

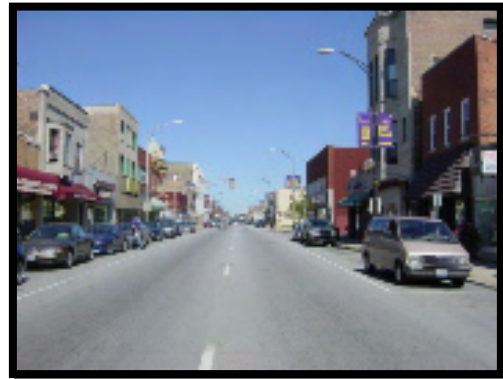
Revised Draft

Traffic Study

Western Avenue-Gregory Street

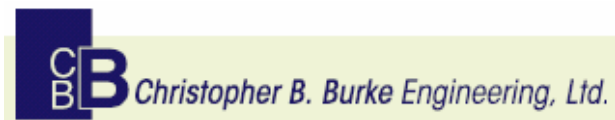
One-Way Couplet

Blue Island, Illinois



Prepared for the:
City of Blue Island

Prepared by:



July 2010

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1.

Introduction

Blue Island's traditional central business district, known locally as Uptown, has developed along its main street, Western Avenue. As the community developed in the 1970s and traffic congestion increased along Western Avenue, a one-way couplet was created between 127th Street and Grove Street with Western Avenue accommodating southbound travel and Gregory Street accommodating northbound travel. While the increased road capacity provides two to three lanes of travel, along with on-street parking opportunities for Uptown businesses that line the roadways, the design also promotes higher travel speeds and wider intersections which makes the pedestrian experience in Uptown less desirable and has contributed to Uptown's economic decline.

The Blue Island Plan for Economic Development (BIPED), adopted by the City in September 2005, outlines transit-oriented development (TOD) strategies around the Metra stations and a portion of the Western Avenue Commercial Corridor. The goal of the plan is to foster development in the area that will promote economic growth, including job creation and increased local tax revenues, while preserving the area's historic identity and diversity, enhancing its natural environment, and improving the quality of life for Blue Island's residents. A key objective of the BIPED is the reconfiguration of the roadways that comprise the Western Avenue/Gregory Street/Vermont Street triangle to correct the problems associated with the one-way couplet and to create a gateway into the City's Main Street district. Three alternative conceptual roadway reconfiguration plans were included in the BIPED, all of which included the conversion of Western Avenue and Gregory Street to two-way travel.

Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) was retained by the City of Blue Island to conduct a Traffic Study for the uncoupling of Western Avenue and Gregory Street in Uptown Blue Island. The study area is generally bounded by 127th Street on the north, Gregory Street on the east, James Street on the south, and Western Avenue on the west, as shown in Figure 1. The purpose of the Western Avenue-Gregory Street traffic study is to analyze the traffic and parking impacts of changing the existing one-way couplet to a two-way operation, and evaluate the feasibility and cost of reconfiguring the triangle by one of these three alternative designs.



Figure 1
Study Area

2.

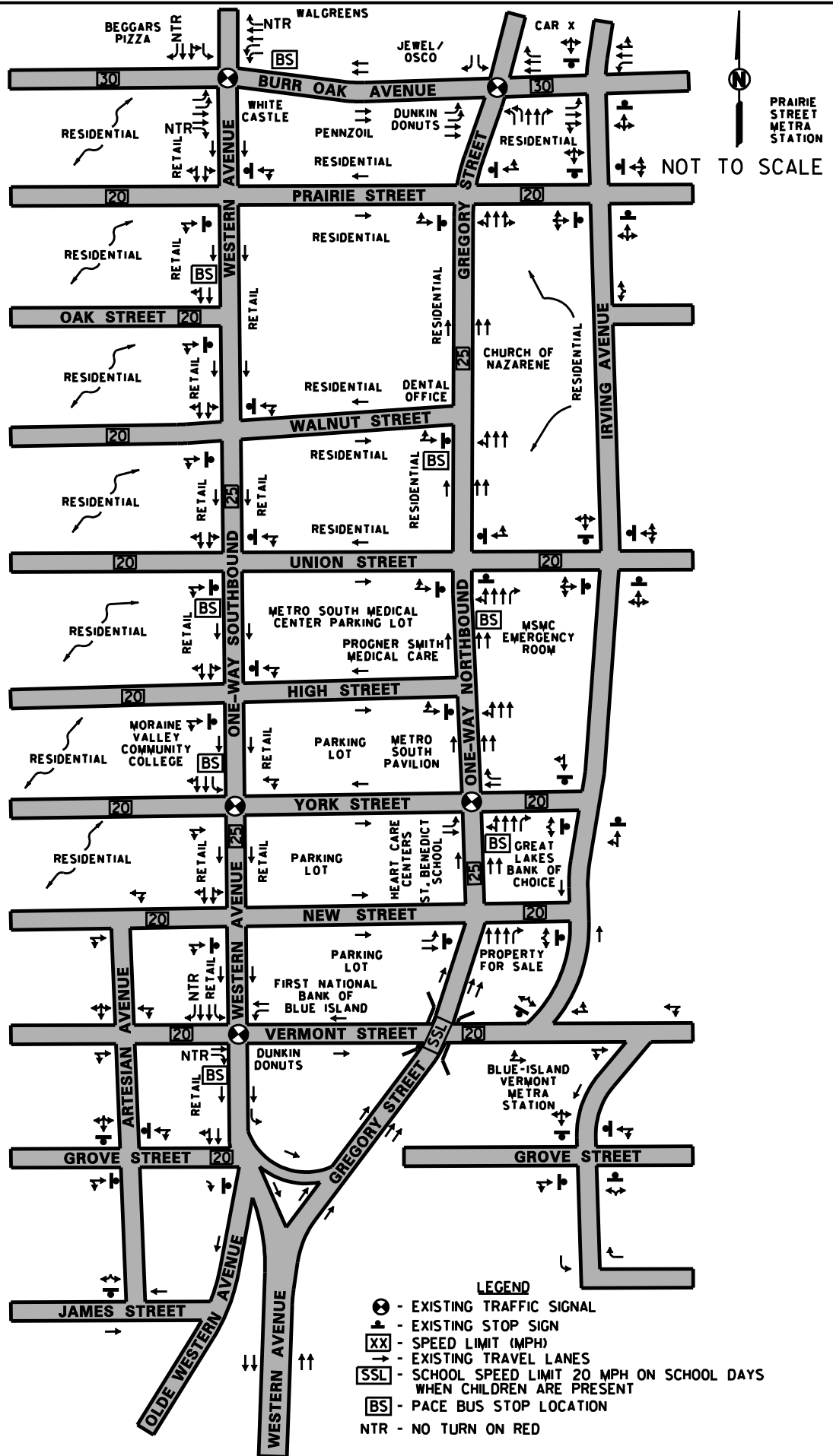
Existing Traffic Conditions

KLOA, Inc. conducted a field reconnaissance of the study area roadways and environs to inventory and observe the current roadway design, traffic operations and controls, parking conditions, pedestrian safety measures and bicycle accommodations, truck routes, access to loading facilities for adjoining businesses, adjacent land uses, and public transit stops and amenities. The fieldwork also provided a database for analyzing existing and projected future conditions. Six general components of existing conditions are summarized below.

1. Characteristics of the roadway system, including lane configuration, intersection traffic controls, pedestrian safety measures, and speed limits
2. On-street parking capacity and time regulations
3. Public right-of-way
4. Weekday traffic and pedestrian volumes
5. Public transportation services and amenities
6. Traffic flow and intersection operations

Existing Roadway System

The characteristics of the existing roadway system serving the Western Avenue-Gregory Street corridor are shown in Figure 2 and described below. Detailed aerial photos of the various segments of Western Avenue and Gregory Street are contained in the Appendix for reference.



PROJECT:
WESTERN AVENUE-GREGORY STREET
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

TITLE:
EXISTING ROADWAY SYSTEM

PROJECT NO: 08-252

FIGURE NO: 2

Western Avenue is one of the longest continuous north-south arterial roadways in the Chicago area, extending from the Evanston city limits, where it continues north as Asbury Avenue, to Sibley Boulevard/147th Street in Harvey, where it continues south as Dixie Highway. It is under the jurisdiction of the Illinois Department of Transportation (IDOT) and is classified by IDOT as an Urban Strategic Regional Arterial (SRA). North of 127th Street and south of Gregory Street, Western Avenue is a two-way arterial roadway. Between 127th Street and Gregory Street, Western Avenue operates in a one-way southbound direction, which is the only one-way section of Western Avenue in the region. Within the study area, Western Avenue generally has a 44-foot travelway within a 66-foot right-of-way, providing two southbound through lanes and a parking lane on both sides of the road. At its intersections with York Street, Vermont Street and Grove Street, left and/or right-turn lanes are provided in place of the parking lane. The posted speed limit on Western Avenue through the study area is 25 miles per hour (mph).

Gregory Street is a north-south arterial roadway that extends from 127th Street, where it continues north as Vincennes Avenue, to Western Avenue just north of the Calumet Sag Channel. Gregory Street is under IDOT jurisdiction and operates in a one-way northbound direction between 127th Street and Western Avenue. Gregory Street has a travelway that varies from 36 feet to 46 feet within a 66-foot right-of-way. Three through lanes are generally provided throughout the corridor with right-turn lanes present on Gregory Street at its intersections with New Street, York Street, and Union Street. The only section of Gregory Street in which parking is permitted is on the east side of the roadway between Union Street and Prairie Street. The posted speed limit on Gregory Street is 25 mph. There is a 20 mph school speed zone on Gregory Street between Vermont Street and York Street.

127th Street (Burr Oak Avenue) is a two-way four-lane east-west arterial roadway that extends from Palos Park on the west to Indiana Avenue in the City of Chicago on the east. 127th Street is under IDOT jurisdiction and is designated by IDOT as an Urban SRA. It is also a posted Class II truck route between I-57 and IL 50. At its signalized intersections with Western Avenue and Gregory Street, 127th Street widens to provide dual left-turn lanes and/or right-turn lanes. There are crosswalks and pedestrian signals on all legs of these two intersections. These two intersections are also part of a traffic signal system that also includes the 127th Street/Maple Avenue intersection. The speed limit on 127th Street is 30 mph and parking is not permitted on the road.

Prairie Street is a two-way two-lane local east-west roadway that is under the jurisdiction of the City of Blue Island and extends from Elm Street on the west to the Metra-Rock Island District Line on the east. The intersections of Prairie Street with Western Avenue and Gregory Street are stop sign controlled on Prairie Street. At Western Avenue, the east and west legs of Prairie Street are offset from each other by approximately 35 feet. There are crosswalks on both legs of Prairie Street at Western Avenue and an unprotected crosswalk on Western Avenue. There are no crosswalks at the Gregory Street intersection. The posted speed limit on Prairie Street is 20 mph and parking is permitted on both sides of the roadway.

Oak Street is a two-way two-lane local east-west roadway that is under the jurisdiction of the City of Blue Island and extends from Western Avenue on the east to Maple Avenue on the west. The intersection of Oak Street with Western Avenue is stop sign controlled on Oak Street with a crosswalk on Oak Street. The posted speed limit on Oak Street is 20 mph and parking is permitted on both sides of the roadway.

Walnut Street is a two-way two-lane local east-west roadway that is under the jurisdiction of the City of Blue Island and extends from Gregory Street on the east to Fairview Avenue on the west. The intersections of Walnut Street with Western Avenue and Gregory Street are stop sign controlled on Walnut Street. At Western Avenue, the east and west legs of Walnut Street are offset from each other by approximately 25 feet and there are crosswalks on all legs of this intersection. The speed limit on Walnut Street is 20 mph and parking is permitted on both sides of the road.

Union Street is a two-way two-lane local east-west roadway that is under the jurisdiction of the City of Blue Island and extends from the Metra-Rock Island District Line on the east to Francisco Avenue on the west. The intersections of Union Street with Western Avenue and Gregory Street are stop sign controlled on Union Street and there are crosswalks on all legs of the intersections. The speed limit on Union Street is 20 mph and parking is permitted on the north side of the road.

High Street is a two-way two-lane local east-west roadway that is under the jurisdiction of the City of Blue Island and extends from Gregory Street on the east to Highland Avenue on the west. The intersections of High Street with Western Avenue and Gregory Street are stop sign controlled on High Street and there are crosswalks on all legs of the intersections. The posted speed limit on High Street is 20 mph and parking is permitted on both sides of the roadway.

York Street is a two-way two-lane local east-west roadway that is under the jurisdiction of the City of Blue Island and extends from Irving Avenue on the east to Highland Avenue on the west. The intersections of York Street with Western Avenue and Gregory Street are under traffic signal control with crosswalks and pedestrian signals on all legs. The posted speed limit on York Street is 20 mph and parking is permitted on both sides of the roadway.

New Street is a two-lane local east-west roadway that is under the jurisdiction of the City of Blue Island and extends from Irving Avenue on the east to the Indiana Harbor Belt Railroad on the west. West of Western Avenue, New Street is a two-way street with one lane in each direction and parking on both sides of the roadway. Between Western Avenue and Irving Avenue, New Street operates in a one-way eastbound direction with two travel lanes and parking on both sides of the roadway. The intersections of New Street with Western Avenue and Gregory Street are stop sign controlled on New Street and there are crosswalks on all legs of the Western Avenue intersection and the west leg of the Gregory Street intersection. The posted speed limit on New Street is 20 mph.

Vermont Street is a two-way two-lane east-west collector roadway that is under IDOT jurisdiction and extends from 127th Street on the east in the City of Chicago to Francisco Avenue on the west, where it continues west as Wireton Road to 127th Street. Vermont Street has a 40-42 foot travelway within a 60-foot right-of-way. The intersection of Vermont Street with Western Avenue is traffic signal controlled with left or right-turn lanes on Vermont Street and crosswalks and pedestrian signals on all legs of the intersection. Vermont Street is grade-separated at Gregory Street with Gregory passing over Vermont. The posted speed limit on Vermont Street is 20 mph and parking is permitted on both sides of the road to the west of Western Avenue and on the south side of the road to the east of Western.

Grove Street is a two-way two-lane local east-west roadway that is under the jurisdiction of the City of Blue Island and extends from Western Avenue on the east to Stony Creek on the west. The intersection of Grove Street with Western Avenue is stop sign controlled on Grove Street with a crosswalk on Grove Street. The posted speed limit on Grove Street is 20 mph and parking is permitted on both sides of the roadway. The U-turn lane that carries traffic from southbound Western Avenue to northbound Gregory Street is located on the east side of Western Avenue opposite Grove Street.

Olde Western Avenue is a one-way one-lane local north-south roadway, under IDOT jurisdiction, that extends from Western Avenue on the north to the Calumet Sag Channel on the south.

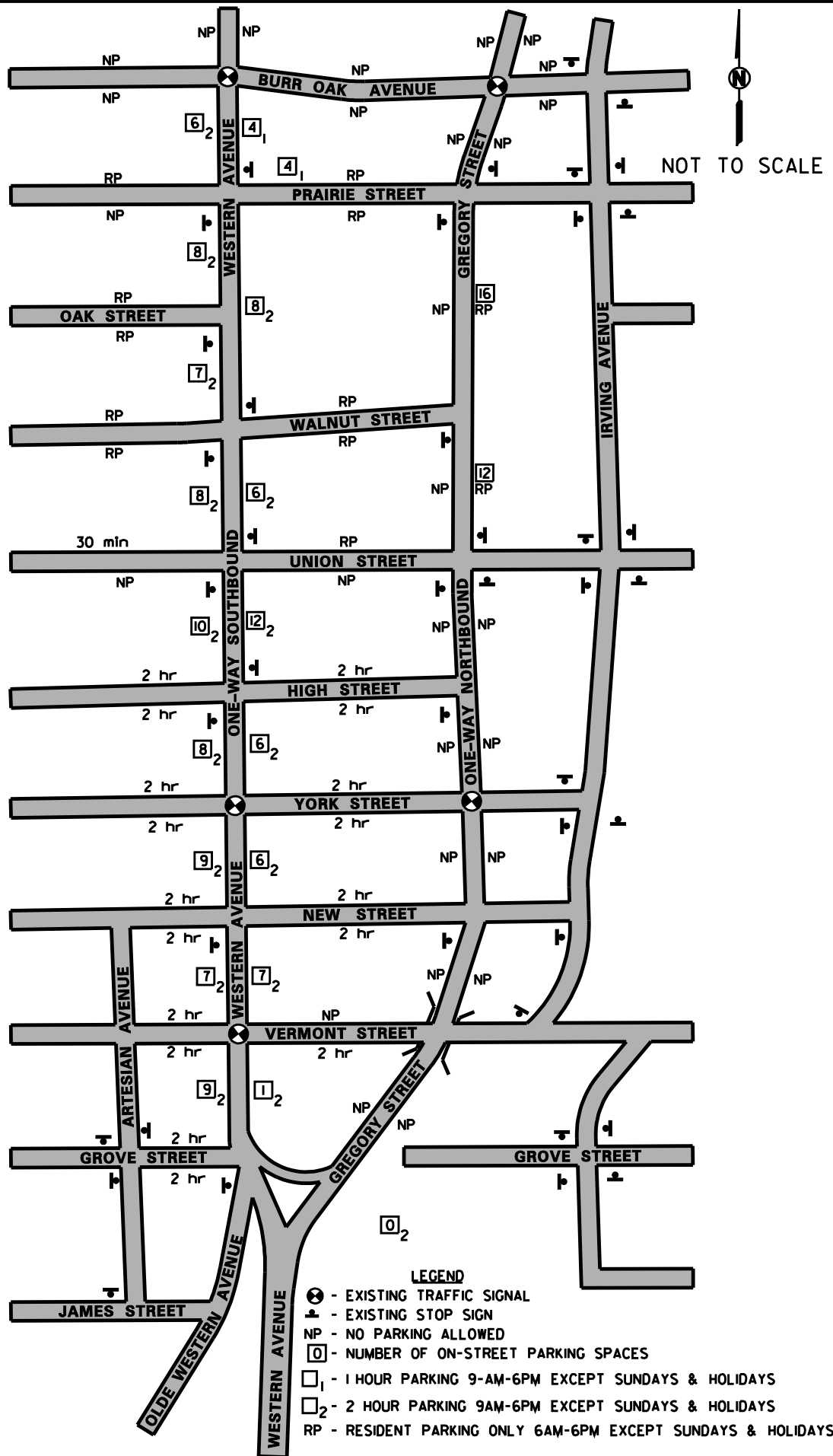
For the most part, there are currently sidewalks along both sides of all roadways in the study area. There are no established bicycle routes/paths/lanes in the City, although the Active Transportation Alliance has identified Western Avenue as a recommended on-street bike route.

Existing On-Street Parking Conditions

Figure 3 shows the existing on-street parking capacity on Western Avenue and Gregory Street for each block of the study area as well as the posted time regulations for these spaces. The data indicates that there are presently 122 on-street parking spaces on Western Avenue between 127th Street and Gregory Street. On Gregory Street, there are approximately 28 parking spaces, all located on the east side of the roadway between Prairie Street and Union Street and all reserved for residents only.

Public Right-of-Way

Based on Sidwell parcel maps provided by the City, aerial photography, Western Avenue resurfacing plans and IDOT's Western Avenue/Dixie Highway Strategic Regional Arterial Planning Study, the right-of-way (ROW) of Western Avenue and Gregory Street through the study area is 66 feet. The east-west local and collector roadways generally have a right-of-way of 60 feet. The current building setbacks through the Uptown area will make it difficult to expand the Western Avenue ROW without significant land use disruptions. Thus, roadway capacity improvements, streetscaping and pedestrian/bicycle pathways may be limited in scope and will need to be efficient in design.



PROJECT:
WESTERN AVENUE-GREGORY STREET
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

TITLE:
EXISTING ON-STREET
PARKING CONDITIONS

PROJECT NO: 08-252
KLOA
FIGURE NO: 3

Existing Traffic and Pedestrian Volumes

Average daily (24-hour) traffic volume data available from IDOT indicates that the one-way segments of Western Avenue and Gregory Street presently carry approximately 8,400 and 10,800 vehicles per day, respectively. 127th Street carries between 23,100 and 28,700 vehicles per day in the study area and Vermont Avenue carries approximately 10,800 vehicles per day.

To establish current traffic conditions during the typical peak weekday commuter periods, KLOA, Inc. conducted traffic counts at the following 10 intersections from 7:00 to 9:00 A.M. in the morning and from 4:00 to 6:00 P.M. in the evening. Based on the data collected, the peak hours were determined to be 7:30 to 8:30 A.M. in the morning and 4:30 to 5:30 P.M. in the evening.

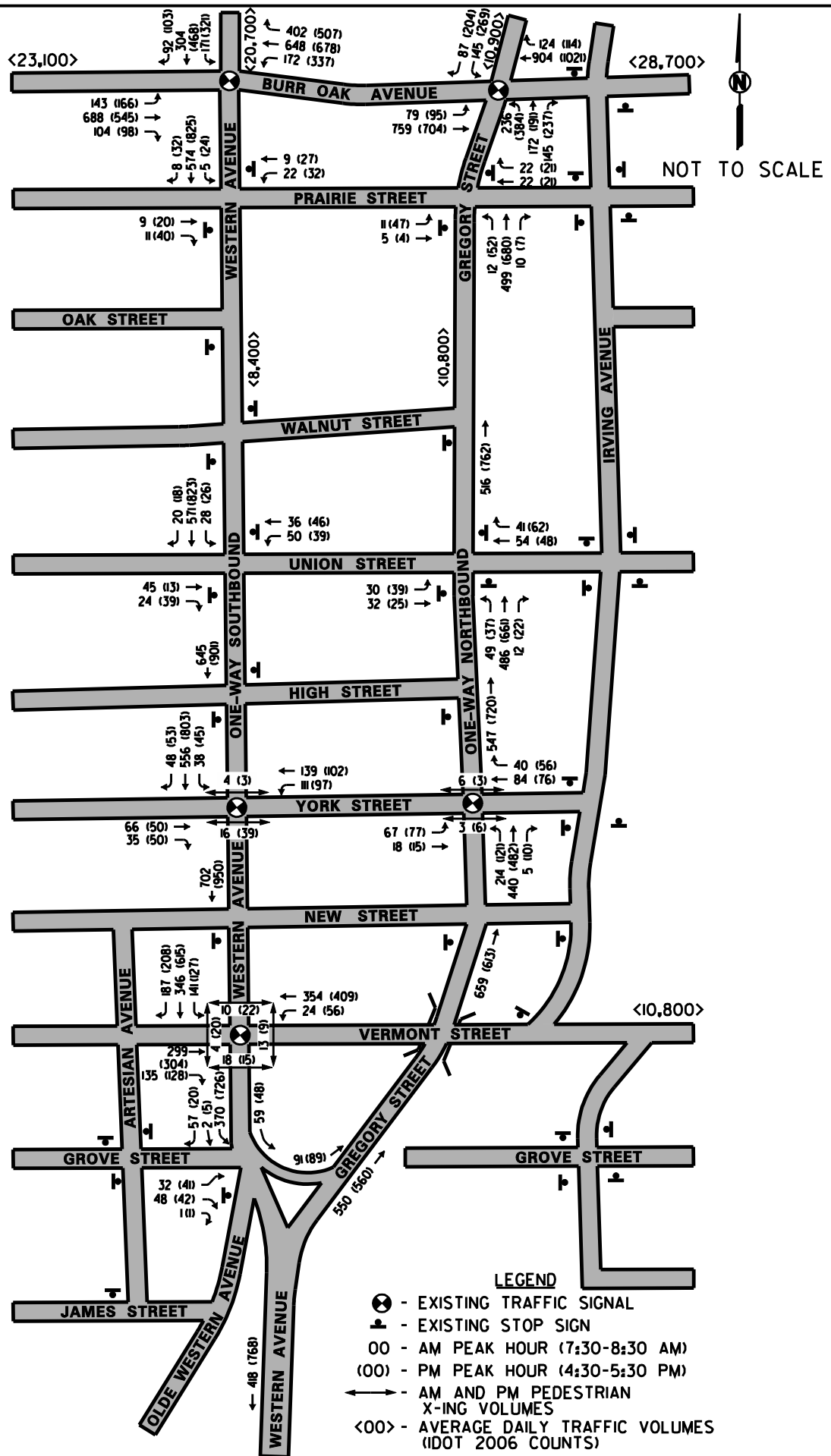
- Western Avenue/127th Street
- Western Avenue/Prairie Street
- Western Avenue/Union Street
- Western Avenue/York Street
- Western Avenue/Vermont Street
- Gregory Street/127th Street
- Gregory Street/Prairie Street
- Gregory Street/Union Street
- Gregory Street/York Street
- Western Avenue/Gregory Street/
Grove Street/Olde Western Avenue

Pedestrian movements were also counted during the weekday morning and evening peak periods at the signalized intersections of Western Avenue/Vermont Street, Western Avenue/York Street, and Gregory Street/York Street. The average daily traffic volumes, peak hour traffic volumes, and peak hour pedestrian volumes are shown on Figure 4. Summaries of the traffic and pedestrian volume count data are contained in the Appendix.

Public Transportation

The study area is served by five Pace suburban bus routes, which are listed below.

Route 349 (South Western) - This major north-south trunk line connects the center of the Pace South service area with CTA service. Daily service operates from Harvey Transportation Center to 79th Street/Western Avenue in Chicago. The route serves Evergreen Plaza, the Blue Island and Harvey Metra Stations, Metro South Medical Center and Ingalls Memorial Hospital, and St. Rita High School. Service is coordinated with the CTA north of Blue Island during weekday rush hour periods. Between 79th Street/Western Avenue and Vermont Street/Western Avenue buses serve posted stops only. Posted bus stops in the study area are located along Western Avenue, Gregory Street and 127th Street. Route 349 generally circulates through the study area from 5:00 A.M. to 11:15 P.M. on weekdays, 5:30 A.M. to 12:25 A.M. on Saturdays, and 6:00 A.M. to 12:25 A.M. on Sundays.



PROJECT:
WESTERN AVENUE-GREGORY STREET
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

TITLE:
EXISTING TRAFFIC AND
PEDESTRIAN VOLUMES

PROJECT NO: 08-252

KLOA

FIGURE NO: 4

Route 359 (Robbins/South Kedzie Avenue) - This north/south route operates daily from the Homewood Metra Station to the 95th Street/Dan Ryan CTA Station, with stops at the Blue Island Metra Station, Metro South Medical Center, Markham Courthouse, South Suburban Hospital, Lydia Health Care Center, Waterford Estates and Grenoble Square Shopping Center. Route 359 passes through the study area along Vermont Street and stops at Western Avenue from 5:30 A.M. to 12:10 A.M. on weekdays, 6:00 A.M. to 12:15 A.M. on Saturdays, and 9:30 A.M. to 11:45 P.M. on Sundays.

Route 385 (87th/111th/127th) - Provides weekday service from the Midway CTA Orange Line Station to the Rivercrest Shopping Center. The route serves Midway Airport, Moraine Valley College, Ford City Shopping Center, Illinois Department of Human Services (IDHS), Worth Metra Station, Metro South Medical Center, and the residential/commercial areas in Blue Island. Route 385 passes through the study area along 127th Street, Western Avenue, Vermont Street and Gregory Avenue on weekdays from 7:00 A.M. to 7:10 P.M.

Route 397 (Blue Island/Moraine Valley College/UPS) - Provides limited weekday service to the Blue Island Metra Station, Worth Metra/Southwest Service Station, Moraine Valley College and UPS Hodgkins facility. Route 397 passes through the study area along Vermont Street and makes four weekday stops in each direction at Western Avenue between 2:40 A.M. and 10:28 P.M.

Route 877 (South Suburban Oakbrook Limited) - Provides rush hour express service through Harvey, Blue Island, Alsip, Oak Brook, and Lombard via 127th Street and the Tri-State Tollway. Key stops include the Harvey Transportation Center, Gregory Street/127th Street, Blue Island Park-n-Ride, Oakbrook Center, Yorktown Center, the Esplanade, and Sara Lee Headquarters.

Existing Intersection Operations

To evaluate current traffic operations within the Western Avenue-Gregory Street corridor and to establish a baseline for comparison with the proposed two-way operation of the two roadways, intersection capacity analyses were performed for all key intersections in the study area during the critical peak hours.

The traffic analyses were performed using HCS+ computer software which is based on the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 2000. Analyses were also performed using Synchro 6.0 computer software which aids in the analysis and visualization of corridor traffic progression and interconnected traffic signal systems.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter grade from A to F based on the average control delay experienced by vehicles passing through the intersection. Control delay is that portion of the total delay attributed to the traffic signal or stop sign controlled operation and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Level of Service A is the highest grade (best traffic flow and least delay), Level of Service E represents saturated or at-capacity conditions, and Level of Service F is the lowest grade (oversaturated conditions, extensive delays). For Urban Strategic Regional Arterials, such as Western Avenue, IDOT geometric design criteria (Figure 46-2E from the BDE manual) indicates that the limit of acceptable delay for an intersection is Level of Service D.

For signal controlled intersections, levels of service are calculated for lane groups, intersection approaches, and the intersection as a whole. For two-way stop controlled (TWSC) intersections, levels of service are only calculated for the approaches controlled by a stop sign (not for the intersection as a whole). Level of Service F at TWSC intersections occur when there are not enough suitable gaps in the flow of traffic on the major (uncontrolled) street to allow minor street traffic to safely enter or cross the major street.

The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized and unsignalized intersections are shown in Table 1. Table 2 summarizes the results of the HCS+ capacity analyses for the existing weekday morning and evening peak hour conditions. The results indicate that all intersections in the Western Avenue-Gregory Street corridor presently achieve IDOT's desired intersection level of service standard of D during the weekday peak hours. The capacity analysis worksheets are contained in the Appendix.

Table 1
LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Very short delay, with extremely favorable progression. Most vehicles arrive during the green phase and do not stop at all.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A, causing higher levels of average delay.	>10-20
C	Light congestion, with individual cycle failures beginning to appear. Number of vehicles stopping is significant at this level.	>20-35
D	Congestion is more noticeable, with longer delays resulting from combinations of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.	>35-55
E	High delays result from poor progression, high cycle lengths, and high V/C ratios.	>55-80
F	Unacceptable delays occurring, with oversaturation.	>80.0
Unsignalized Intersections		
Level of Service		Average Control Delay (seconds per vehicle)
A		0-10
B		>10-15
C		>15-25
D		>25-35
E		>35-50
F		>50
Source: Highway Capacity Manual, 2000.		

Table 2

HCS+ CAPACITY ANALYSIS RESULTS—EXISTING TRAFFIC CONDITIONS

Intersection	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
	LOS	Delay	LOS	Delay
<u>Signalized Intersections</u>				
Western Avenue/127 th Street	C	31.5	C	32.2
Western Avenue/York Street	C	22.2	C	23.2
Western Avenue/Vermont Street	B	17.2	B	17.7
Gregory Street/127 th Street	C	30.4	D	41.3
Gregory Street/York Street	B	18.2	B	17.9
<u>Unsignalized Intersections</u>				
Western Avenue/Prairie Street				
Westbound Approach	B	12.2	C	18.6
Eastbound Approach	B	12.0	C	15.0
Western Avenue/Union Street				
Westbound Approach	C	15.5	C	20.7
Eastbound Approach	B	14.6	B	13.7
Western Avenue/Grove Street/Olde Western				
Eastbound Approach	B	12.0	C	16.8
Gregory Street/Prairie Street				
Westbound Approach	B	10.8	B	12.3
Eastbound Approach	B	10.7	B	12.6
Gregory Street/Union Street ¹	A	8.6	A	9.2
Note: LOS = Level of Service Delay = seconds/vehicle				
¹ Represents three-way stop control.				

3.

Projected Traffic Conditions

Projected traffic conditions were evaluated in the Western Avenue-Gregory Street corridor to assess the operation of the two north-south roadways upon conversion of each to two-way travel and to determine the roadway design requirements necessary to achieve IDOT's level of service standard. For analysis purposes, and consistency with IDOT policy and regional planning efforts, the year 2030 was selected as the planning horizon year for this study.

Projected 2030 Traffic Volumes

The projected year 2030 peak hour traffic volumes were calculated through a two-step process including (1) the reassignment of existing peak hour traffic volumes to the proposed two-way roadway system, and (2) the application of a regional traffic growth factor to reflect growth in through traffic on Western Avenue and Gregory Street.

For validation purposes, the projected year 2030 traffic volumes were compared with year 2030 average daily traffic (ADT) projections prepared by the Chicago Metropolitan Agency for Planning (CMAP), which were developed using existing ADT data and the results from the most recent (November 2008) CMAP Regional Transportation Plan (RTP)/Transportation Improvement Program (TIP) Travel Demand Analysis, which is based on CMAP 2030 socioeconomic projections and assumes implementation of the 2030 RTP for the Northeastern Illinois area.

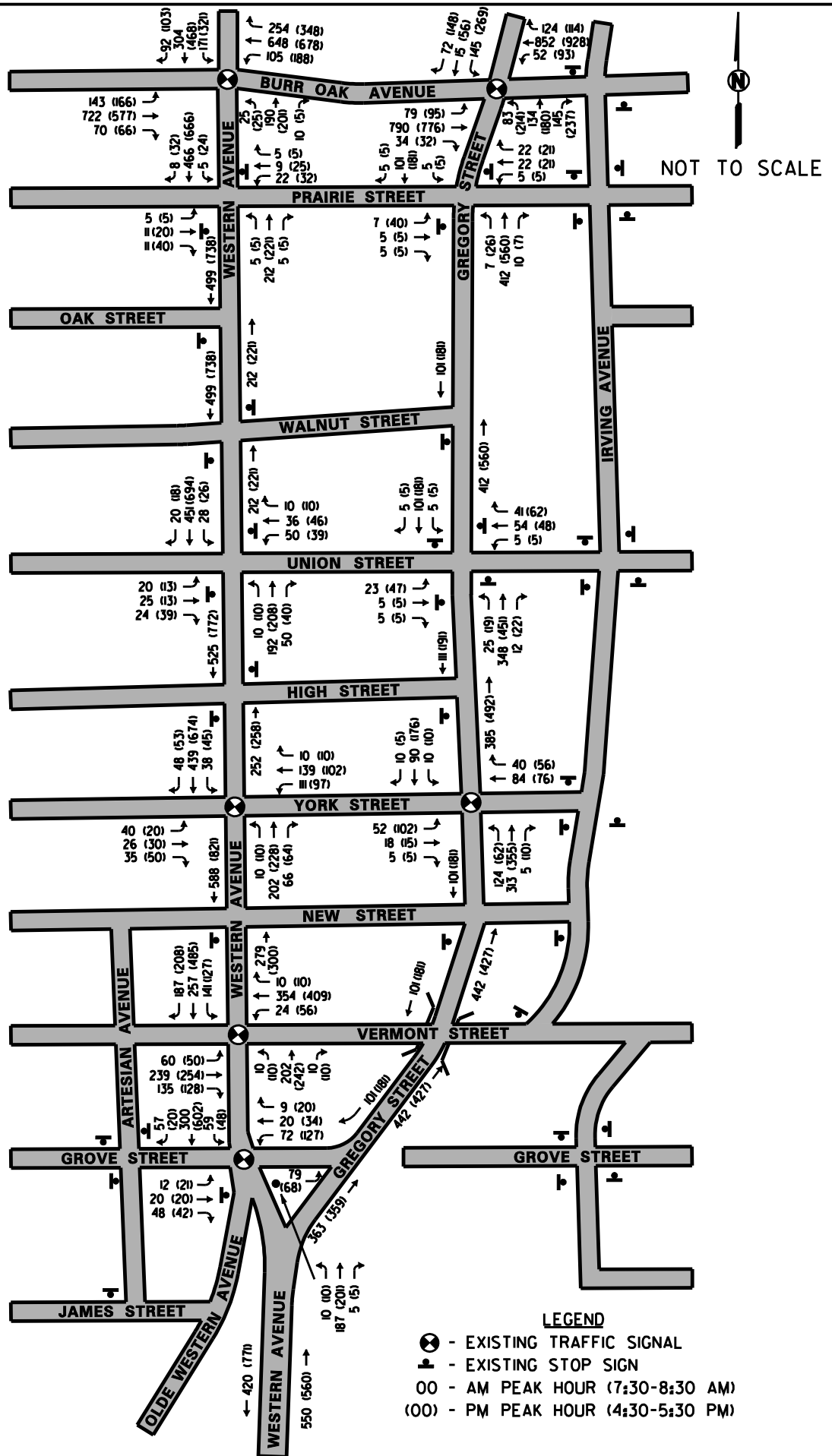
Methodology of Traffic Reassignment

To estimate the future paths that traffic will utilize following the conversion of the one-way couplet of Western Avenue and Gregory Street to two-way streets between 127th Street and Grove Avenue, the following methodology was undertaken.

- Of the northbound traffic on Gregory Street turning left at various cross streets (other than at 127th Street), it was assumed that two-thirds would divert to Western Avenue and the remaining one-third would remain on Gregory Street and continue to turn left with interim destinations.

- All northbound traffic on Gregory Street turning right at various cross streets was assumed to continue to use Gregory Street and continue to turn right.
- All traffic on southbound Western Avenue making left- and right-turns at the various cross streets was assumed to remain on Western Avenue and continue making the left and right turns at each street.
- Most of the northbound traffic at Gregory Street and 127th Street was assumed to be through traffic originating from south of Grove Street and therefore was assumed to continue to utilize northbound Gregory.
- Based on the distribution of northbound left-turning traffic and westbound through traffic at the Gregory Street/127th Street intersection, and based on a comparison of this traffic against westbound right-turning and westbound through traffic on 127th Street at Western Avenue, approximately 45-65 percent of the northbound left-turning vehicles on Gregory Street (at 127th Street) were reassigned from northbound Gregory Street to northbound Western Avenue during the A.M. and P.M. peak hours.
- Approximately 10-15 percent of the southbound traffic on Gregory turning right onto 127th Street to access southbound Western Avenue was assumed to remain on southbound Gregory through the study area.
- Approximately 30 percent of the westbound traffic on 127th Street presently turning left onto southbound Western Avenue was assumed to turn left onto southbound Gregory Street instead.
- Similarly, approximately 30 percent of the eastbound traffic on 127th Street presently turning right onto southbound Western Avenue was assumed to turn right onto southbound Gregory Street instead.
- Rather than reassigning any southbound traffic on Western Avenue at 127th Street to transition over to southbound Gregory Street, by making a left turn and then a right turn, a more conservative assumption was made that the southbound traffic currently using Western would remain on Western to the south of 127th Street.

Based on this methodology, the reassigned traffic volumes are shown in Figure 5.



PROJECT:
WESTERN AVENUE-GREGORY STREET
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

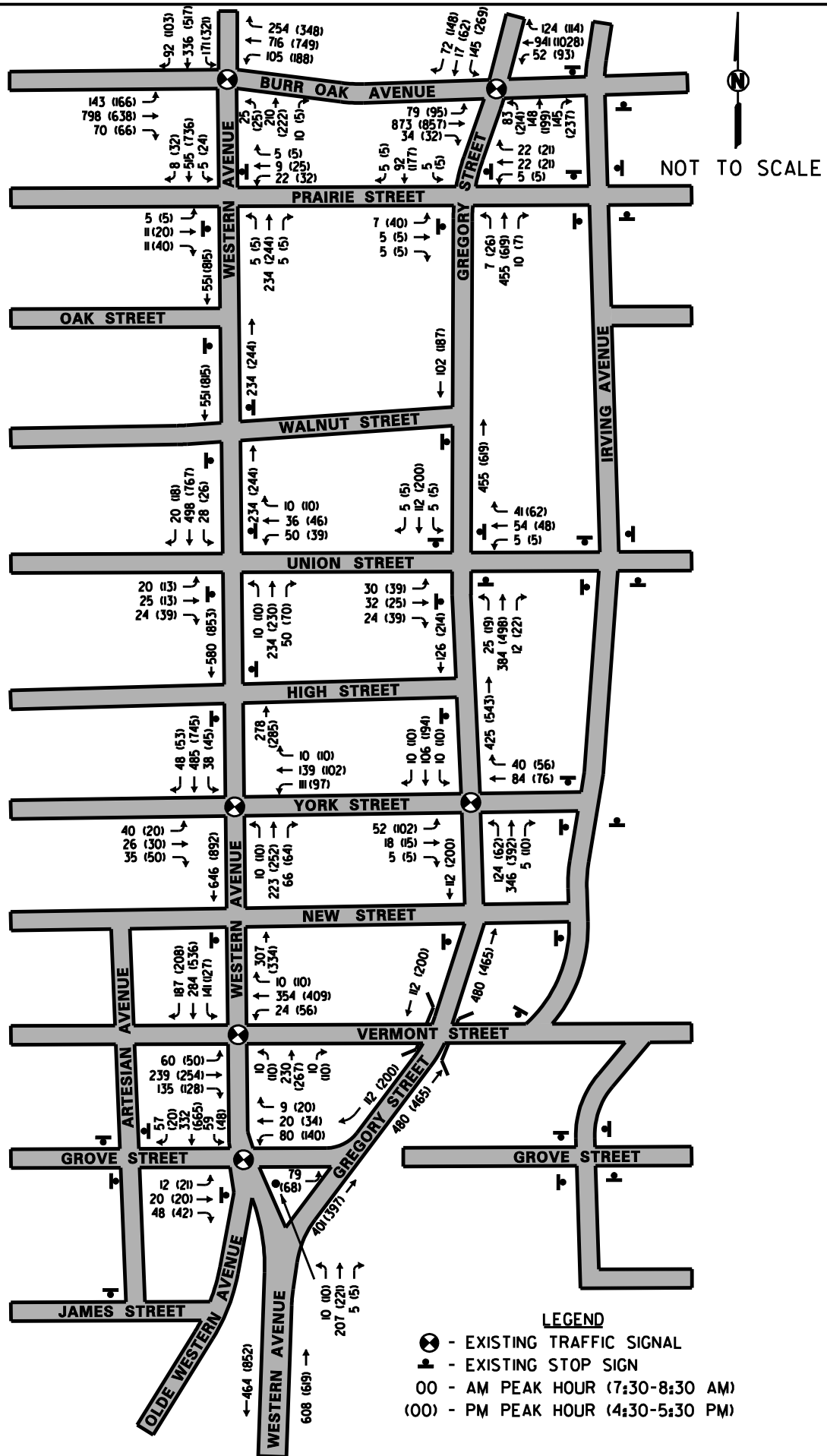
TITLE:
REASSIGNED EXISTING
TRAFFIC VOLUMES

PROJECT NO: 08-252
KLOA
FIGURE NO: 5

Regional Growth Factor

The most recent traffic counts conducted by IDOT occurred in 2006 and indicate that Western Avenue carries 8,400 vehicles per day (vpd) and Gregory Street carries 10,800 vpd. To estimate 2030 traffic volumes after the conversion of Western Avenue and Gregory Street to a two-way operation, KLOA, Inc. applied a 0.5 percent annual traffic growth factor to the through traffic volumes on Western and Gregory shown in Figure 5, which resulted in projected 2030 volumes of 9,900 vpd on Western Avenue and 11,600 vpd on Gregory Street. The projected 2030 peak hour traffic volumes for the study area intersections are shown in Figure 6.

To validate the annual traffic growth assumption, KLOA, Inc. obtained 2030 traffic projections for Western Avenue and Gregory Street from CMAP, which are contained in the Appendix. The CMAP projections indicate that the volume on Western Avenue will increase to 9,000 vpd regardless of whether the roadway remains one-way or is converted to two-way travel. CMAP's 2030 projection for Gregory Street is 11,000 vpd, again regardless of a one-way or two-way operation. The average traffic growth rate for the CMAP projections is less than 0.2 percent per year. As a result, it is concluded that the KLOA, Inc. traffic growth assumptions are valid and represent a conservative analysis.



PROJECT:
WESTERN AVENUE-GREGORY STREET
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

TITLE: PROJECTED 2030
TRAFFIC VOLUMES
(0.5% PER YEAR
FOR 21 YEARS = 10.5%)

PROJECT NO: 08-252

FIGURE NO: 6

4.

Proposed Geometric Reconfiguration of Western Avenue and Gregory Street

This chapter summarizes the recommended design of Western Avenue and Gregory Street following its reconfiguration from one-way operation to two-way travel within the corridor study area. The recommended geometric configuration of the roadways has been based on (1) the downtown business-serving function these roadways are to perform within the City of Blue Island, (2) the desired levels of service that are to be maintained within the corridor, and (3) the City's desire to balance the needs for all users of the downtown, including motorists, pedestrians and bicyclists. The recommended design also considered the alternatives presented in the BIPED study for the reconfiguration of the Western Avenue/Gregory Street intersection at the south end of the corridor. Recommendations and/or policies developed in this chapter address the roadway's cross section, geometric characteristics (number of lanes, parking, etc.), access control, pedestrian accommodations, traffic signal spacing (including signal timing and optimization), and intersection geometrics.

Western Avenue/Gregory Street Intersection Reconfiguration

A key objective of the Blue Island Plan for Economic Development (BIPED) is the reconfiguration of the roadways that comprise the Western Avenue/Gregory Street/Vermont Street triangle to correct the problems associated with the one-way couplet and to create a gateway into the City's Main Street district. Three alternative road reconfiguration plans were included in the BIPED study and are described below, all of which reflected the conversion of Western Avenue and Gregory Street to two-way travel.

Alternative 1: Included the realignment of Gregory Street to intersect Western Avenue at a 90-degree angle opposite Grove Street. Traffic calming improvements would be installed at the Western Avenue/Vermont Street intersection. The Gregory Street bridge over Vermont Street would be maintained; however, it would be retrofitted by reducing the number of traffic lanes and adding sidewalks with decorative bridge design elements and greenery. The width of Olde Western Avenue would be reduced and a better definition would be developed between Olde Western Avenue and the section of Olde Western that runs parallel to Western Avenue.

Alternative 2: Included the demolition of the Gregory Street bridge over Vermont Avenue to construct the original at-grade intersection. Gregory Street would be realigned to intersect Western Avenue at a 90-degree angle opposite Grove Street in a less curvilinear alignment than Alternative 1. Traffic calming improvements would be installed at the Western Avenue/Vermont Street intersection. Similar to Alternative 1, Olde Western Avenue would be realigned to intersect Western Avenue at a more favorable angle.

Alternative 3: Included the development of an at-grade roundabout at the intersection of Western Avenue, Gregory Street, and Olde Western Avenue. Similar to Alternative 1, the Gregory Street bridge over Vermont Street would be maintained and retrofitted by reducing the number of traffic lanes and adding sidewalks with decorative bridge design elements and greenery, and traffic calming improvements would be installed at the Western/Vermont intersection.

Alternative 1 in its entirety was not selected as it did not provide sufficient road capacity to accommodate the heavy projected northbound right-turning volumes (approximately 400 vehicles in peak hours) from Western Avenue onto Gregory Street. Alternative 2 in its entirety was not selected due to the proximity of the proposed at-grade intersection of Gregory/Vermont to the railroad crossing (approximately 330 feet), the high cost of replacing the bridge and realigning the roadway, and the likelihood of significant increases in traffic volume on Western Avenue. Since Metra trains presently block Vermont Ave while loading & unloading, the traffic congestion that this at-grade intersection would create on Vermont Street would burden traffic flow on Gregory Street as well. Alternative 3 was not selected in its entirety due to the land area needed to accommodate an urban double-lane roundabout (150-180 foot inscribed diameter), the significant grades adjoining the roadways, the need to convert Grove Street to right-in/right-out, and the circuitous routing patterns created for local traffic traveling between Western and Gregory.

Based on the review of each of these alternatives, the associated land use impacts, the required roadway design parameters, and the need to maintain efficient traffic operations, a preferred design was developed for this intersection that reflects elements from each of the three alternatives. The preferred design, which is described in more detail later in this chapter, makes use of the existing section of Gregory Street that veers to the east from Western Avenue (just north of the Calumet Sag Channel bridge) to accommodate the northbound right-turning volume (from Western to Gregory) as a free-flow movement.

Traffic Signal Spacing and Interconnected Signal System

Traffic signals presently exist along Western Avenue at 127th Street, York Street and Vermont Street. The spacing between the signals at 127th Street and York Street is approximately 2,000 feet and the spacing between the signals at York Street and Vermont Street is approximately 630 feet. On Gregory Street, traffic signals presently exist at 127th Street and York Street, which are also approximately 2,000 feet apart. These signals do not presently operate as part of an interconnected signal system.

As part of the proposed geometric reconfiguration of Western Avenue and Gregory Street, a new traffic signal will be introduced at the intersection of these two streets at the south end of the study area. The new traffic signal will be located on Western Avenue at Grove Street, approximately 345 feet south of the Western Avenue/Vermont Street signal. Due to the short spacing between these two traffic signals, it is recommended that traffic signal interconnect be installed along Western Avenue that links the existing signals at York Street and Vermont Street and the proposed signal at Grove Street/Gregory Street into a signal system. An interconnected signal system will improve traffic progression or flow within the corridor and reduce the possibility for traffic queues to extend back through an upstream traffic signal.

Intersection Geometrics and Typical Sections

Figures 7 and 8 illustrate the recommended geometrics for each intersection within the study area, along with the recommended Western Avenue/Gregory Street intersection reconfiguration. Figures 9 and 10 illustrate typical cross sections for various segments of Western Avenue and Gregory Street, respectively, with the two-way configuration of each. In addition to the three-lane cross section on Gregory and the basic two-lane cross section on Western, the key intersections will require exclusive left-turn lanes with a few requiring right-turn lanes as well.

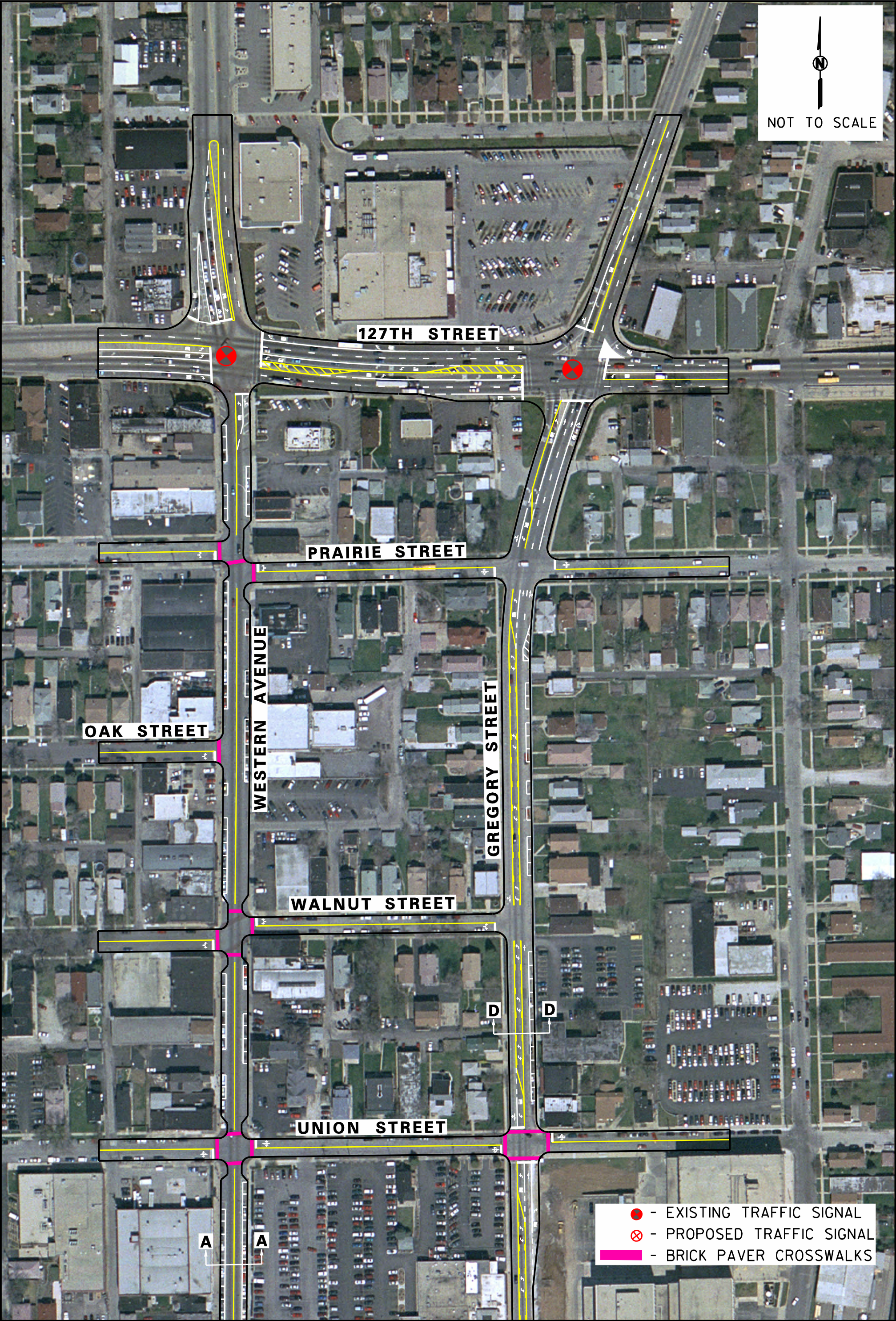
It should be noted that the purpose of the study is to identify geometric requirements for Western Avenue and Gregory Street to accommodate the projected year 2030 traffic demands. The actual design of the intersections (i.e., length of turn lanes and tapers, intersection radii, signal equipment locations, etc.) will be determined when Phase 1 engineering plans are developed for the corridor or when Intersection Design Studies (IDS) are prepared.

The following describes the recommended roadway improvements that will be required at each of the intersections in the study area.

Western Avenue and 127th Street

With Western Avenue being converted to a two-way operation south of 127th Street, the lane configuration at 127th Street will need to be changed as follows:

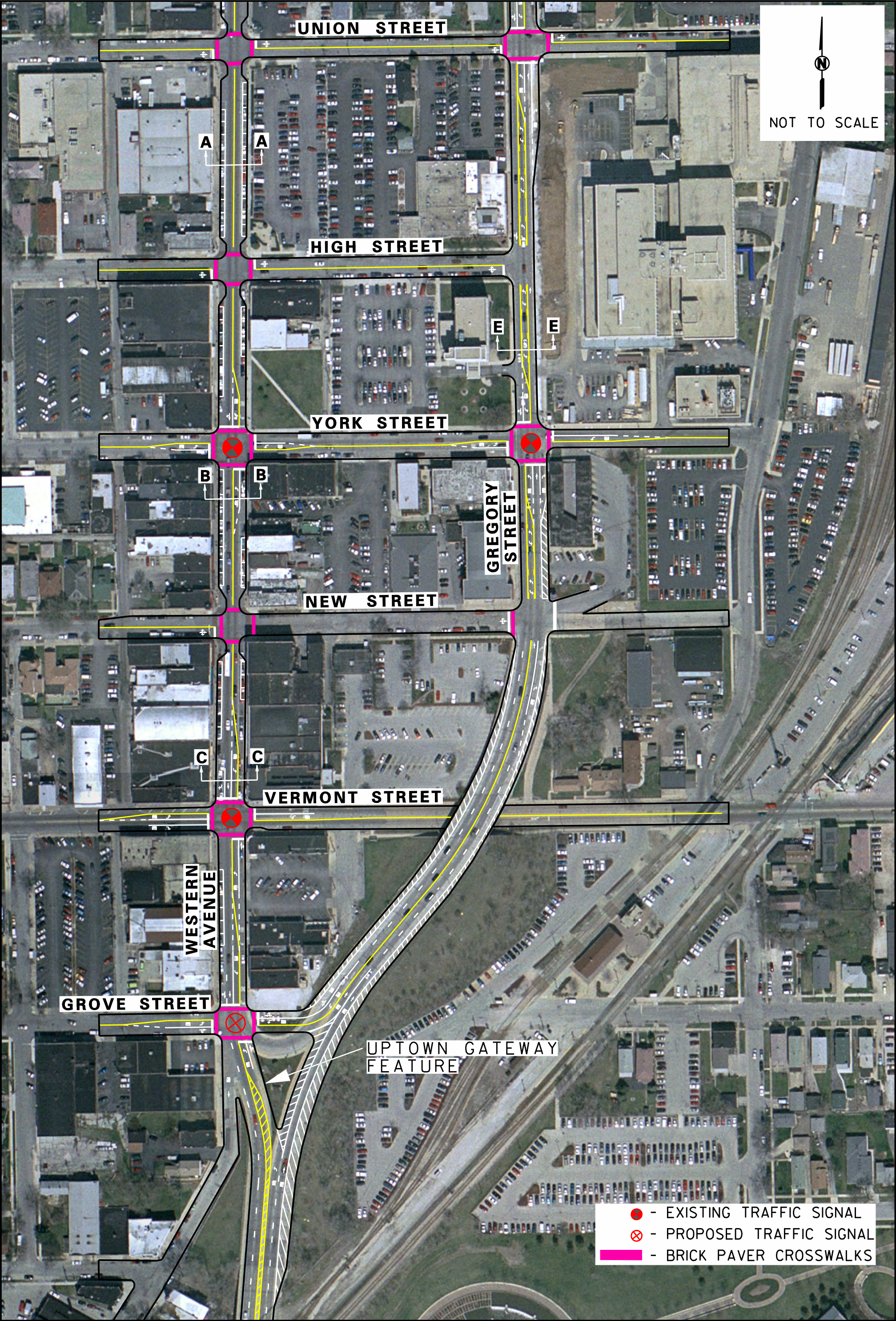
- The north leg of the intersection will have a separate southbound right-turn lane, one southbound through lane, dual southbound left-turn lanes, and two northbound lanes.
- The west leg will remain the same.
- The east leg will continue to have a separate westbound right-turn lane, two westbound through lanes, and two eastbound lanes, however, the existing westbound dual left-turn lanes will be reduced to a single left-turn lane.
- The south leg will become two-way and will have a separate northbound left-turn lane, a combined northbound through/right-turn lane, and a single southbound through lane. Parking will continue to be permitted on both sides of Western Avenue. The existing curb extension on Western at the southwest corner of the intersection will remain.



PROJECT:
WESTERN AVENUE-GREGORY STREET
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

TITLE:
RECOMMENDED INTERSECTION
GEOMETRICS
(127TH ST TO UNION ST)

PROJECT NO: 08-252
KLOA
FIGURE NO: 7



PROJECT:
WESTERN AVENUE-GREGORY STREET
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

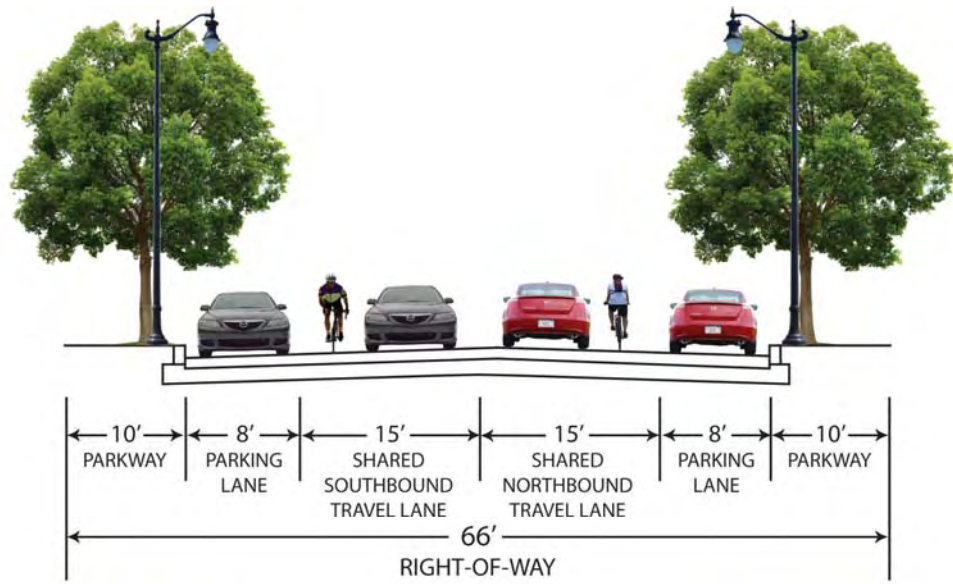
TITLE:
RECOMMENDED INTERSECTION
GEOMETRICS
(UNION ST TO GROVE ST)

PROJECT NO: 08-252

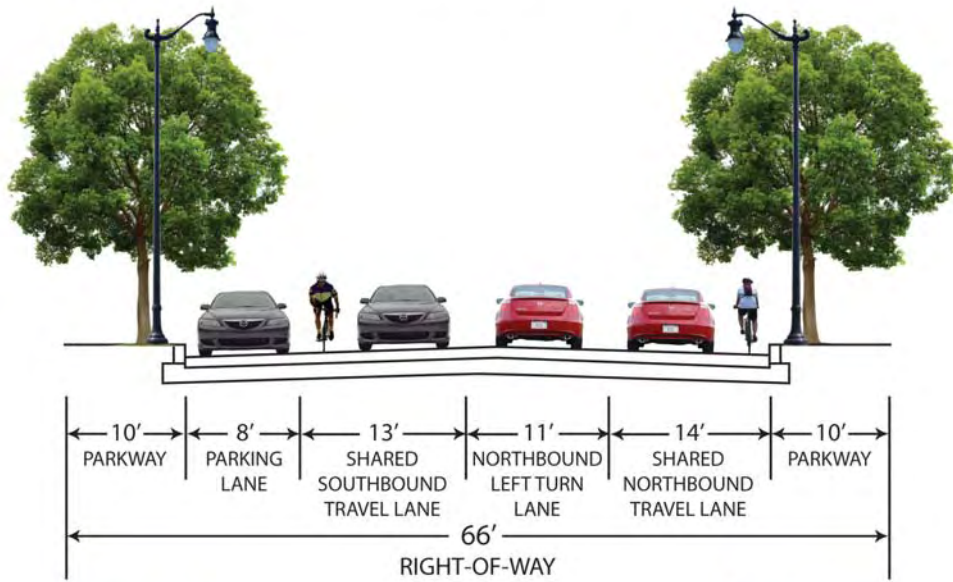
KLQA

FIGURE NO: 8

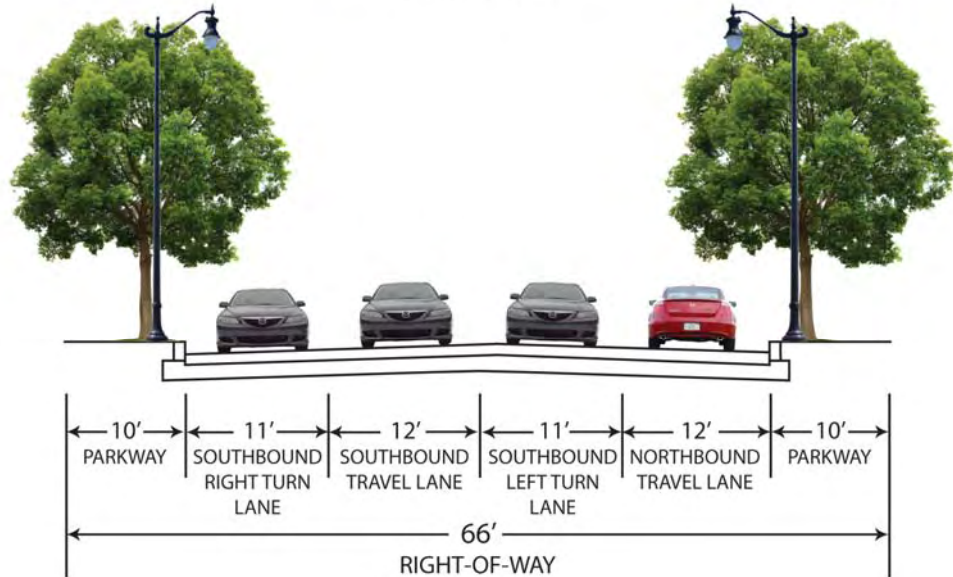
SECTION A



SECTION B



SECTION C



PROJECT:

WESTERN AVE-GREGORY ST
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

TITLE:

WESTERN AVENUE
PROPOSED CROSS SECTIONS

PROJECT NO:

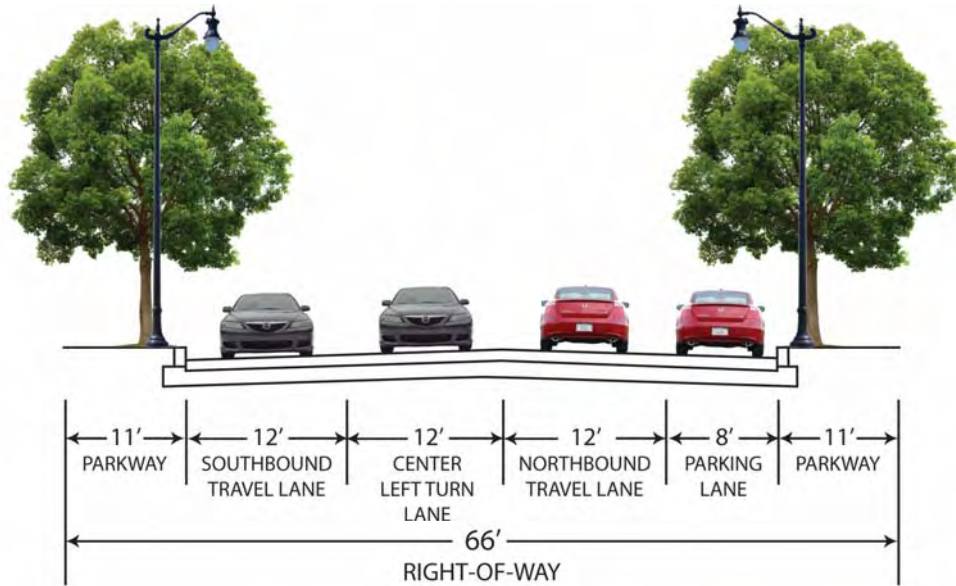
08-252

KLOA

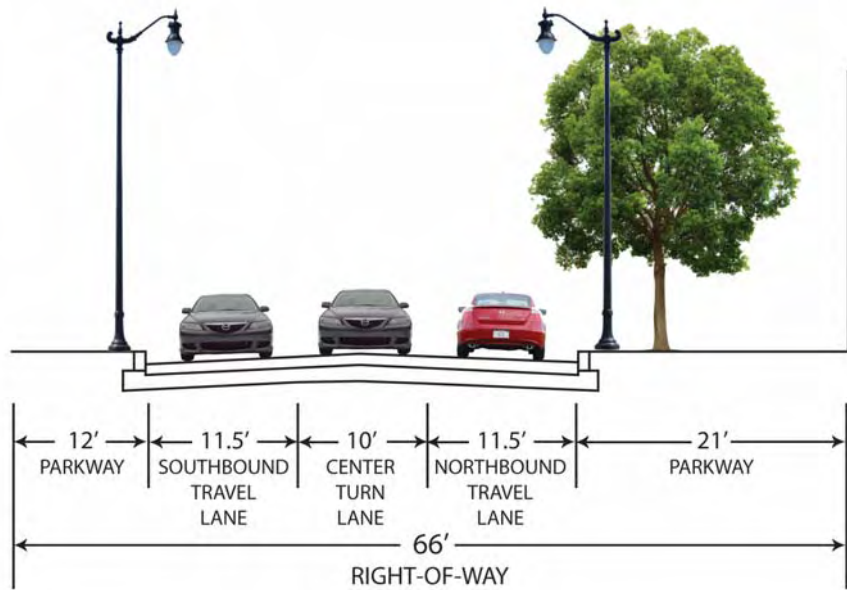
FIGURE NO:

9

SECTION D



SECTION E



PROJECT:

WESTERN AVE-GREGORY ST
TRAFFIC STUDY
BLUE ISLAND, ILLINOIS

TITLE:

GREGORY STREET
PROPOSED CROSS SECTIONS

PROJECT NO:

08-252



FIGURE NO:

10

Western Avenue and Prairie Street

This intersection will be converted to two-way on Western Avenue as follows:

- Re-striping of Western Avenue to provide a single northbound through/right-turn lane and a single southbound through/right-turn lane.
- The parking lanes will be retained on both sides of Western Avenue.
- Curb extensions to be installed on Western Avenue at all four corners of the intersection.
- Prairie Street will remain under stop sign control at Western Avenue.
- Brick paver crosswalks will remain on both Prairie Street approaches and across Western Avenue.

Western Avenue and Oak Street

This intersection will be converted to two-way on Western Avenue as follows:

- Re-striping of Western Avenue to provide a single northbound through lane and a single southbound through/right-turn lane.
- The parking lanes will be retained on both sides of Western Avenue.
- Oak Street will remain under stop sign control at Western Avenue.
- Brick paver crosswalk to remain on Oak Street.

Western Avenue and Walnut Street

This intersection will be converted to two-way on Western Avenue as follows:

- Re-striping of Western Avenue to provide a single northbound through/right-turn lane and a single southbound through/right-turn lane.
- The parking lanes will be retained on both sides of Western Avenue.
- Curb extensions to be installed on Western at all four corners of the intersection.
- Walnut Street will remain under stop sign control at Western Avenue.
- Brick paver crosswalks will remain on all intersection approaches.

Western Avenue and Union Street

This intersection will be converted to two-way on Western Avenue as follows:

- Re-striping of Western Avenue to provide a single northbound through/right-turn lane and a single southbound through/right-turn lane.

- The parking lanes will be retained on both sides of Western Avenue.
- Curb extensions to be installed on Western Avenue at all four corners of the intersection.
- Union Street will remain under stop sign control at Western Avenue.
- Brick paver crosswalks will remain on all intersection approaches.

Western Avenue and High Street

This intersection will be converted to two-way on Western Avenue as follows:

- Re-striping of Western Avenue to provide a single northbound through/right-turn lane and a single southbound through/right-turn lane.
- The parking lanes will be retained on both sides of Western Avenue.
- Curb extensions to be installed on Western Avenue at all four corners of the intersection.
- High Street will remain under stop sign control at Western Avenue.
- Brick paver crosswalks will remain on all intersection approaches.

Western Avenue and York Street

This intersection will remain under traffic signal control. The conversion of Western Avenue to two-way operation will require the following:

- Signal equipment modernization to accommodate two-way traffic.
- Re-striping of the north leg of Western Avenue to provide a separate southbound left-turn lane, a single southbound through/right-turn lane, and a single northbound lane.
- Re-striping of the south leg of Western Avenue to provide a dedicated northbound left-turn lane, a northbound through/right-turn lane, and a single southbound lane.
- Curb parking to be maintained on the west side of Western Avenue for the full block north and south of York Street.
- Removal of curb parking from the east side of Western on the southern ½-block between High and York streets and on the northern ½-block between York and New streets.
- Parking lane modifications and re-striping of York Street to provide a separate left-turn lane and combined through/right-turn lane on the east and west approaches.
- Brick paver crosswalks will remain on all intersection approaches.

Western Avenue and New Street

This intersection will be converted to two-way on Western Avenue as follows:

- Re-striping of Western Avenue to provide a separate left-turn lane and a combination through/right-turn lane on the north and south approaches of the intersection.
- New Street to remain one-way eastbound from Western Avenue east to Irving Avenue.
- Curb parking to be maintained on the west side of Western Avenue for the northern ½-block between New Street and Vermont Street. This parking may need to be restricted during the peak hours.
- Removal of curb parking on the east side of Western Avenue for the southern ½-block between New Street and Vermont Street.
- Curb extensions to be installed on Western Avenue at all four corners of the intersection.
- Brick paver crosswalks will remain on all intersection approaches.

Western Avenue and Vermont Street

This intersection is currently signalized and is proposed to remain under traffic signal control after Western Avenue's conversion to a two-way operation. The following additional improvements are proposed:

- Signal equipment modernization to accommodate two-way travel.
- Re-striping of the north leg of Western Avenue to provide a separate southbound left-turn lane, a single southbound through lane, a separate southbound right-turn lane, and a single northbound lane.
- Re-striping of the south leg of Western Avenue to provide a separate northbound left-turn lane, a northbound combination through/right-turn lane, and a single southbound lane.
- Removal of the curb extension on Vermont Street at the northwest corner of the intersection.
- Curb parking to be maintained on the west side of Western Avenue mid-block between Vermont Street and Grove Street/Gregory Street. This parking may need to be restricted during the peak hours.
- Removal of curb parking from the east side of Western Avenue between Vermont Street and Grove Street/Gregory Street.
- Brick paver crosswalks will remain on all intersection approaches.

Western Avenue at Grove Street/Gregory Street

This location is proposed to accommodate the transition between the converted two-way section of Western Avenue to the north of Grove Street and the existing two-way section of Western Avenue that crosses the Calumet Sag Channel to the south of Grove Street. The preferred reconfiguration of this intersection includes the realignment of Gregory Street to intersect Western Avenue at a 90-degree angle opposite Grove Street to create a four-leg intersection. The preferred design also makes use of the existing section of Gregory Street that veers to the east from Western Avenue (just north of the Calumet Sag Channel bridge) to accommodate the heavy northbound right-turning volume (from Western to Gregory) as a free-flow movement.

An engineer's opinion of probable construction cost estimate was developed for this intersection reconfiguration based on the conceptual geometric plan for the intersection and field review. The cost estimate is \$1.33 million (see Appendix) and does not include land acquisition costs, utility relocations and permit/review fees. Right-of-way information will need to be verified and topographic surveys will need to be performed prior to the preparation of any roadway engineering plans.

The following design characteristics are proposed for this intersection.

- Installation of a new traffic signal at this intersection with interconnection into a signal system with the existing Western Avenue signals at Vermont Street and at York Street. The signal system will include emergency vehicle preemption devices, LED signal heads and pedestrian countdown signals.
- Re-striping of the north leg of Western Avenue to provide a separate southbound left-turn lane, a southbound through lane, a southbound combined through/right-turn lane, and a single northbound lane.
- Re-striping of the south leg of Western Avenue to provide a separate northbound left-turn lane, a northbound combination through/right-turn lane, and two southbound lanes.
- Re-striping of the west leg of Grove Street to provide a separate eastbound left-turn lane and a combined through/right-turn lane.
- Construction of the east leg of Gregory Street with a separate westbound left-turn lane, a westbound combination through/right-turn lane, and a single eastbound lane.
- Reconstruction of the Western Avenue/Olde Western Avenue intersection to accommodate two southbound through lanes on Western Avenue.
- Brick paver crosswalks will remain on the west approach of Grove Street and will be added to the other three intersection approaches.
- Uptown gateway feature in the existing triangular open space between Western Avenue and the northbound free-flow lane of Gregory Street.

Gregory Street and 127th Street

With Gregory Street being converted to two-way operation south of 127th Street, the lane configuration at 127th Street will need to be changed as follows:

- The north leg of the intersection will continue to have a separate southbound left-turn lane. The existing southbound right-turn lane will be re-striped into a combined through/right-turn lane. Two northbound lanes will continue to be provided.
- The south leg of the intersection will become two-way and will continue to have a separate northbound right-turn lane and two northbound through lanes. However, the existing northbound dual left-turn lanes will be reduced to a single left-turn lane to accommodate a single southbound lane.
- The west leg of 127th Street will be re-striped to provide a single eastbound left-turn lane, two eastbound through lanes, a separate eastbound right-turn lane, and three westbound lanes, one of which will be utilized for right-turning movements at Western Avenue.
- The east leg of 127th Street will continue to have a separate westbound right-turn lane and two westbound through lanes. In addition, the median area will be re-striped to provide a separate westbound left-turn lane. Two eastbound lanes will continue to be provided.

Gregory Street and Prairie Street

Gregory Street will be converted to a two-way operation resulting in the following:

- The north leg of Gregory Street will be re-striped to provide a separate southbound left-turn lane, a southbound combined through/right-turn lane, and three northbound lanes, one of which will be utilized for right-turning movements at 127th Street.
- The south leg of Gregory Street will be re-striped to provide a separate northbound left-turn lane, a northbound through lane, a northbound combined through/right-turn lane, and a single southbound lane.
- The east and west legs of Prairie Street will accommodate a single combined through/right/left lane under stop sign control.

Gregory Street and Walnut Street

Gregory Street will be converted to a two-way operation resulting in the following:

- The north leg of Gregory Street will be re-striped to provide a southbound combined through/right-turn lane, a two-way left-turn channelization lane, a northbound lane, and a parking lane on the east side of the roadway reserved for adjoining residents.
- The south leg of Gregory Street will be re-striped to provide a northbound through lane, a two-way left-turn channelization lane, a southbound lane, and a parking lane on the east side of the roadway reserved for adjoining residents.
- The west leg of Walnut will have a combined through/left/right lane under stop control.

Gregory Street and Union Street

Gregory Street will be converted to a two-way operation resulting in the following:

- Traffic control at this intersection will be modified from three-way stop control to four-way stop control. Traffic signals will be installed if warranted.
- The north leg of Gregory Street will be re-striped to provide a separate southbound left-turn lane, a southbound combined through/right-turn lane, a single northbound lane, and a parking lane on the east side of the roadway reserved for adjoining residents.
- The south leg of Gregory Street will be re-striped to provide a separate northbound left-turn lane, a northbound through lane, a separate northbound right-turn lane, and a single southbound lane.
- Brick paver crosswalks installed on all intersection approaches.

Gregory Street and High Street

Gregory Street will be converted to a two-way operation resulting in the following:

- The north leg of Gregory Street will be re-striped to provide a southbound combined through/right-turn lane, a two-way left-turn channelization lane, and a northbound through lane.
- The south leg of Gregory Street will be re-striped to provide a northbound through lane, a two-way left-turn channelization lane, and a southbound lane.
- The west leg of the intersection will have a combined through/left/right lane under stop sign control.

Gregory Street and York Street

This intersection will remain under traffic signal control. The conversion of Gregory Street to two-way operation will require the following:

- Signal equipment modernization to accommodate two-way traffic.
- Re-striping of the north leg of Gregory Street to provide a separate southbound left-turn lane, a southbound combined through/right-turn lane, and a single northbound lane.
- Re-striping of the south leg of Gregory Street to provide a separate northbound left-turn lane, a northbound through lane, a separate northbound right-turn lane, and a single southbound lane.
- The west leg of York Street will remain the same.
- The east leg of York Street will be re-striped with a separate westbound left-turn lane, a westbound combination through/right-turn lane, and a single eastbound lane.
- Brick paver crosswalks installed on all intersection approaches.

Gregory Street and New Street

Gregory Street will be converted to a two-way operation resulting in the following:

- New Street will remain as a one-way eastbound street under stop sign control at Gregory Street.
- The north leg of Gregory Street will be re-stripped to provide a southbound through lane, a two-way left-turn channelization lane, and a northbound lane.
- The south leg of Gregory Street will be re-stripped to provide a northbound through lane, a separate northbound right-turn lane, and two southbound lanes.
- Brick paver crosswalks installed on both New Street approaches.

Gregory Street Between New Street and Grove Street

- Gregory Street will be re-stripped to provide a four-lane cross section with two southbound lanes and two northbound lanes.

On-Street Parking

On-street parking is presently permitted along both sides of Western Avenue (127th Street-Grove Street) to support adjoining Uptown businesses. On-street residential parking is also presently permitted along the east side of Gregory Street between Prairie Street and Union Street. The proposed reconfiguration of Western Avenue recognizes the importance of the roadway as the main street through the Blue Island CBD and takes into consideration the desire of the Blue Island community to preserve as much of the on-street parking as possible.

The recommended plan shown in Figure 7 will result in the loss of approximately 10 percent of the parking along Western Avenue, which will reduce the on-street parking supply from 122 spaces to 110 spaces. The recommended plan will also reduce the number of on-street parking spaces on Gregory Street by 25 percent from 28 spaces to 21 spaces. There are presently a total of approximately 170 parking spaces along the east-west streets between Western Avenue and Gregory Street that are likely available in place of the lost parking spaces on Western Avenue and Gregory Street.

Pedestrian Safety Elements and Bicycle Accommodations

The recommended geometric plan for Western Avenue and Gregory Street includes features that will enhance pedestrian safety and transform the Uptown area of Blue Island into a more pedestrian-friendly environment. Curb extensions are recommended at most of the unsignalized intersections along Western Avenue to reduce pedestrian crossing distances and expand the roadside zone to provide pedestrian gathering areas and space for urban design features such as Main Street information kiosks, wayfinding signs, benches, bicycle racks, public transit waiting amenities, streetscaping and public art. At the signal-controlled intersections, the pedestrian

signals will be replaced with countdown signals that provide notice to pedestrians on the time remaining to cross the street. These features, combined with the existing brick paver crosswalks, are context-sensitive solutions that will serve to calm traffic through the Uptown area while increasing the visibility of pedestrians.

In addition to pedestrian accommodations, the recommended plan accommodates bicycle access along Western Avenue between 127th Street and New Street. Within this stretch of Western Avenue, the northbound and southbound through lanes can be maintained at a 13-foot width or greater, which is IDOT's minimum design width for urban arterial roadways shared with bicyclists when there is inadequate street space to provide dedicated bicycle lanes. South of New Street, the need for left- and right-turn lanes to maximize street capacity and maintain efficient traffic flow between two closely-spaced traffic signals (i.e., Vermont Street and Grove Street/Gregory Street) makes it impossible to provide 13-foot travel lanes. As such, New Street and other east-west cross streets would be used by bicyclists traveling to and from the residential areas to the east and west of the Uptown area and to the Blue Island Metra station.

Urban SRA Status

As noted earlier, Western Avenue is classified by IDOT as an Urban Strategic Regional Arterial (SRA). The SRA system is a network of major arterials that are intended to supplement the freeway system and accommodate a significant portion of long-distance automobile and commercial traffic in the region. The section of Western Avenue between 127th Street and Grove Street/Gregory Street serves as the City of Blue Island's main commercial district and is intended to be an active, calm and pedestrian-oriented environment accessible by all modes of travel, which runs counter to the goal of moving long-distance traffic in as an efficient manner as possible. As such, the plan includes the recommendation to reassign the Urban SRA status of this section of Western Avenue to Gregory Street in order that Gregory Street better function as the commercial district bypass route.

There are several other factors that support the practicality of the reassignment of the Urban SRA status to Gregory Street.

- The current and projected traffic volumes on Gregory Street are higher than Western Avenue
- Northbound travel on Western Avenue is already directed onto Gregory Street
- 127th Street is already a part of the SRA system, so north-south through traffic using Gregory Street would remain on an SRA facility while traveling between Gregory Street and Western Avenue at 127th Street.
- While the right-of-way along Western Avenue through Blue Island's central business district is constrained by the existing street wall, made up of zero-lot line buildings that include several local landmarks protected by the City's Historic Preservation Ordinance, conditions along Gregory Street are more favorable to future expansion of the State's right-of-way, should regional growth require it.

- Western Avenue formerly operated as a two-way roadway and the existing geometry meets IDOT standards for conversion back to two-way flow. Furthermore, the conversion could be made at a modest cost.
- The geometry of Western Avenue (i.e., 13-foot outside through lanes) accommodates shared use with bicyclists while the geometry of Gregory Street does not. It would be more desirable for bicyclists to utilize non-SRA roadways since the SRA roadways typically carry higher volumes and more truck traffic at higher speeds. Providing alternate transportation options through Blue Island's central business district, such as bicycle travel, supports the community's economic development goals for this historically significant district.
- Pedestrian volumes crossing Gregory Street are considerably lower than the pedestrian volumes crossing Western Avenue. The plan does not include curb extensions along Gregory Street as it does along Western Avenue. As such, on Gregory Street there will be fewer traffic calming measures that are intended to slow traffic than there will be on Western Avenue.

Projected Intersection Operations

Intersection capacity analyses were performed for the projected 2030 weekday peak hour traffic condition. The recommended intersection geometrics for the major traffic signal controlled intersections were developed with the desire to maintain a Level of Service D or better for the overall intersection as well as for all individual movements within the intersection. The recommended intersection geometrics for the unsignalized intersections were developed to minimize delays entering and exiting Western Avenue and Gregory Street while preserving as much on-street parking as possible and continuing to accommodate Pace bus service.

Table 3 summarizes the results of the capacity analyses for the projected 2030 weekday peak hour traffic condition. The results shown in the table illustrate the average level of service and delay for all vehicles controlled by a traffic signal or stop sign at each intersection. The capacity analysis worksheets for the projected 2030 traffic condition are contained in the Appendix.

The results indicate that the projected traffic signal controlled intersections along Western Avenue and Gregory Street will all operate at satisfactory levels of service under 2030 peak hour conditions with the recommended intersection geometrics shown in Figure 7. The level of service at the unsignalized intersections in the corridor will mostly result in satisfactory levels of delay, although traffic on some of the cross streets, such as Prairie Street and Union Street, may experience longer delays during the evening peak hour. This is not an uncommon peak hour situation in a metropolitan area, particularly for stop sign controlled intersections along major roadways such as Western Avenue. During the off-peak hours and on weekends, these motorists will experience considerably less delay in accessing Western Avenue.

Furthermore, a signal cycle length of 110 seconds was determined to be the most efficient for this system during peak hour conditions and was utilized in the capacity analyses. Maximum (95th-percentile) vehicle queues along Western Avenue and Gregory Street do not show spillback

through the upstream traffic signals. The SYNCHRO analyses submitted with this report, which visually depicts traffic progression and the effect of the signal interconnection, reflects an efficient traffic operations on Western Avenue and Gregory Street when the streets are converted to two-way operation.

Additional measures will be taken by the City in the future to further improve traffic flow along Western Avenue. One such measure is the upgrading of the existing north-south alley system that runs parallel to Western Avenue to the east and west of the roadway. This will better accommodate service vehicles and lessen the need for trucks to load and unload directly from Western Avenue. Another measure is the future development and consolidation of off-street parking to the rear of the Western Avenue commercial businesses, which will lessen the dependence on street parking and permit the closure of mid-block curb cuts.

Table 3

HCS+ CAPACITY ANALYSIS RESULTS—PROJECTED 2030 TRAFFIC CONDITIONS

Intersection	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
	LOS	Delay	LOS	Delay
<u>Signalized Intersections</u>				
Western Avenue/127 th Street	D	37.1	D	39.9
Western Avenue/York Street	C	22.4	C	22.0
Western Avenue/Vermont Street	C	24.9	C	26.5
Western Avenue/Gregory Street/Grove Street	C	22.0	B	14.0
Gregory Street/127 th Street	C	30.7	C	33.4
Gregory Street/York Street	B	18.7	C	25.1
<u>Unsignalized Intersections</u>				
Western Avenue/Prairie Street				
Westbound Approach	C	18.1	E	37.8
Eastbound Approach	C	15.6	C	22.1
Western Avenue/Union Street				
Westbound Approach	D	28.1	F	53.9
Eastbound Approach	C	20.8	D	26.8
Gregory Street/Prairie Street				
Westbound Approach	B	13.0	C	17.0
Eastbound Approach	B	12.0	C	17.3
Gregory Street/Union Street ¹	B	12.7	C	21.4

Note: LOS = Level of Service Delay = seconds/vehicle

¹Four-way stop control

5.

Conclusion

This Corridor Study analyzes the impacts of converting the Western Avenue/Gregory Street one-way couplet into a pair of two-way roadways within the Uptown area of Blue Island. It serves to identify the roadway cross section and intersection geometrics that will be required to accommodate the projected traffic volumes over the next twenty years (to 2030).

The recommended geometric plan, which is shown in Figure 7 of this report, attempts to accommodate traffic flow in as an efficient a manner as possible while still maintaining a comfortable, pedestrian-oriented environment desired by the residents of Blue Island. As such, the plan strikes a balance between traffic flow efficiency and the need for pedestrian safety and bicycle access in the Uptown area. Pedestrian safety improvements include installing curb extensions and countdown pedestrian signals to pair with the existing brick paver crosswalks. These pedestrian safety features will reduce pedestrian crossing distances at unsignalized intersections, make the crossings more visible to motorists, provide more information to pedestrians on the time available to cross the street, and expand the roadside zone to provide pedestrian gathering space and space for urban design features such as Main Street information kiosks, wayfinding signs, benches, bicycle racks, public transit waiting amenities, streetscaping and public art. Bicycle access has been accommodated through the use of shared travel lanes on Western Avenue between 127th Street and New Street.

Analysis of the projected 2030 peak hour traffic volumes indicates that the traffic signal controlled intersections along Western Avenue and Gregory Street will all operate at satisfactory levels of service with the recommended intersection geometrics shown in Figure 7. The intersections of Western Avenue with York Street and Vermont Street should be interconnected into signal system with the new signalized intersection of Western Avenue/Gregory Street/Grove Street to maximize traffic progression through the corridor, which has been shown in this study to prevent traffic queuing from extending through upstream traffic signals. The existing traffic signals will also be upgraded with additional signals for two-way flow, emergency vehicle preemption devices, LED signal heads and pedestrian countdown signals. Further measures to enhance traffic operations on Western Avenue will be pursued by the City over time as the Uptown area is redeveloped, such as upgrading the north-south alley system to eliminate loading/unloading on Western, consolidation of off-street parking to the rear of the businesses, and the elimination of mid-block curb cuts.

The engineer's opinion of probable construction cost for the recommended roadway and traffic signal reconfigurations necessary to accommodate the conversion of Western Avenue and Gregory Street to two-way travel is \$4.4 million and was based on the conceptual geometric plan shown in Figure 7 and on field review. This cost estimate does not include land acquisition costs, utility relocations and permit/review fees. Details of this cost estimate are included in the Appendix.

The geometric plan also includes the recommended reconfiguration of the roadways that comprise the Western Avenue/Gregory Street/Vermont Street triangle to accommodate the conversion of the one-way couplet to two-way travel and to create a gateway into the City's Main Street district. The engineer's opinion of probable construction cost for this reconfiguration alone is \$1.3 million and was also based on the conceptual geometric plan shown in Figure 7 and on field review and also does not include land acquisition costs, utility relocations and permit/review fees. Right-of-way information will need to be verified and topographic surveys will need to be performed prior to the preparation of any roadway engineering plans.

While the recommended geometric plan strives to maintain as much street parking as possible for the Uptown area businesses, the conversion of Western Avenue and Gregory Street to two-way travel will result in the loss of some street parking due to the need to maintain turn lanes at the major signal-controlled intersections and due to the implementation of the curb extensions. In total, the recommended geometric plan would result in the loss of approximately 12 parking spaces along Western Avenue (between 127th Street and Grove Street) and 7 parking spaces on Gregory Street.

All of the recommendations required to convert the streets from one-way to two-way can be accomplished within the existing right-of-way with the exception of the Western/Gregory/Grove reconfiguration.

The Corridor Study also identifies the City's desire to reassign IDOT's Urban Strategic Regional Arterial (SRA) status of Western Avenue to Gregory Street between 127th Street and Grove Street. This section of Western Avenue serves as the City of Blue Island's main commercial district and is intended to be an active, calm and pedestrian-oriented environment accessible by all modes of travel, which runs counter to the SRA goals of moving long-distance traffic in as an efficient manner as possible. The reassignment of the Urban SRA status to Gregory Street would allow Gregory Street to function as the commercial district bypass route, as it currently does for northbound traffic.

With concurrence from the City of Blue Island on the recommendations from this study, the report should be forwarded to the Illinois Department of Transportation for review and comment and to obtain guidance as to the required follow-up engineering design studies necessary to make the conversion of the one-way couplet a reality.

Appendix

Planning Level Engineer's Estimate of Probable Construction Cost
Grove Street/Western Avenue/Gregory Street Reconfiguration and Traffic Signal

ITEM	QUANTITY	UNIT	UNIT COST	COST	% OF TOTAL
EARTHWORK					
Earth Excavation	1,250	CU YD	\$30	\$37,500	0.7%
Removal and Disposal of Unsuitable Material	150	CU YD	\$30	\$4,500	0.1%
Topsoil 4"	1,000	SQ YD	\$5	\$5,000	0.1%
Sodding	1,000	SQ YD	\$5	\$5,000	0.1%
REMOVALS					
Pavement Removal	3,182	SQ YD	\$10	\$31,823	0.6%
CC&G Removal	1,450	LIN FT	\$8	\$11,600	0.2%
HMA Surface Removal, 1.5"	78,276	SQ YD	\$6	\$469,655	9.2%
Sidewalk Removal	10,500	SQ FT	\$2	\$21,000	0.4%
Driveway/Parking Lot Pavement Removal	285	SQ YD	\$8	\$2,280	0.0%
DRAINAGE					
Mainline Storm Sewer	200	LIN FT	\$65	\$13,000	0.3%
Laterals	540	LIN FT	\$40	\$21,600	0.4%
Catch Basins	28	EACH	\$2,500	\$70,000	1.4%
Manholes	17	EACH	\$2,000	\$34,000	0.7%
Trench Backfill	416	CU YD	\$25	\$10,400	0.2%
ROADWAY					
HMA Surface Course, 1.5"	7,045	TON	\$65	\$457,913	8.9%
Full Depth Pavement	750	SQ YD	\$50	\$37,500	0.7%
Aggregate Sub-Grade	890	SQ YD	\$15	\$13,350	0.3%
Patching (10%)	7,828	SQ YD	\$50	\$391,379	7.6%
CC&G	2,050	LIN FT	\$20	\$41,000	0.8%
Sidewalk	20,600	SQ FT	\$5	\$103,000	2.0%
Pavement Marking					
Thermoplastic Pavement Marking - Line 24"	1,184	LIN FT	\$3	\$3,552	0.1%
Thermoplastic Pavement Marking - Line 12"	3,320	LIN FT	\$2	\$6,640	0.1%
Thermoplastic Pavement Marking - Line 8"	3,930	LIN FT	\$2	\$5,895	0.1%
Thermoplastic Pavement Marking - Line 6"	3,400	LIN FT	\$2	\$5,100	0.1%
Thermoplastic Pavement Marking - Line 4"	35,500	LIN FT	\$1	\$35,500	0.7%
Thermoplastic Pavement Marking - Letters & Symbols	2,550	SQ FT	\$6	\$15,300	0.3%
TRAFFIC SIGNALS					
New Signal Western Avenue and Grove Street	1	L SUM	\$250,000	\$250,000	4.9%
Traffic Signal Modification/Modernization	5	L SUM	\$200,000	\$1,000,000	19.5%
Interconnect	1	L SUM	\$50,000	\$50,000	1.0%
Structural					
Retaining Wall Removal	1	L SUM	\$50,000	\$50,000	1.0%
Proposed Retaining Wall	1,000	SQ FT	\$200	\$200,000	3.9%
Miscellaneous Items (20%)	1	L SUM	\$1,023,605	\$1,023,605	20.0%
Traffic Control and Protection (4%)	1	L SUM	\$204,721	\$204,721	4.0%
Landscaping and Erosion Control (2.5%)	1	L SUM	\$127,951	\$127,951	2.5%
Mobilization (6%)	1	L SUM	\$307,082	\$307,082	6.0%
Construction Layout (1%)	1	L SUM	\$51,180	\$51,180	1.0%

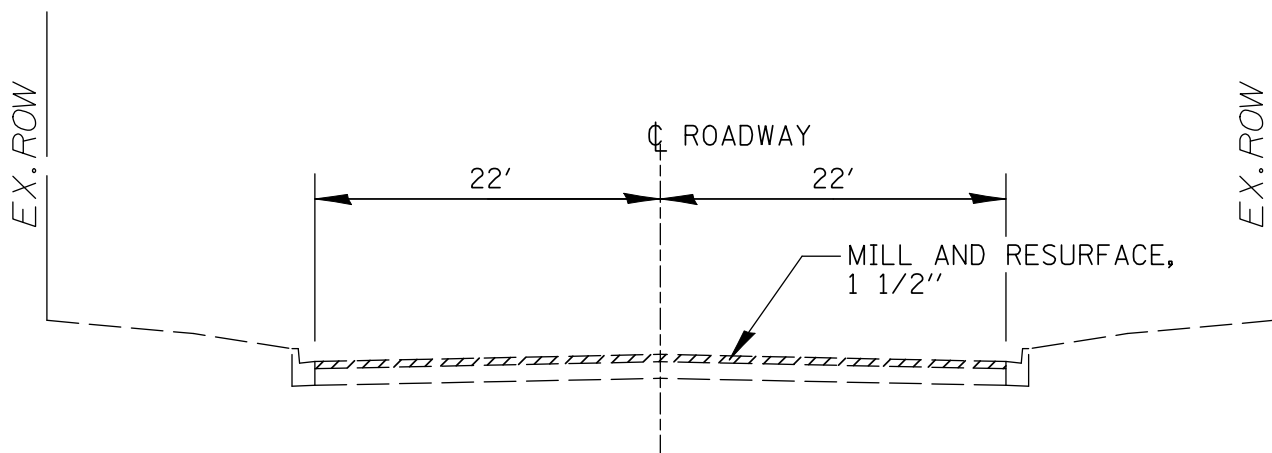
Total Estimated Construction Cost:	\$5,118,026	100.0%
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Design Engineering (10%)	\$511,803
Construction Engineering (10%)	\$511,803

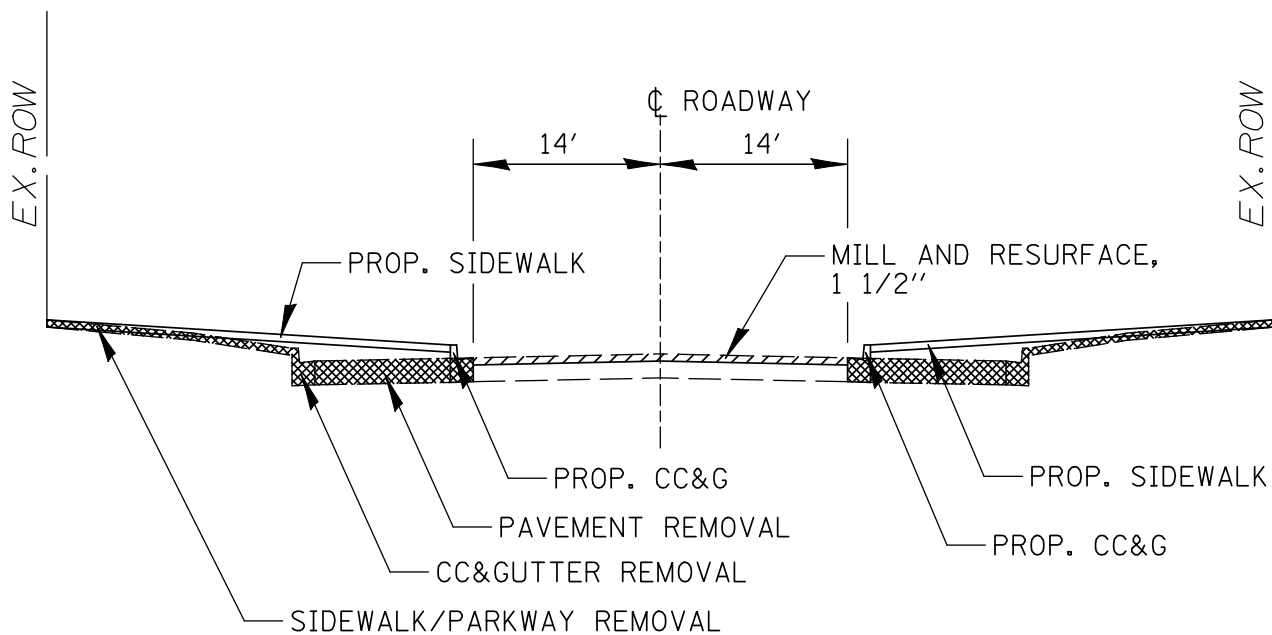
Total Estimated Project Cost:	\$6,141,631
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Notes:

- (1) This estimate does not include any utility relocation or land acquisition costs.
- (2) Unit costs were taken from IDOT Pay Item Reports With Awarded Prices web site (<http://www.dot.il.gov/desenv/payitems.html>) dated June 2008 to August 2009.



**TYPICAL SECTION
MID-BLOCK RESURFACING**



**TYPICAL SECTION
INTERSECTION BUMP-OUT LOCATIONS**

CLIENT:

TITLE:

**WESTERN AVE.-GREGORY STREET
TYPICAL SECTIONS**

PROJ. NO.

DATE:

SHEET OF

DRAWING NO.



CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 • Rosemont, Illinois 60018 • (847) 823-0500

DSGN.

DWN.

CHKD.

FILE:

SCALE:

MODEL:

PLOT DATE:

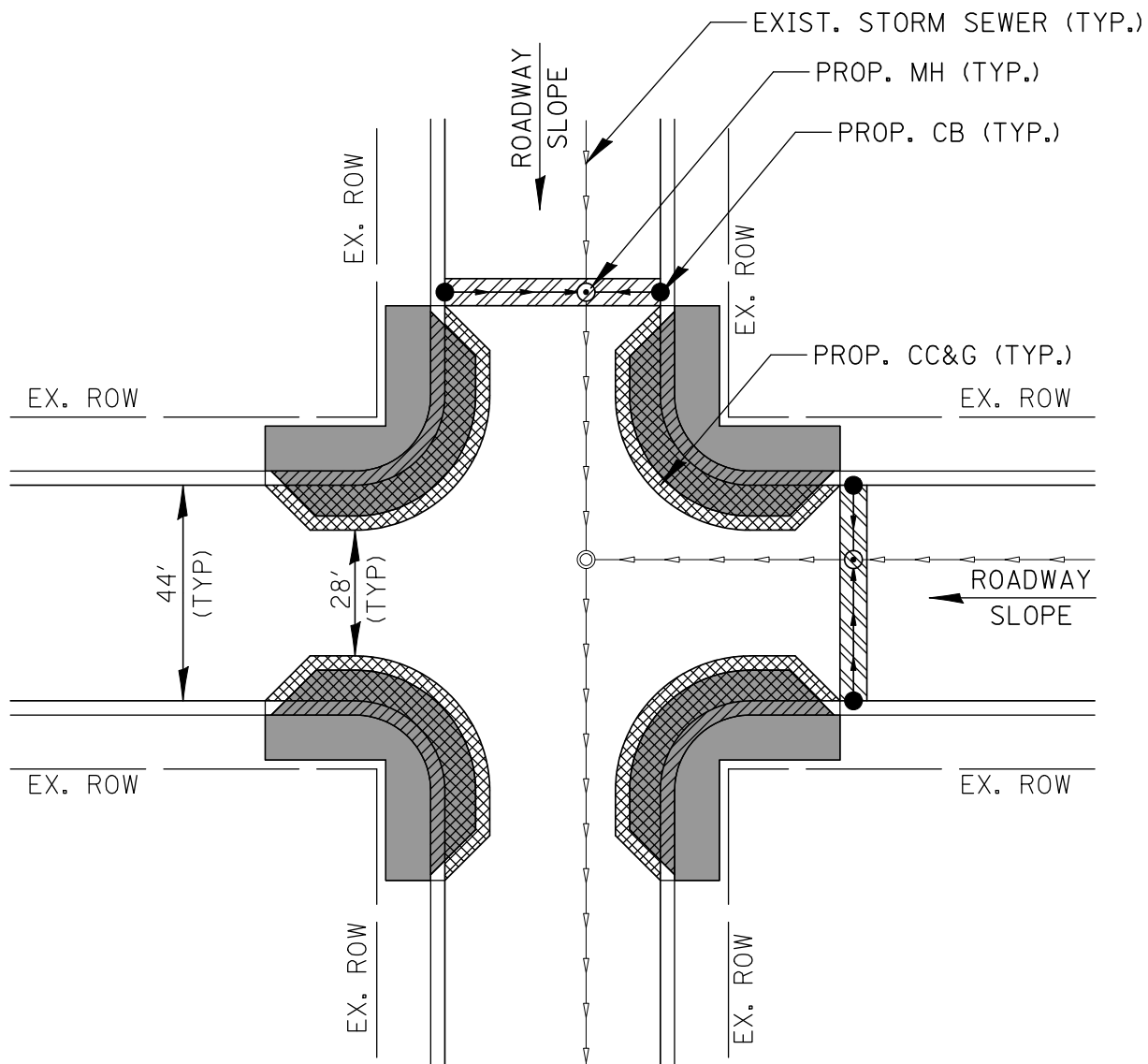
DET 01

20'


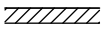


Default

9/7/2010

MWORMAN



LEGEND

-  PAVEMENT REMOVAL
-  CC&G REMOVAL
-  PROPOSED SIDEWALK
-  PAVEMENT PATCHING

CLIENT:

TITLE:

WESTERN AVE.-GREGORY STREET TYPICAL INTERSECTION SCHEMATIC

PROJ. NO.

DATE:

SHEET OF

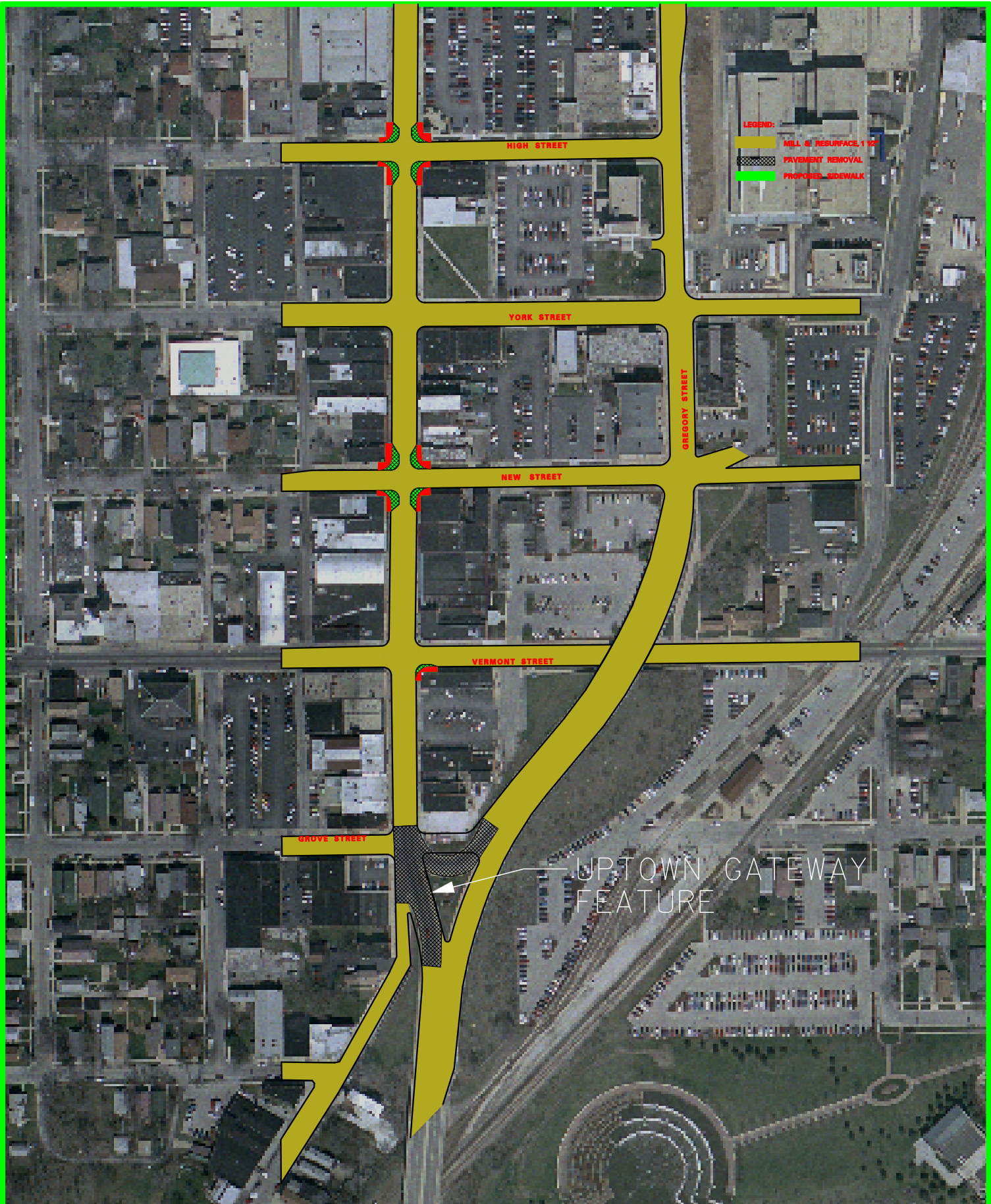
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CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 • Rosemont, Illinois 60018 • (847) 823-0500

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DWN.		MODEL:	Default
CHKD.		PLOT DATE:	9/7/2010
FILE:	DET 02		

MWORMAN



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TITLE:

WESTERN AVE.-GREGORY STREET TYPICAL PLAN

PROJ. NO.

DATE:

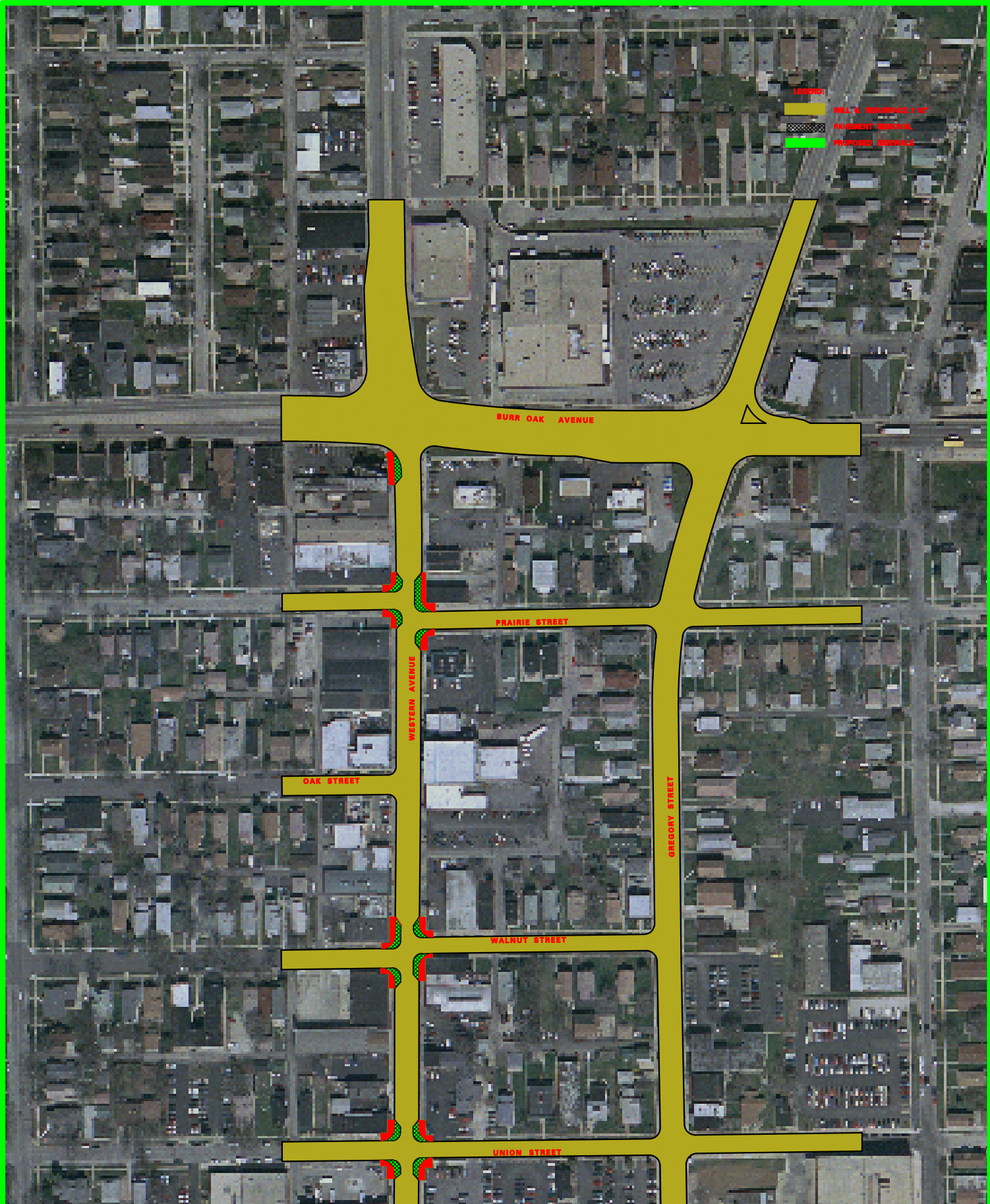
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CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

DSGN.		SCALE:	233'
DWN.		MODEL:	Default
CHKD.		PLOT DATE:	8/24/2010
FILE:	DET_03		



LEGEND:

- BUILT TO REQUIREMENTS, 1:01
- PAYMENT BOUNDARY
- PROPOSED SEWERAGE

CLIENT:

TITLE:

WESTERN AVE.-GREGORY STREET TYPICAL PLAN

PROJ. NO.

DATE:

SHEET OF

DRAWING NO.



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9575 W. Higgins Road, Suite 600 • Rosemont, Illinois 60018 • (847) 823-0500

DSGN.		SCALE:	233'
DWN.		MODEL:	Default
CHKD.		PLOT DATE:	8/24/2010
FILE:	DET_04		

WORMAN