

Safe Streets for Seniors

Rego Park, Queens

FINAL REPORT

August 2013



Janette Sadik-Khan, Commissioner



Safe Streets for Seniors
REGO PARK

TABLE OF CONTENTS

1 PROJECT DESCRIPTION	
1	PROJECT DESCRIPTION 4
2 BACKGROUND	
2	BACKGROUND 5
3 EXISTING CONDITIONS	
3	EXISTING CONDITIONS 7
3.1	ABOUT THE STUDY AREA 7
3.2	FIELD OBSERVATIONS AND SENIOR PEDESTRIANS CONCERNS 7
4 TRAFFIC OPERATIONS	
4	TRAFFIC OPERATIONS..... 8
4.1	CRASH SUMMARY..... 8
4.2	TRAFFIC VOLUMES 10
4.3	SIGNAL TIMING: PEDESTRIAN INTERVAL 11
5 ILLUSTRATING THE SOLUTION	
5	ILLUSTRATING THE SOLUTION 12
5.1	EXECUTIVE SUMMARY AND GENERAL RECOMMENDATIONS 12
5.2	QUEENS BOULEVARD 15
5.3	SAUNDERS STREET 17
5.4	62 ND DRIVE/63 RD AVENUE 18
5.5	67 TH AVENUE 20
5.6	97 TH STREET FROM 63 RD ROAD TO 63 RD DRIVE 21

EXHIBITS

EXHIBIT 1 – AREA MAP	5
EXHIBIT 2 – BIKE MAP	6
EXHIBIT 3 – TRUCK MAP	6
EXHIBIT 4 – TRANSIT MAP	6
EXHIBIT 5 - LIST OF SCHOOLS IN THE STUDY AREA.....	6
EXHIBIT 6 - PEDESTRIAN CRASH STATISTICS (2001-2006)	9
EXHIBIT 7 – RECOMMENDATION INDEX	22
EXHIBIT 8 – QUEENS BOULEVARD (FROM 63 RD AVENUE TO 64 TH ROAD)	23
EXHIBIT 9 – QUEENS BOULEVARD (FROM 65 TH ROAD TO 67 TH AVENUE).....	24
EXHIBIT 10 – SAUNDERS STREET (FROM 63 RD AVENUE TO 64 TH ROAD)	25
EXHIBIT 11 – SAUNDERS STREET (FROM 65 TH ROAD TO 67 TH AVENUE)	26
EXHIBIT 12 – 62 ND DRIVE (FROM JUNCTION BOULEVARD TO 98 TH STREET)	27
EXHIBIT 13 – 97 TH STREET (FROM 63 RD ROAD TO 63 RD DRIVE)	28
EXHIBIT 14 – 67 TH AVENUE (FROM BOOTH STREET TO BURNS STREET)	29

TABLES

TABLE 1: DMV SIX YEAR CRASH SUMMARY (2001-2006)	8
TABLE 2: TRAFFIC VOLUME DATA.....	10
TABLE 3: SUMMARY OF SPECIFIC RECOMMENDATIONS.....	12
TABLE 4: SPOT SPEED SURVEY	20

LIST OF APPENDICES

APPENDIX A:	AUTOMATIC TRAFFIC RECORDER COUNTS (ATR)
APPENDIX B:	TURNING MOVEMENT COUNTS (TMC)
APPENDIX C:	PEDESTRIAN COUNTS
APPENDIX D:	PARKING REGULATIONS
APPENDIX E:	ADDITIONAL TRAFFIC DATA & ANALYSES
APPENDIX F:	NYCDOT QUEENS BOULEVARD PROPOSED PLANS



PROJECT DESCRIPTION

1 PROJECT DESCRIPTION

Since 1990 the number of pedestrian fatalities in New York City has decreased by 56%. Moreover, prior to 1950, pedestrians accounted for three-fourths of all traffic fatalities and since then, that percentage has decreased to account for about one-half of all traffic fatalities. Despite these statistical improvements, pedestrians continue to be the largest at risk mode – with older adults more likely to suffer serious injuries or fatalities from traffic crashes than other pedestrians. The rate of pedestrian fatalities for every 100,000 persons in the City has decreased by nearly half since 1991 – to 2.0 from 3.8 – while the rate of senior pedestrian fatalities per 100,000 seniors has decreased even more sharply – to 6.6 from 13.1. Nevertheless, while seniors make up only 12% of the population in New York City, they still comprise 39% of pedestrian fatalities. The recognition of the disproportional representation of the senior population among severe pedestrian injuries and fatalities led to the development of the Department of Transportation’s Safe Streets for Seniors (SSS) Program.

The purpose of this project is to address senior pedestrian safety issues at 25 Senior Pedestrian Focus Areas (SPFAs) in the five boroughs of New York City and to develop and implement mitigation measures to improve the safety of seniors and other pedestrians within the 25 SPFAs. DOT identified SPFAs to include the top senior pedestrian crash (severe injury and fatality) areas within each borough. Four of the SPFAs are located in the Bronx, seven in Brooklyn, five in Queens, eight in Manhattan and one in Staten Island. The SPFAs have been selected based on the density of senior pedestrian crashes resulting in fatalities or severe injuries in a five-year period. DOT conducted in-house studies for five pilot SPFAs and is utilizing consultant services to perform a comprehensive study of pedestrian safety conditions at intersections and along corridors within 20 selected SPFAs.

The project evaluates the crash history and existing traffic conditions and controls (e.g., roadway geometry, signal timing) at selected intersections and corridors within each SPFA in order to develop short- and long-term measures to reduce pedestrian crashes specifically for seniors, and improve safety and traffic operations for all users. The DOT makes specific safety recommendations consisting of low-cost as well as capital engineering and design improvements for these 20 areas. In addition, the DOT conducts data analysis as needed, prepares engineering and design schematics and related services, as necessary, for capital improvements.

In this report, the Rego Park SPFA located in Queens has been studied and improvements have been recommended.

2 BACKGROUND

Land-use in the Rego Park Study Area is a mix of commercial and residential buildings. There is one Senior Center located in or near the study area: the Rego Park Senior Center on the north side of Queens Boulevard between 62nd and 63rd Avenues.

There are no medical centers within the Rego Park study area, but Forest Hills (NSLIJ) and Saint John's Queens hospitals are located nearby at the intersections of 66th Avenue and 102nd Street, and Queens Boulevard and 58th Avenue, respectively.

There are two schools inside the study area (a list of school names and addresses is shown in Exhibit 5).

Bicycle Facilities

The 2010 NYC Bike Map shows “existing” and “planned/proposed” bicycle facilities throughout the city. There are no existing bike routes in the vicinity of the Rego Park Study Area; however, there are planned/proposed routes on 63rd Road and 62nd Drive (Exhibit 2).

Truck Routes

The local truck routes along Junction Boulevard and 62nd Drive as well as the through truck route along Queens Boulevard are included in the study area. The through truck route along the Long Island Expressway and the local truck route along 108th Street are also in close proximity to the study area (Exhibit 3).

Bus Lines and Subway

Five bus lines operate within the study area including (Exhibit 4):

- Q60: Operates along Queens Boulevard
- Q38: Operates along 63rd Road and 62nd Drive
- Q72: Operates along Junction Boulevard
- QM11: Express bus service operates along Queens Boulevard and 63rd Road
- QM12: Express bus service operates along 62nd Drive
- QM1, QM5, QM6, QM7, QM8, QM18, X63, X64 and X68: Operate along Queens Boulevard

The **M** and **R** subway lines run along Queens Boulevard through the study area (Exhibit 4). Subway stations for the **M** and **R** lines are located at the following intersections:

- 66th Street and 18th Avenue
- 65th Street and 20th Avenue

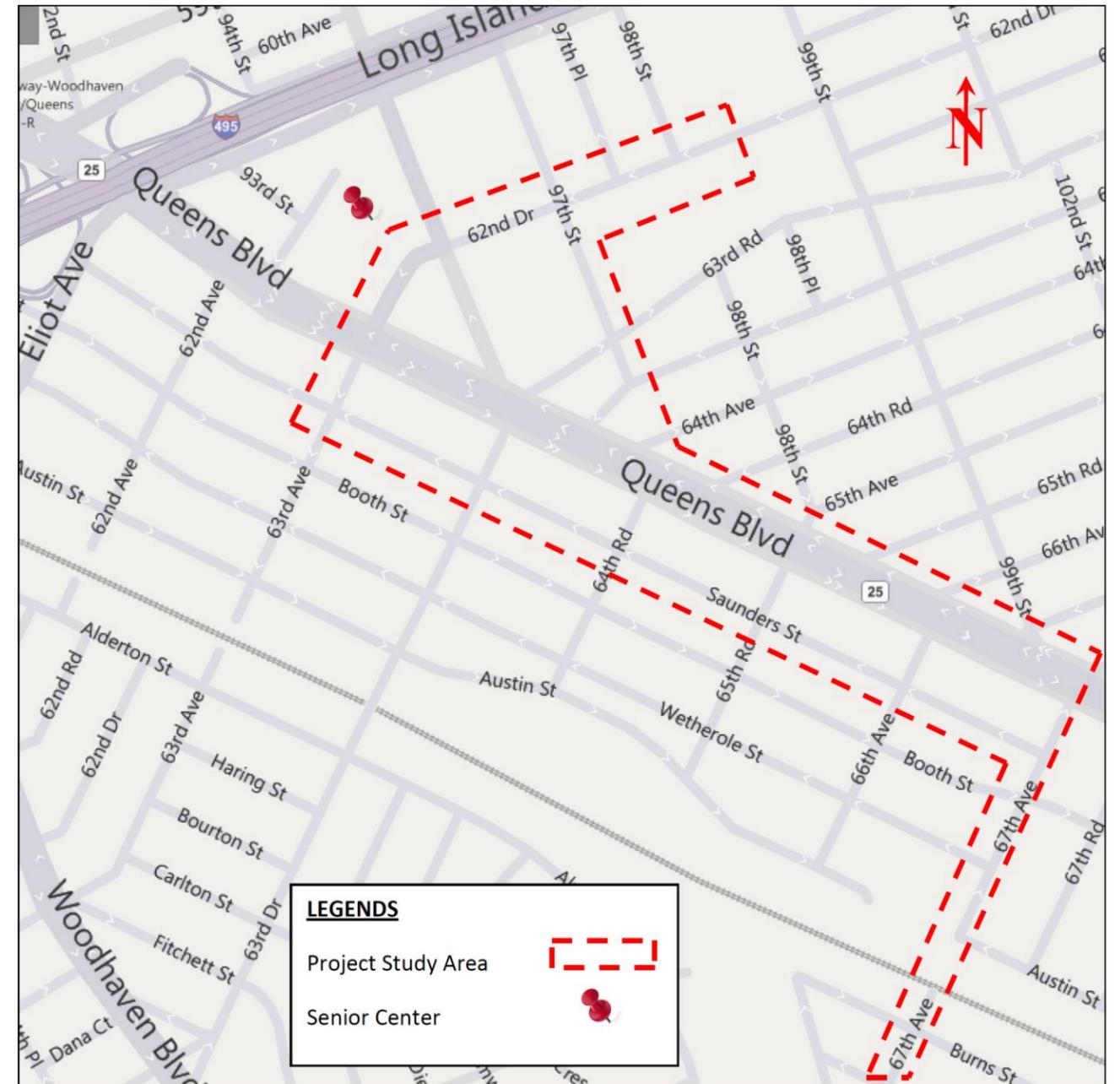


EXHIBIT 1 – AREA MAP

2

BACKGROUND

EXHIBIT 2 – BIKE MAP

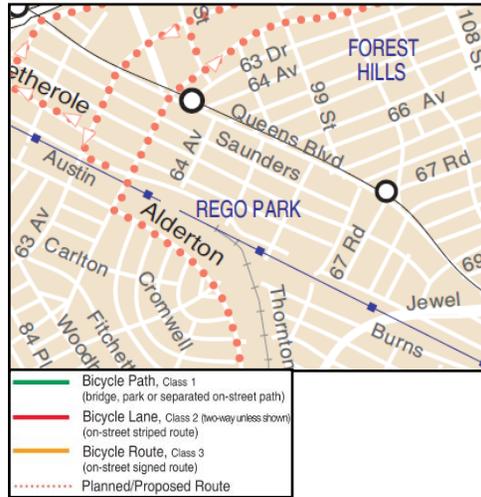


EXHIBIT 3 – TRUCK MAP

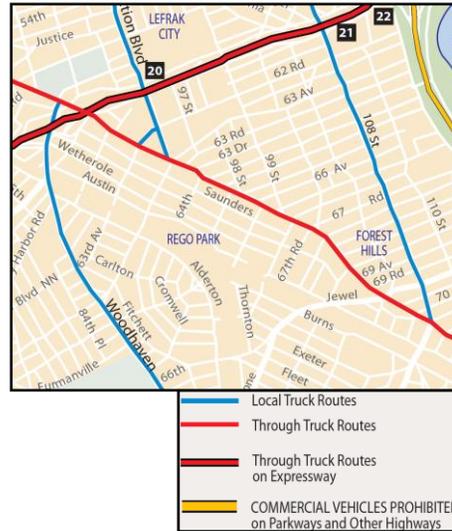


EXHIBIT 4 – TRANSIT MAP

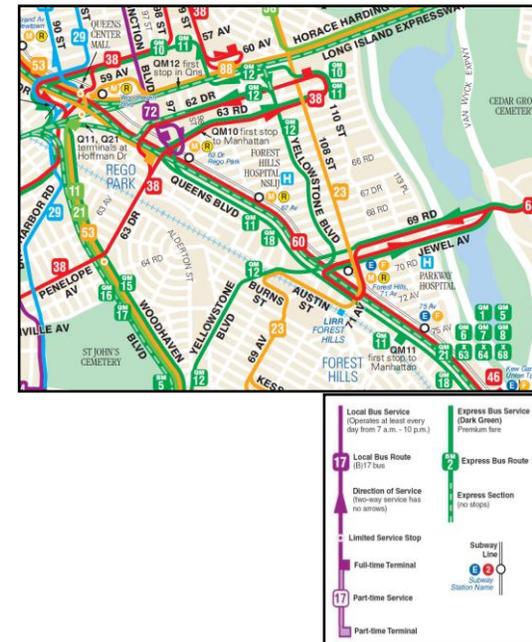


EXHIBIT 5 - LIST OF SCHOOLS IN THE STUDY AREA

SCHOOL NAME	ADDRESS
Rego Park Jewish Center – Life Skill Pre-School	9730 Queens Boulevard, NY 11374-3245
Montessori School – Forest Hills	6704 Austin Street, NY 11375-3556

3

EXISTING CONDITIONS

3 EXISTING CONDITIONS

3.1 ABOUT THE STUDY AREA

The Rego Park Study Area consists of one major east-west corridor, Queens Boulevard, between 67th Avenue and 63rd Avenue (Photo No. 1). There are also three north-south corridors: Junction Boulevard, 67th Avenue, and 63rd Avenue. The major corridor, Queens Boulevard, is a through truck route, while Junction Boulevard and a portion of 63rd Avenue are local truck routes (Exhibit 3). Queens Boulevard also carries several NYCT express bus lines including QM1, QM5, QM6, QM7, QM8, QM11, QM18, X63, X64 and X68, as well as local route Q60 (Exhibit 4). Many of the senior residents interviewed showed some concerns about these corridors, especially Queens Boulevard. The combination of heavy traffic volumes, operational factors and geometric factors make these corridors difficult for senior pedestrians to safely cross.



Photo No. 1: Queens Boulevard and 64th Road (looking west)

3.2 FIELD OBSERVATIONS AND SENIOR PEDESTRIANS CONCERNS

There were numerous issues that were repeatedly observed during the field visits and/or conveyed by senior pedestrians during interviews. Those issues are listed here:

- Insufficient pedestrian crossing time
- Missing crosswalk markings
- Missing or non-standard pedestrian ramps
- Length of crosswalks
- Missing pedestrian refuge islands

4

TRAFFIC OPERATIONS

4 TRAFFIC OPERATIONS

4.1 CRASH SUMMARY

Crash data was obtained from the New York City Department of Transportation (NYCDOT) for the Rego Park study area from 2001 through 2006. This data provides some details relating to the circumstances and cause of each crash. Table 1 and Exhibit 6 show a summary of crashes.

TABLE 1: DMV SIX YEAR CRASH SUMMARY (2001-2006)

INTERSECTION		SENIOR PEDESTRIAN CRASHES	SENIOR PEDESTRIAN FATALITIES
62nd Drive	98th Street	1	0
Queens Boulevard	63rd Avenue/62nd Drive	1	0
Queens Boulevard	63rd Drive/63rd Road	1	0
Queens Boulevard	65th Road	1	0
Queens Boulevard	67th Avenue	1	0
67th Avenue	Booth Street	1	0
67th Avenue	Burns Street	1	0
63rd Drive	Saunders Street	1	0
TOTAL		8	0

4

TRAFFIC OPERATIONS



EXHIBIT 6 - PEDESTRIAN CRASH STATISTICS (2001-2006)

4

TRAFFIC OPERATIONS

4.2 TRAFFIC VOLUMES

In order to analyze conditions for vehicles and pedestrians, traffic volume data was collected at key locations (see Table 2).

The results of the turning movement and pedestrian counts are included in Appendices A and B and the Technical Supplements.

TABLE 2: TRAFFIC VOLUME DATA

INTERSECTION	ATR¹	TMC²	PED COUNTS
Queens Boulevard and 63 rd Street	-	X	X
Queens Boulevard and 67 rd Avenue	-	X	X

Notes:

1. Twenty-four hour Automatic Traffic Recorder (ATR)
2. Turning Movement Counts (TMC's)

4

TRAFFIC OPERATIONS

4.3 SIGNAL TIMING: PEDESTRIAN INTERVAL

According to the MUTCD 2009 (Manual on Uniform Traffic Control Devices) Section 4E.06, a minimum of seven (7) seconds is allocated for a walk interval, in addition to a pedestrian clearance time based on a walking speed of 3.5 feet per second. All signalized intersections within the study area were modified to provide a clearance interval of 3 feet per second to accommodate the slower walking speeds of seniors.

5

ILLUSTRATING THE SOLUTION

5 ILLUSTRATING THE SOLUTION

5.1 EXECUTIVE SUMMARY AND GENERAL RECOMMENDATIONS

TABLE 3: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	Installation / Replacement of Pedestrian Ramps	Curb Extension / Neck-down / Median Extension	High-Visibility Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Parking Lane	Stripe Back-in Parking	Stripe Channelization	Installation of Yield to Peds and/or Other Signs	Daylighting	Turn Bay (Right/Left)	Lane Drop
98 th Street & 62 nd Drive						x	x		x			x
97 th Place & 62 nd Drive					x	x	x					x
97 th Street & 62 nd Drive			x			x	x				x	x
Junction Boulevard & 62 nd Drive			x			x	x	x	x		x	x
Queens Boulevard & 62 nd Drive/63 rd Avenue	x	x				x		x			x	x
Saunders Street & 63 rd Avenue						x			x			
Queens Boulevard & Junction Boulevard						x						
97 th Street & 63 rd Road	x	x	x		x	x						
Queens Boulevard & 63 rd Road/63 rd Drive		x				x					x	
Saunders Street & 63 rd Drive		x	x		x				x			
97 th Street & 63 rd Drive			x		x				x			
Queens Boulevard & 63 rd Drive			x									
Queens Boulevard & 64 th Avenue			x									
Queens Boulevard & 64 th Road (South)									x			
Saunders Street & 64 th Road									x			
Queens Boulevard & 64 th Road (North)			x									
Queens Boulevard & 65 th Avenue/65 th Road									x			

5

ILLUSTRATING THE SOLUTION

TABLE 3: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	Installation / Replacement of Pedestrian Ramps	Curb Extension / Neck-down / Median Extension	High-Visibility Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Parking Lane	Stripe Back-in Parking	Stripe Channelization	Installation of Yield to Peds and/or Other Signs	Daylighting	Right-turn Bay	Lane Drop
Saunders Street & 65 th Road									x			
Queens Boulevard & 65 th Road (North)			x									
Queens Boulevard & 66 th Avenue			x			x			x			
Queens Boulevard & 66 th Road/99 th Street			x	x		x						
Queens Boulevard & 67 th Avenue		x				x			x	x		
Wetherole Street & 67 th Avenue				x								
Austin Street & 67 th Avenue				x								
Burns Street & 67 th Avenue	x											

Note:

x - Recommendations proposed by study of Safe Street for Seniors – Rego Park

General Recommendations

- Place stop bars ten feet in advance of all crosswalks
The NYCDOT standard for placement of a stop bar is ten feet in advance of any marked pedestrian crosswalk, including school and high-visibility crosswalks. This positioning helps to maximize pedestrian visibility and to minimize the potential for pedestrian/vehicle conflicts. Therefore, it is recommended that stop bars be placed ten feet in advance of all crosswalks.
- Provide additional crossing time where feasible
A number of senior residents interviewed indicated that there was not enough time to cross many of the streets. Therefore, all of the signals, where possible, will be retimed to allow more crossing time for pedestrians.
- Green projects where feasible
All medians, pedestrian plazas and curb extensions will be part of the Greenstreets project, where feasible. The Greenstreets project is a citywide program to convert paved vacant traffic islands and medians into green spaces filled with shade trees, flowering trees, shrubs and groundcover.

5

ILLUSTRATING THE SOLUTION

5.2 QUEENS BOULEVARD

Within the study area, Queens Boulevard is the major east-west corridor, accommodating large volumes of traffic (Photo No. 2). The project limits of this corridor are 63rd Avenue in the west to 67th Avenue in the east, which is about 0.70 miles long. The width of Queens Boulevard varies from 170 to 175 feet throughout the study area. In addition, this corridor has both north and south service roads.



Photo No. 2: Queens Boulevard and 65th Road (looking west)

Neck-downs or curb extensions are recommended at the following intersection to shorten the crossing distance, slow down vehicular traffic and provide better visibility for senior pedestrians:

- Northwest corner of Queens Boulevard and 63rd Avenue/62nd Drive

Raised median island extensions or new raised median islands are recommended at the following intersections to shorten the crossing distance and to increase visibility and improve pedestrian safety:

- Queens Boulevard and 63rd Drive/63rd Road
- Queens Boulevard and 67th Avenue

Daylighting is recommended at the following locations to improve visibility for senior pedestrians:

- Southwest corner of Queens Boulevard and 67th Avenue

Yield to Pedestrian or Pedestrian Crossing signs are recommended at the following intersections to warn drivers:

- Queens Boulevard and 64th Road (Pedestrian Crossing sign)
- Queens Boulevard and 65th Road (Yield to Pedestrian sign)
- Queens Boulevard and 66th Avenue (Pedestrian Crossing sign)
- Queens Boulevard and 67th Avenue (Yield to Pedestrian sign)

Provide new pedestrian ramp at the following intersection:

- Queens Boulevard and 63rd Avenue/62nd Drive

High visibility crosswalks are recommended at the following intersections to warn drivers of pedestrian crossings:

- Queens Boulevard north service road and 63rd Drive
- Queens Boulevard north service road and 64th Avenue
- Queens Boulevard north service road and 64th Road

5

ILLUSTRATING THE SOLUTION

- Queens Boulevard north service road and 65th Road
- Queens Boulevard north and south service roads and 66th Avenue
- Queens Boulevard north service road and 66th Road/99th Street

Channelization or gore striping is recommended at the following intersections:

- Queens Boulevard and 62nd Drive/63rd Avenue
- Queens Boulevard and 63rd Drive/63rd Road
- Queens Boulevard and 67th Avenue

Other striping improvements recommended for this corridor include parking lanes at the intersections of Queens Boulevard and 62nd Drive/63rd Avenue, Queens Boulevard and Junction Boulevard, Queens Boulevard and 63rd Road and Queens Boulevard and 67th Avenue.

All improvements proposed along Queens Boulevard are shown in Exhibits 8 and 9.

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ILLUSTRATING THE SOLUTION

5.3 SAUNDERS STREET

Within the study area, Saunders Street is a one-way minor corridor accommodating westbound traffic (Photo No. 3). The project limits are from 63rd Avenue in the west to 67th Avenue in the east. The length of this corridor is 0.65 miles and its width varies from 31 to 33 feet within the study area. Parking is permitted on both sides of this street during most times of the day.

Yield to Pedestrian signs are recommended at the following intersection to warn drivers:

- Saunders Street and 63rd Drive

Stop Ahead warning signs are recommended at the following intersections:

- Both north and south sides of Saunders Street in advance of 63rd Avenue
- Both north and south sides of Saunders Street in advance of 64th Road
- On the north side of Saunders Street in advance of 65th Road

High visibility crosswalks are recommended at the following intersection to warn drivers of pedestrian crossings:

- Saunders Street and 63rd Drive

Advanced stop bars are recommended on all approaches at the intersection of Saunders Street and 63rd Drive. Other striping improvements recommended for this corridor include parking lanes at Saunders Street and 63rd Avenue.

All improvements proposed along Saunders Street are shown in Exhibits 10 and 11.



Photo No. 3: Saunders Street and 63rd Avenue (looking west)

5

ILLUSTRATING THE SOLUTION

5.4 62ND DRIVE/63RD AVENUE

62nd Drive is approximately 51 feet wide between 99th Street and 97th Street, and approximately 57 feet wide from 97th Street to Queens Boulevard. The width of 63rd Avenue from Queens Boulevard to Saunders Street is about 45 feet wide. The project limits of 62nd Drive/ 63rd Avenue is from 99th Street to Saunders Street (Photo No. 4). Traffic flow on this road is one-way southbound from 99th Street to Saunders Street, except from Junction Boulevard to 97th Street. Within this block, it is a two-way street with two travel lanes in each direction.



Photo No. 4: 62nd Drive and 97th Street (looking north)

During various field visits, the opportunity of possible travel lane reduction along westbound direction on 62nd Drive was noted between Queens Boulevard and 99th Street. As a result, 24-Hour ATR counts were collected at various locations along 62nd Drive. This ATR count data is presented in Appendix A. Analysis of these counts showed following results:

- Peak hour vehicle count along the segment of 62nd Drive approaching Queens Boulevard show 1017 westbound vehicles
- Peak hour vehicle count along 62nd Drive approaching Junction Boulevard show 762 westbound vehicles
- Peak hour vehicle count along 62nd Drive approaching 97th Street show 51 westbound vehicles

As a result of this peak hour traffic count assessment, it is recommended that 62nd Drive from Junction Boulevard to Queens Boulevard be converted from 3-lane to 2-lane and 1-turn-bay and from 99th Street to 97th Street be converted from 2-lane to 1-lane in the westbound direction.

Supplementing the above noted lane reductions, a 13-foot wide parking lane be striped along the north curb side and 20-foot wide back-in angle parking stalls be installed along the south curb side of 62nd Drive from 99th Street to 97th Street. This will provide room for a 17-foot wide westbound travel lane. Additionally, 12-foot wide parking lane with 5-foot buffer is recommended on both sides of 62nd Drive from Junction Boulevard to Queens Boulevard. This will provide room for two 11-foot wide westbound travel lanes initially and will turn into three 11-foot wide moving lanes as it approaches Queens Boulevard. It is also recommended that 'right turn only', 'left turn only' and 'through' pavement markings/arrows be appropriately striped at the intersections of 62nd Drive with Queens Boulevard, Junction Boulevard and 97th Street.

On streets intersecting 62nd Drive, it is recommended that 13-foot wide parking lanes be striped on both sides of 97th Street from Horace Harding Expressway South to 63rd Drive and on both sides of 98th Street from Horace Harding Expressway South to 62nd Drive. Furthermore, combination of 10-foot wide parking lane and back-in angle parking stalls are also recommended on the east curb side of Junction Boulevard from 62nd Drive to Queens Boulevard.

5

ILLUSTRATING THE SOLUTION

High visibility crosswalks are recommended at the following intersections to warn drivers of pedestrian crossings:

- 62nd Drive and 97th Street - East and south crosswalks
- 62nd Drive and Junction Boulevard - West and south crosswalks

Yield to Pedestrian or Right Lane Must Turn Right signs are recommended at the following intersections to warn drivers:

- 62nd Drive and 98th Street (Yield-to-Pedestrian sign)
- Mid-block on 62nd Drive, for southbound traffic approaching Junction Boulevard (Right Lane Must Turn Right sign)
- Northeast corner of 62nd Drive & Junction Boulevard (Right Lane Must Turn Right sign)

All improvements proposed along 62nd Drive are shown in Exhibits 8 and 12.

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ILLUSTRATING THE SOLUTION

5.5 67TH AVENUE

Within the study area, 67th Avenue is a one-way northbound corridor (Photo No. 5). The width of this roadway is approximately 30 feet. Improvements along 67th Avenue include the installation of crosswalk striping at 67th Avenue and Wetherole Street and 67th Avenue and Austin Street intersections, as well as the installation of new pedestrian ramps at the intersection of 67th Avenue and Burns Street.

All improvements proposed along 67th Avenue are shown in Exhibit 14.

It should be noted that a spot speed study was conducted for 67th Avenue from Austin Street to Booth Street on June 10th, 2010.

The study indicated that the 85th percentile speed on 67th Avenue was 19.9 mph for northbound traffic, which is below the statutory speed limit of 30 mph. See Table 4 below for a summary of the results. Detailed Spot Speed Survey data is presented in Appendix D – Additional Traffic Data and Analysis.



Photo No. 5: 67th Avenue and Booth Street (looking north)

TABLE 4: SPOT SPEED SURVEY

Location	Direction	Median Speed (mph)	85th Percentile Speed (mph)
Bay Parkway/22 nd Avenue & 66 th Street	Northbound	16.9	19.9

5

ILLUSTRATING THE SOLUTION

5.6 97TH STREET FROM 63RD ROAD TO 63RD DRIVE

Within the study area, 97th Street is a north-south, two-way roadway. North of its intersection with 63rd Road, 97th Street is approximately 50 feet wide. South of this intersection, 97th Street reduces to approximately 41 feet wide (Photo No. 6). 63rd Road is one-way eastbound and 63rd Drive is one-way westbound.

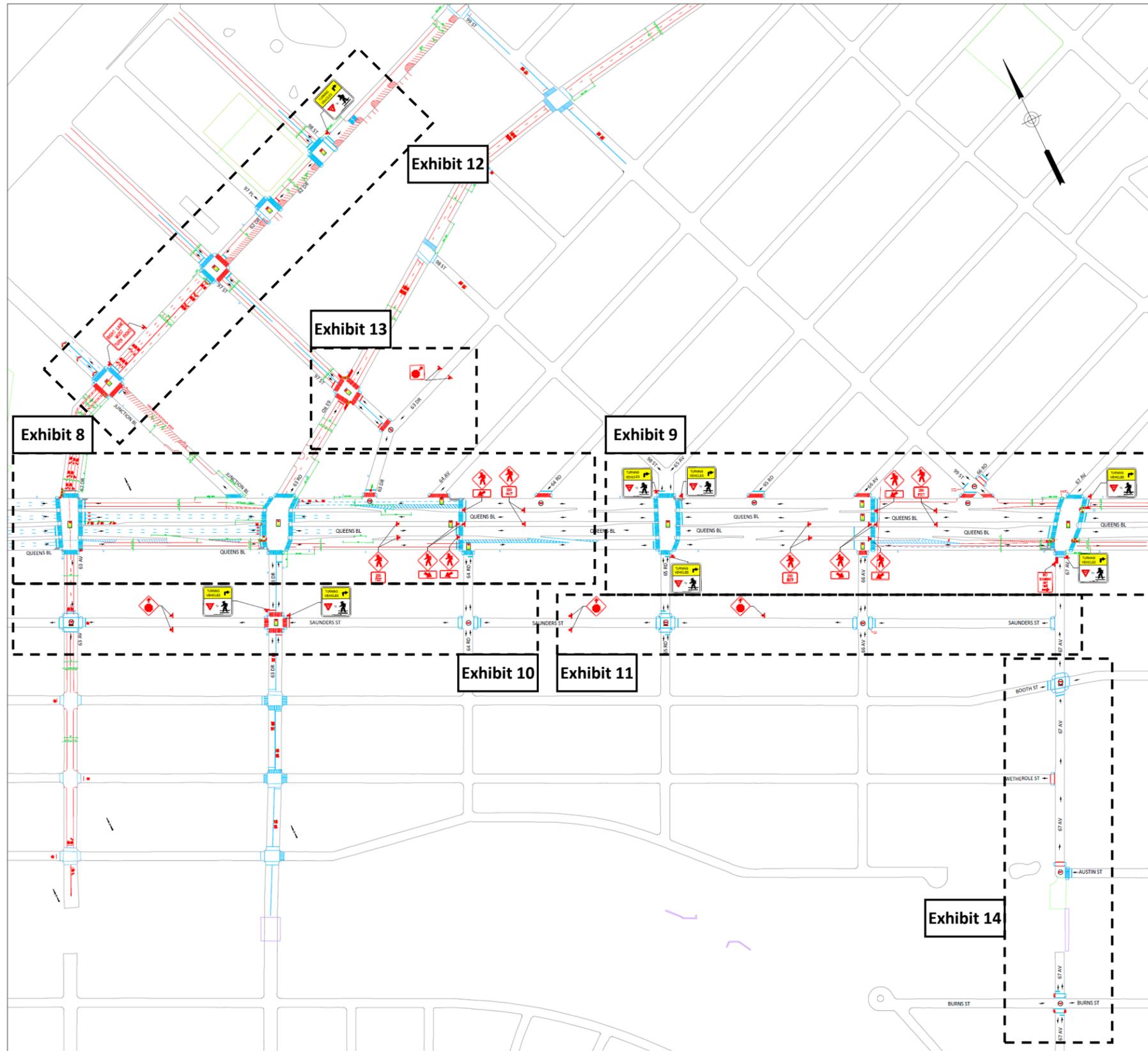
At the intersection of 97th Street and 63rd Road, it is recommended that neck-downs be constructed at northwest and southeast corners. The southwest corner should also be provided with a new pedestrian ramp. In addition, high visibility crosswalks are recommended on all approaches of this intersection. Similarly, high visibility crosswalk



Photo No. 6: 97th Street and 63rd Road (looking east)

is also recommended on the 97th Street approach to 63rd Drive. Since 97th Street and 63rd Drive is a stop-controlled intersection, it is further recommended that “Stop Ahead” warning signs be installed on 63rd Drive east of the intersection. In addition to these recommendations, it is also proposed to stripe 14-foot wide parking lanes on the both sides along 63rd Road between Queens Boulevard and 98th Street. It is also recommended that 13-foot wide parking lanes be striped on both sides of 97th Street from Horace Harding Expressway South to 63rd Road.

All improvements proposed along 97th Street are shown in Exhibit 13.



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP		PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

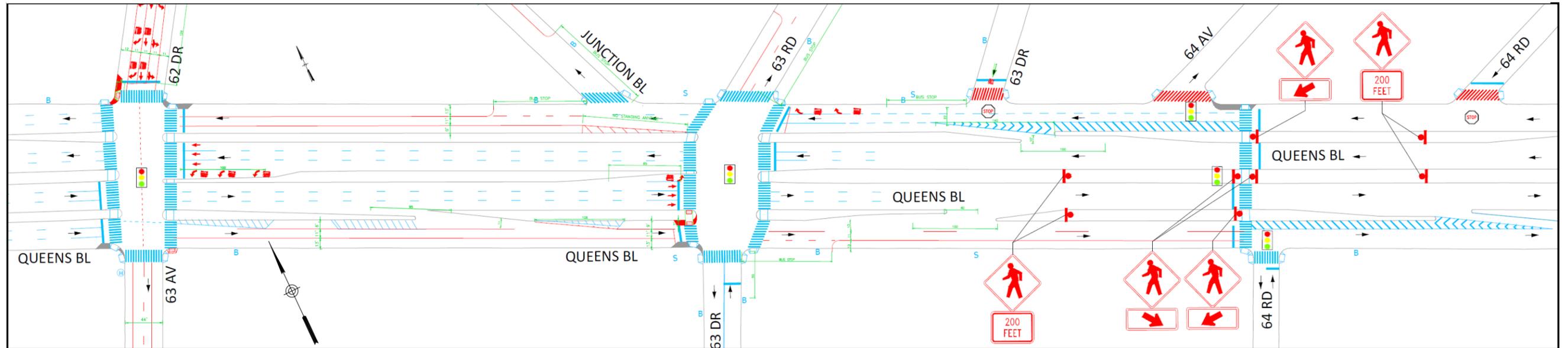
SAFE STREETS FOR SENIORS
REGO PARK, QUEENS

INDEX MAP

GPI
GREENMAN - PEDERSEN, INC.
Engineers, Planners,
Construction Engineers & Inspectors

FIGURE
NO. 1 of 1

EXHIBIT 8 – QUEENS BOULEVARD (FROM 63RD AVENUE TO 64TH ROAD)



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

Pedestrian concerns in this area:

- Non-standard pedestrian ramps
- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

Additional Information

- This study area was visited on May 5, 2010
- Parking regulations for the project area have been collected and are shown in Appendix C

Recommended improvements include:

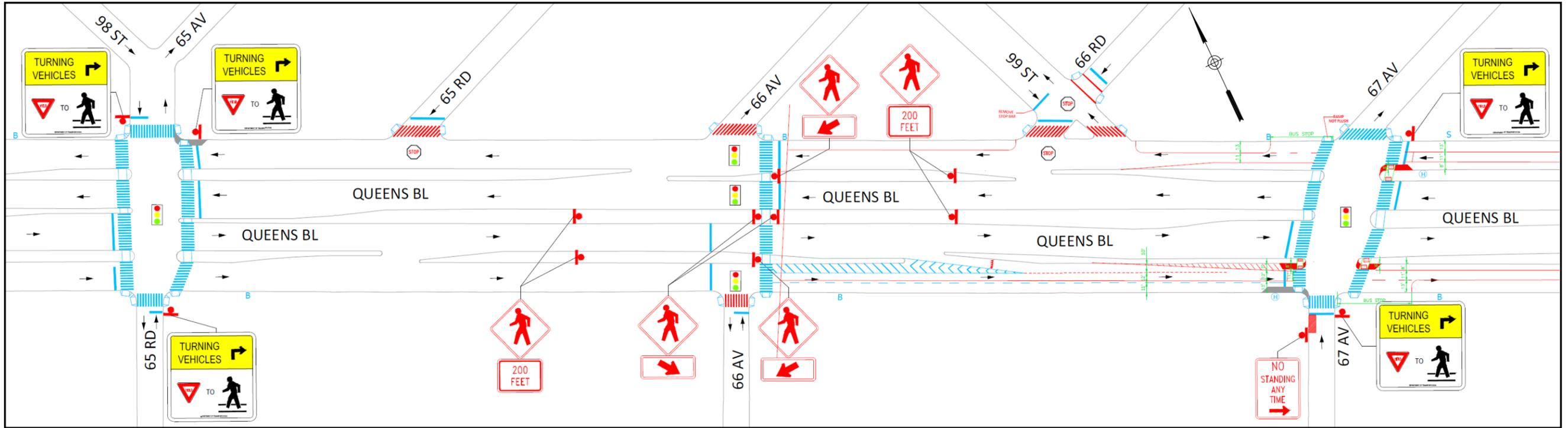
- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new high visibility crosswalks
- Install new parking lanes
- Install new channelization
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
- Install new "Pedestrian Crossing/(arrow)" and "Pedestrian Crossing/200 Feet" signs at the intersection shown in the illustration
- Install new pedestrian refuge island extensions
- Install neck-down or curb extensions
- Install new parking striping and lane configuration as shown in the illustration

Traffic Analysis

- Turning movement and pedestrian counts were analyzed at:
 - Queens Boulevard and 63rd Drive/63rd Road

Turning movement and pedestrian counts summaries are shown in Appendices A and B

EXHIBIT 9 – QUEENS BOULEVARD (FROM 65TH ROAD TO 67TH AVENUE)



LEGENDS:

	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREETLIGHT SW OBSTRUCTION: FIRE HYDRANT SW OBSTRUCTION: SIGNAL POLE SW OBSTRUCTION: FIRE BOX		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		PROPOSED PEDESTRIAN SIGNAL HEAD		EXISTING TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		PROPOSED PEDESTRIAN COUNTDOWN SIGNAL		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)				PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP				EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		PROPOSED BUS STOP				PROPOSED CATCH BASIN
			EXISTING SUBWAY STOP				PROPOSED TRAFFIC SIGN

Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new high visibility crosswalks
- Install new channelization
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
- Install new "Yield to Pedestrian" signs at the intersections shown in the illustration
- Install new "Pedestrian Crossing/(arrow)" and "Pedestrian Crossing/200 Feet" signs at the intersection shown in the illustration
- Provide daylighting at the intersection shown in the illustration
- Install new pedestrian median refuge island extensions
- Install new parking striping and lane configuration as shown in the illustration

Pedestrian concerns in this area:

- Non-standard pedestrian ramps
- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

Traffic Analysis

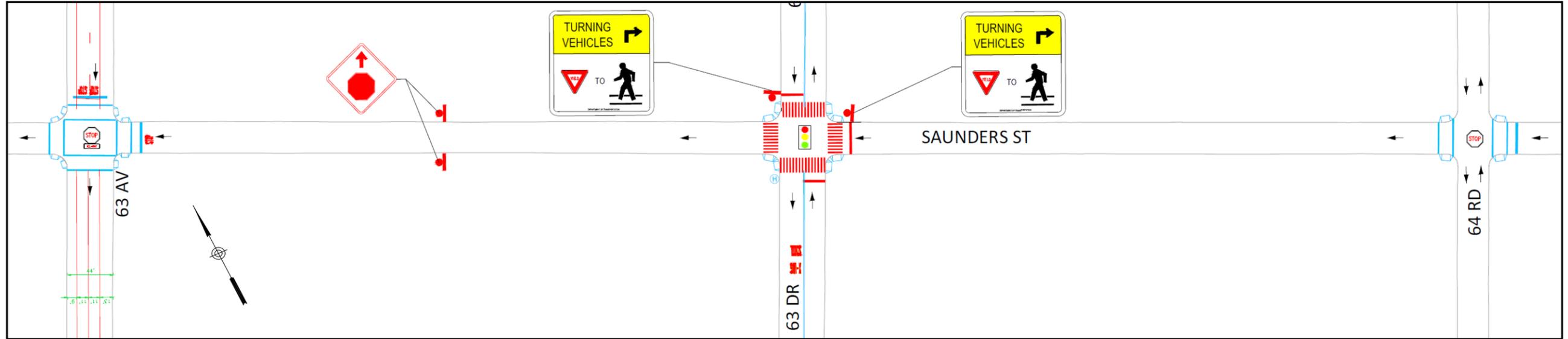
- Turning movement and pedestrian counts were analyzed at:
 - Queens Boulevard and 67th Avenue

Turning movement and pedestrian counts summaries are shown in Appendices A and B

Additional Information

- This study area was visited on May 5, 2010
- Parking regulations for the project area have been collected and are shown in Appendix C

EXHIBIT 10 – SAUNDERS STREET (FROM 63RD AVENUE TO 64TH ROAD)



LEGENDS:

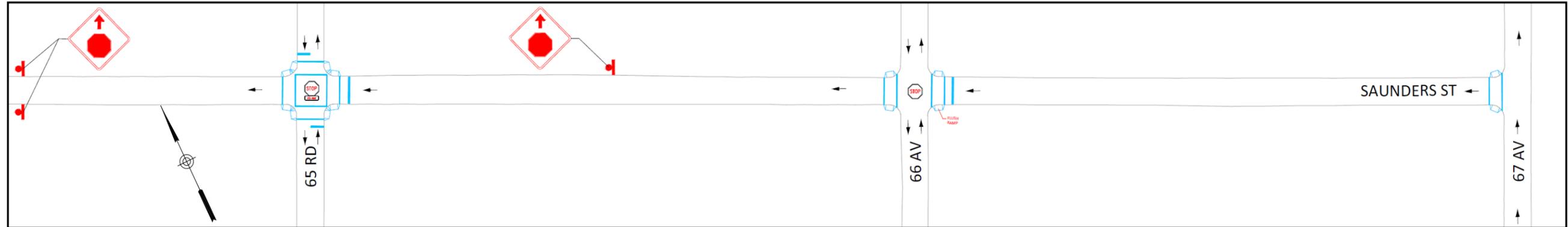
	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREETLIGHT		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		SW OBSTRUCTION: FIRE HYDRANT		EXISTING TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		SW OBSTRUCTION: SIGNAL POLE		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)		SW OBSTRUCTION: FIRE BOX		PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP		PROPOSED PEDESTRIAN SIGNAL HEAD		EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		PROPOSED BUS STOP		PROPOSED PEDESTRIAN COUNTDOWN SIGNAL		PROPOSED CATCH BASIN
			EXISTING SUBWAY STOP				PROPOSED TRAFFIC SIGN

- Recommended improvements include:**
- Install new high visibility crosswalks
 - Install new advanced stop bars
 - Install new parking lanes
 - Install new "Yield to Pedestrian" signs at the intersection shown in the illustration
 - Install new "Stop Ahead" signs
 - Install new parking striping and lane configuration as shown in the illustration

- Pedestrian concerns in this area:**
- Turning vehicles not yielding to pedestrians

- Additional Information**
- This study area was visited on May 5, 2010
 - Parking regulations for the project area have been collected and are shown in Appendix C

EXHIBIT 11 – SAUNDERS STREET (FROM 65TH ROAD TO 67TH AVENUE)



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

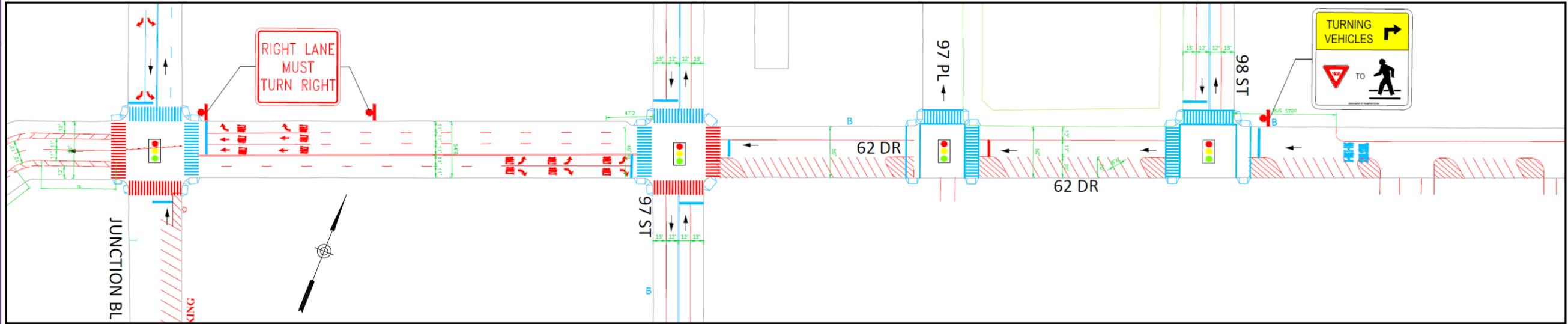
Recommended improvements include:

- Install new "Stop Ahead" signs

Additional Information

- This study area was visited on May 5, 2010
- Parking regulations for the project area have been collected and are shown in Appendix C

EXHIBIT 12 – 62ND DRIVE (FROM JUNCTION BOULEVARD TO 98TH STREET)



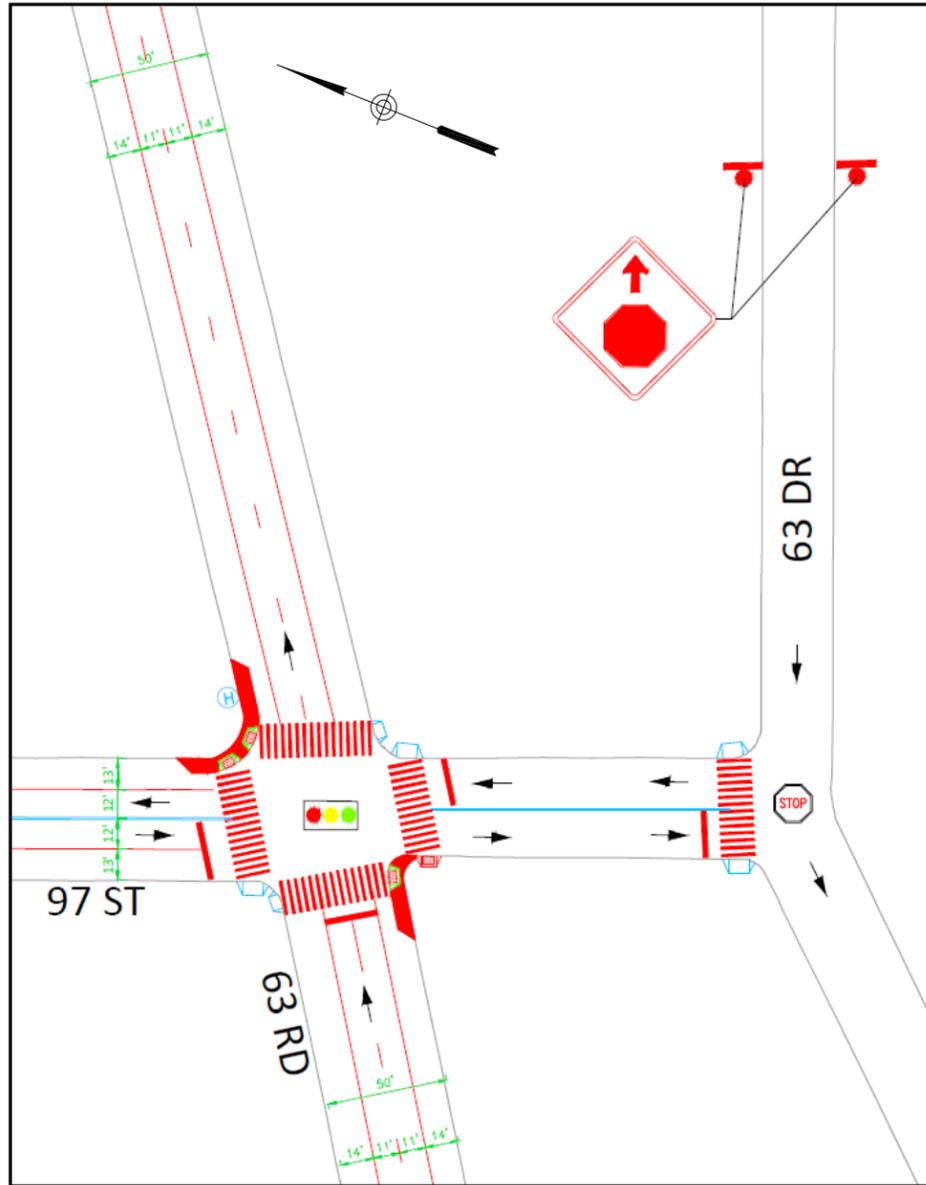
LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new channelization
 - Install new high visibility crosswalks
 - Install new advanced stop bar
 - Install new parking lanes and lane configuration modifications including lane drops as shown in the illustration
 - Install new angular parking as shown in the illustration
 - Install a new "Yield to Pedestrian" sign at the intersection shown in the illustration
 - Install new "Right Lane Must Turn Right" signs

- Additional Information**
- This study area was visited on May 5, 2010
 - Parking regulations for the project area have been collected and are shown in Appendix C



Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new high visibility crosswalks
- Install new advanced stop bars
- Install new pedestrian ramps. Where proposed, align the ramps with the proposed crosswalks
- Install new “Stop Ahead” signs
- Install neck-downs or curb extensions at the intersection shown in the illustration
- Install new parking striping and lane configuration as shown in the illustration

Pedestrian concerns in this area:

- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

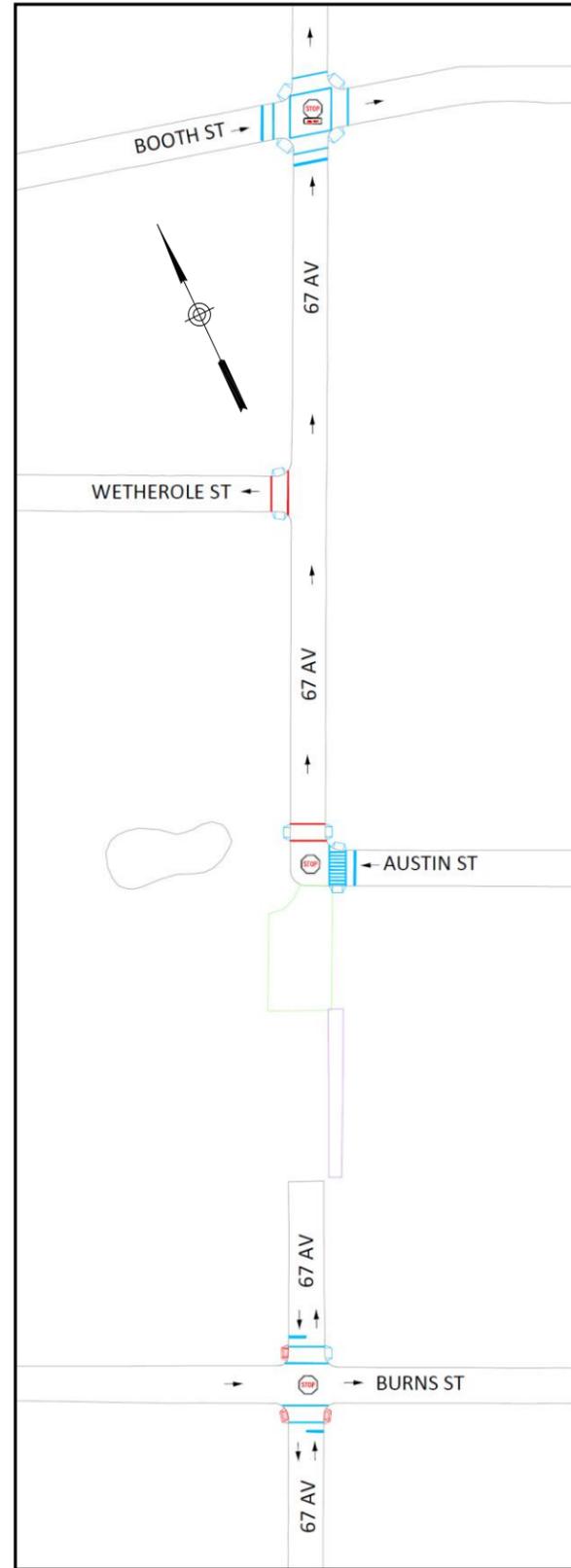
Additional Information

- This study area was visited on May 5, 2010
- Parking regulations for the project area have been collected and are shown in Appendix C

LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	EXISTING TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

EXHIBIT 14 – 67TH AVENUE (FROM BOOTH STREET TO BURNS STREET)



Recommended improvements include:

- Install new standard crosswalks
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks

Pedestrian concerns in this area:

- Non-standard pedestrian ramps

LEGENDS:

	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREETLIGHT		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		SW OBSTRUCTION: FIRE HYDRANT		EXISTING TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		SW OBSTRUCTION: SIGNAL POLE		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)		SW OBSTRUCTION: FIRE BOX		PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP		PROPOSED PEDESTRIAN SIGNAL HEAD		EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		PROPOSED BUS STOP		PROPOSED PEDESTRIAN COUNTDOWN SIGNAL		PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		EXISTING SUBWAY STOP				PROPOSED TRAFFIC SIGN

Additional Information

- This study area was visited on May 5, 2010
- Parking regulations for the project area have been collected and are shown in Appendix C

Traffic Analysis

- Spot Seed Study was conducted at:
 - 67th Avenue between Austin Street and Booth Street

Spot Speed Study data is shown in Appendix D