOTALS	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"
WEEKDAY PEAK AM HIGHWAY HOUR		868	609		626	438		1494	1047
WEEKDAY PEAK PM HIGHWAY HOUR		1494	1046		1765	1236		3259	2282
SATURDAY PEAK HOUR		1842	1289		1698	1189		3540	2478

* - THE ABOVE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 7TH EDITION, 2003.

HOURLY TRIP GENERATION RATES AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

SFC YONKERS

		ENTRY			EXIT			TOTALS	
CACACE CENTER	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"
DEVELOPMENTE									
OFFICE - 150,000 S.F.									
(ITE LAND USE 710)									
			(1)			(1)			(1)
WEEKDAY PEAK AM HIGHWAY HOUR	1.36	204	143	0.19	28	20	1.55	232	163
WEEKDAY PEAK PM HIGHWAY HOUR	0.25	38	27	1.24	186	130	1.49	224	157
SATURDAY PEAK HOUR	0.22	33	23	0.19	28	20	0.41	61	43
DEVELOPMENT G									
HOTEL - 150 ROOMS									
(ITE LAND USE 310)									
			(1)			(1)			(1)
WEEKDAY PEAK AM HIGHWAY HOUR	0.34	51	36	0.22	33	23	0.56	84	59
WEEKDAY PEAK PM HIGHWAY HOUR	0.31	47	33	0.28	42	29	0.59	89	62
SATURDAY PEAK HOUR	0.40	60	42	0.32	48	33	0.72	108	75

		ENTRY			EXIT			TOTALS	
TOTALS	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"
WEEKDAY PEAK AM HIGHWAY HOUR		255	179		61	43		316	222
WEEKDAY PEAK PM HIGHWAY HOUR		85	60		228	159		313	219
SATURDAY PEAK HOUR		93	65		76	53		169	118

* - THE ABOVE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 7TH EDITION, 2003.

HOURLY TRIP GENERATION RATES AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

SFC YONKERS

		ENTRY			EXIT			TOTALS	
PALISADES POINT	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"
DEVELOPMENT H									
RESIDENTIAL - 436 UNITS									
(ITE LAND USE 230)									
			(1)			(1)			(1)
WEEKDAY PEAK AM HIGHWAY HOUR	0.08	35	25	0.36	157	110	0.44	192	135
WEEKDAY PEAK PM HIGHWAY HOUR	0.33	144	101	0.19	83	58	0.52	227	159
SATURDAY PEAK HOUR	0.25	109	76	0.22	96	67	0.47	205	143
RETAIL - 8,700 S.F. (ITE LAND USE 814)									
WEEKDAY PEAK AM HIGHWAY HOUR	1.52	13	13	1.19	11	11	2.71	24	24
WEEKDAY PEAK PM HIGHWAY HOUR	1.19	11	11	1.52	13	13	2.71	24	24
SATURDAY PEAK HOUR	1.35	12	12	1.35	12	12	2.70	24	24

		ENTRY			EXIT			TOTALS	
TOTALS	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"
WEEKDAY PEAK AM HIGHWAY HOUR		48	38		168	121		216	159
WEEKDAY PEAK PM HIGHWAY HOUR		155	112		96	71		251	183
SATURDAY PEAK HOUR		121	88		108	79		229	167

* - THE ABOVE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE

INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 7TH EDITION, 2003.

HOURLY TRIP GENERATION RATES AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

SFC YONKERS

SFC YONKERS		ENTRY			EXIT			TOTALS	
TOTALS	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"	HTGR*	VOLUME	"NEW"
WEEKDAY PEAK AM HIGHWAY HOUR		1171	826		855	602		2026	1428
WEEKDAY PEAK PM HIGHWAY HOUR		1734	1218		2089	1466		3823	2684
SATURDAY PEAK HOUR		2056	1442		1882	1321		3938	2763

HOLIDAY TRAFFIC

During the end of the year Holiday season, the trip generation rates for uses other than retail would be the same as for other times of the year.

Based on ITE, the retail trip generation rate during the Weekday Peak PM would be the same for Holiday and Non-Holiday time periods. Thus, the Weekday Peak PM Build Condition evaluated would reflect both Holiday and Non-Holiday periods.

For Saturday Conditions, ITE indicates a higher trip rate when compared to Non-Holiday time periods (4.97 vs 5.88). This would equate to an additional 160 vehicles entering and 190 vehicles exiting during the Holiday Saturday Peak Hour when compared to Non-Holiday time periods. If these volumes were added to the Peak Saturday Build Condition, the resulting Peak Saturday Build Traffic Volumes would be generally less than the Weekday Peak PM Build Traffic Volumes and the expected Holiday Saturday Conditions will be generally better than the Weekday Peak PM Levels of Service. It should be noted that the Holiday Saturday Condition occurs five or less times per year.

J. <u>ARRIVAL/DEPARTURE DISTRIBUTIONS</u>

In order to assign the anticipated trip generation for each use within each of the development areas, arrival and departure distributions were developed. The arrival/departure distributions were based on the existing traffic flows and discussions with City officials. The arrival and departure distribution figures by individual movements are contained in Appendix "A" of this Study. In general, the following assignments were utilized.

RIVER PARK CENTER

- The residential and office trips were assigned with some 30% to/from the north (5% on Warburton Avenue, 5% on North Broadway, 10% on Nepperhan Avenue and 10% on NYS Route 9A), 20% to/from the south (10% on Riverdale Avenue and 10% on South Broadway) and 50% to/from the east (on Yonkers Avenue). Of the 50% from the east on Yonkers Avenue, 10% was assigned to/from the Saw Mill River Parkway (north), 30% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from Central Park Avenue (north) and 5% was assigned to/from Central Park Avenue (south).
- The retail trips were assigned with some 50% to/from the north (10% on Warburton Avenue, 15% on North Broadway, 15% on Nepperhan Avenue and 10% on NYS Route 9A), 30% to/from the south (20% on Riverdale Avenue and 10% on South Broadway) and 20% to/from the east (on Yonkers Avenue). Of the 20% from the east

on Yonkers Avenue, 5% was assigned to/from the Saw Mill River Parkway (north), 5% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from Central Park Avenue (north) and 5% was assigned to/from Central Park Avenue (south).

• The multiplex movie theater trips were assigned with some 50% to/from the north (10% on Warburton Avenue, 15% on North Broadway, 15% on Nepperhan Avenue and 10% on NYS Route 9A), 30% to/from the south (20% on Riverdale Avenue and 10% on South Broadway) and 20% to/from the east (on Yonkers Avenue). Of the 20% from the east on Yonkers Avenue, 5% was assigned to/from the Saw Mill River Parkway (north), 5% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from Central Park Avenue (north) and 5% was assigned to/from Central Park Avenue (south).

CACACE CENTER

• The office and hotel trips were assigned with some 30% to/from the north (5% on Warburton Avenue, 5% on North Broadway, 10% on Nepperhan Avenue and 10% on NYS Route 9A), 20% to/from the south (10% on Riverdale Avenue and 10% on South Broadway) and 50% to/from the east (on Yonkers Avenue). Of the 50% from the east on Yonkers Avenue, 10% was assigned to/from the Saw Mill River Parkway (north), 30% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from Central Park Avenue (north) and 5% was assigned to/from Central Park Avenue (south).

PALISADES POINT

• The residential and ancillary retail trips were assigned with some 30% to/from the north (5% on Warburton Avenue, 5% on North Broadway, 10% Nepperhan Avenue and 10% NYS Route 9A), 20% to/from the south (10% on Riverdale Avenue and 10% on South Broadway) and 50% to/from the east (on Yonkers Avenue). Of the 50% from the east on Yonkers Avenue, 10% was assigned to/from the Saw Mill River Parkway (north), 30% was assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from Central Park Avenue (north) and 5% was assigned to/from Central Park Avenue (south).

K. <u>YEAR 2012 BUILD TRAFFIC VOLUMES</u>

In order to develop the Year 2012 Build Traffic Volumes (Future Traffic Volumes with the Project), the Project Generated Traffic Volumes were combined with the Year 2012 No-Build Traffic Volumes as discussed below.

Utilizing the arrival and departure distributions discussed in Section G, the Project Generated Traffic Volumes were developed for each of the development areas. Appendix "A" of this Study contains the Project Generated Traffic Volumes by individual turning movement.

In addition, as a result of the new traffic pattern recommended for the Getty Square/Chicken Island area, under the Future Build Condition the Future No-Build Traffic Volumes were redistributed to reflect the new recommended street patterns including the closing of streets. The Redistributed Year 2012 No-Build Traffic Volumes for the Getty Square/Chicken Island area are contained in Appendix "A" of this Study.

Appendix "A" of this Study contains the Year 2012 Build Traffic Volumes by individual turning movement. For comparison, the Year 2012 Build Total Intersection Volume passing through each of the study area intersections are summarized on Figures No. 2A through 2F for the Weekday Peak AM Highway Hour, are summarized on Figures No. 3A through 3F for the Weekday Peak PM Highway Hour and are shown on Figures No. 4A through 4F for the Saturday Peak Hour. These Figures follow Section L of this Study.
Page 32

L. EVALUATION OF BALLPARK

As previously discussed, the SFC Yonkers Project also includes a 6,500 seat Ballpark on top of River Park Center. The Ballpark has been analyzed as a special event condition.

Based on previous studies, the anticipated Ballpark was conservatively estimated to generate some 1,552 entering vehicles. This assumed a 90% occupancy rate, a 20% public transit credit and an auto occupancy of three people per vehicle. For Weekday games, approximately 1/3 of the generation would arrive during the Weekday Peak PM Highway Hour (517 vehicle trips) and for Weekend games, approximately 2/3 of the generation would arrive during the Saturday Peak Hour (1035 vehicle trips). It should be noted that <u>no</u> credit has been taken for interplay between the retail, restaurant, office and residential uses being as part of the SFC Yonkers development.

In order to assign the anticipated Ballpark generation as outlined above, an arrival and departure distribution was developed. The arrival and departure distribution figures for the Ballpark by individual movements are contained in Appendix "A" of this Study. In general, the following assignments were utilized.

The Ballpark trips were assigned with some 25% to/from the north (5% on Warburton Avenue, 5% on North Broadway, 5% on Nepperhan Avenue and 10% on NYS Route 9A), 15% to/from the south (5% on Riverdale Avenue and 10% on South Broadway) and 60% to/from the east (on Yonkers Avenue). Of the 60% from the east on Yonkers Avenue, 25% was assigned to/from the Saw Mill River Parkway (north), 25% was

assigned to/from the Saw Mill River Parkway (south), 5% was assigned to/from Central Park Avenue (north) and 5% was assigned to/from Central Park Avenue (south).

Utilizing the above referenced arrival and departure distributions, the Ballpark site generated traffic volumes were developed. Appendix "A" of this Study contains the Ballpark Generated Traffic Volumes by individual turning movement.

Appendix "A" of this Study also contains the Year 2012 Build Traffic Volumes with Ballpark by individual turning movement. For comparison, the Year 2012 Build with Ballpark Total Intersection Volume passing through each of the study area intersections are summarized on Figures No. 2A through 2F for the Weekday Peak AM Highway Hour, are summarized on Figures No. 3A through 3F for the Weekday Peak PM Highway Hour and are shown on Figures No. 4A through 4F for the Saturday Peak Hour. These Figures follows this Section.

The Parking Study evaluated the available parking for ball games and other events. Generally the timing of the events will have to be set based on the availability of parking during those periods.

As indicated in the Parking Study, surplus parking will be available for ball games starting on Weekday evenings and on Saturday and Sunday afternoons. During these times the available parking will be in the Cacace Center and the Government Center parking structures. As discussed in the Recommended Improvement Section, variable message signs will be included within the Project area to direct patrons to the Ballpark parking areas. Figure No. 11 shows the potential location of these signs, the preferred routes for Ballpark traffic and the existing pedestrian bridge from the Cacace Center to the north side of Nepperhan Avenue. In addition, it is recommended that uniform police officers or traffic control personnel be assigned to direct traffic in the area.

As indicated previously, it is anticipated that a ball game or other event would occur Weekday Evenings and Weekends. Their schedule would be controlled by the availability of parking. Based on the Parking Study, it is unlikely that any significant event would occur during the Weekday morning peak hours.



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK TOTAL INTERSECTION VOLUMES WEEKDAY PEAK AM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 2A



TOTAL INTERSECTION VOLUMES WEEKDAY PEAK AM HIGHWAY HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.2B



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 2C

TOTAL INTERSECTION VOLUMES

WFFKDAY PFAK AM HIGHWAY HOUR



TOTAL INTERSECTION VOLUMES WEEKDAY PEAK AM HIGHWAY HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.2D



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

TOTAL INTERSECTION VOLUMES WEEKDAY PEAK AM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 2E



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK TOTAL INTERSECTION VOLUMES WEEKDAY PEAK AM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 2F



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK TOTAL INTERSECTION VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 3A



TOTAL INTERSECTION VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.3B



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

TOTAL INTERSECTION VOLUMES

WEEKDAY PEAK PM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 3C



TOTAL INTERSECTION VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 3D



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

TOTAL INTERSECTION VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 3E



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK TOTAL INTERSECTION VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 3F



TOTAL INTERSECTION VOLUMES SATURDAY PEAK HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK



TOTAL INTERSECTION VOLUMES SATURDAY PEAK HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK



TOTAL INTERSECTION VOLUMES SATURDAY PEAK HOUR

SFC YONKERS Yonkers, New York

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK



TOTAL INTERSECTION VOLUMES SATURDAY PEAK HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

TOTAL INTERSECTION VOLUMES SATURDAY PEAK HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 4E



TOTAL INTERSECTION VOLUMES SATURDAY PEAK HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 4F

M. <u>DESCRIPTION OF ANALYSIS</u>

To determine existing and future traffic operating conditions at the study area locations, capacity analysis were performed based on the <u>2000 Highway Capacity Manual</u>. The following is a description of the analysis method utilized in this report.

Signalized Intersection Capacity Analysis

The capacity analyses for the signalized intersections were performed in accordance with the procedures described in the 2000 Highway Capacity Manual, published by the Transportation Research Board. The terminology used in identifying traffic flow conditions is Levels of Service. A Level of Service "A" represents the best condition and a Level of Service "F" represents the worst condition. A Level of Service "C" is generally used as a design standard while a Level of Service "D" is acceptable during peak periods. A Level of Service "E" represents an operation near capacity. In order to identify an intersection's Level of Service the average amount of vehicle delay is computed for each approach to the intersection as well as for the overall intersection.

Unsignalized Intersection Capacity Analysis

The capacity analyses for the unsignalized intersections were also performed in accordance with the procedures described in the 2000 Highway Capacity Manual. The procedure is based on total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. The average total delay for any particular critical movement is a function of the service rate or capacity of the approach and the degree of saturation. In order to identify the Level of Service, the average amount of vehicle delay is computed for each critical movement to the intersection.

Additional information concerning signalized and unsignalized Levels of Service Standards can be found in Appendix "B" of this Study.

N. <u>CAPACITY ANALYSIS AND RESULTS – (PRIMARY LOCATIONS)</u>

To evaluate current and future traffic operating conditions and any recommended improvements, detailed capacity analyses were conducted at each of the primary study area intersections and site driveways utilizing the procedures described above.

CAPACITY ANALYSIS

It was determined that the use of the Central Business District type area for the capacity analysis was appropriate to take into considerations factors such as frequent parking maneuvers or vehicle blockages, taxi/bus activity, high pedestrian activity and dense population. However, for the Build Condition, a non CBD type area was used only for intersections in the vicinity of the Getty Square/Chicken Island area (Intersections 1 through 9) and the Yonkers Avenue Corridor from Walnut Street to the Saw Mill River Parkway Ramps (Intersections 16 through 20) to reflect improvements proposed as part of this development. These improvements include the upgrading to the entire signal system along the Yonkers/Nepperhan Avenue Corridor extending from the Saw Mill River Parkway into the downtown area to be included as part of the City's Computerized Traffic Signal System as well as the removal of off-street parking.

Based on a review of the existing traffic counts, the peak hour factors varied slightly for each intersection and day by day. Based on a review of the traffic counts collected for the study area intersections (60 locations), the average Peak Hour Factor was 0.92. Therefore for consistency and comparison purpose an average peak hour factor of 0.92 was used throughout the analysis for all conditions, i.e., Existing, No-Build and Build Conditions. A copy of the traffic count data is contained in Appendix G of this study.

Based on information from New York State Department of Transportation, a truck factor of 5% is considered reasonable for peak hour conditions for this type of area. This factor was used at all locations (except the ramps to and from the parkways) for Existing, No-Build and Build Conditions for comparative purposes. A copy of the New York State's 2005 Highway Sufficiency Ratings is included in Appendix G of this study.

The capacity analysis shows the existing geometrics, lane widths, existing traffic control, signal timings/phasing where applicable and any recommended improvements for each of the above study area intersection. A copy of the capacity analysis is contained in Appendix "K-1" of this Study for the primary study area intersections.

RESULTS OF CAPACITY ANALYSIS

For comparison, the Overall Intersection Levels of Service and delays are summarized on Figures No. 5A through 5F for the Weekday Peak AM Highway Hour, are summarized on Figures No. 6A through 6F for the Weekday Peak PM Highway Hour, are summarized on Figures No. 7A through 7F for the Saturday Peak Hour. These Figures follow this Section.

Since the Project included changes to the existing street system, the Build Condition was evaluated to include the new traffic pattern and any proposed improvements. The Build Levels of Service and delays shown on Figures No. 5A through 7F include the recommended improvements outlined on Figure No. 10A through 10F.

Appendix "B" of this Study contains detailed Tables summarizing the Levels of Service and delays by movement, by approach as well as for the overall intersection for the Year 2006 Existing, Year 2012 No-Build, Year 2012 Build and Year 2012 Build with Ballpark Conditions.

To further address the Project's impacts, a summary of the existing geometry including traffic control, Existing Levels of Service, No-Build Levels of Service, any recommended improvements and the resulting Build Levels of Service for each of the primary study area intersections are included in Appendix H - Description of Primary Study Area Intersections of this Study.



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 5A



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

SFC YONKERS

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.5B



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

SEC YONKERS

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 5C



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

SFC YONKERS

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.5D



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS WEEKDAY PEAK AM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 5E



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK dverall intersection levels of service and delays weekday peak am highway hour

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.5F



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.6A



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

SFC YONKERS

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.6B



YONKERS, NEW YORK John Collins Engineers, p.C. Hawthorne, New York

SEC YONKERS

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 6C



SFC YONKERS YONKERS, NEW YORK JOHN COLLINS ENGINEERS, P.C.

HAWTHORNE, NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.6D


SFC YONKERS Yonkers, New York

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS WEEKDAY PEAK PM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 6E



SFC YONKERS Yonkers, New York

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK WEEKDAY PEAK PM HIGHWAY HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.6F



SATURDAY PEAK HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 7A



OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS SATURDAY PEAK HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

SFC YONKERS

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.7B



OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS SATURDAY PEAK HOUR

YONKERS, NEW YORK John Collins Engineers, p.c.

HAWTHORNE, NEW YORK

SEC YONKERS

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 7C



OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS SATURDAY PEAK HOUR

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

YONKERS, NEW YORK

SFC YONKERS

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.7D



SFC YONKERS Yonkers, New York

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK OVERALL INTERSECTION LEVELS OF SERVICE AND DELAYS SATURDAY PEAK HOUR

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO. 7E



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: APRIL 2007 FIG. NO.7F

O. <u>DRIVEWAY EVALUATION</u> (Figures No. 8, 8A, 8B and Appendix I)

The geometry and traffic control for each of the site driveways are shown on Figure No. 8. An analysis of the site driveways was also conducted and the resulting Levels of Service and delays are summarized on Figures No. 8A and 8B. As shown on these figures, the proposed driveways will operate at acceptable Levels of Service "A" through "D".

In addition, Appendix "I" provides a Level of Service and delay Summary Table and a Table summarizing the driveway queues. A copy of the capacity analysis is contained in Appendix K-2.



S.F.C. YONKERS YONKERS, NEW YORK

DRIVEWAY GEOMETRY AND TRAFFIC CONTROL

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO. 8



SFC YONKERS YONKERS, NEW YORK

DRIVEWAY LEVELS OF SERVICE AND DELAYS

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK



SFC YONKERS YONKERS, NEW YORK DRIVEWAY LEVELS OF SERVICE AND DELAYS (W/ BALLPARK)

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

P. <u>RECOMMENDED IMPROVEMENTS</u>

The recommended traffic and transportation mitigation measures are public improvements. The cost of the improvements will be funded through the tax increment financing program. The improvements will be undertaken by the City and/or the Applicant. The construction of the SFC development in the downtown Yonkers area will result in the elimination of several streets within the development area (See Figure No. 9 – Existing and Proposed Circulation). Traffic using these streets would be redistributed to the adjoining street system. Given the current traffic flow pattern and the capacity restrictions in the Getty Square/Chicken Island area, it is recommended that New Main Street be directed away from Getty Square (towards Nepperhan Avenue). In conjunction with this, the section of Elm Street between Nepperhan Avenue and Palisade Avenue as well as Palisade Avenue between Elm Street and Getty Square would be reversed in direction. The reversal of these streets would provide additional capacity and better distribution of traffic within the area.

In addition, traffic circulation within the Project area will allow for a taxi stand to be located along the north side of Palisades Avenue between Locust and New Main Street. Passenger drop-off, especially for the Ballpark, will be along Nepperhan Avenue between Elm Street and New Main Street. Parking for the retail area will be within the parking structures.

Truck deliveries to the site are shown on Figures No. 9A through 9D and indicate "offstreet" loading locations as well as the taxi stand and Ballpark drop-off. In addition to the above traffic pattern modification (as shown on Figure No 10A), there are other improvements recommended to improve operating conditions within the area (Figures No. 10B, 10C, 10D, 10E and 10F). These improvements are also summarized in Table No. 3A. These improvements include:

- As discussed above, a new traffic flow pattern is recommended for the Getty Square/Chicken Island area (as shown on Figure No. 10A). This would provide additional capacity and better distribution of traffic within the area.
- As part of the new traffic flow patterns, a separate left turn lane should be provided from northbound Nepperhan Avenue to Elm Street as well as a separate right turn lane from southbound Nepperhan Avenue to Elm Street.
- Provide signage for the proposed new traffic pattern including no parking signs along Elm Street, Palisade Avenue and New Main Street.
- As part of the development plan, the use of crosswalks and pedestrian phases at signalized locations will be maintained at existing locations. At new signalized locations or at access points to the development, design features will be implemented to accommodate pedestrian activity. In fact, the existing signal at Nepperhan Avenue/New School Street will be retained to provide for a pedestrian crossing. A pedestrian friendly streetscape will be developed along the development's frontage and access points to the development.

- It is also recommended that within the development area, any proposed traffic signal have a pedestrian phase and that sidewalks/crosswalks be provided as part of the Project.
- Parking will be eliminated along Palisade Avenue, Elm Street and New Main Street. Users of this parking will be able to use the River Park Center and Government Center garages.
- The elimination of parking along the Yonkers Avenue/Nepperhan Avenue Corridor from the Saw Mill River Parkway to the downtown area. This parking will be replaced with "off-street" parking within the area to provide parking for the residents and merchants currently fronting Yonkers Avenue/Nepperhan Avenue. Section II-Description of the Proposed Action and Section III.A Land Use, Zoning and Public Policy of the DEIS, includes Exhibits showing the proposed replacement parking along Yonkers Avenue (Exhibits II-49, II-49A, II-49B and II-49C).
- Provide a designated area for a taxi stand to be located on the north side of Palisade Avenue between Elm Street and New Main Street. Figure No. 9B.
- A bus drop-off lane will be provided on Nepperhan Avenue westbound between Elm Street and New Main Street for the discharge and boarding of passengers.

- Provide a center median along the Yonkers Avenue Corridor between the Saw Mill River Parkway Ramps and Nepperhan Avenue. The proposed center median will consist of a raised island having a width between 12 and 16 feet. The center island will be used for left turns at intersecting streets. In addition, the median area will be used for communication equipment (buried) that will relay information to and from the City's Computerized Traffic Signal System.
- The signal system along the Yonkers Avenue /Nepperhan Avenue Corridor extending from the Saw Mill River Parkway into the downtown area will be part of the City's Computerized Traffic Signal System via a wireless communication under the No-Build Condition. As part of the Project, a replacement of this wireless system with fiber optics will be undertaken as well as a video relay to the City's Computerized Traffic Signal System. This will allow for "real time" management of the traffic within the Corridor. The existing computer system located in City Hall can accommodate the upgraded system as well as additional traffic signals.
- A driveway to the proposed project will be located on Nepperhan Avenue. A separate left turn lane and a separate right turn lane will be developed for traffic entering the site. This intersection will be signal controlled and be made part of the City's Computerized Traffic Signal System along the Yonkers Avenue/Nepperhan Avenue Corridor. The existing intersection of Waverly Street/Nepperhan Avenue will be relocated to the west opposite the proposed driveway and will also be under signal control.

- Construct a northbound right turn lane at the intersection of Nepperhan Avenue/South Broadway.
- At the intersection of Riverdale Avenue and Prospect Street/Nepperhan Avenue, the Nepperhan Avenue westbound right turn westbound right turn lane should be re-striped to allow both through and right turn movements. The traffic signal will be connected to the City's Computerized Traffic Signal System.
- Provide dual right turn lanes on the Saw Mill River Parkway Southbound Exit ramp and install a traffic signal. The traffic signal will be connected to the City's Computerized Traffic Signal System.
- Provide dual right turn lanes on the Saw Mill River Parkway Northbound Exit ramp.
- It is recommended that the flashing traffic signal at the intersection of South Broadway/Hudson Street be upgraded to provide normal signal operation and will be linked to the City's Computerized Traffic Signal System.
- Other signals such as Elm Street/Palisades Avenue, South Broadway/Main Street and Main Street/Palisades Avenue will be upgraded and linked to the City's Computerized Traffic Signal System.

- As with any Project, certain signal will have to be retimed (as required) to improve operation. These have been shown on Figures No. 10A through 10F.
- A new bridge will be constructed across the railroad in the Prospect Street Corridor. This will provide direct access to the Waterfront from the Yonkers Avenue/Nepperhan Avenue Corridor.
- A trolley system will be implemented to shuttle people from the railroad station to River Park Center and the Cacace Center. The trolley system will have the ability of multiple stops within the area based on the demand. (See Section "S" for further details of the trolley system).
- There are numerous Traffic Demand Management (TDM) techniques that will exist with this Project. These include the existing mass transit facilities both bus and rail that are immediately adjacent to the Project area. These facilities are available for the potential residents, office workers and shoppers that will frequent the area as well as patrons to the Ballpark. As an enhancement, the Project will implement a "trolley loop" to interconnect the existing transportation system with each other as well as the residential, office and retail components of the Project. Other TDM techniques may also be implemented including bike racks, etc. Each of these will be evaluated as the Project unfolds.

As discussed in the Recommended Improvement Section, variable message signs will be included within the Project area to direct patrons to the Ballpark parking areas. The location of the variable message signs will be coordinated during the site plan approval process along with other signs for the development. Figure No. 11 shows the potential location of these signs, the preferred routes for Ballpark traffic and the existing pedestrian bridge from the Cacace Center to the north side of Nepperhan Avenue. In addition, it is recommended that uniform police officers or traffic control personnel be assigned to direct traffic in the area.



NOTE: FLOW ARROWS INDICATE ONE WAY STREETS, ALL OTHER STREETS ARE TWO WAY.

S.F.C. YONKERS YONKERS, NEW YORK

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

CIRCULATION

RECOMMENDED IMPROVEMENTS

PRIMARY INTERSECTIONS

	LOCATION	NEW TRAFFIC PATTERN AND RECOMMENDED IMPROVEMENTS ¹
1	NEPPERHAN AVENUE & ELM STREET	REVERSE DIRECTION OF ELM STREET CONSTRUCT RIGHT TURN LANE SB ON NEPPERHAN AVENUE CONSTRUCT LEFT TURN LANE NB ON NEPPERHAN AVENUE MODIFY SIGNAL PHASING / TIMING AS REQUIRED
2	NEPPERHAN AVENUE & NEW SCHOOL STREET	• ELIMINATE NEW SCHOOL STREET NORTH OF NEPPERHAN AVENUE • KEEP EXISTING SIGNAL FOR PEDESTRIAN MOVEMENT
3	NEPPERHAN AVENUE & NEW MAIN STREET	REVERSE DIRECTION OF NEW MAIN STREET ELIMINATE NB LEFT TURN LANE ON NEPPERHAN AVENUE ELIMINATE SB RIGHT TURN LANE ON NEPPERHAN AVENUE MODIFY SIGNAL PHASING / TIMING AS REQUIRED
4	NEPPERHAN AVENUE & SOUTH BROADWAY	CONSTRUCT NB LEFT TURN LANE ON S. BROADWAY
5	SOUTH BROADWAY & HUDSON STREET	UPGRADE EXISTING FLASHING SIGNAL TO FULL OPERATION AND CONNECT TO CITY'S COMPUTERIZED TRAFFIC SIGNAL SYSTEM
6	SOUTH BROADWAY & MAIN STREET	UPGRADE SIGNAL AND CONNECT TO CITY'S COMPUTERIZED TRAFFIC SIGNAL SYSTEM
7	MAIN STREET & PALISADE AVENUE	REVERSE DIRECTION OF PALISADE AVENUE UPGRADE SIGNAL AND CONNECT TO CITY'S COMPUTERIZED TRAFFIC SIGNAL SYSTEM
8	PALISADE AVENUE & LOCUST HILL AVENUE	REVERSE DIRECTION OF PALISADE AVENUE
9	PALISADE AVENUE / ELM STREET / NEW SCHOOL STREET (SITE ACCESS #3)	REVERSE DIRECTION OF PALISADE AVENUE / ELM STREET ELIMINATE NEW SCHOOL STREET SOUTH OF PALISADE AVENUE AND PROVIDE A DRIVEWAY TO THE SITE UPGRADE SIGNAL AND CONNECT TO CITY'S COMPUTERIZED TRAFFIC SIGNAL SYSTEM

¹ - NEW TRAFFIC PATTERN AND RECOMMENDED IMPROVEMENTS AS SHOWN ON FIGURE 10A

* - TIMING CHANGES MAY BE REQUIRED TO OPTIMIZE THE OPERATION OF THE TRAFFIC SIGNAL

RECOMMENDED IMPROVEMENTS

PRIMARY INTERSECTIONS

	LOCATION	RECOMMENDED IMPROVEMENTS ¹
10	ASHBURTON AVENUE & WARBURTON AVENUE	CHANGE IN SIGNAL TIMING REQUIRED
11	ASHBURTON AVENUE & NORTH BROADWAY	CHANGE IN SIGNAL TIMING REQUIRED
12	ASHBURTON AVENUE & LOCUST HILL ROAD	NO IMPROVEMENTS PROPOSED
13	ASHBURTON AVENUE & PALISADE AVENUE	CHANGE IN SIGNAL TIMING REQUIRED
14	ASHBURTON AVENUE & NEPPERHAN AVENUE	CHANGE IN SIGNAL TIMING REQUIRED
15	ASHBURTON AVENUE & NYS ROUTE 9A / WALNUT STREET	CHANGE IN SIGNAL TIMING REQUIRED
16	YONKERS AVENUE & WALNUT STREET	CORRIDOR IMPROVEMENTS **
17	YONKERS AVENUE & PRESCOTT STREET	CORRIDOR IMPROVEMENTS **
18	YONKERS AVENUE & ASHBURTON AVENUE	CORRIDOR IMPROVEMENTS **
19	YONKERS AVENUE & SAW MILL RIVER PARKWAY SB RAMP	 CONSTRUCT A TWO LANE EXIT RAMP FROM THE SAW MILL RIVER PARKWAY SB INSTALL TRAFFIC SIGNAL AND CONNECT TO THE CITY'S COMPUTERIZED TRAFFIC SIGNAL SYSTEM
20	YONKERS AVENUE & SAW MILL RIVER PARKWAY NB RAMP	PROVIDE FOR A DUAL RIGHT TURN LANE FROM THE SAW MILL RIVER PARKWAY NB EXIT RAMP UPDATE SIGNAL AS REQUIRED

¹ - RECOMMENDED IMPROVEMENTS AS SHOWN ON FIGURE 10B

* - TIMING CHANGES MAY BE REQUIRED TO OPTIMIZE THE OPERATION OF THE TRAFFIC SIGNAL

** - CORRIDOR IMPROVEMENTS INCLUDE CONSTRUCTION OF A CENTER MEDIAN, REMOVAL OF PARKING, UPGRADE OF THE TRAFFIC SIGNAL SYSTEM AS REQUIRED INCLUDING CONNECTION TO THE CITY'S COMPUTERIZED TRAFFIC SIGNAL SYSTEM

RECOMMENDED IMPROVEMENTS

PRIMARY INTERSECTIONS

	LOCATION	RECOMMENDED IMPROVEMENTS ¹
21	BUENA VISTA AVENUE & DOCK STREET	NO IMPROVEMENTS PROPOSED
22	BUENA VISTA AVENUE & MAIN STREET	NO IMPROVEMENTS PROPOSED *
23	BUENA VISTA AVENUE & HUDSON STREET	NO IMPROVEMENTS PROPOSED
24	WARBURTON AVENUE & DOCK STREET / NEPPERHAN STREET	NO IMPROVEMENTS PROPOSED *
25	WARBURTON AVENUE / RIVERDALE AVENUE & MAIN STREET	NO IMPROVEMENTS PROPOSED *
26	RIVERDALE AVENUE & HUDSON STREET	NO IMPROVEMENTS PROPOSED *
27	RIVERDALE AVENUE & NEPPERHAN AVENUE / PROSPECT STREET	RESTRIPE THE WB NEPPERHAN AVENUE RIGHT TURN LANE TO PROVIDE THROUGH AND RIGHT TURN MOVEMENTS UPGRADE SIGNAL AND CONNECT TO CITY'S COMPUTERIZED TRAFFIC SIGNAL SYSTEM

¹ - RECOMMENDED IMPROVEMENTS AS SHOWN ON FIGURE 10C

* - TIMING CHANGES MAY BE REQUIRED TO OPTIMIZE THE OPERATION OF THE TRAFFIC SIGNAL

RECOMMENDED IMPROVEMENTS

PRIMARY INTERSECTIONS

	LOCATION	RECOMMENDED IMPROVEMENTS ¹
28	RIVERDALE AVENUE & VARK STREET	NO IMPROVEMENTS PROPOSED *
29	RIVERDALE AVENUE & HERRIOT STREET	NO IMPROVEMENTS PROPOSED *
30	RIVERDALE AVENUE & LUDLOW STREET	NO IMPROVEMENTS PROPOSED *
31	RIVERDALE AVENUE & RADFORD STREET	NO IMPROVEMENTS PROPOSED *
32	RIVERDALE AVENUE & VALENTINE LANE	NO IMPROVEMENTS PROPOSED *
33	SOUTH BROADWAY & VARK STREET	NO IMPROVEMENTS PROPOSED *
34	SOUTH BROADWAY & HERRIOT STREET	NO IMPROVEMENTS PROPOSED *
35	SOUTH BROADWAY & BRIGHT PLACE	NO IMPROVEMENTS PROPOSED *
36	SOUTH BROADWAY & LUDLOW STREET	NO IMPROVEMENTS PROPOSED *
37	SOUTH BROADWAY & MCLEAN AVENUE	PHASING AND TIMING CHANGE REQUIRED TO OPTIMIZE THE OPERATION OF THE TRAFFIC SIGNAL
38	SOUTH BROADWAY & RADFORD STREET	NO IMPROVEMENTS PROPOSED *
39	SOUTH BROADWAY & VALENTINE LANE	NO IMPROVEMENTS PROPOSED *

¹ - RECOMMENDED IMPROVEMENTS AS SHOWN ON FIGURE 10D

* - TIMING CHANGES MAY BE REQUIRED TO OPTIMIZE THE OPERATION OF THE TRAFFIC SIGNAL

RECOMMENDED IMPROVEMENTS

PRIMARY INTERSECTIONS

	LOCATION	RECOMMENDED IMPROVEMENTS ¹
40	YONKERS AVENUE & MIDLAND AVENUE (WEST)	NO IMPROVEMENTS PROPOSED *
41	YONKERS AVENUE & MIDLAND AVENUE (EAST)	NO IMPROVEMENTS PROPOSED *
42	YONKERS AVENUE & SEMINARY AVENUE	NO IMPROVEMENTS PROPOSED *
43	YONKERS AVENUE & CENTRAL PARK AVENUE (SB)	NO IMPROVEMENTS PROPOSED *
44	YONKERS AVENUE & CENTRAL PARK AVENUE (NB)	NO IMPROVEMENTS PROPOSED *

¹ - RECOMMENDED IMPROVEMENTS AS SHOWN ON FIGURE 10E

* - TIMING CHANGES MAY BE REQUIRED TO OPTIMIZE THE OPERATION OF THE TRAFFIC SIGNAL

	LOCATION	RECOMMENDED IMPROVEMENTS ¹
45	WARBURTON AVENUE & GLENWOOD AVENUE	NO IMPROVEMENTS PROPOSED *
46	WARBURTON AVENUE & LAMARTINE AVENUE	NO IMPROVEMENTS PROPOSED *
47	NORTH BROADWAY & GLENWOOD AVENUE	NO IMPROVEMENTS PROPOSED *
48	NORTH BROADWAY & LAMARTINE AVENUE	NO IMPROVEMENTS PROPOSED *
49	NEPPERHAN AVENUE & LAKE STREET	CHANGE IN SIGNAL TIMING REQUIRED

¹ - RECOMMENDED IMPROVEMENTS AS SHOWN ON FIGURE 10F

* - TIMING CHANGES MAY BE REQUIRED TO OPTIMIZE THE OPERATION OF THE TRAFFIC SIGNAL

	LOCATION	RECOMMENDED IMPROVEMENTS ¹
50	PROSPECT STREET & BUENA VISTA AVENUE	NO IMPROVEMENTS PROPOSED
51	PROSPECT STREET & HAWTHORNE AVENUE	NO IMPROVEMENTS PROPOSED

¹ - RECOMMENDED IMPROVEMENTS AS SHOWN ON FIGURE 10C



S.F.C. YONKERS Yonkers, New York

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

LOADING AND CURBSIDE DROP-OFF



S.F.C. YONKERS Yonkers, New York

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK







S.F.C. YONKERS Yonkers, new york

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK





S.F.C. YONKERS Yonkers, New York

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

LOADING AND CURBSIDE DROP-OFF



S.F.C. YONKERS YONKERS, NEW YORK EXISITING GEOMETRY AND NEW TRAFFIC PATTERN/RECOMMENDED IMPROVEMENTS

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO. 10A



S.F.C. YONKERS Yonkers, New York EXISITING GEOMETRY AND RECOMMENDED IMPROVEMENTS

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO. 10B



S.F.C. YONKERS YONKERS, NEW YORK

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

EXISITING GEOMETRY AND RECOMMENDED IMPROVEMENTS

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO. 10C



S.F.C. YONKERS Yonkers, New York

EXISITING GEOMETRY AND RECOMMENDED IMPROVEMENTS

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO. 10D



S.F.C. YONKERS YONKERS, NEW YORK EXISITING GEOMETRY AND RECOMMENDED IMPROVEMENTS

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO. 10E



S.F.C. YONKERS YONKERS, NEW YORK

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE , NEW YORK

EXISITING GEOMETRY AND RECOMMENDED IMPROVEMENTS

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO. 10F



S.F.C. YONKERS Yonkers, New York

PRIMARY ROUTES - BALLPARK PARKING AREAS

JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

PROJECT NO. 281 DATE: DEC. 2007 FIG. NO. 11
Q. <u>ALTERNATE ROUTES EVALUATION</u>

As outlined in the Scoping Document, a number of intersections were identified which could potentially be impacted by the Project. These impacts would result if alternate routes were taken. Typical alternate routes are:

<u>Rumsey Road/Saw Mill River Pkwy/Cross County Pkwy Exit (Intersections No.52-57)</u> This alternate route would occur if southbound Saw Mill River Parkway and westbound Cross County Parkway site traffic elected to use the Rumsey Road Exit in lieu of the Yonkers Avenue Exits.

Lockwood Avenue/Saw Mill River SB On/Off Ramp (Intersection No. 58)

This alternate route would occur if southbound Saw Mill River Parkway site traffic elected to use the Lockwood Road Exit (Manning Avenue) in lieu of utilizing the Yonkers Avenue Exit.

Palmer Road/Saw Mill River NB On/Off Ramp (Intersection No. 59)

This alternate route would occur if Northbound Saw Mill River Parkway site traffic elected to bypass the Yonkers Avenue Exit.

Nepperhan Avenue/Executive Boulevard (Intersection No. 60)

The Nepperhan Avenue/Executive Boulevard intersection was evaluated as a sensitivity analysis.

The methodology in evaluating these alternate routes is the same methodology used in the analysis of the primary study area intersections as outlined in this Study.

Appendix J of this Study provides a summary of the existing geometry including traffic control, Existing Levels of Service, No-Build Levels of Service, any recommended improvements and the resulting Build Levels of Service.

Appendix J also provides the Year 2006 Existing, Year 2012 No-Build, Year 2012 Build, Year 2012 Build with Ballpark Traffic Volume Figures, the resulting Levels of Service and delay Figures and Tables as well as a Summary of Improvements Table.

The capacity analysis for the Alternate Route Intersections are contained in Appendix "K-3" of this Study.

Inspection of the Level of Service Summary Figures and Tables indicate that certain locations will operate at or above capacity under Existing No-Build or Build Conditions. The Lockwood Avenue/Saw Mill River Parkway Southbound On/Off Ramp (Manning Avenue) and the Palmer Road/Saw Mill River Parkway Northbound On/Off Ramp intersections are both currently unsignalized. Signalization may be required to improve operating conditions.

R. <u>PEDESTRIAN ACTIVITY</u>

Pedestrian activity is a normal part of any downtown area. This is especially true of the downtown Yonkers area. Pedestrian activity in the area is associated with mass transit usage (Metro-North and the Westchester County Bee-Line Bus System) and pedestrian activity associated with local businesses in the area. Sidewalks are generally provided along most of the area roadways to accommodate pedestrians. The existing control system is designed to accommodate pedestrian phases at signalized locations with crosswalks.

Pedestrian counts were collected by representatives of John Collins Engineers, P.C. as well the City of Yonkers for the following locations:

- o Buena Vista Avenue at the Yonkers Train Station
- o Main Street at the Yonkers Post Office
- o Nepperhan Avenue and New Main Street
- Nepperhan Avenue and South Broadway
- Main Street/North Broadway/ Avenue
- o Palisade Avenue/Elm Street/New School Street
- Warburton Avenue and Dock Street/Nepperhan Street
- o Warburton Avenue/Riverdale Avenue and Main Street
- Riverdale Avenue and Hudson Street
- Riverdale Avenue and Prospect Street

Copies of the Pedestrian Counts are contained in Appendix "D" of this Study.

Based on these counts, pedestrian activity in the area indicate typical pedestrian volumes ranging from 200 to 300 pedestrians per hour in the vicinity of the train station and 300 to 500 pedestrians per hour in the Getty Square area.

It is anticipated that pedestrian activity in the area will essentially remain the same under Future No-Build Conditions.

As part of the Project, pedestrian activity will continue to be associated with mass-transit usage (to/from the Project's residential and office uses) as well as pedestrian activity from the adjacent neighborhoods (to/from the retail). In developing the Project Generated Traffic Volumes, a 30% credit was taken to account for mass-transit usage, interplay between uses and pass-by trips. It should be noted that a significant portion of the Project's retail pedestrian activity is already on the area roadways. However, in order to provide a conservative estimate of the Project's pedestrian activity in the area, 10% of the Project Generated Traffic Volumes would approximate the Project's pedestrian activity in the area. This would equate to approximately 200 pedestrians during the Peak AM Highway Hour (with an average of some 50 pedestrians per 15 minutes), approximately 400 pedestrians during the Peak PM Highway Hour (with an average of some 100 pedestrians per 15 minutes) and 400 pedestrians during the Peak Saturday Hour (with an average of some 100 pedestrians per 15 minutes).

The NYSDOT has established pedestrian Levels of Service. These Levels of Service are based on pedestrian flow rates which are calculated in people per minute per meter. A copy of the NYSDOT flow rates and Levels of Service are contained in Appendix "D" of this Study. Based on this criteria, a sidewalk/crosswalk would result in the flowing flow rates and Levels of Service:

A pedestrian flow rate of 0 - 24 pedestrians/minute would be a Level of Service "A", a pedestrian flow rate of 24 - 35 pedestrians/minute would be a Level of Service "B", a pedestrian flow rate of 35 - 50 pedestrians/minute would be a Level of Service "C", a pedestrian flow rate of 50 - 74 pedestrians/minute would be a Level of Service "D", a pedestrian flow rate of 74 - 112 pedestrians/minute would be a Level of Service "E" and a pedestrian flow rate greater than 112 pedestrians/minute would be a Level of Service "F".

Based on the above NYSDOT flow rates and Levels of Service, the number of pedestrians that can be accommodated at a Level of Service "C" is some 525 - 750 pedestrians every 15 minutes. Inspection of the pedestrian count data (Appendix "D") shows less than 100 pedestrians on a sidewalk/crosswalk in any 15 minute period.

Based on the above, the existing pedestrian activity in the area is at Levels of Service "C" or better, and given the reserve it is anticipated that Level of Service "C" or better will remain with the proposed SFC Yonkers Project.

As outlined in the Recommended Improvement Section, a trolley system will be implemented to shuttle people to/from the railroad station to/from River Park Center and Cacace Center, a bus drop-off lane will be provide on Nepperhan Avenue westbound between Elm Street and New Main Street and a designated area for a taxi stand will be located on the north side of Palisades Avenue between Elm Street and New Main Street.

In addition, as part of the development plan, the use of crosswalks and pedestrian phases at signalized locations will be maintained at existing locations. At new signalized locations or at access points to the development, design features will be implemented to accommodate pedestrian activity. In fact, the existing signal at Nepperhan Avenue/New School Street will be retained to provide for a pedestrian crossing. A pedestrian friendly streetscape will be developed along the development's frontage and access points to the development.

It is also recommended that within the development area, any proposed traffic signal have a pedestrian phase and that sidewalks/crosswalks be provided as part of the Project.

During special events such as a ballgame, uniformed police officers may be required at selected locations to direct traffic and pedestrian flow such as at the Nepperhan Avenue/New Main Street intersection.

S. <u>PUBLIC TRANSPORTATION</u>

BUS SERVICE

Bus Service in the area includes the Westchester County Bee-Line Bus System operated by the Westchester County Department of Transportation with local and express bus service provided within the vicinity of the Project. Available Bus Routes for the areas are shown on Figure No. 12 following this Section. The Westchester County Department of Transportation indicated that the Bee Line Bus routes in the area generally have available capacity and if ridership increases bus service is adjusted accordingly.

The Westchester County Department of Transportation has indicated that the new traffic patterns proposed appears to have a minimum impact on the Bee Line Bus operations and may benefit the system and will continue to review the impacts and benefits as the plans develop. (See attached letter - Appendix "E" - Public Transportation).

As part of the SFC Yonkers Project, a bus drop-off lane will be provided on Nepperhan Avenue westbound between Elm Street and New Main Street for the discharge of passengers. Additional bus stops will be added based on need and will be discussed between the City and the Westchester County Department of Transportation.

METRO-NORTH RAILROAD

Train Service for the area is served by the Metro-North Railroad (Hudson Line) with service provided at the Yonkers Train Station with service to Grand Central Terminal during peak and off-peak hours for both Weekdays and Weekends. The Yonkers Train Station is approximately 3-4 blocks from the site with parking at the Buena Vista Garage (610 parking spaces) and the Larkin Plaza Lot (119 parking spaces). Based on discussions with the Metro-North Railroad, existing train service has capacity to accommodate the increase in ridership.

TROLLEY SERVICE

As part of the SFC Yonkers Project, it is proposed that a trolley system be implemented to link the various redevelopment areas. This trolley system will shuttle people to/from the railroad station to River Park Center and the Cacace Center. The trolley system will have the ability of multiple stops within the area based on demand. An initial trolley loop is shown on Figure No. 13 following this Section. Additional loops can be added as development proceeds. The trolley fleet should consist of environmentally sensitive vehicles with frequent service. A real time informational system should be part of any trolley system. This real time system will have an integrated GPS System and will be capable of providing information to riders with respect to anticipated departure times from various stops.

PEAK HOUR COMMUTER TRIPS

The Traffic Study includes a mass transit, interplay and pass by credit of 30%. The mass transit credit was taken as 20% of the combined residential and office trips. This equates to roughly 200 trips during the Weekday AM or PM Commuter Peak Hours. Based on discussions with the rail and transit officials, this mass transit usage can be accommodated by the existing bus and rail system.

Based on the relative close proximity of the project area to the Yonkers Train Station and the implementation of the trolley service it is not anticipated that the Project will impact the existing commuter lots servicing the Yonkers Train Station.



Transportation Busmap

Local Bus Service Express Bus Service



Yonkers Conceptual Design Plan Yonkers, NY



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Transportation Proposed Shuttle Loop

DRAFT

Yonkers Conceptual Design Plan Yonkers, NY



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Ehrenkrantz Eckstut & Kuhn Architects

T. <u>ACCIDENT DATA</u>

Accident data was obtained from the New York State Department of Transportation Records Access Office for the study area (Figure No. 1) for the latest available three year period (January 1, 2003 through December 31, 2005) and include the following roadway links:

- o Nepperhan Avenue between South Broadway and Yonkers Avenue
- o Elm Street between Nepperhan Avenue and Palisade Avenue/School Street
- o Palisade Avenue between Elm Street/School Street and Main Street
- o Buena Vista Avenue between Dock Street and Prospect Street
- o Yonkers Avenue between Nepperhan Ave & the Saw Mill River Parkway Ramps
- o Yonkers Avenue between the Saw Mill River Parkway Ramps & Central Park Ave
- o Ashburton Avenue between Warburton Avenue and Yonkers Avenue
- o Warburton Avenue between Glenwood Avenue and Riverdale Avenue
- o Riverdale Avenue between Nepperhan Avenue/Prospect Street and Valentine Lane
- o North Broadway between Glenwood Avenue and Main Street
- o South Broadway between North Broadway and Valentine Lane

A copy of the NYSDOT Accident Summary Tables for each of the above roadway segments is contained in Appendix "F" of this Study.

A summary of the accident data by year for each of the above roadway segments are shown on Table No. 4A and a summary by intersection is shown on Table No. 4B following this Section. As shown on Table No. 4B, there are several locations along Yonkers Avenue, Nepperhan Avenue and North/South Broadway that have a range of 10 to 14 accidents a year. The type of accidents are typical type of accidents, such as rear end accidents and turning accidents with apparent contribution factors such as failure to yield right of way and driver error. This accident data reflects existing accident patterns.

It should be noted that with the recommended/proposed improvements which includes improved geometry, new traffic patterns, removal of parking, a proposed median along Nepperhan Avenue/Yonkers Avenue and new traffic signals connected to the City's Centralized Computer System improved traffic flow in the area is expected. These improvements will improve driver awareness thereby reducing driver confusion and/or driver error.

TABLE NO. 4A

ACCIDENT SUMMARY BY BROADWAY SEGMENT

		2003	2004	2005
1	NEPPERHAN AVENUE (BETWEEN SOUTH BROADWAY AND YONKERS AVENUE)	21	15	34
2	ELM STREET (BETWEEN NEPPERHAN AVENUE AND PALISADE AVENUE/SCHOOL STREET)	3	8	13
3	PALISADE AVENUE (BETWEEN ELM STREET/SCHOOL STREET AND MAIN STREET)	8	7	4
4	BUENA VISTA AVENUE (BETWEEN DOCK STREET AND PROSPECT STREET)	1	0	2
5	YONKERS AVENUE (BETWEEN NEPPERHAN AVENUE AND THE SAW MILL PARKWAY RAMPS)	56	52	37
6	YONKERS AVENUE (BETWEEN THE SAW MILL PARKWAY RAMPS AND CENTRAL PARK AVENUE)	62	56	51
7	ASHBURTON AVENUE (BETWEEN WARBURTON AVENUE AND YONKERS AVENUE)	37	30	26
8	WARBURTON AVENUE (BETWEEN GLENWOOD AVENUE AND RIVERDALE AVENUE)	25	27	16
9	RIVERDALE AVENUE (BETWEEN NEPPERHAN AVENUE/PROSPECT STREET AND VALENTINE LANE)	38	38	32
10	NORTH BROADWAY (BETWEEN GLENWOOD AVENUE AND MAIN STREET)	30	27	25
11	SOUTH BROADWAY (BETWEEN NORTH BROADWAY AND VALENTINE AVENUE)	65	47	52

BASED ON COUNT DATA OBTAINED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION RECORDS ACCESS OFFICE FOR THE STUDY AREA FOR THE LATEST THREE YEAR PERIOD - JANUARY 1, 2003 THROUGH DECEMBER 31, 2005

TABLE NO. 4B

ACCIDENT SUMMARY BY LOCATION

	LOCATION	2003	2004	2005
1	NEPPERHAN AVENUE & ELM STREET	2	4	10
2	NEPPERHAN AVENUE & NEW SCHOOL STREET	1	3	3
3	NEPPERHAN AVENUE & NEW MAIN STREET	2	2	5
4	NEPPERHAN AVENUE & SOUTH BROADWAY	7	3	5
5	SOUTH BROADWAY & HUDSON STREET	1	0	7
6 7	SOUTH BROADWAY & MAIN STREET MAIN STREET & PALISADE AVENUE	6	10	9
8	PALISADE AVENUE & LOCUST HILL AVENUE	2	1	1
9	PALISADE AVENUE / ELM STREET / NEW SCHOOL STREET	1	4	1
10	ASHBURTON AVENUE & WARBURTON AVENUE	4	5	3
11	ASHBURTON AVENUE & NORTH BROADWAY	3	3	4
12	ASHBURTON AVENUE & LOCUST HILL ROAD	0	1	0
13	ASHBURTON AVENUE & PALISADE AVENUE	*	*	*
14	ASHBURTON AVENUE & NEPPERHAN AVENUE	8	3	4
15	ASHBURTON AVENUE & NYS ROUTE 9A / WALNUT STREET	2	4	2

* = NO REPORTABLE ACCIDENTS

BASED ON COUNT DATA OBTAINED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION RECORDS ACCESS OFFICE FOR THE STUDY AREA FOR THE LATEST THREE YEAR PERIOD - JANUARY 1, 2003 THROUGH DECEMBER 31, 2005

TABLE NO. 4B

ACCIDENT SUMMARY BY LOCATION

	LOCATION	2003	2004	2005
16	YONKERS AVENUE & WALNUT STREET	6	10	5
17	YONKERS AVENUE & PRESCOTT STREET	6	5	7
18	YONKERS AVENUE & ASHBURTON AVENUE	8	1	2
19 20	YONKERS AVENUE & SAW MILL RIVER PARKWAY SB RAMP YONKERS AVENUE & SAW MILL RIVER PARKWAY NB RAMP	12	11	1
21	BUENA VISTA AVENUE & DOCK STREET	*	*	*
22	BUENA VISTA AVENUE & MAIN STREET	0	0	1
23	BUENA VISTA AVENUE & HUDSON STREET	1	0	0
24	WARBURTON AVENUE & DOCK STREET / NEPPERHAN STREET	0	2	1
25	WARBURTON AVENUE / RIVERDALE AVENUE & MAIN STREET	1	1	1
26	RIVERDALE AVENUE & HUDSON STREET	0	2	1
27	RIVERDALE AVENUE & PROSPECT STREET	8	7	11
28	RIVERDALE AVENUE & VARK STREET	4	5	1
29	RIVERDALE AVENUE & HERRIOT STREET	1	3	1
30	RIVERDALE AVENUE & LUDLOW STREET	1	5	2
31	RIVERDALE AVENUE & RADFORD STREET	0	3	2
32	RIVERDALE AVENUE & VALENTINE LANE	1	1	3

* = NO REPORTABLE ACCIDENTS

BASED ON COUNT DATA OBTAINED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION RECORDS ACCESS OFFICE FOR THE STUDY AREA FOR THE LATEST THREE YEAR PERIOD - JANUARY 1, 2003 THROUGH DECEMBER 31, 2005

TABLE NO. 4B

ACCIDENT SUMMARY BY LOCATION

	LOCATION	2003	2004	2005
33	SOUTH BROADWAY & VARK STREET	0	0	2
34	SOUTH BROADWAY & HERRIOT STREET	4	3	5
35	SOUTH BROADWAY & BRIGHT PLACE	1	0	0
36	SOUTH BROADWAY & LUDLOW STREET	4	4	0
37	SOUTH BROADWAY & MCLEAN AVENUE	2	3	1
38	SOUTH BROADWAY & RADFORD STREET	3	3	4
39	SOUTH BROADWAY & VALENTINE LANE	0	1	1
40 41	YONKERS AVENUE & MIDLAND AVENUE (WEST) YONKERS AVENUE & MIDLAND AVENUE (EAST)	14	13	7
42	YONKERS AVENUE & SEMINARY AVENUE	0	3	3
43 44	YONKERS AVENUE & CENTRAL PARK AVENUE (SB) YONKERS AVENUE & CENTRAL PARK AVENUE (NB)	14	10	13
45	WARBURTON AVENUE & GLENWOOD AVENUE	0	2	0
46	WARBURTON AVENUE & LAMARTINE AVENUE	5	2	2
47	NORTH BROADWAY & GLENWOOD AVENUE	3	3	2
48	NORTH BROADWAY & LAMARTINE AVENUE	1	2	1
49	NEPPERHAN AVENUE & LAKE STREET	*	*	*
50	PROSPECT STREET & BUENA VISTA AVENUE	0	0	1
51	PROSPECT STREET & HAWTHORNE AVENUE	*	*	*

* = NO REPORTABLE ACCIDENTS

BASED ON COUNT DATA OBTAINED FROM THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION RECORDS ACCESS OFFICE FOR THE STUDY AREA FOR THE LATEST THREE YEAR PERIOD - JANUARY 1, 2003 THROUGH DECEMBER 31, 2005

Page 121

U. <u>SYNCHRO ANALYSIS</u>

SYNCHRO is a simulation model that can be used to optimize signal timing parameters for isolated intersections as well as generate coordinated traffic signal timing plans for arteries and networks. SYNCHRO is designed to optimize cycle lengths, splits, offsets and phase orders. SYNCHRO also optimizes multiple cycle lengths and performs coordination analysis. When performing coordination analysis, SYNCHRO determines which intersections should be coordinated and those that should run free. SYNCHRO also calculates intersection Levels of Service, approach delays as well as queue lengths.

A SYNCHRO analysis was conducted for the Nepperhan Avenue/Yonkers Avenue Corridor for Existing, No-Build and Build Conditions for the Weekday Peak AM, Weekday Peak PM and Saturday Peak Hours. In addition, a SYNCHRO analysis was conducted for the Build PM Peak Condition and Build Saturday Peak Condition with the Ballpark.

The SYNCHRO analysis was conducted to evaluate the coordination of signalized intersections along the Nepperhan Avenue/Yonkers Avenue Corridor taking into consideration the phasing and timing of the traffic signals. The SYNCHRO analysis also computes the 50th percentile queues (average queues) and 95th percentile queues. Copies of the SYNCHRO analysis are contained in Appendix L of this Study.

Page 122

The average queue for the AM and PM Peak Hours for the No-Build and Build conditions are shown on Table 1-Queue (Appendix L). This table also lists the available storage by movement. In most cases the average queue length is less than the available storage, therefore there is no potential for "spill back" into adjoining intersections.

In a few instances, i.e., Southbound Saw Mill River Parkway/Yonkers Avenue, the queue length is shown to exceed the storage capacity with the potential for "spill back" into an adjoining intersection. However, this is a result of inputs to the model which requires link lengths as well as traffic volumes. In fact, this intersection is controlled by an upstream intersection, i.e., Sawmill River Parkway Northbound on/off ramps and Yonkers Avenue. As such, the queue indicated for the southbound ramps will in fact be accommodated at the northbound ramp intersection. In addition, the proposed centralized computer system will insure that optimum progression is obtained within the system.

V. <u>PARKING</u>

A parking study has been prepared and is included in Appendix 2 of the DEIS.