

I. Introduction

A. Background

Separate studies have been completed in previous years for Grand Forks and East Grand Forks. North Dakota State Highway Department completed the Grand Forks study in 1987. This study was conducted only at selected locations in Grand Forks. The Grand Forks - East Grand Forks Metropolitan Planning Organization (MPO) conducted a study in East Grand Forks in 1990.

This study was broader in scope and looked at the entire school site, offering recommendations on school signals, bus lane turnouts, parking regulations, crosswalks, and other pedestrian signage. As a result of the flood of 1997, three of these elementary schools were lost and two new schools were built. Consequently, no studies have been done for these new areas.

The Grand Forks - East Grand Forks Metropolitan Planning Organization is currently working on a School Traffic Safety Program (STSP) for the metropolitan area. The program primarily consists of establishing school walk routes for each elementary school in the metro area. The program will also study traffic control in the areas around the schools. Included in this study are three elementary schools in East Grand Forks.

B. Purpose

This Elementary School Crossing Protection Study is one phase of the STSP being prepared by the Grand Forks - East Grand Forks Metropolitan Planning Organization.

The principal goal of the STSP is to determine school walk routes for elementary school students between home and school. These school walk routes will be assessed for proper school crossing traffic control at approximately 32 intersections in the Grand Forks - East Grand Forks metropolitan area. Ulteig Engineers, Inc. has been asked to assist in this portion of the study. The traffic control must be in conformance with local, state and federal regulations.

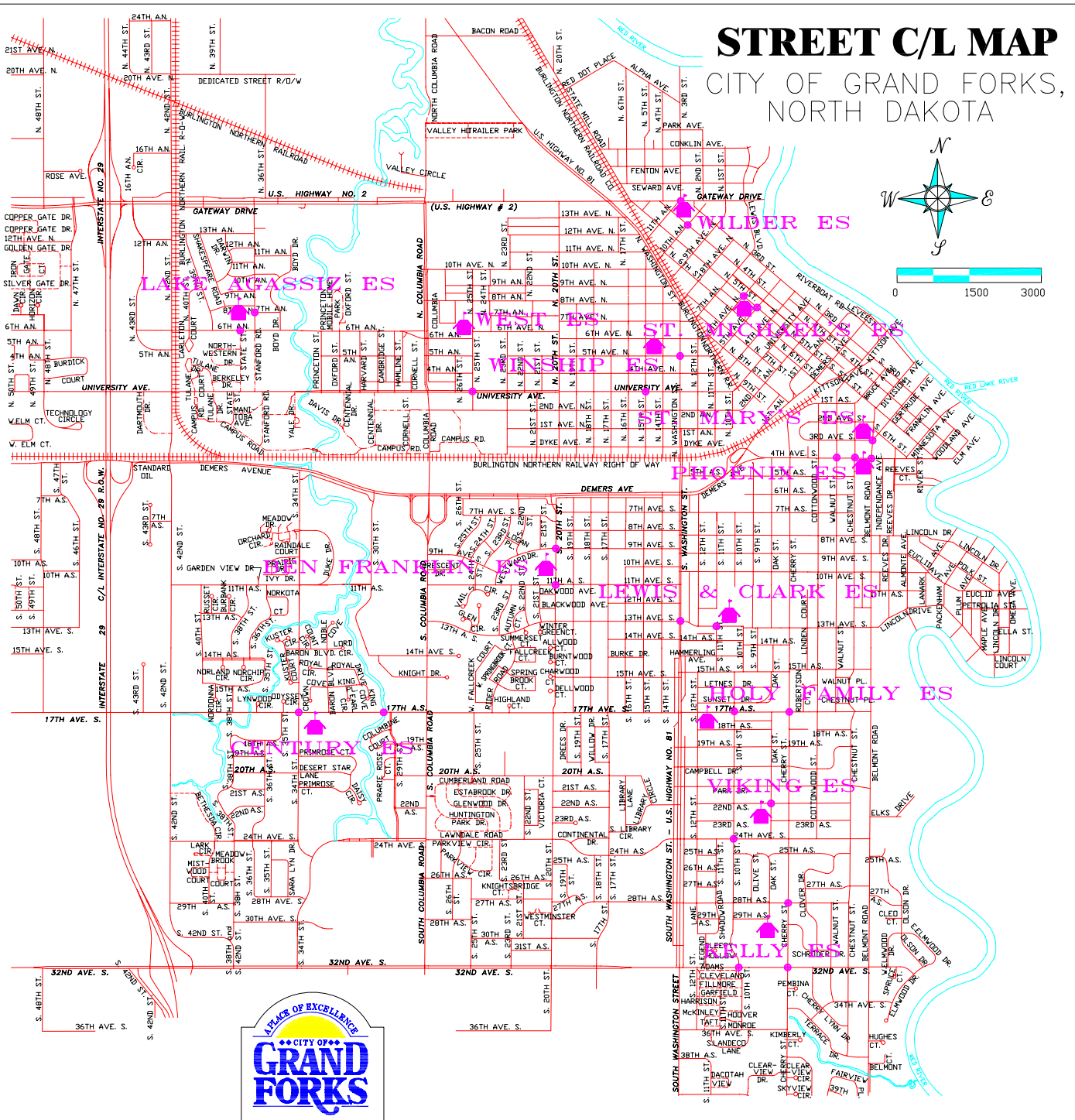
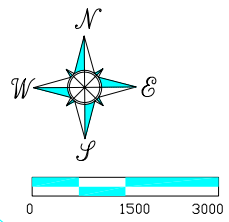
The STSP and Ulteig Engineers, Inc. will also assess and evaluate bus-zone locations, drop-off zones, and crossing guards.

C. Study Area

The study area included intersections designated by the MPO for analysis in the vicinity of each of the elementary schools in Grand Forks and East Grand Forks (see Figures 1 and 2). Additionally the study area included streets adjacent to each elementary school for analysis of bus-zone locations.

STREET C/L MAP

CITY OF GRAND FORKS, NORTH DAKOTA



CITY OF GRAND FORKS
 ELEMENTARY SCHOOL TRAFFIC ANALYSIS
 GRAND FORKS, NORTH DAKOTA
 STREET MAP

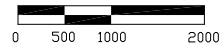
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- LEGEND**
- ELEMENTARY SCHOOL LOCATION
 - INTERSECTION OF STUDY

CITY OF GRAND FORKS FIGURE - 1 GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
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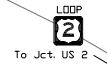
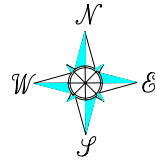
STREET C/L MAP

CITY OF
EAST GRAND FORKS,
MINNESOTA



LEGEND

- ELEMENTARY SCHOOL LOCATION
- INTERSECTION OF STUDY



CITY OF EAST GRAND FORKS
ELEMENTARY SCHOOL TRAFFIC ANALYSIS
EAST GRAND FORKS, MINNESOTA

STREET MAP

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CITY OF EAST GRAND FORKS
FIGURE - 2
EAST GRAND FORKS, MINNESOTA

ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
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II. Characteristics of Young Pedestrians and Drivers

This section of the report documents the attributes of young pedestrians and typical drivers in an effort to call attention to the uniqueness of vehicular / pedestrian conflicts in school areas, as well as to form the basis for recommendations derived later in the report.

A. Young Pedestrian Characteristics^{1, 2}

Research on the behavior of children as pedestrians and the extent of their perception and judgment in a traffic situation indicate that children from 6 to 16 years of age are generally inattentive and careless in crossing streets. Behavior studies indicate the following general characteristics of this age group:

1. **Physical Perception:** Peripheral vision is not as well developed in children as in adults.
2. **Physical Stature:** The small stature of children under 9 years old (3.6 feet average) presents difficulties in their seeing oncoming vehicles beyond parked cars as well as difficulties for the drivers in seeing these small pedestrians.
3. **Use of Crosswalks:** About two-thirds of the children will use a marked crosswalk at an uncontrolled intersection. The percentage increases at signalized intersections. When crossing guards are present, almost all children use the crosswalk.
4. **Use of Traffic Signals:** Only two-thirds of the young pedestrians will cross on the green indication where crossing guards are not present. With crossing guards, nearly all young pedestrians cross on green. With pedestrian-actuated signals, less than half will actuate the signal and cross during gaps in traffic if crossing guards are not present.
5. **Use of Over or Underpasses:** Children between age 5 and 16 will generally use overpasses when a crossing guard is nearby or when fences channel them to the crossing.

Accident data indicate that the lack of attention to the traffic situation is a major factor in accidents involving children. Sixty percent of the children involved in accidents did not see the vehicle. Seventeen percent of the accident victims under 14 years of age had either run into the roadway, appeared suddenly in the path of a vehicle, or crossed from between parked vehicles.

From another viewpoint, the young pedestrian who is not generally involved in accidents may be characterized as follows: goes to school with friends, goes the same way every day, selects the route taken because it is short, and would change the route if told to by

¹Traffic Control Devices Handbook, U.S. Department of Transportation, Federal Highway Administration, 1983, Part VII Traffic Control for School Areas, pp. 71-74.

²Moorhead School Crossing Study, F-M Council of Governments, 1991, pp. 3-5.

parents. In the trip to school, this type of youth crosses three or more streets at non-signalized crossings; crosses one or more streets with a policeman, crossing guard, or student patrol present; does not cross in the middle of the block; crosses when there are no cars in sight; was told how to cross the street safely by parents; knows it is safer to walk across the street than to run; would run out into the street to save a child or animal; would cross a signalized intersection when the light is green; thinks a marked crosswalk at the corner is a safer place to cross than midblock or an unmarked crosswalk; feels safer going home from school than to school; and is more worried about being hit by a car when it is dark.

The youngest pedestrians, nine and under, are involved in more than their share of accidents. Kindergarten through third grade students have considerable difficulty understanding and properly using school area traffic signals and crosswalks. They are more likely to cross midblock, or against a red signal than older students. The young pedestrian at each age level considers the location with a crossing guard or student patrol the safest place to cross.

B. Driver Behavioral Characteristics^{3, 4}

Usually, the driver using roadways surrounding school facilities is a local resident driving to work. A typical composite shows that the driver has a child between the ages of 5 and 9 and is aware of the school area - not because of signing but because of familiarity with the area. The driver knows that the legal speed limit through the school zone is between 15 and 25 miles per hour, but is nevertheless driving through the area between 31 and 35 miles per hour. The driver does not perceive the existing signs unless there is a flashing beacon associated with a speed sign, and is not aware of the intent of the traffic signs. Even though the driver is aware of the flashing beacon and speed sign, he will not slow down for the school zone unless he perceives a potential hazard. Driver behavior studies have concluded that vehicular speeds in school zones are reduced only when children are visible, crossing guards are visible, the flashing beacons are activated, or when police enforcement is evident.

C. Summary⁵

Given the characteristics of the young pedestrians and the attitudes and perceptions of the typical driver traveling through school zones, it becomes obvious that uniform traffic control devices properly applied and enforced are needed to protect young pedestrians. The protection of the school age pedestrian is the shared responsibility of parents, school administrators, traffic officials, civic leaders, and vehicle drivers. Programs in the home and school to train the child as a responsible pedestrian are an important factor in improving safety. This study will explain the problems identified at the 32 selected

³Traffic Control Devices Handbook, U.S. Department of Transportation, Federal Highway Administration, 1983, Part VII Traffic Control for School Areas, pp. 71-74.

⁴Moorhead School Crossing Study, F-M Council of Governments, 1991, pp. 3-5.

⁵Moorhead School Crossing Study, F-M Council of Governments, 1991, pp. 3-5.

intersections with high vehicular / pedestrian conflict levels, and will recommend solutions based on locally established guidelines for additional protective measures including safe walking routes, signs, markings, and adult and student crossing guards.

III. Signing and Marking Policies

The States of Minnesota and North Dakota have adopted the Manual on Uniform Traffic Control Devices (MUTCD) as their standard for application of traffic control devices throughout each state. In Minnesota, supplemental information has been added and the manual has been amended and called the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD). For the purposes of this report, each manual will simply be referred to as the MUTCD, although for applications in Minnesota, the MN MUTCD served as the basis for analysis and recommendations.

According to the MUTCD, the purpose of traffic control devices and warrants for their use is to help ensure highway safety by providing for the orderly and predictable movement of all traffic, motorized and non-motorized, and to provide such guidance and warnings as are needed to ensure the safe and uniform operation of individual elements of the traffic stream. The manual further states that uniformity of traffic control devices simplifies the task of the road user because it aids in recognition and understanding.

The MUTCD provides guidance for design and placement of signs and pavement marking. However, much of this guidance provides only a generalized description for their placement. Therefore, it was appropriate that Grand Forks and East Grand Forks each consider signing and pavement marking policies that would enable each City to be more uniform in its application of the guidance found in the MUTCD.

This study proposed that each City adopt crosswalk standards and stop / yield sign criteria that could be applied to the intersections analyzed by this study, and used as an analysis tool at future locations reviewed by each jurisdiction.

A. Crosswalk Standards

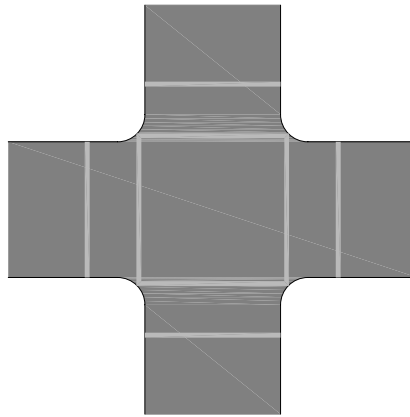
Crosswalk markings serve two purposes. They guide pedestrians to use the proper crossing paths and warn the motorist of a pedestrian crossing. Three types of crosswalk markings are generally used: 1) Standard Crosswalk Marking; 2) Crosswalk Marking with Diagonal Lines; and 3) Crosswalk Marking with Longitudinal Lines. These markings can be seen in Figure 3, "Typical Crosswalk Markings." Types 2 and 3 provide added visibility to the motorist.

Given that some Type 3 crosswalks provide added visibility to the motorist compared with Type 1 crosswalks, and that designated school crossings are locations where a heightened sense of driver awareness is highly desirable, the recommendation was made that Type 3 "Crosswalk Marking with Longitudinal Lines" be placed at all designated school and bikepath street crossings, midblock crossings, and other specially designated crossings. All other pedestrian crossings where crosswalks are desired should have Type I "Standard Crosswalk Markings."

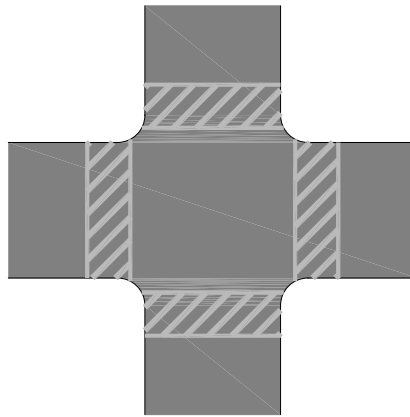
B. Stop Sign and Yield Sign Application Policy

The Manual on Uniform Traffic Control Devices (MUTCD) has specified warrants for installation of stop and yield signs. According to the MUTCD, a STOP sign may be warranted at an intersection where one or more of the following conditions exist:

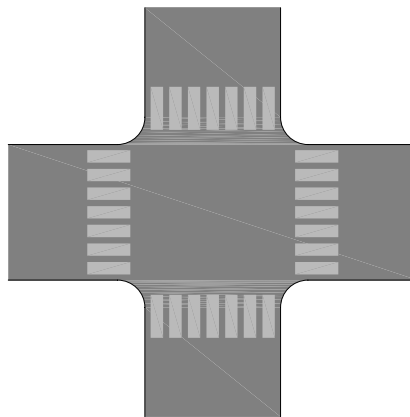
FIGURE 3 TYPICAL CROSSWALK MARKINGS





TYPE 1 – STANDARD CROSSWALK MARKING



TYPE 2 – CROSSWALK MARKING W/DIAGONAL LINES



TYPE 3 – CROSSWALK MARKING W/LONGITUDINAL LINES

CITY OF GRAND FORKS/EAST GRAND FORKS			
FIGURE - 3			
GRAND FORKS, NORTH DAKOTA			
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1. Intersection of a less important road with a main road where application of the normal right-of-way rule is unduly hazardous.
2. Street entering a through highway or street.
3. Unsignalized intersection in a signalized area.
4. Other intersections where a combination of high speed, restricted view, and serious accident record indicates a need for control by the STOP sign.

The YIELD sign may be warranted:

1. At the entrance to an intersection where it is necessary to assign right-of-way and where the safe approach speed on the entrance exceeds 10 miles per hour.
2. On the entrance ramp to an expressway where an acceleration lane is not provided.
3. At intersections on a divided highway where the median between the roadways is more than 30 feet wide. At such intersections, a STOP sign may be used at the entrance to the first roadway of the divided highway and a YIELD sign may be placed at the entrance to the second roadway.
4. Where there is a separate or channelized right-turn lane, without an adequate acceleration lane.
5. At any intersection where a special problem exists and where an engineering study indicates the problem to be susceptible to correction by use of the YIELD sign.

The MUTCD warrants for installation of stop and yield signs are somewhat ambiguous, and consistent application of the warrants can be difficult. In school areas, it is not uncommon for a municipality to receive requests for additional traffic control, or changes in existing traffic control.

Guidelines were developed to provide a systematic approach to the placement of these signs throughout Grand Forks and East Grand Forks. These guidelines supplement the warrants and narrative found in the MUTCD. They were derived from guidelines used by the City of Fargo over the past five years.

Table 1 “Stop / Yield Sign Criteria” lists values that should be met in regard to 1) Traffic Volume (ADT); 2) Site Distance; 3) Accident History (per year); 4) School Crossings; and 5) High Volume Pedestrian Crossings for different roadway classification intersections that justify the placement of “Stop” and “Yield” signs.

These guidelines were presented to local City Engineering staffs for review. Both Cities chose to adopt the guidelines for future use.

STOP/YIELD SIGN CRITERIA

Intersection Type	Two Way Stop or Yield	Four Way Stop
Local/Local		
Traffic Volume (ADT)	1000-3000	>3000 (1)
Sight Distance	Under 15 MPH	Blind
Accident History (per yr.)	3 or more	5 or more
School Crossing	(3)	(3)
High Volume Ped. X-ing	(6)	(4)
Collector/Local		
Traffic Volume (ADT)	1000-6000	>6000 (1)
Sight Distance	Under 15 MPH	Blind
Accident History (per yr.)	3 or more	5 or more
School Crossing	(3)	(3)
High Volume Ped. X-ing	(6)	(4)
Collector/Collector		
Traffic Volume (ADT)	(7)	1500-10,000 (1)(2)
Sight Distance	(7)	Blind (2)
Accident History (per yr.)	(7)	5 or more (2)
School Crossing	(7)	(3)
High Volume Ped. X-ing	(7)	(4)
Arterial Intersections		
Traffic Volume (ADT)	(8)	(5)
Sight Distance	(8)	(5)
Accident History (per yr.)	(8)	(5)
School Crossing	(8)	(3)
High Volume Ped. X-ing	(8)	(5)

1. The use of 4-way stops should only be considered at intersections with approximately balanced flow (I.E. A ratio of 60:40 or better).
2. If these criteria are met and the flow is balanced, four way stop is permissible. Signals should be considered when volume is greater than 10,000 and warrants are met, with a 4-way stop as an interim measure only.
3. When insufficient gaps exist and 20 or more elementary school aged children use a crossing during the peak crossing hour, the following control measures are recommended:
 - A. Install 2-way stops (on-minor streets).
 - B. The following table outlines a hierarchy of steps which are recommended for providing safety at identified school crossing locations where Step A is ineffective. The use of crossing guards is recommended if the following control measures are not effective. The cost of these measures should be jointly funded by the City and School Board.

Local/Local	Collector/Local	Collector/Collector	Arterial Intersection
4-way stop	4-way stop	4-way stop	Flashing beacons
	4-way stop w/flashing beacons	4-way stops w/flashing beacons	Signalization
		Signalization	

These locations require 50 or more crossings during the peak hour.

4. The MUTCD minimum pedestrian volume warrant should be used, but the minimum peak hour pedestrian volume should be reduced to 100 for crossings which are predominately adult pedestrians, and to 50 for crossings which are predominately elementary aged pedestrians. Where a critical need exists, a 4-way stop sign may be approved as an interim measure when signals are warranted.
5. When a critical safety or access concern exists, a 4-way stop may be approved as an interim measure when signals are warranted.
6. At an intersection where 50 or more pedestrian crossings occur during the peak hour on a particular street, a two-way stop may be installed.
7. A two-way stop may be utilized to stop traffic on the lower volume street.
8. Where an arterial street crosses a local or collector street, a two-way stop may be installed to stop traffic on the local or collector street.

IV. Intersection Inventories and Traffic Control Recommendations

Thirty-two intersections were identified surrounding the 13 elementary schools in Grand Forks and three elementary schools in East Grand Forks. Signing, pavement marking, and other site features were inventoried at each intersection. Following this inventory, each intersection was reviewed to determine consistency with established federal, state and local standards for placement of signs and pavement markings.

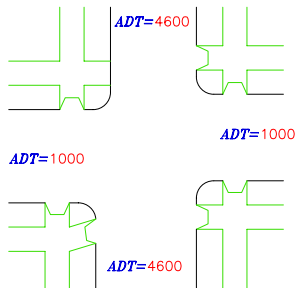
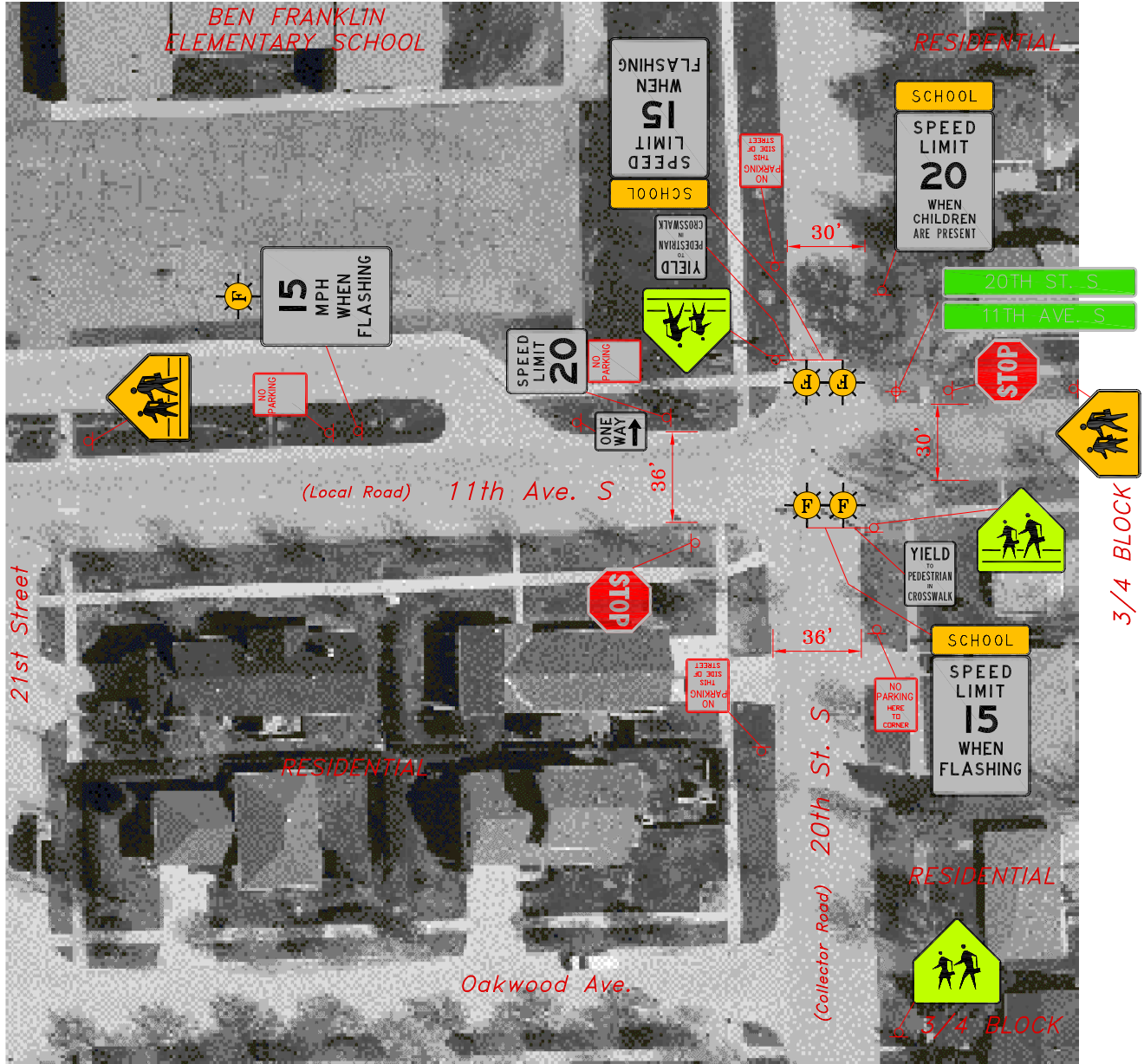
Recommendations shown for each intersection are consistent with the signing and marking policies established by this study and adopted by local jurisdictions. These recommendations will improve recognition and understanding of traffic control devices by driver and pedestrian alike, through the uniform application of these devices.

It was observed that a number of intersections have flashing beacons and Speed Limit 15 When Flashing signs. Some of these beacons are at locations that are no longer on the designated Safe Route to School. These locations should be monitored to determine whether use of these areas as school crossings will continue. The City may determine that some of these flashing beacons should be removed in the future if it is determined that they are no longer warranted.

The following figures and narrative are organized with four pages for each of the 32 studied intersections. The first page or figure reflects the inventory of existing conditions found at the site. The second page or figure shows changes in signing or pavement markings that are recommended for that site. The third page or figure shows the final recommended signing for each intersection. A narrative is provided for each intersection on the fourth page and explains recommended improvements as well as other pertinent observations.

BEN FRANKLIN ELEMENTARY SCHOOL

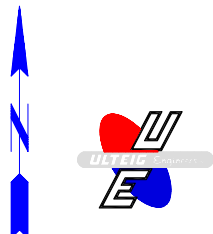
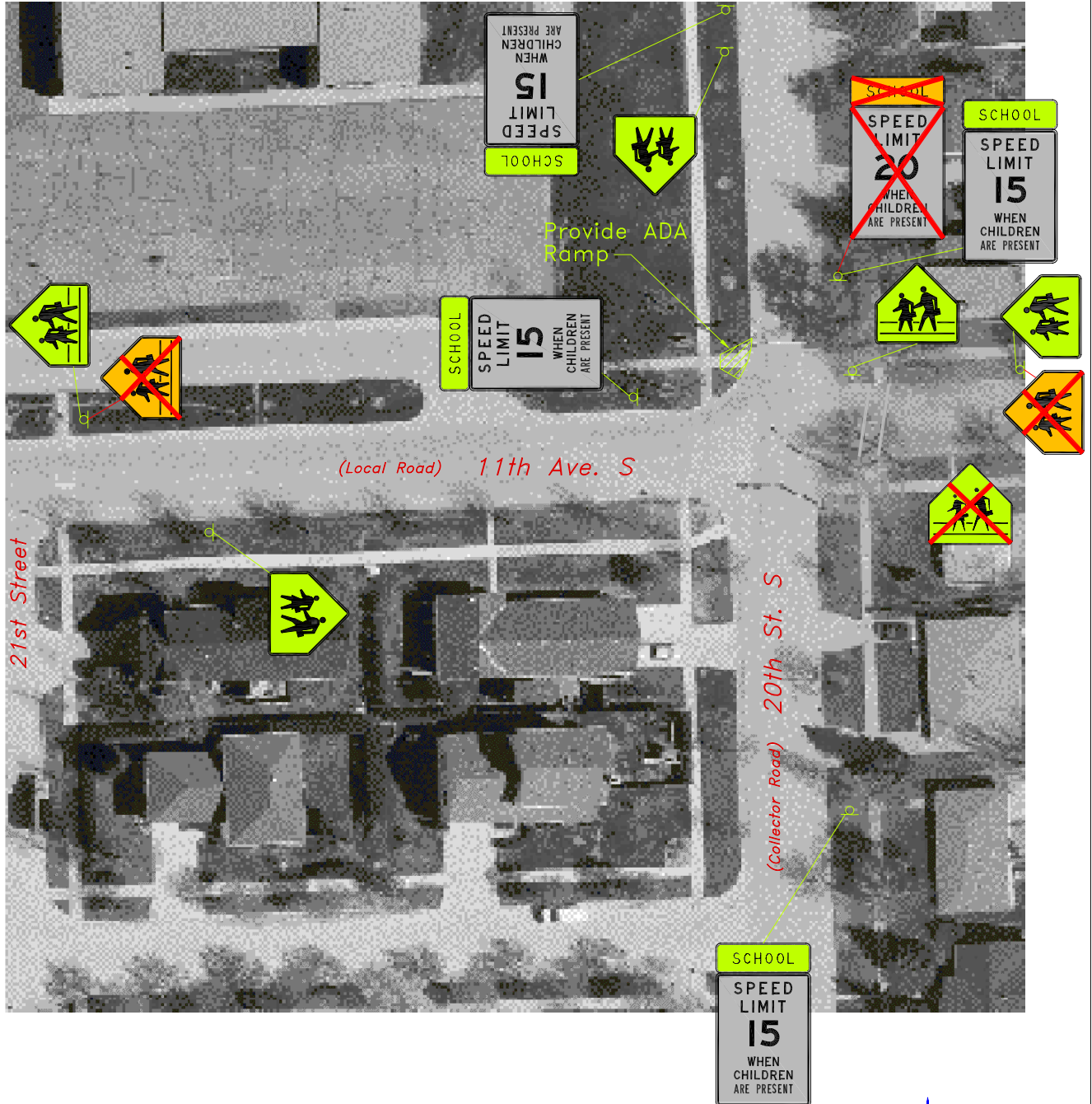
11th Ave. S & 20th St. S



CITY OF GRAND FORKS BEN FRANKLIN ELEMENTARY SCHOOL 11th Ave. S & 20th St. S GRAND FORKS, NORTH DAKOTA			
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PROPOSED SIGNAGE & MARKING

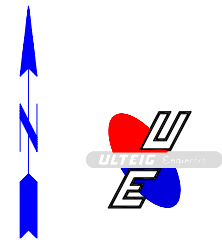
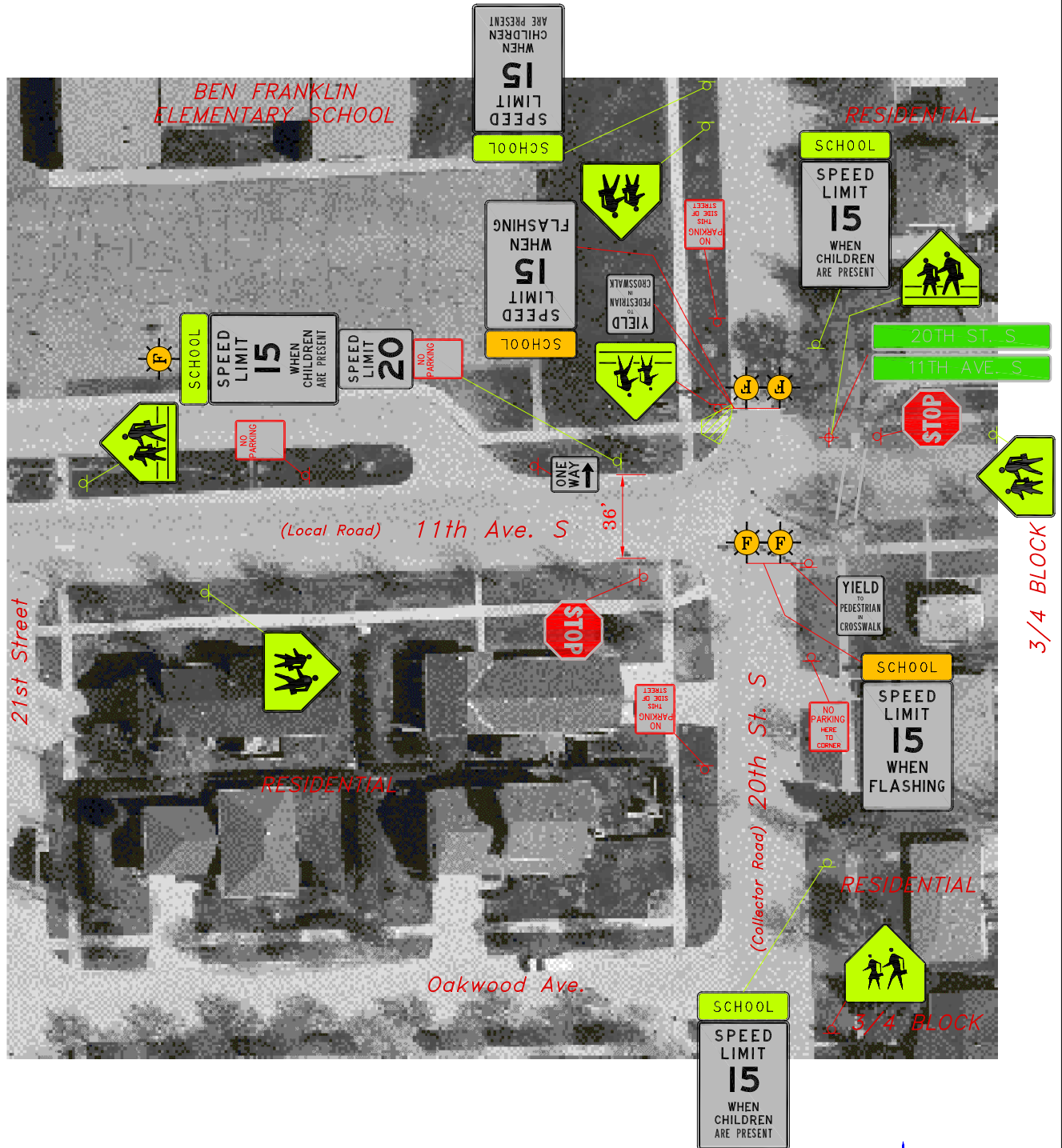
11th Ave. S & 20th St. S



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NEW INTERSECTION LAYOUT

11th Ave. S & 20th St. S



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Ben Franklin – 11th Avenue South and 20th Street South

Observations:

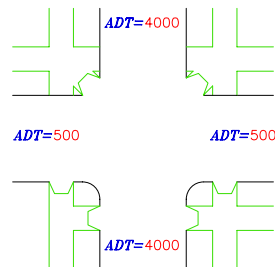
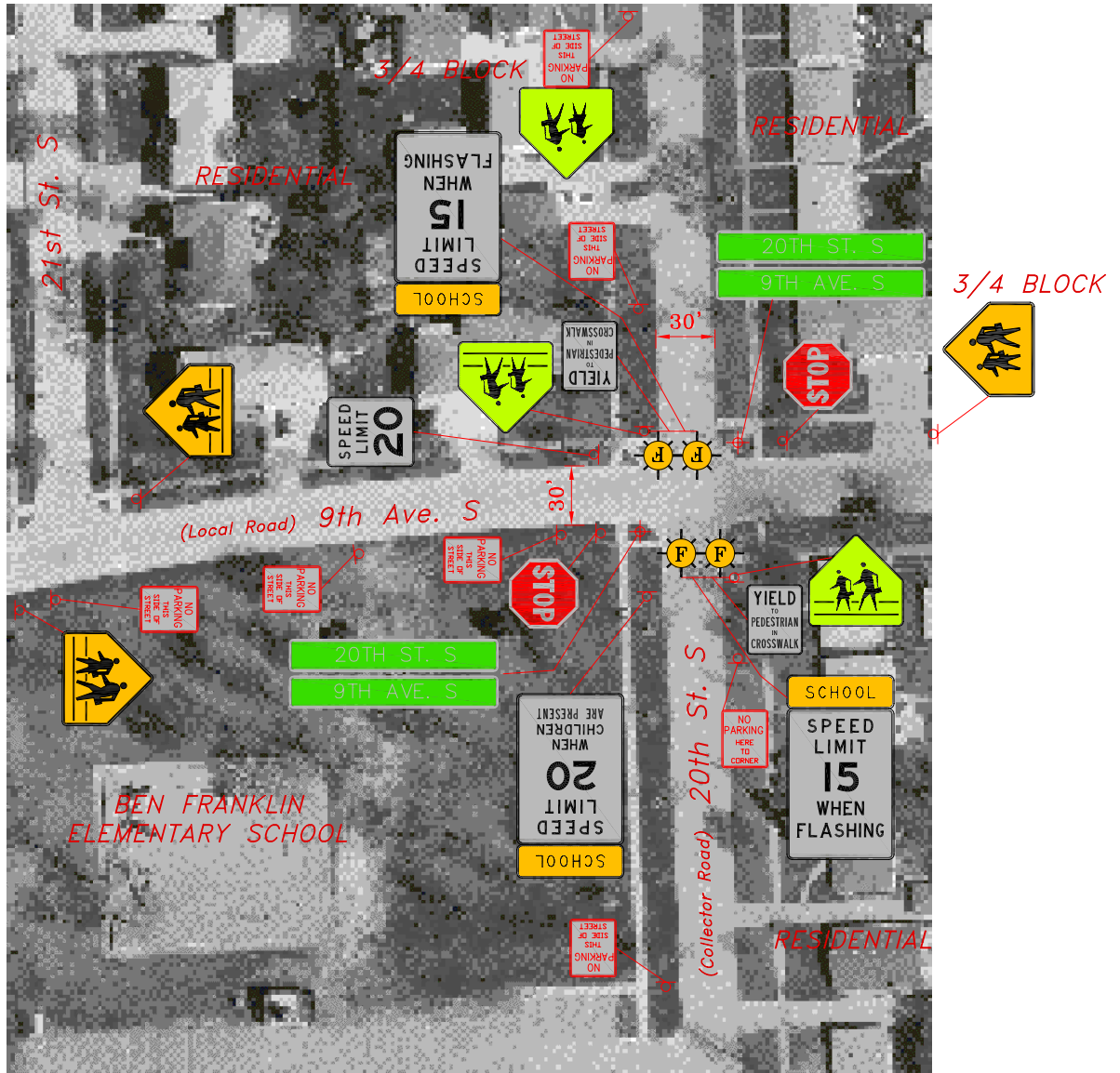
1. Crosswalk markings are faded.
2. SCHOOL ADVANCE and SCHOOL CROSSING signs are inconsistent in location and color.
3. No pedestrian curb ramp at sidewalk on north side of 11th Avenue South, west of 20th Street South.
4. SPEED LIMIT signs inconsistent in mph designation.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing 20th Street South on the north side of 11th Avenue South, and on 11th Avenue South on the east and west sides of 20th Street South as per the Safe Route to School maps provided by the Grand Forks / East Grand Forks Metropolitan Planning Organization.
2. Remove standard yellow SCHOOL ADVANCE sign on 11th Avenue South, east of 20th Street South and replace with a fluorescent yellow-green SCHOOL ADVANCE sign.
3. Place a fluorescent yellow-green SCHOOL CROSSING sign at 11th Avenue South on the east side of 20th Street South.
4. Provide ADA pedestrian curb ramp on north side of 11th Avenue South, west of 20th Street South.
5. Remove SPEED LIMIT sign and SCHOOL sign on east side of 20th Street south, north of 11th Avenue South, and replace with SPEED LIMIT sign and fluorescent yellow-green SCHOOL sign.
6. Change SPEED LIMIT signs so all are consistent.
7. Place SCHOOL sign panel, SPEED LIMIT and WHEN CHILDREN ARE PRESENT signs on the east side of 20th Street South, south of 11th Avenue South, and on the west side of 20th Street South, north of 11th Avenue South.
8. Place fluorescent yellow-green SCHOOL ADVANCE sign on south side of 11th Avenue South, west of 20th Street South.
9. Remove standard yellow SCHOOL sign above SPEED LIMIT sign on north side of 11th Avenue South and replace with fluorescent yellow-green SCHOOL sign.

BEN FRANKLIN ELEMENTARY SCHOOL

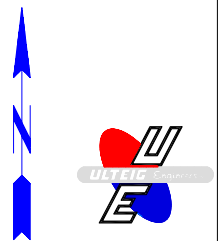
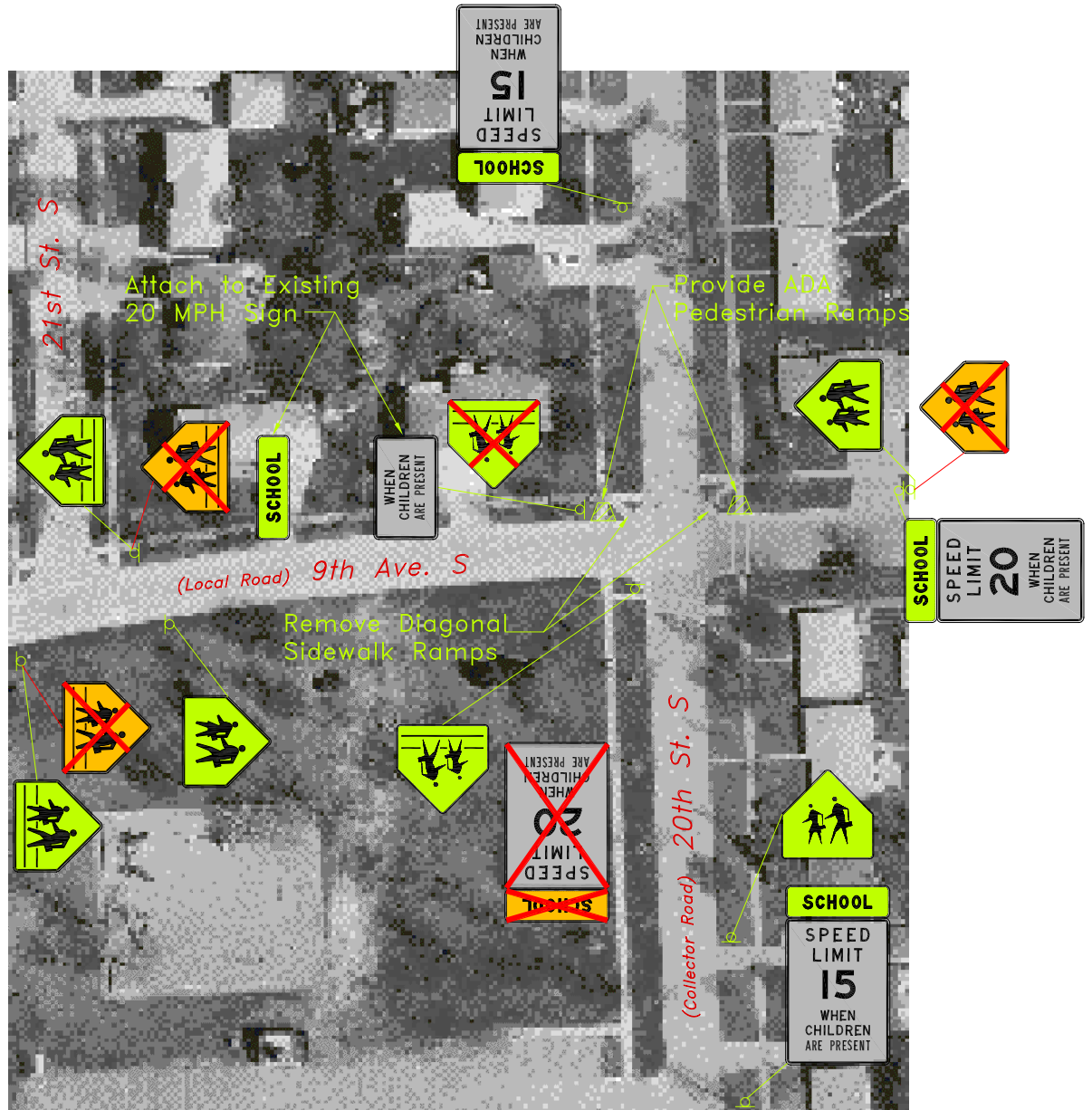
9th Ave. S & 20th St. S



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PROPOSED SIGNAGE & MARKINGS

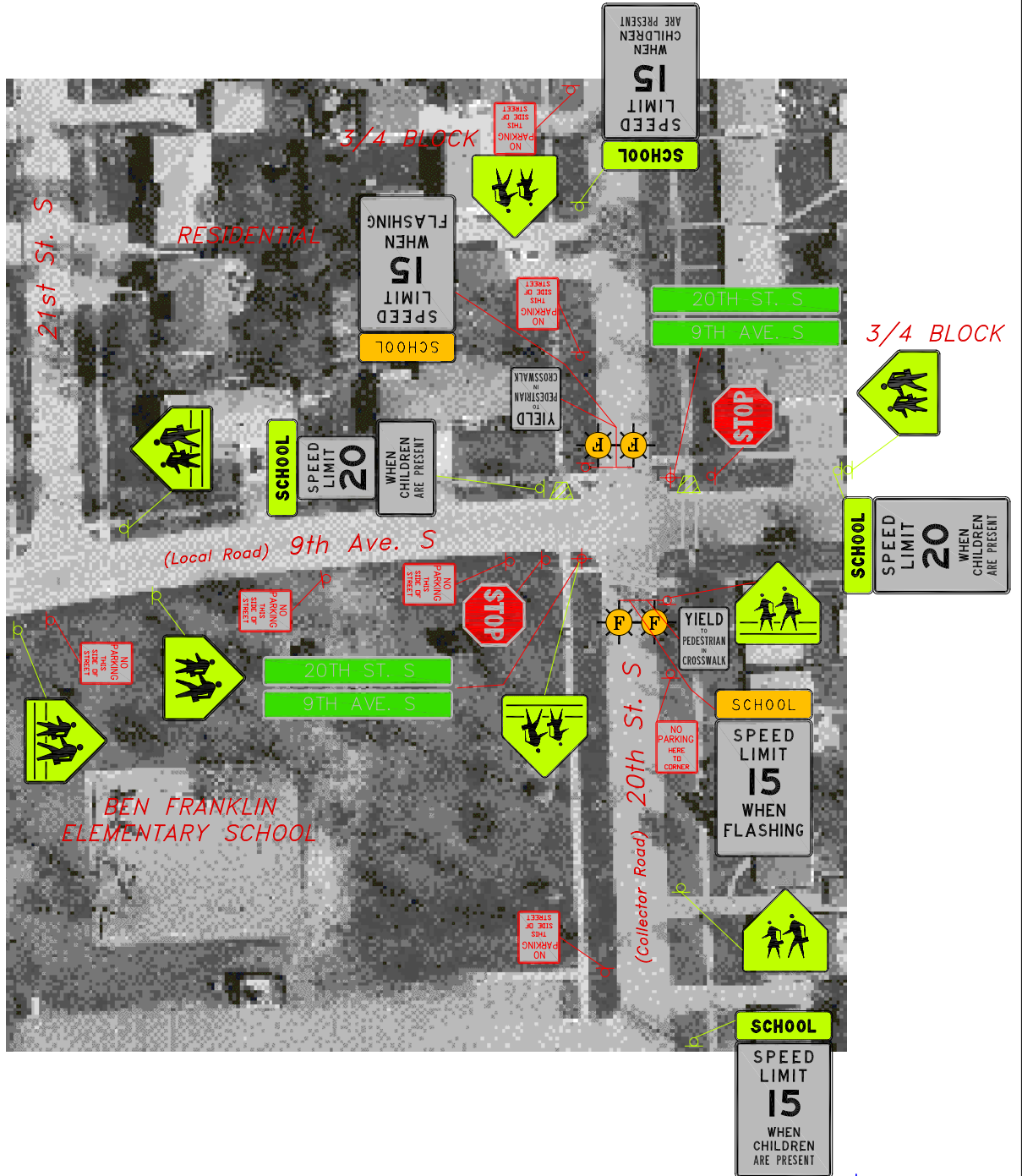
9th Ave. S & 20th St. S



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NEW INTERSECTION LAYOUT

9th Ave. S & 20th St. S



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Ben Franklin – 9th Avenue South and 20th Street South

Observations:

1. Crosswalk markings are faded.
2. SCHOOL ADVANCE and SCHOOL CROSSING signs are inconsistent in location and color.
3. Pedestrian ramps on north side of intersection guide pedestrians into middle of intersection.
4. SPEED LIMIT signs inconsistent in mph designations.

Recommendations:

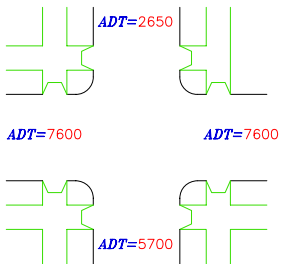
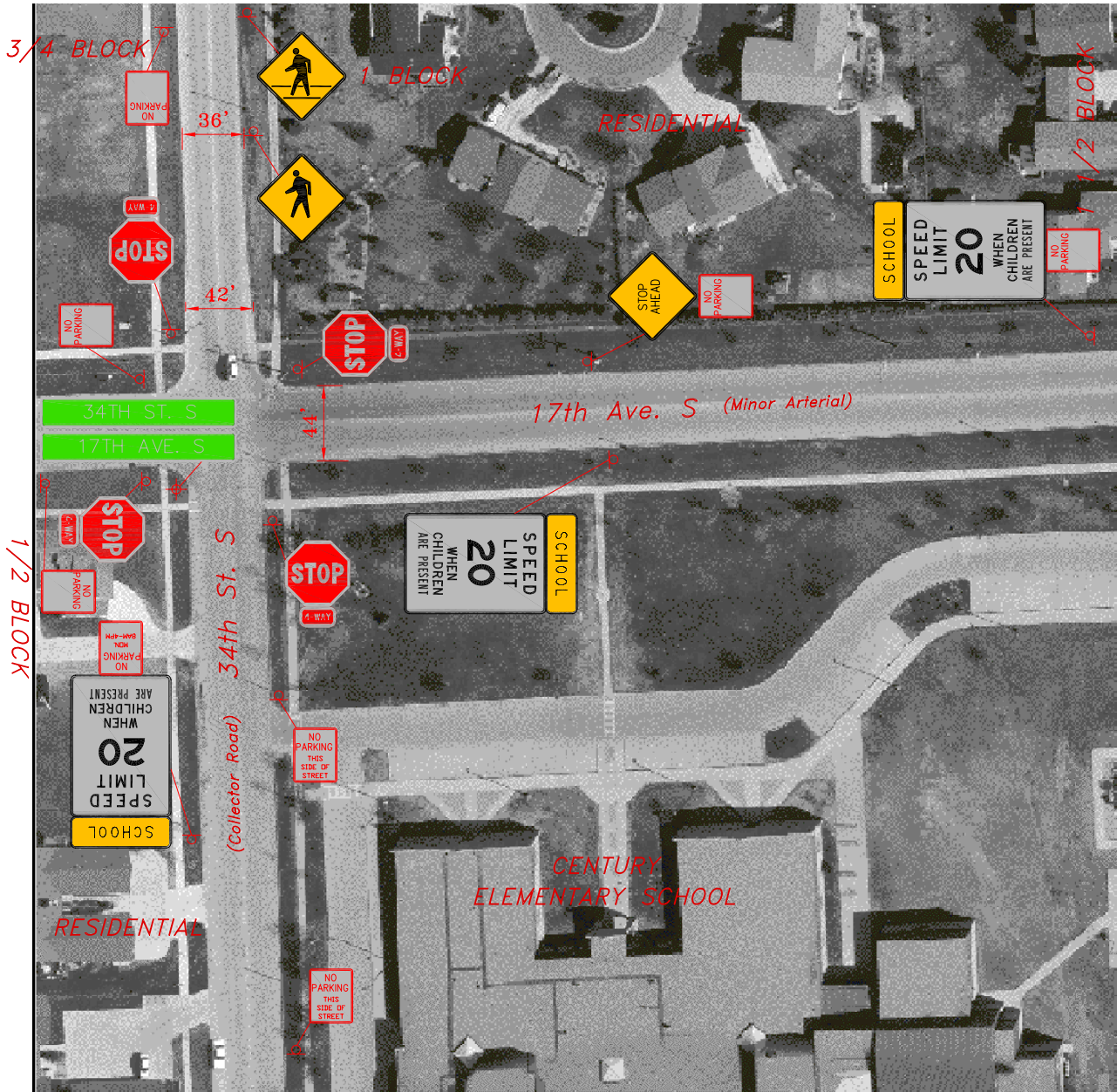
1. Place Type 1 standard crosswalk markings crossing 20th Street South on the south side of 9th Avenue South, and on 9th Avenue South on the east and west sides of 20th Street South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Provide ADA pedestrian curb ramps on the north side of 9th Avenue South to serve pedestrians crossing 9th Avenue South. Remove diagonal curb ramps.
3. Add SCHOOL and WHEN CHILDREN ARE PRESENT to speed limit sign on north side of 9th Avenue South, west of 20th Street South.
4. Remove SCHOOL CROSSING sign on 20th Street South, on north side of 9th Avenue South.
5. Place a fluorescent yellow-green SCHOOL CROSSING sign on the west side of 20th Street South, south of 9th Avenue South.
6. Remove SCHOOL CROSSING signs on 9th Avenue South at 21st Street South.
7. Remove standard yellow SCHOOL ADVANCE sign on north side of 9th Avenue South, east of 20th Street South, and replace with a yellow-green fluorescent SCHOOL ADVANCE sign.
8. Place a fluorescent yellow-green SCHOOL ADVANCE sign south of 9th Avenue South on the east side of 20th Street South.
9. Place a fluorescent yellow-green SCHOOL ADVANCE sign on south side of 9th Avenue South, west of 20th Street South.
10. Place a SCHOOL sign panel, SPEED LIMIT and WHEN CHILDREN ARE PRESENT sign on the east side of 20th Street South, south of 9th Avenue South; on the west side of 20th Street South, north of 9th Avenue South; and on the north side of 9th Avenue South, east of 20th Street South.
11. Remove standard yellow SCHOOL sign on west side of 20th Street South and replace with fluorescent yellow-green SCHOOL sign.

Ben Franklin Elementary School Safe Route to School



CENTURY ELEMENTARY SCHOOL

17th Ave. S & 34th St. S

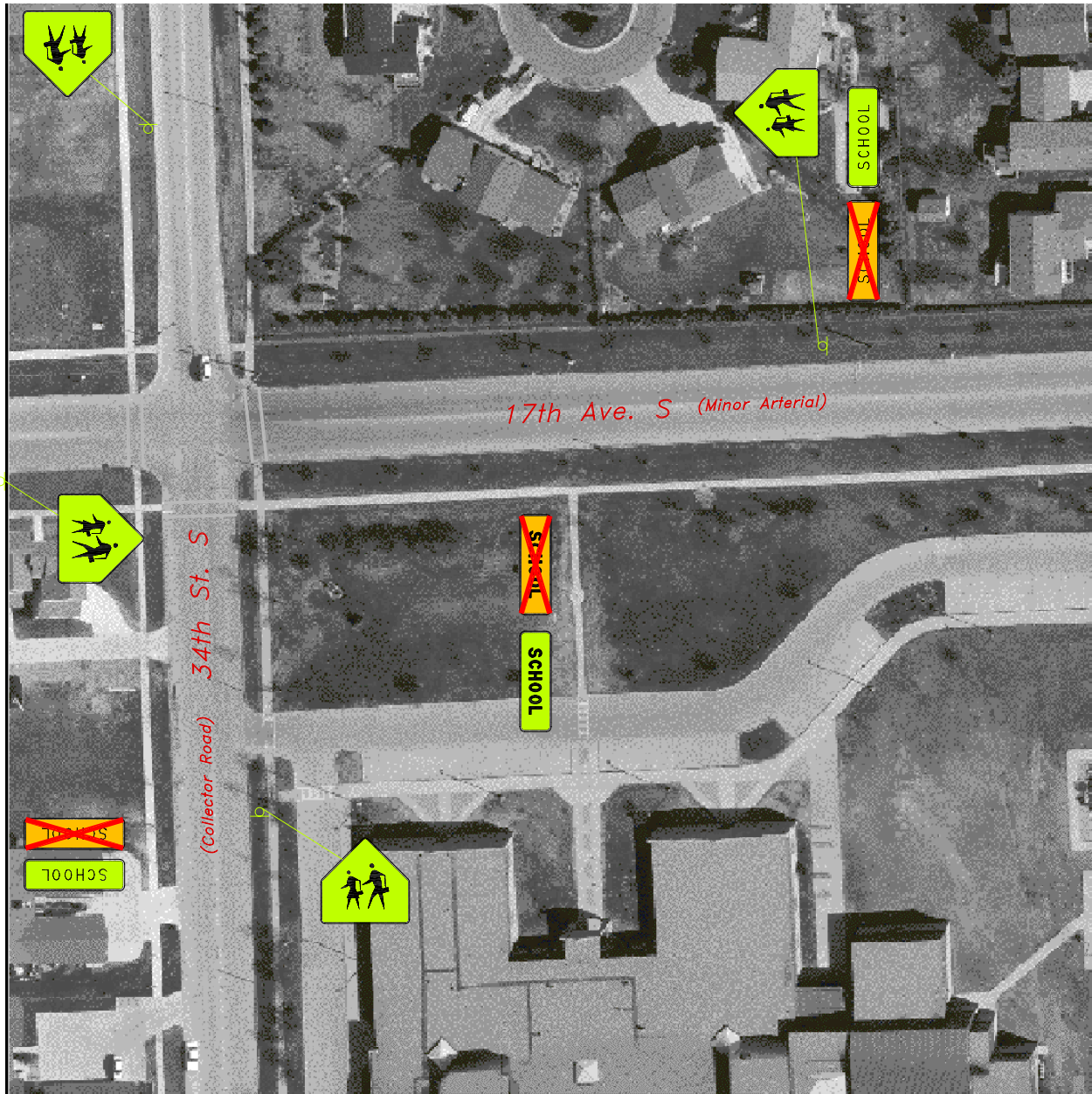


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CHECKED BY: SAG	DATE: 4/5/2000	APPROVED BY:	



CTRY17-34.DWG

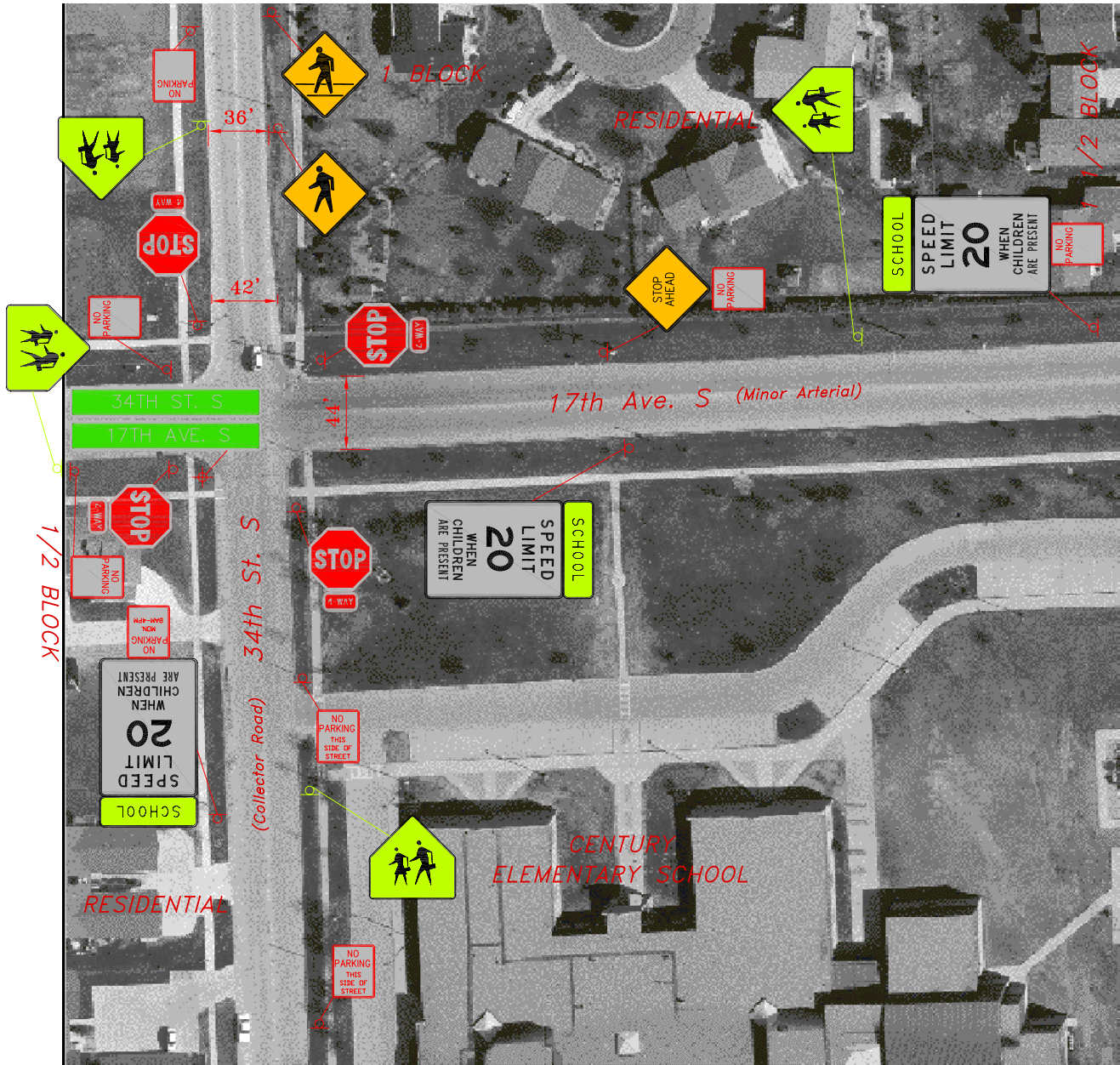
PROPOSED SIGNAGE & MARKINGS
17th Ave. S & 34th St. S



CTRY17-34.DWG

NEW INTERSECTION LAYOUT

17th Ave. S & 34th St. S



CTRY17-34.DWG

Century Elementary – 17th Avenue South and 34th Street South

Observations:

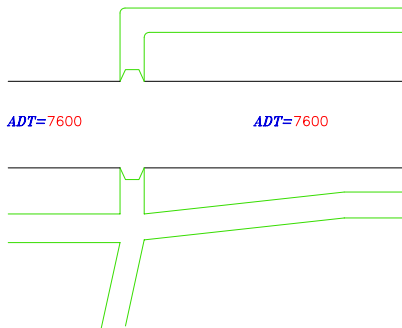
1. Crosswalk markings are faded.
2. No SCHOOL ADVANCE signs.


Recommendations:

1. Place Type 1 standard crosswalk markings crossing 34th Street South on south side of 17th Avenue South and crossing 17th Avenue South on the east and west sides of 34th Street South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Place fluorescent yellow-green SCHOOL ADVANCE signs on the north side of 17th Avenue South; on the east side of 34th Street South, south of 17th Avenue South; and on the west side of 34th Street South, north of 17th Avenue South.
3. Remove standard yellow SCHOOL signs and replace with fluorescent yellow-green SCHOOL signs.

CENTURY ELEMENTARY SCHOOL

17th Ave. S & COULEE



CITY OF GRAND FORKS CENTURY ELEMENTARY SCHOOL 17th Ave. S & COULEE GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	CTRY17-C.DWG
CHECKED BY: SAG	DATE: 4/5/2000		
APPROVED BY:			

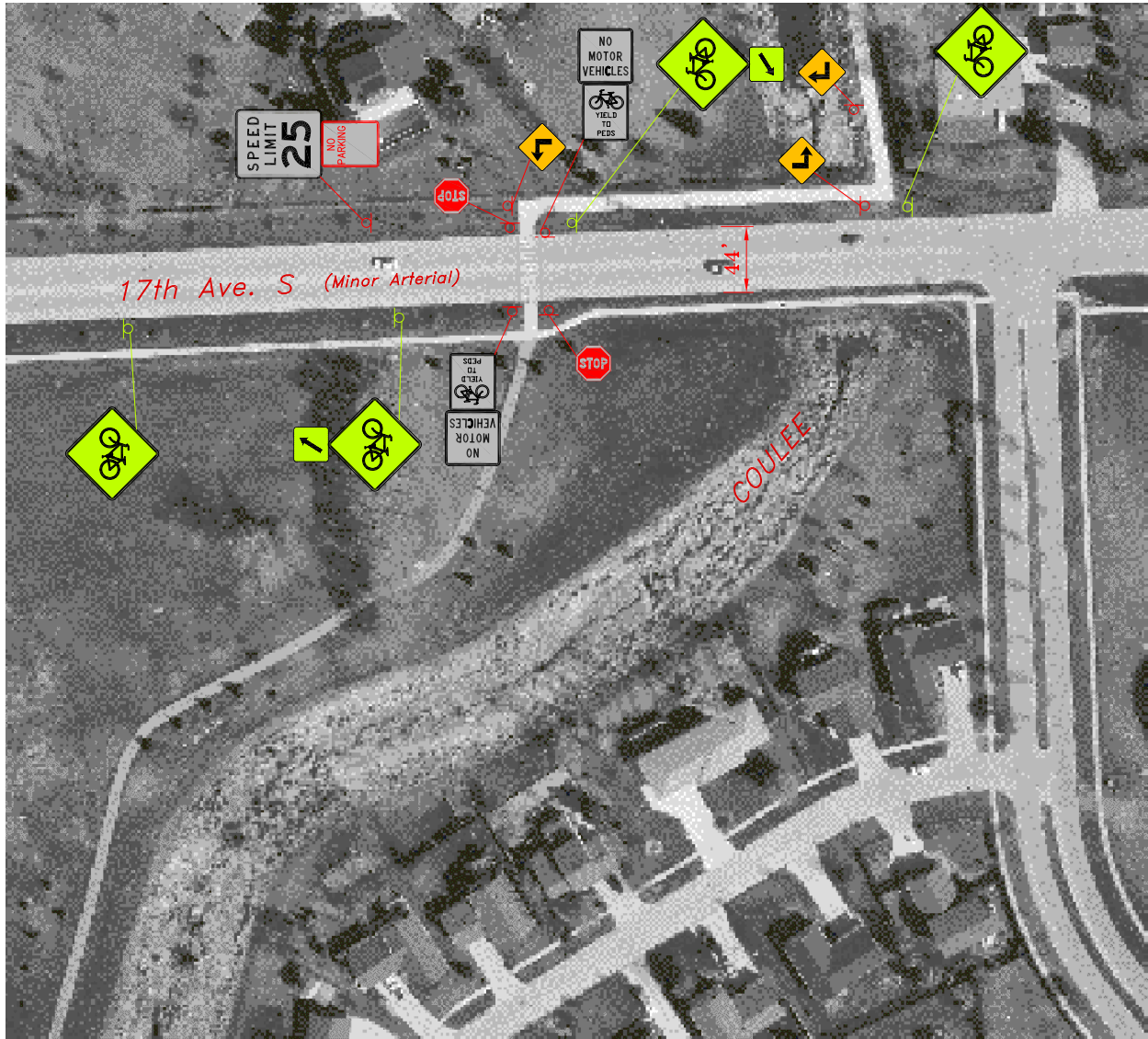
PROPOSED SIGNAGE & MARKINGS
17th Ave. S & COULEE



CTRY17-C.DWG

NEW INTERSECTION LAYOUT

17th Ave. S & COULEE



CTRY17-C.DWG

Century Elementary – 17th Avenue South and Coulee

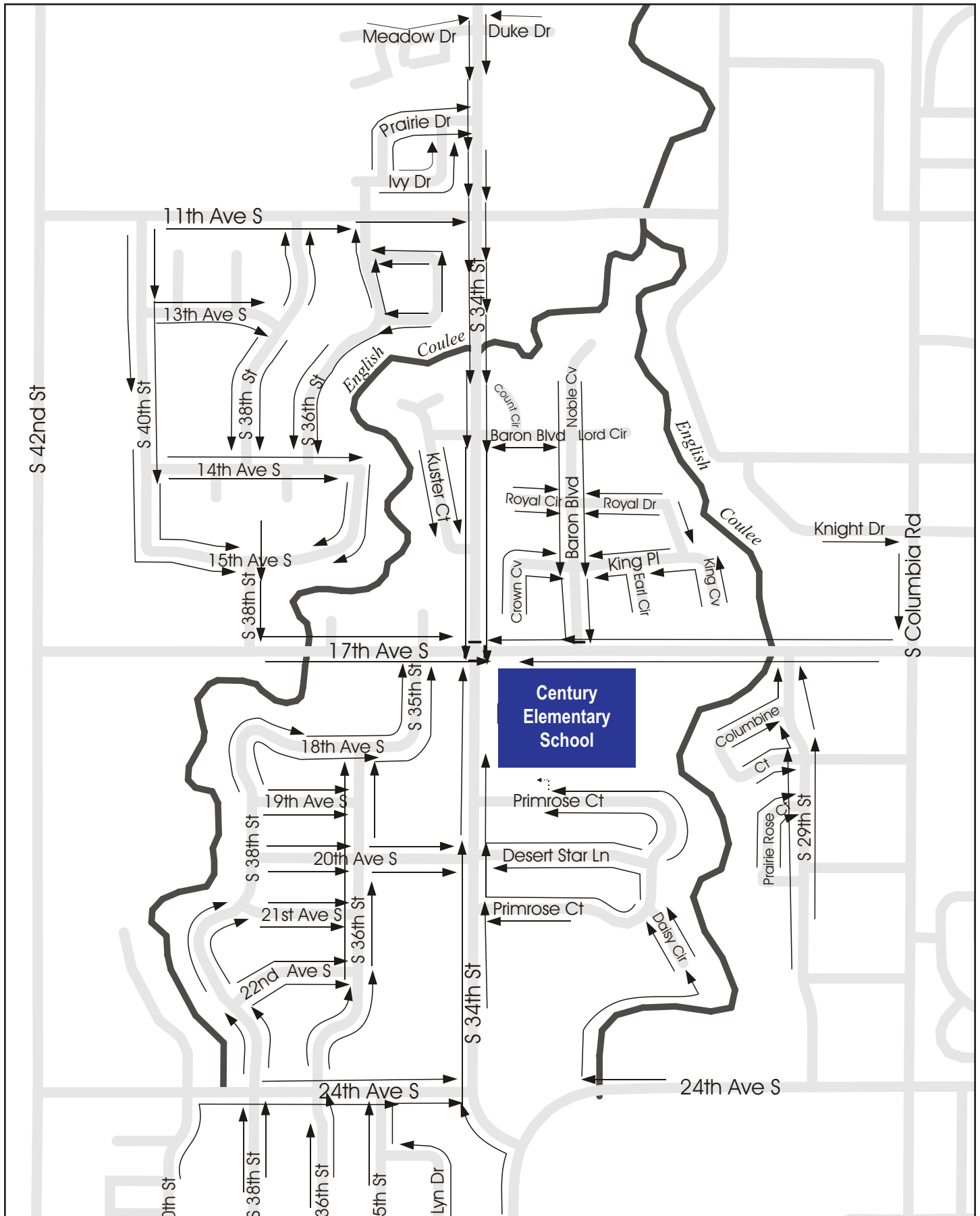
Observations:

1. Crosswalk markings are faded.

Recommendations:

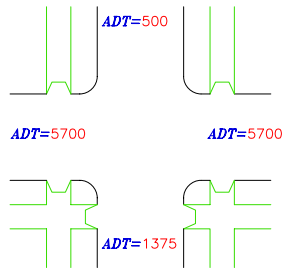
1. Place Type 1 standard crosswalk markings crossing 17th Avenue South.
2. Remove standard yellow BICYCLE CROSSING signs on 17th Avenue South and replace with fluorescent yellow-green BICYCLE CROSSING signs and add a supplemental arrow plaque directly below the signs located at the crosswalk markings.

Century Elementary School Safe Route to School



HOLY FAMILY ELEMENTARY SCHOOL

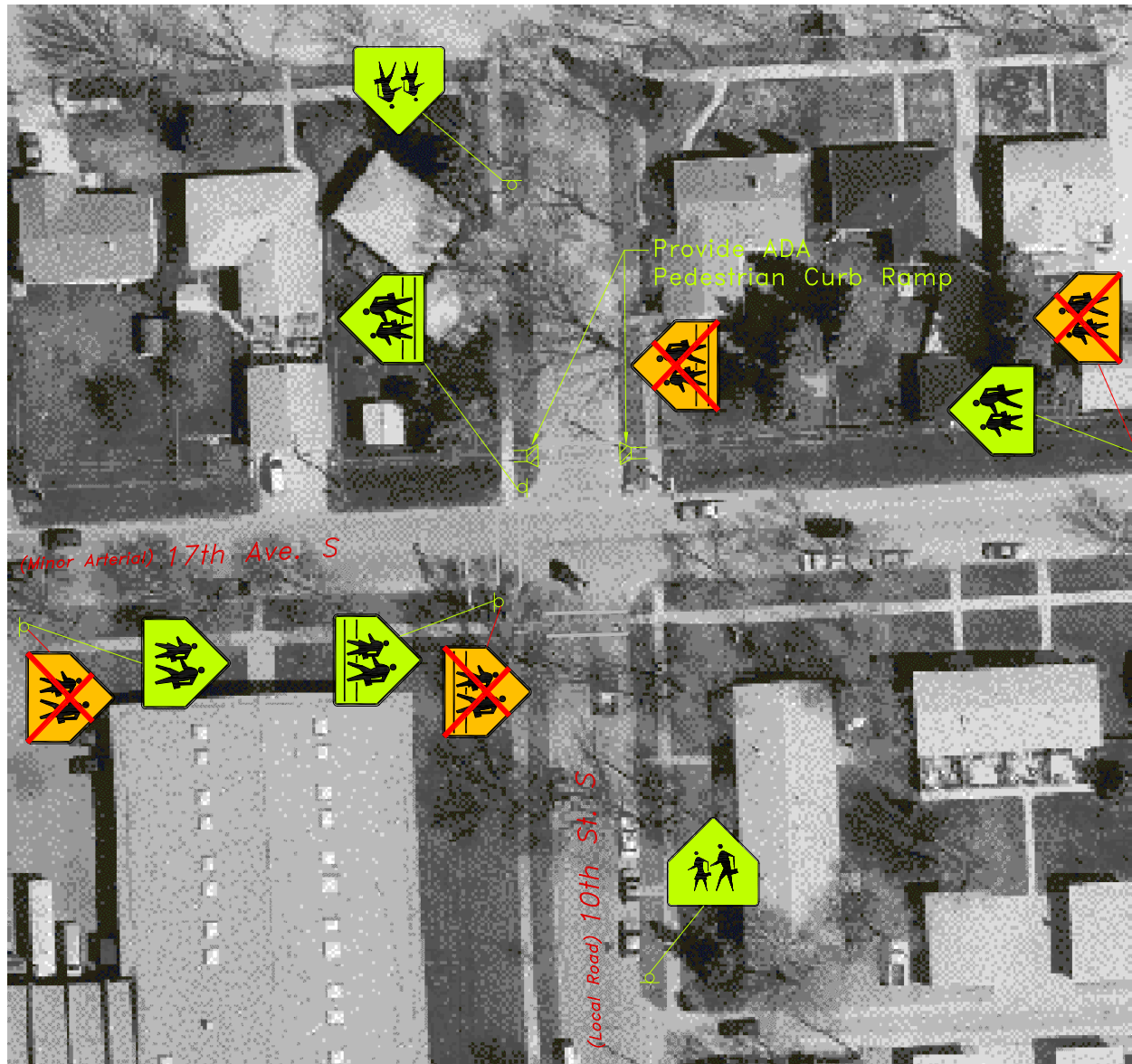
17th Ave. S & 10th St. S



CITY OF GRAND FORKS HOLY FAMILY ELEMENTARY SCHOOL 17th Ave. S & 10th St. S GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 4/5/2000	HLYFM17-10.DWG
APPROVED BY:		

PROPOSED SIGNAGE & MARKINGS

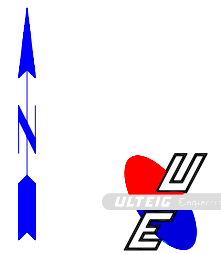
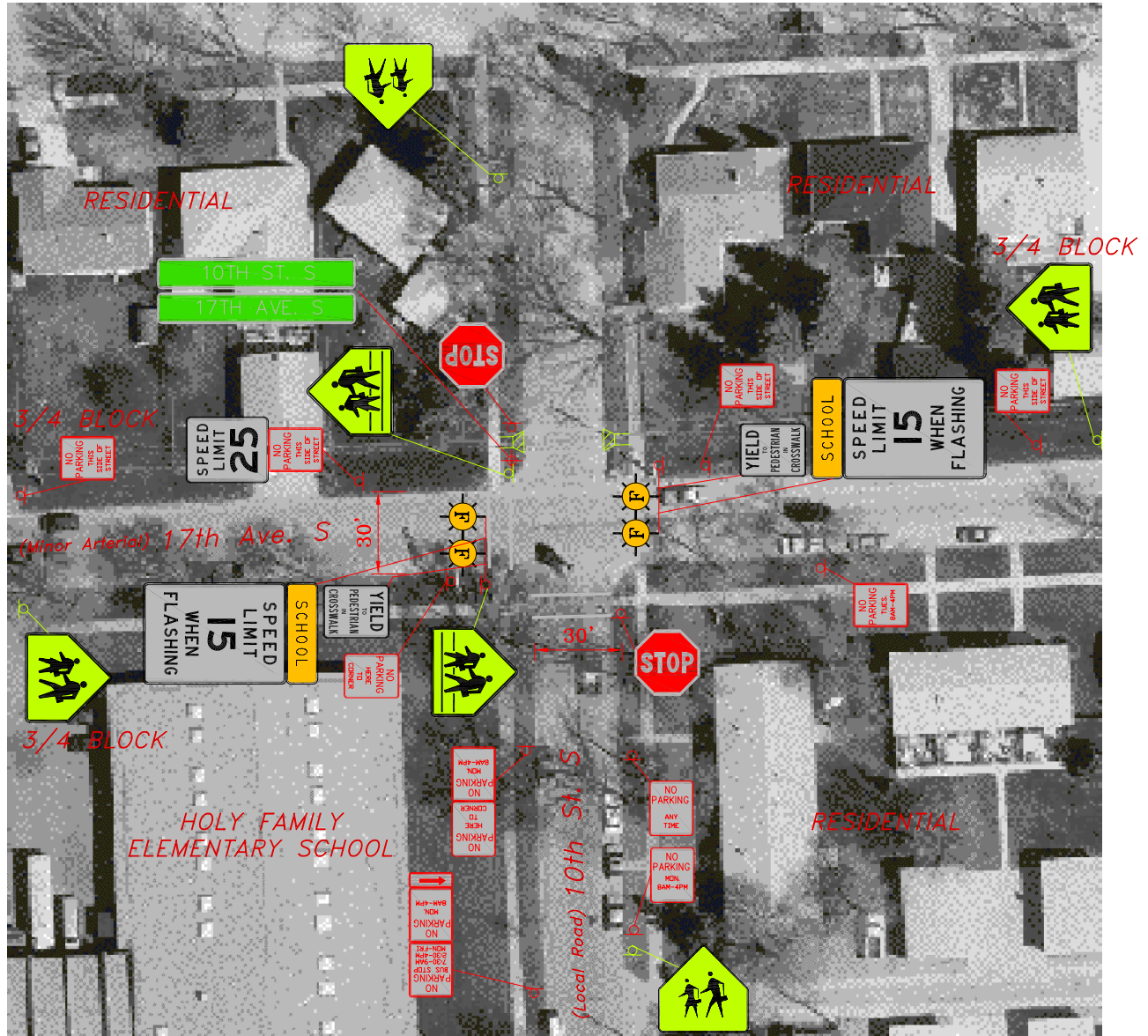
17th Ave. S & 10th St. S



HLVFM17-10.DWG

NEW INTERSECTION LAYOUT

17th Ave. S & 10th St. S



HLYFM17-10.DWG

Holy Family – 17th Avenue South and 10th Street South

Observations:

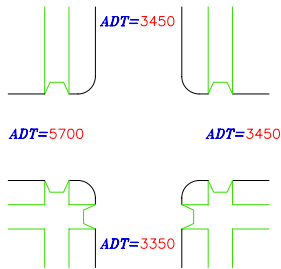
1. Crosswalk markings are faded.
2. No pedestrian curb ramp on east and west sides of 10th Street South, north of 17th Avenue South.


Recommendations:

1. Place Type 1 standard crosswalk markings crossing 10th Street on the north and south sides of 17th Avenue South and crossing 17th Avenue South on the west side of 10th Street as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Provide ADA pedestrian curb ramps on the east and west sides of 10th Street, north of 17th Avenue South.
3. Remove all standard yellow SCHOOL ADVANCE and SCHOOL CROSSING signs.
4. Place fluorescent yellow-green SCHOOL ADVANCE signs on 17th Avenue South, east and west of 10th Street South; and 10th Street South, north and south of 17th Avenue South.
5. Place fluorescent yellow-green SCHOOL CROSSING signs on the north and south sides of 17th Avenue South, west of 10th Street South.

HOLY FAMILY ELEMENTARY SCHOOL

17th Ave. S & Cherry St.



CITY OF GRAND FORKS HOLY FAMILY ELEMENTARY SCHOOL 17th Ave. S & Cherry St. GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	
CHECKED BY: SAG	DATE: 4/5/2000	HLYFM17-CRY.DWG	
APPROVED BY:	(Signature area)		

PROPOSED SIGNAGE & MARKINGS

17th Ave. S & Cherry St.



HLFM17-CRY.DWG

NEW INTERSECTION LAYOUT

17th Ave. S & Cherry St.



HLVFM17-CRY.DWG

Holy Family – 17th Avenue South and Cherry Street

Observations:

1. Crosswalk markings are faded.
2. No pedestrian curb ramp on east and west sides of Cherry Street north of 17th Avenue South.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing Cherry Street on the north and south sides of 17th Avenue South and crossing 17th Avenue South on the west side of Cherry Street as per the Safe Route to School maps provided by the Grand Forks/ East Grand Forks Metropolitan Planning Organization.
2. Provide ADA pedestrian curb ramp on east and west sides of Cherry Street, north of 17th Avenue South.
3. Place SCHOOL ADVANCE signs on Cherry Street, north and south of 17th Avenue South.
4. Remove standard yellow SCHOOL ADVANCE signs and replace with fluorescent yellow-green SCHOOL ADVANCE signs.

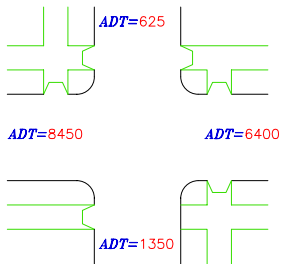
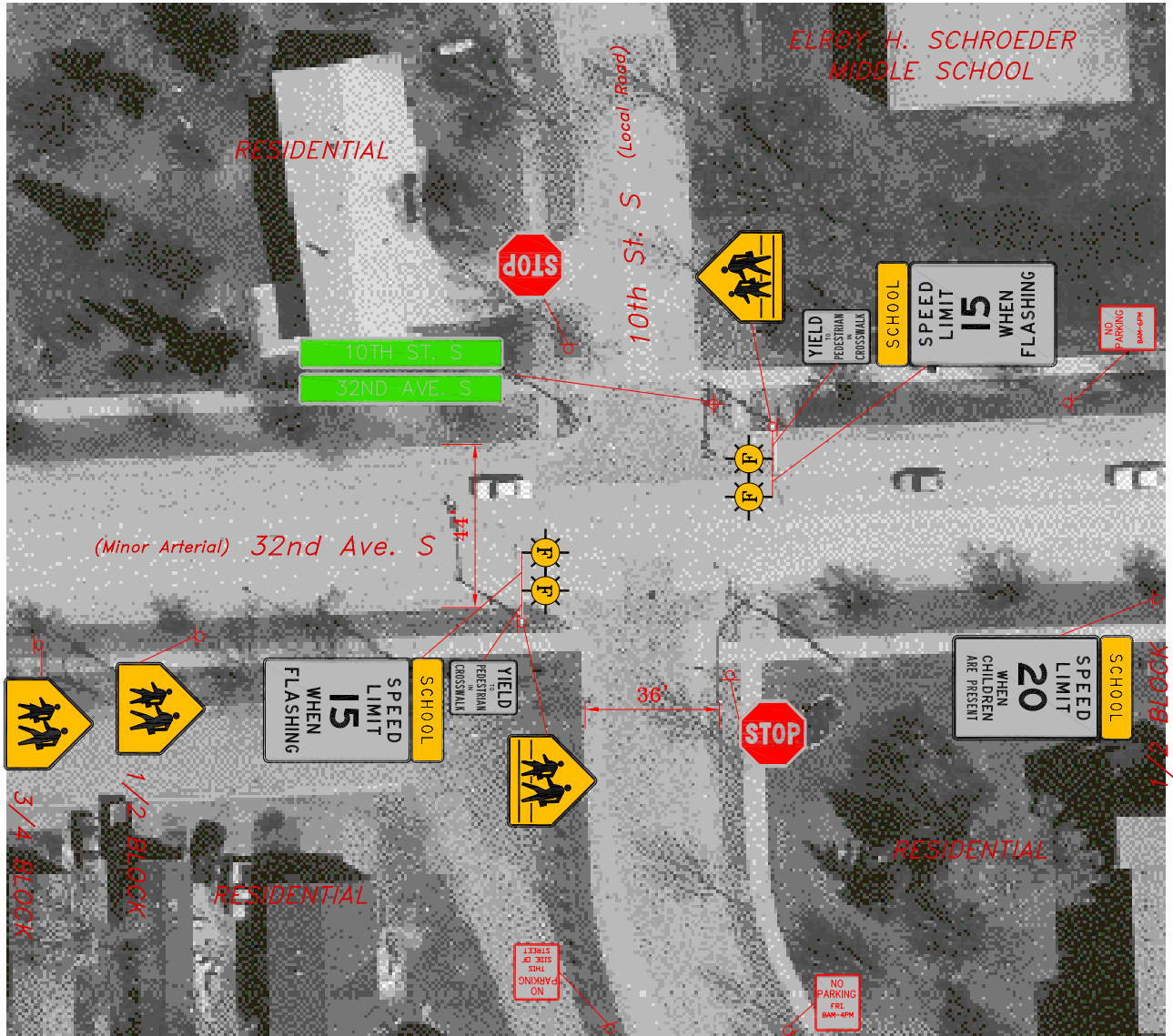
Holy Family School

Safe Route to School



KELLY ELEMENTARY SCHOOL

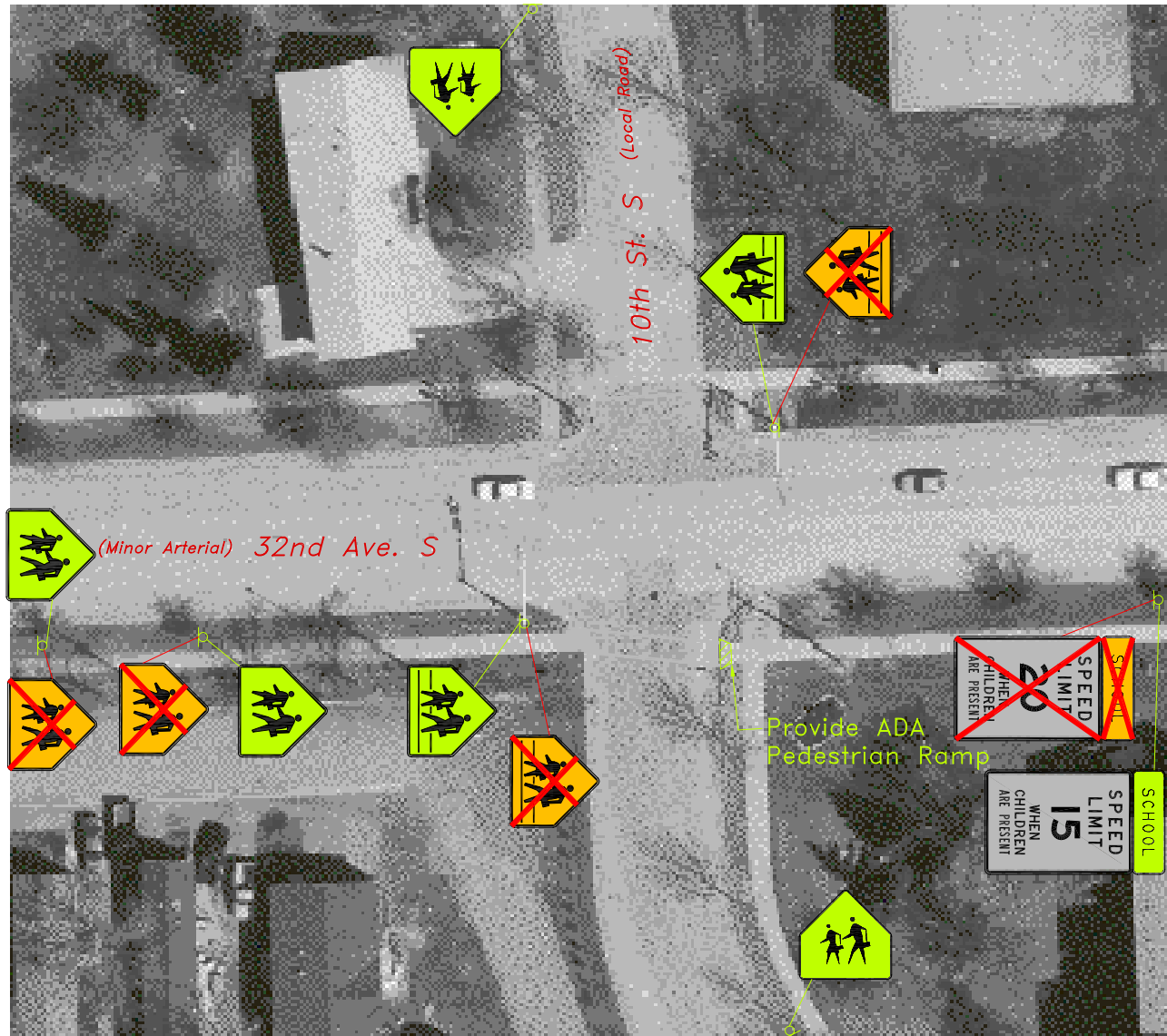
32nd Ave. S & 10th St. S



CITY OF GRAND FORKS KELLY ELEMENTARY SCHOOL 32nd Ave. S & 10th St. S GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027
		KLY32-10.DWG

PROPOSED SIGNAGE & MARKINGS

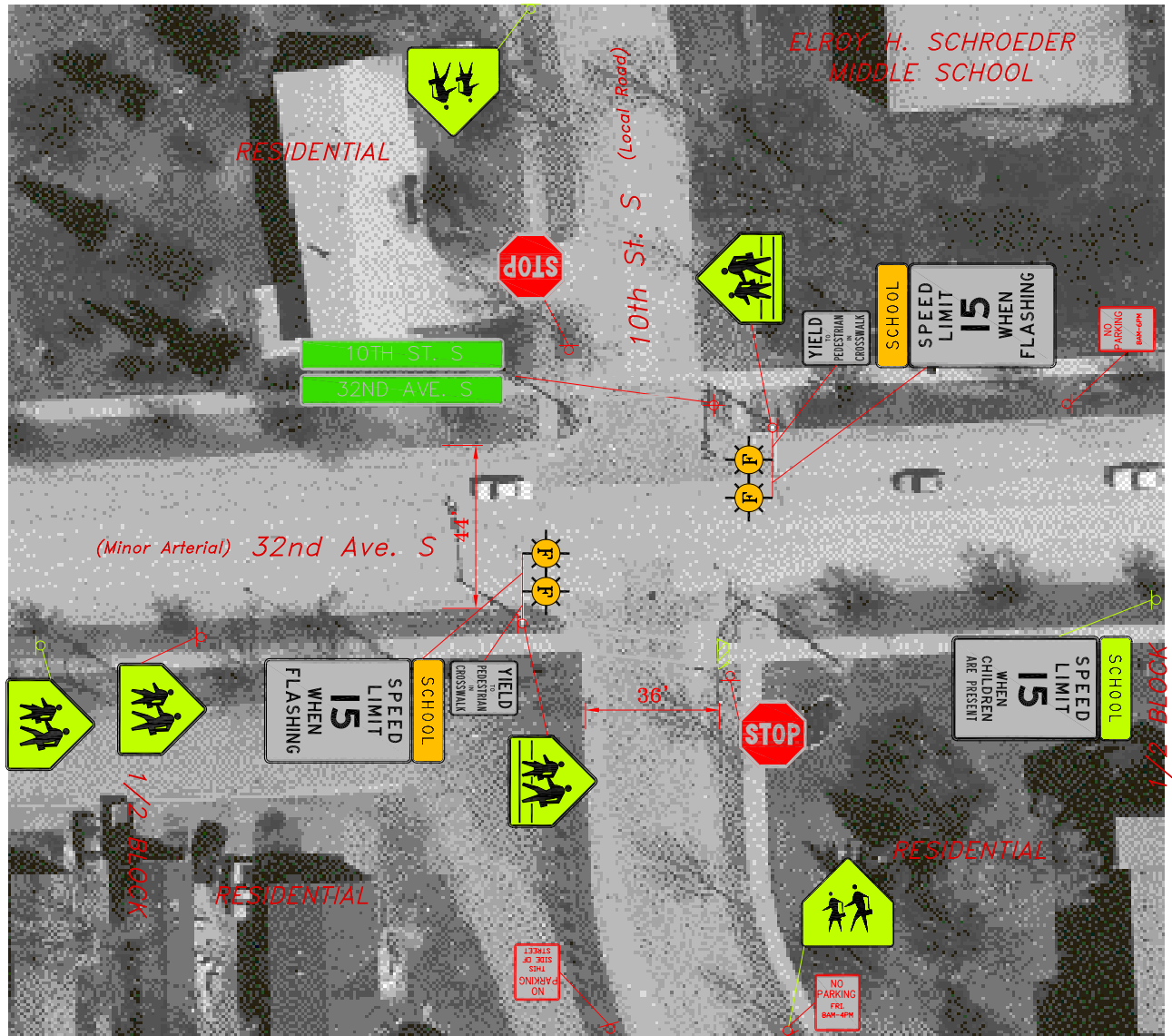
32nd Ave. S & 10th St. S



KLY32-10.DWG

NEW INTERSECTION LAYOUT

32nd Ave. S & 10th St. S



KLY32-10.DWG

Kelly – 32nd Avenue South and 10th Street South

Observations:

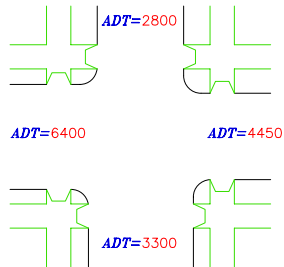
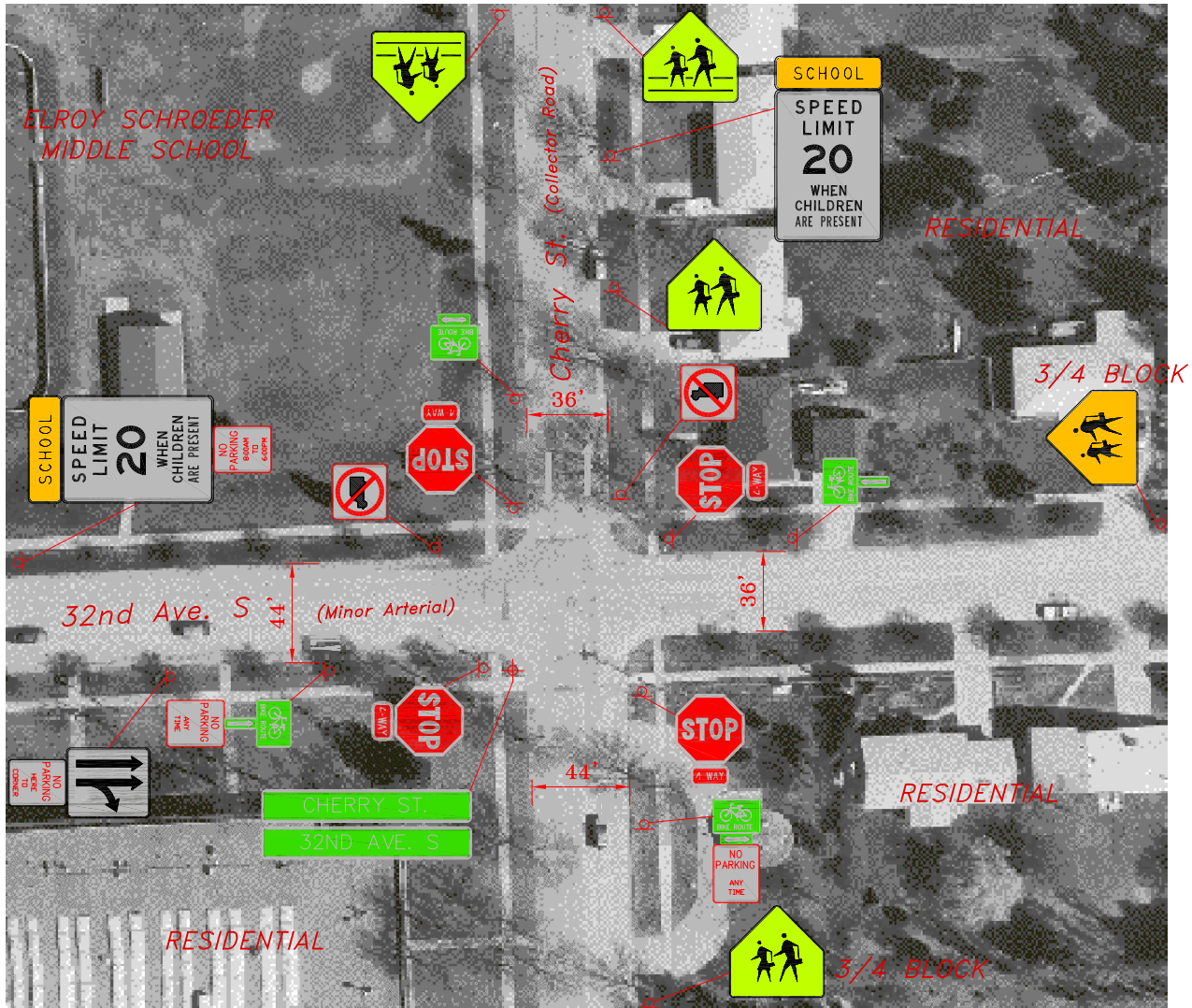
1. Crosswalk markings are faded.
2. SPEED LIMIT signs inconsistent in mph designation.
3. No ADA pedestrian curb ramp on east side of 10th Street South, south of 32nd Avenue South.
4. No SCHOOL ADVANCE sign on 32nd Avenue South, east of 10th Street South.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing 10th Street South on the north and south sides of 32nd Avenue South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Place fluorescent yellow-green SCHOOL ADVANCE signs on 10th Street South on north and south sides of 32nd Avenue South.
3. Provide ADA pedestrian curb ramp on east side of 10th Street South, south of 32nd Avenue South.
4. Remove extra SCHOOL ADVANCE sign on south side of 32nd Avenue South, west of 10th Street South.
5. Remove standard yellow SCHOOL ADVANCE and SCHOOL CROSSING signs on 32nd Avenue South and replace with fluorescent yellow-green SCHOOL ADVANCE and SCHOOL CROSSING signs.
6. Remove standard yellow SCHOOL sign on the south side of 32nd Avenue South, east of 10th Street South with a fluorescent yellow-green SCHOOL sign.

KELLY ELEMENTARY SCHOOL

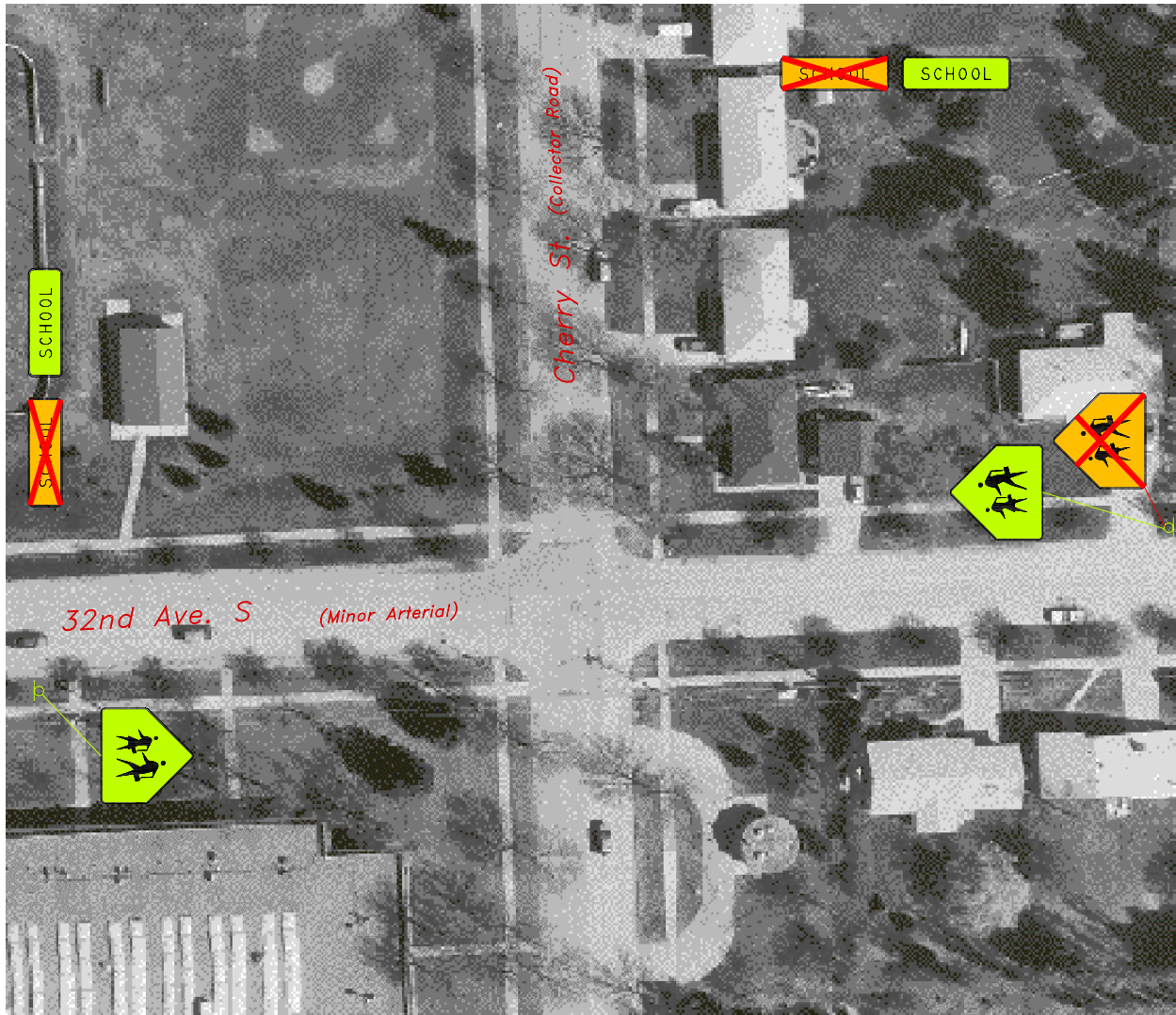
32nd Ave. S & Cherry St.



CITY OF GRAND FORKS KELLY ELEMENTARY SCHOOL 32nd Ave. S & Cherry St. GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027
		KLY32-CRY.DWG

PROPOSED SIGNAGE & MARKINGS

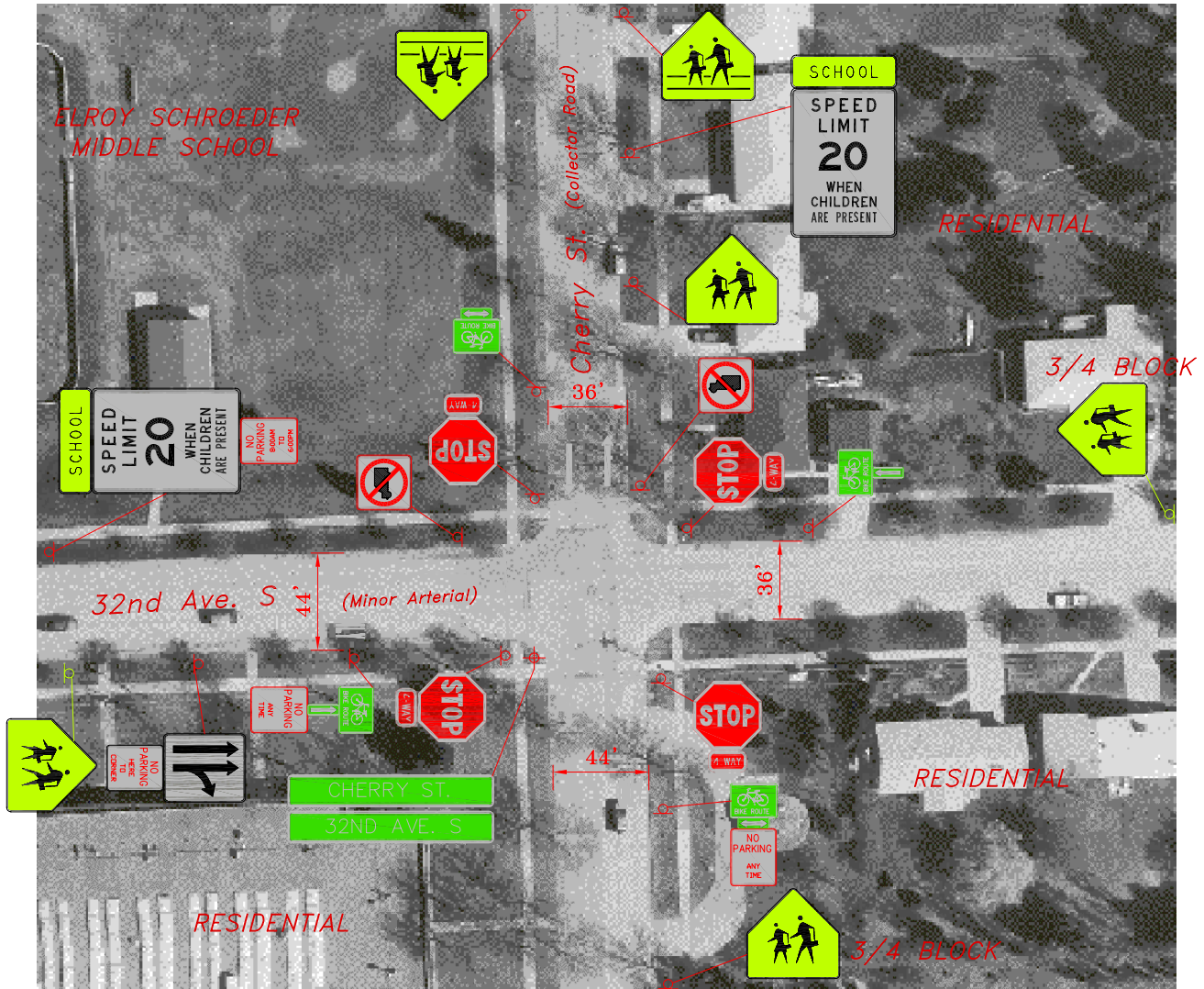
32nd Ave. S & Cherry St.



KLY32-CRY.DWG

NEW INTERSECTION LAYOUT

32nd Ave. S & Cherry St.



KLY32-CRY.DWG

Kelly – 32nd Avenue South and Cherry Street

Observations:

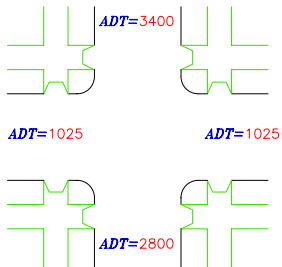
1. Crosswalk markings are faded.
2. SCHOOL ADVANCE signs inconsistent in color.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing 32nd Avenue South on the west side of Cherry Street and crossing Cherry Street on the north and south sides of 32nd Avenue South.
2. Remove standard yellow SCHOOL ADVANCE sign on north side of 32nd Avenue South, east of Cherry Street and replace with fluorescent yellow-green SCHOOL ADVANCE sign.
3. Remove standard yellow SCHOOL signs and replace with fluorescent yellow-green SCHOOL signs.

KELLY ELEMENTARY SCHOOL

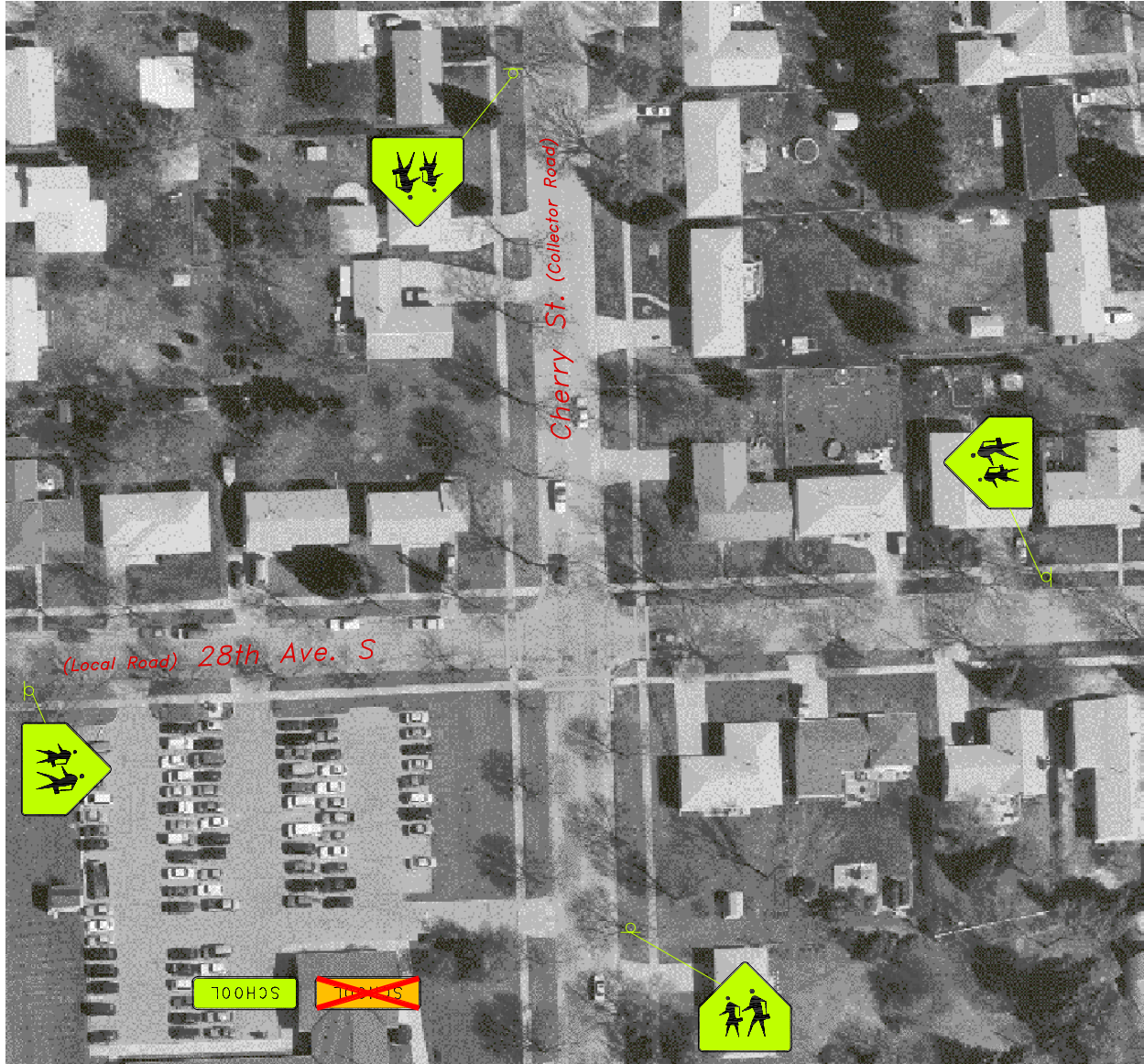
Cherry St. & 28th Ave. S



CITY OF GRAND FORKS KELLY ELEMENTARY SCHOOL Cherry St. & 28th Ave. S GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027
		KLYCR-28.DWG

PROPOSED SIGNAGE & MARKINGS

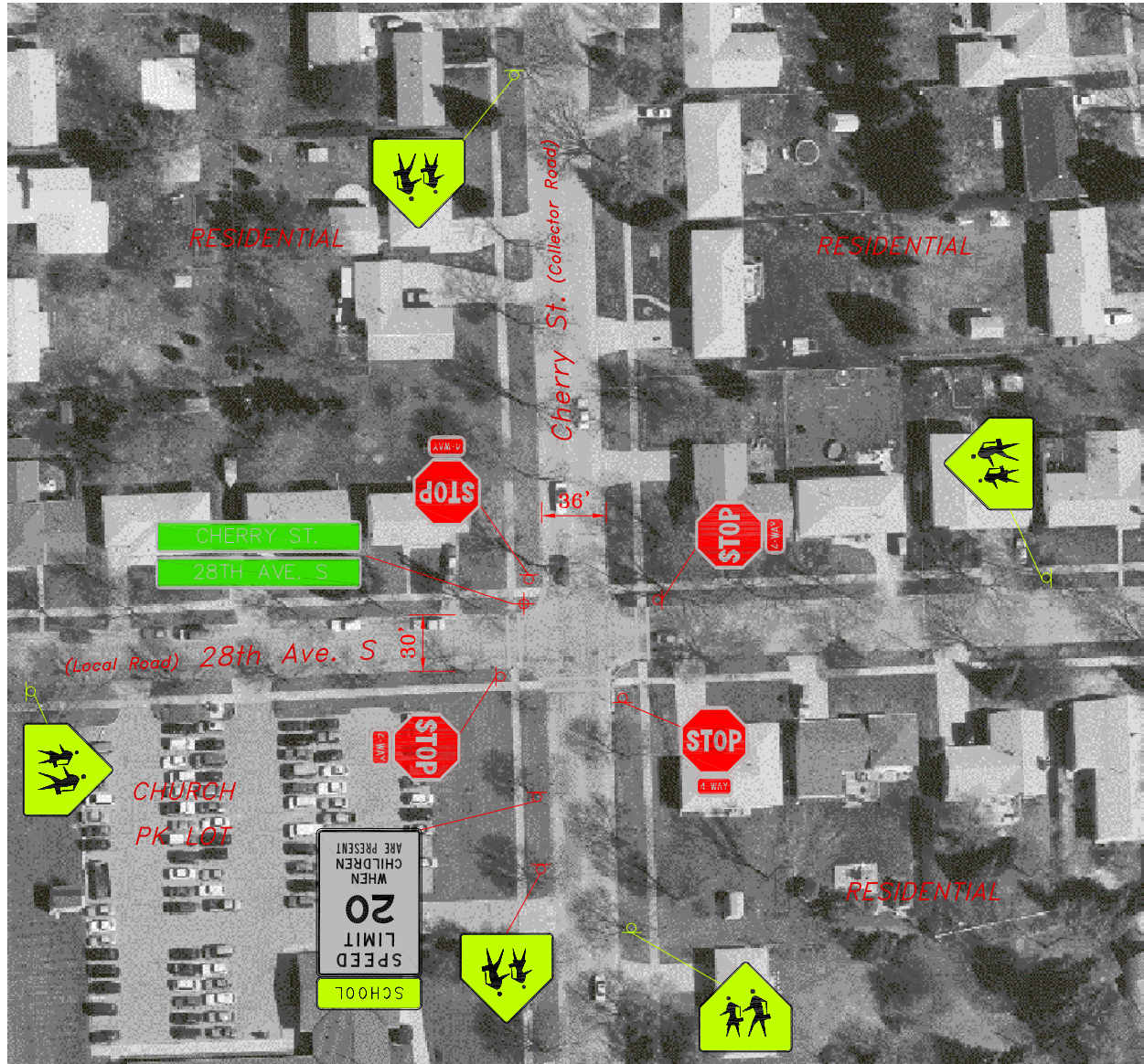
Cherry St. & 28th Ave. S



KLYCRY-28.DWG

NEW INTERSECTION LAYOUT

Cherry St. & 28th Ave. S



KLYCRY-28.DWG

Kelly – Cherry Street and 28th Avenue South

Observations:

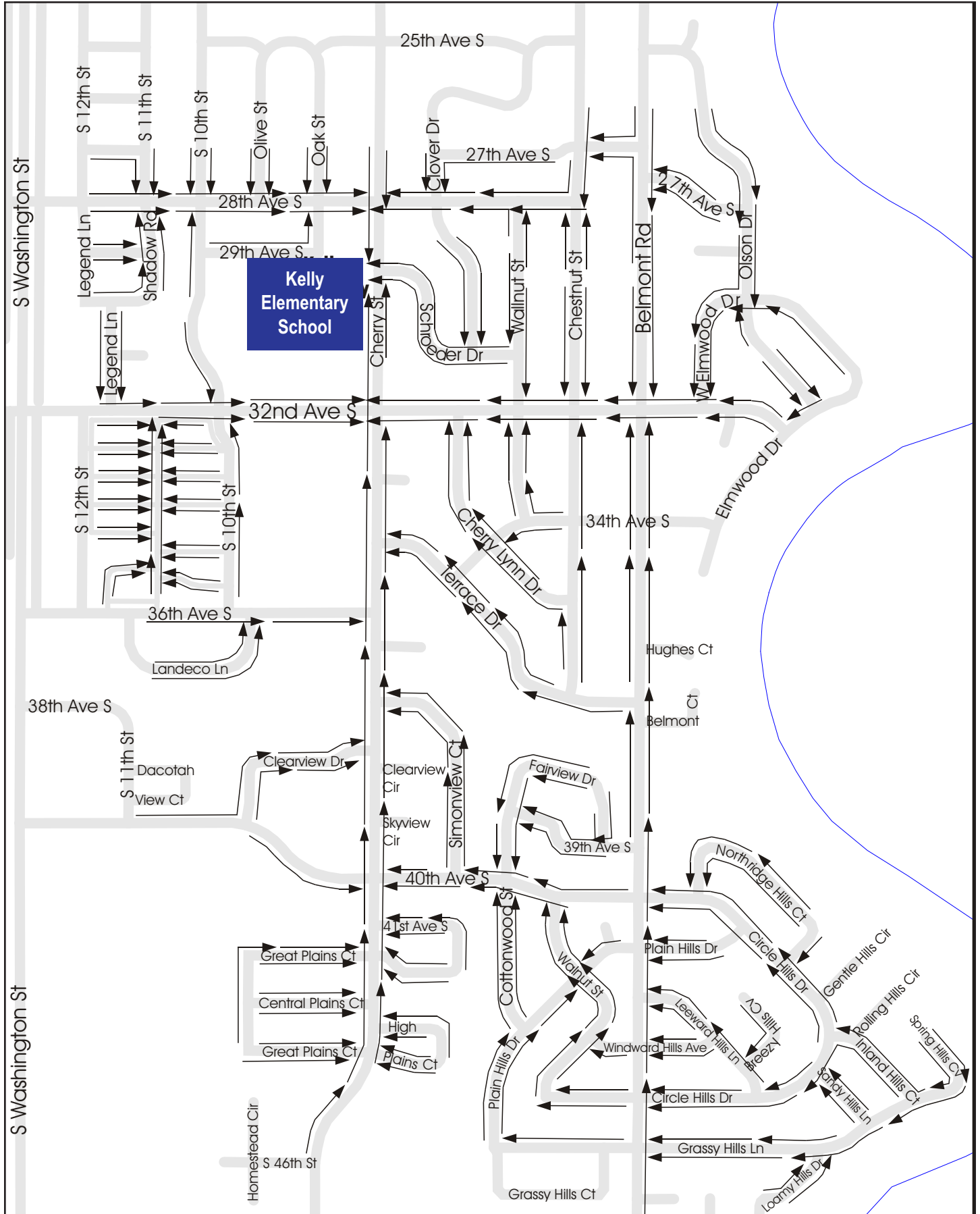
1. Crosswalk markings are faded.
2. No SCHOOL ADVANCE signs.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing Cherry Street on the south side of 28th Avenue South and crossing 28th Avenue South on each side of Cherry Street as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Place fluorescent yellow-green SCHOOL ADVANCE signs on Cherry Street north and south of 28th Avenue South, and on 28th Avenue South on the east and west sides of Cherry Street.
3. Remove standard yellow SCHOOL sign and replace with fluorescent yellow-green SCHOOL sign.

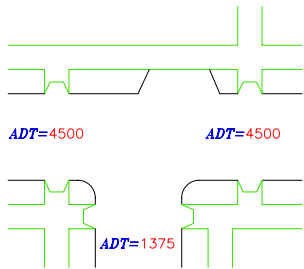
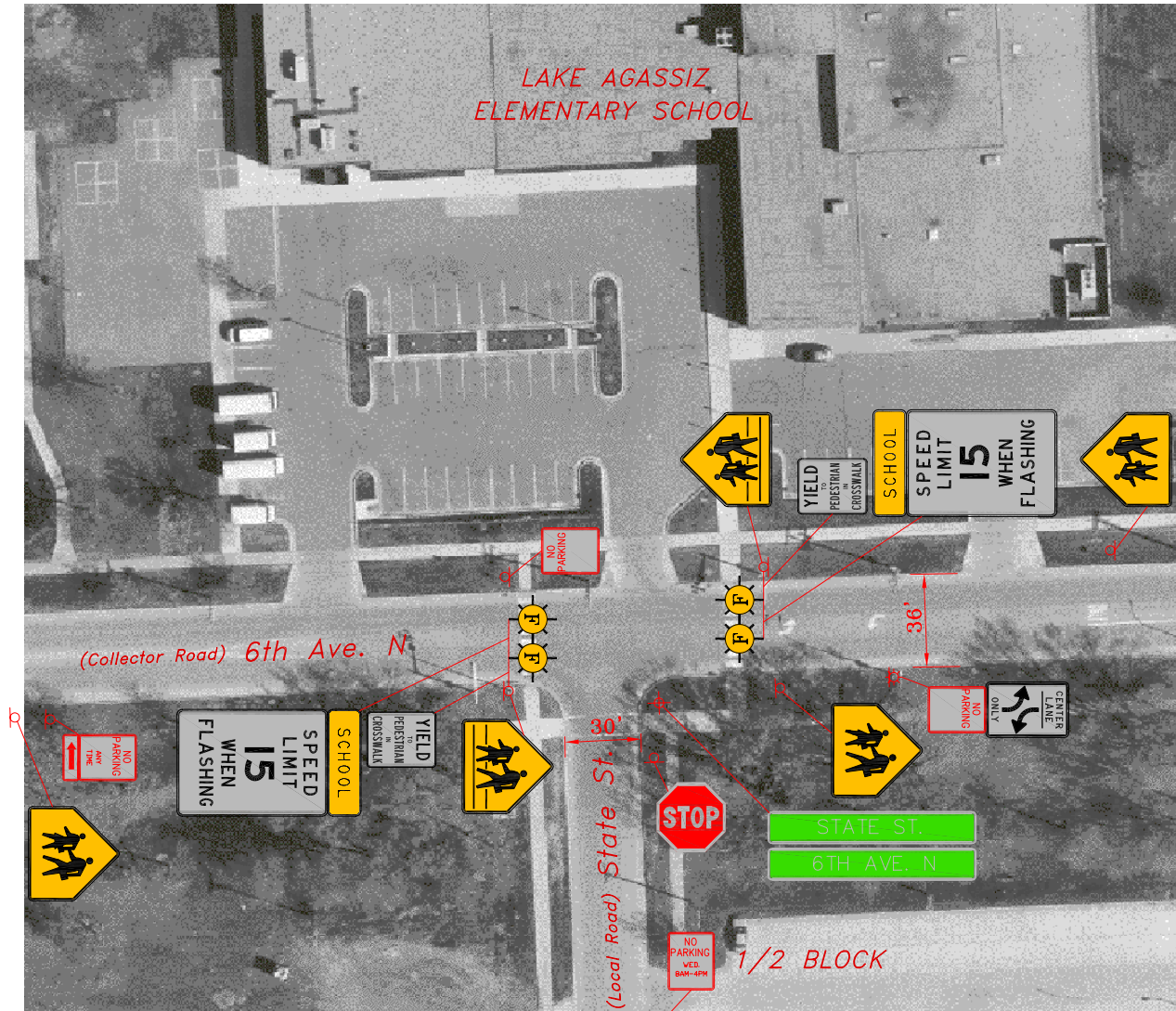
Kelly Elementary School

Safe Route to School



LAKE AGASSIZ ELEMENTARY SCHOOL

6th Ave. N & State St.



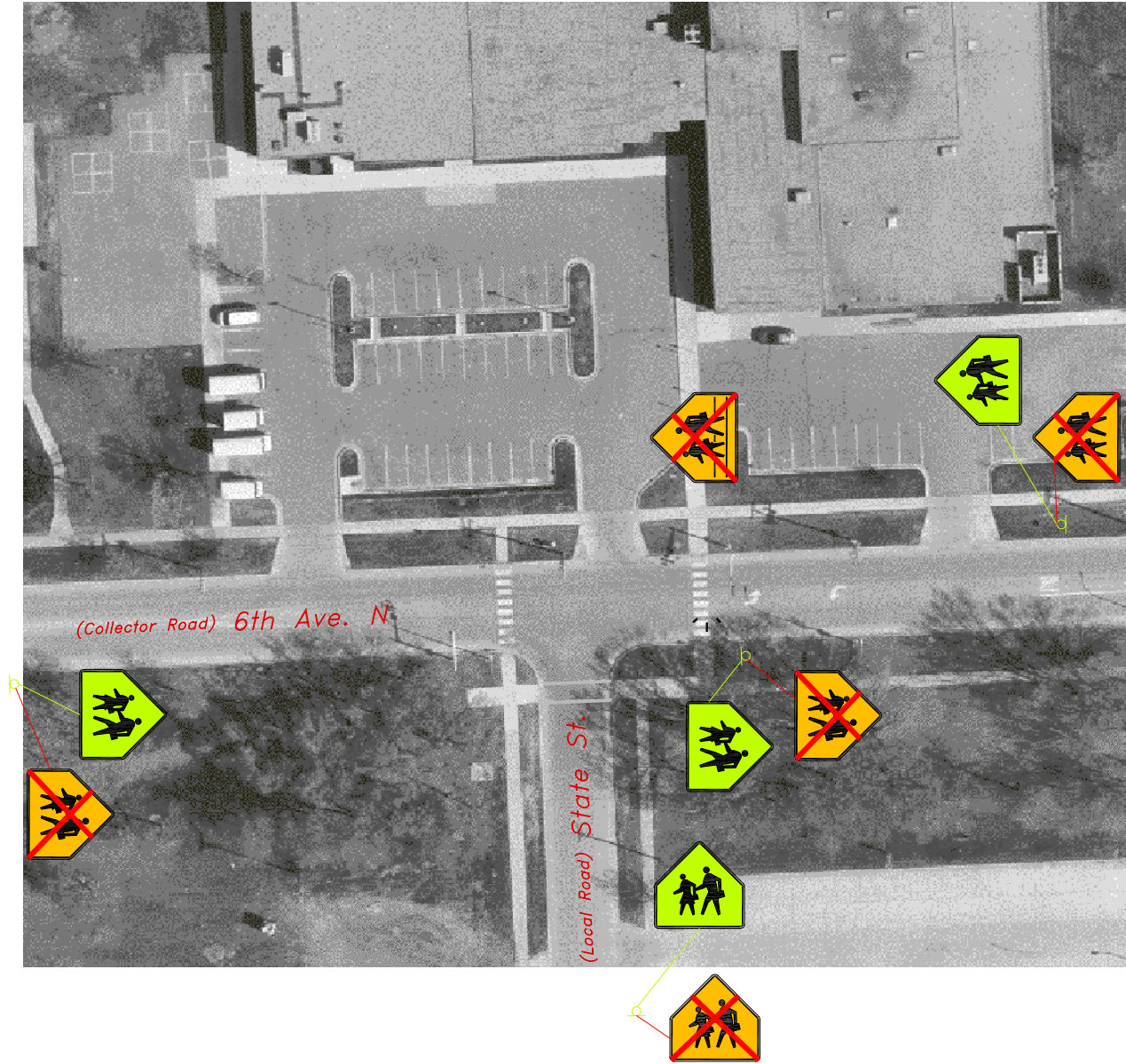
CITY OF GRAND FORKS LAKE AGASSIZ ELEMENTARY SCHOOL 6th Ave. N & State St. GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 4/5/2000	
APPROVED BY:		



LKAG6-ST5.DWG

PROPOSED SIGNAGE & MARKINGS

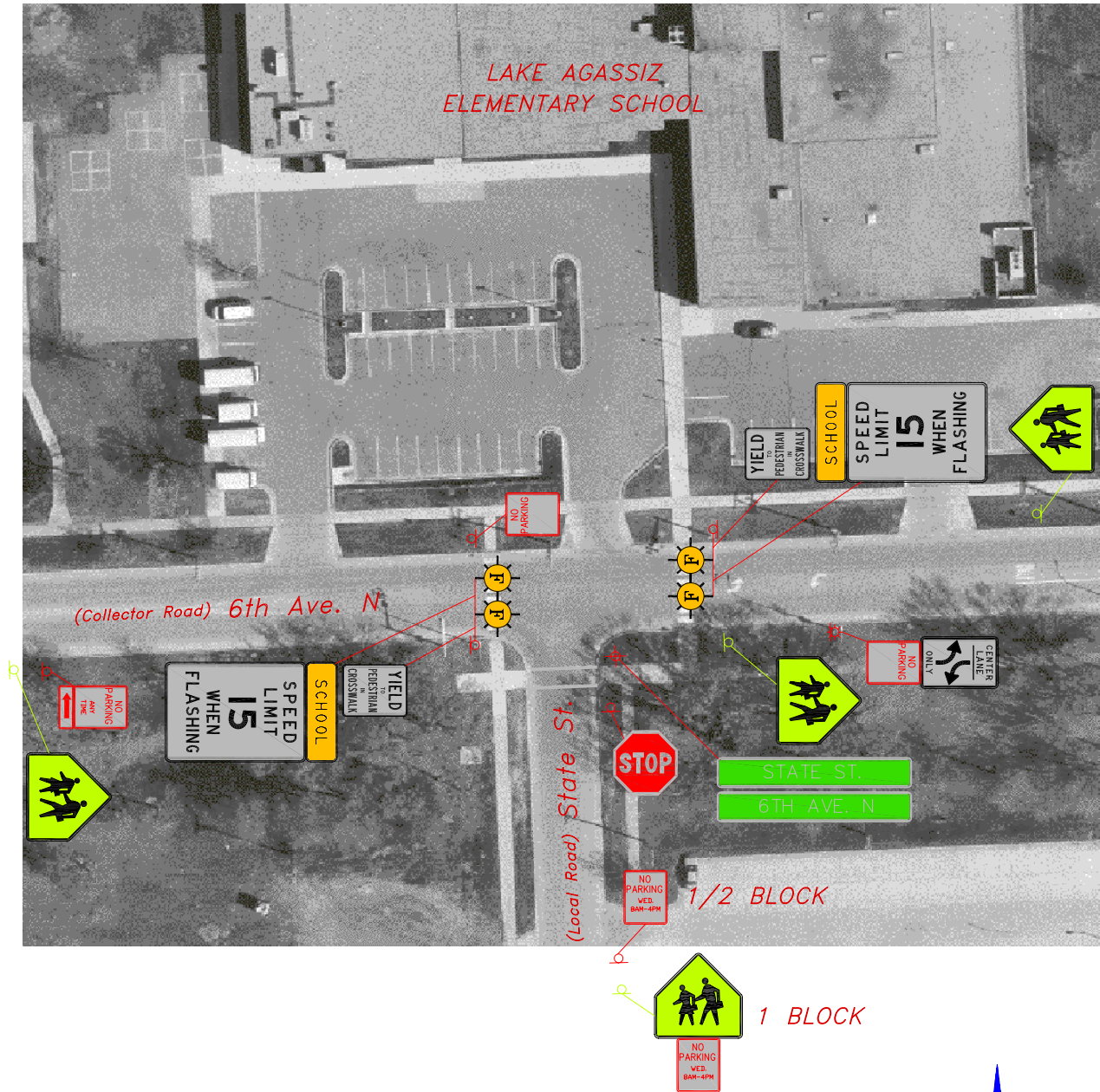
6th Ave. N & State St.



LKAG6-ST5.DWG

NEW INTERSECTION LAYOUT

6th Ave. N & State St.



LKAG6-ST5.DWG

Lake Agassiz – 6th Avenue North and State Street

Observations:

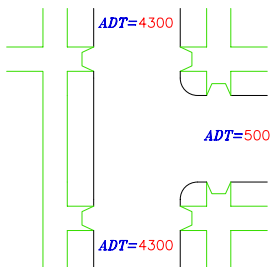
1. Crosswalk markings faded on State Street.

Recommendations:

1. Place Type 1 standard crosswalk markings across State Street as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove standard yellow SCHOOL ADVANCE signs on State Street and 6th Avenue North, east and west of State Street; and replace with fluorescent yellow-green SCHOOL ADVANCE signs.

LAKE AGASSIZ ELEMENTARY SCHOOL

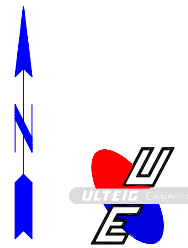
Stanford Rd. & 7th Ave. N



CITY OF GRAND FORKS LAKE AGASSIZ ELEMENTARY SCHOOL Stanford Rd. & 7th Ave. N GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027	LKAGSTN-7.DWG

PROPOSED SIGNAGE & MARKINGS

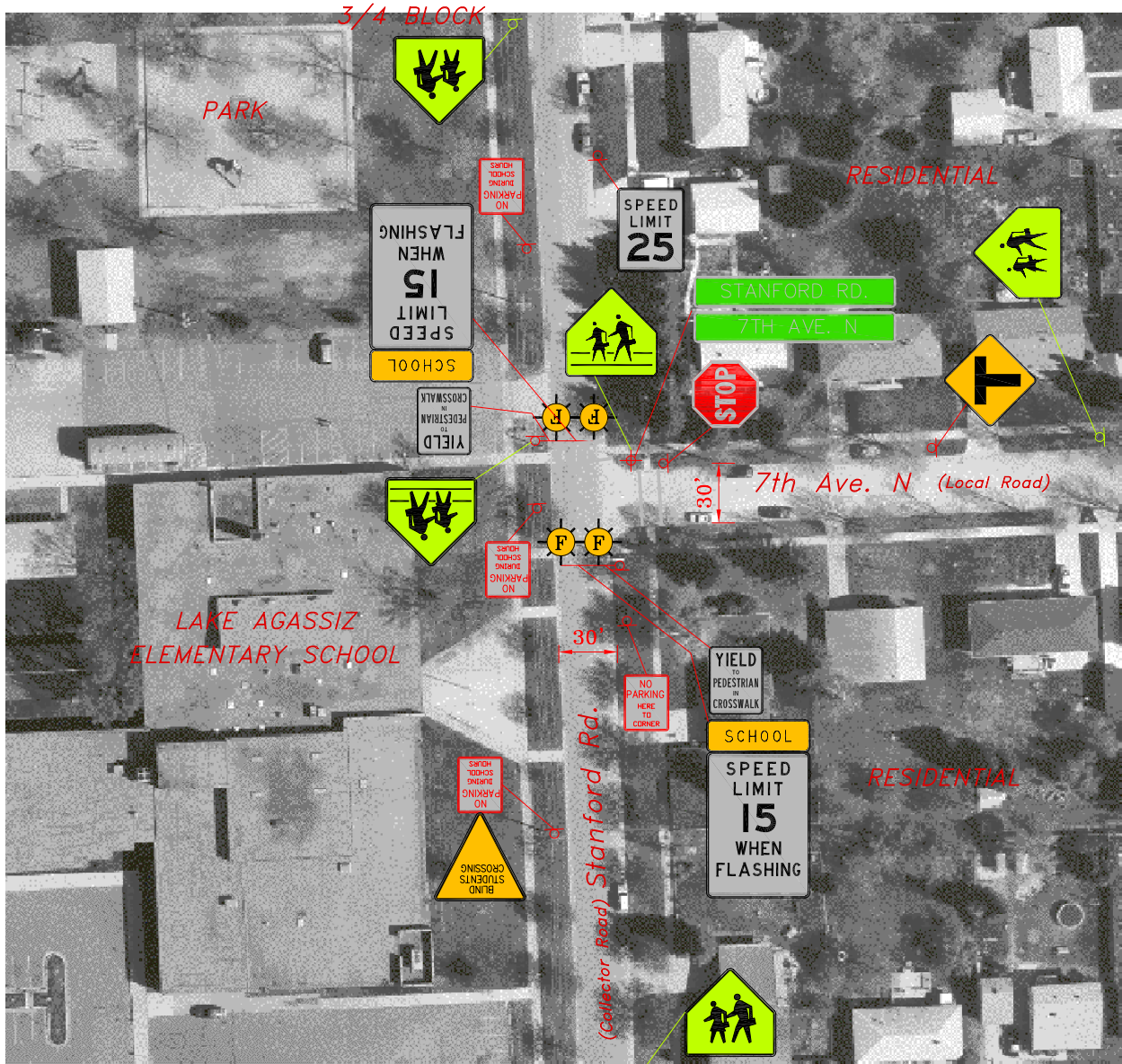
Stanford Rd. & 7th Ave. N



LKAGSTN-7.DWG

NEW INTERSECTION LAYOUT

Stanford Rd. & 7th Ave. N



Lake Agassiz – Stanford Road and 7th Avenue North

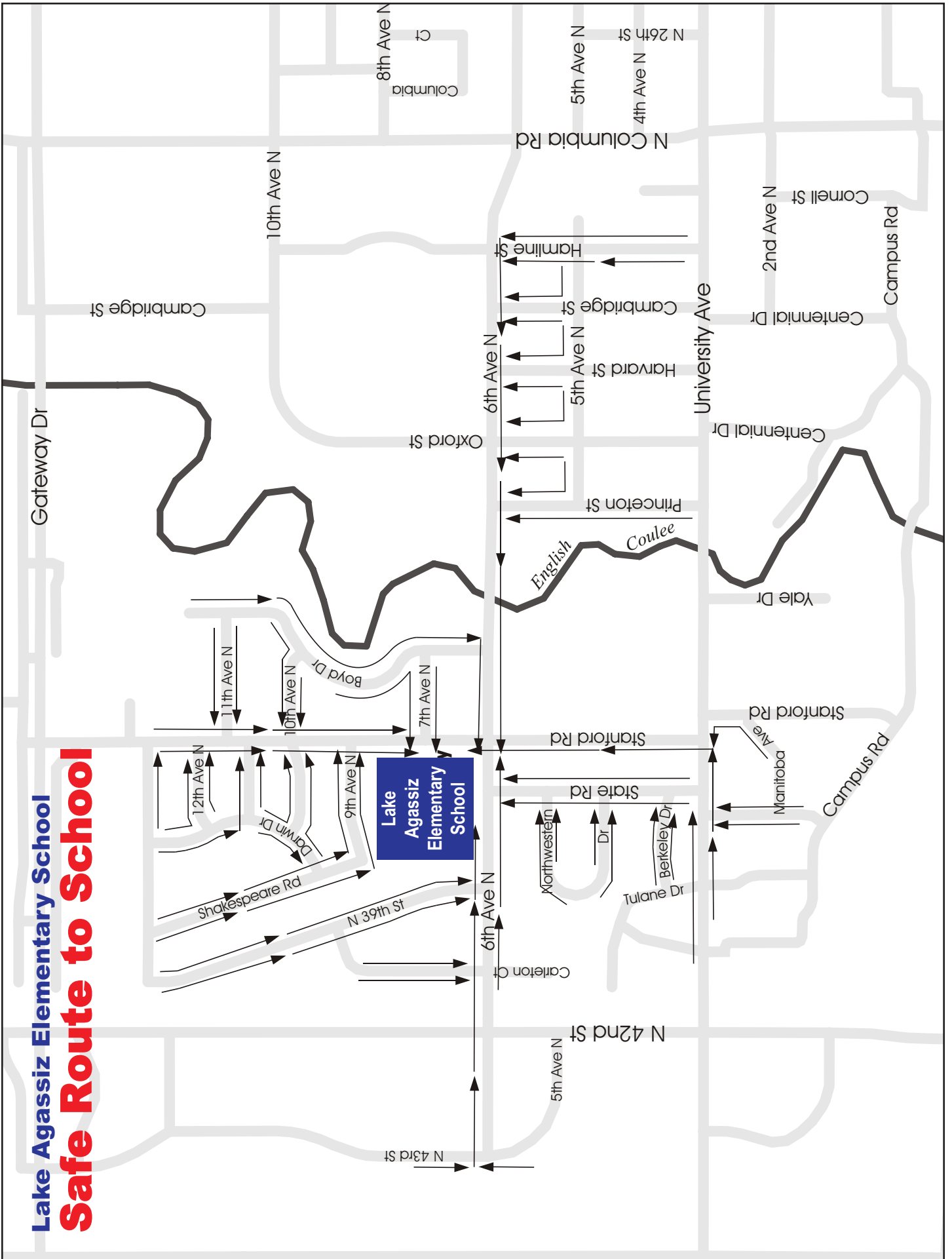
Observations:

1. Crosswalk markings are faded.
2. SCHOOL ADVANCE sign on east side of Stanford Road, south of 7th Avenue North, is obstructed by tree.

Recommendations:

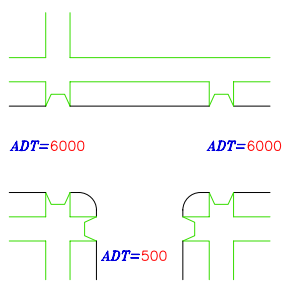
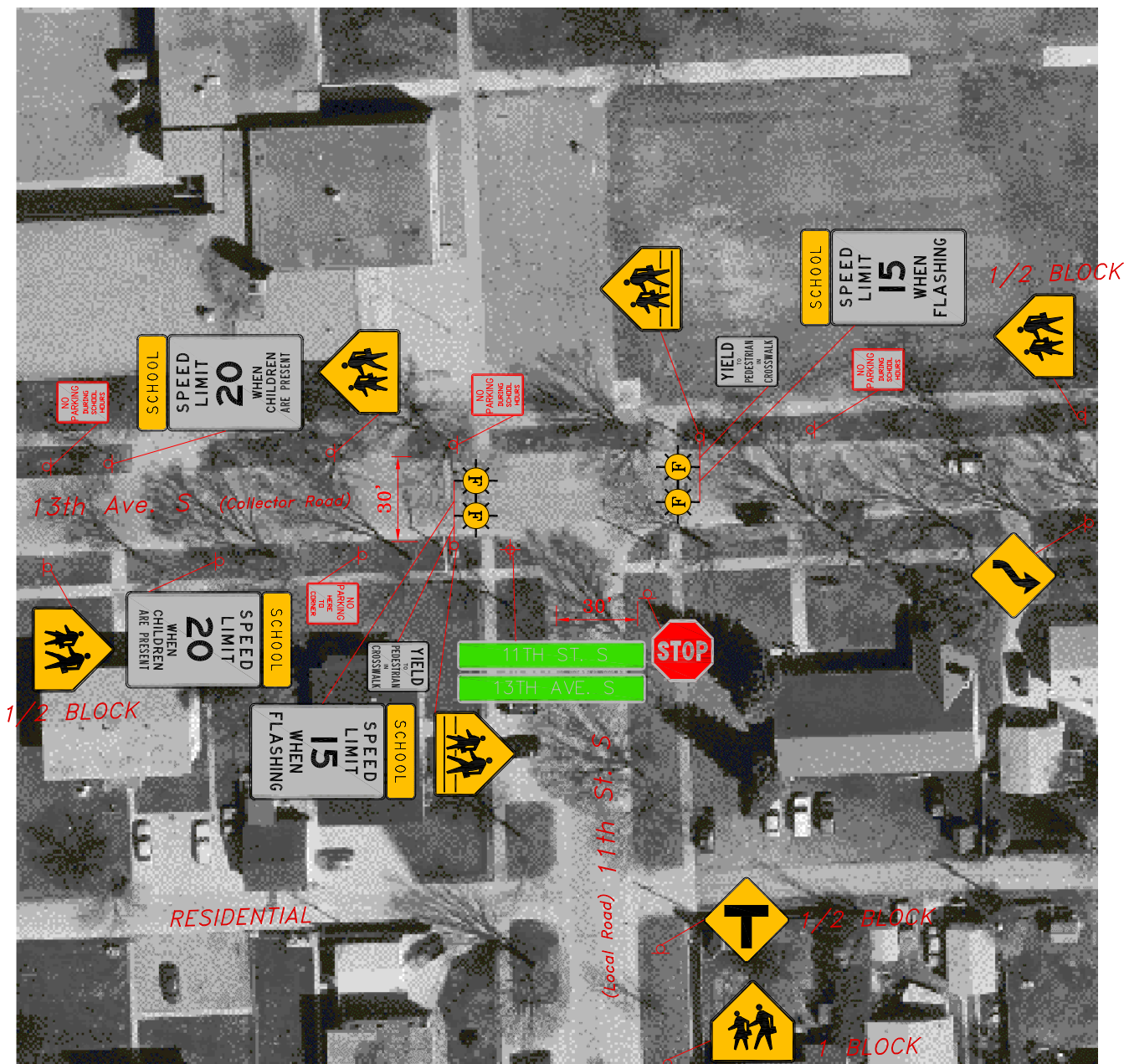
1. Place Type 1 standard crosswalk markings crossing Stanford Road on the north side of 7th Avenue North and crossing 7th Avenue North on the east side of Stanford Road as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove SCHOOL ADVANCE sign on east side of Stanford Road, south of 7th Avenue North, and replace with fluorescent yellow-green SCHOOL ADVANCE sign, approximately 25 feet south.
3. Remove standard yellow SCHOOL ADVANCE and SCHOOL CROSSING signs on Stanford Road and replace with fluorescent yellow-green SCHOOL ADVANCE and SCHOOL CROSSING signs.
4. Relocate SCHOOL CROSSING sign on Stanford Road, south of 7th Avenue North, to the north side of Stanford Road.
5. Place a SCHOOL ADVANCE sign on 7th Avenue North.

Lake Agassiz Elementary School
Safe Route to School



LEWIS & CLARK ELEMENTARY SCHOOL

13th Ave. S & 11th St. S



CITY OF GRAND FORKS LEWIS & CLARK ELEMENTARY SCHOOL 13th Ave. S & 11th St. S GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	LWCK13-11.DWG
CHECKED BY: SAG	DATE: 4/5/2000		
APPROVED BY:			

PROPOSED SIGNAGE & MARKINGS

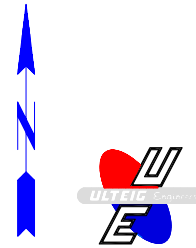
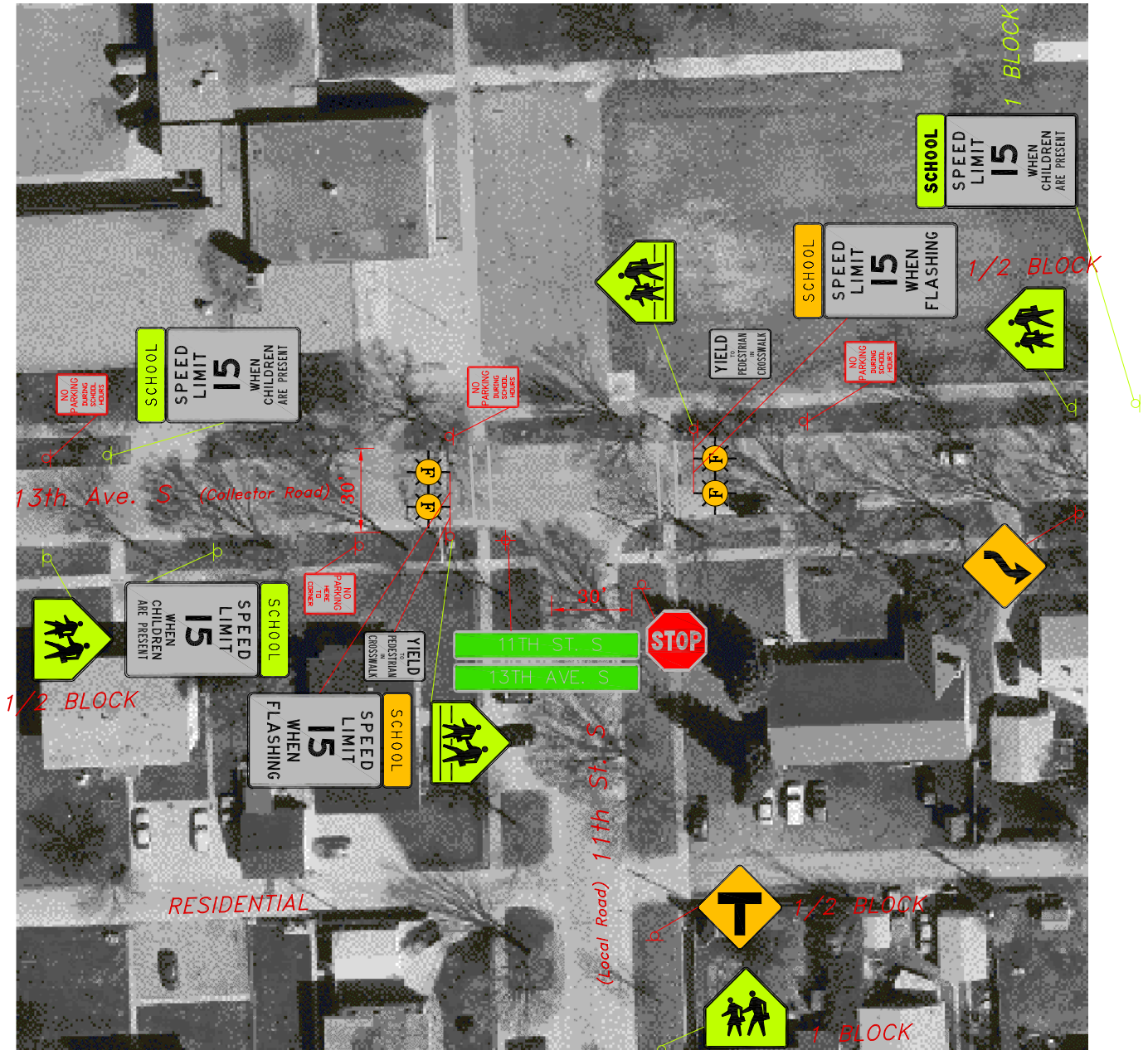
13th Ave. S & 11th St. S



LWOK13-11.DWG

NEW INTERSECTION LAYOUT

13th Ave. S & 11th St. S



LW0K13-11.DWG

Lewis and Clark – 13th Avenue South and 11th Street South

Observations:

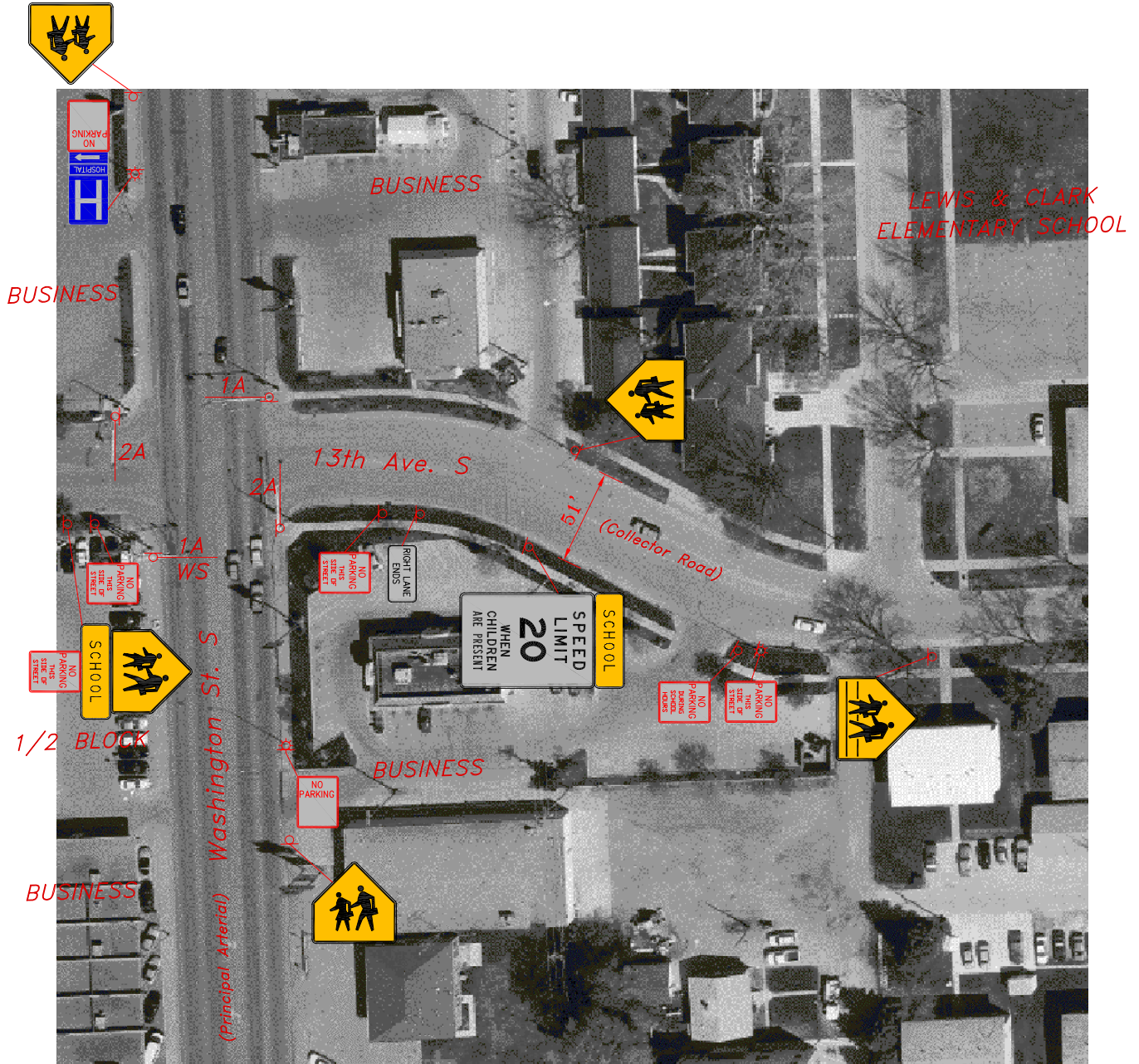
1. Crosswalk markings are faded.
2. SPEED LIMIT signs are inconsistent.

Recommendations:

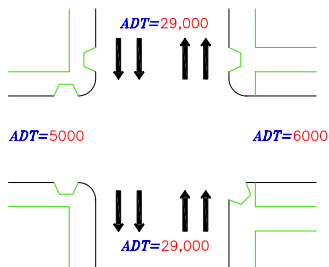
1. Place Type 1 standard crosswalk markings crossing 13th Avenue South on the east and west sides of 11th Street South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove SCHOOL ADVANCE sign on 11th Street South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
3. Remove SPEED LIMIT 20 and replace with SPEED LIMIT 15 as shown to keep signs consistent.
4. Remove SCHOOL ADVANCE sign on north side of 13th Avenue South, west of 11th Street South.
5. Remove standard yellow SCHOOL signs and replace with fluorescent yellow-green SCHOOL signs.
6. Remove standard yellow SCHOOL ADVANCE and SCHOOL CROSSING signs on 13th Avenue South and replace with fluorescent yellow-green SCHOOL ADVANCE and SCHOOL CROSSING signs.

LEWIS & CLARK ELEMENTARY SCHOOL

13th Ave. S & Washington St. S



SEE NEXT SHEET FOR
SIGNAL HEAD LAYOUTS (1A & 2A)

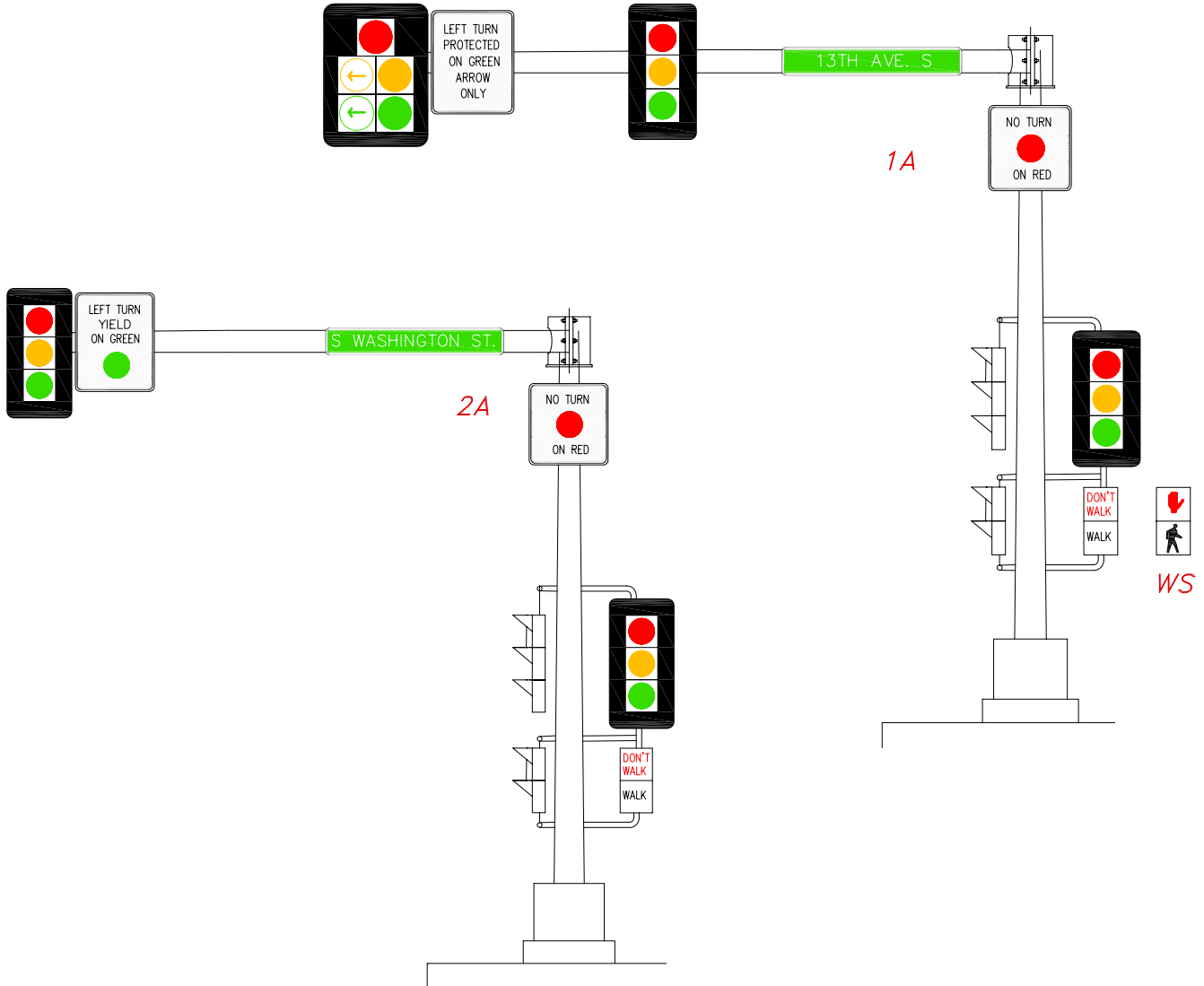



CITY OF GRAND FORKS		
LEWIS & CLARK ELEMENTARY SCHOOL		
13th Ave. S & Washington St. S		
GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 4/5/2000	
APPROVED BY:		



LW0K13-W.DWG

SIGNAL HEAD LEGEND

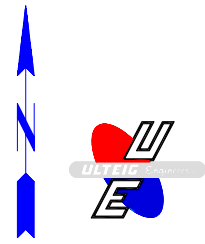
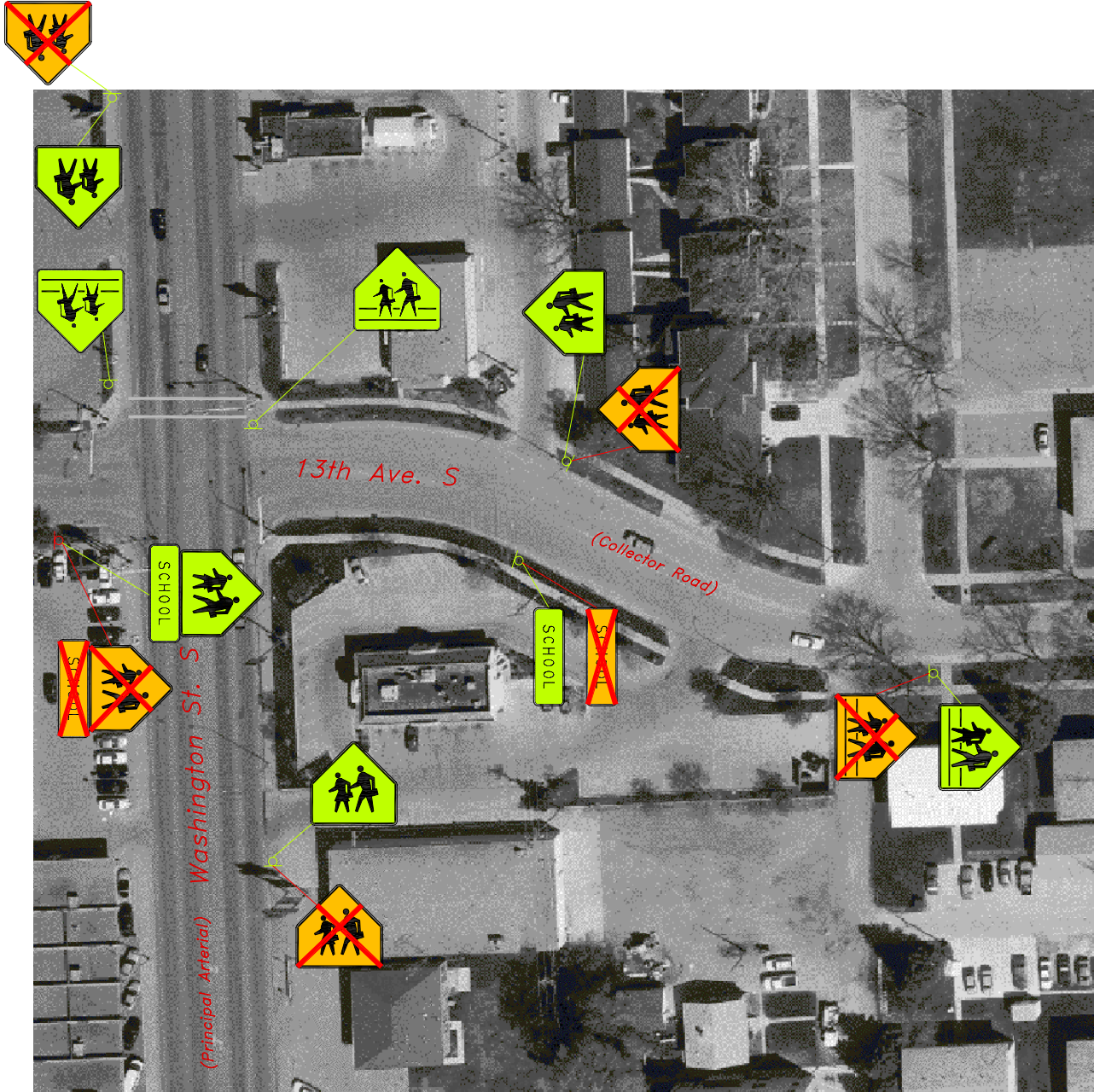


CITY OF GRAND FORKS SIGNAL HEAD LEGEND		
GRAND FORKS, NORTH DAKOTA		
<small>ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS</small>		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 3/27/2000	
APPROVED BY:		

SIGNALS.DWG

PROPOSED SIGNAGE & MARKINGS

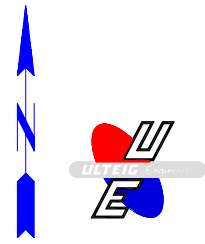
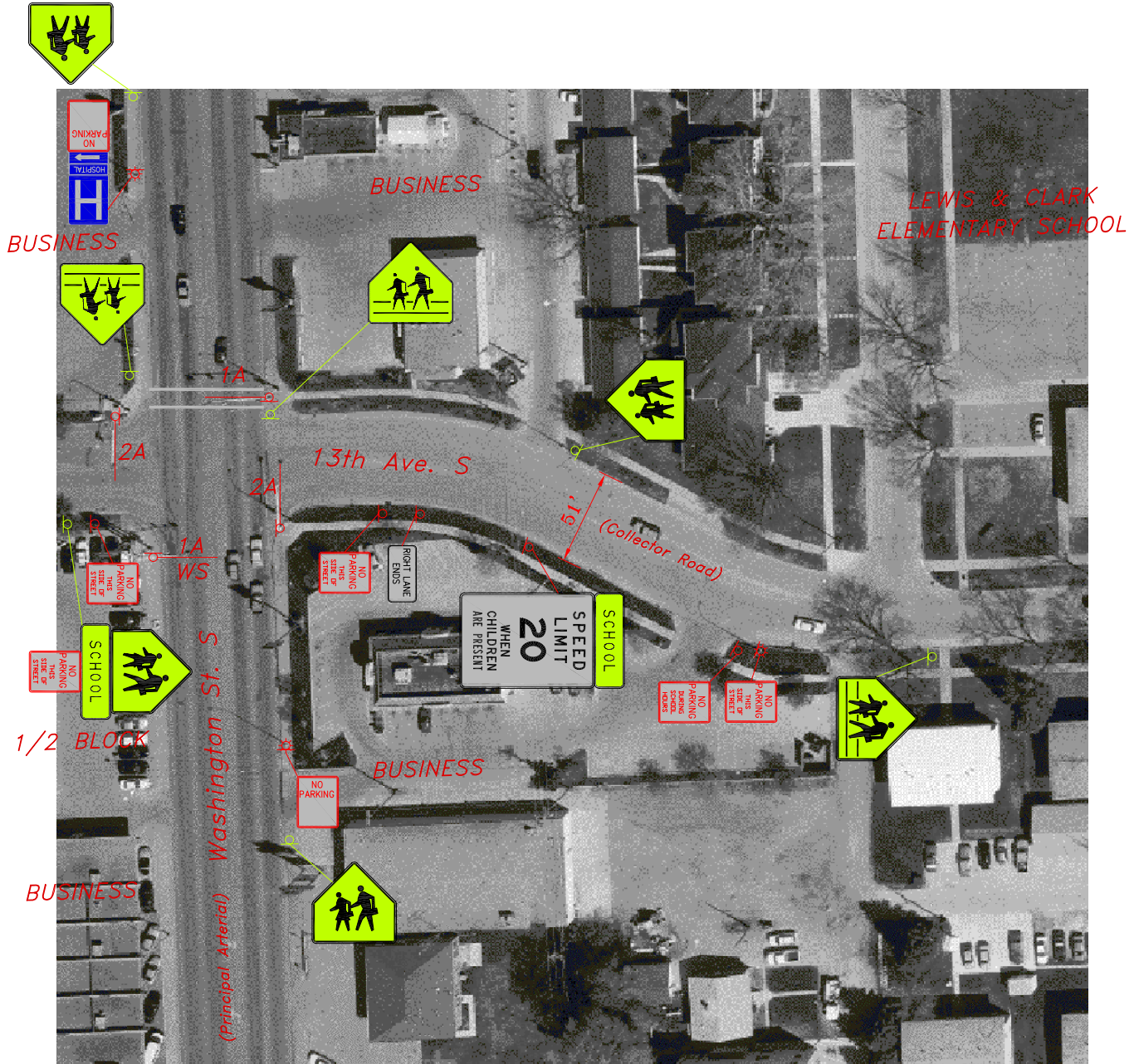
13th Ave. S & Washington St. S



LWOK13-W.DWG

NEW INTERSECTION LAYOUT

13th Ave. S & Washington St. S



LWOK13-W.DWG

Lewis and Clark – 13th Avenue South and Washington Street South

Observations:

1. Crosswalk markings faded.

Recommendations:

1. Place Type 1 standard crosswalk markings across Washington Street South on the north side of 13th Avenue South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove SCHOOL, SCHOOL ADVANCE and SCHOOL CROSSING signs on 13th Avenue South.
3. Place SCHOOL CROSSING signs on the east and west sides of Washington Street, north of 13th Avenue South.
4. Remove standard yellow SCHOOL ADVANCE signs on Washington Street and replace with fluorescent yellow-green SCHOOL ADVANCE signs.

Lewis & Clark Elementary School

Safe Route to School



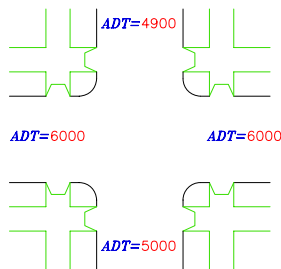
PHOENIX ELEMENTARY SCHOOL

4th Ave. S & Belmont



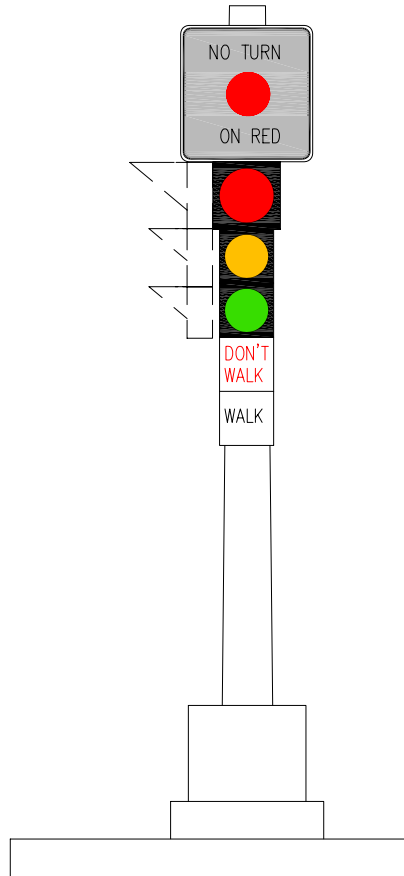
3/4 BLOCK

SEE NEXT SHEET FOR
SIGNAL HEAD LAYOUT 3A




CITY OF GRAND FORKS PHOENIX ELEMENTARY SCHOOL 4th Ave. S & Belmont GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027	PH4-B.DWG

SIGNAL HEAD LEGEND



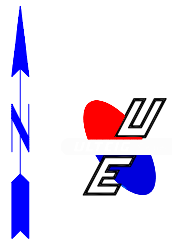
3A

CITY OF GRAND FORKS SIGNAL HEAD LEGEND		
GRAND FORKS, NORTH DAKOTA		
<small>ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS</small>		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 3/28/2000	
APPROVED BY:		

SIGNALS-3A.DWG

PROPOSED SIGNAGE & MARKINGS

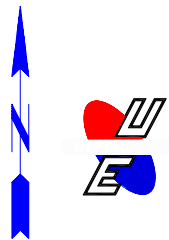
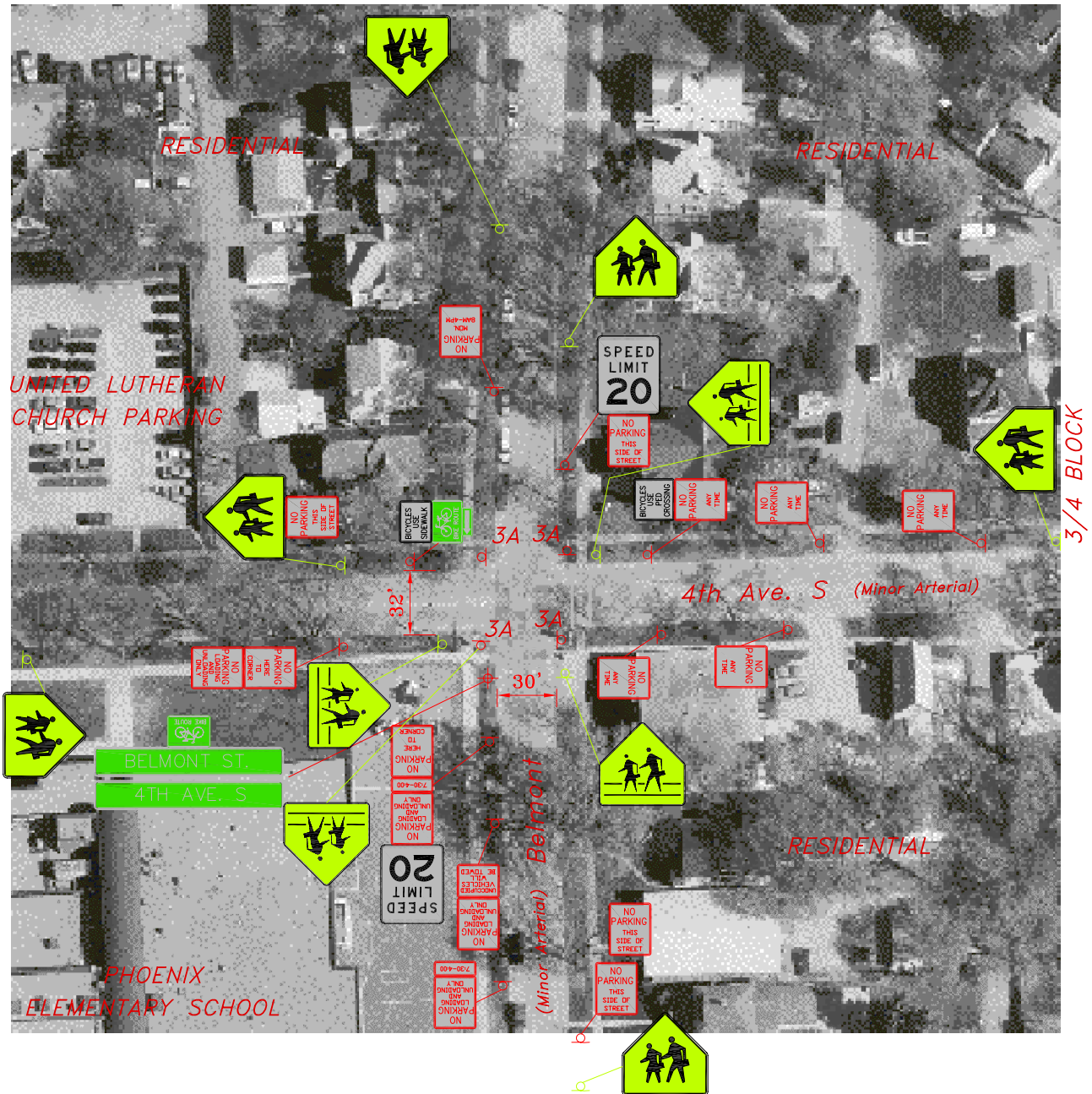
4th Ave. S & Belmont



PH4-B.DWG

NEW INTERSECTION LAYOUT

4th Ave. S & Belmont



PH4-B.DWG

Phoenix – 4th Avenue South and Belmont

Observations:

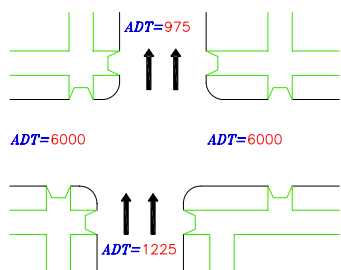
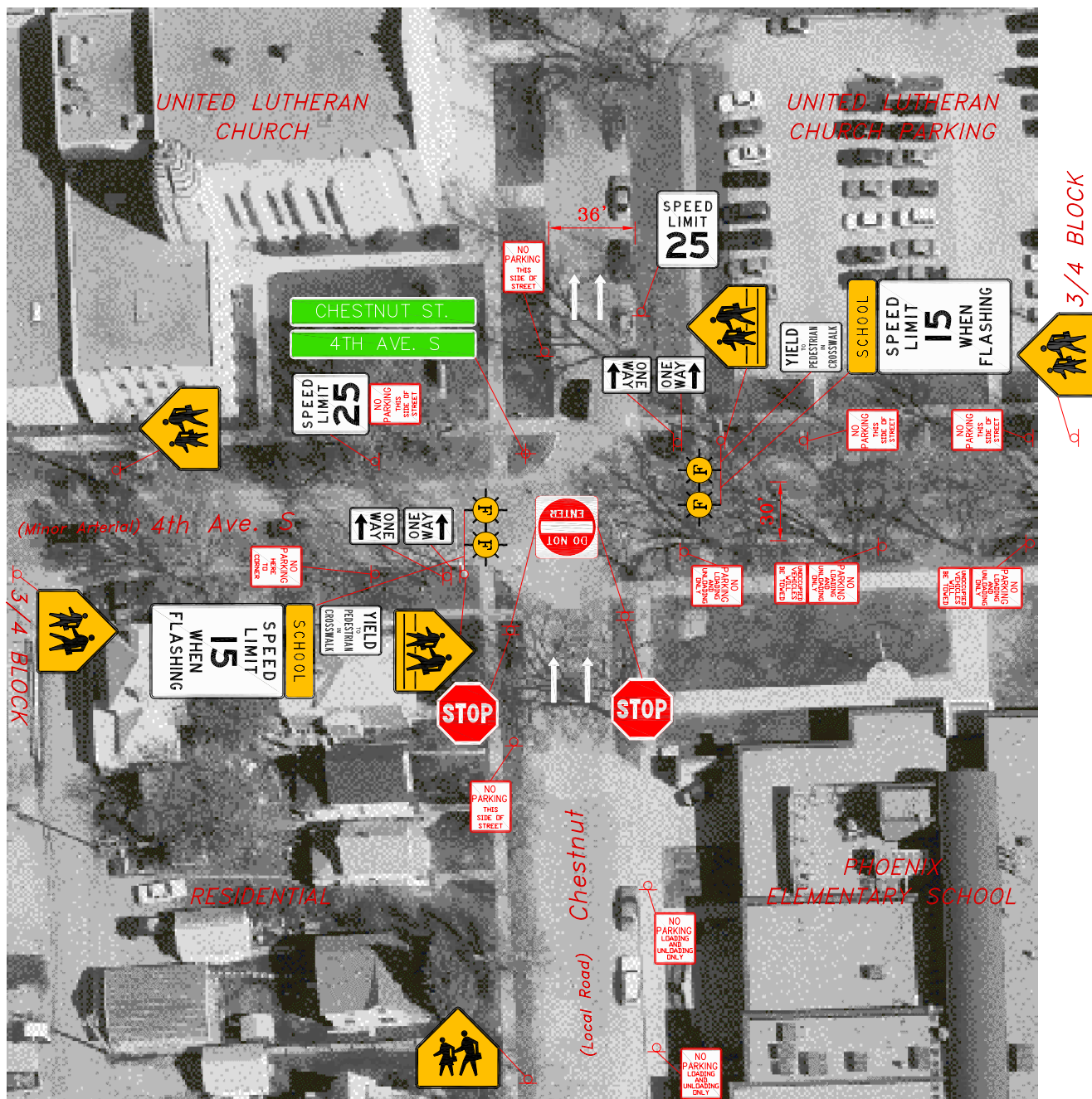
1. Crosswalk markings are faded.
2. SCHOOL CROSSING signs inconsistent in color.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing 4th Avenue South on the east and west sides of Belmont and on Belmont and on Belmont on the south side of 4th Avenue South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove standard yellow SCHOOL ADVANCE signs on both street and replace with fluorescent yellow-green SCHOOL ADVANCE signs on Belmont and on 4th Avenue South, east of Belmont.
3. Remove standard yellow SCHOOL CROSSING sign on east side of Belmont, south of 4th Avenue South, and replace with a fluorescent yellow-green SCHOOL CROSSING sign relocated closer to the intersection.
4. Place a SCHOOL ADVANCE SIGN ON South side of 4th Avenue South, west of Belmont, and on the west side of Belmont, north of 4th Avenue South.
5. Place SCHOOL CROSSING signs on the east and west sides of Belmont, south of 4th Avenue South; and on the north side of 4th Avenue South, east of Belmont.

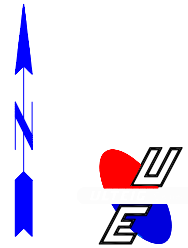
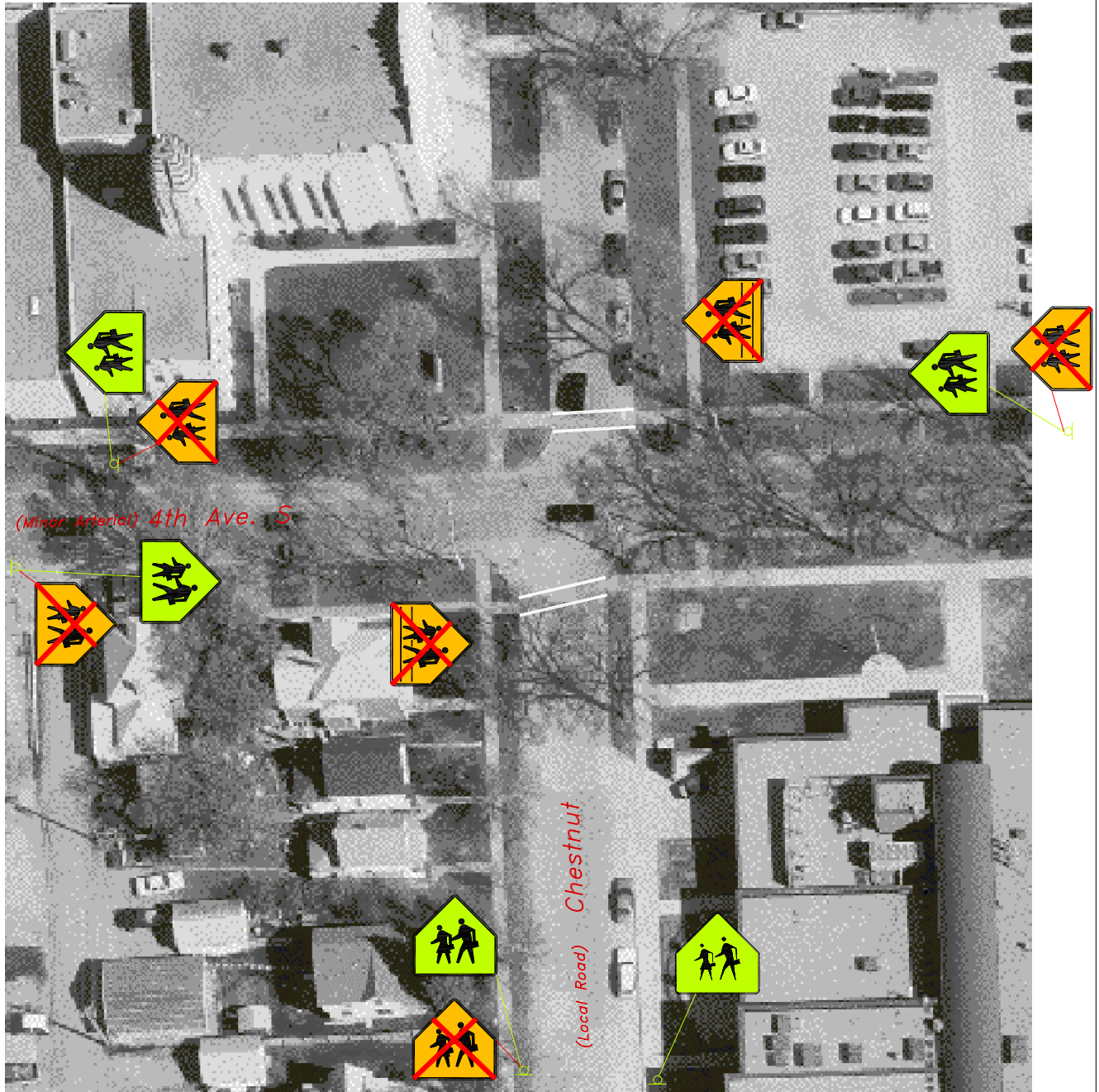
PHOENIX ELEMENTARY SCHOOL

4th Ave. S & Chestnut



CITY OF GRAND FORKS PHOENIX ELEMENTARY SCHOOL 4th Ave. S & Chestnut GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027	PH4-C.DWG

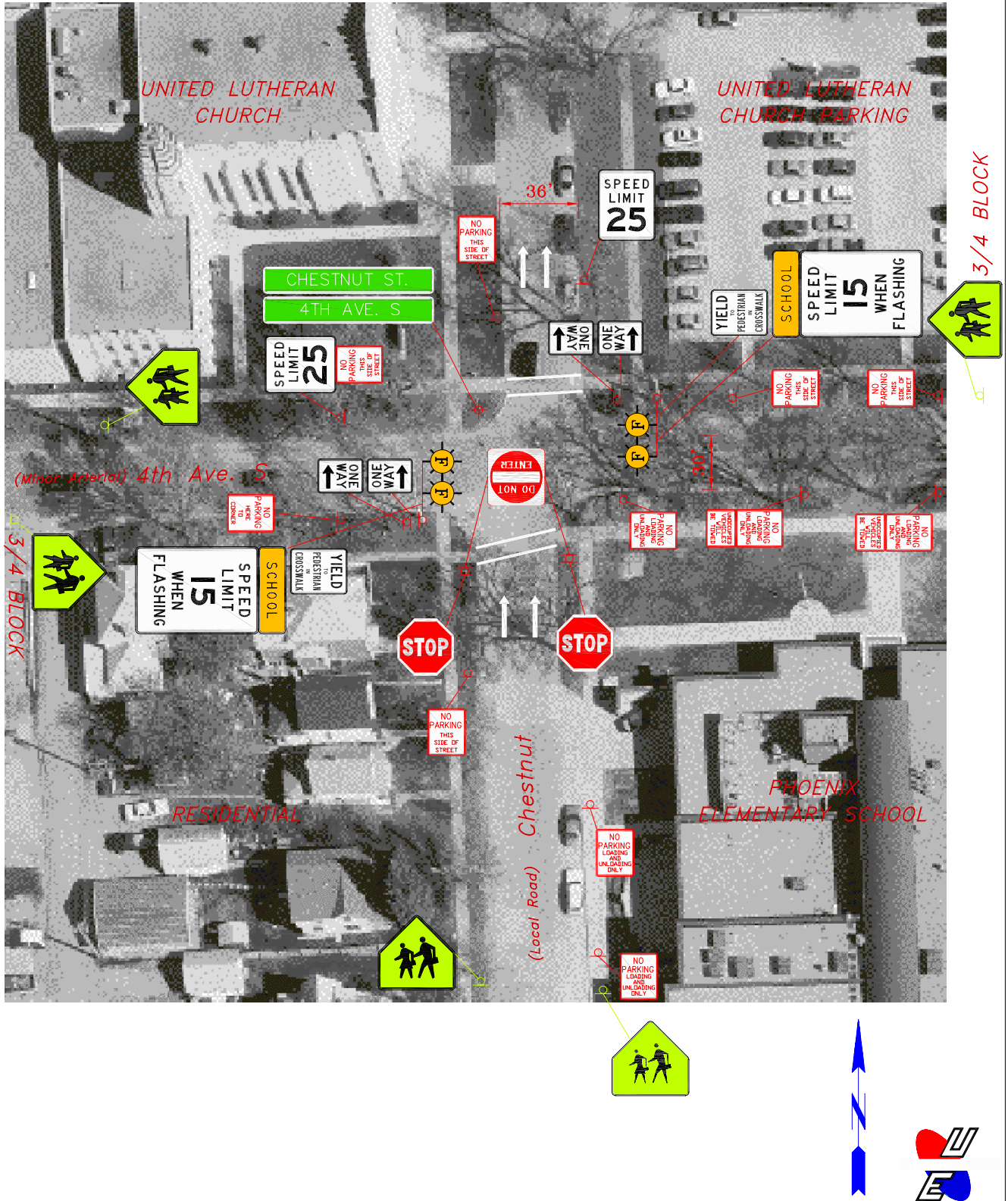
PROPOSED SIGNAGE & MARKINGS
4th Ave. S & Chestnut



PH4-C.DWG

NEW INTERSECTION LAYOUT

4th Ave. S & Chestnut



PH4-C.DWG

Phoenix – 4th Avenue South and Chestnut

Observations:

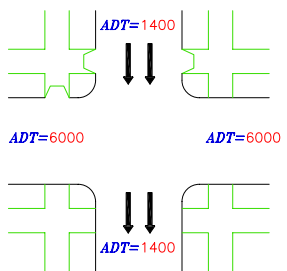
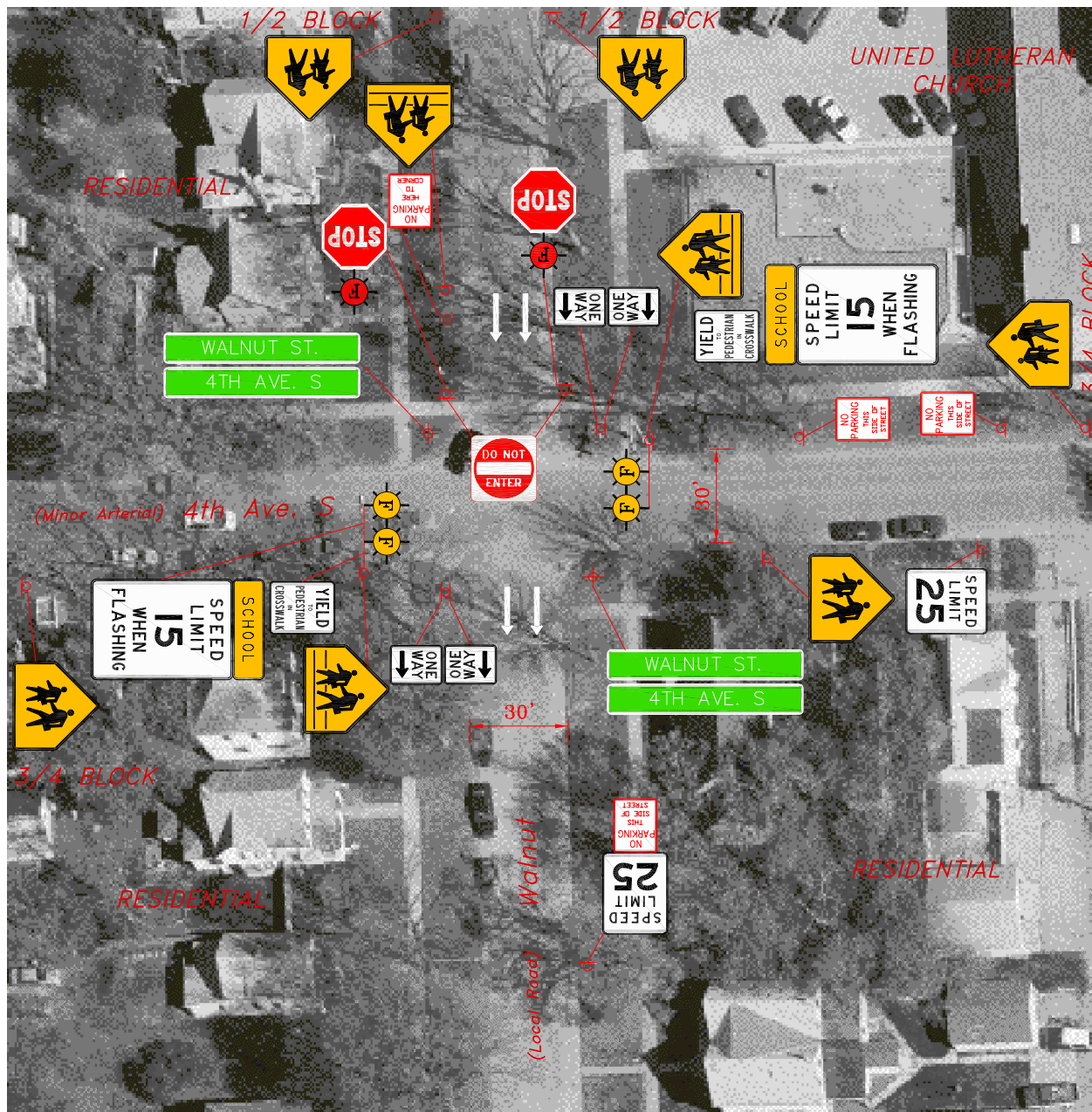
1. Crosswalk markings are faded.

Recommendations:

1. Place Type 1 standard crosswalk markings across Chestnut on the north and south sides of 4th Avenue South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove SCHOOL ADVANCE sign on east side of Chestnut, south of 4th Avenue South.
3. Add SCHOOL ADVANCE sign on east side of Chestnut, south of 4th Avenue South.
4. Remove standard yellow SCHOOL ADVANCE sign on Chestnut and replace with fluorescent yellow-green SCHOOL ADVANCE sign.

PHOENIX ELEMENTARY SCHOOL

4th Ave. S & Walnut



CITY OF GRAND FORKS PHOENIX ELEMENTARY SCHOOL 4th Ave. S & Walnut GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027	PH4-W.DWG

PROPOSED SIGNAGE & MARKINGS

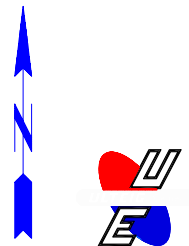
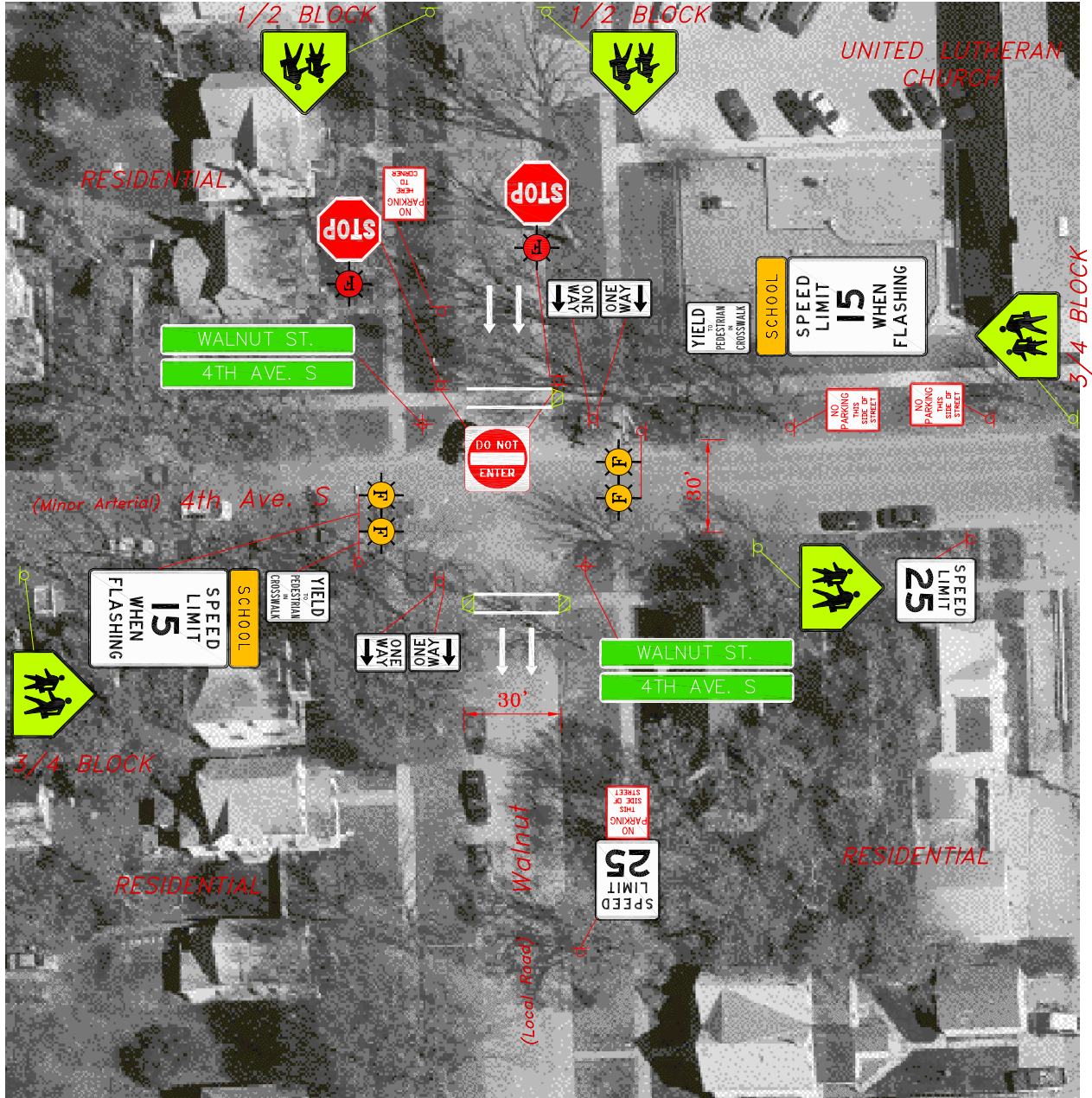
4th Ave. S & Walnut



PH4-W.DWG

NEW INTERSECTION LAYOUT

4th Ave. S & Walnut



PH4-W.DWG

Phoenix – 4th Avenue South and Walnut

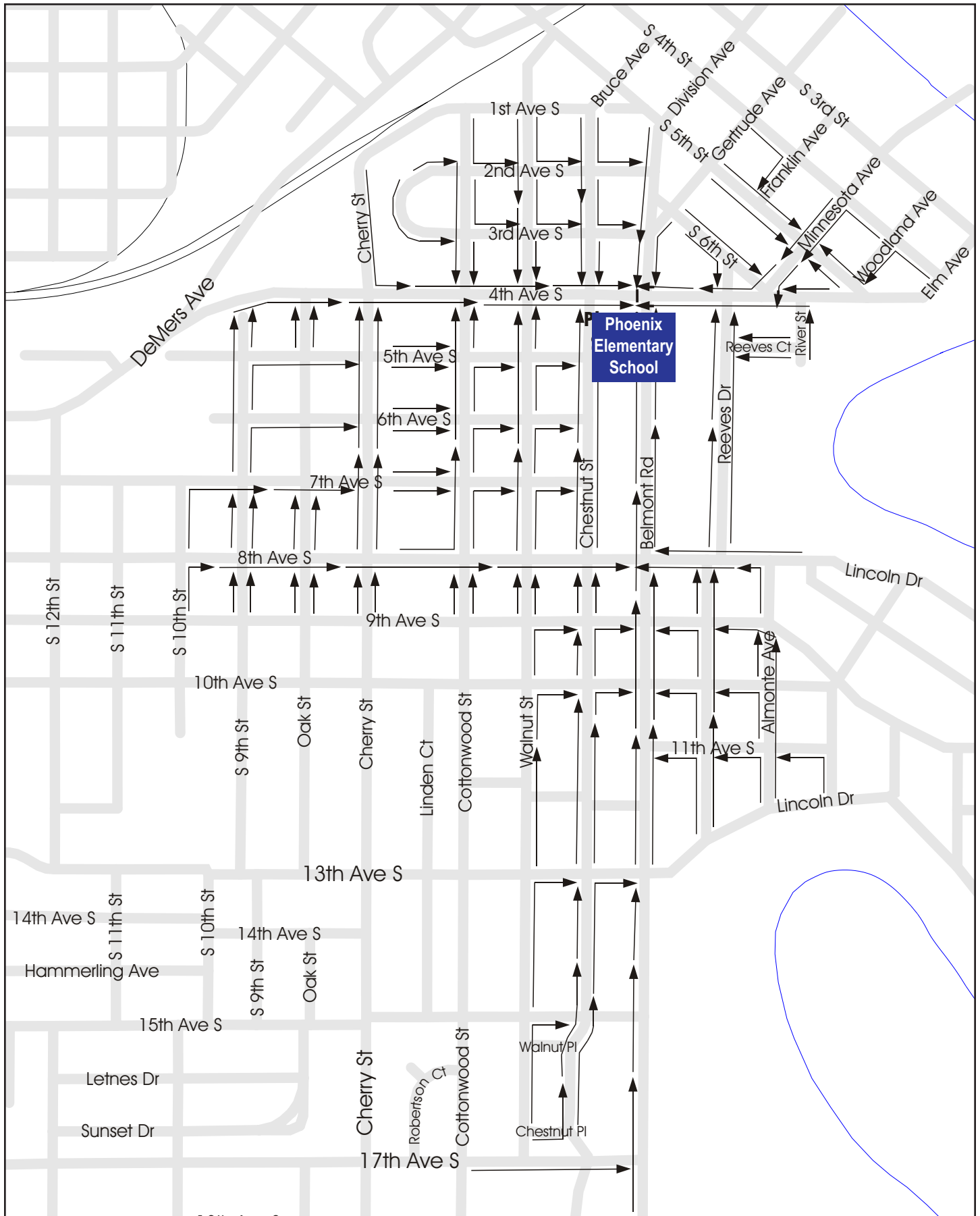
Observations:

1. Crosswalk markings are faded.
2. No pedestrian ramps crossing Walnut on south side of 4th Avenue South.
3. Pedestrian curb ramp at northeast corner of intersection for pedestrians crossing Walnut is in poor condition with concrete panels separating vertically producing a hazardous condition.

Recommendations:

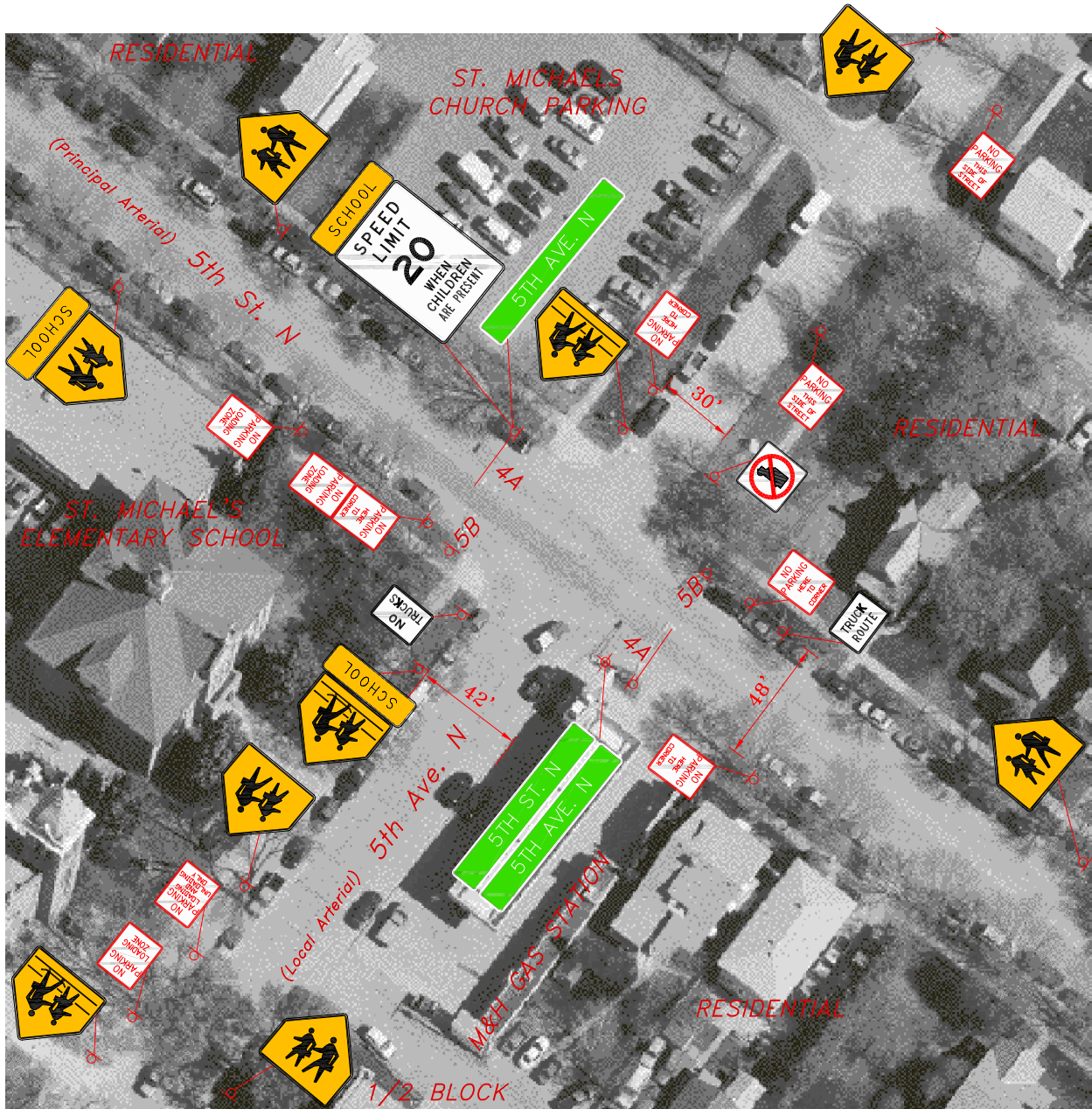
1. Place Type 1 standard crosswalk markings crossing Walnut on the south and north sides of 4th Avenue South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Place ADA pedestrian ramps crossing Walnut on the south side of 4th Avenue south.
3. Remove SCHOOL ADVANCE and SCHOOL CROSSING signs on 4th Avenue South.
4. Remove SCHOOL CROSSING sign on the west side of Walnut, north of 4th Avenue South.
5. Remove and replace ADA pedestrian ramp at northeast corner of intersection for pedestrians crossing Walnut.
6. Remove SCHOOL ADVANCE signs on Walnut and replace with fluorescent yellow-green SCHOOL ADVANCE signs.

Phoenix Elementary School Safe Route to School

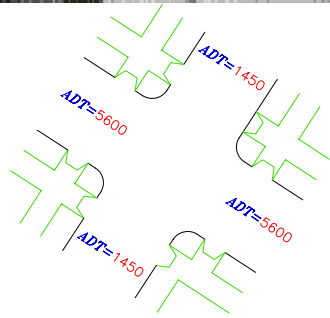


ST. MICHAEL'S ELEMENTARY SCHOOL

5th St. N & 5th Ave. N

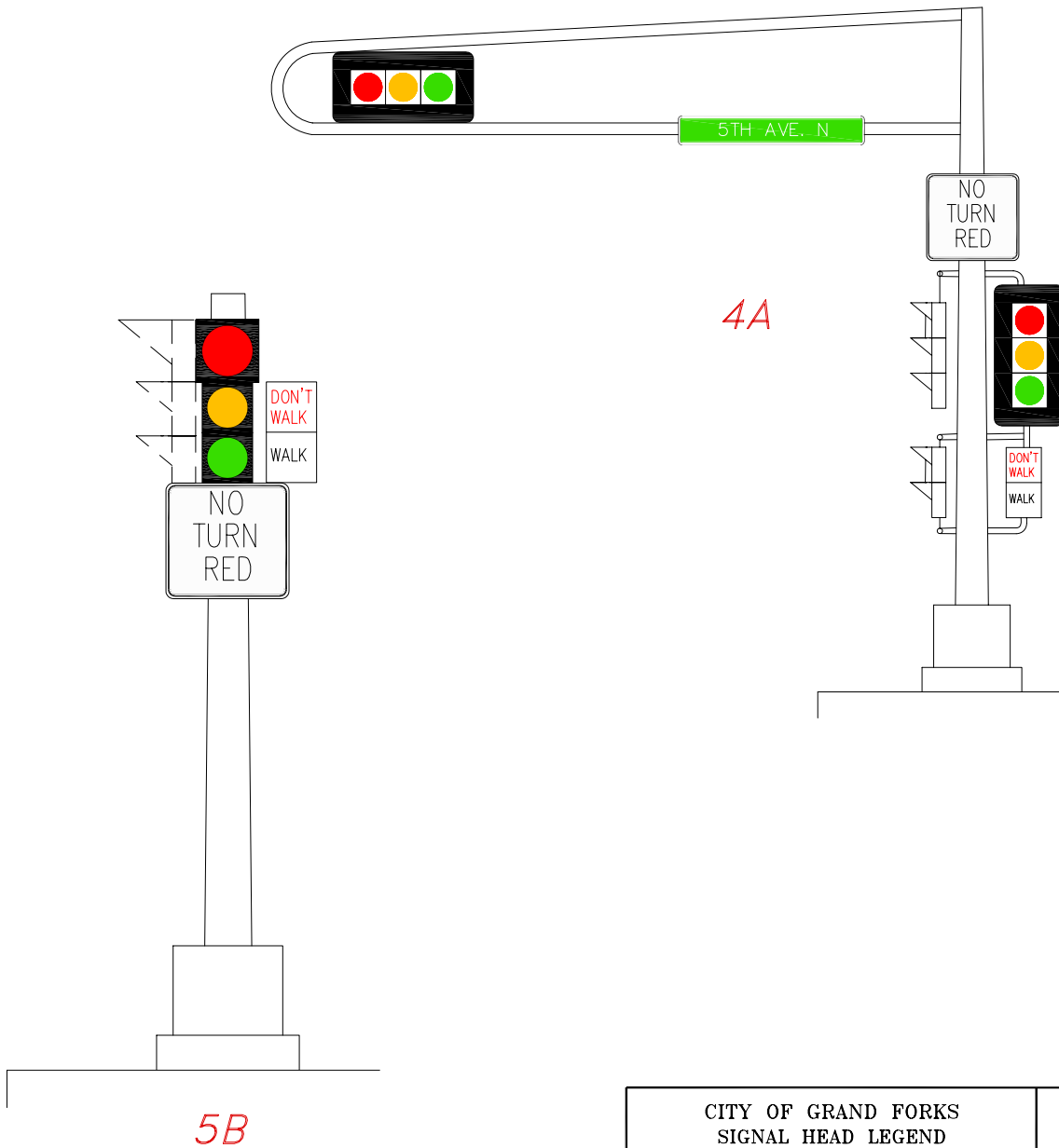




SEE NEXT SHEET FOR
SIGNAL HEAD LAYOUTS
4A & 5B



CITY OF GRAND FORKS ST. MICHAEL'S ELEMENTARY SCHOOL 5th St. N & 5th Ave. N GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	STMKS5-5.DWG
CHECKED BY: SAG	DATE: 4/5/2000		
APPROVED BY:			

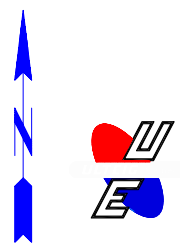
SIGNAL HEAD LEGEND



CITY OF GRAND FORKS SIGNAL HEAD LEGEND			
GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	
CHECKED BY: SAG	DATE: 3/29/2000		
APPROVED BY:			

SIGNALS-4A.DWG

PROPOSED SIGNAGE & MARKINGS
5th St. N & 5th Ave. N



STMKSS-5.DWG

NEW INTERSECTION LAYOUT

5th St. N & 5th Ave. N



STMKS5-5.DWG

St. Michael's – 5th Street North and 5th Avenue North

Observations:

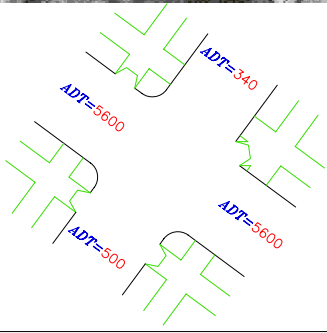
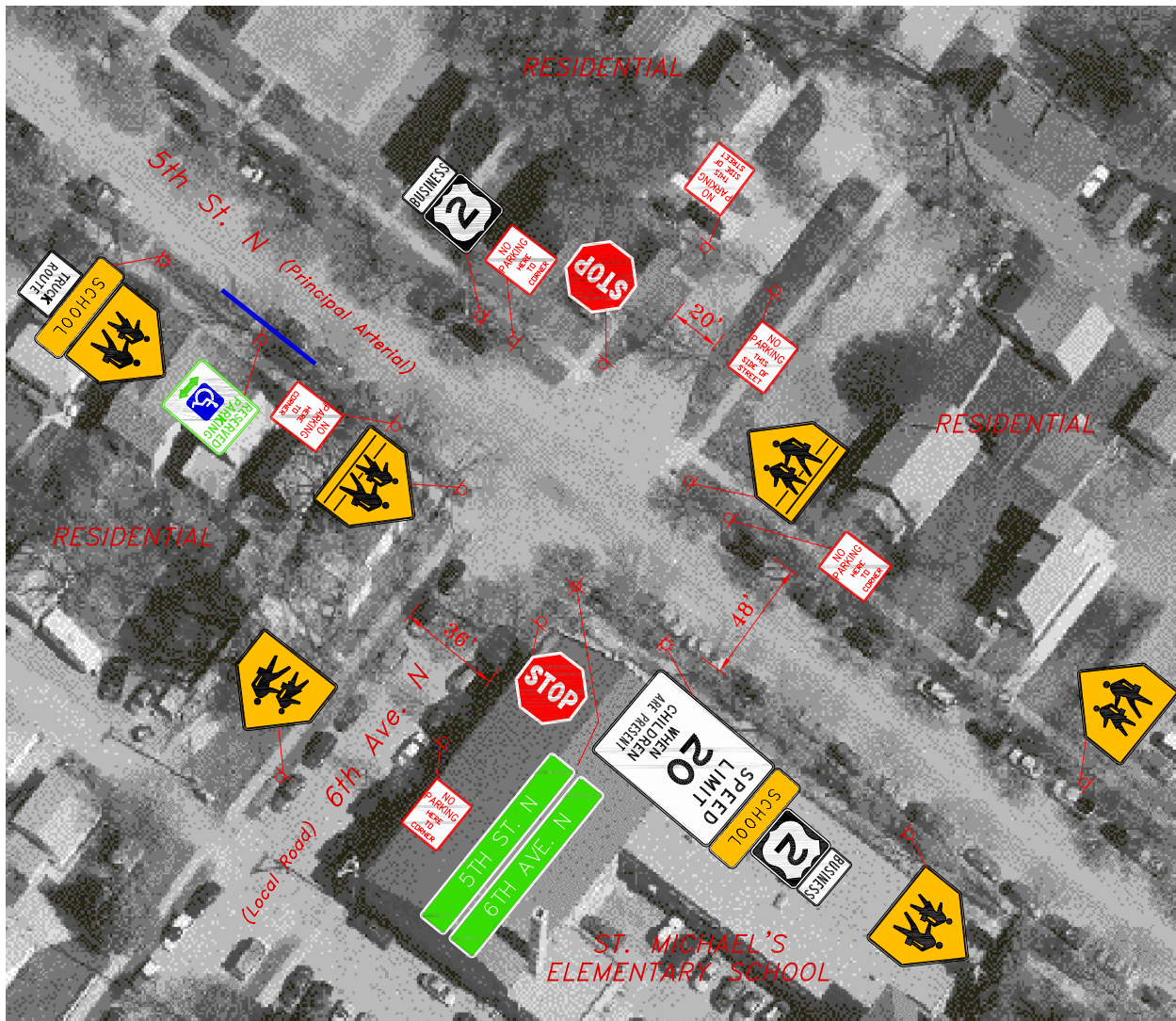
1. Crosswalk markings are faded.
2. SCHOOL ADVANCE sign on west side of 5th Avenue North, south of 5th Street North, is in poor condition.
3. SCHOOL ADVANCE sign on west side of 5th Avenue North, south of 5th Street North, is in poor condition.
4. SCHOOL ADVANCE signs on 5th Street North, east and west of 5th Avenue North, without SCHOOL CROSSING signs.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing 5th Avenue North on the north and south sides of 5th Street North and crossing 5th Street North on the west side of 5th Avenue North as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Place SCHOOL CROSSING signs on 5th Street North, northwest of 5th Avenue North.
3. Remove standard yellow SCHOOL, SCHOOL ADVANCE and SCHOOL CROSSING signs and replace with fluorescent yellow-green SCHOOL, SCHOOL ADVANCE and SCHOOL CROSSING signs.

ST. MICHAEL'S ELEMENTARY SCHOOL

5th St. N & 6th Ave. N



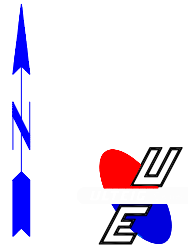
CITY OF GRAND FORKS ST. MICHAEL'S ELEMENTARY SCHOOL 5th St. N & 6th Ave. N GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 4/5/2000	
APPROVED BY:		



STMKS5-6.DWG

PROPOSED SIGNAGE & MARKINGS

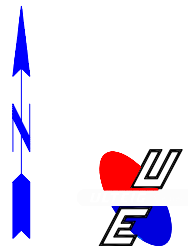
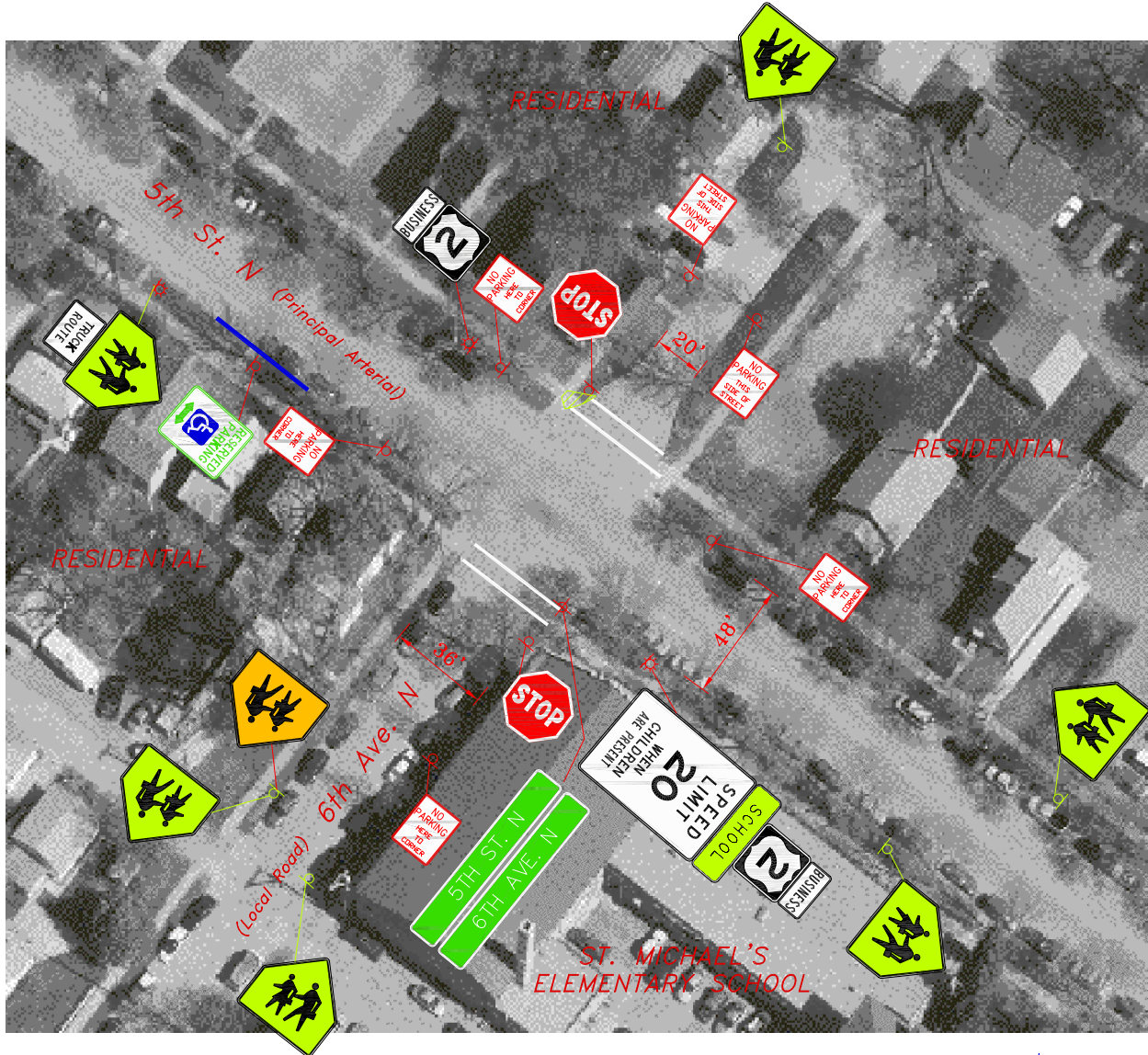
5th St. N & 6th Ave. N



STMKS5-6.DWG

NEW INTERSECTION LAYOUT

5th St. N & 6th Ave. N



STMKS5-6.DWG

St. Michael's – 5th Street North and 6th Avenue North

Observations:

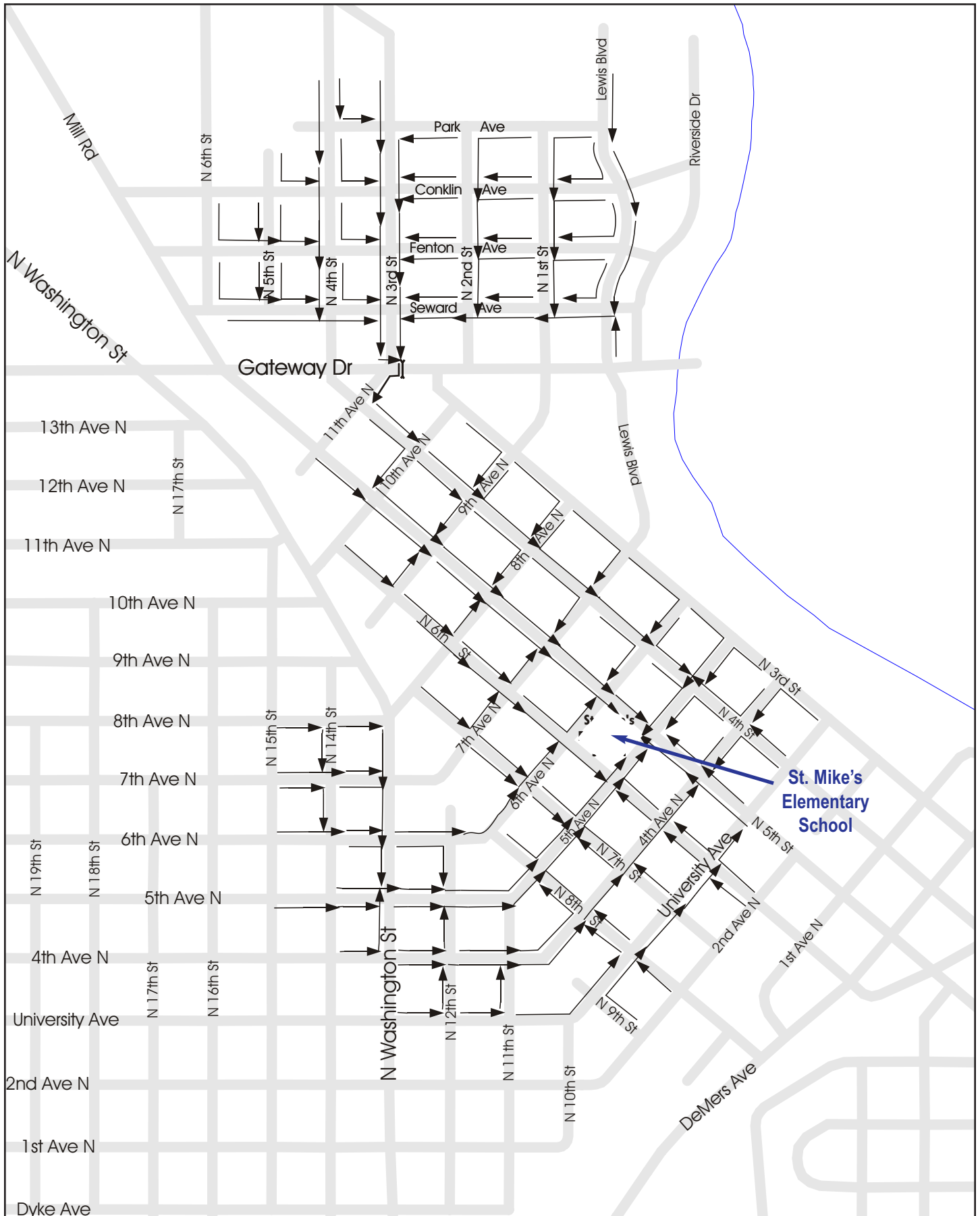
1. Crosswalk markings are faded.
2. No pedestrian ramp on north side of 5th Street North, west of 6th Avenue North.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing 6th Avenue North on the north and south sides of 5th Street North as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Provide an ADA pedestrian ramp on the north side of 5th Street North, west of 6th Avenue North.
3. Remove SCHOOL CROSSING signs on 5th Street North for 6th Avenue North intersection.
4. Place SCHOOL ADVANCE signs on 6th Avenue North, northeast and southwest of 5th Street North.
5. Remove standard yellow SCHOOL ADVANCE signs on all four approaches to the 6th Avenue North / 5th Street North intersection and replace with fluorescent yellow-green SCHOOL ADVANCE signs.

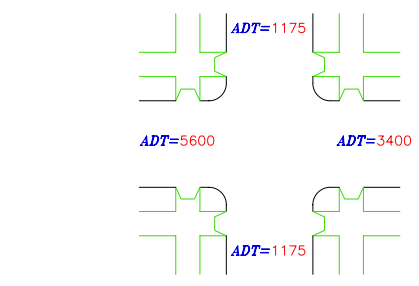
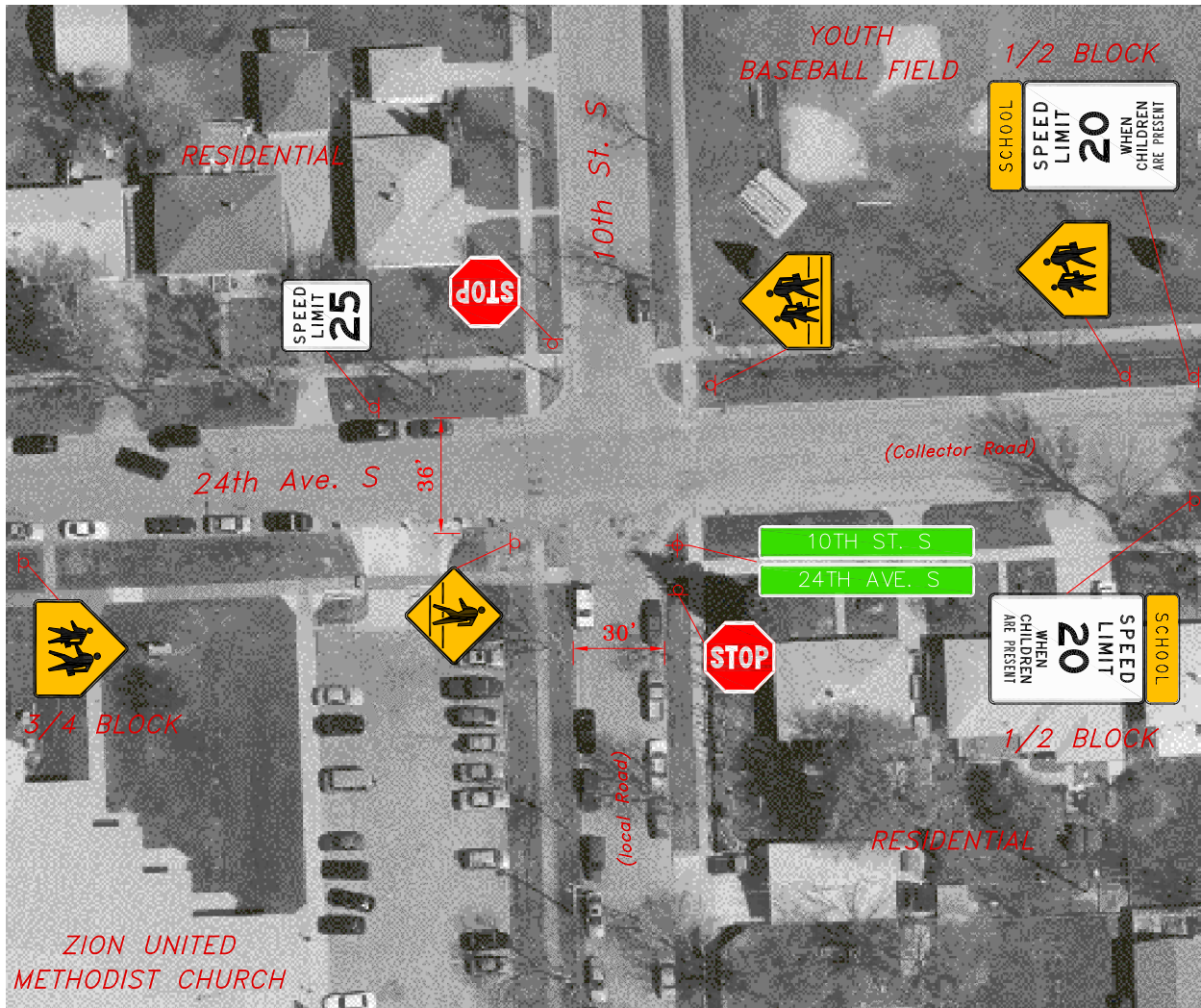
St. Michaels' Elementary School

Safe Route to School



VIKING ELEMENTARY SCHOOL

10th St. S & 24th Ave. S



CITY OF GRAND FORKS VIKING ELEMENTARY SCHOOL 10th St. S & 24th Ave. S GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 4/5/2000	
APPROVED BY:		



VKG10-24.DWG

PROPOSED SIGNAGE & MARKINGS
10th St. S & 24th Ave. S

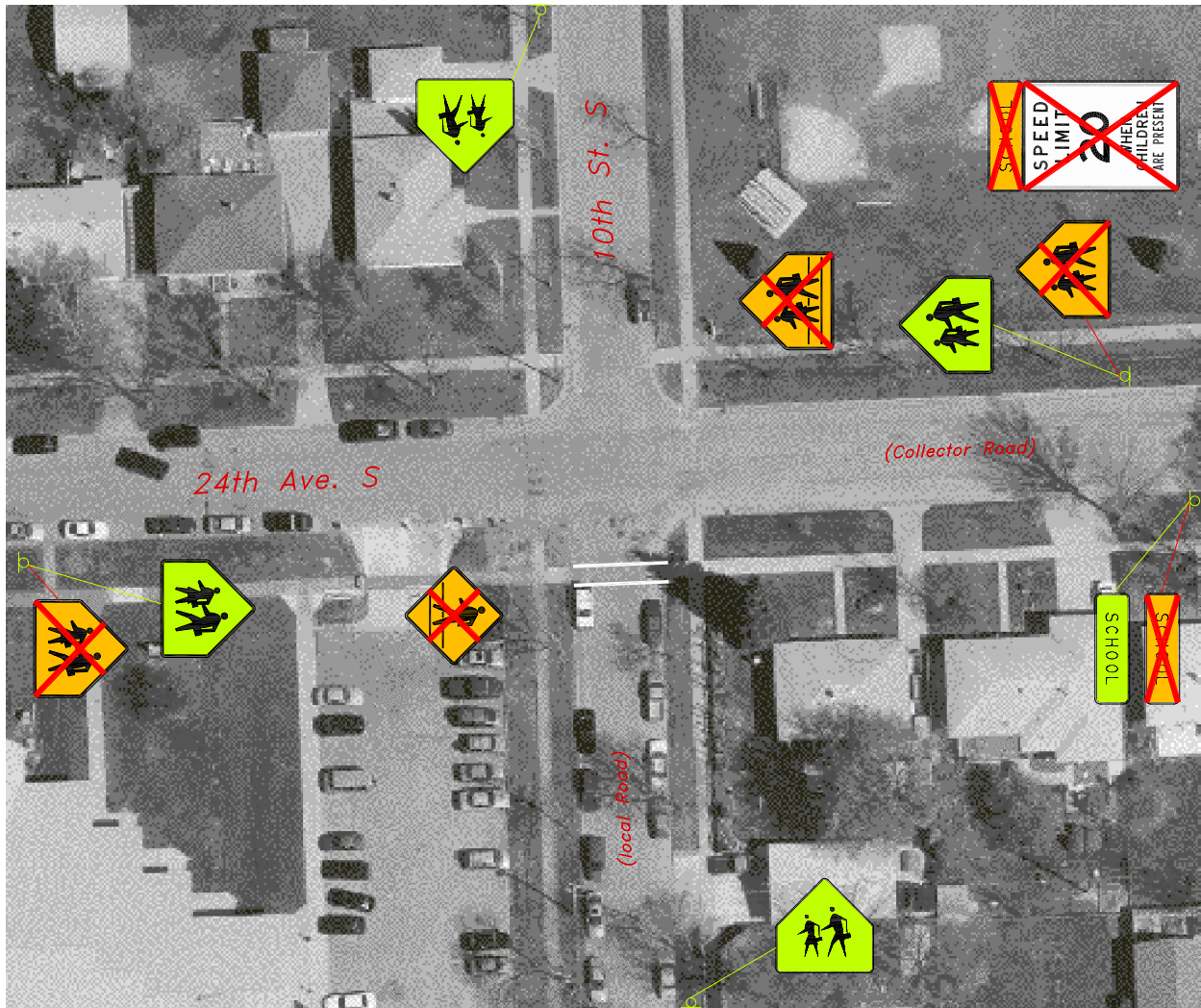
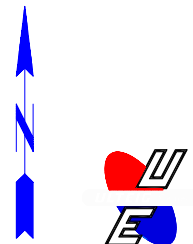
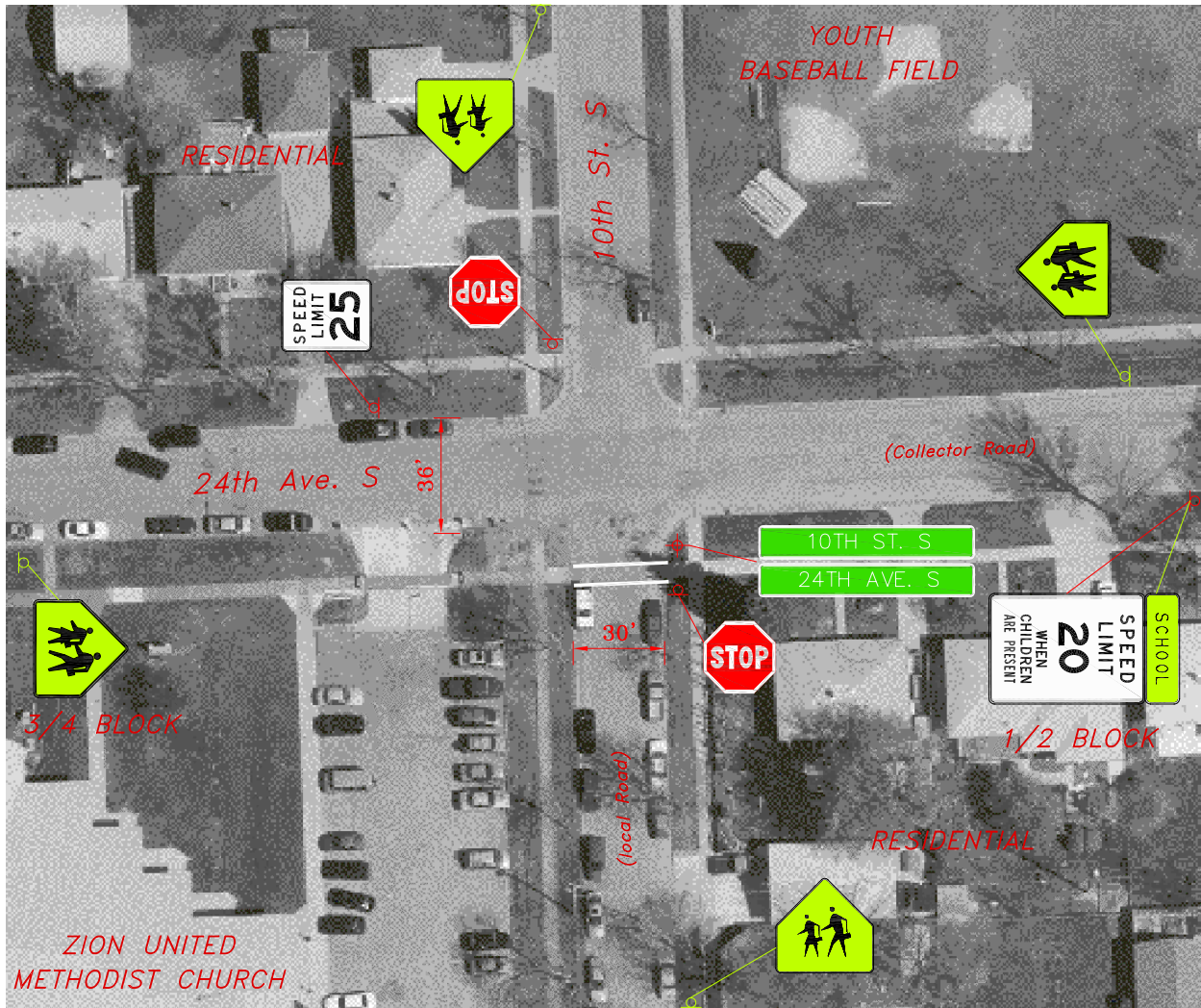


FIGURE - 120-B

NEW INTERSECTION LAYOUT

10th St. S & 24th Ave. S



VKG10-24.DWG

Viking – 10th Street South and 24th Avenue South

Observations:

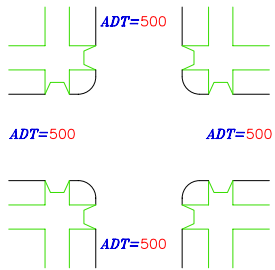
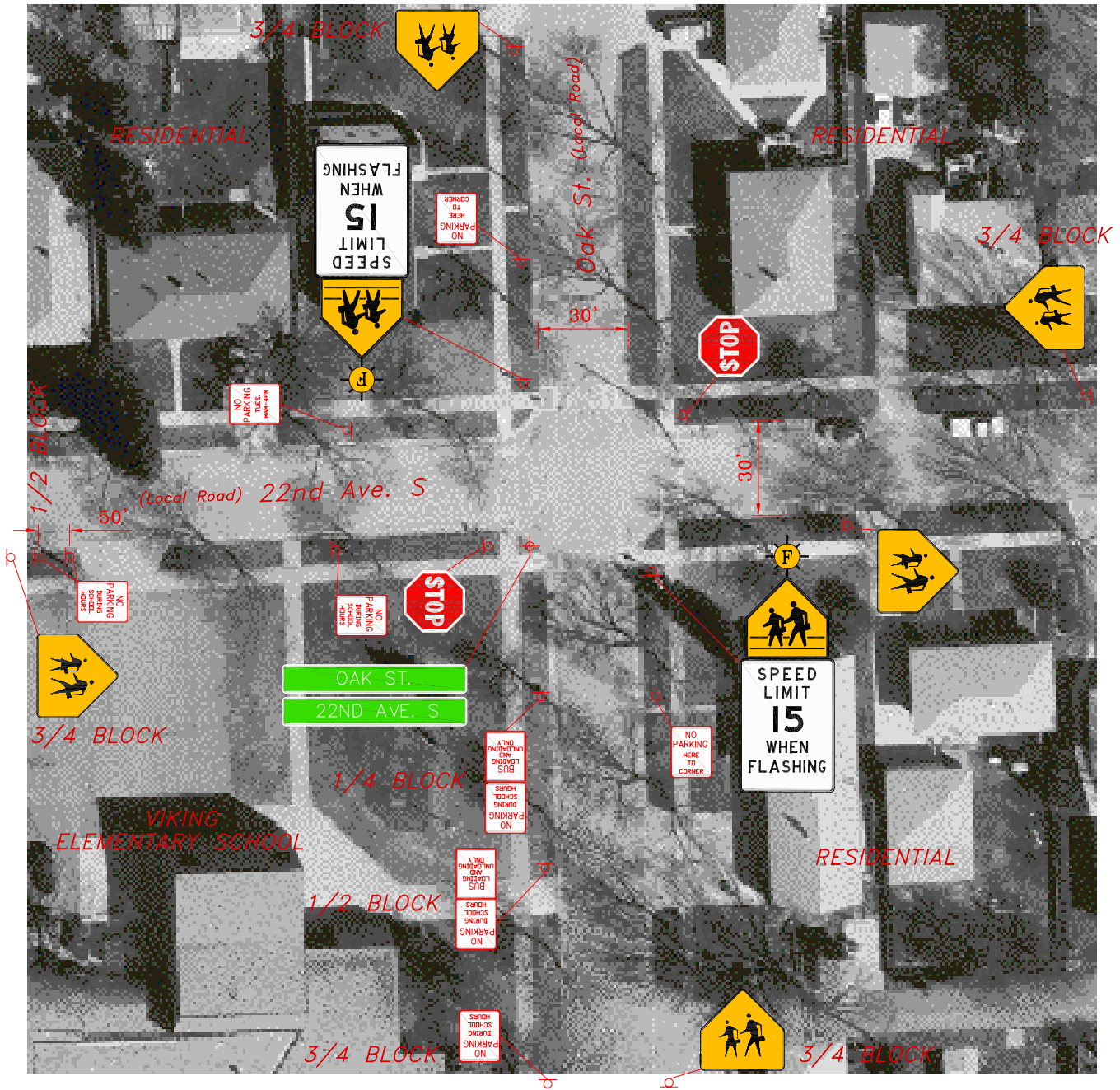
1. Crosswalk markings are faded.

Recommendations:

1. Place Type 1 standard crosswalk markings on 10th Street South, south of 24th Avenue South as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove SCHOOL ADVANCE signs, SCHOOL CROSSING signs, and PEDESTRIAN CROSSING sign on 24th Avenue South.
3. Remove SCHOOL and SPEED LIMIT signs on north side of 24th Avenue South, east of 10th Street South.
4. Remove standard yellow SCHOOL sign above speed limit sign on south side of 24th Avenue South, east of 10th Street South, and replace with fluorescent yellow-green SCHOOL sign.
5. Place fluorescent yellow-green SCHOOL ADVANCE sign on 10th Street South, south of 24th Avenue South and north of 24th Avenue South.

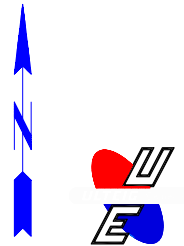
VIKING ELEMENTARY SCHOOL

22nd Ave. S & Oak St.



CITY OF GRAND FORKS VIKING ELEMENTARY SCHOOL 22nd Ave. S & Oak St. GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	<small>VKG22-0.DWG</small>
CHECKED BY: SAG	DATE: 4/5/2000		
APPROVED BY:			

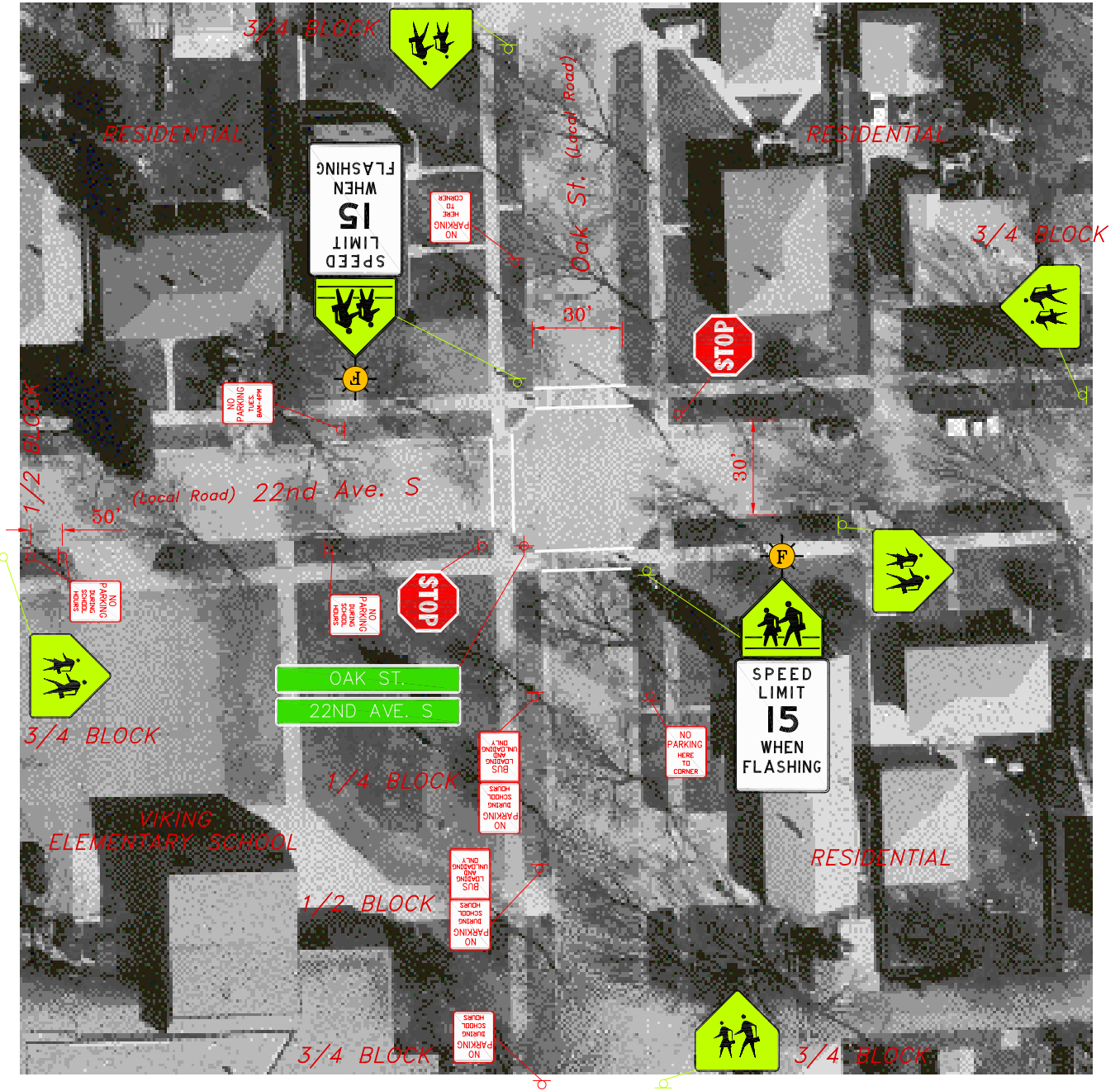
PROPOSED SIGNAGE & MARKINGS
22nd Ave. S & Oak St.



VKG22-0.DWG

NEW INTERSECTION LAYOUT

22nd Ave. S & Oak St.



VKG22-0.DWG

Viking – 22nd Avenue South and Oak Street

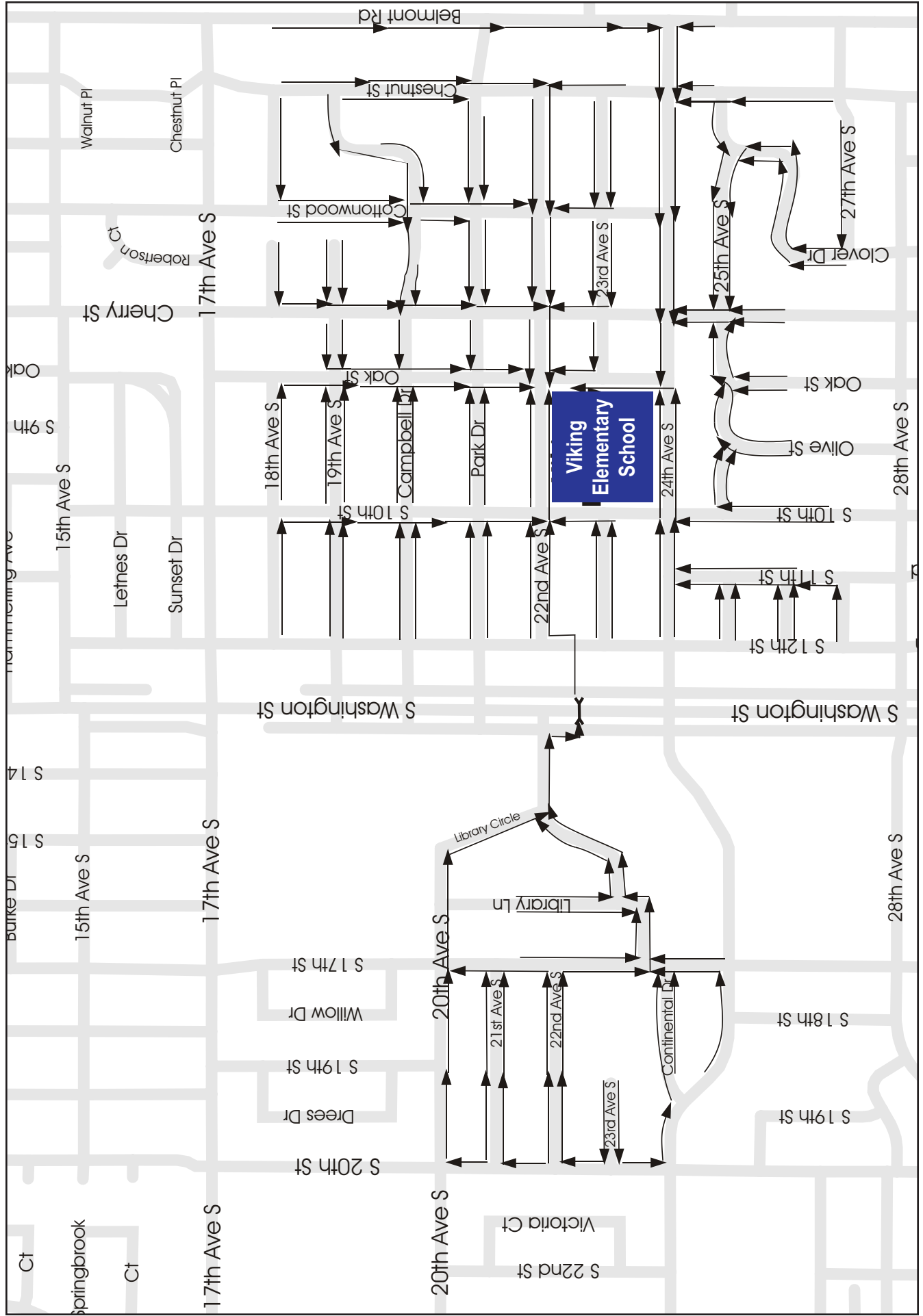
Observations:

1. Crosswalk markings are faded.

Recommendations:

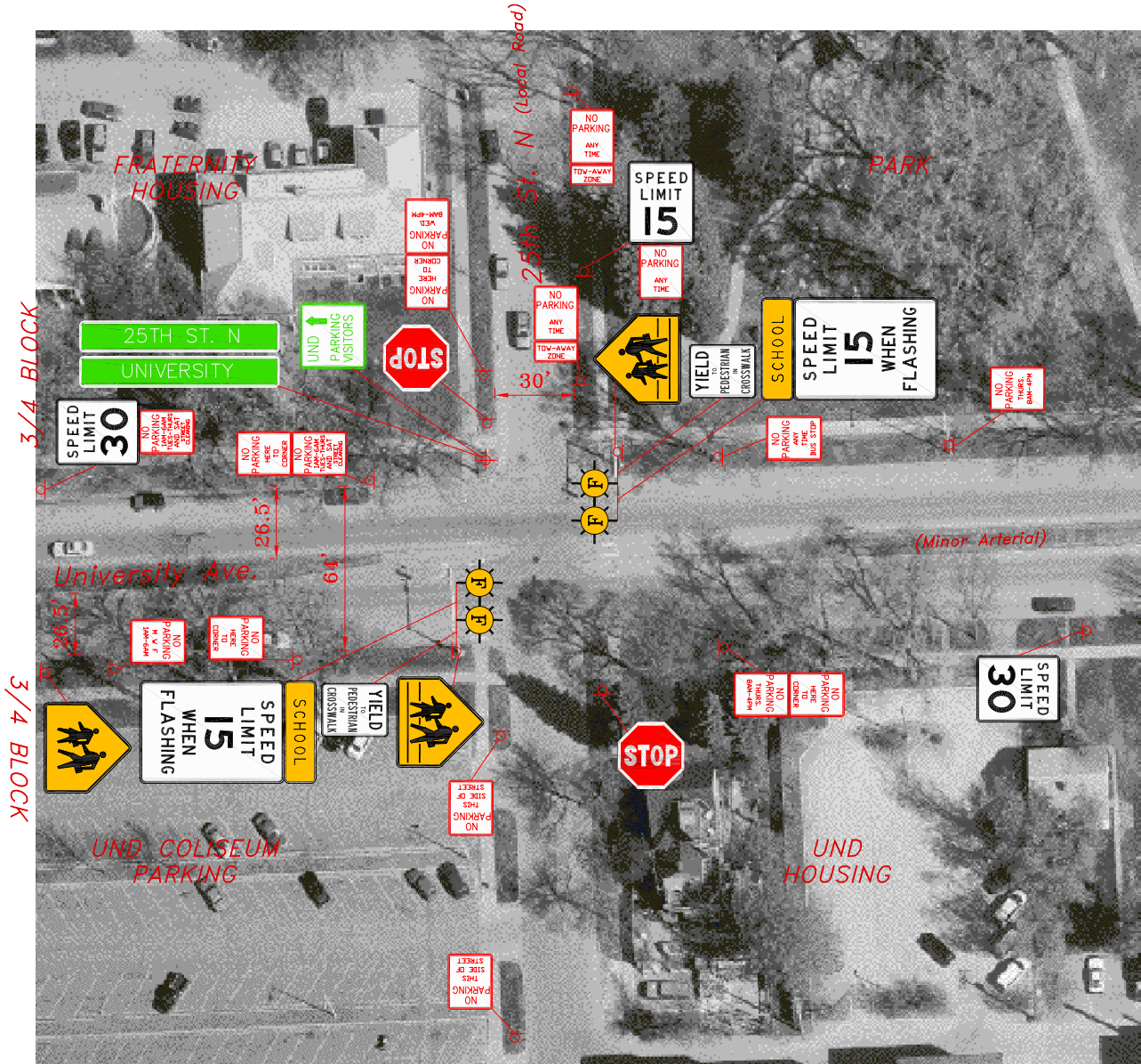
1. Place Type 1 standard crosswalk markings crossing Oak Street north and south of 22nd Avenue South and crossing 22nd Avenue South, west of Oak Street as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove all standard yellow SCHOOL ADVANCE and SCHOOL CROSSING signs and replace with fluorescent yellow-green SCHOOL ADVANCE and SCHOOL CROSSING signs.

Viking Elementary School Safe Route to School



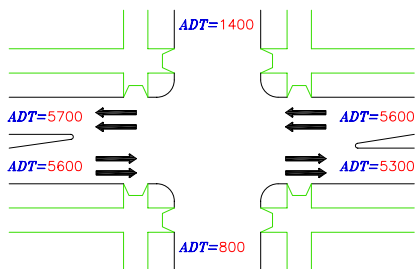
WEST ELEMENTARY SCHOOL


University Avenue & 25th St. N



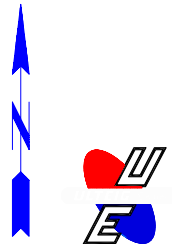
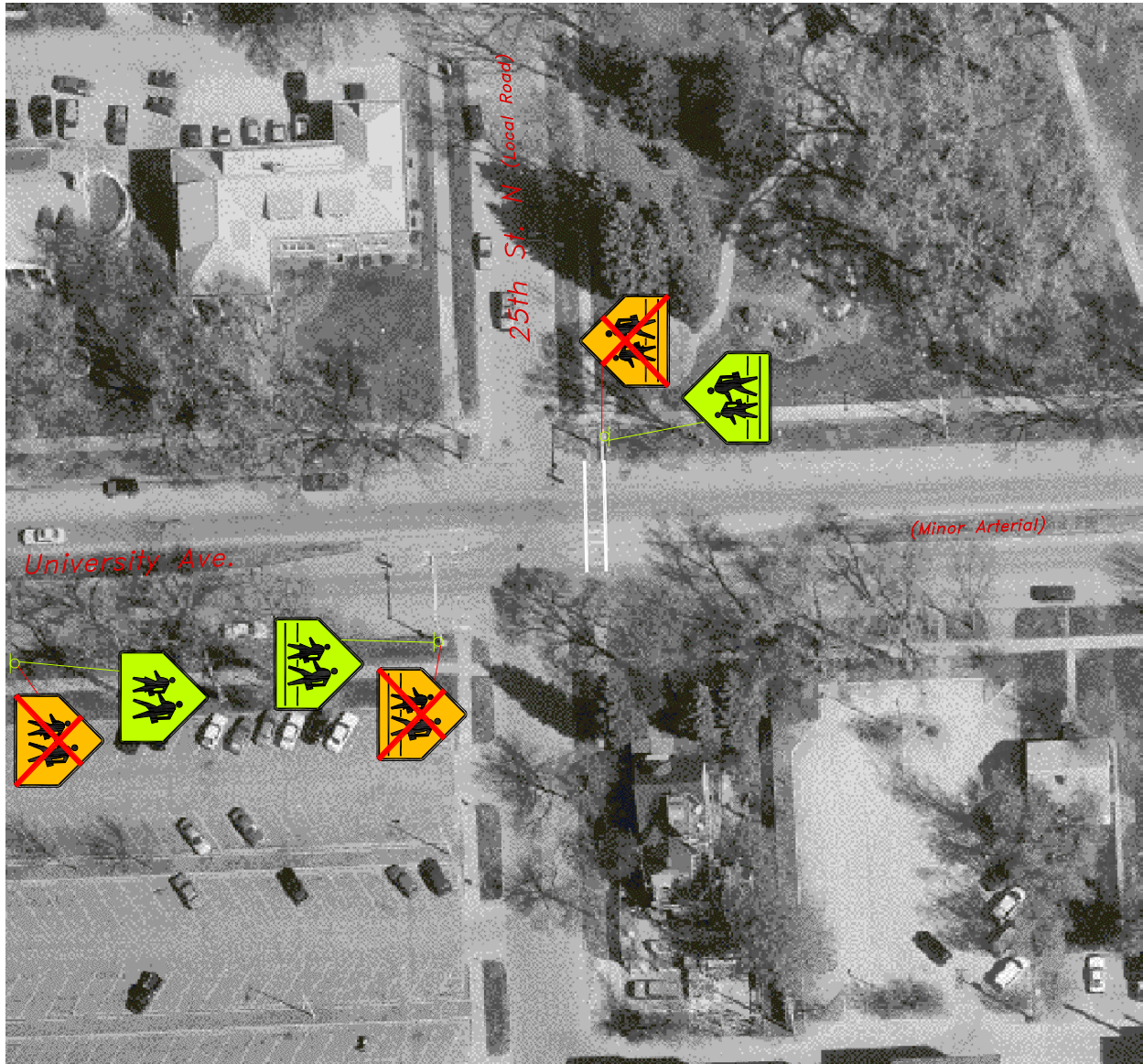
3/4 BLOCK

3/4 BLOCK



CITY OF GRAND FORKS WEST ELEMENTARY SCHOOL University & 25th St. N GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	WESTU-25.DWG
CHECKED BY: SAG	DATE: 4/5/2000		
APPROVED BY:			

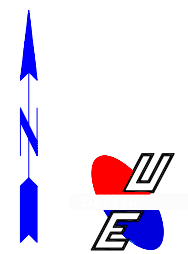
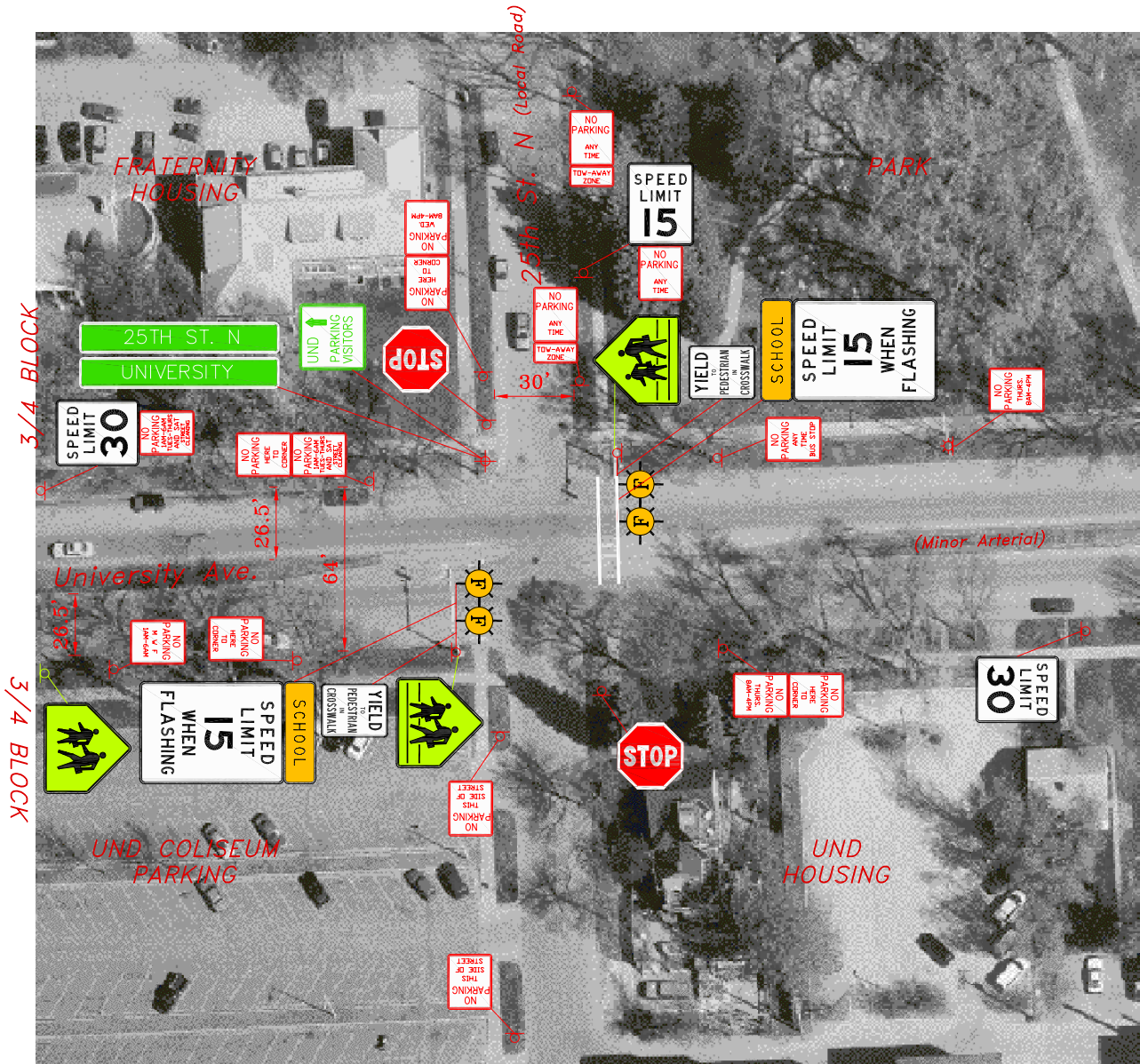
PROPOSED SIGNAGE & MARKINGS
University Avenue & 25th St. N



WESTU-25.DWG

NEW INTERSECTION LAYOUT

University Avenue & 25th St. N



WESTU-25.DWG

West – University and 25th Street North

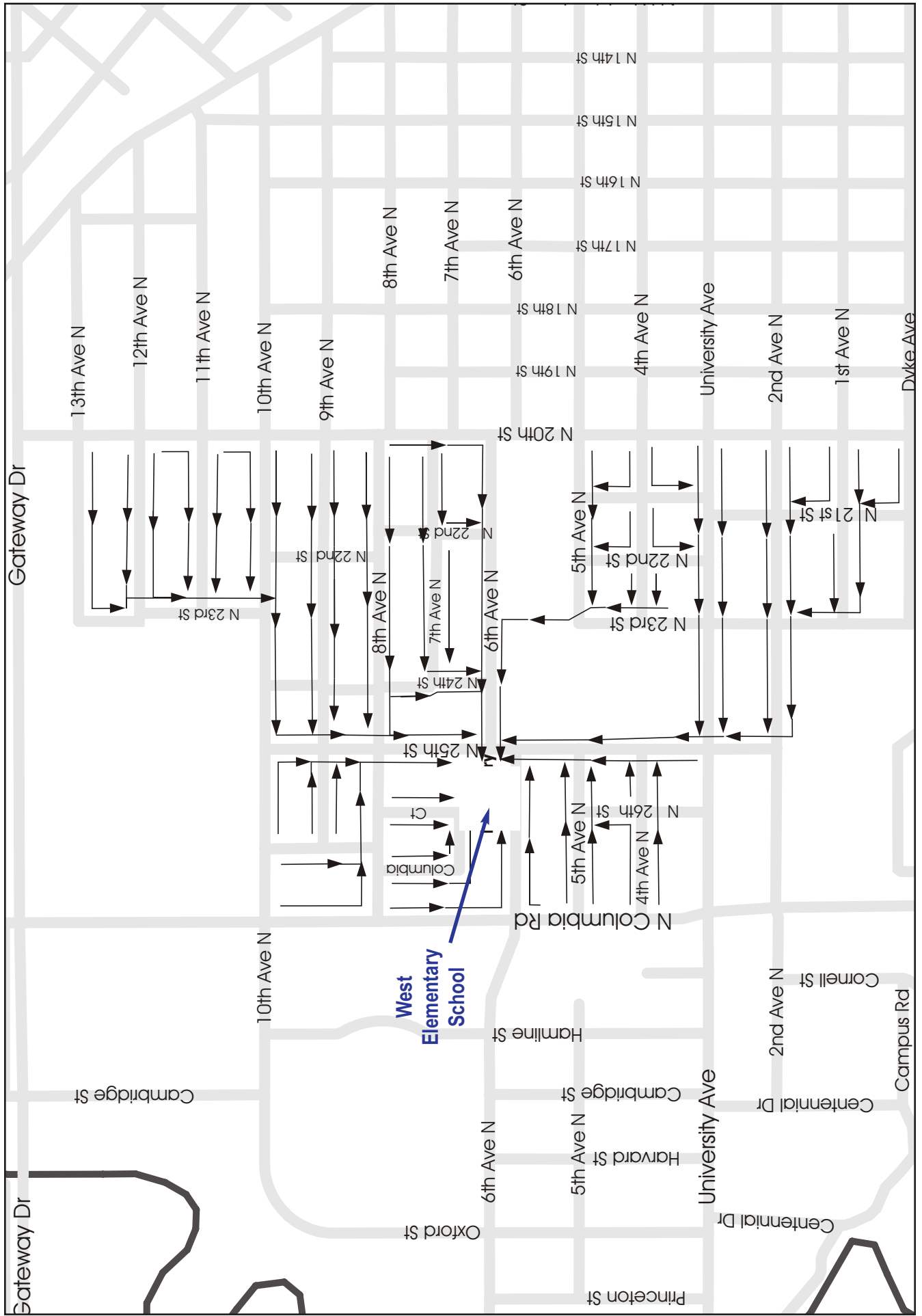
Observations:

1. Crosswalk markings are faded.

Recommendations:

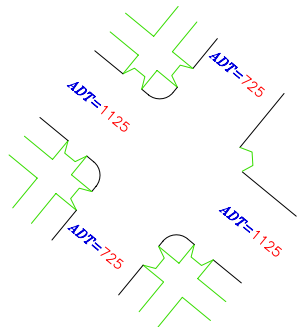
1. Place Type 1 standard crosswalk markings on University Avenue, east of 25th Street North as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove standard yellow SCHOOL ADVANCE and SCHOOL CROSSING signs and replace with fluorescent yellow-green SCHOOL ADVANCE and SCHOOL CROSSING signs. Crosswalk signing on University, west to 25th Street North, recommended to remain for use by University of North Dakota.

West Elementary School Safe Route to School



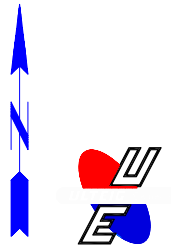
WILDER ELEMENTARY SCHOOL

4th St. N & 10th Ave. N



CITY OF GRAND FORKS WILDER ELEMENTARY SCHOOL 4th St. N & 10th Ave. N GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027	WLDRA-10.DWG

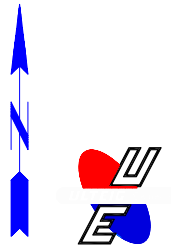
PROPOSED SIGNAGE & MARKINGS
4th St. N & 10th Ave. N



WLD4-10.DWG

NEW INTERSECTION LAYOUT

4th St. N & 10th Ave. N



WLDRA-10.DWG

Wilder – 4th Street North and 10th Avenue North

Observations:

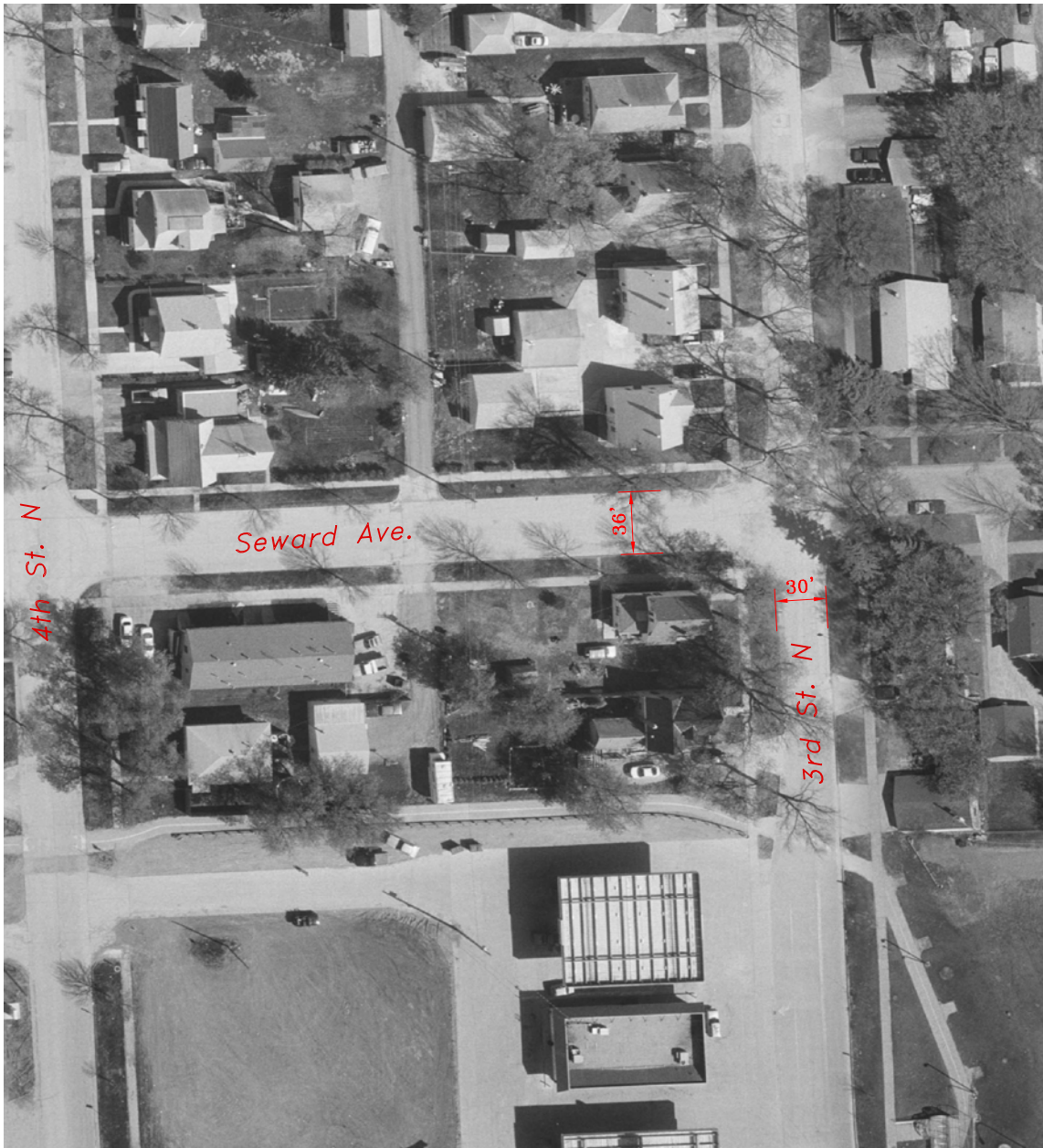
1. Crosswalk markings are faded.

Recommendations:

1. Place Type 1 standard crosswalk markings crossing 10th Avenue North, north and south of 4th Street North, and crossing 4th Street North, west of 10th Avenue North as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove standard yellow SCHOOL ADVANCE signs on 10th Avenue North and replace with fluorescent yellow-green SCHOOL ADVANCE signs.

WILDER ELEMENTARY SCHOOL

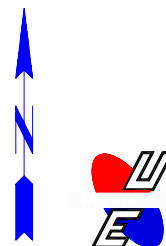
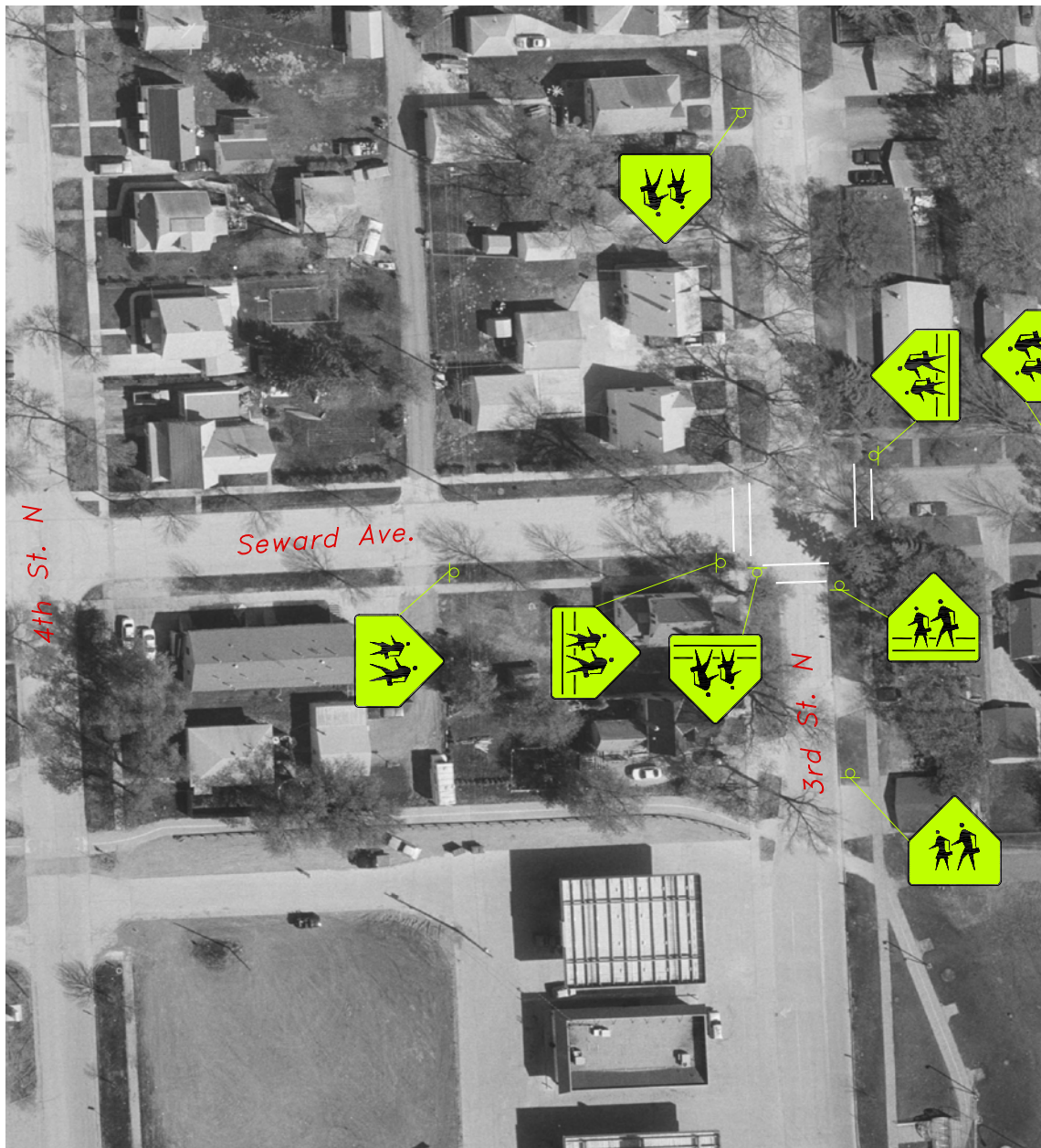
Seward Ave. & 3rd St. N



CITY OF GRAND FORKS WILDER ELEMENTARY SCHOOL Seward Ave. & 3rd St. N GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	WLDRG-3.DWG
CHECKED BY: SAG	DATE: 7/6/2000		
APPROVED BY:			

PROPOSED SIGNAGE & MARKINGS

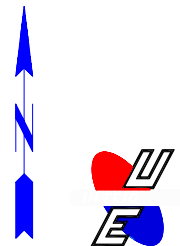
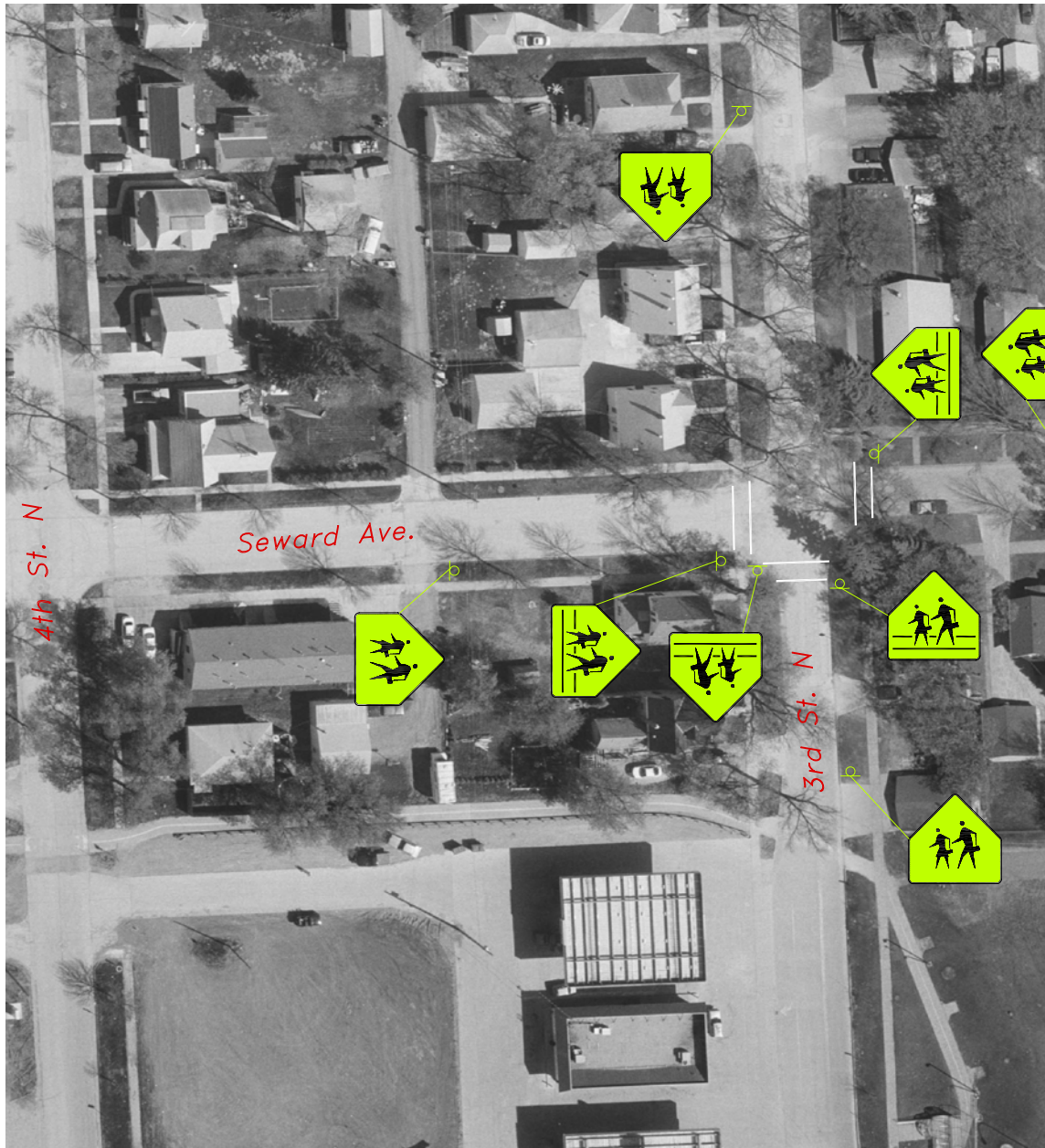
Seward Ave. & 3rd St. N



WLDRG-3.DWG

NEW INTERSECTION LAYOUT

Seward Ave. & 3rd St. N



WLDRG-3.DWG

Wilder – Seward Avenue and 3rd Street North

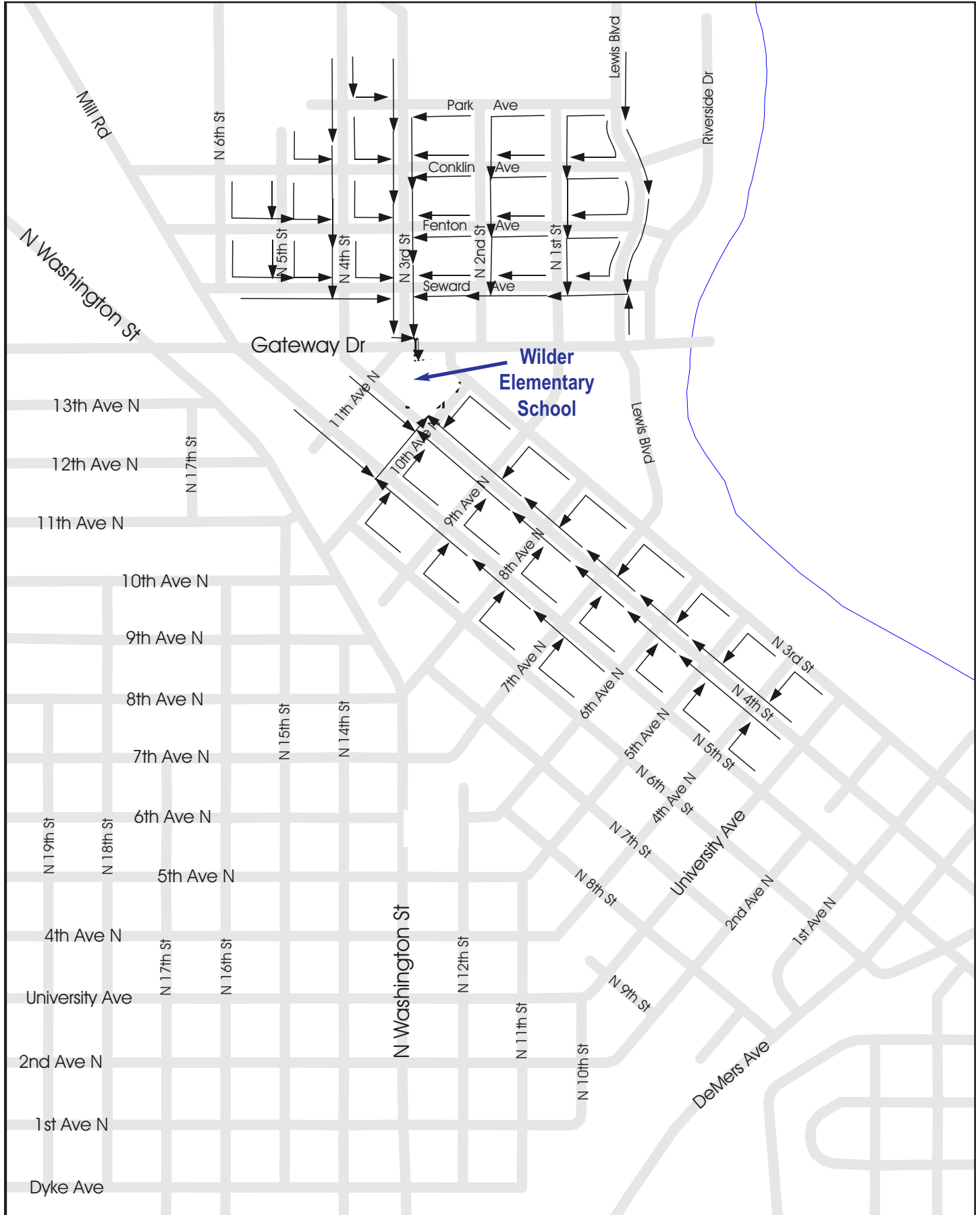
Discussion:

1. Staff originally requested that the pedestrian underpass at Gateway Drive be reviewed in the context of this study. Based on our review, it was determined that the underpass served as an important crossing of Gateway Drive for students, and that no specific recommendations were necessary for the underpass area.
2. Safe Route to School Maps reviewed for this area indicated that students should approach the underpass from the north on the west side of North 3rd Street. However, a review of site conditions indicated it was desirable for students to approach the underpass from the east side of 3rd Street instead of the west side. Therefore, this report provides signing and pavement marking recommendations for the intersection of Seward Avenue and 3rd Street North in order to provide for a crossing to the east side of 3rd Street.

Recommendations:

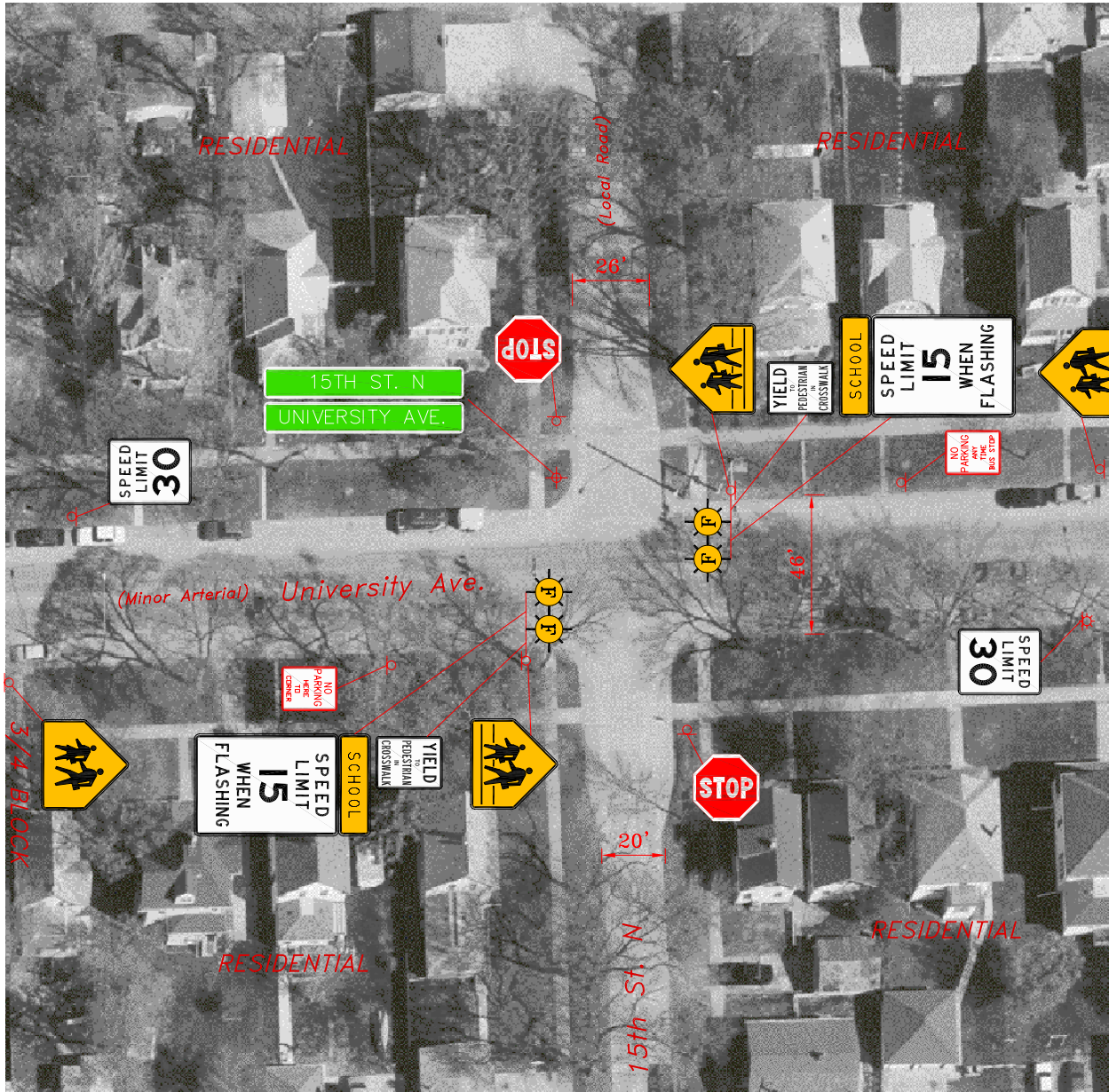
1. Recommend crossing students across 3rd Street North at Seward Avenue rather than at Gateway Drive.
2. Place Type 1, standard crosswalk markings across 3rd Street North, south of Seward Avenue; and crossing Seward Avenue on the east and west sides of 3rd Street North.
3. Place SCHOOL ADVANCE signs on 3rd Street North, north and south of Seward Avenue and on Seward Avenue, east and west of 3rd Street North.
4. Place SCHOOL CROSSING signs on the east and west sides of 3rd Street North, south of Seward Avenue; and on Seward Avenue, east and west of 3rd Street North.

Wilder Elementary School Safe Route to School



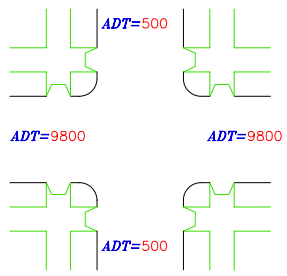
WINSHIP ELEMENTARY SCHOOL

University Ave. & 15th St. N



3/4 BLOCK

1 BLOCK

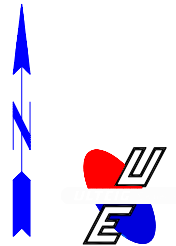


CITY OF GRAND FORKS WINSHIP ELEMENTARY SCHOOL University Ave. & 15th St. N GRAND FORKS, NORTH DAKOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027



WNSHPU-15.DWG

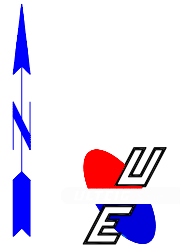
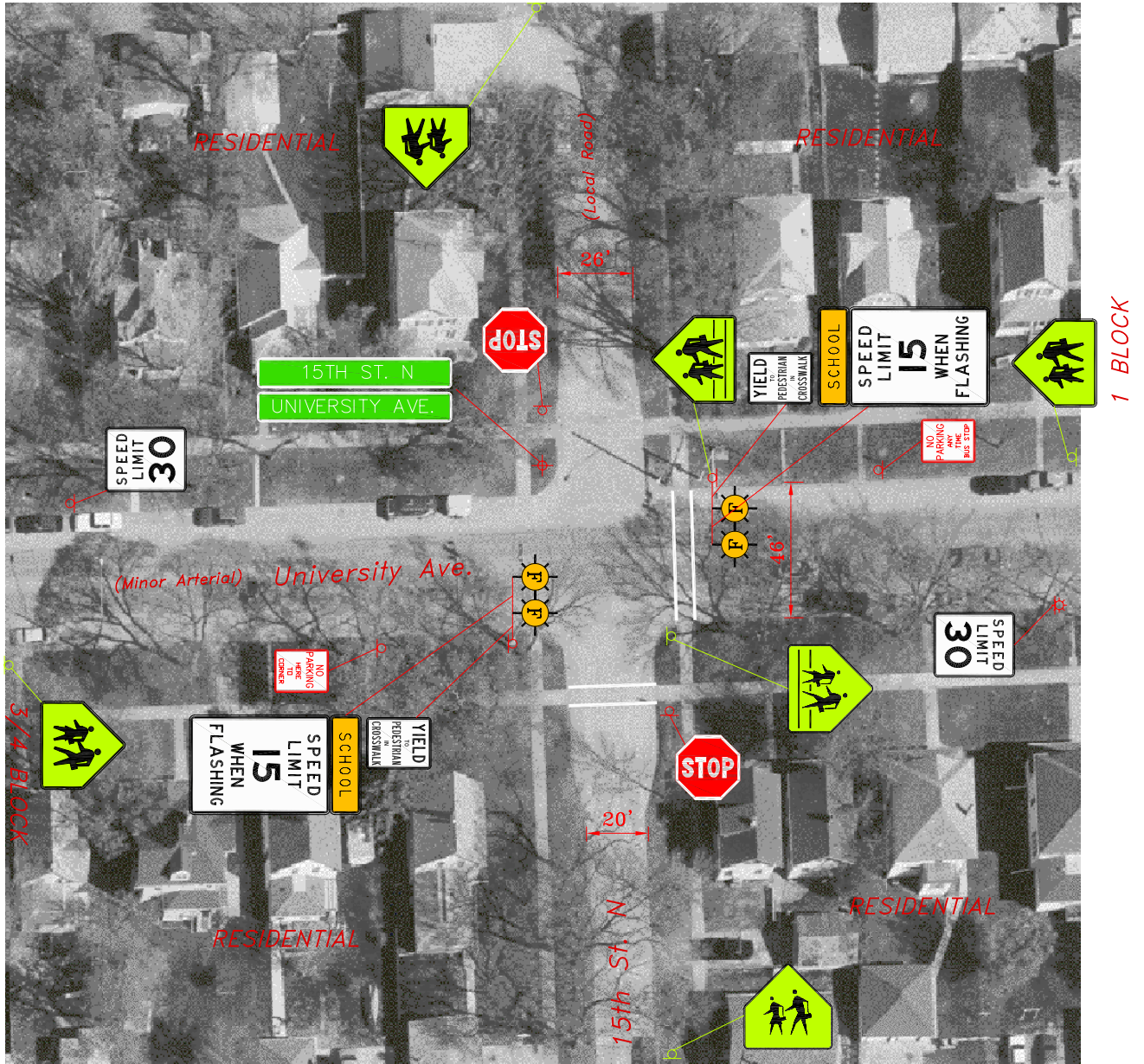
PROPOSED SIGNAGE & MARKINGS
University Ave. & 15th St. N



WNSHPU-15.DWG

NEW INTERSECTION LAYOUT

University Ave. & 15th St. N



WNHPU-15.DWG

Winship – University and 15th Street

Observations:

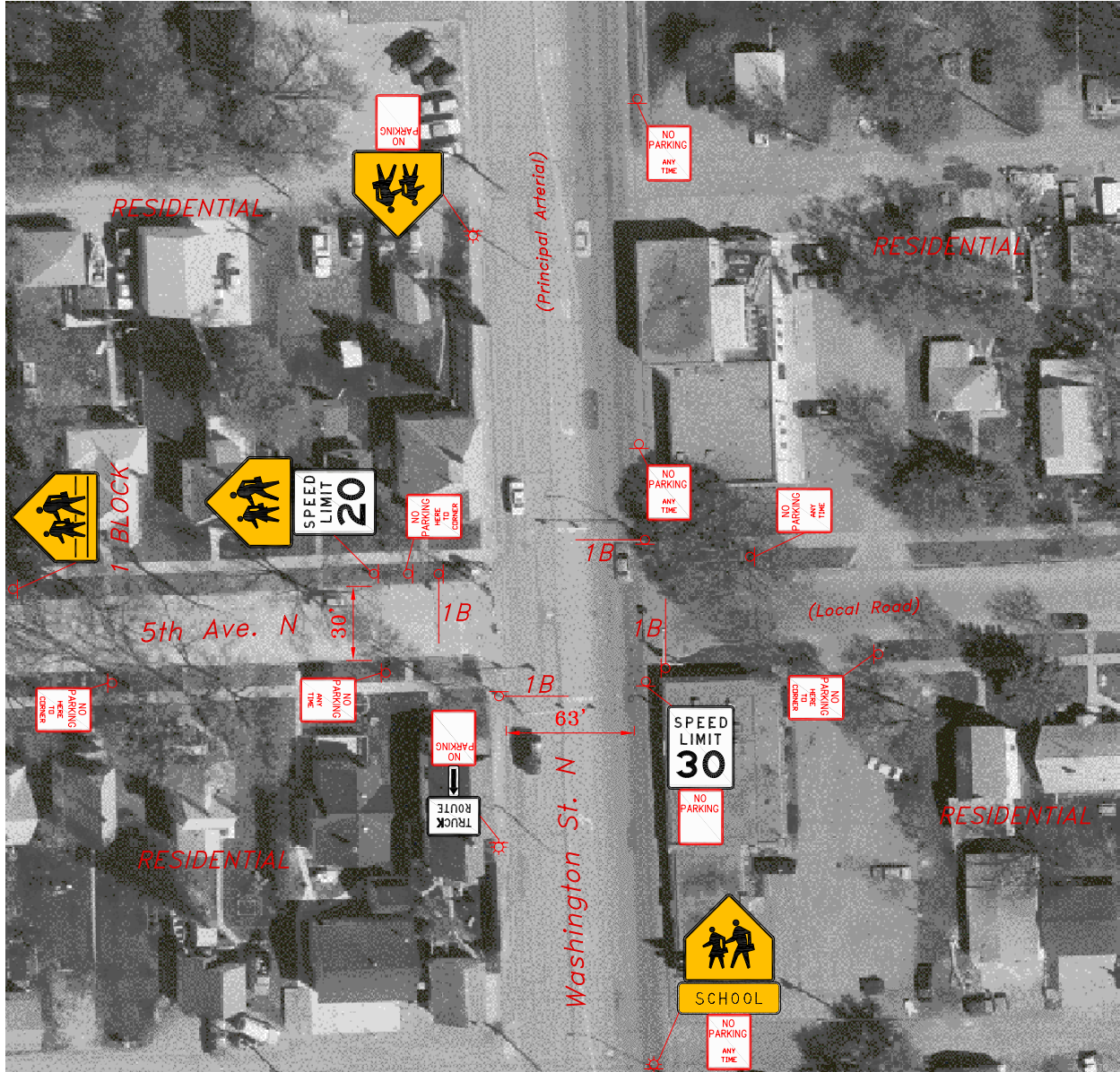
1. Crosswalk markings are faded.

Recommendations:

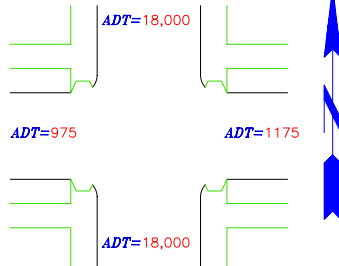
1. Place Type 1 standard crosswalk markings on University Avenue, east of 15th Street North, and on 15th Street North, south of University Avenue, as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Remove SCHOOL ADVANCE sign on University Avenue, west of 15th Street North, and replace with a fluorescent yellow-green SCHOOL CROSSING sign on the east side of 15th Street North.
3. Remove remaining standard yellow SCHOOL ADVANCE and SCHOOL CROSSING signs on University Avenue and replace with fluorescent yellow-green SCHOOL ADVANCE and SCHOOL CROSSING signs.
4. Place SCHOOL ADVANCE signs on 15th Street North on the south and north sides of University Avenue.

WINSHIP ELEMENTARY SCHOOL

Washington St. N & 5th Ave. N

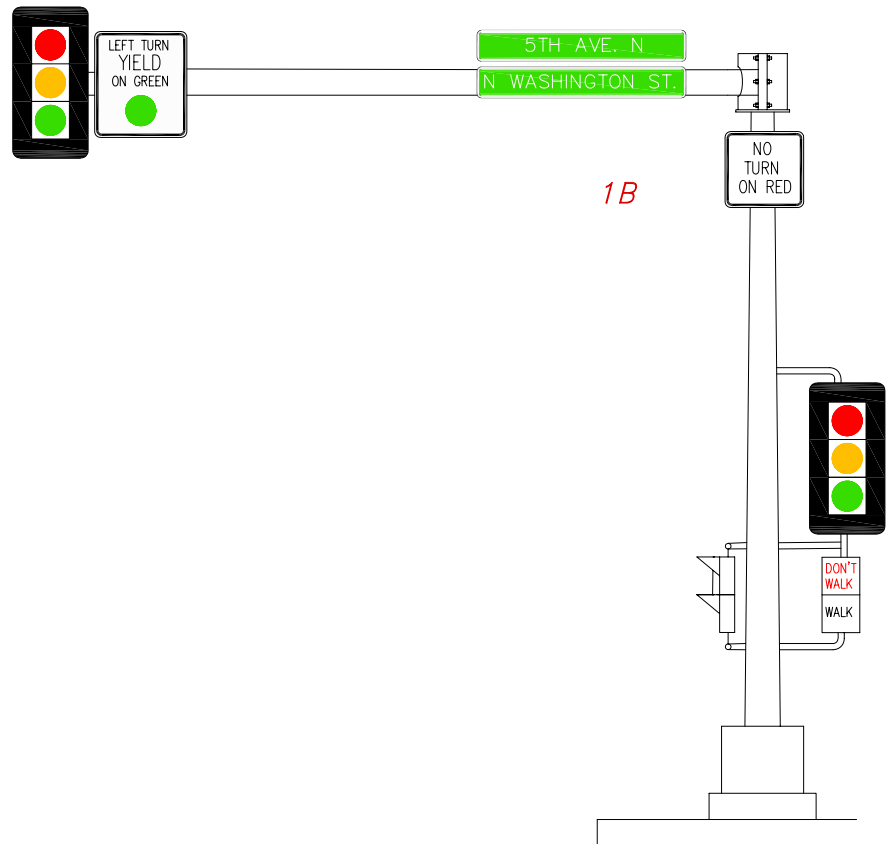



SEE NEXT SHEET FOR
SIGNAL HEAD LAYOUT 1B



CITY OF GRAND FORKS WINSHIP ELEMENTARY SCHOOL Washington St. N & 5th Ave. N GRAND FORKS, NORTH DAKOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	WNSHPW-5.DWG
CHECKED BY: SAG	DATE: 4/5/2000		
APPROVED BY:			

SIGNAL HEAD LEGEND

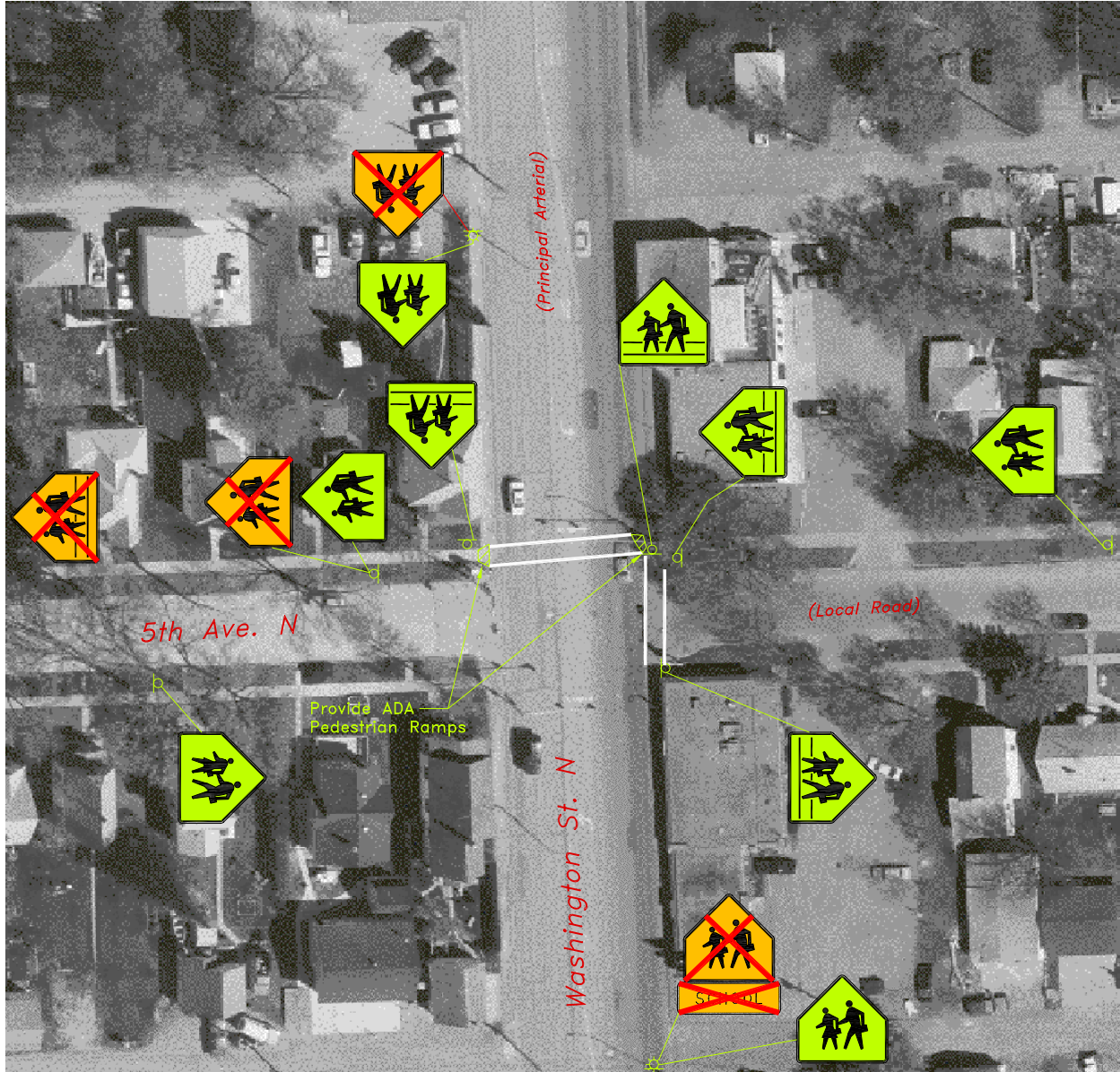


CITY OF GRAND FORKS SIGNAL HEAD LEGEND		
GRAND FORKS, NORTH DAKOTA		
<small>ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS</small>		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 3/29/2000	
APPROVED BY:		

SIGNALS-1B.DWG

PROPOSED SIGNAGE & MARKINGS

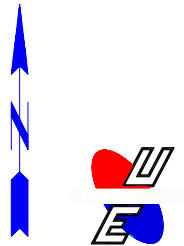
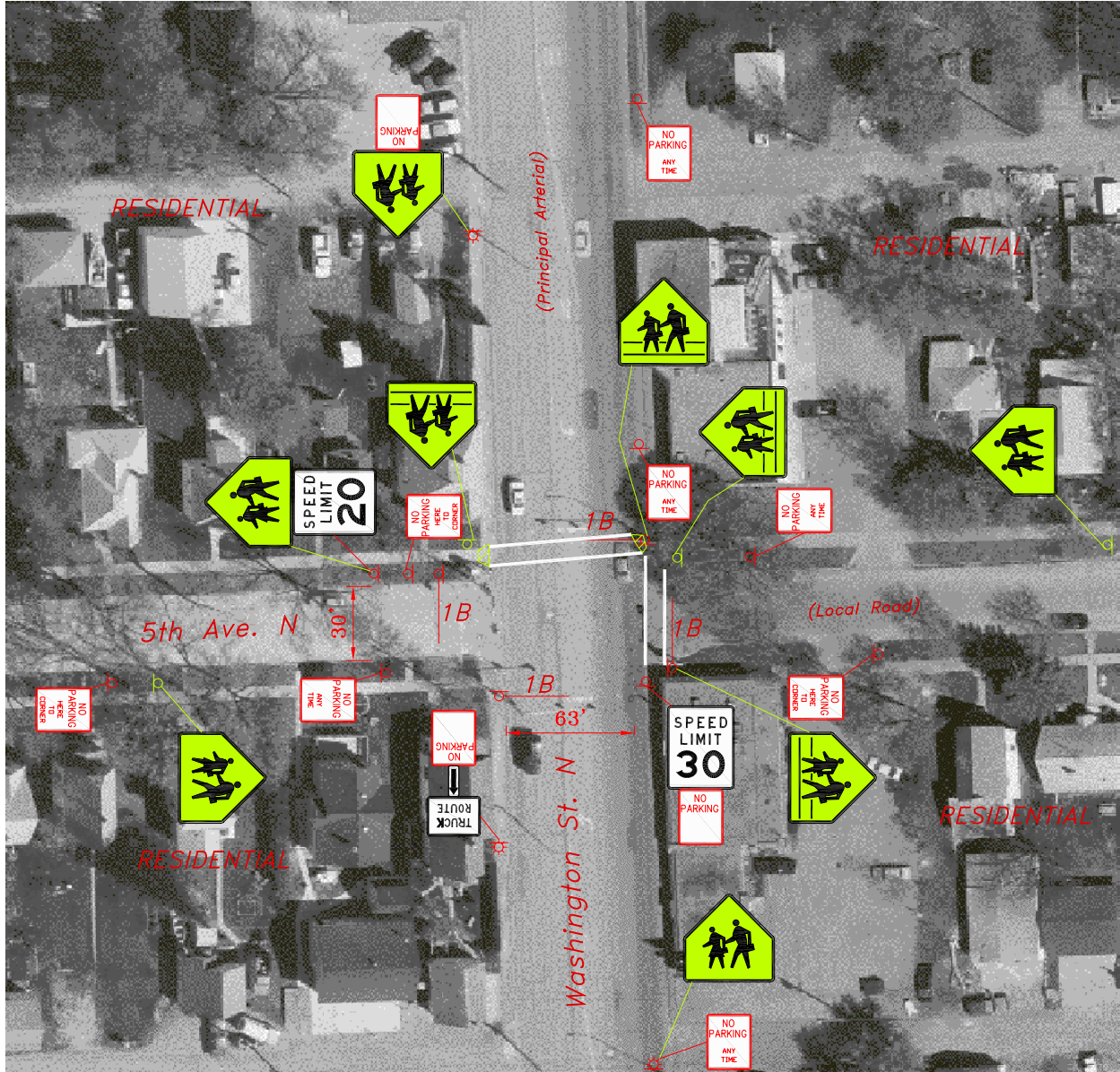
Washington St. N & 5th Ave. N



WNSHPW-5.DWG

NEW INTERSECTION LAYOUT

Washington St. N & 5th Ave. N



WNSHPW-5.DWG

Winship – Washington Street and 5th Avenue North

Observations:

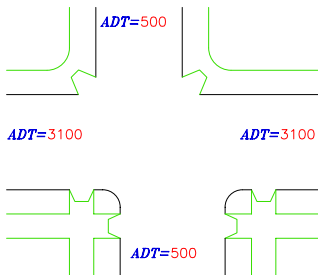
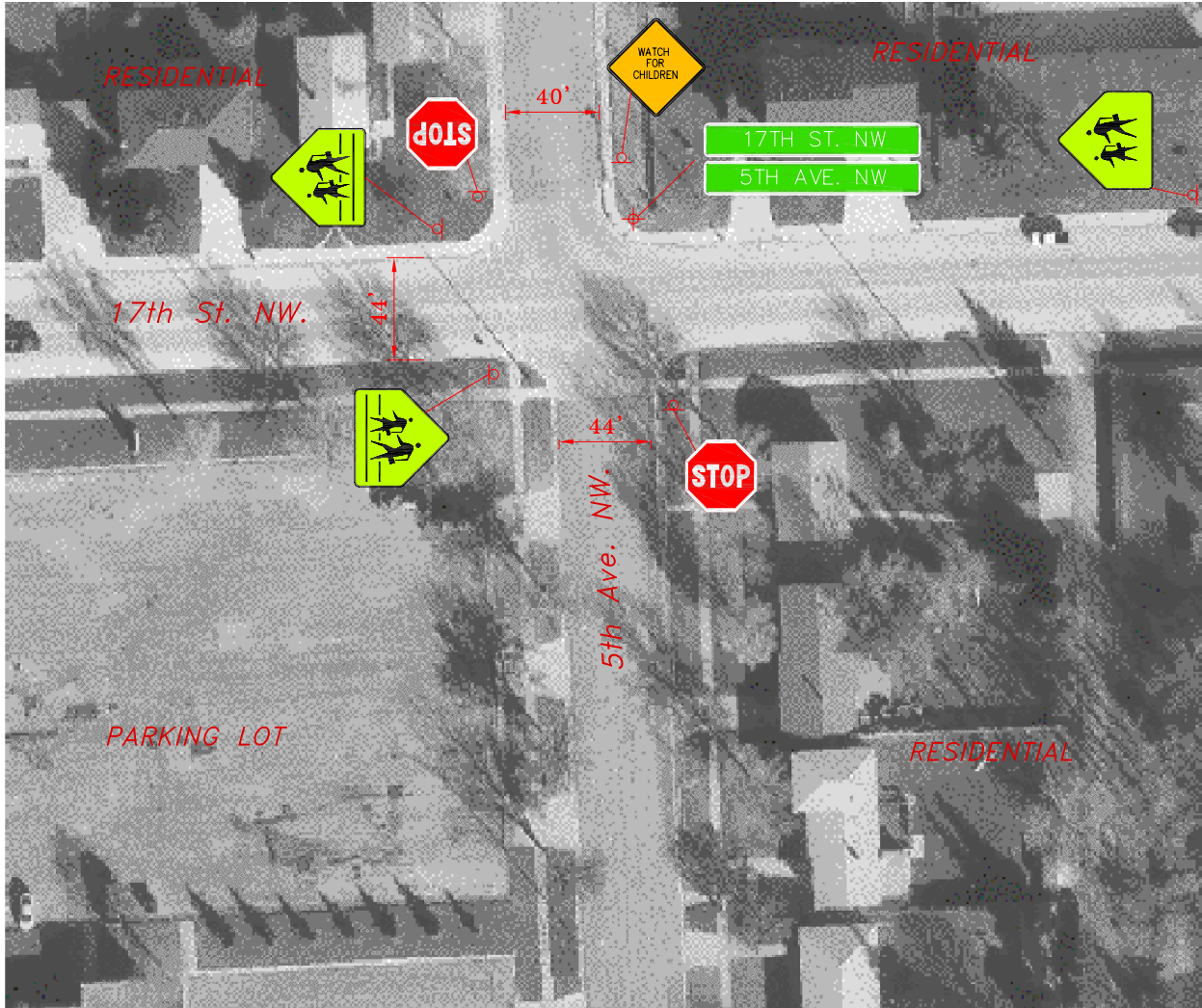
1. Crosswalk markings are faded.
2. Pedestrian ramps do not exist crossing Washington Street at the northeast, northwest, and southwest corners.
3. SCHOOL ADVANCE sign on west side of Washington Street, north of 5th Avenue North, is in poor condition.


Recommendations:

1. Place Type 1 standard crosswalk markings crossing Washington Street, north of 5th Avenue North, and crossing 5th Avenue North, east of Washington Street as per the Safe Route to School maps provided by the Grand Forks/East Grand Forks Metropolitan Planning Organization.
2. Provide ADA pedestrian ramps on east and west sides of Washington Street, north of 5th Avenue North.
3. Remove SCHOOL ADVANCE signs on Washington Street, north and south of 5th Avenue North, and replace with fluorescent yellow-green SCHOOL ADVANCE signs.
4. Remove SCHOOL ADVANCE and SCHOOL CROSSING signs on north side of 5th Avenue North, west of Washington Street.
5. Place fluorescent yellow-green SCHOOL ADVANCE signs on 5th Avenue North on east and west sides of Washington Street.
6. Place fluorescent yellow-green SCHOOL CROSSING signs on north and south sides of 5th Avenue North, east of Washington Street, and on Washington Street, north of 5th Avenue North.

NEW HEIGHTS ELEMENTARY SCHOOL

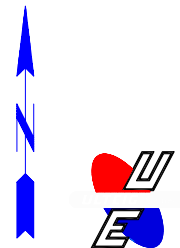
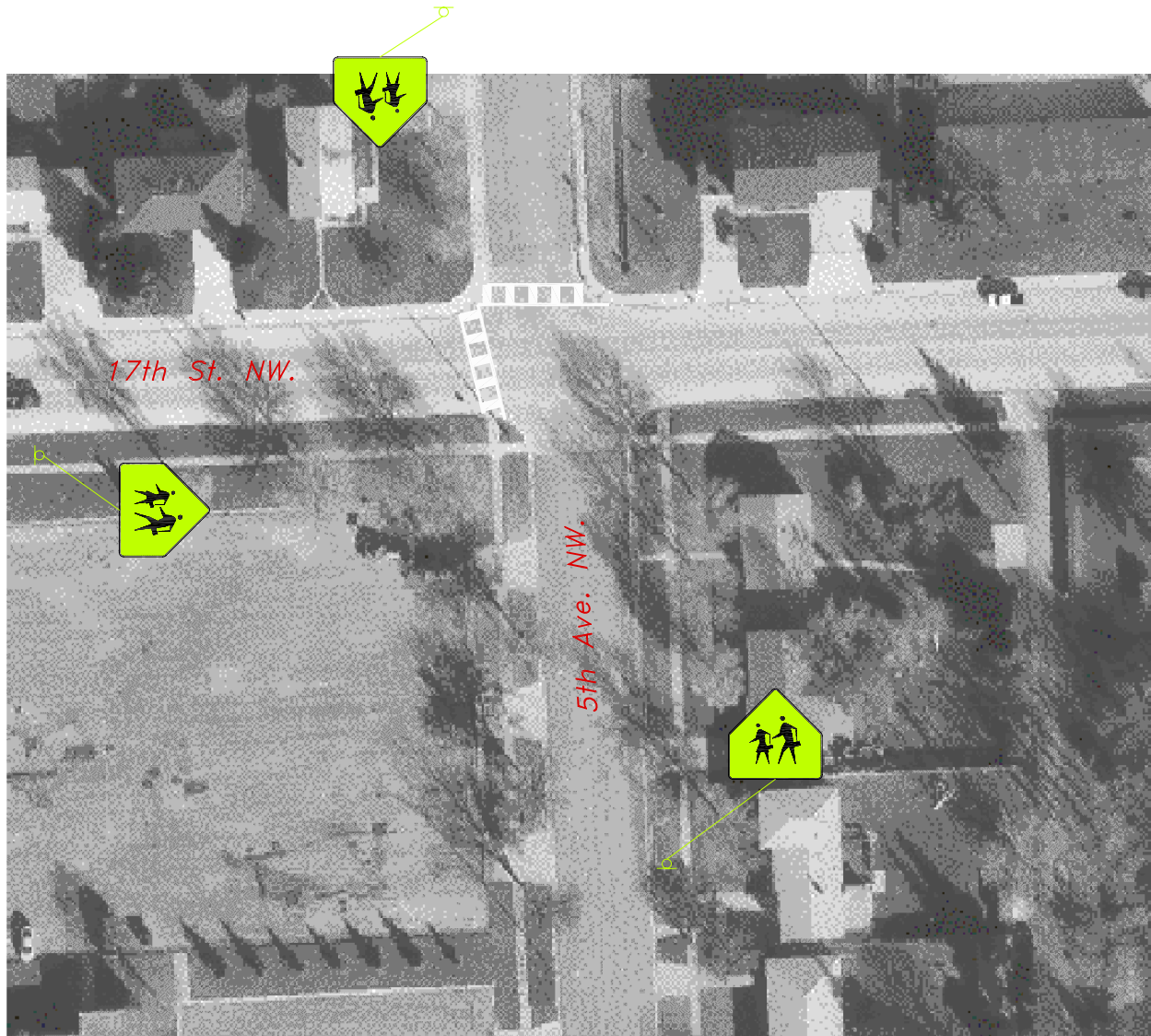
17th St. NW. & 5th Ave. NW.



CITY OF EAST GRAND FORKS NEW HEIGHTS ELEMENTARY SCHOOL 17th St. NW. & 5th Ave. NW. EAST GRAND FORKS, MINNESOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 4/5/2000	
APPROVED BY:		NH17-5.DWG

PROPOSED SIGNAGE & MARKINGS

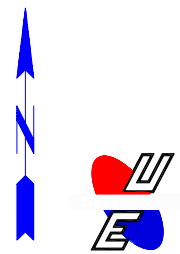
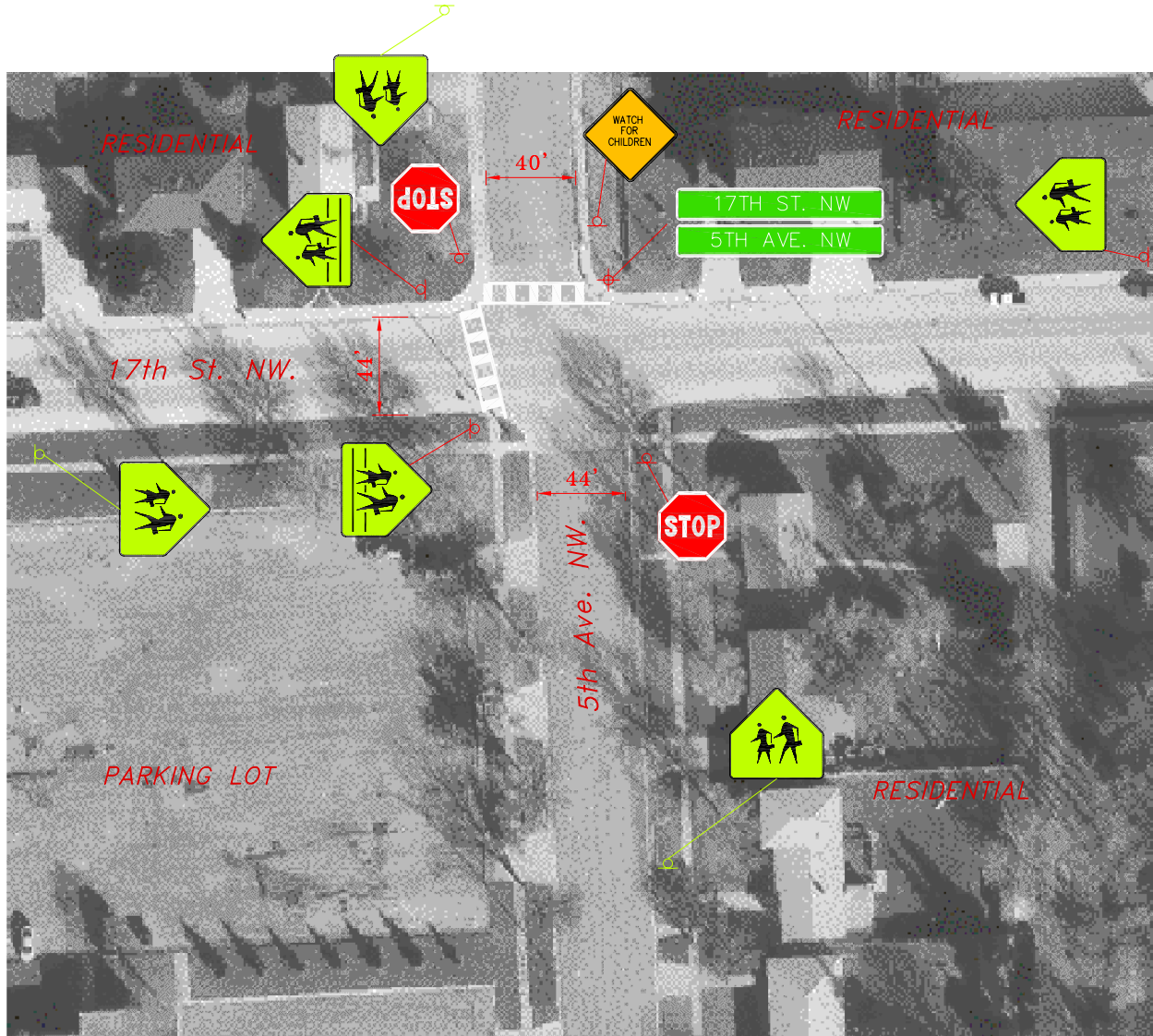
17th St. NW. & 5th Ave. NW.



NH17-5.DWG

NEW INTERSECTION LAYOUT

17th St. NW. & 5th Ave. NW.



NH17-5.DWG

New Heights – 17th Street Northwest and 5th Avenue Northwest

Observations:

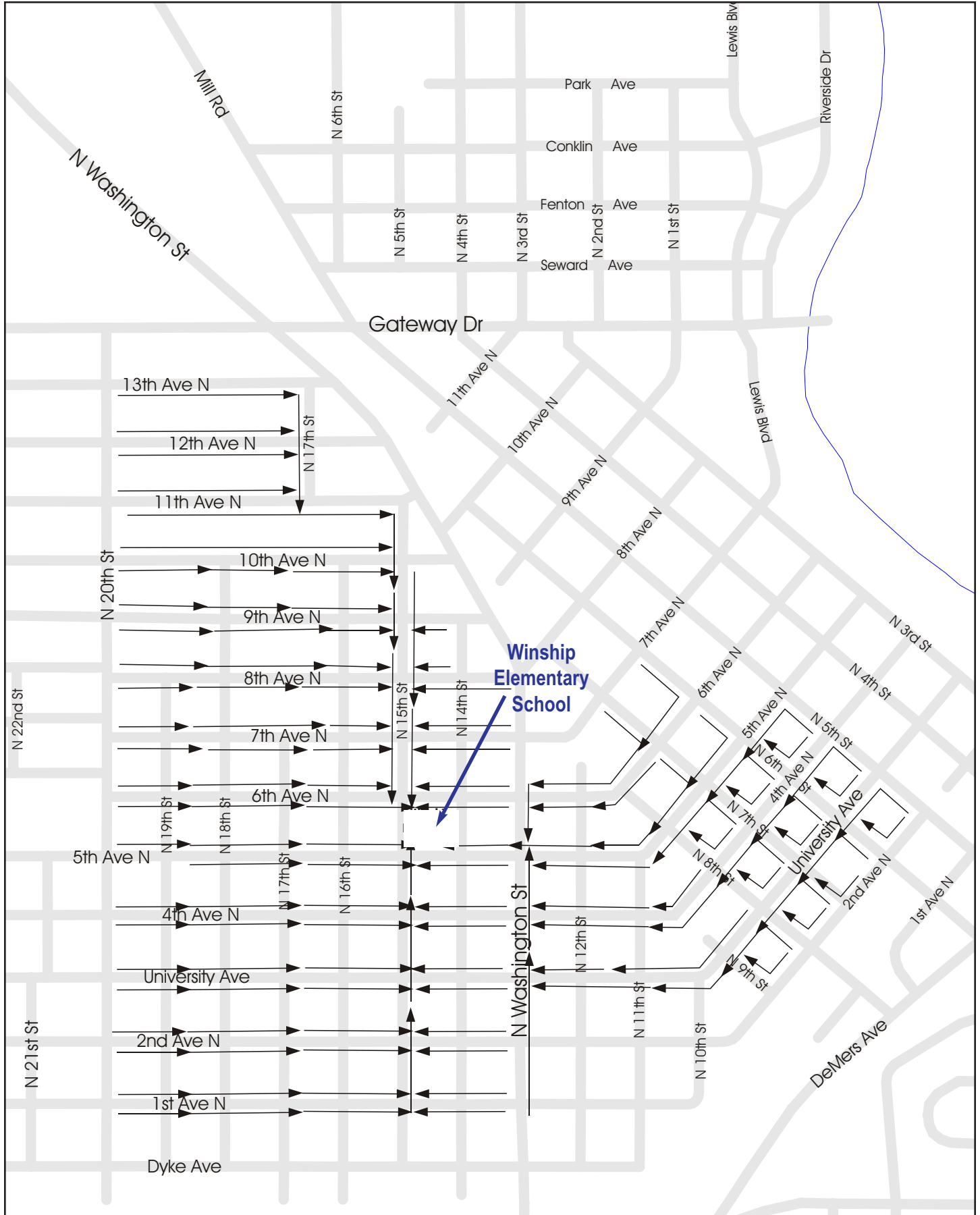
1. Crosswalk markings are faded.

Recommendations:

1. Place Type 3, longitudinal crosswalk markings on 17th Street Northwest, west of 5th Avenue Northwest; and on 5th Avenue Northwest, north of 17th Street Northwest.
2. Place SCHOOL ADVANCE signs on 5th Avenue Northwest, north and south of 17th Street Northwest; and on 17th Street Northwest, west of 5th Avenue Northwest.

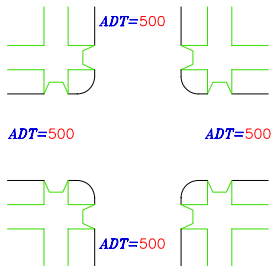
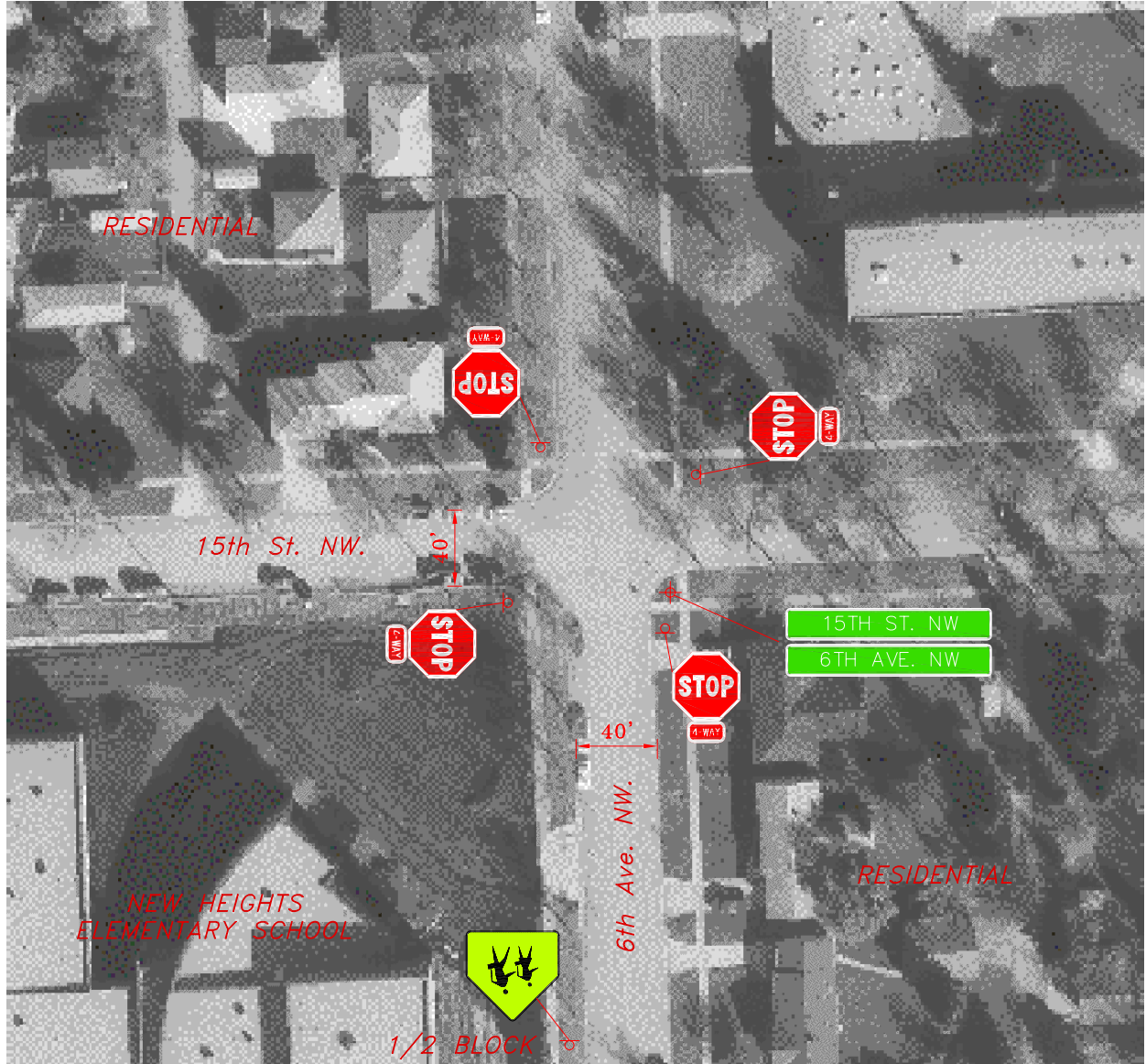
Winship Elementary School

Safe Route to School



NEW HEIGHTS ELEMENTARY SCHOOL

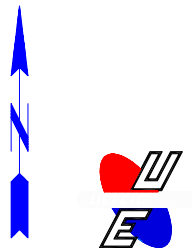
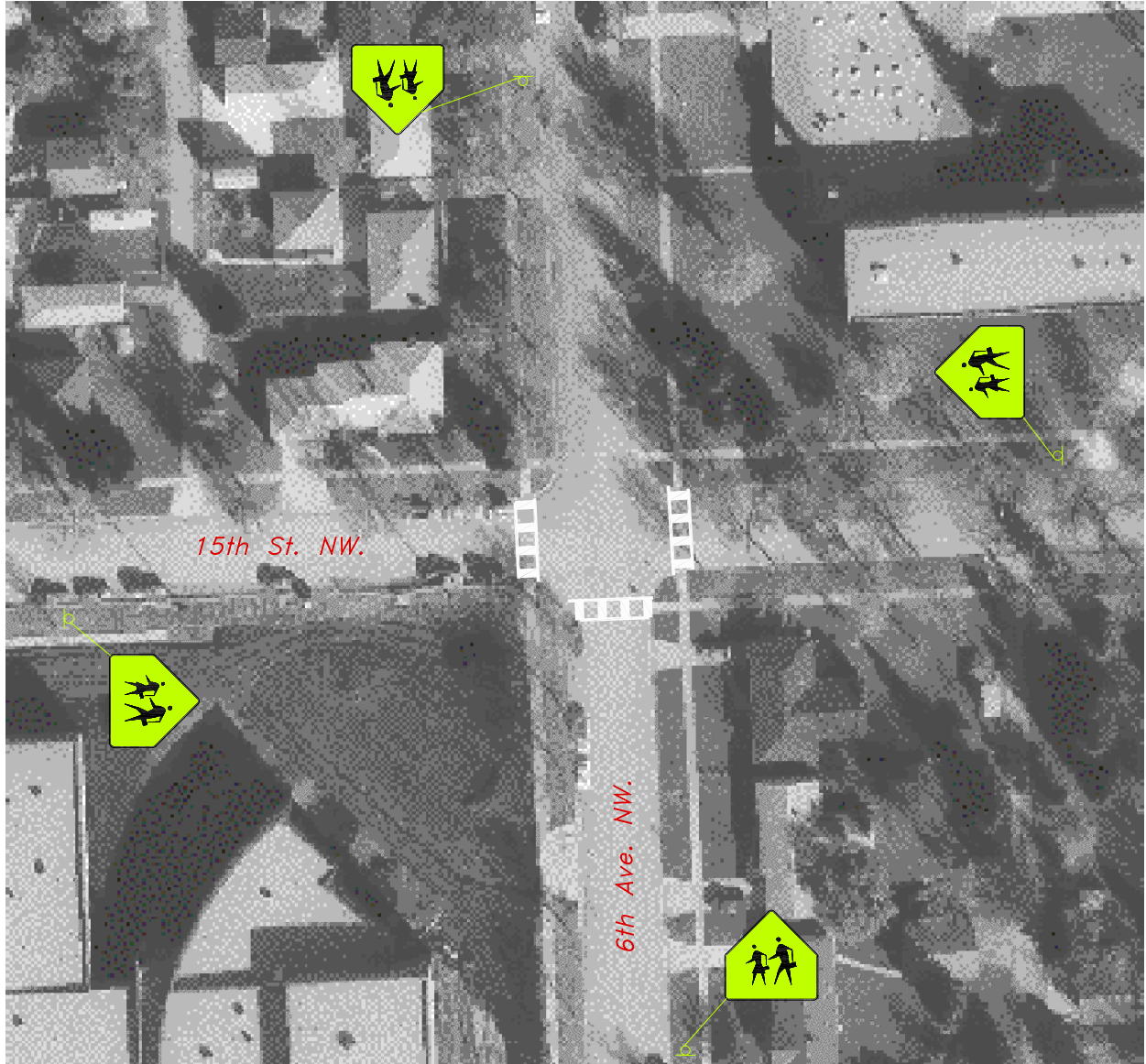
6th Ave. NW & 15th St. NW.



CITY OF EAST GRAND FORKS NEW HEIGHTS ELEMENTARY SCHOOL 6th Ave. NW. & 15th St. NW. EAST GRAND FORKS, MINNESOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027	
NH6-15.DWG			

PROPOSED SIGNAGE & MARKINGS

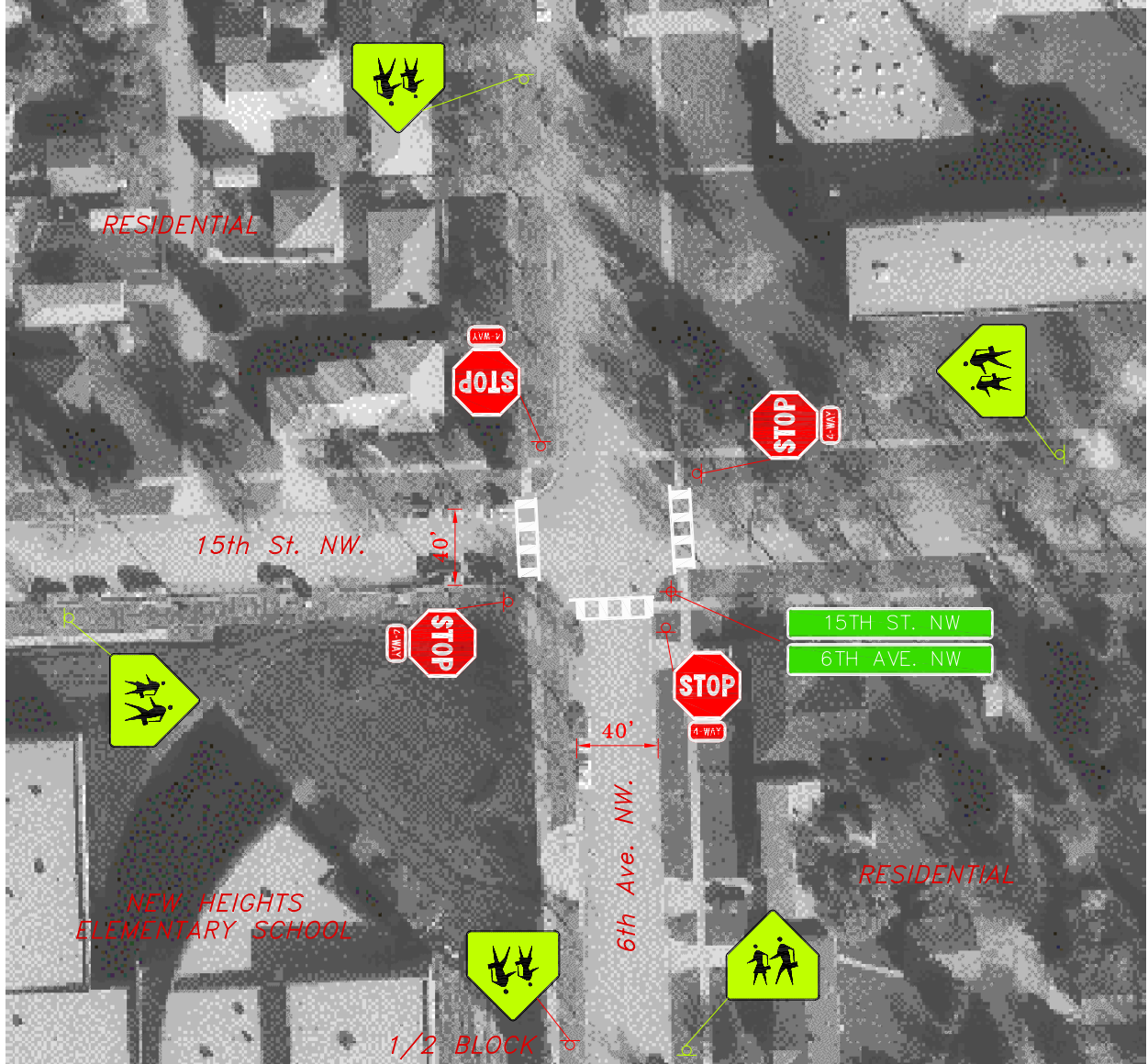
6th Ave. NW & 15th St. NW.



NH6-15.DWG

NEW INTERSECTION LAYOUT

6th Ave. NW & 15th St. NW.



NH6-15.DWG

New Heights – 6th Avenue Northwest and 15th Street Northwest

Observations:

1. Crosswalk markings are faded.

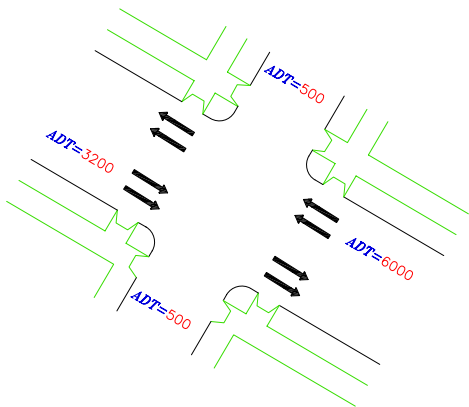
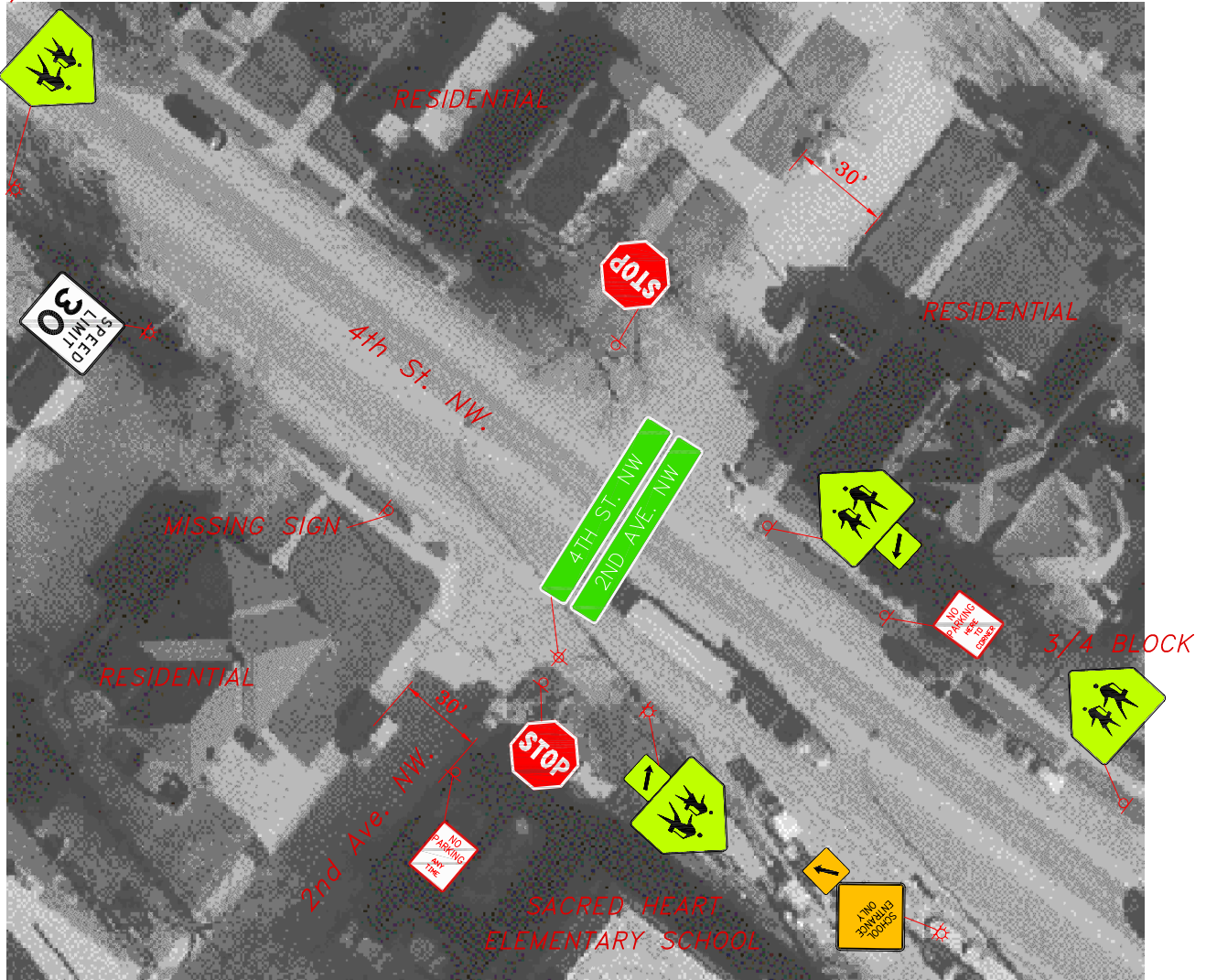
Recommendations:

1. Place Type 3, longitudinal crosswalk markings on 6th Avenue Northwest and on 15th Street Northwest, east and west of 6th Avenue Northwest.
2. Place SCHOOL ADVANCE signs on 15th Street Northwest, east and west of 6th Avenue Northwest; and on 6th Avenue Northwest, north and south of 15th Street Northwest.

SACRED HEART ELEMENTARY SCHOOL

4th St. NW. & 2nd Ave. NW.

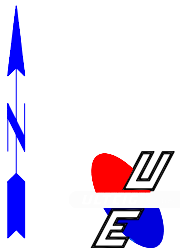
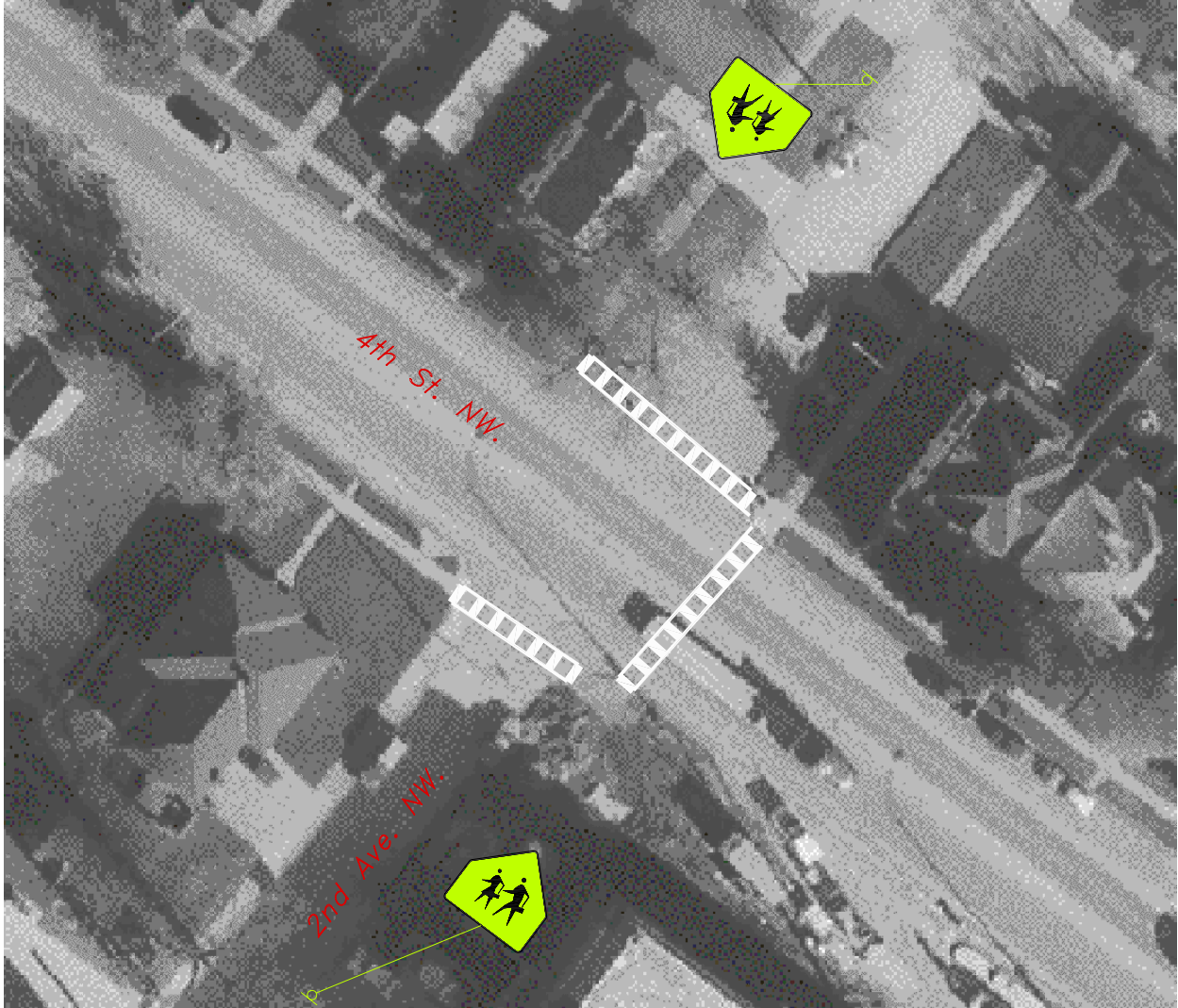
3/4 BLOCK



CITY OF EAST GRAND FORKS SACRED HEART ELEMENTARY SCHOOL 4th St. NW. & 2nd Ave. NW. EAST GRAND FORKS, MINNESOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK CHECKED BY: SAG APPROVED BY:	SCALE: NO SCALE DATE: 4/5/2000	PROJECT NO. 00-0027	SC-HRT4-2.DWG

PROPOSED SIGNAGE & MARKINGS

4th St. NW. & 2nd Ave. NW.

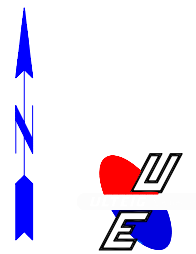
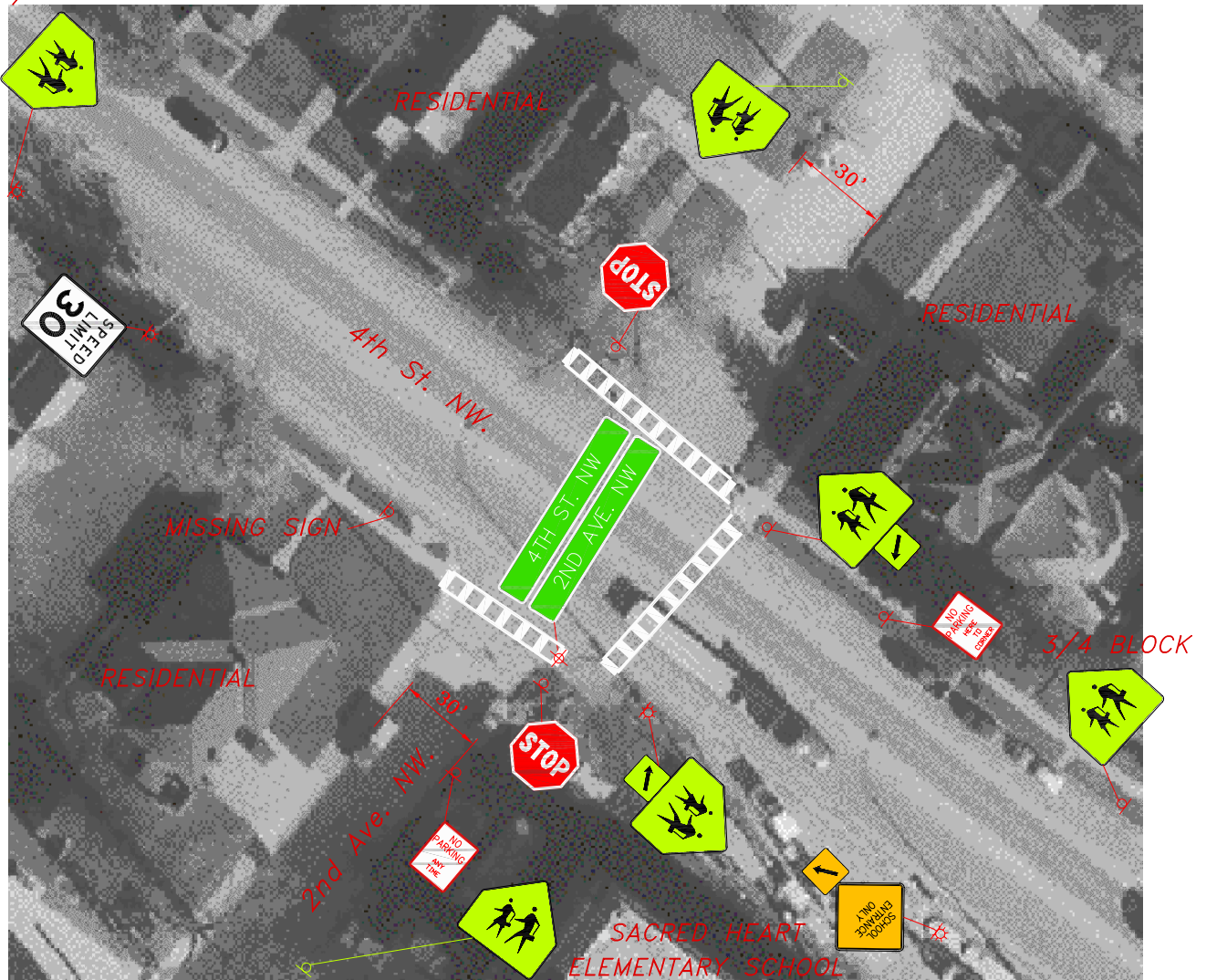


SC-HRT4-2.DWG

NEW INTERSECTION LAYOUT

4th St. NW. & 2nd Ave. NW.

3/4 BLOCK



SC-HRT4-2.DWG

Sacred Heart – 4th Street Northwest and 2nd Avenue Northwest

Observations:

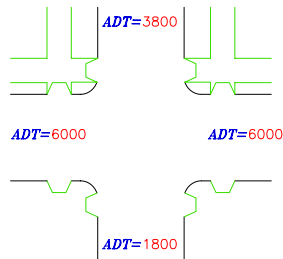
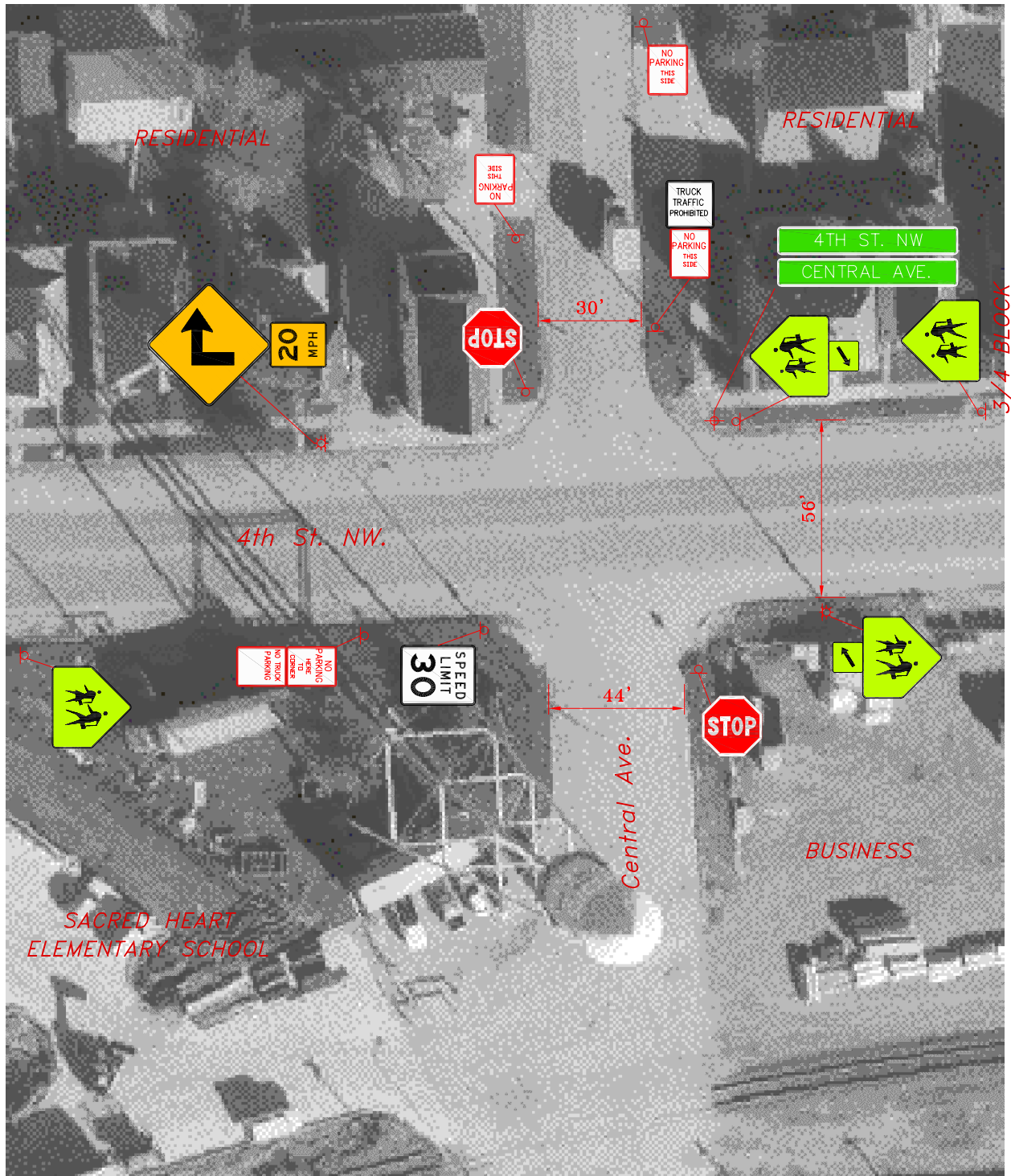
1. No crosswalk markings are present.

Recommendations:

1. Place Type 3, longitudinal crosswalk markings on 4th street Northwest, east of 2nd Avenue Northwest; and on 2nd Avenue Northwest, north and south of 4th Street Northwest.
2. Place SCHOOL ADVANCE signs on 2nd Avenue Northwest on the north and south sides of 4th Street Northwest.

SACRED HEART ELEMENTARY SCHOOL

4th St. NW. & Central Ave.

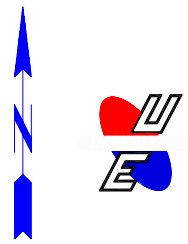
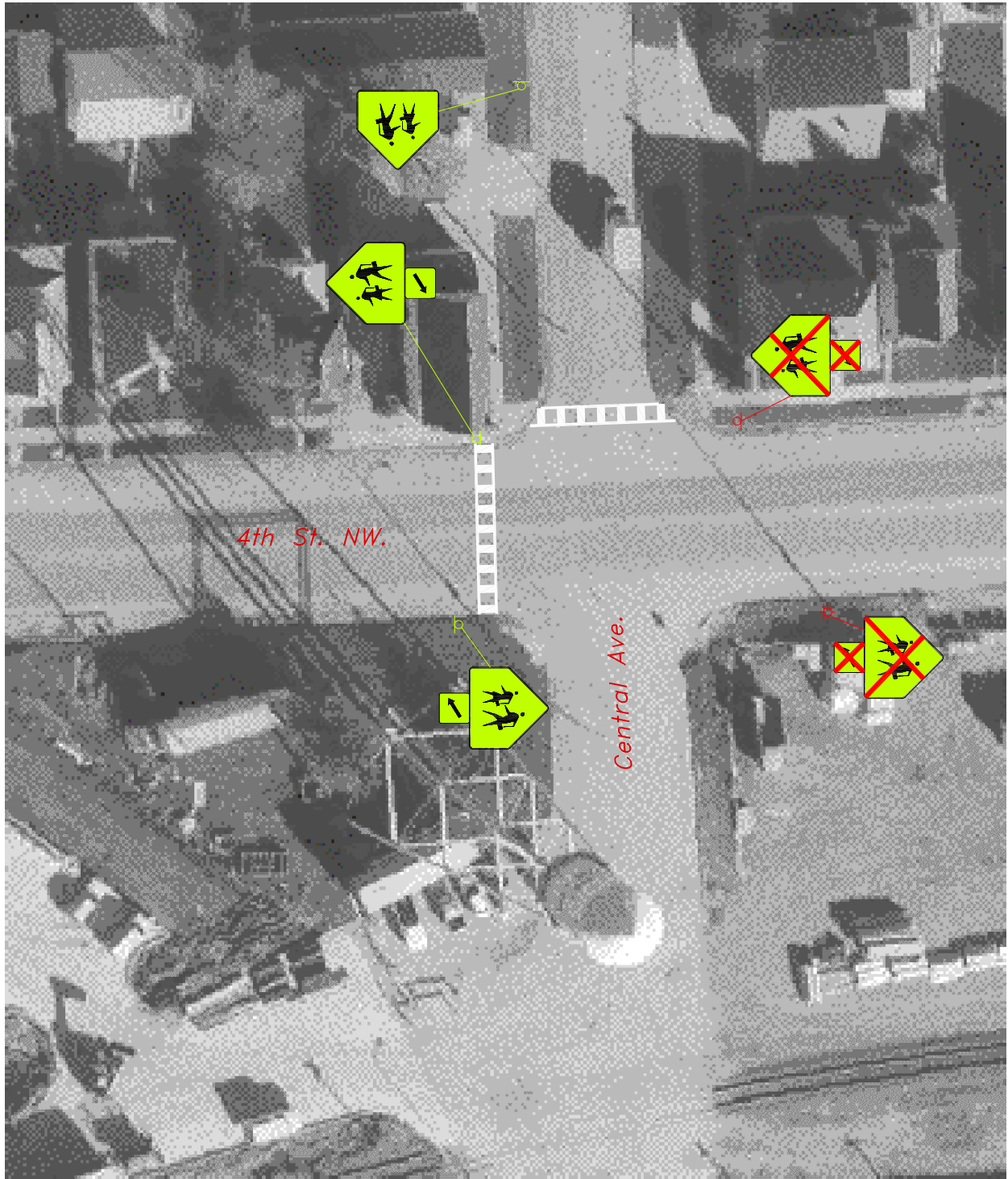


CITY OF EAST GRAND FORKS SACRED HEART ELEMENTARY SCHOOL 4th St. NW. & Central Ave. EAST GRAND FORKS, MINNESOTA		
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS		
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027
CHECKED BY: SAG	DATE: 4/5/2000	
APPROVED BY:		



SC-HRT4-C.DWG

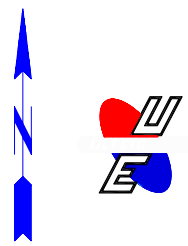
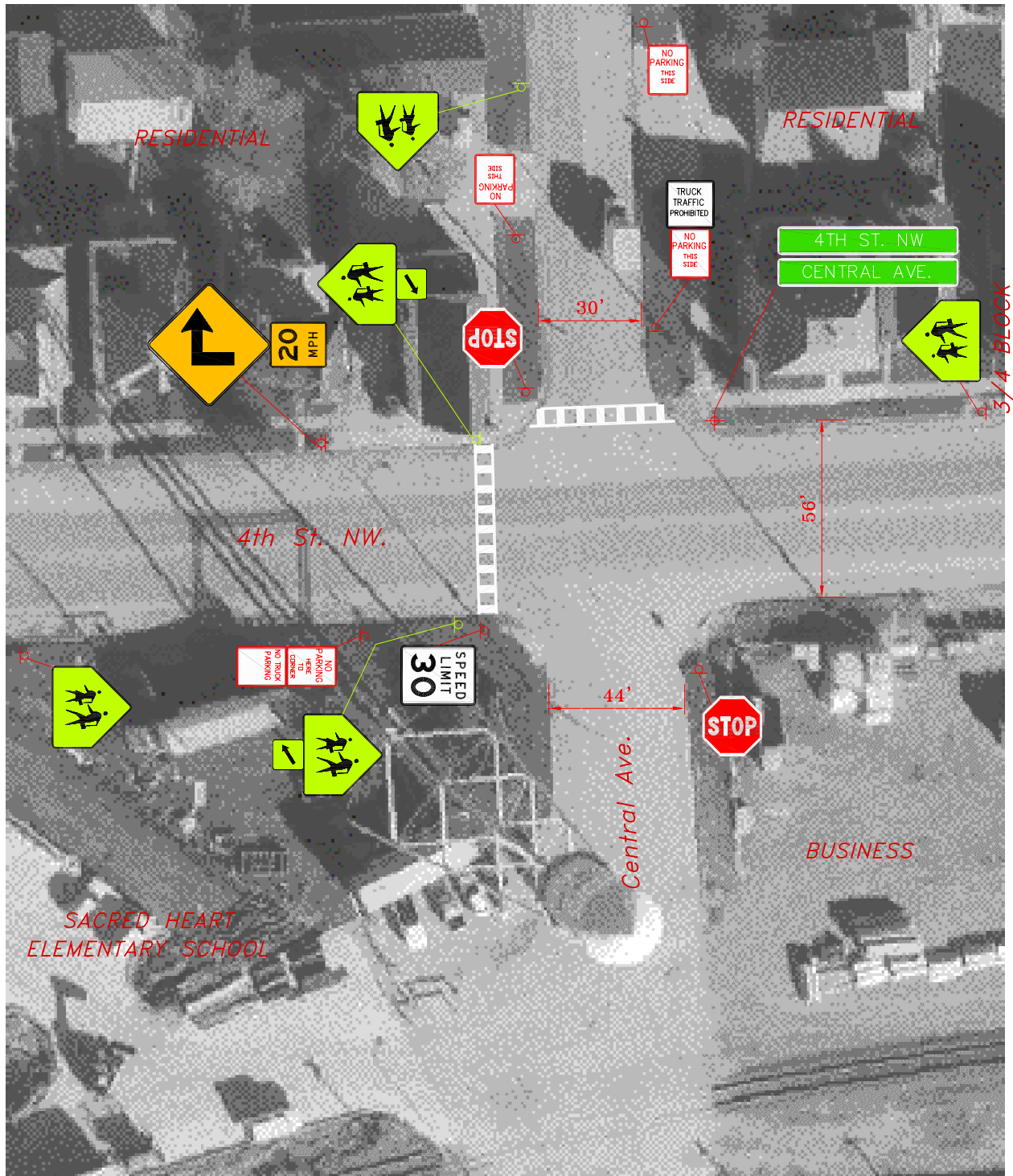
PROPOSED SIGNAGE & MARKINGS
4th St. NW. & Central Ave.



SC-HRT4-C.DWG

NEW INTERSECTION LAYOUT

4th St. NW. & Central Ave.



SC-HRT4-C.DWG

Sacred Heart – 4th Street Northwest and Central Avenue

Observations:

1. No crosswalk markings are present.


Recommendations:

1. Place Type 3, longitudinal crosswalk markings on Central Avenue, north of 4th Street Northwest; and on 4th Street Northwest, west of Central Avenue.
2. Relocate SCHOOL CROSSING sign assemblies on 4th Street Northwest from east side of Central Avenue to the west side of Central Avenue.
3. Due to the wide width (56 feet) and high traffic volume (6000 ADT) along 4th Street Northwest, this intersection should be monitored to determine whether additional traffic control at this location is warranted. There are three potential traffic control improvements that could be made at the intersection to improve safety for school children at the intersection:
 - Place flashing beacons to improve crossing visibility and driver awareness
 - Install all-way stop signs to provide additional gaps in the traffic stream.
 - Install traffic actuated signals with pedestrian pushbuttons to stop traffic while pedestrians are using the crossing.

Implementation of all-way stop signs or traffic signals should only be undertaken if warrants are met as described in the Minnesota Manual on Uniform Traffic Control Devices. At a minimum, the City should schedule a gap study in the spring while the crossing is most active to determine whether traffic signals are warranted. Traffic count and collision data should also be reviewed in light of applicable warrants.

SOUTH POINTE ELEMENTARY SCHOOL
Bygland Road & 6th St.



CITY OF EAST GRAND FORKS SOUTH POINTE ELEMENTARY SCHOOL Bygland Road & 6th St. EAST GRAND FORKS, MINNESOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	
CHECKED BY: SAG	DATE: 7/13/2000		
APPROVED BY:			

SPOINT1.DWG

PROPOSED SIGNAGE & MARKINGS
Bygland Road & 6th St.



SPOINT1.DWG

NEW INTERSECTION LAYOUT
Bygland Road & 6th St.



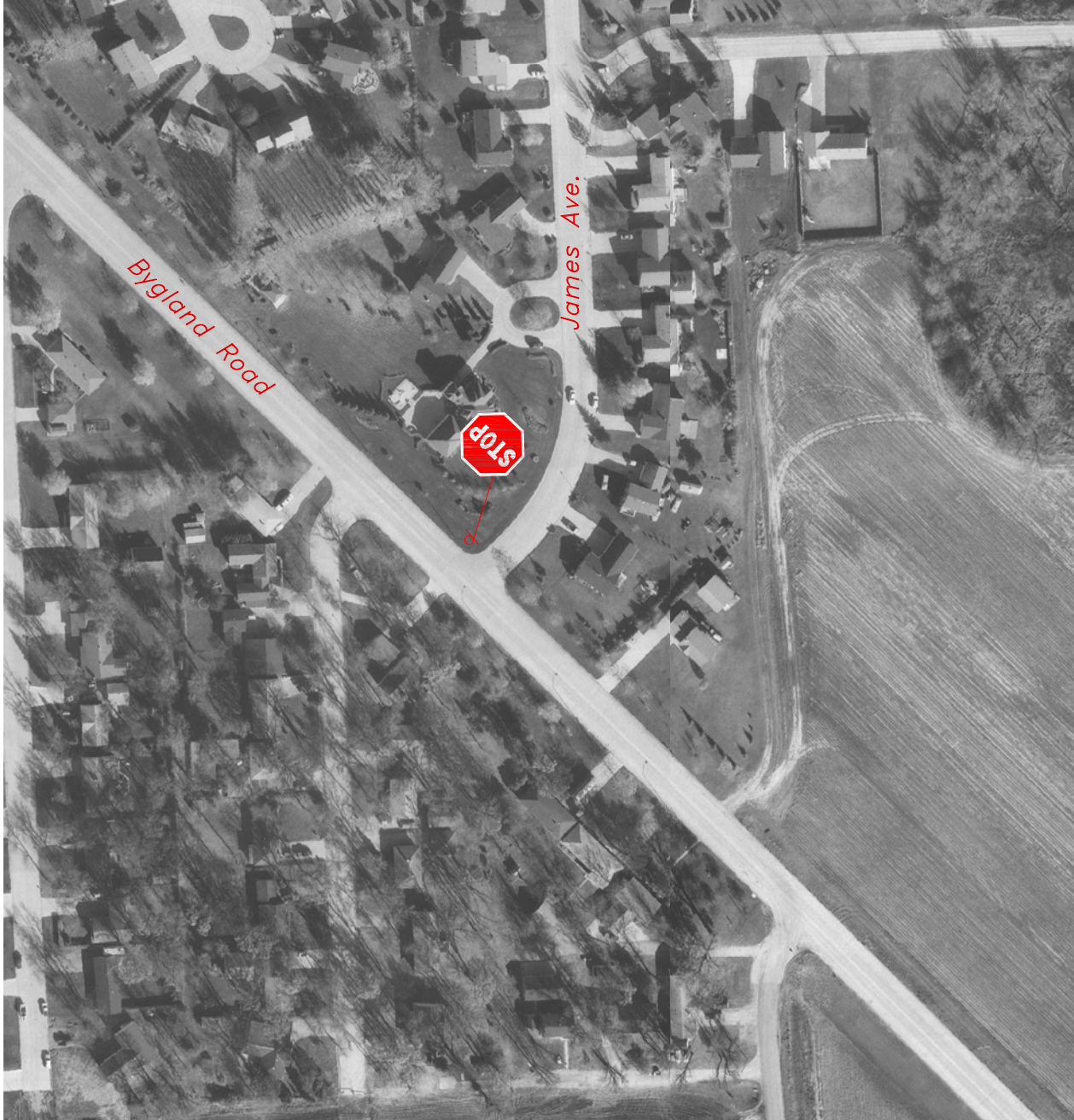
SPOINT1.DWG


South Pointe – Bygland Road and 6th Street

Recommendations:

1. Place Type 3, longitudinal crosswalk markings crossing Bygland Road, north of 6th Street as per the Safe Route to School map shown in this report.
2. Place SCHOOL ADVANCE and SCHOOL CROSSING signs on Bygland Road, north and south of 6th Street.

SOUTH POINTE ELEMENTARY SCHOOL
Bygland Road & James Ave.

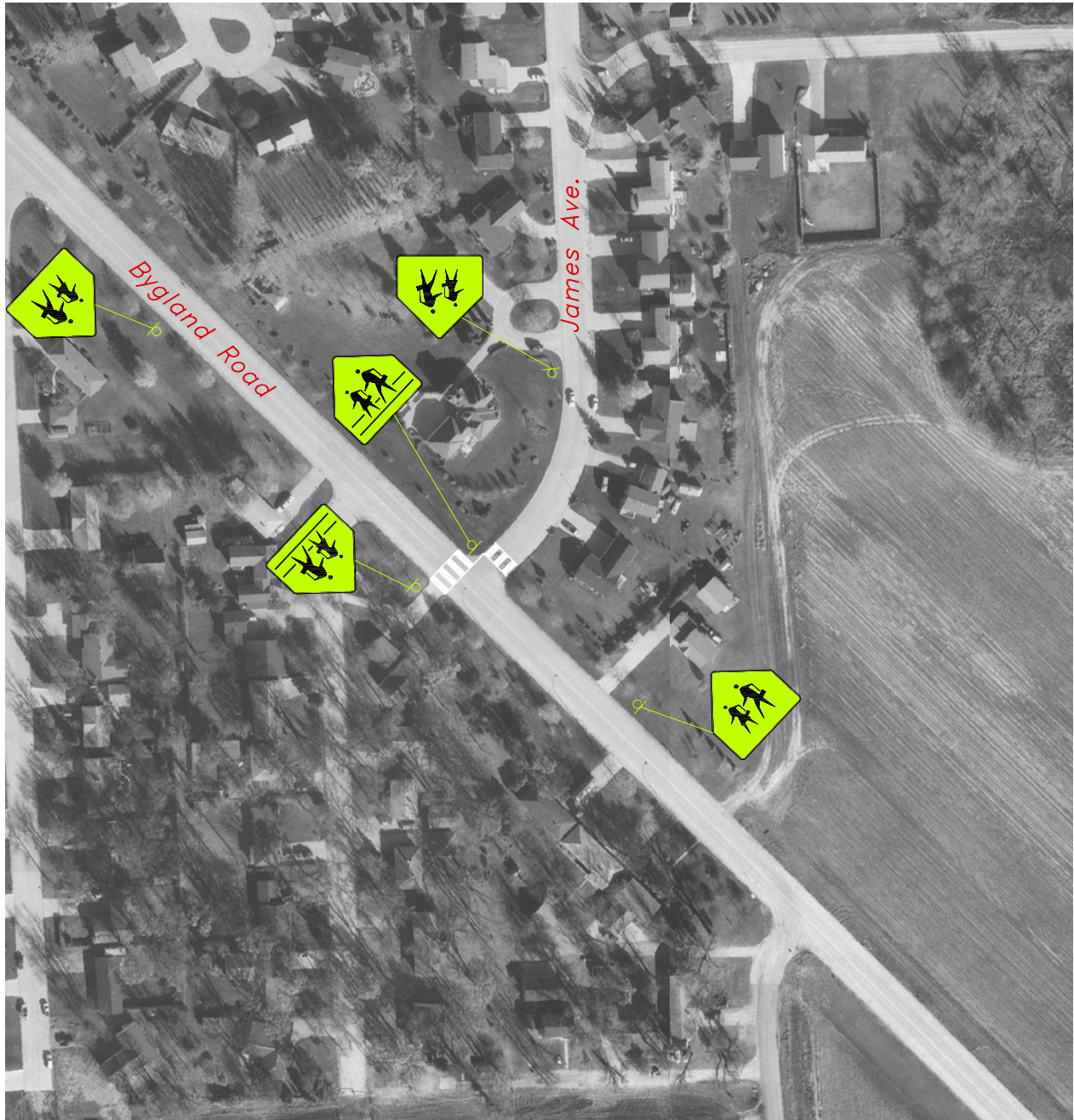


CITY OF EAST GRAND FORKS SOUTH POINTE ELEMENTARY SCHOOL Bygland Road & James Ave. EAST GRAND FORKS, MINNESOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	
CHECKED BY: SAG	DATE: 7/13/2000		
APPROVED BY:			

SPPOINT2.DWG

PROPOSED SIGNAGE & MARKINGS

Bygland Road & James Ave.



SPOINT2.DWG

NEW INTERSECTION LAYOUT

Bygland Road & James Ave.



SPOINT2.DWG

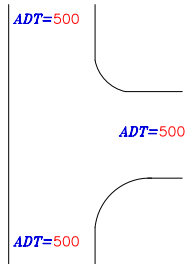
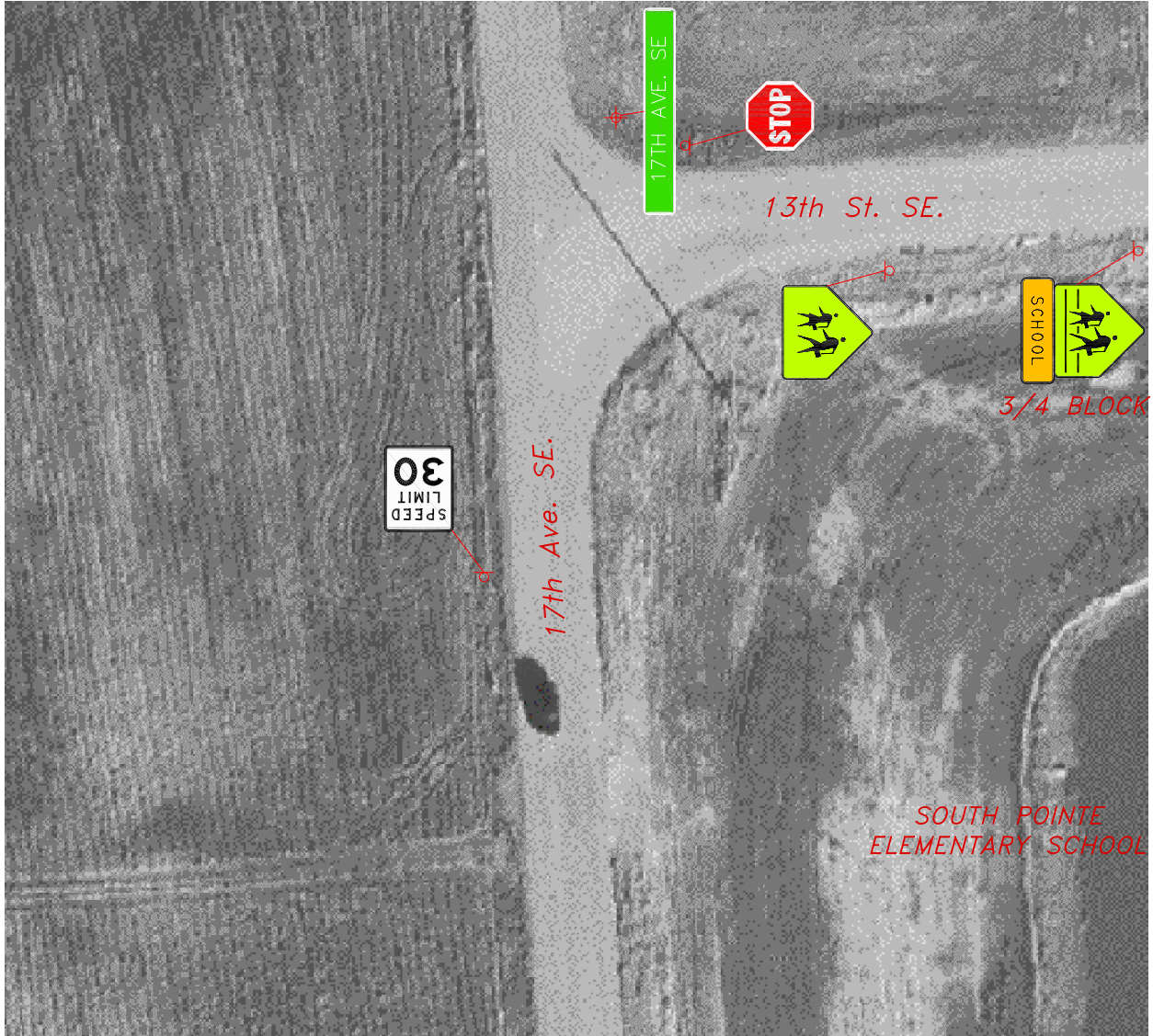
South Pointe – Bygland Road and James Avenue


Recommendations:

1. Place Type 3, longitudinal crosswalk markings crossing Bygland Road, north of James Avenue and crossing James Avenue as per the Safe Route to School map shown in this report.
2. Place SCHOOL ADVANCE signs on Bygland Road, north and south of James Avenue; and on James Avenue.
3. Place SCHOOL CROSSING signs on Bygland Road, north and south of James Avenue.

SOUTH POINTE ELEMENTARY SCHOOL

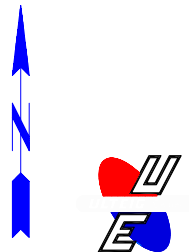
17th Ave. SE. & 13th St. SE.



CITY OF EAST GRAND FORKS SOUTH POINTE ELEMENTARY SCHOOL 17th Ave. SE. & 13th St. SE. EAST GRAND FORKS, MINNESOTA			
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS • SIOUX FALLS			
DRAWN BY: JJK	SCALE: NO SCALE	PROJECT NO. 00-0027	S-PT17-13.DWG
CHECKED BY: SAG	DATE: 4/5/2000		
APPROVED BY:			

PROPOSED SIGNAGE & MARKINGS

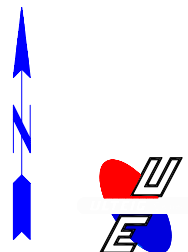
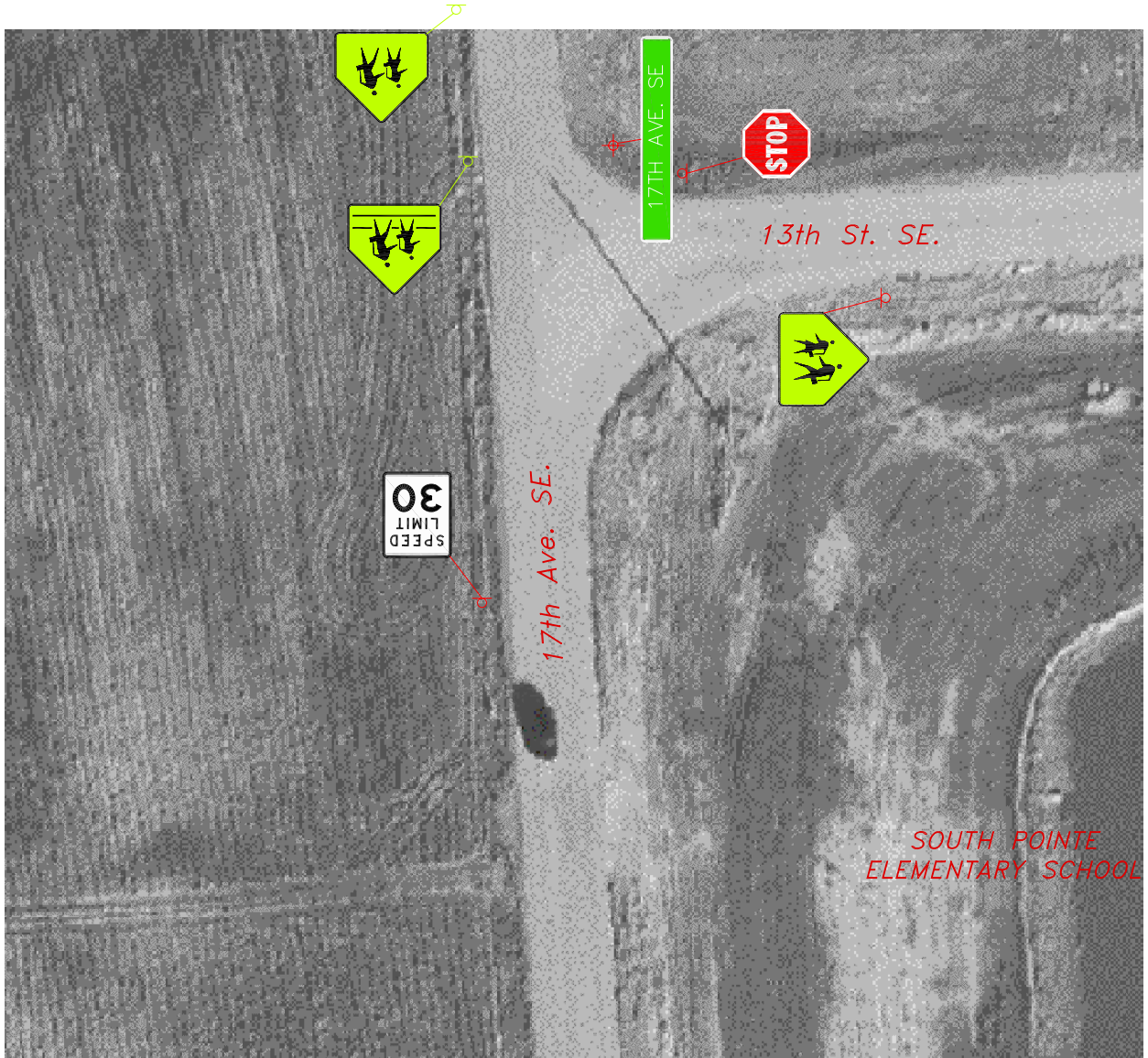
17th Ave. SE. & 13th St. SE.



S-PT17-13.DWG

NEW INTERSECTION LAYOUT

17th Ave. SE. & 13th St. SE.



S-PT17-13.DWG

South Pointe – Bygland Road and James Avenue

Recommendations:

1. Place Type 3, longitudinal crosswalk markings crossing Bygland Road, north of James Avenue and crossing James Avenue as per the Safe Route to School map shown in this report.
2. Place SCHOOL ADVANCE signs on Bygland Road, north and south of James Avenue; and on James Avenue.
3. Place SCHOOL CROSSING signs on Bygland Road, north and south of James Avenue.

V. Special Studies

A. South Pointe Safe Route to School

Preparation of a Safe Route to School map for South Pointe Elementary School is complicated by the lack of sidewalks in the nearby residential areas. Since no sidewalks are available, school children will be required to walk on the streets to get to and from school.

Walking in the street increases the hazard to school children for many reasons. First, narrow street width and the presence of on-street parking can place the pedestrian close to vehicular traffic. Second, school children may not be diligent in walking on the correct side of the street. Further, if they do walk on the correct side of the street, they are required to cross on opposite sides of intersections on their way to and from school. This can be confusing for the young pedestrian and may also reduce driver expectancy.

When a street is used for pedestrian traffic, it is desirable for the pedestrian to walk in the opposite direction of vehicular traffic so they may see approaching cars. This travel pattern is reflected in the Safe Route to School Map found at the end of this section.

There are a number of improvements that should be considered to increase safety for school-aged pedestrians. It would be preferable for the City of East Grand Forks to adopt an ordinance to place sidewalks on at least one side of each street within the City. If cost and impact issues make this not feasible, an alternative would be for the City to prepare and adopt a sidewalk artery plan. This plan would identify high pedestrian trip generation locations such as schools, parks, post office, and other key areas which should be connected to residential neighborhoods using a network of planned sidewalks and bikeways.

Upon review of the Safe Route to School Map for South Pointe Elementary School, there are a few roadway sections where placement of sidewalks would significantly improve safety. They are along the west side of Bygland Road, between 10th Street and Jones Avenue; and along the north side of 13th Street, between 17th Avenue and 19th Avenue.

Additionally, extension of 13th Street to the west, across Bygland Road and connecting to 14th Avenue (Hartsville Road) would benefit pedestrian travel from the west side of Bygland Road. This would provide a more direct route for pedestrians, would provide a major intersection on Bygland Road that may eventually meet signal warrants, and would reduce the need for pedestrians to travel along the high traffic lanes of Bygland Road.

B. Grand Forks 32nd Avenue South / 10th Street Gap Study

A pedestrian count and gap study was conducted at the intersection of 32nd Avenue South and 10th Street South. Gap studies measuring the number and size of available gaps in the traffic stream were conducted from 7:15 to 8:45 a.m. and from 2:45 to 4:15 p.m. on May 23, 2000.

The Manual on Uniform Traffic Control Devices (MUTCD) states under Warrant 4, School Crossing, that a traffic control signal may be warranted when the number of

adequate gaps in the traffic stream during the period when the children are using the crossing is less than the number of minutes in the same period.

Appendix 1 shows the pedestrian count and gap study information collected at the 32nd Avenue South / 10th Street intersection. Considering existing street widths, the analysis found that gaps equal to or greater than 16 seconds were adequate in size for a pedestrian to cross 32nd Avenue South at 10th Street. The data showed there were less than 15 adequately sized gaps available per 15 minute period. Based on the traffic analysis of this information, there are insufficient gaps in the traffic stream for pedestrians to safely cross 32nd Avenue South.

There are three alternatives available to address this situation. The first alternative is to promote school crossings elsewhere. The second alternative is to utilize adult crossing guards to assist in providing adequate gaps for school children to use while crossing. The final alternative is to install traffic signals at this intersection. This alternative is not recommended due to the construction and operation costs for traffic signals, and the low number of pedestrians observed who use the crossing.

C. Pick-Up and Drop-Off Zone Analyses

Each of the elementary schools was observed to assess pick-up and drop-off zones around the school perimeters. Circulation of buses and parents who pick up or drop off their children was also discussed with parents and school officials who attended the public meeting. Additionally, Dietrich Bus Service, who provides the school busing service, was interviewed to identify concerns with school bus loading and unloading.

The primary issue identified related to pick-up and drop-off zones around the schools was that there is a lack of available parking for pick-up and drop-off activities around a few of the elementary schools. This leads to congestion on the perimeter streets around the schools, as parents stop adjacent to the school to drop off or pick up their child.

There are few alternatives available to improve this situation. One alternative is to instruct school officials to utilize parking locations away from where pick-up and drop-off activities occur. A second alternative is to restrict parking at these locations to pick up and drop off only through the use of loading zone and no parking signs. This is particularly important where bus loading occurs. At times, it has been observed that vehicles have been parked at locations where buses normally load and unload.

VI. School Patrols and Adult Crossing Guards

This section of the report documents the advantages of a safety program that utilizes school patrols and adult crossing guards. The following paragraphs also attempt to answer the many questions that arise when considering the use of school patrols and adult crossing guards in a school safety program. There are a number of excellent resources available which assist schools to understand how to organize and supervise a School Safety Patrol. Most of the publications are distributed by the American Automobile Association or AAA. Governing publications for use of school patrols within each state are the State of North Dakota School Safety Patrol Manual, 1995 and the AAA School Safety Patrol Advanced Training Program Manual dated January 1986.

A. Advantages

Wherever it is necessary for school children to cross a road on their way to school, the potential for an accident exists. Use of school patrols or adult crossing guards can reduce the potential for pedestrian-vehicle accidents. According to statistics, by 1993 the death rate for pedestrians under 10 was 1.4 per 100,000, down 65 percent from 1975. While children in this age group used to have the second highest fatality rate of any age group, today they have the lowest. Experts credit School Safety Patrol programs with making a strong contribution to this marked improvement.

Safety at school crossings can be improved through proper use of signs and pavement marking. However, even with these improvements provided, school children are often still left in potentially hazardous situations where they are faced with various distractions while trying to make decisions on whether a crossing is safe. School patrols and adult crossing guards who are properly trained to make better decisions are less likely to be preoccupied by the distractions common to the average elementary school pedestrian.

B. Issues Related to School Patrols

There are a number of issues that are relevant to initiating a program that utilizes school patrols and adult crossing guards. They are described as follows:

1. **Liability.** Based on North Dakota and Minnesota legislation, school patrols and school officials are immune from any liability that might otherwise be incurred as a result of an injury to a School Safety Program member or as a result of an injury caused by an act or omission on the part of a School Safety Patrol member while on duty, provided that such persons substantially complied with the standards to guide School Safety Patrol members, as adopted by the Superintendent of Public Instruction.
2. **School Patrol Program Costs.** The cost of implementing a School Patrol Program is dependent upon a number of variables, including availability of volunteers to manage the program, uniforms and equipment for the school patrols, awards and publications among others. General cost figures for beginning a School Patrol Program at a single school might include the following costs, in addition to potential costs incurred for managing the program:

Item	Number	Estimated Cost
Orange Belt	30	\$90
Badge - Captain	5	\$5

Item	Number	Estimated Cost
Badge - Lieutenant	5	\$5
Badge - Patrol	30	\$30

Item	Number	Estimated Cost
Badge - Incentive Award - Gold	30	\$30
Safety Patrol Poncho	10	\$65

Item	Number	Estimated Cost
Publications	N/A	\$30
Awards	N/A	\$50

Item	Number	Estimated Cost
Flags	20	Donated?
Total		\$305, Under \$500

- 3. Training.** Information needed to organize, supervise, and participate as members of a School Safety Program is available from AAA. In addition, the Minnesota State Highway Patrol provides instruction to communities desiring information and training. Two contacts for this training are Officer Andy Schmidt, Minnesota State Safety Patrol Officer (877-632-0265) and Officer Ray Bye, Minnesota State Safety Education Coordinator (800-620-3702). From preliminary discussions with Officer Schmidt, he indicated he would be willing to travel to East Grand Forks to discuss issues and training opportunities. He suggested that Grand Forks schools could take part in this meeting. He further indicated that many communities send one or two of

their top school patrol members to Legionville in Brainerd, Minnesota each summer to receive a week of in-depth training. He added that often the American Legion donates money to help pay for the trip.

4. **School Patrol Supervision.** According to the AAA manual, “How to Organize and Supervise a School Safety Patrol,” the patrol supervisor is often a member of the school faculty and has actual charge of the patrol and guides its activities. It is probable that each school would need to explore its ability to staff this position or to find a person capable of administering the program.

C. Selection of School Patrols or Adult Crossing Guards

According to the School Safety Patrol Manual, in order to participate in a school safety patrol program, a student must be 11 years of age or older and have written parental consent. Since their role is to direct students and not vehicular traffic, it is most desirable for school patrols to be used when one of the following conditions exist:

1. The crossing is controlled by stop signs or traffic signals.
2. Traffic is not controlled by stop signs or traffic signals, however there are sufficient gaps in the traffic stream during crossing periods. If the availability of adequate gaps in the traffic stream is questionable, then a gap study should be performed.
3. The crossing is adjacent to or within visible range of the school.

Adult crossing guards may serve to supplement school patrols or they may be used independently of school patrols. Adult crossing guards should be considered when one of the following conditions exist:

1. There are inadequate gaps in the traffic stream at a crossing not controlled by stop signs or traffic signals.
2. Turning movements at an intersection constitute a hazard.
3. Students in great numbers at a crossing are difficult to control.

D. Recommendations

East Grand Forks already has a program which involves use of school patrols and monitoring by City Police. Each school should review its use of school patrols given the recently prepared Safe Route to School maps. School patrols should only be used for locations designated on the Safe Route to School maps.

Grand Forks has used adult crossing guards at some elementary school locations at certain times of the year. This study has documented that characteristics of young pedestrians make them more susceptible to using poor judgment when crossing a street. School patrols and adult crossing guards are able to significantly improve safety at school crossing locations.

There is substantial literature available from AAA to assist each school to establish its school patrol program. It is strongly advised that each school should obtain a complete packet of information from AAA prior to beginning development of its school patrol program. This literature will give advice on finding a supervisor, responsibilities, and other essential information.

It is recommended that each school implement school patrols (or adult crossing guards if necessary) at a minimum of two key intersections adjacent to their school. Once the program has been implemented, the opportunity to build on success and possibly expand to other critical intersections may arise.

VII. Public Participation

The Grand Forks and East Grand Forks School Traffic Safety Committees provided interim review and guidance for the study. In addition, public open house meetings were held in East Grand Forks on April 27 and November 30, 2000 and in Grand Forks on May 2 and November 30, 2000. Attendance records from the meetings are found in Appendix 2. Comments received at the meetings are summarized as follows:

A. Grand Forks Schools

1. Ben Franklin

- Need markings.
- Widen 20th near school or add drop-off lane for buses and day cares.
- 13th Avenue and 21st Street unsafe.
- Need to enforce speed limit on 11th Avenue South.
- Concerned with speed at 9th Avenue South intersection.
- Everybody exits Ben Franklin on south side.
- Need crossing guards at midblock on 11th Avenue South.
- No left turn during school hours for those traveling north on South 20th Street into 11th Avenue South.
- Cars stop between South 20th Street and parking loop on 11th Avenue South.

2. Century

- Improve visibility at college.
- School crossing guard program should be expanded.
- Look at drop-off / pick-ups.

3. Holy Family

- No comments received.

4. Kelly

- No comments received.

5. Lake Agassiz

- Problems with speeding on Stanford.
- Drop-off zone requested.

6. Lewis & Clark

- Look at safety of children crossing 13th Avenue and Washington Street.
- Slow down on 13th Avenue.

7. Phoenix

- People avoid Belmont because it is too narrow on Belmont and on 4th.
- Drop-offs on Chestnut are easier.
- School crossing patrols helpful on 4th Avenue at Belmont and Chestnut.

8. **St. Mary's**

- No comments received.

9. **St. Michael's**

- Traffic on 5th Street North
 - Slow down traffic (twice).
 - Make traffic aware of school crossing (twice).
 - Traffic tries to beat yellow light.
 - Old yellow sign too low when cars are parked.
 - Drop-off and pick-up conflict with speeding cars.
- Crossings at 6th Avenue North need additional markings and flashers similar to North 4th Street and Wilder.

10. **Viking**

- No comments received.

11. **West**

- Cars don't stop on University at 23rd Street North.
- North 25th Street signal is not in a practical spot for a signalized crossing.

12. **Wilder**

- Advance signs on 4th Street.
- Advance warning on 11th Avenue.
- Separate pick-up / drop-off areas.
- 11th Avenue and Gateway is confusing intersection.
- Slow traffic down on 4th Street.

13. **Winship**

- No comments received.

B. East Grand Forks Schools

1. **New Heights**

- Parent pick-ups occur primarily along the northeast corner, buses park primarily along the middle of the south side.
- Double parking along 5th Street is hazardous.
- Teachers should park west of 7th Avenue along 15th Street.

2. **Sacred Heart**

- Buses and car mix on northeast side.
- Sometimes, bus parking locations are taken by cars.

3. **South Pointe**

- Bottleneck exists in front of parent pick-up circle.

VIII. Program Cost Estimates

This section of the report presents cost estimates for signing and marking improvements recommended for each jurisdiction. Cost estimates pertaining to implementation of school patrols are found in Chapter VI.

The estimated costs for construction are listed as follows:

Location	Description	Qty.	Unit	Unit Cost	Estimated Cost
Grand Forks	Sign Panel	77	Ea.	\$80.00	\$6,160
	Sign Panel and Post	65	Ea.	\$150.00	\$9,750

Location	Description	Qty.	Unit	Unit Cost	Estimated Cost
	Remove Sign Panel	77	Ea.	\$10.00	\$770
	Remove Sign Panel and Post	47	Ea.	\$50.00	\$2,350

Location	Description	Qty.	Unit	Unit Cost	Estimated Cost
	Remove Flashing Beacon	2	Ea.	\$1,500.00	\$3,000
	6" Paint Marking	4,500	L.F.	\$0.50	\$2,250

Location	Description	Qty.	Unit	Unit Cost	Estimated Cost
	ADA Ramp	11	Ea.	\$1,000.00	\$11,000
	Total				\$35,280

Location	Description	Qty.	Unit	Unit Cost	Estimated Cost
East Grand Forks	Sign Panel and Post	20	Ea.	\$150.00	\$3,000
	Remove Sign Panel and Post	3	Ea.	\$50.00	\$150

Location	Description	Qty.	Unit	Unit Cost	Estimated Cost
	Paint Marking	1,800	S.F.	\$1.00	\$1,800
	Total				\$4,950

Location	Description	Qty.	Unit	Unit Cost	Estimated Cost
	Grand Total				\$40,230

*Quantity assumes replacement of all yellow "School Crossing" signs with fluorescent yellow-green signs.

IX. School Walk Routes

A School Walk Route has been developed for each elementary school in the metro area. The MPO staff has created all of these maps except the South Pointe Elementary School in East Grand Forks, which was completed by Ulteig Engineers, Inc. This route can be found on page 151.

As stated previously there are thirteen schools in Grand Forks and three schools in East Grand Forks (two of which will be discussed in this section). Each of these routes differ from the South Pointe Walk Route in that well-developed sidewalk systems surround the neighborhoods around the schools with few exceptions. As a result the School Walk Route to school is the same as the route away from school.

KELLY ELEMENTARY SCHOOL

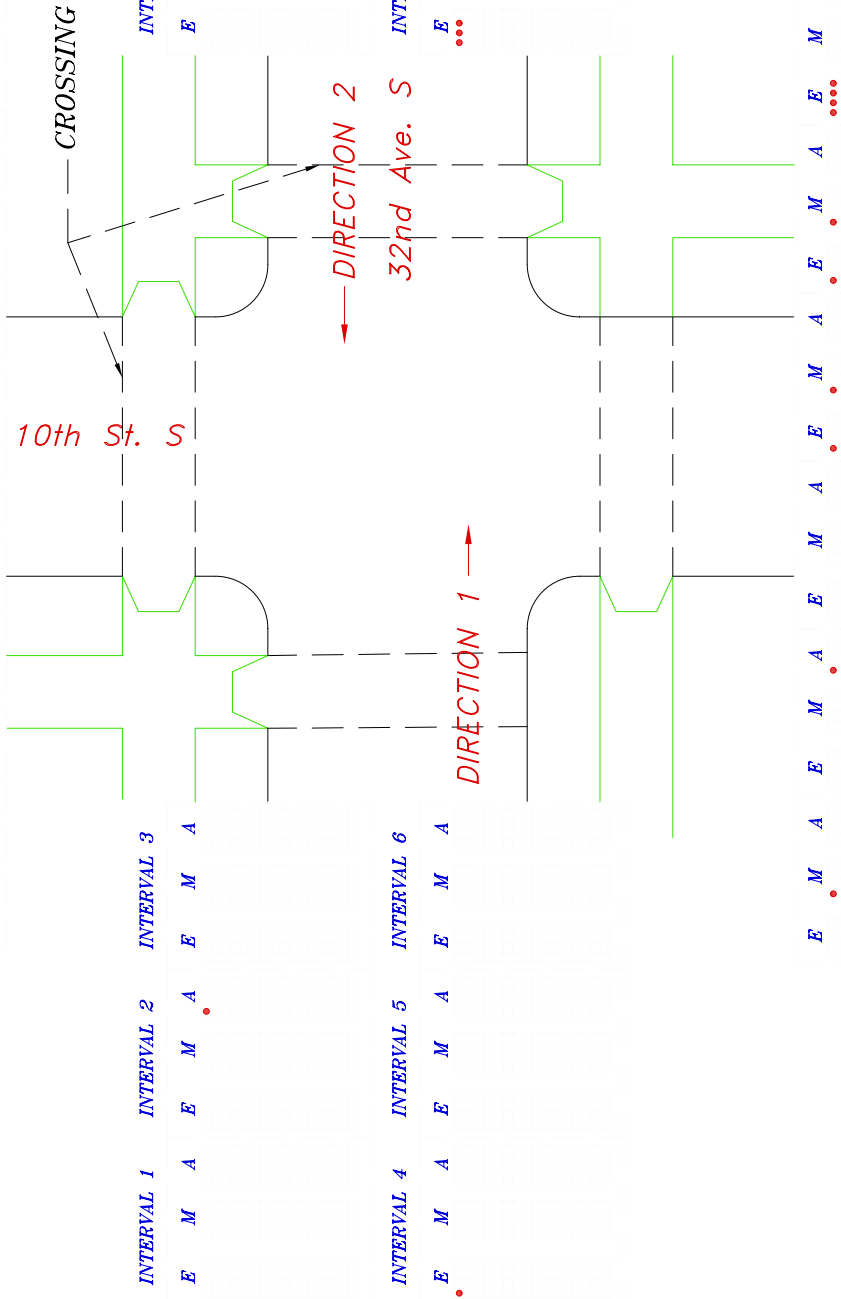
PEDESTRIAN COUNT
7:15 AM - 8:45 AM
5-23-2000



7:15 AM 7:30 AM 7:45 AM 8:00 AM 8:15 AM 8:30 AM
INTERVAL 1 INTERVAL 2 INTERVAL 3 INTERVAL 4 INTERVAL 5 INTERVAL 6

E M A E M A E M A E M A E M A E M A
E M A E M A E M A E M A E M A E M A

E = ELEMENTARY
M = MIDDLE SCHOOL
A = ADULT



6 ELEMENTARY STUDENTS
CROSSINGS OF 32nd Ave. S.

INTERVAL 1 INTERVAL 2 INTERVAL 3 INTERVAL 4 INTERVAL 5 INTERVAL 6

KELLY ELEMENTARY SCHOOL

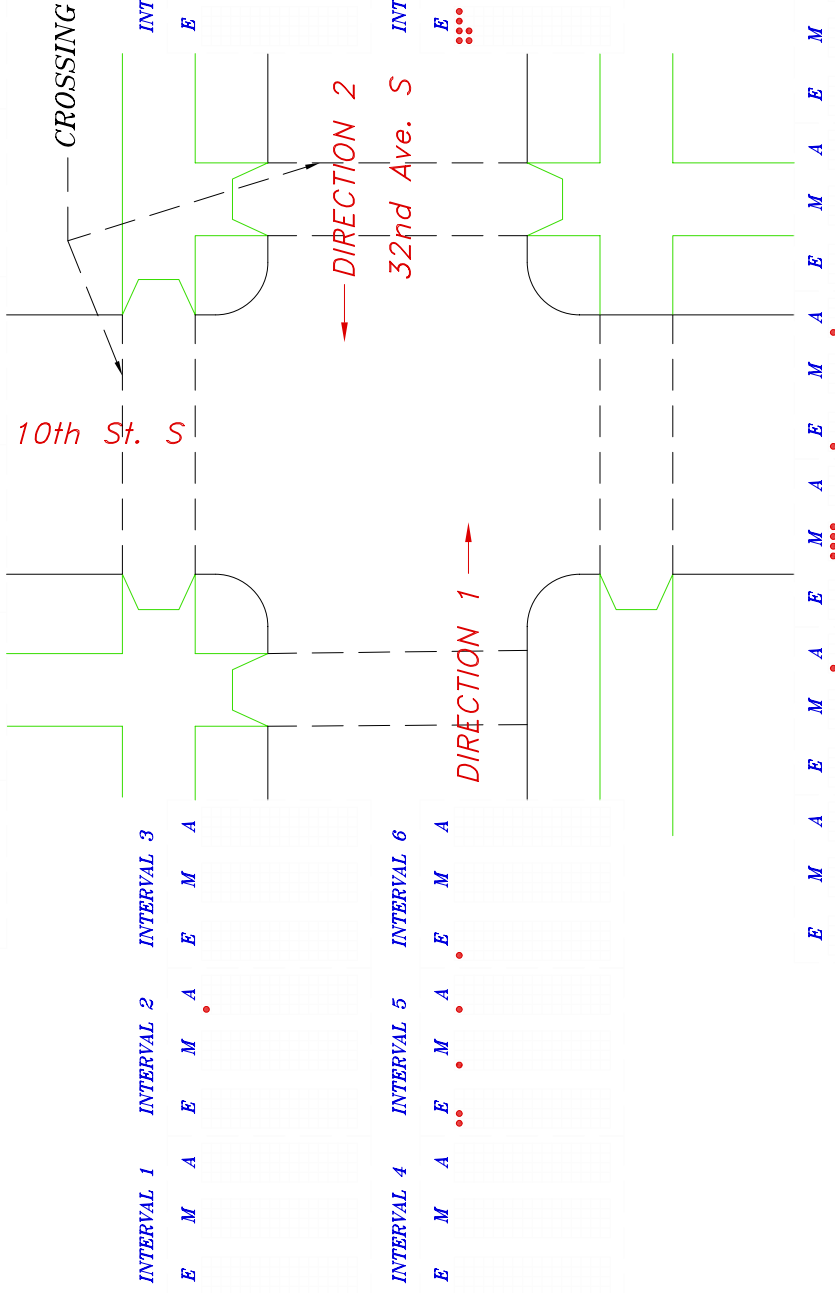
PEDESTRIAN COUNT
2:45 PM - 4:15 PM
5-23-2000



2:45 PM 3:00 PM 3:15 PM 3:30 PM 3:45 PM 4:00 PM
 INTERVAL 1 INTERVAL 2 INTERVAL 3 INTERVAL 4 INTERVAL 5 INTERVAL 6

E M A E M A E M A E M A E M A E M A

E = ELEMENTARY
 M = MIDDLE SCHOOL
 A = ADULT



17 ELEMENTARY STUDENTS
 CROSSINGS OF 32nd Ave. S.

INTERVAL 1 INTERVAL 2 INTERVAL 3 INTERVAL 4 INTERVAL 5 INTERVAL 6