

Strategic Regional Arterial

**Illinois Route 21 (Vol. I)
(Milwaukee Avenue)**

**Illinois Route 43 (Harlem Avenue) to
Illinois Route 120 (Belvidere Road)**



**Operation
GreenLight**

**Illinois Department of Transportation
May, 1993**

FOREWORD

Illinois Route 21 (Milwaukee Avenue) is a Strategic Regional Arterial from Illinois Route 43 (Harlem Avenue) in Cook County to Illinois Route 120 (Belvidere Road) in Lake County. This Strategic Regional Arterial (SRA) report for Illinois Route 21 has been prepared for the Illinois Department of Transportation and the Strategic Regional Arterial Subcommittee of the Work Program Committee of the Chicago Area Transportation Study by Harland Bartholomew & Associates, Inc.

As an SRA route, Illinois Route 21 is intended to function as part of a regional arterial system, carrying high volumes of long-distance traffic in conjunction with other SRA routes and the regional expressway and transit systems. This report is one element of a long-range plan for all routes in the SRA network. Together, the route studies constitute a comprehensive, coordinated plan for the entire SRA network.

Volume I of this report includes a description of the SRA study objectives and process, a detailed exposition and analysis of the existing route conditions and recommendations for ultimate and low-cost improvements. Volume II of this report consists of documentation of the public involvement process including citizen comments.

SUMMARY OF RECOMMENDATIONS

The SRA Route Illinois Route 21 (Milwaukee Avenue) is divided into six route segments. (See *Figure i.i.*) Recommendations are made for each route segment, and a summary of the major recommendations is presented below.

SRA Segment 1: Illinois Route 43 (Harlem Avenue) to Illinois Route 58 (Golf Road)

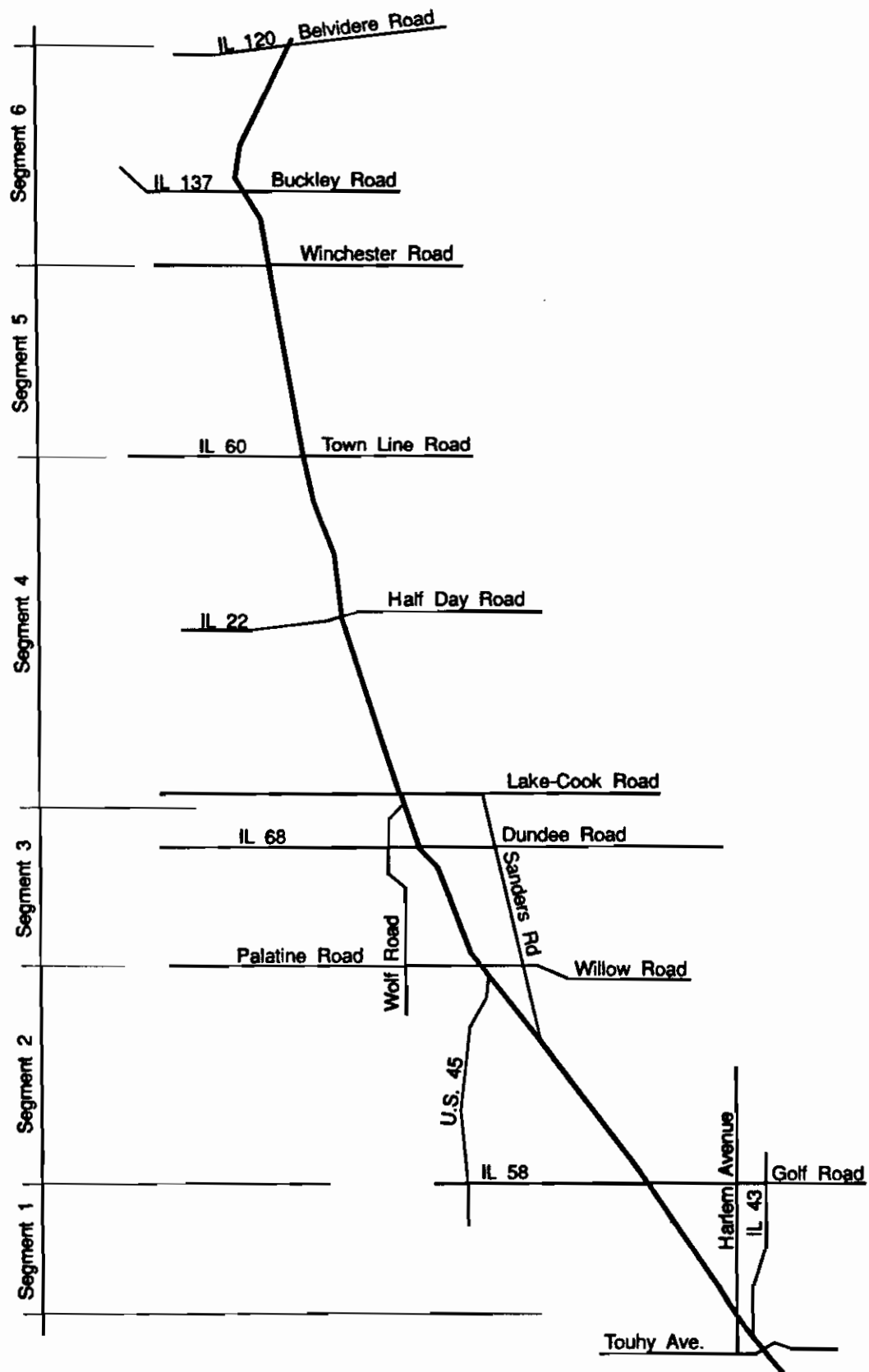
- From Illinois Route 43 to U.S. Route 14 (Dempster Street), two through lanes in each direction with a 12-foot wide flush median and from U.S. Route 14 to Illinois Route 58, three through lanes in each direction with an 18-foot wide raised median
- Additional right-of-way required from U.S. Route 14 to Illinois Route 58 to achieve a desirable ultimate right-of-way of 120 feet
- Additional right-of-way required for improvements at the Howard/Illinois Route 43/Illinois Route 21 intersection and at Oconto Avenue
- Signal interconnection from Illinois Route 43 to Ballard Road

SRA Segment 2: Illinois Route 58 (Golf Road) to Palatine/Willow Road

- Three through lanes in each direction with an 18-foot raised median, except between James Woodworth Prairie Preserve and Central Avenue where a four-foot barrier median is recommended
- Additional right-of-way required on this segment to achieve a desirable ultimate right-of-way of 120 feet except between Prairie and Central Avenue
- Structure modifications at Chicago & NorthWestern Railroad, Interstate 294 (Tri-State Tollway) and DesPlaines River

SRA Segment 3: Palatine/Willow Road to Wolf Road

- Two through lanes in each direction with an 18-foot raised median between Palatine/Willow Road and Hintz Road and a 12-foot flush median between Hintz Road and Wolf Road
- Additional right-of-way recommended on the west side of the route from Palatine/Willow Road to Hintz Road



Illinois Route 21

prepared by Harland Bartholomew & Associates, Inc.

Segment Location Map

Figure I.1

SUMMARY OF RECOMMENDATIONS *(cont.)*

- Signal interconnection from Sumac Road to Manchester Drive and from Illinois Route 68 into Segment 4
- Structure modification at the Wheeling Ditch

SRA Segment 4: Wolf Road to Illinois Route 60 (Town Line Road)

- Three through lanes in each direction with a 30-foot wide raised median
- Additional 10 to 45 feet of right-of-way required to achieve a desirable ultimate right-of-way of 150 feet except between Illinois Route 22 and U.S. Route 45 where an additional 10 to 30 feet is needed to achieve a desirable ultimate right-of-way of 120 feet
- Signal interconnection from Segment 3 to Busch Road; from Long Grove-Aptakisic Road to U.S. Route 45; from Woodlands Parkway to Corporate Woods Parkway; and from Continental Drive to Segment 5
- Structure modification at Aptakisic Creek and Indian Creek

SRA Segment 5: Illinois Route 60 (Town Line Road) to Winchester Road

- Three through lanes in each direction with a 30-foot wide raised median from Illinois Route 60 to the Cuneo Property; and two through lanes in each direction with a median south of Illinois Route 176 (Park Avenue) and north of Milwaukee Road Railroad within the existing right-of-way
- Additional 10 to 35 feet of right-of-way needed from Illinois Route 60 to Golf Road to achieve a desirable ultimate right-of-way of 150 feet
- Signal interconnection north of Illinois Route 60 and from Illinois Route 176 to Winchester Road
- Post-2010 grade separation at the EJ&E Railroad

SRA Segment 6: Winchester Road to Illinois Route 120 (Belvidere Road)

- Two through lanes in each direction and a 30-foot raised median from Illinois Route 137 (Buckley Road) to Illinois Route 120 (Belvidere Road)
- Retention of existing roadway cross-section of two through lanes in each direction and existing median from Winchester Road to Illinois Route 137 (Buckley Road)
- An additional 70 feet of right-of-way needed on the west side, north of Illinois Route 137
- Structure modifications at Bull Creek, DesPlaines River Tributary and Illinois Route 120

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SECTION ONE

INTRODUCTION

1.1 THE STRATEGIC REGIONAL ARTERIAL SYSTEM AND OPERATION GREENLIGHT

The Strategic Regional Arterial (SRA) system is a 1340-mile network of existing roads in Northeastern Illinois. The system includes 146 route segments in Cook, DuPage, Kane, Lake, McHenry and Will Counties (See *Figure 1.1.*) As part of the 2010 Transportation System Development Plan adopted by the Chicago Area Transportation Study (CATS) and Northeastern Illinois Planning Commission (NIPC), the SRA system is intended to supplement the existing and proposed expressway facilities by accommodating a significant portion of long-distance, high volume automobile and commercial vehicle traffic in the region. Many of the roads in the SRA system, including Illinois Route 21, are already on the arterial highway network of the Illinois Department of Transportation (IDOT) and now carry high volumes of long-distance traffic.

According to forecasts prepared by CATS, travel in the year 2010 in Northeastern Illinois is expected to increase by 23 percent over 1980 levels. In the last few years, rapid economic development and growing population have resulted in significant increases in congestion on the regional expressway system, as well as on arterial and local roads in many parts of the region. Creation of the SRA system is a major component of Operation GreenLight, an eight-point plan to deal with urban congestion and improve regional mobility. The plan was developed by IDOT in cooperation with the Illinois State Toll Highway Authority (ISTHA), CATS, NIPC and the Regional Transportation Authority (RTA). In addition to creating the SRA network, Operation GreenLight addresses the following major transportation issues:

- Developing Major Transit/Highway Facilities,
- Improving Other Key Arterial Roadways,
- Identifying Strategic Transit Improvements,
- Reducing Demand for Highway Use, and
- Increasing Environmental Consideration.

Together, the components of Operation GreenLight are a blueprint for a comprehensive approach to improve transportation in Northeastern Illinois. As part of this comprehensive approach, the SRA system is designed to (1) improve regional mobility by providing a comprehensive network of arterial routes designed to carry significant volumes of long-distance traffic across the region, (2) complement the regional transit and highway facilities by providing access for regional trips on these facilities, and (3) provide for long-distance travel to supplement the regional expressway system.

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 1: Introduction

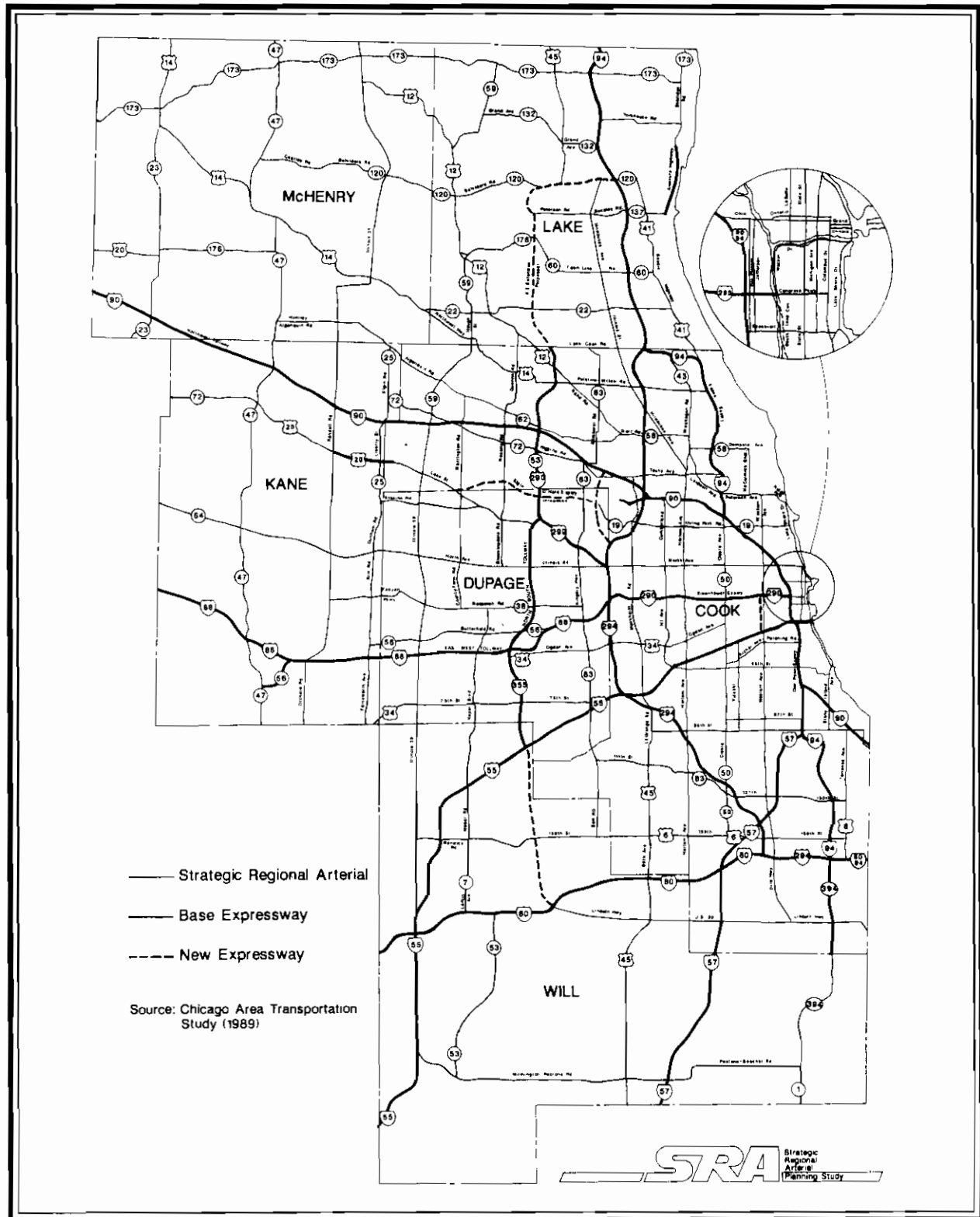


Figure 1.1 The Strategic Regional Arterial System

1.2 SRA ROUTE TYPES

Within the SRA network there are significant differences in the roadway environment. These differences affect how routes will function in the system. Three different types of SRA routes have been designated, corresponding to three types of roadway environment:

- Urban Routes,
- Suburban Routes, and
- Rural Routes.

The designation of route types is based upon the projected Year 2010 density of development within the Chicago region. Illinois Route 21 is designated as a suburban route (See *Figure 1.2.*) Urban SRA routes are located in the City of Chicago and adjacent portions of more densely developed suburbs such as Oak Park, where projected densities are greater than 5.0 households per acre. Suburban SRA route designations, where projected densities are between 0.5 and 5.0 households per acre, apply to most suburban Cook and Lake Counties, all of DuPage County, and the more developed portions of McHenry, Kane and Will Counties. Rural SRA routes are located in the outer portions of Lake, McHenry, Kane and Will Counties, where projected densities are less than 0.5 households per acre.

SRA routes located in densely urbanized areas typically are existing routes with minimal possibilities for roadway expansion, but where improvements could be made to intersections, transit facilities and structural clearances. For routes in developing suburban areas, additional lanes on roadways, new connections to improve route continuity, and operational improvements such as signal coordination may be considered. In rural areas, right-of-way preservation and access management would provide for movement of through traffic and accommodate future needs.

1.3 DESIRABLE ROUTE CHARACTERISTICS AND TECHNIQUES FOR SPECIAL CIRCUMSTANCES

Desirable route characteristics for the year 2010 have been delineated for each of the three SRA route types - Urban, Suburban and Rural - related to the roadway environment. These desirable characteristics are intended to provide adequate traffic service and geometric design, serving as criteria for planning the individual SRA routes. *Table 1.1* lists desirable characteristics for suburban SRA routes in the year 2010, including typical geometrics, operational measures, level of service, and access policies. These desirable characteristics are the basis for defining the desirable suburban SRA route cross-section which is shown in *Figure 1.3*.

As planning criteria, these design features and other route characteristics are designed to be generally applicable to all suburban SRA routes. However, the SRA planning process recognizes that there may be situations along suburban routes where certain design features are not appropriate or where special treatment of some features is desirable, such as:

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 1: Introduction

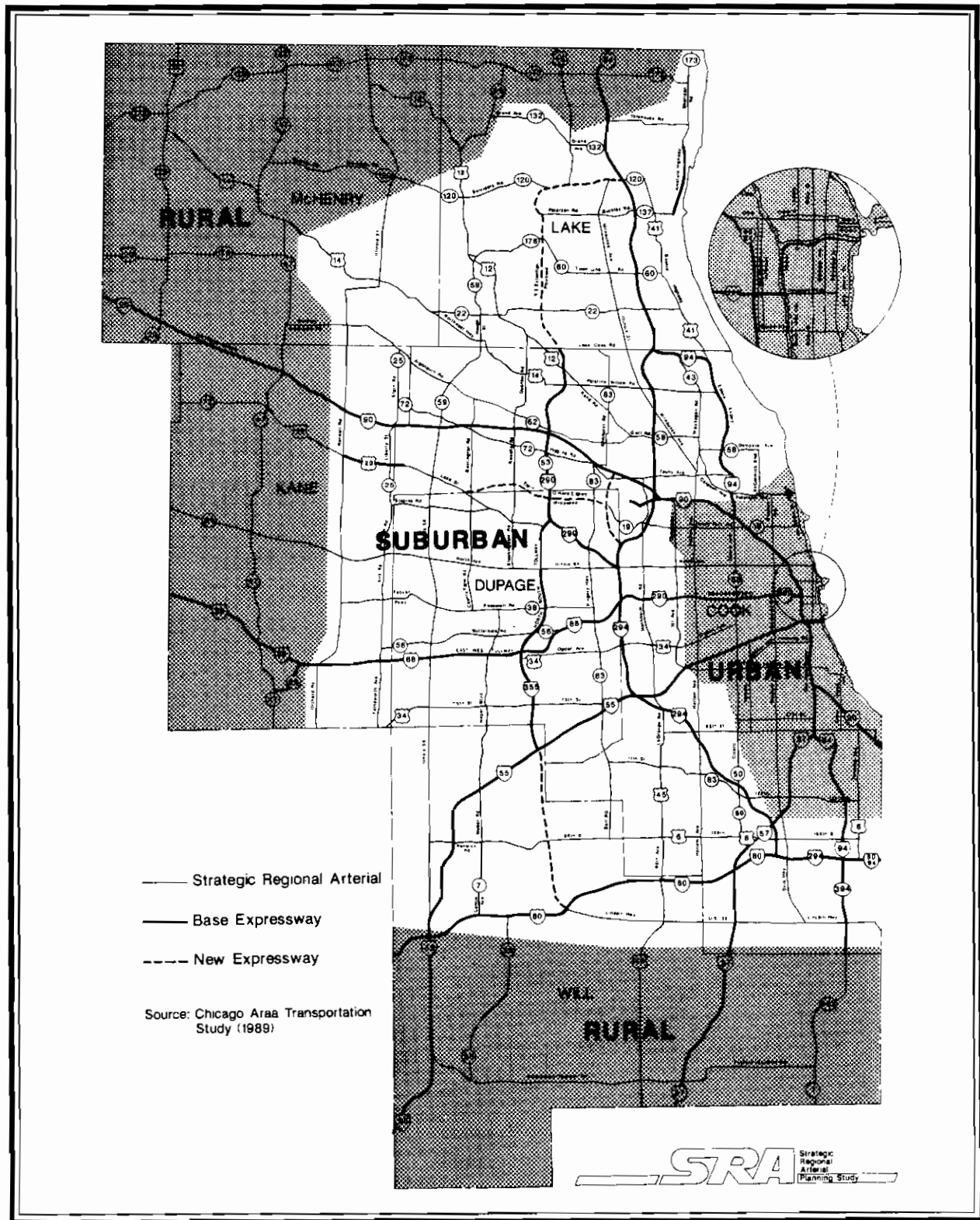


Figure 1.2 Route Types on the Strategic Regional Arterial System

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 1: Introduction

Table 1.1
2010 Desirable Route Characteristics
Suburban Strategic Regional Arterials

Right-of-way Width	120' - 150'
Level of Service (Peak Hour)/Design Speed	C or D / 45 mph
Number of Through Lanes	3 in each direction; 12' width
Median Width	18' - 46', raised
Right Turns	Turn lanes at all major intersections
Left Turns	Dual left turn lanes at all major intersections
Shoulders	Where appropriate, 10' width paved
Curbs	Yes, with 2' gutters
Sidewalks	Where appropriate, 5' width
Parking	Not recommended
Cross Street Intersections	Signals with collectors and arterials New local roads right-in/right-out only
Curb Cut Access	Consolidate access points at 500' spacing with cross easements
Transit	Bus turnouts, signs and shelters. Express bus service only. Signal pre-emption and HOV potential.
Number of Traffic Signals Per Mile	4 maximum
Signalization	Synchronization with pedestrian actuation where needed.
Freight: Radii	WB-55 typical/WB-60 Type II truck route
Vertical Clearances	New structures: 16'-3" Existing Structures: 14'-6"
Loading	Off-street loading

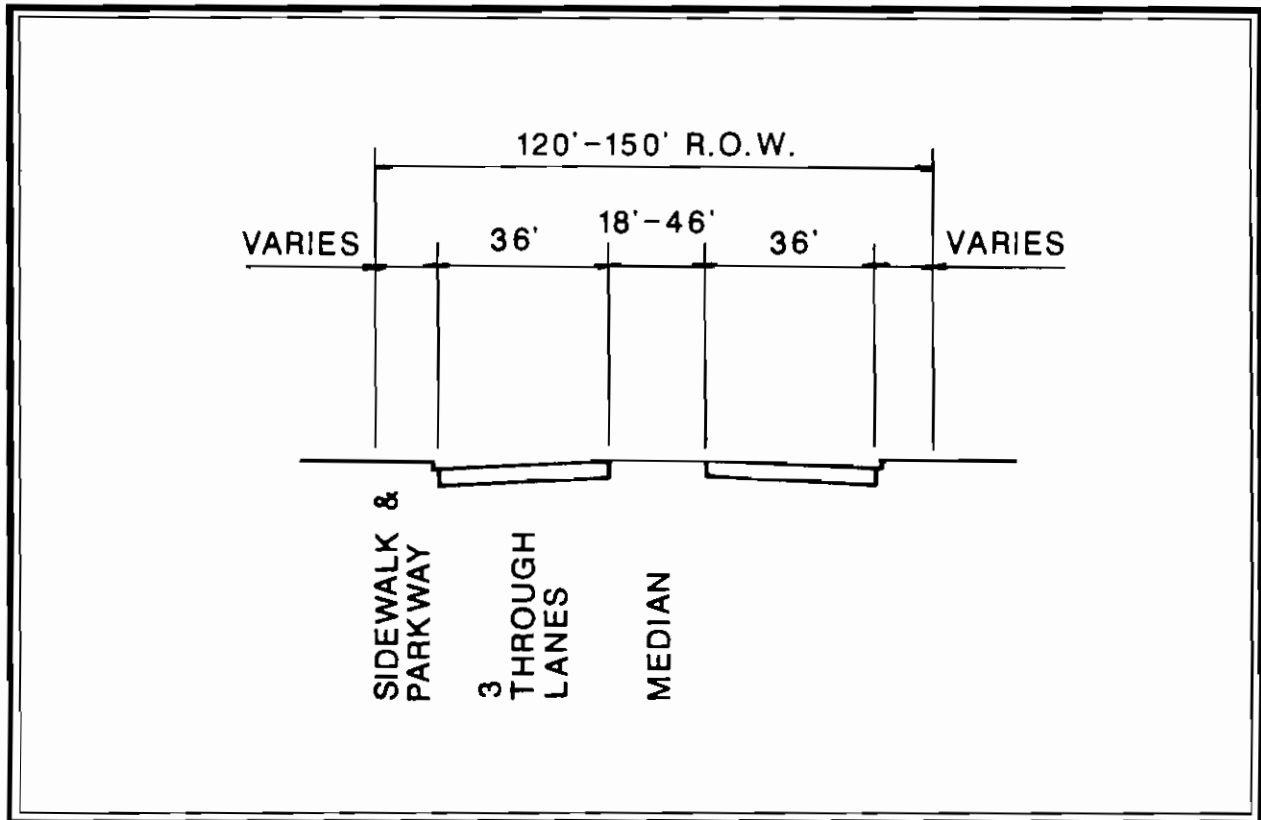


Figure 1.3 Desirable Suburban SRA Cross-Section

- Bus lane/ high occupancy vehicle (HOV) lanes;
- Signal preemption capability for transit vehicles;
- Demand actuated signals at transit stations;
- Channelization or interchanges at high volume intersections;
- Use of continuous two-way left-turn lanes;
- Designation of route bypasses for constricted areas; or
- Location of transit or pedestrian facilities in public easements outside the right-of-way.

While not all of these special techniques may be applicable to Illinois Route 21, they illustrate the range of treatments which has been considered.

A full description of the recommended designs and features applicable to all SRA routes, and techniques for special circumstances can be found in the Strategic Regional Arterial Design Concept Report, dated March, 1991.

1.4 STUDY OBJECTIVES

As an SRA route, Illinois Route 21 is intended to function as part of a regional arterial system, carrying high volumes of long-distance traffic in conjunction with other SRA routes and the regional expressway and transit systems. To implement the SRA system, development of a comprehensive, long-range plan for the entire network is necessary. The planning process for the SRA system is to be accomplished over a five year period, with individual route studies comprising one-fifth of the total system to be undertaken each year. Together, the route studies constitute a comprehensive, coordinated plan for the entire SRA network.

The Illinois Route 21 study identifies both low-cost and ultimate improvements to enable the route to function as part of the SRA system. The following objectives have guided the study process.

- Determine the types of roadway improvements needed for each route including additional lanes, signalization and interchanges.
- Define right-of-way requirements.
- Enhance access to the regional transit system.
- Identify ways to manage access which would improve through traffic movement and reduce conflicts.
- Coordinate recommended route improvements with projected development.

- Identify necessary improvements to accommodate commercial traffic.
- Accommodate necessary bicycle and pedestrian travel.
- Identify potential environmental concerns.

The completed study will guide implementation of improvements on Illinois Route 21, so that individual projects are consistent with the coordinated long-range development of the route as an integral part of the SRA system.

1.5 THE SRA PLANNING STUDY PROCESS

The SRA planning study process is accomplished through the following six phases:

Data Collection/Evaluation. The SRA planning process is designed to efficiently use available data. For each route, data is assembled from right-of-way information, roadway plans, traffic volume counts, transit information, bicycle usage, adjacent development characteristics, accident data, environmental studies and other sources, and is analyzed to establish current conditions, constraints and improvement needs.

Route Analysis. Possible improvements for the SRA route are determined by incorporating the recommended design features in specific configurations for each segment of the overall route. These configurations include alternative designs and techniques where necessary to accommodate local conditions or constraints.

Environmental Issues/Screening. While the SRA planning process does not include detailed environmental assessments or analysis of specific mitigation measures, a screening process identifies significant environmental conditions along each route. The results of this process are used to evaluate improvement alternatives and to serve as an early indicator of environmental issues for future design studies.

Construction Cost Estimates/Identification of Right-of-Way Needs. Construction cost estimates for each route segment are prepared for low-cost and ultimate improvements. Right-of-way needs to accommodate recommended ultimate improvements are also identified.

Local Involvement and Coordination. Throughout the SRA route planning process, the involvement of local and regional agencies is an important consideration. Information and coordination efforts include forming Advisory Panels for each SRA route, which work with IDOT during the planning process. A regular newsletter for each Panel informs members about the SRA program and ongoing route studies. A public hearing in an open house format is also conducted in each county on the route.

Final Route Improvement Plan/Report. As the final step in the planning process, a report for each SRA route documents the recommended improvements and findings.

1.6 STUDY DATA SOURCES AND METHODOLOGIES

Existing Roadway Characteristics Several data sources were compiled to create route inventories. Traffic counts for the route segments and for selected major intersections were obtained from IDOT Traffic Volume Maps and 1990 IDOT Intersection Turning Movement Data. The route was photographed using a video camera. On-site inspection confirmed IDOT scoping report data for number of lanes, location of traffic signals and turn bays, structures, setbacks, pavement width, speed limit, existence of sidewalks and other appurtenances, frontage roads, and median. The locations of median and curb cuts were identified by type: unlimited, frequent, coordinated, managed. Pavement widths were further confirmed with construction plan sheets whenever these were available. Sidwell maps provided right-of-way widths.

Existing Transit Characteristics Data on existing transit service and facilities was obtained from published data and reports as well as limited field verification of location and characteristics of transit facilities. Basic information on transit services in the SRA study area, including routes and schedules, was obtained from data compiled by the Division of Public Transportation of Illinois DOT. This was supplemented by reports from operating entities, including Pace, Metra and the CTA, which provided information on transit ridership and other operating characteristics. Locations of transit facilities, including bus stops and facilities at commuter rail and rapid transit stations, were verified in the field.

Development Characteristics Development characteristics include existing and planned uses. Current uses were included in the route inventory and derived from NIPC aerial photography, video and on-site inspection. These uses were identified in some detail and later grouped into more general development categories, such as residential, commercial, industrial, public and semi-public. Access was examined in the course of this analysis.

Planned uses were identified by municipal officials in response to a specific inquiry at the beginning of the SRA study, within adopted Comprehensive and Specific Plans, and during meetings with municipal officials. Such information was used to assess potential route impact and plan for access.

Environmental Considerations Because the purpose of the analysis was to identify those conditions and uses which *may* be negatively impacted by improvement of the SRA, the selection of data was as inclusive as possible.

Floodplain boundaries were obtained from the Federal Emergency Management Agency (FEMA) on the Flood Boundary and Floodway Maps and the Flood Insurance Rate Maps. The Illinois Department of Conservation (IDOC) National Wetlands Inventory Maps, local land use plans, and on-site surveys were used to identify wetlands and any streams which were not identified by FEMA.

IDOC also provided information from the Illinois Natural Heritage Database about endangered, threatened and watched species in Illinois and about natural areas. An endangered species is any species which is in danger of extinction as a breeding species in Illinois, while a threatened species is any breeding species which is likely to become a state endangered species within the foreseeable future. A species on the watch list is not listed as endangered or threatened, but is of special concern and could eventually become listed. Unless it could be determined that the species or area is not adjacent to the route, it is included in this inventory. This information was located to the nearest square mile.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 1: Introduction

Location of historic buildings, districts, and markers were provided by the National Register of Historic Places in Illinois, the Inventory of Historic Structures prepared by the Illinois Historic Structures Survey, the Inventory of Historic Landmarks prepared by the Illinois Historic Landmarks Survey, the Illinois State Historical Markers Text Book, and IDOT. The buildings, districts, and other structures appearing on the Inventory of Historic Landmarks are not necessarily significant historical resources. This inventory includes all buildings constructed prior to World War II. Those buildings with aesthetic merit are included on the Inventory of Historic Structures. Historic districts were most often listed on the National Register of Historic Places in Illinois, but others appeared in the Inventory of Historic Landmarks. Selected information was refined by IDOT design studies.

The Hazardous Waste Research and Information Center provided a list of waste disposal and hazardous waste dumping sites. The landfills and dumps are located to the nearest square mile. Unless it could be determined that the site is not adjacent to the route, it is included in this inventory. The list notwithstanding, it is recommended that any site used for industrial purposes at any time be tested for hazardous waste prior to roadway facility development.

The analysis of environmentally sensitive land uses included: schools, churches, theaters, auditoriums, parks, cemeteries, recreation facilities, nature and forest preserves, hospitals, nursing homes, selected hospitality facilities, public utilities, and other public buildings. While all such facilities and uses have been identified, there is no presumption that all such uses would be negatively impacted by roadway improvements.

Year 2010 Traffic Demand Projections The Chicago Area Transportation Study (CATS) projected Year 2010 traffic for all routes in the SRA system, and for tollways and expressways. Projections made for the SRA system are different from those made for most projects, because they assume that all routes in the system have been improved as suggested in the design criteria for the system. This assumption insures that no one route or part of a route would be expected to handle more than its share of the expected 2010 traffic volumes which may be traveling in that general direction. It also insures that no part or segment of a route would be improved more than is necessary to provide a consistent level of service throughout the route.

The projection methodology for SRA routes included four phases: trip generation, trip distribution, trip mode, and trip assignment. Collectively, the number of vehicle trips was projected for each SRA to SRA and SRA to expressway junction. Results are expressed in ranges corresponding to the number of lanes of capacity required to serve the demand.

Roadway Capacity Estimates A roadway capacity analysis estimates how many vehicles can be carried on the roadway. The analysis allows change in several conditions that affect the flow of traffic. The capacity of an arterial roadway depends most heavily on the number of vehicles that can be accommodated at its signalized intersections, so a group of variables describe how long the average vehicle is stopped at each signal. The number of signals and distance between them is included. Variables relating to the roadway and its operation; such as the number of through lanes in each direction, how many vehicles each lane can accommodate, the posted speed, how many vehicles are likely to make turns, and the characteristics of rush hour traffic; complete the information used in the analysis.

Cost Estimates Cost estimates include a standardized factor for land value added to construction cost estimates typical for the improvement type. The estimates are provided in 1991 dollars.

1.7 ORGANIZATION OF THE REPORT

This report on the Illinois Route 21 SRA route study is divided into four sections:

Section One (Volume I), Introduction, provides information about the SRA system and Operation GreenLight; SRA route types; desirable route characteristics; study objectives and the study process; and the organization of the report.

Section Two (Volume I), Route Overview, presents a general description of the study process; existing route characteristics; and type of recommended improvements for the overall route.

Section Three (Volume I), Route Analysis, presents a detailed analysis of existing route characteristics and recommended route improvements. This section is organized by the following route segments on Illinois Route 21:

- **Section 3-1:** Illinois Route 43 (Harlem Avenue) to Illinois Route 58 (Golf Road)
- **Section 3-2:** Illinois Route 58 (Golf Road) to Palatine/Willow Road
- **Section 3-3:** Palatine/Willow Road to Wolf Road
- **Section 3-4:** Wolf Road to Illinois Route 60 (Town Line Road)
- **Section 3-5:** Illinois Route 60 (Town Line Road) to Winchester Road
- **Section 3-6:** Winchester Road to Illinois Route 120 (Belvidere Road)

For each route segment the following analyses are presented:

Existing Facility Characteristics. The existing facility characteristics are defined. Current traffic volumes are listed. Existing right-of-way, number of lanes, pavement widths, location of existing traffic signals and sidewalks, existing transit usage and routes, location of structures and other appropriate existing facility characteristics are discussed and shown on the corresponding aerial base maps.

Environmental Characteristics. Environmental characteristics of the route segment are defined. Existing streams, wetlands and floodplains; historic properties and districts; flora and fauna; waste disposal sites; sensitive land uses; and other environmental characteristics are discussed and shown on the corresponding aerial base maps.

Existing and Projected Development Characteristics. The existing and projected development characteristics of the route segment are analyzed. Jurisdictional boundaries are defined. Existing land use characteristics are examined with respect to the types, density

or intensity of use and setbacks and access locations. Future development potential is examined by identification of vacant land, planned or likely redevelopment and other planned development in the vicinity. Finally, public and institutional areas are identified by location and type. The existing and projected development characteristics are shown on corresponding aerial base maps.

Recommended Improvements. The recommended improvements are identified for each route segment. Ultimate and low-cost improvements are specified in the categories of roadway, intersection, traffic signalization, access management, transit and other relevant areas. Right-of-way requirements for the implementation of the recommended improvements are identified. Potential environmental considerations for the implementation of the recommended improvements and right-of-way expansion are analyzed. Cost estimates relating to construction of the recommended improvements and acquisition of right-of-way are given.

Section Four (Volume II), Public Involvement, summarizes the public involvement process during the study, including the Illinois Route 21 SRA Advisory Panel meetings, the Advisory Panel newsletters, the public hearings and other efforts to promote local involvement in the study process.

SECTION TWO

ROUTE OVERVIEW

2.1 THE ILLINOIS ROUTE 21 (MILWAUKEE AVENUE) SRA STUDY AREA

Illinois Route 21 is an SRA route from Illinois Route 43 (Harlem Avenue) to Illinois Route 120 (Belvidere Road). It begins in the City of Chicago and passes through Niles, Glenview, Prospect Heights, Wheeling, Riverwoods, Buffalo Grove, Lincolnshire, Mettawa, Vernon Hills, Libertyville and Waukegan. Significant portions of the route are in unincorporated Cook County and Lake County. The route is approximately 25 miles long.

2.2 REGIONAL TRANSPORTATION FACILITIES

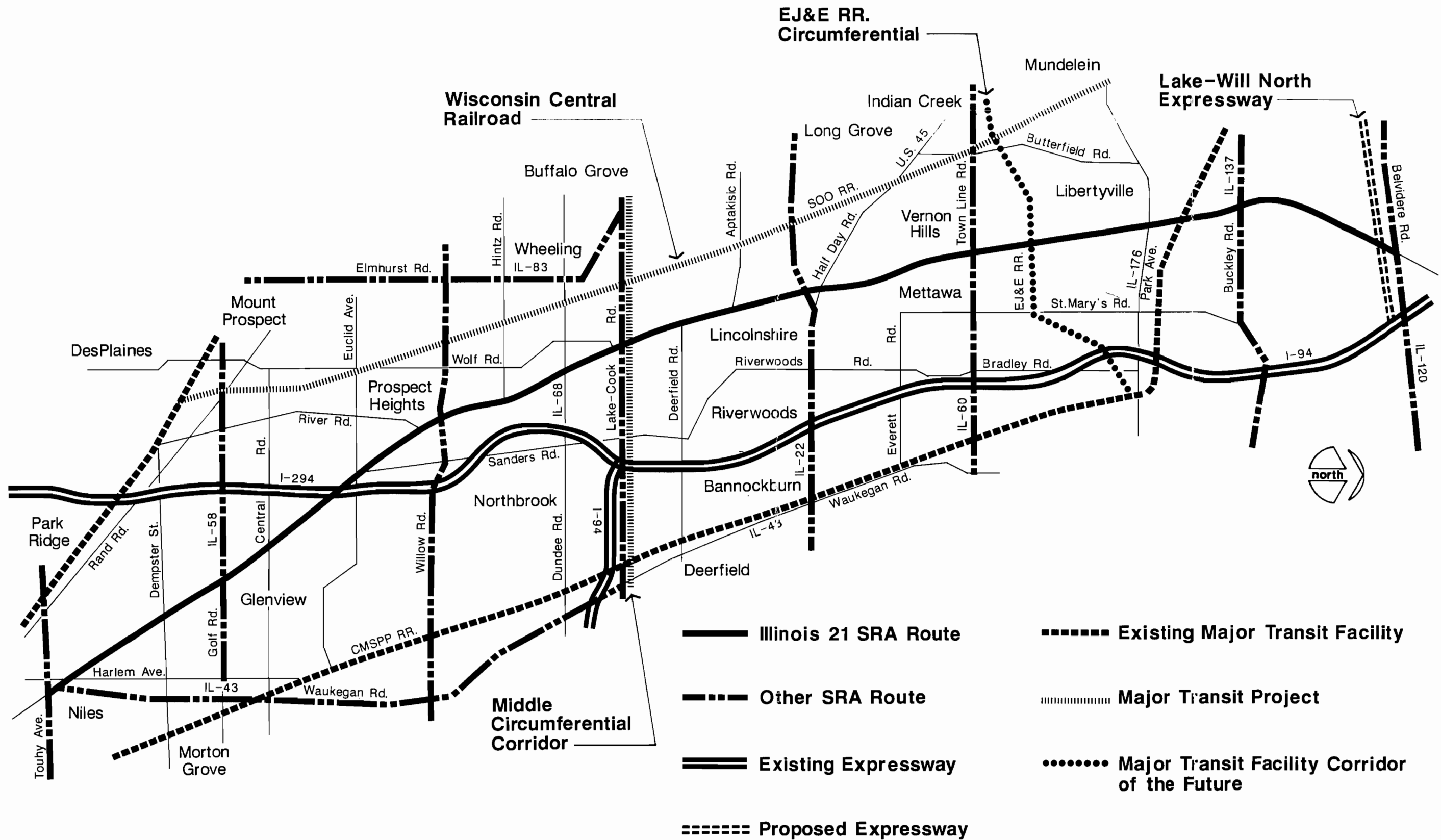
Figure 2.1 indicates the existing and proposed facilities connecting Illinois Route 21 to the regional transportation system as defined in the 2010 Transportation System Development Plan prepared by the Chicago Area Transportation Study (CATS).

Illinois Route 21 intersects eight other designated SRA routes: Illinois Route 43 (Harlem Avenue), Illinois Route 58 (Golf Road), Palatine/Willow Road, Lake-Cook Road, Illinois Route 22 (Half Day Road), Illinois Route 60 (Town Line Road), Illinois Route 137 (Buckley Road), and Illinois Route 120 (Belvidere Road). Illinois Route 21 also crosses Interstate 294 (Tri-State Tollway); however there is no interchange. There is access to Interstate 294 (Tri-State Tollway) at Illinois Route 58 (Golf Road) and Palatine/Willow Road, and to Interstate 94 (Edens Expressway) at Lake-Cook Road (southbound), Deerfield Road, Illinois Route 22 (Half Day Road), Illinois Route 60 (Town Line Road) (southbound), Illinois Route 176 (Rockland Road) (southbound), Illinois Route 137 (Buckley Road) (southbound), and Illinois Route 120 (Belvidere Road). Metra commuter rail service for the Milwaukee Road North line crosses Illinois Route 21 in the Village of Libertyville.

The 2010 Transportation System Development (TSD) Plan prepared by CATS identifies three proposed transit projects which would cross Illinois Route 21: the Wisconsin Central - Mundelein line; the Middle Circumferential Corridor; and the EJ&E rail corridor.

The Wisconsin Central line would provide service from Mundelein to NorthWestern Station in Chicago using the Wisconsin Central tracks (also known as the Soo Line) between Mundelein and Des Plaines, and the Chicago and NorthWestern tracks from Des Plaines to Chicago. Stations for the Wisconsin Central line service are planned for Prospect Heights on Camp McDonald Road, near the Wolf Road intersection; Wheeling, just south of Dundee Road; Buffalo Grove at Busch Parkway and Commerce Court, at a Pace facility offering bus service and a park and ride lot; near Lincolnshire on Main Street in unincorporated Prairie View; Vernon Hills, one-half mile west of Route 45; and Mundelein. Mundelein is considering three sites, one of which is near the junction with the EJ&E line. Should the Wisconsin Central line service be extended to Antioch, stations are proposed for Libertyville, Grayslake, Round Lake Beach, Lake Villa and Antioch.

The 37-mile long Middle Circumferential Corridor follows Lake-Cook Road west from U.S. Route 41 (Skokie Highway), and then runs south through northwest Cook County and east-central DuPage County. It would provide transit service to employment and population centers along Lake-Cook



Road, west of O'Hare Airport, and around either the Woodfield or Oak Brook activity centers. Connections would be provided with five existing and three other proposed transit lines, serving suburb-to-suburb, inbound and reverse commuting needs.

Another project, a 105-mile long circumferential route which would link the outer suburbs using the Elgin, Joliet & Eastern (EJ&E) tracks from Waukegan to Indiana, is designated as a transit corridor of the future. The proposed circumferential route using the EJ&E line would cross Illinois Route 21 in Libertyville between Illinois Route 60 (Town Line Road) and Golf Road, bisecting the Cuneo property, and would cross the Wisconsin Central line near Butterfield Road north of U.S. Route 45.

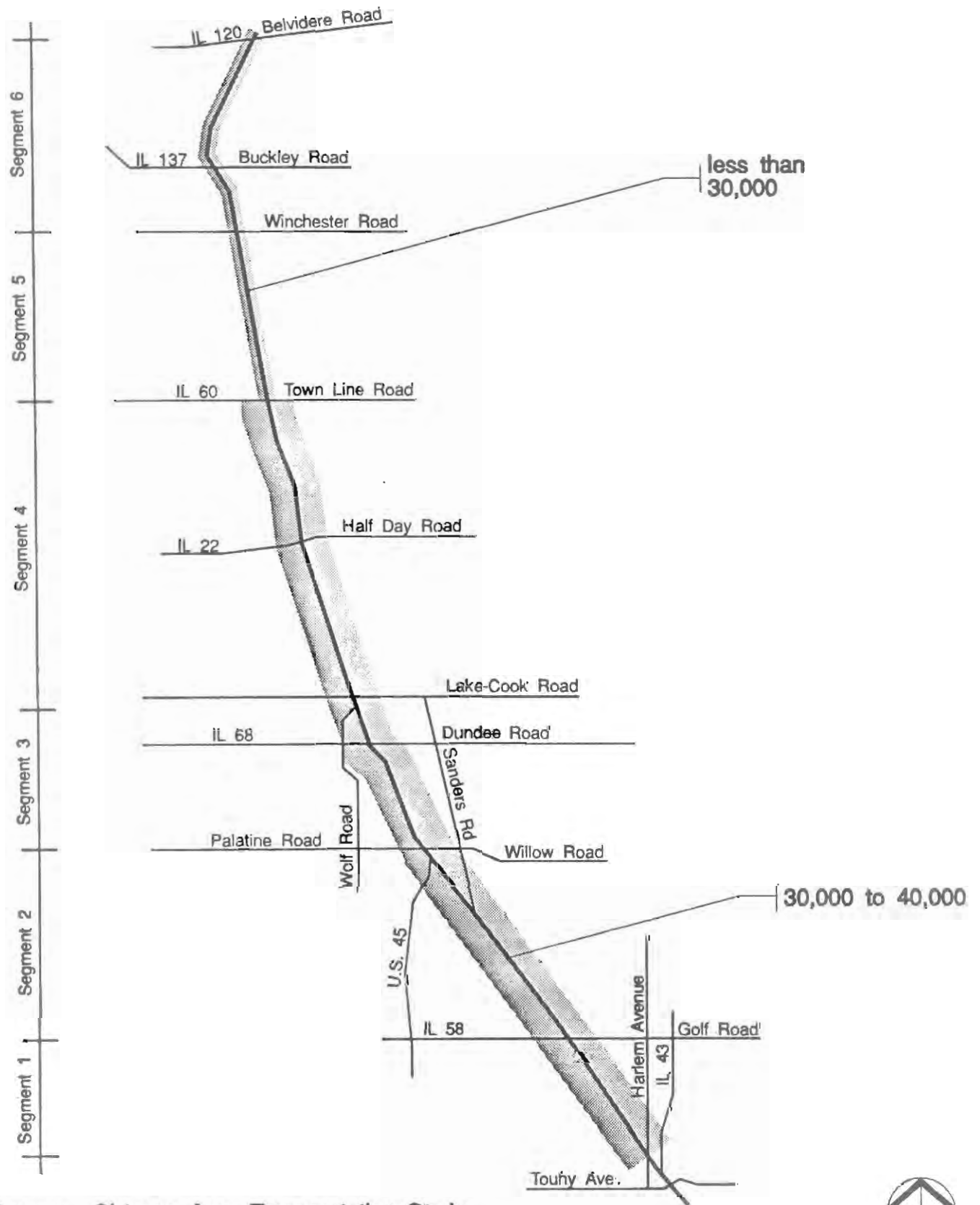
Also affecting Illinois Route 21 is the proposed Lake-Will North Expressway (FAP 342) which would extend north from Illinois Route 53 at Lake-Cook Road to Illinois Route 120 (Belvidere Road) and then east, crossing Illinois Route 21, to Interstate 94. This project, which would provide north-south highway capacity to central Lake County, is included in the 2010 TSD plan for the purposes of permitting protective buying to preserve the right-of-way and updating the project Environmental Impact Statement, which is now underway.

2.3 PROJECTED TRAVEL DEMAND

Figure 2.2 indicates the projected 2010 travel demand in terms of average annual daily traffic (AADT) for Illinois Route 21. The projected 2010 AADT travel demand forecasts are taken from the regional travel simulation model developed by CATS. Included in assumptions for the model were that all SRA routes would have been brought to the recommended desirable design and that Year 2010 improvements in the CATS TSD Plan, including the northward extension of Illinois Route 53, would have been completed.

2.4 ROUTE AREA TYPES

Illinois Route 21 is classified as a suburban SRA route. However, the route between Illinois Route 43 (Harlem Avenue) and U.S. Route 14 (Dempster Street) in Niles, as well as in downtown Wheeling and Libertyville exhibits a distinctly urban development pattern, and has been evaluated using urban SRA route design criteria. In these sections there are very narrow rights-of-way, buildings abutting the sidewalk and no foreseeable opportunity for major redevelopment that could yield additional right-of-way adequate for the recommended suburban SRA cross section. While recommended improvements for the urban-like portions of the route in Niles, Wheeling and Libertyville will not be exactly like the typical urban route, they will be closer to urban route criteria than to suburban. The design speed for a suburban SRA is 45 miles per hour, and the desirable minimum level of service is "C/D" at which average travel speeds are between 40 and 55 percent of the typical free flow speed of 40 miles per hour. The design speed for an urban SRA is 35 miles per hour, and the minimum desirable level of service is "D" at which average travel speeds are about 40 percent of the typical free flow speed of 33 miles per hour.



Source: Chicago Area Transportation Study



2.5 EVALUATION OF EXISTING ROUTE CHARACTERISTICS AND RECOMMENDED ROADWAY IMPROVEMENTS

As shown in *Table 2.1*, no segment of Illinois Route 21 meets the desirable suburban standards for right-of-way width and number of through lanes. For each segment, the recommended right-of-way width and number of through lanes in each direction are shown. The recommended right-of-way width is the ultimate desirable right-of-way width for the segment. The minimum desirable width for a suburban SRA route is 120 feet. Where the existing right-of-way exceeds this minimum, the recommended width for that segment indicates that the existing width be maintained. Although the full recommended right-of-way width may not be acquired by 2010 due to development or other

Table 2.1 Existing and Recommended Right-of-Way Width and Number of Through Traffic Lanes				
ILLINOIS ROUTE 21	Right-of-Way Width (feet)		Number of Through Lanes in Each Direction	
	Existing	Recommended	Existing	Recommended
DESIRABLE STANDARD FOR AN URBAN SRA		96-110 ⁽¹⁾		2
DESIRABLE STANDARD FOR A SUBURBAN SRA		120-150		3
Segment 1 Illinois 43 to Illinois 58 ⁽²⁾	66-110	66-120	2	2-3
Segment 2 Illinois 58 to Palatine/Willow Road	66-110	83-120	2	3
Segment 3 Palatine/Willow Road to Wolf Road ⁽²⁾	66-100	66-120	2	2
Segment 4 Wolf Road to Illinois 60	60-120	120-150	2	3
Segment 5 Illinois 60 to Winchester Road ⁽²⁾	66-130	66-150	2	2-3
Segment 6 Winchester Road to Illinois 120	80	120-150	1-2	2
⁽¹⁾ 72-86 feet where bus/HOV lanes are not provided. ⁽²⁾ Sections through downtown Niles, Wheeling and Libertyville to meet modified desirable urban standards.				

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 2: Route Overview

constraints, the full recommended width should be protected, so that future development and redevelopment do not encroach on the ultimate right-of-way.

The recommended number of through lanes in each direction is based upon an evaluation of the projected 2010 travel demand, along with the existing roadway characteristics and character of development in each segment. The recommended right-of-way width in some segments may be sufficient to accommodate additional traffic lanes as a post 2010 improvement.

The recommended right-of-way width and number of through lanes between Illinois Route 43 (Harlem Avenue) and Illinois Route 60 (Town Line Road) are consistent with the desirable criteria for a suburban SRA route except in two sections. At the southerly end of Segment 1, the existing right-of-way width is as little as 66 feet. Buildings along this portion of the segment have no setback from the right-of-way and a cemetery also abuts the rights-of-way of Illinois Route 21 and U.S. Route 14. The desirable suburban cross-section cannot be accommodated within the existing 66-foot right-of-way. Thus, the recommended configuration between Illinois Route 43 (Harlem Avenue) and U.S. Route 14 (Dempster Street) is two through lanes in each direction with a 12-foot wide median, all of which can be accommodated within the existing right-of-way. In Segment 3 (Palatine/Willow Road to Wolf Road) significant portions of the route have less than 100 feet of right-of-way width and buildings abut the right-of-way. Therefore, the recommended roadway configuration in this segment also provides two through lanes in each direction with a 12-foot wide median.

The southerly portion of Segment 2 between Illinois Route 58 (Golf Road) and Central Road also has right-of-way availability constraints but the existing right-of-way can accommodate the recommended three lanes in each direction, if the cross section is modified to reduce the median to four feet where additional right-of-way is not achievable.

In Segment 5 (Illinois Route 60 [Town Line Road] to Winchester Road) the recommended roadway configuration would provide three through lanes in each direction from Illinois Route 60 (Town Line Road) to the northernmost access to the Cuneo property. From this point to Winchester Road, the recommended roadway configuration provides two through lanes in each direction. Projected 2010 travel demand north of Illinois Route 60 (Town Line Road) is less than 30,000 vehicles per day, and the existing right-of-way narrows from 130 to 66 feet between Illinois Route 60 (Town Line Road) and Cook Avenue. Roadway improvements to Butterfield Road and construction of an east-west arterial street through the Cuneo property are SRA project recommendations to improve traffic circulation through Segment 5.

North of Winchester Road to Illinois Route 120, right-of-way sufficient to meet desirable suburban criteria is achievable. Projected 2010 travel demand, however, is less than 30,000 vehicles per day and therefore the recommended roadway configuration provides two through lanes in each direction.

The results of the capacity analyses comparing the projected 2010 travel demand to the recommended roadway configurations for Illinois Route 21 are given in *Table 2.2*. Results of the capacity analyses for the SRA to SRA intersections, and specific roadway and right-of-way recommendations for each route segment are discussed with the respective segments in Section Three of this report.

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 2: Route Overview

Table 2.2 Summary of Arterial Corridor Capacity Analysis					
Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Segment 1A Touhy Avenue to Oakton Street	30 to 40,000	4 *	28,000 32,000	C D	Yes
		6	44,000 48,000	C D	Yes
Segment 1B Oakton Street to Illinois 58	30 to 40,000	4	24,000 28,000	C D	No
		6 *	36,000 42,000	C D	Yes
Segment 2A Illinois 58 to Sanders Road	30 to 40,000	4	30,000 32,000	C D	No
		6 *	45,000 48,000	C D	Yes ⁽²⁾
Segment 2B Sanders Road to Palatine/Willow	30 to 40,000	4	28,000 31,000	C D	No
		6 *	43,000 48,000	C D	Yes ⁽³⁾
Segment 3 Palatine/Willow to Wolf Road	30 to 40,000	4 *	30,000 32,000	C D	Yes
		6	45,000 49,000	C D	Yes
⁽¹⁾ Average Annual Daily Traffic ⁽²⁾ Projected travel demand between West Lake Avenue and Sanders Road is greater than 50,000 vehicles. ⁽³⁾ Projected travel demand between DesPlaines River Road and Palatine/Willow Road is greater than 50,000 vehicles.					
* Recommended number of through traffic lanes					

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 2: Route Overview

Table 2.2 (continued) Summary of Arterial Corridor Capacity Analysis					
Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Segment 4A Wolf Road to Illinois 22	30 to 40,000	4	27,000 30,000	C D	No
		6 *	41,000 46,000	C D	Yes
Segment 4B Illinois 22 to Illinois 60	30 to 40,000	4	27,000 30,000	C D	No
		6 *	41,000 46,000	C D	Yes
Segment 5A Illinois 60 to Golf Road	< 30,000	4 ^{*(4)}	28,000 31,000	C D	Yes
		6 ^{*(4)}	43,000 47,000	C D	Yes
Segment 5B Golf Road to Winchester Road	< 30,000	4 *	28,000 31,000	C D	Yes
		6	42,000 47,000	C D	Yes
Segment 6 Winchester Road to Illinois 120	< 30,000	4 *	30,000 32,000	C D	Yes
		6	45,000 49,000	C D	Yes
⁽¹⁾ Average Annual Daily Traffic					
⁽⁴⁾ Transition from six to four through traffic lanes at northerly entrance to Cuneo property.					
* Recommended number of through traffic lanes.					

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 2: Route Overview

After an analysis of the Illinois Route 21 existing facility characteristics, existing traffic volumes, and currently programmed projects, the portion of Illinois Route 21 between West Lake Avenue and Illinois Route 60 (Town Line Road), has the greatest need for improvements. Low cost improvements, especially access management, signal coordination and timing, and restriction of left turns through downtown Libertyville during peak periods are expected to complement these improvements. The remainder of recommended improvements to the route could be planned for construction as projected increases in travel demand occur.

2.6 TRANSIT

Existing transit service in the Illinois Route 21 study area includes bus service by Pace and the Village of Niles courtesy bus, and Metra commuter rail service. One CTA route, the #90N, operates on Harlem Avenue between Touhy Avenue, near the southern end of Illinois Route 21, and Harlem station on the CTA O'Hare rapid transit line. The following sections discuss existing service and conditions. Specific recommended improvements are discussed with the respective route segments in Section Three of this report.

2.6.1 BUS SERVICES

Sixteen Pace bus routes operate on or across Illinois Route 21, carrying over 19,000 riders on an average week day. The services and their general routings are displayed on *Table 2.3*.

Table 2.3 Bus Service			
Route No.	General Routing	Service Type	Avg* Wkdy Riders
208	Golf Mill S. C. to Evanston Metra station	Inner Suburban	1272
210	IL21 - Lake Ave. to Dundee Rd.	Inner Suburban	988
220	Golf Mill S.C. - O'Hare Airport to Waukegan	Inner Suburban	968
225	IL21 at Howard	Rush Hour	494
226	IL21 at Oakton	Inner Suburban	1,788
228	Harlem - Harlem station to Glenview Rd.	Inner Suburban	1,047
234	IL21 - Dundee Rd. to Strong Rd.	Outer Suburban	592
240	Golf Mill S. C. to Cumberland CTA station	Inner Suburban	925
241	Golf Mill S. C. to Cumberland CTA station	Inner Suburban	625
250	IL21 at Dempster	Inner Suburban	3,180
270	IL21 - Jefferson Pk Sta to Glenbrook Hosp.	Inner Suburban	4,292
411	Golf Mill Shopping Center- Niles Courtesy Bus	Inner Suburban	1,020
412	Niles Courtesy Bus	Inner Suburban	1252
572	Waukegan to Hawthorn S.C. & Libertyville Metra	Outer Suburban	993
626	IL21 - Lake-Cook to Busch Parkway	Rush Hour	386
691	Deerfield Metra - Buffalo Grove park-and-ride	Rush Hour	105
* Average Number of Weekday Riders.			
Source: Suburban Bus System Service Performance Report, January - March 1990.			

On a typical weekday an average of about 19,000 riders use the bus system in the vicinity of the SRA route and about 7,000 of these riders use buses that travel on the SRA route. Both routes #626 and #691 have had significant increases in ridership since 1989, from 275 to 386 and 57 to 105 respectively on an average weekday. While the absolute number of riders is small, the upward trend displays some increased interest in transit usage in the area.

The Village of Niles operates a courtesy bus service which connects the Village shopping centers, recreational facilities and municipal buildings. There are seven 24-passenger buses running about one every 30 minutes on the #411 and about every 45 minutes on the #412. The Village works with Pace to insure there is no duplication of the Pace bus service and that connections can be made to Pace service at the Golf Mill Shopping Center and at Oakton Street.

2.6.2 RAIL SERVICE

Metra commuter rail service between Fox Lake and Chicago Union Station operates on the Milwaukee Division North line which parallels Illinois Route 21 south of Libertyville. The Libertyville Metra station is located on the west side of Illinois Route 21 just north of downtown Libertyville, and the SRA route provides partial access to the station and commuter parking facilities. In addition to rush-hour service, the schedule to Libertyville includes hourly service during the weekday off-peak periods, and relatively frequent weekend service. There are 1,080 weekday boardings at the Libertyville station (Metra passenger count, Fall 1989), and 701 parking spaces at or near the station of which 90 percent are used. (Metra parking assessment, 11/12/90.)

2.6.3 RECOMMENDED TRANSIT IMPROVEMENTS

Bus Stops

Bus stops should be provided where needed to serve future express bus service. Typically, these locations are at signalized intersections with a one-quarter to one-half mile spacing, or near locations of existing or planned commercial and employment centers and other transportation facilities. Specific locations might include the Howard/Harlem/Illinois Route 21 intersections; Oakton Street; U.S. Route 14; Golf Road; Central Road; Glenview Road; Lake Avenue; Palatine Road; Dundee Road; Lake-Cook Road; Deerfield Road; and, until Deerfield Parkway is complete, Busch Parkway. A stop should also be provided adjacent to the Libertyville Metra Station. The recommended locations should provide for bus turnouts, consistent with Pace Development Guidelines, along with shelters and paved walks within the right-of-way. However, along some segments of Illinois Route 21 turnouts cannot always be provided due to right-of-way and development constraints.

Park and Ride Facilities

Several locations for potential park-and-ride facilities have been identified along the route. These could be developed as multi-purpose facilities, supporting car and van pooling as well as transit service. In conjunction with express bus service, park-and-ride facilities would offer

opportunities to serve trips to and from regional centers which would not otherwise be well served by transit.

Service Drives

To provide for existing or potential future transit operation, service drives should be protected where there is adequate right-of-way available either contiguous to or parallel with the existing right-of-way. Where appropriate to provide local bus service shared access agreements could be negotiated with major office and hospitality developments along Illinois Route 21 to allow bus use of parking lot and driveway areas. Minor lengths of pavement could connect adjacent parking lots and allow buses to travel from office complex to shopping center parallel to Illinois Route 21 for significant distances.

Signage

Improved signage on the SRA route is also recommended. A comprehensive signage system should include directional signs on Illinois Route 21 at key points such as expressway interchanges and other SRAs. These directional signs should also identify rail stations, such as those in Deerfield or Northbrook, which are near, although not directly accessible from, the SRA. At the approaches to stations signage specific directional instructions for access drives to parking facilities, "kiss-and-ride" areas or drop-off points should be provided. Within the station area, consistent graphics should direct the motorist to specific locations. Also, for bus stops in the station areas, informational signage should provide graphic illustrations of routes, with information on schedules and connecting routes. Directional signs to and identification signs at bus stops should be installed consistent with the Pace development guidelines.

Transportation Centers

Although few major transit facilities exist along the route, there are opportunities to improve or develop multi-purpose transportation centers which would complement the SRA improvements and could help relieve congestion along the route. A transportation center is a facility which can provide not only typical transit facilities: train station/bus stop, taxi stand, parking lot, and drop off area; but commuter related commercial tenants as well: snack bar, news stand, convenience grocery, dry cleaners and day care among other uses. Transportation centers tend to become more feasible at intersections of more than one transit type (e.g. the intersection of bus and commuter rail services) because the increased number of passengers provides more of a market for consumer goods and services.

Pace Development Guidelines

Pace has published a set of development guidelines and established an official development review function. Guidelines include interior circulation to defined transit stops served with adequate facilities; such facilities can complement transit service on the SRA route. It is recommended that communities experiencing development of major parcels along the SRA route encourage developers to meet as many of these guidelines as are appropriate to the community.

2.7 SUMMARY OF ILLINOIS ROUTE 21 CONSTRUCTION COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Illinois Route 21 (Milwaukee Avenue) is shown in *Table 2.4*.

Costs associated with the provision of transit projects not on the SRA route are not included as part of the SRA construction or right-of-way costs. These are complementary, but separate, projects from the SRA improvements, and require further analysis beyond the scope of this study.

Table 2.4	
Construction Cost Estimates for Illinois Route 21 (Milwaukee Avenue)	
Improvement	Estimated Cost
Ultimate	
Roadway	\$82,200,000
Intersection Improvements	\$12,000,000
Traffic Signals	\$1,400,000
Signal Interconnection	\$800,000
Structure Modification	\$10,800,000
Transit Improvements (includes land acquisition)	\$1,500,000
Right-of-way Acquisition	\$18,700,000
Total Estimated Cost for Ultimate Improvements	\$127,400,000
Low-Cost	
Signal Interconnection	\$1,500,000
Transit Improvements	\$700,000
Total Estimated Cost for Low-Cost Improvements	\$2,200,000
Post-2010	
Roadway	\$5,400,000
Grade Separation at EJ&E Railroad	\$2,500,000
Total Estimated Cost for Post-2010 Improvements	\$7,900,000
Total Estimated Cost for All Improvements	\$137,500,000

SECTION THREE ROUTE ANALYSIS

3.1 SRA SEGMENT 1: ILLINOIS ROUTE 43 (HARLEM AVENUE) TO ILLINOIS ROUTE 58 (GOLF ROAD)

3.1.1 LOCATION

Illinois Route 21 Segment 1 extends from Illinois Route 43 (Harlem Avenue) to Illinois Route 58 (Golf Road). The segment is approximately 3.5 miles long. (See *Figure 3.1.*)

3.1.2 EXISTING FACILITY CHARACTERISTICS

Existing facility characteristics for this segment are shown on Route Map A-1.

Traffic Volumes

According to the 1990 IDOT Cook County traffic map, the average annual daily traffic (AADT) in this segment varies from 38,700 vehicles at Illinois Route 43 to 35,700 vehicles at Illinois Route 58 .

Right-of-Way

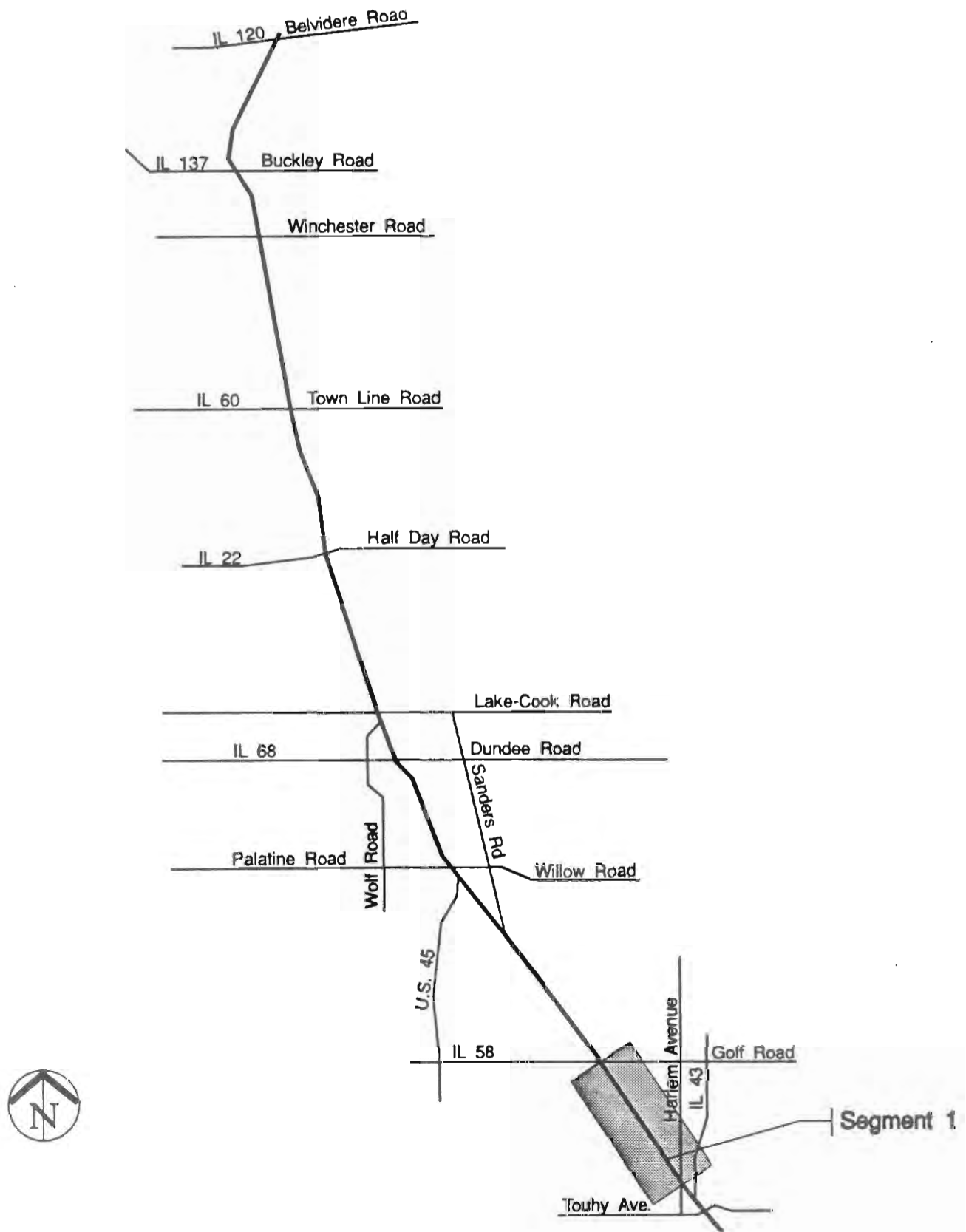
The existing right-of-way along this route segment varies in width from 66 feet to 122 feet. Most of the right-of-way is 100 feet wide with two 66-foot wide lengths located between:

- Illinois Route 43 (Harlem Avenue) and Howard Street, and
- Crain Street and U.S. Route 14 (Dempster Street).

Between U.S. Route 14 (Dempster Street) and Maryland Street the right-of-way width is 100 feet. North of Maryland Street, the right-of-way expands first to 110 feet adjacent to the Golf Mill Shopping Center then to 122 feet at the northbound approach to the intersection with Illinois Route 58 (Golf Road).

Pavement Width and Number of Lanes

The existing roadway configuration south of Maryland Street provides four traffic lanes along the entire route segment with two through lanes of travel in each direction. The roadway south of Ballard Road is separated by striped pavement markings. There is a 10- to 12-foot wide, two-way left-turn lane between Ballard Road and Maryland Street. North of Maryland Street there are six traffic lanes with three through lanes of travel in each direction separated by a two- to eight-foot raised concrete median.



ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 43 (Harlem Avenue) to Illinois Route 58 (Golf Road)

South of Maryland Street the paved roadway width varies from 44 feet to 64 feet:

- 44 feet between Harlem Avenue and Mulford Street,
- 48 feet between Mulford Street and Ozark Street,
- 44 feet between Ozark Street and Ozanam Avenue,
- 64 feet between Ozanam Avenue and U.S. Route 14 (Dempster Street), and
- 62 feet between U.S. Route 14 (Dempster Street) and Maryland Street.

North of Maryland Street the total paved roadway width is 72 feet. There is curb and gutter along the length of the entire route segment.

Traffic Signals

There are twelve signalized intersections on this segment. They are listed from south to north on *Table 3.1*.

Table 3.1 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Illinois 43 (Harlem Ave)	2	2	NO	SB	Acute angled intersection
Howard Street	2	2	YES	NO	
Oak Mill Mall	2	2	YES	SB	
Oakton Street	2	2	YES	NO	
Main Street	2	2	YES	NO	
Dempster (EB Ent/Exit)	2	2	SB	NO	
Dempster (WB Ent/Exit)	2	2	NB	NO	
Ballard Road	2	2	YES	NO	Interconnected
Maryland Street	2	2	YES	NO	Interconnected
Golf Mill South	3	3	NB	NO	Interconnected
Golf Mill North	3	3	NB	NO	Interconnected
Illinois 58 (Golf Road)	3	3	YES	NB	Interconnected
Note: NB = northbound; SB = southbound					

There are two traffic signal systems serving Segment 1. The triangular configuration at the intersections of Illinois Route 21, Illinois Route 43 (Harlem Avenue) and Howard Street is

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 43 (Harlem Avenue) to Illinois Route 58 (Golf Road)

controlled as part of a network of signal systems along these roadways. The signalized intersections from Ballard Road to Greenwood Avenue in Segment 2 make up a second signal system.

Parking, Sidewalks, and Frontage Roads

There are two forms of parking along this route segment. On-street parking is allowed north of Oakton Street for one block from Seward Street to Keeney Street along the east side of the roadway. There is more on-street parking north of Kedzie Street for three blocks to Lee Street also along the east side of the roadway.

The other parking areas are separated from the roadway and include a combination of traditional parking lots, "frontage road" parking lots, angled parking, and parallel parking. These areas exist along both sides of the roadway from Illinois Route 43 (Harlem Avenue) to Monroe Street. There are sidewalks along both sides of the roadway for most of the route segment.

Dedicated alleys parallel the route and abut the rear properties lines of the majority of small properties. In strip commercial areas, these alleyways are often used to access parking lots behind stores. The block of stores westerly of the intersection of Illinois Route 43 (Harlem Avenue) and Illinois Route 21 is an example of this access pattern. Selected residential areas adjacent to these strip commercial areas have blocked access to their streets by blocking the through street at the alley.

Structures

In Segment 1, there is only one structure, which is shown on *Table 3.2*. This structure has recently been reconstructed.

Table 3.2 Existing Structures				
Structure	Structure No. (SN)	Location	Clearance Vert. Horiz.	Remarks
Dempster Street	016-0244	—————	N/A 73.6'	SRA over
Note: N/A = Not Applicable				

Transit

Segment 1 has the most transit service of all the segments of Illinois Route 21. There is only one CTA route, the #90N, which operates on Illinois Route 43 (Harlem Avenue) between Touhy Avenue near the southern end of Illinois Route 21 and the Harlem station on the O'Hare rapid transit station.

The Pace route #270 is the only route with extensive service on the Illinois Route 21 SRA. Traveling between the Jefferson Park CTA rapid transit station and Glenbrook Hospital in Glenview on an average weekday, the route serves 4,292 passengers. Passengers in Niles

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Illinois Route 43 (Harlem Avenue) to Illinois Route 58 (Golf Road)

can reach the #270 and Golf Mill Shopping Center via the courtesy bus services #411 and #412 which operate between 8:30 a.m. and 5:00 p.m. on weekdays and from 11:30 a.m. on weekends. Other Pace routes serving the Golf Mill shopping center include the #220 going to O'Hare Airport, the #240 and #241 going to the Cumberland CTA station, and the #208 going to the Chicago and NorthWestern North line station in Evanston. Other Pace service to the segment includes the #225 at Oakton going to the Jefferson Park CTA station and the #250 at U.S. Route 14 going to the Dempster station of the Skokie Swift.

Pace maintains a pulse point furnished with benches and shelters at the northeast corner of Church Street and Greenwood Avenue, just southwest of the Golf Mill Shopping Center. There are bus shelters opposite Oak Mill Mall (Oakton Avenue) and at the southeast corner of the intersection with Main Street.

3.1.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for Segment 1 of Illinois Route 21 include sensitive land uses and are shown in Route Map B-1.

Sensitive Land Uses

There is a church east of the route just south of Church Street.

Maryhill Cemetery is located southwesterly of U.S. Route 14 (Dempster Street) and Illinois Route 21. Niles Village Hall is northeast of the intersection with Howard Street and the park district pool is opposite the Oak Mill Mall.

3.1.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development for Segment 1 of Illinois Route 21 (Milwaukee Avenue) are indicated on Route Map C-1.

Jurisdiction

Except for the area between Illinois Route 43 (Harlem Avenue) and Howard Street which is in Chicago, the segment is in the Village of Niles.

Type and Intensity of Development

Land use is primarily strip commercial. Single- and multi-family residential are important secondary uses. There is one neighborhood shopping center at Oakton Street, a regional shopping center, Golf Mill Shopping Center, at the southwesterly corner of Illinois Route 58 (Golf Road) and Illinois Route 21 (Milwaukee Avenue), and two small specialty centers southeasterly of that intersection. Residential development is predominant in the areas extending easterly and westerly from the corridor.

Development Access and Setback

Commercial development is primarily accessed by curb cuts or cross streets servicing some form of off-street parking. Cross streets provide access to multi-family residential parking lots or garages. The driveways of individual single-family homes intersect Illinois Route 21 between Monroe Street and Main Street.

With few exceptions, commercial buildings south of Monroe Street are set very close to the right-of-way. Commercial structures north of Monroe Street tend to be set back 20 to 30 feet and many have off-street parking which abuts the right-of-way. Residential structures are also set back 20 to 30 feet from the right-of-way.

Future Development

According to municipal records as of August, 1990, there are no plans for development on this segment. Almost all land is developed. Redevelopment, particularly over the long term in the area south of Oakton Street, is possible.

3.1.5 RECOMMENDED IMPROVEMENTS

Improvements have been recommended after evaluating the projected travel demand for the year 2010 along with the existing roadway characteristics and character of development along the route. Improvements are categorized by ultimate and low-cost, and divided into those related to the roadway, intersections, traffic signalization, structures, access, transit and other improvements. Right-of-way requirements, potential environmental concerns and improvement cost estimates are also provided in this section. Recommended improvements are shown on Route Map D-1.

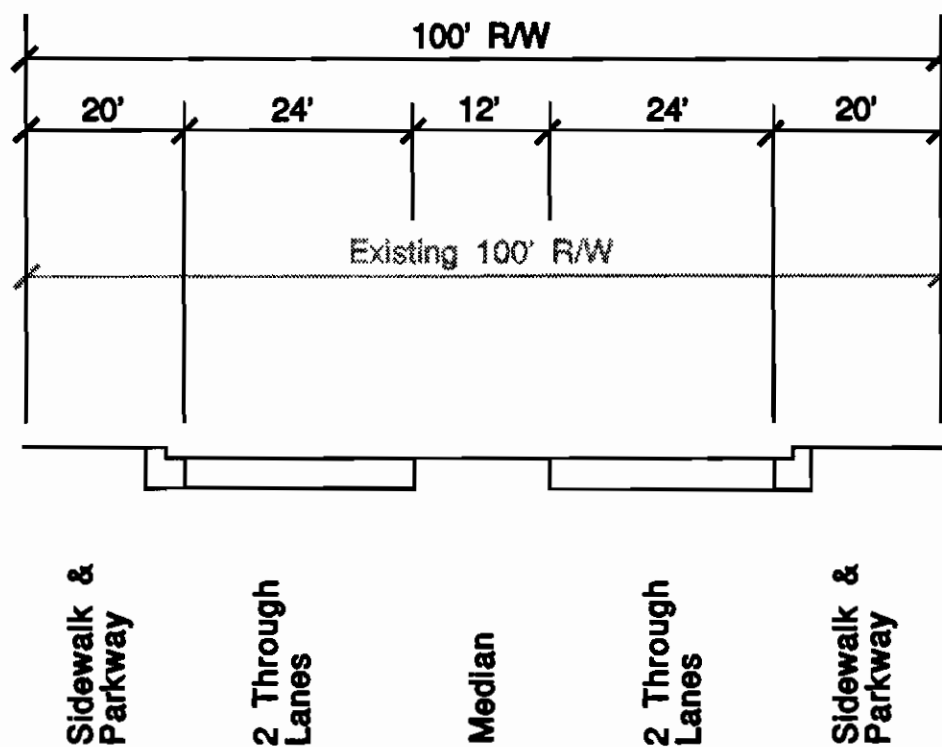
Ultimate Improvements

Roadway

The recommended roadway configuration between Illinois Route 43 (Harlem Avenue) and U.S. Route 14 provides two through traffic lanes in each direction divided by an 12-foot wide median. (See *Figure 3.2.*) This cross-section can be accommodated within the existing right-of-way without significant disruption of existing uses. Protection of sufficient additional right-of-way to provide for six through lanes is not feasible, due to the proximity of existing buildings to the right-of-way line, as well as the location of Maryhill Cemetery abutting the existing right-of-way.

Between U.S. Route 14 and Illinois Route 58 (Golf Road) the recommended roadway configuration provides three through lanes in each direction with an 18-foot wide, barrier median. (See *Figure 3.3.*) Buildings are sufficiently set back from the right-of-way that additional right-of-way is achievable.

Results of the capacity analysis for Segment 1 are shown in *Table 3.3.*

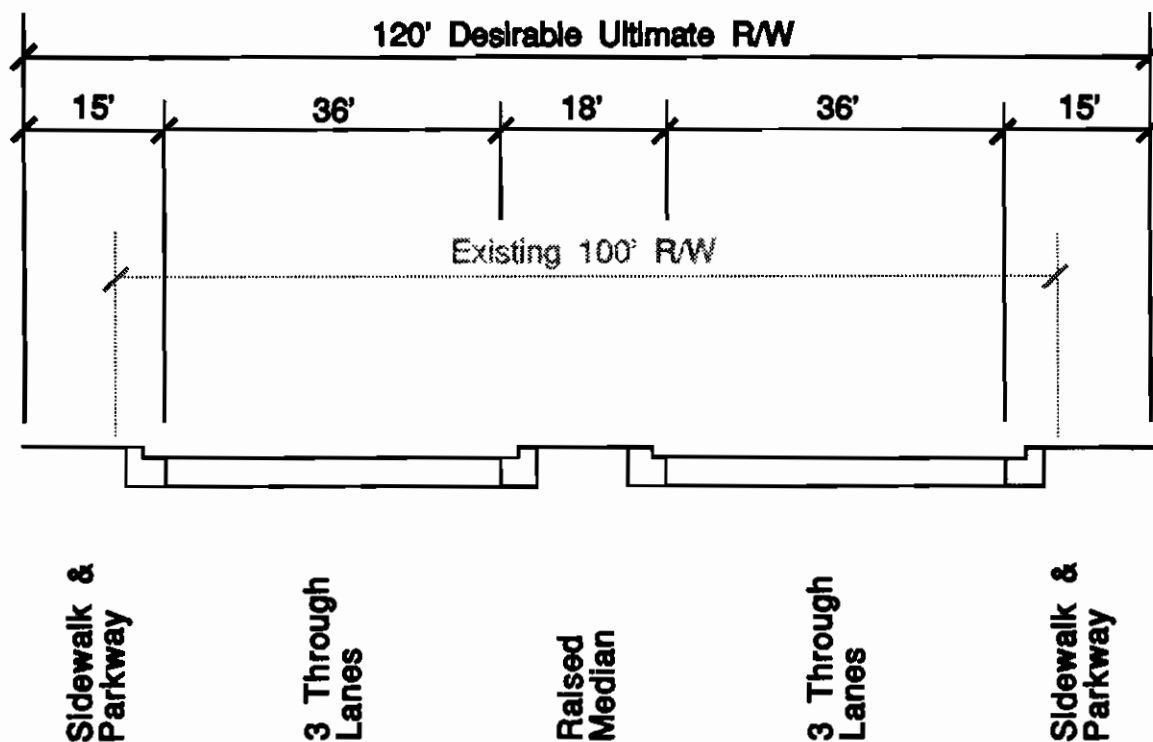


Section A-A

Recommended Roadway Typical Section

Illinois Route 21 Harlem Avenue to U.S. Route 14 (Dempster Street)

prepared by Harland Bartholomew & Associates, Inc. Figure 3.2



Section B-B

Recommended Roadway Typical Section

Illinois Route 21 U.S. 14 (Dempster Street) to Illinois 58 (Golf Road)

prepared by Harland Bartholomew & Associates, Inc. Figure 3.3

Table 3.3
Capacity Analysis for Segment 1 of Illinois Route 21

Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Touhy Avenue to Oakton Street	30 to 40,000	4 *	28,000 32,000	C D	Yes
		6	44,000 48,000	C D	Yes
Oakton Street to Illinois 58	30 to 40,000	4	24,000 28,000	C D	No
		6 *	36,000 42,000	C D	Yes
⁽¹⁾ Average Annual Daily Traffic					
* Recommended number of through lanes for this segment.					

Intersections

The recommended roadway configuration allows development of left-turn lanes within the median at the intersecting streets between Illinois Route 43 (Harlem Avenue) and U.S. Route 14.

Detail 1 shows the recommended modifications to the intersections of Illinois Route 21 with Illinois Route 43 (Harlem Avenue) and Howard Street, and of Illinois Route 43 (Harlem Avenue) with Howard Street. These three intersections create a small, triangular parcel. Using an AADT of 32,000 for Illinois Route 21 and 32,000 for Illinois Route 43 (Harlem Avenue), the levels of service for each intersection movement and for the total intersection were calculated and are shown in *Table 3.4*.

Traffic Signalization

The only future signal recommended for this segment is at Monroe Street. A future signal should be installed on the route only at the recommended location and only when the signal warrants recommended for SRA routes are met. (Recommended signal warrants for SRA's are discussed in Section 10.4.2 of the *Strategic Regional Arterial Design Concept Report*.) Signals should not be installed at other than the recommended location; additional signals would tend to impede traffic flow on the SRA route and interfere with optimization and progression of signal systems.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 43 (Harlem Avenue) to Illinois Route 58 (Golf Road)

Table 3.4		
Illinois 21/Illinois Route 43 (Harlem Avenue) Intersection Level of Service		
Direction	Movement	Level of Service
Illinois Route 21 northbound	through and right turn	C
Illinois Route 21 southbound	through and right turn	D
Harlem Avenue northbound	left turn	C
Harlem Avenue northbound	through and right turn	D
Harlem Avenue southbound	left turn	B
Harlem Avenue southbound	through	B
Total Intersection		D

Low-Cost Improvements

Traffic Signalization

Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met. The existing signals in this segment would be retained and interconnection of signals in coordinated systems is recommended. The existing signal systems should be extended to interconnect all of the existing signals between Howard Street and Ballard Street into one signal system.

Access Management

To insure the smooth function of Illinois Route 21, it will be important to insure that "side friction", the entrance and exit of traffic to and from the roadway, is as low as possible. This will be true through the four lane subsection southerly of U.S. Route 14 and particularly true southerly of Oakton Street.

In addition to dedicated alleys paralleling the SRA right-of-way, much of the commercial development is served by existing, off-route, interconnected access. These facilities should be developed as fully as possible to encourage increased access via intersecting streets, rather than directly from the SRA.

It is recommended that Oconto Avenue be closed at its intersection with Howard Street, and that traffic be rerouted via Birchwood Avenue. (See Detail 1.) It may be possible to convert the northerly end of this block of Oconto Avenue into off-street parking.

It is suggested that, south of U.S. Route 14, streets that are less than 500 feet from a signalized intersection be blocked at the rear property line of the property fronting Illinois Route 21. This strategy not only reduces the number of access points to Illinois Route 21, it also protects home owners in the adjacent neighborhoods from commercial and commuter traffic in search of more direct routes. Such blockages must be evaluated for their

impact on emergency vehicle response times and public works functions prior to implementation.

Part of the segment southerly of U.S. Route 14 is served by on-street parking. It is recommended that all existing angle parking be replaced with parallel parking. Strategic street closures suggested above could provide additional right-of-way for incorporation into redesigned parking and access.

It is recommended that as parcels are developed or redeveloped access be limited to a maximum of one curb cut for each 500 feet. Wherever possible in areas of existing development, access should be consolidated via alleyways or mutual access easements in parking lots.

Transit

Bus service could be more readily accommodated within the relatively narrow roadway south of Howard Street if bus turnout areas were provided. Wherever possible, new stops should be located near shopping or employment centers. Shelters should be provided at transfer stops at Illinois Route 43 (Harlem Avenue) and U.S. Route 14 (Dempster Street). The Ballard Road stops are also logical sites for shelters.

3.1.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

Some additional right-of-way will be required to complete the improvements of the Howard/Illinois Route 43/Illinois Route 21 intersections as shown in Detail 1.

Additional right-of-way will be necessary to accommodate the recommended 120-foot right-of-way between U.S. Route 14 and Illinois Route 58. It may be desirable to assist business owners currently using the recommended right-of-way area for customer parking to acquire contiguous areas for replacement parking.

Additional right-of-way would be needed to accommodate far-side bus turnouts at Howard Street. The closing of Oconto Avenue would provide an opportunity for reuse of part of the Oconto Avenue right-of-way with the triangular parcel separating Oconto Avenue from Illinois Route 21. The Village of Niles owns the parcel northeasterly of the intersection. The remaining recommended turnouts can be accommodated within the existing right-of-way.

3.1.7 POTENTIAL ENVIRONMENTAL CONCERNS

None of the recommended improvements is expected to present environmental concern. Recommended street closures could actually improve the quiet enjoyment of adjacent residential areas. Retention of the existing right-of-way throughout the segment southerly of U.S. Route 14 will preserve the buildings and Maryhill Cemetery which line the right-of-way. Relocation of parking and improved off-street parking access is expected to increase customer and resident convenience, especially during the rush hour periods. These strategies are expected to substantially reduce costs of construction and any economic disruption to the Village which might be caused by the relocation of some on-street parking.

3.1.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 1 of Illinois Route 21 (Milwaukee Avenue) is shown in *Table 3.5*.

Table 3.5 Construction Cost Estimates for Segment 1 - Illinois Route 21	
Improvement	Estimated Cost
Ultimate	
Roadway	\$8,400,000
Intersection Improvements	\$500,000
Traffic Signals	\$100,000
Right-of-way Acquisition	\$1,000,000
Total Estimated Cost for Ultimate Improvements	\$10,000,000
Low-Cost	
Signal Interconnection	\$400,000
Transit Improvements	\$100,000
Total Estimated Cost for Low-Cost Improvements	\$500,000
Total Estimated Cost for All Improvements	\$10,500,000

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 58 (Golf Road) to Palatine/Willow Road

3.2 SRA SEGMENT 2: ILLINOIS ROUTE 58 (GOLF ROAD) TO PALATINE/WILLOW ROAD

3.2.1 LOCATION

Segment 2 of Illinois Route 21 (Milwaukee Avenue) extends from Illinois Route 58 (Golf Road) to Palatine/Willow Road and covers a distance of approximately five miles. (See Figure 3.4.)

3.2.2 EXISTING FACILITY CHARACTERISTICS

Existing facility characteristics for Segment 2 of Illinois Route 21 are shown on Route Maps A-2 and A-3.

Traffic Volumes

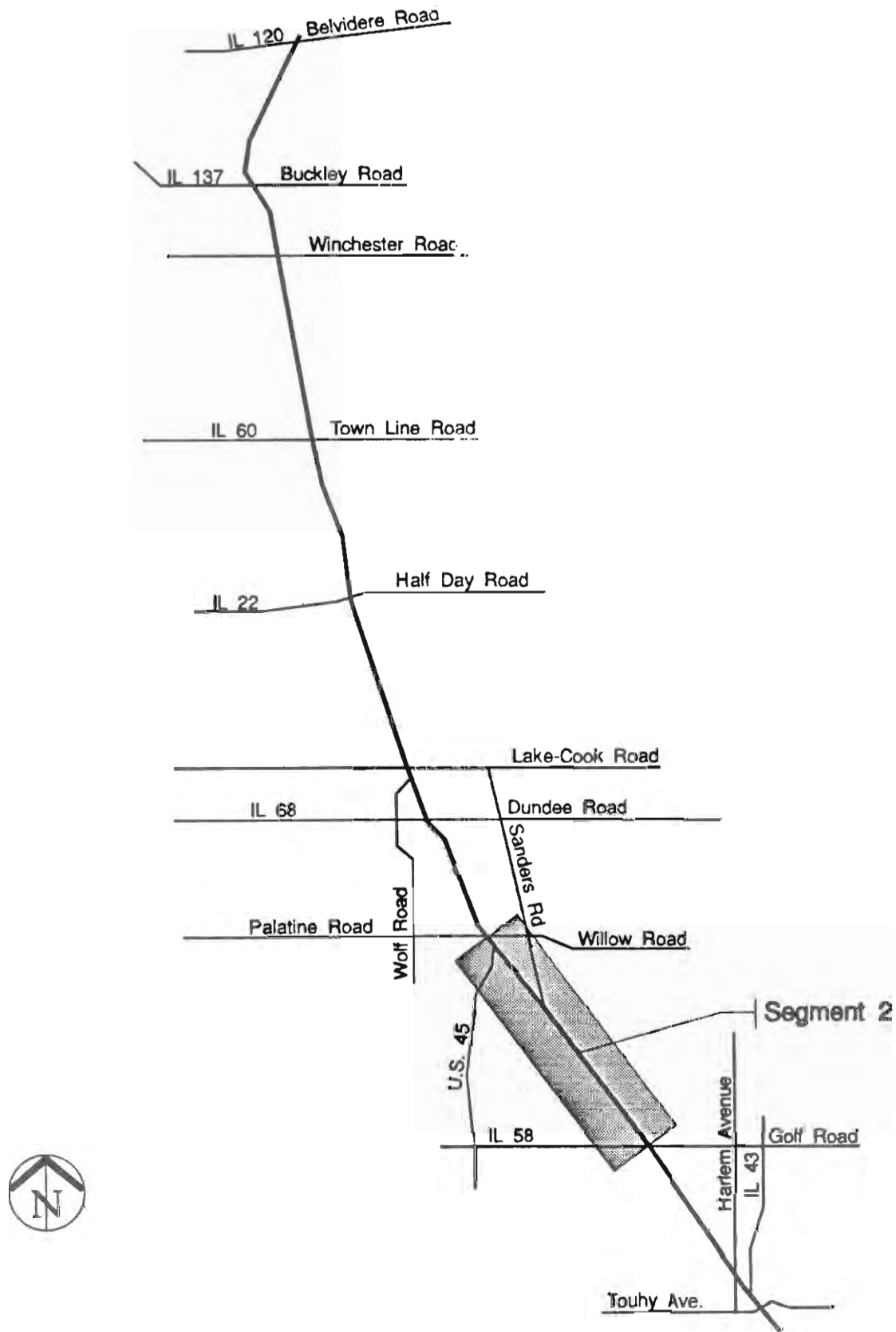
According to the 1990 IDOT Cook County Traffic Map, the average annual daily traffic (AADT) in this segment is 36,700 vehicles at Illinois Route 58, 35,800 vehicles between Lake Street and Sanders Road, 21,900 vehicles between Sanders Road and River Road, and 40,000 vehicles between River Road and Palatine/Willow Road.

Right-of-Way

The existing right-of-way along this route segment varies in width from 66 feet to 110 feet, with the exception of the grade separation northerly of Glenview Road/Dearlove Road where the right-of-way expands to 255 feet to accommodate the overpass structure. The narrowest portions of the right-of-way are north of Sanders Road for about one-quarter of a mile and at the James Woodworth Prairie Preserve and Ridgewood Cemetery which are almost opposite one another north of Illinois Route 58 (Golf Road). Almost all of the remaining segment has right-of-way that is at least 100 feet wide.

Pavement Width and Number of Lanes

Between Golf Road and Greenwood Avenue the existing roadway configuration provides six through traffic lanes with three through lanes of travel in each direction separated by a two- to eight-foot wide raised concrete median. The remainder of the segment provides four through traffic lanes with two through lanes of travel in each direction. Most of the roadway is separated by striped pavement markings. However, there is an eight- to 12-foot wide mountable median between Central Road and West Lake Avenue, and a two- to four-foot wide barrier median between DesPlaines River Road and Palatine/Willow Road. The total paved roadway width varies between 40 and 72 feet, and there is curb and gutter as far north as Sanders Road where the roadway edge changes to a gravel shoulder.



ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 58 (Golf Road) to Palatine/Willow Road

Traffic Signals

There are ten signalized intersections in this segment which are listed from south to north on *Table 3.6*.

There are three existing signal systems located in this segment. The Greenwood Avenue signal is interconnected into a system which extends to Ballard Road in Segment 1, the West Lake Street and Sanders Road signals comprise the second system, and the third signal system interconnects all of the signals from River Road to the northern Palatine Road ramp.

Table 3.6					
Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Greenwood Avenue	3	3	YES	NO	SCAT System #20
Central Road	2	2	YES	NO	
Glenview/Dearlove Rd	2	2	YES	NO	
Zenith Corporation	2	2	YES	YES	
West Lake Avenue	2	2	YES	NO	NS signal system w/ Sanders
Sanders Road	2	2	NO	NB	"Y" Intersection
DesPlaines River/U.S.45	2	3	NO	NO	"Y" Intersection
Apple Drive	2	3	YES	NO	"T" Intersection
Palatine/Willow	2	3	SB	NO	East-bound entrance
Palatine/Willow	2	3	NO	NB	West-bound entrance
Note: NB = northbound; SB = southbound					

Parking, Sidewalks and Frontage Roads

There are neither frontage roads nor on-street parking along this route segment. There are sidewalks between Illinois Route 58 (Golf Road) and Greenwood Avenue and on the east side of the roadway between Glenview Road and West Lake Avenue. There are also a few short sections of sidewalk introduced at some of the signalized intersections.

Structures

There are five structures in this segment. They are listed on *Table 3.7*.

Transit

In this segment, Pace route #270 operates on Illinois Route 21 between Illinois Route 58 (Golf Road) and Central Avenue, and between Dearlove Road and Palatine/Willow Road. Pace

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 58 (Golf Road) to Palatine/Willow Road

Table 3.7 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance Vert. Horiz.		Remarks
C&NW RR	016-0243	south of I-294	N/A	70'	SRA over
I-294 northbound	016-9748	—————	14'-3"	34.5'	SRA under
I-294 southbound	016-9747	—————	14'-3"	34.5'	SRA under
DesPlaines River	016-0242	N. of Sanders Rd	N/A	50'	SRA over
Pal/Willow Road	016-0529	—————	14'-1"	60'	SRA under
Note: N/A=Not Applicable					

route #210 operates during the peak hours from the Western station of the Ravenswood CTA running on Illinois Route 21 from West Lake Avenue to Illinois Route 68 (Dundee Road). There are shelters on one side of the intersections with Central Avenue, Dearlove Road and West Lake Avenue, and on both sides of the intersection with Palatine Road.

3.2.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for Segment 2 of Illinois Route 21 include a floodplain, wetlands, an historic site, significant nature areas, and sensitive land uses. They are displayed on Route Maps B-2 and B-3.

Streams/Wetlands/Floodplains

Illinois Route 21 crosses floodplain of the DesPlaines River on this segment. The floodplain extends approximately 2,000 feet south from DesPlaines River Road.

There is a small wetland east of the intersection with Sanders Road and a wetland associated with the DesPlaines River near the intersection with DesPlaines River Road.

Historical Significance

Kennicott Grove is a nature area listed on the National Register of Historic Places. It is located on the east side of the route, south of Interstate 294 (Tri-State Tollway).

Flora/Fauna

The James Woodworth Prairie, north of Illinois Route 58 (Golf Road), is a habitat for the endangered tallgrass prairie. A habitat of the red-shouldered hawk, and endangered species, is also listed within one mile of the route.

Sensitive Land Uses

There are two churches: south of Dearlove Road/Glenview Road and south of Des Plaines River Road east and west of the roadway respectively. There is a nursing home behind a multifamily complex southeast of the Interstate 294 (Tri-State Tollway) overpass.

Ridgewood Cemetery lies southwesterly of Central Road and Illinois Route 21, and Oakwood Cemetery is located northerly of the intersection at Sanders Road.

A Cook County Forest Preserve abuts the roadway for a short stretch just north of the Interstate 294 (Tri-State Tollway) overpass. Lake Avenue Woods East and Allison Woods abut the road beginning about one-half mile north of Sanders Road and continue to DesPlaines River Road. The land northerly of Winkelman Road is the Dam No. 1 Forest Preserve.

3.2.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development for Segment 2 of Illinois Route 21 (Milwaukee Avenue) are indicated on Route Maps C-2 and C-3.

Jurisdiction

The segment begins within the Village of Niles which extends to Greenwood Road. The Village of Glenview begins at Dearlove Road and ends at West Lake Avenue. The Village of Prospect Heights begins northwest of the intersection with DesPlaines River Road and extends to the westbound on-ramp for Palatine/Willow Road. Those portions of the land abutting the segment that are within unincorporated Cook County are within the Glenview planning area except as they border the Niles planning area.

Type and Intensity of Development

Land uses include commercial, hospitality, office and residential development. Commercial development tends to cluster around the major intersections such as Illinois Route 58 (Golf Road), Greenwood Avenue, Central Road, West Lake Avenue and Sanders Road. Office uses include major area employers which have located both along Illinois Route 21 near Interstate 294 (Tri-State Tollway) and north of the route along Sanders Road. The properties around the intersection with West Lake Avenue have been developed as hotels, motels, and mixed hospitality and retail complexes. Most of the residential development is multifamily.

Development Access and Setback

Most of the buildings on this segment are set back approximately 30 to 40 feet. In commercial areas, these setbacks allow for the land fronting the route to be used for off-street parking. Parking is accessed either by well-defined curb cuts along Illinois Route 21 or from cross streets. The single-family residential development does not front the route and is accessed from cross streets.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 58 (Golf Road) to Palatine/Willow Road

Future Development

A proposal to develop the parcel southwesterly of Interstate 294 (Tri-State Tollway) has been delayed for the time being and is expected to be redesigned prior to development. A single-family development west of the route, on the north side of West Lake Avenue (Euclid Avenue) is expected to provide additional access for an adjacent single-family subdivision behind the commercial strip at Sanders Road.

3.2.5 RECOMMENDED IMPROVEMENTS

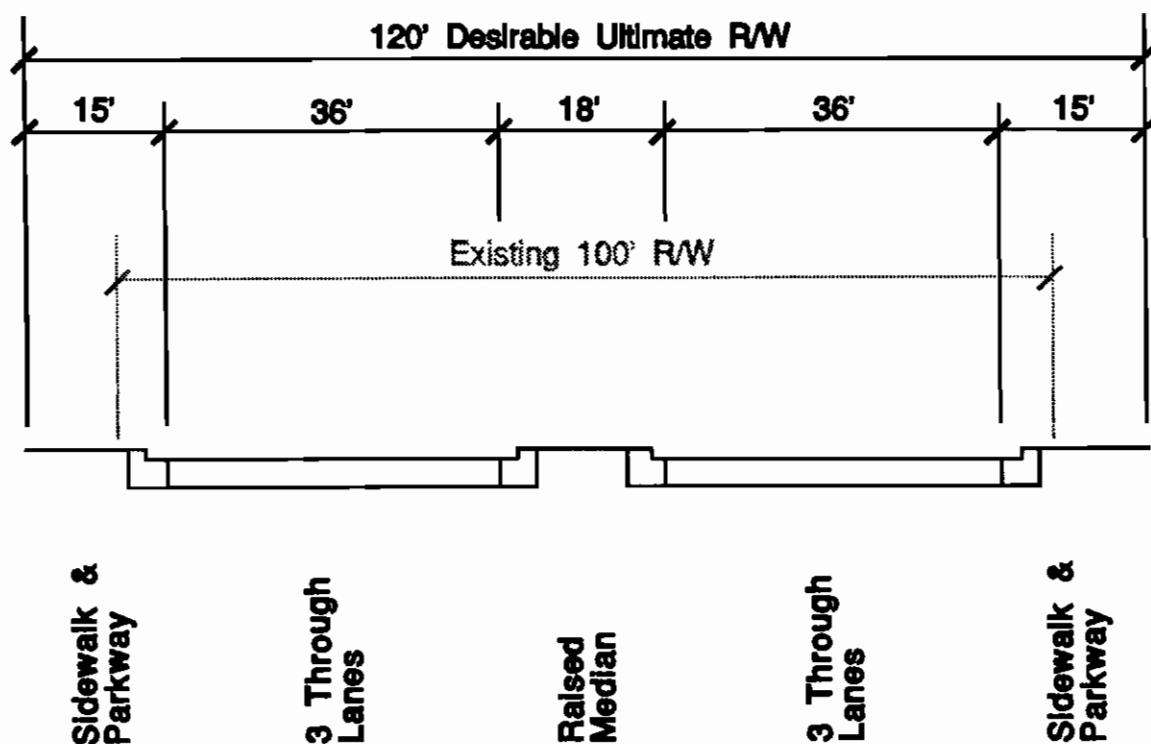
Improvements have been recommended after evaluating the projected travel demand for the Year 2010 along with the existing roadway characteristics and character of development along the route. Improvements are categorized by ultimate and low cost, and divided into those related to the roadway, intersections, traffic signalization, structures, access, transit and other improvements. Right-of-way requirements, potential environmental concerns and improvement cost estimates are also provided. Recommended improvements are shown on Route Maps D-2 and D-3.

Ultimate Improvements

Roadway

The recommended roadway configuration for this segment is six through lanes with an 18-foot continuous raised median, except for the section between the James Woodworth Prairie Preserve and Central Avenue where it is recommended there be a four-foot barrier median. (See Figures 3.5, 3.6, 3.7 and 3.8.) Results of the capacity analysis for Segment 2 are shown in Table 3.8.

Table 3.8 Capacity Analysis for Segment 2 of Illinois Route 21					
Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Illinois 58 to Sanders Road	30 to 40,000 ⁽²⁾	4	30,000	C	No
			32,000	D	
		6 *	45,000	C	Yes
			48,000	D	
Sanders Road to Palatine/Willow	30 to 40,000 ⁽³⁾	4	28,000	C	No
			31,000	D	
		6 *	43,000	C	Yes
			48,000	D	
⁽¹⁾ Average Annual Daily Traffic					
⁽²⁾ Projected AADT between West Lake Avenue and Sanders Road is greater than 50,000 vehicles.					
⁽³⁾ Projected AADT between DesPlaines River Road and Palatine/Willow Road is 40,000 to 50,000 vehicles.					
* Recommended number of through lanes for this segment.					

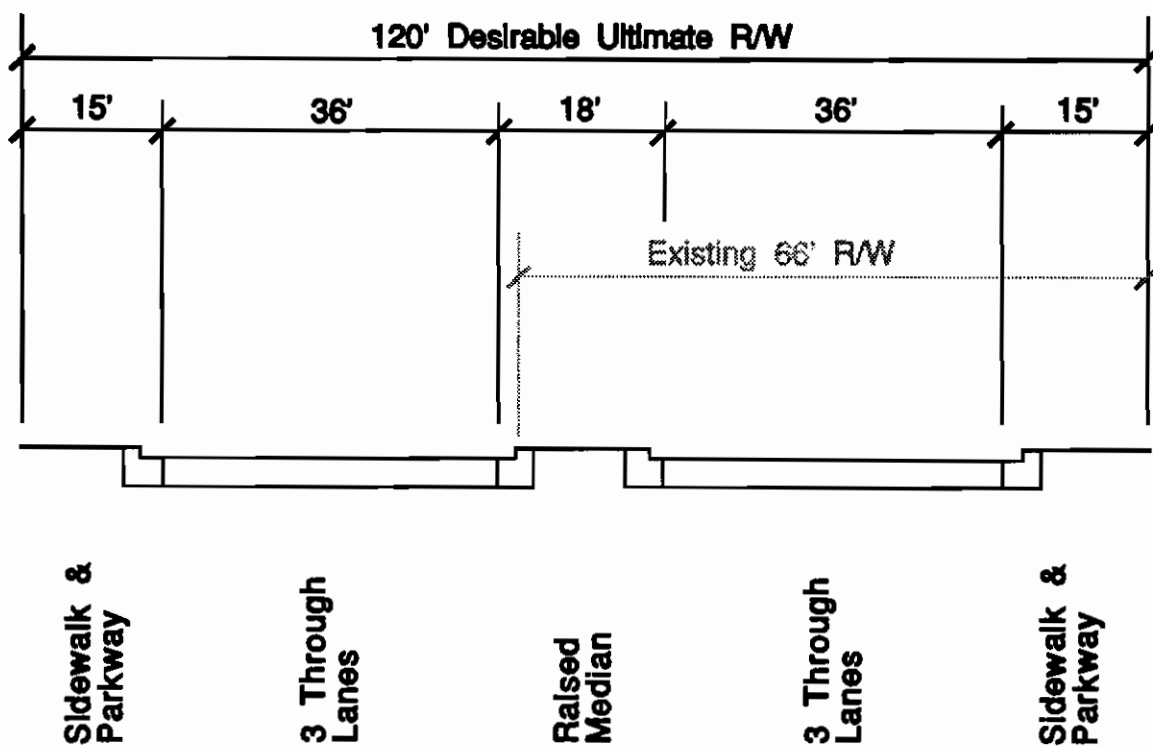


Section B-B

Recommended Roadway Typical Section

Illinois Route 21 **Illinois 58 (Golf Road) to Greenwood Avenue**

prepared by Harland Bartholomew & Associates, Inc. **Figure 3.5**

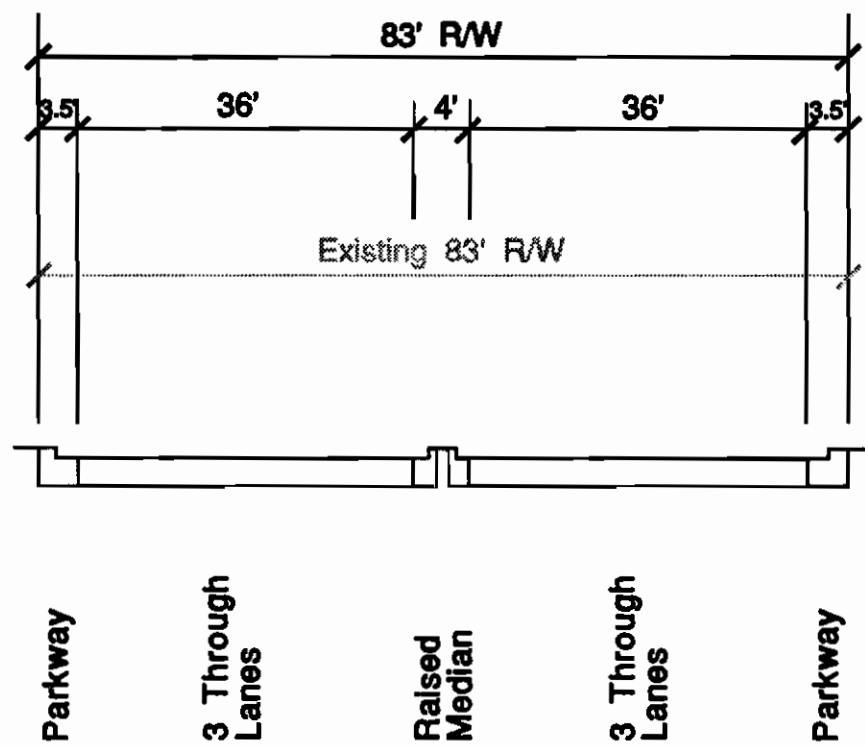


Illinois Route 21

prepared by Harland Bartholomew & Associates, Inc.

Section C-C
Recommended Roadway Typical Section
Greenwood Avenue to Thornberry Lane

Figure 3.6

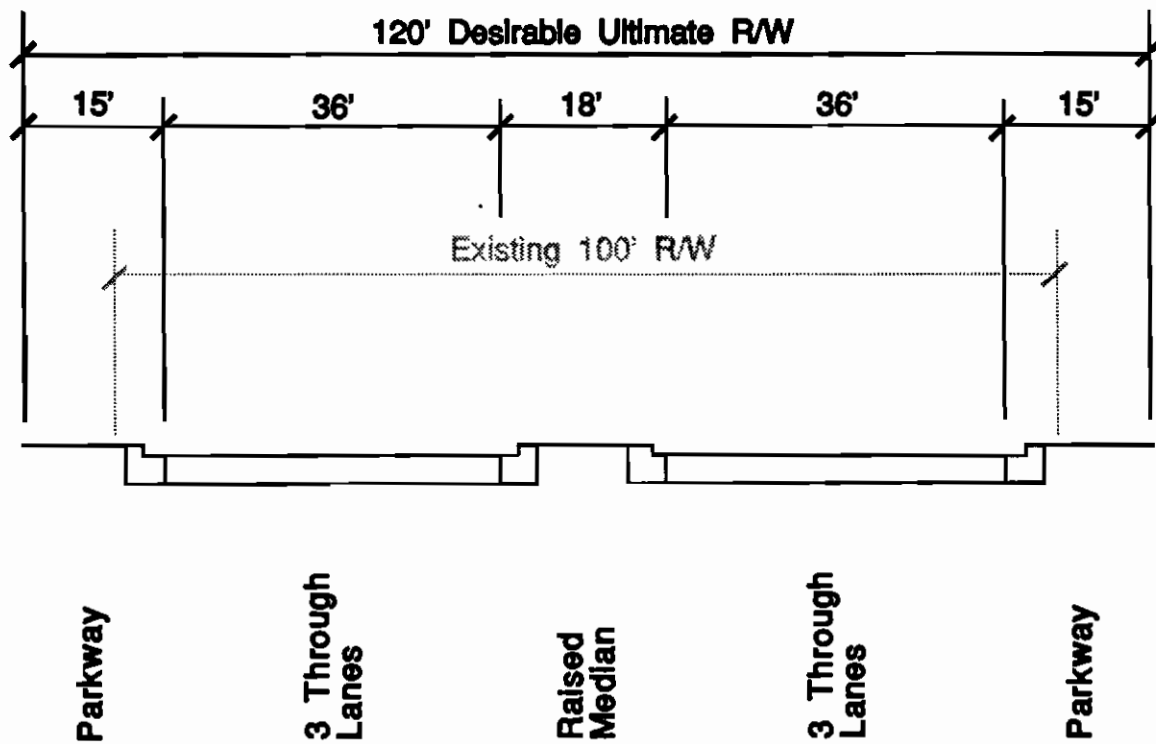


Illinois Route 21

**Section D-D
Recommended Roadway Typical Section
Thornberry Lane to Central Road**

prepared by Harland Bartholomew & Associates, Inc.

Figure 3.7



Section E-E
Recommended Roadway Typical Section
Central Road to Palatine Road
Illinois Route 21
 prepared by Harland Bartholomew & Associates, Inc. **Figure 3.8**

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Illinois Route 58 (Golf Road) to Palatine/Willow Road

Intersections

The recommended roadway configuration allows development of left-turn lanes within the median at all signalized intersections.

Detail 2 shows the recommended modifications to the intersections of Illinois Route 21 with Illinois Route 58 (Golf Road) and with Greenwood Avenue. The modifications are designed to effectively coordinate the operations of the three intersections and also to accommodate access to and from the abutting properties. Using an AADT of 45,000 for Illinois Route 21 and 34,000 for Illinois Route 58 (Golf Road), the levels of service for each intersection movement and for the total intersection were calculated and are shown in *Table 3.9*.

Table 3.9 Illinois 21/Illinois 58 Intersection Level of Service		
Direction	Movement	Level of Service
Illinois Route 21 northbound	left turn	D
Illinois Route 21 northbound	through	D
Illinois Route 21 northbound	right turn	B
Illinois Route 21 southbound	left turn	D
Illinois Route 21 southbound	through	C
Illinois Route 58 eastbound	through	D
Illinois Route 58 eastbound	right turn	B
Illinois Route 58 westbound	left turn	D
Illinois Route 58 westbound	through	B
Illinois Route 58 westbound	right turn	A
Total Intersection		D

Detail 3 shows the recommended modifications to the intersections at West Lake Avenue and at Sanders Road. The section between West Lake Avenue and Sanders Road is an exception to the projected travel demand of 30,000 to 40,000 AADT along this and the adjacent route segments. Here the AADT is projected to exceed 50,000 vehicles per day by the Year 2010. The section links West Lake Avenue (Euclid Avenue), a major east-west arterial road, and Sanders Road, an arterial road serving many of the major employers in the area. Recommended modifications include dual-left turns on all legs of the intersection and separate right-turn lanes at West Lake Avenue.

Detail 4 shows the recommended modifications to Illinois Route 21 between DesPlaines River Road and Palatine/Willow Road. The projected travel demand for this segment is 40,000 to 50,000 vehicles (AADT). It is recommended that River Road be realigned to intersect Milwaukee Avenue at 90 degrees. The relocated intersection would allow access from northbound Milwaukee Avenue to southbound River Road and vice-versa. Portions of the existing River Road intersection could remain to allow southbound Milwaukee Avenue to

southbound River Road traffic to bypass the signal. The existing signal would be removed. It is also recommended that channelized right-turn lanes be provided as appropriate for both ramps leading to Palatine/Willow Road.

Traffic Signalization

One new signal location is recommended at the intersection with Winkelman Road. Winkelman Road serves many of the major employers of the vicinity. It is also recommended the signal at River Road be moved to the new intersection location when that intersection is constructed. Whether or not this location will be coincidental with Winkelman Road should be addressed in design study considerations.

Future signals should be installed on the route only at the recommended locations and only when the signal warrants recommended for SRA routes are met. (Recommended signal warrants for SRA's are discussed in Section 10.4.2 of the *Strategic Regional Arterial Design Concept Report*.) Signals should not be installed at other than the recommended locations; additional signals would tend to impede traffic flow on the SRA route and interfere with optimization and progression of signal systems.

Interconnection of signals into coordinated systems is recommended. The existing signal interconnect between Palatine and River Roads should be extended to include the Winkelman Road signal.

Structures

The Illinois Route 21 structures over the Chicago and NorthWestern Railroad (SN 016-0243) and the DesPlaines River (SN 016-0242) should be widened to accommodate the recommended roadway cross-section. The structures of Interstate 294 (Tri-State Tollway) (SN 016-9748 and SN 016-09747) and Palatine/Willow Road (SN 016-0529) should be modified to accommodate the recommended roadway cross section and to provide a vertical clearance of 14'-6".

Access Management

Access management recommendations are displayed on Route Maps D-2 and D-3. In developed areas, it is recommended that access ultimately be consolidated to points no less than 500 apart and opposite the roadway from one another.

The parcels adjacent to the east side of Illinois Route 21 south of Interstate 294 (Tri-State Tollway) are planned for further, as yet to be determined, development. It is recommended no more than two additional access points be allowed, that these points be at or opposite existing access, and that properties on the opposite side of the roadway consolidate their access to the same points.

Detail 3 shows extension of the southerly bound left turn bay northerly of the intersection with Gregory Drive, thereby eliminating left turns to and from Gregory Drive. This configuration is only achievable with development of the residential subdivision between Gregory Drive and Euclid Avenue, west of Illinois Route 21, as approved. This new subdivision is expected to provide access to Euclid Avenue for the residential subdivision to the north. This should be complemented with access consolidation between Interstate 294 (Tri-State Tollway) and West Lake Avenue.

Access to development just south of Winkelman Road on the east side of Illinois Route 21 roadway could be consolidated when a signal is installed at Winkelman. It is recommended that at least one access point be opposite the existing structure west of the roadway.

Transit

A bus turnout area is recommended for southwest of the interchange with Palatine Road. To provide for northbound access, all buses could use the signal at Apple Drive to reach a turnout area adjacent to the north side of Apple Drive. Further study could determine if existing right-of-way on Apple Drive is adequate to accommodate the turnout and what route buses could use to turn around.

Low-Cost Improvements

Traffic Signalization

It is recommended that the existing traffic signals at Glenview/Dearlove Road and the Zenith Corporation be interconnected.

Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met.

Access Management

It is recommended that access be limited to a maximum of one curb cut for each property or 500 feet as parcels are developed or redeveloped. Wherever possible in areas of existing development, consolidation of access via mutual access easements between adjacent parking lots should be encouraged.

Transit

It is recommended bus shelters be constructed at existing bus stop locations. Shelters should also be provided at stops used by any future express bus service. When the Wisconsin Central commuter line is operational, graphically consistent directional signs showing distance to and location of the nearest station should be provided at the intersections with West Lake Avenue and Palatine Road.

3.2.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The minimum desirable right-of-way width for a suburban SRA is 120 feet. In the portion of Illinois Route 21 between the James Woodworth Prairie and Central Road there is no foreseeable opportunity to acquire additional right-of-way from either side of the road. It is recommended additional right-of-way between Greenwood Avenue and the southerly edge of Ridgewood Cemetery be acquired on the westerly side of the existing right-of-way, maintaining the existing right-of-way line at the southerly edge of Ridgewood Cemetery.

It is recommended that all additional right-of-way required between the Chicago & NorthWestern Railroad underpass and the Interstate 294 overpass be acquired from the westerly side of Illinois Route 21.

For the remainder of the segment, the recommended 120-foot right-of-way width will accommodate the basic recommended roadway configuration of six through lanes with an 18-foot wide median.

A new right-of-way for DesPlaines River Road through the Allison Woods is expected to include acquisition of all land north of that right-of-way as far as the intersection with the existing DesPlaines River Road. While the residual parcel could be developed for non-residential uses, it is recommended that limitation of traffic impacts of such uses be included in restrictions placed on the parcel should it be conveyed to another owner.

3.2.7 POTENTIAL ENVIRONMENTAL CONCERNS

There are several environmentally sensitive areas in this segment which could be significantly impacted. Thus the recommended improvements have recognized the historic sites and natural preserves.

The recommended offset of the right-of-way northerly of Greenwood Avenue is expected to substantially reduce the impacts of roadway improvements upon the James Woodworth Prairie.

The right-of-way abutting the Ridgewood Cemetery and the residential area opposite is expected to be adequate to accommodate recommended improvements, so no significant impact is expected.

Expansion of the right-of-way 27 feet into the Beck Lake Forest Preserve, and ten feet into the Lake Avenue Woods East, Allison Wood East, and the Dam No. 1 Woods Forest Preserve is likely to require further analysis of environmental impact during the roadway design phase.

The recommended offset of the additional right-of-way opposite Kennicott Grove is expected to substantially reduce the impacts of roadway improvements. However, an evaluation of the impact upon the habitat of the endangered red shouldered hawk will be required during the roadway design phase.

SECTION 3: Route Analysis - Illinois Route 58 (Golf Road) to Palatine/Willow Road

A new right-of-way for DesPlaines River Road through Allison Woods may require further study as part of any design phase of the project. Options for alignment include a utilities easement which is largely stripped of vegetation and a location at the north end of the Woods.

Acquisition of right-of-way through Allison Woods for realignment of DesPlaines River Road should be studied with respect to its impact on the Woods and the DesPlaines River floodplain.

3.2.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 2 of Illinois Route Route 21 (Milwaukee Avenue) is shown in *Table 3.10*.

Table 3.10	
Construction Cost Estimates for Segment 2 - Illinois Route 21	
Improvement	Estimated Cost
Ultimate	
Roadway	\$21,200,000
Intersection Improvements	\$5,500,000
Traffic Signals	\$200,000
Signal Interconnection	\$100,000
Structure Modification	\$8,700,000
Right-of-way Acquisition	\$3,600,000
Total Estimated Cost for Ultimate Improvements	\$39,300,000
Low-Cost	
Signal Interconnection	\$100,000
Transit Improvements	\$100,000
Total Estimated Cost for Low-Cost Improvements	\$200,000
Total Estimated Cost for All Improvements	\$39,500,000

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Palatine/Willow Road to Wolf Road

3.3 SRA SEGMENT 3: PALATINE/WILLOW ROAD TO WOLF ROAD

3.3.1 LOCATION

Segment 3 extends from Palatine/Willow Road on the south to Wolf Road on the north, a distance of approximately three miles. (See *Figure 3.9*.)

3.3.2 EXISTING FACILITY CHARACTERISTICS

Existing facility characteristics for Segment 3 are shown on Route Map A-3.

Traffic Volumes

According to the 1990 IDOT Cook County Traffic Map the average annual daily traffic (AADT) in this segment is 39,500 vehicles at Palatine/Willow Road and 27,800 vehicles at Illinois Route 68.

Right-of-Way

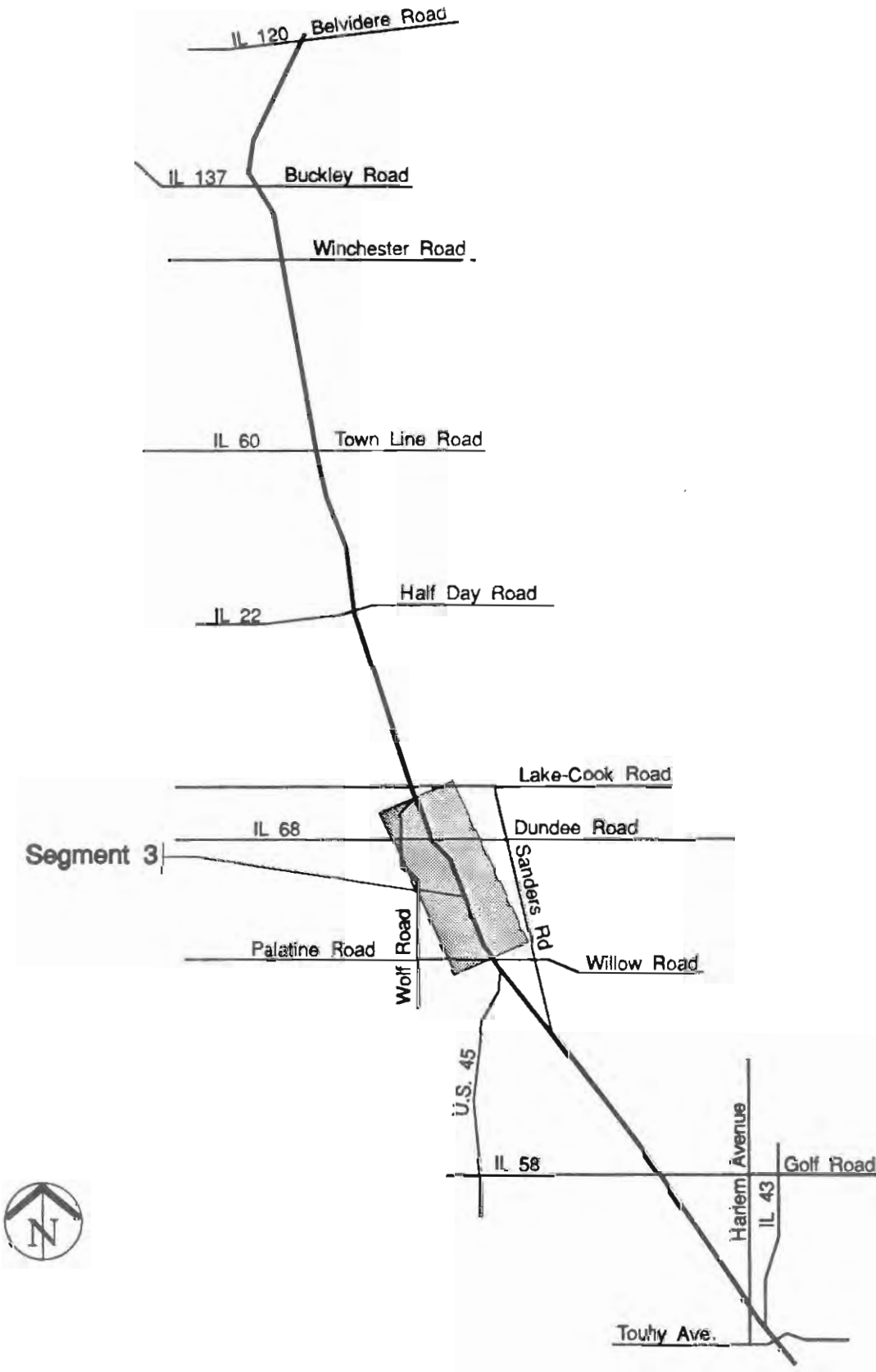
The right-of-way is between 66 feet and 100 feet wide. Most of the right-of-way is 66 feet. Only that portion just southerly of Wolf Road is 100 feet wide. There are short sections that are 88 feet wide.

Additional right-of-way is being acquired to accommodate planned improvements to the segment. Phase I design work being completed includes relocating the centerline 12 feet westward between Palatine Road and Industrial Lane. The centerline would remain in its present location 500 feet north and south of Illinois Route 68 (Dundee Road). This right-of-way is assumed to be an existing condition.

Pavement Width and Number of Lanes

The existing roadway configuration provides four traffic lanes along the entire segment with two through lanes of travel in each direction separated by pavement markings. The paved roadway is 40 feet wide. This segment contains areas of both curb-and-gutter and of shoulders two to eight feet wide. From Palatine/Willow Road to approximately one-quarter of a mile south of Dundee Road, and from Dundee Road to Wolf Road, there is a gravel shoulder. From this point to just northerly of Dundee Road there is curb-and-gutter.

Improvements to the intersection with Illinois Route 68 (Dundee Road) are in the Phase I design phase. Current planning includes construction of two through lanes in each direction, and right- and dual left-turning bays. This is assumed to be an existing condition.



ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Palatine/Willow Road to Wolf Road

Traffic Signals

There are four signalized intersections along Segment 3. They are listed from south to north on *Table 3.11*. The signals at Wolf Road and at Lake-Cook Road (in Segment 4) combine to form an interconnected signal system.

Table 3.11 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Sumac Road	2	2	NB	NO	"T" intersection
Hintz Road	2	2	NB	NO	"T" intersection
Illinois 68 (Dundee Rd)	2	2	YES	NO	
Wolf Road	2	2	NB	SB	"T" intersection,interconnected
Note: NB = northbound; SB = southbound					

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces or frontage roads along this route segment. There are sidewalks along both sides of the roadway for a one-quarter mile stretch south of Dundee Road.

Structures

There is one structure on this segment. (See *Table 3.12*.)

Table 3.12 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance		Remarks
			Vert.	Horiz.	
Wheeling Ditch	016-0241	N. of Pal/Wil Rd	N/A	44'	SRA over
Note: N/A=Not Applicable					

Transit

Pace route #210 Bus service along Illinois Route 21 ends at Illinois Route 68 (Dundee Road). Pace route #234 travels on Illinois Route 21 for about one-quarter of a mile between Illinois Route 68 (Dundee Road) and Strong Street.

3.3.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

Existing environmental characteristics on Segment 3 of Illinois Route 21 include floodplains and sensitive land uses and are shown in Route Map B-3.

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Palatine/Willow Road to Wolf Road

Streams/Wetlands/Floodplains

The DesPlaines River flows almost parallel to Illinois Route 21, just east of the roadway. This segment of Illinois Route 21 crosses its floodplain four times:

- North of Palatine Road for a distance of approximately 250 feet,
- Extending from south of Hintz Road to Manchester Drive for a distance of approximately 1,500 feet,
- Extending northerly from Manchester Drive for 100 feet, and
- Between Dundee Road and Strong Avenue where the floodplain is 250 feet wide.

Sensitive Land Uses

Dam No. 1 Woods and Potawatomi Woods are east of the right-of-way. There is a neighborhood park associated with Walt Whitman School west of Illinois Route 21 and between Mors Avenue and Highland Avenue, but only a small portion abuts the roadway.

The Wheeling fire department is located northwest of Illinois Route 21 and Illinois Route 68 (Dundee Road). The Village also operates a senior citizen center in this area.

3.3.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development for Segment 3 of Illinois Route 21 (Milwaukee Avenue) are indicated on Route Map C-3.

Jurisdiction

The principal local jurisdiction exercising control over development on this segment is the Village of Wheeling. Its boundaries extend from just north of Hintz Road to just south of Lake-Cook Road. The planning area of Wheeling encompasses all land along the route between Palwaukee Airport and Lake-Cook Road.

Type and Intensity of Development

Palwaukee Airport and related commercial and industrial development are the predominant land uses along this segment. The largest concentration of industrial development is located south of Hintz Road on the west side of the route. Properties in this area also include a drive-in movie theater, an amusement center, and self-storage facilities.

Also important is the downtown commercial area in Wheeling. This area, at Illinois Route 68 (Dundee Road), is a mixture of older storefront commercial buildings and newer neighborhood shopping facilities. Intersection improvements in the Phase I design stage may impact existing development.

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Palatine/Willow Road to Wolf Road

Additional land uses found on this segment include office and residential uses. Office development is located at Illinois Route 21 and Wolf Road. Residential development, both single and multi-family, is interspersed throughout this segment with a majority of it separated from Illinois Route 21 by strip commercial development.

Development Access and Setback

Numerous curb cuts are used on this segment to access the commercial development fronting Illinois Route 21. Office and industrial development is accessed in the same manner. However an internal circulation route services the large industrial development south of Hintz Road. All residential development is accessed by collector streets which intersect the route. In the section between Hintz Road and Wolf Road, curb cuts are not always well-defined.

South of Manchester Drive building setbacks are approximately 30 feet from the roadway. Between Manchester Drive and Wolf Road, where development is primarily commercial, building setbacks range from 0 to 20 feet from the right-of-way. Off-street parking is located in front of commercial establishments where setbacks are greater. The residential development in this segment is set back at least 25 feet.

Future Development

According to municipal records as of August, 1990, two commercial developments are planned in Wheeling. The proposed sites of these commercial developments are at the intersections of Illinois Route 21 with Manchester Drive and with Illinois Route 68 (Dundee Road). There is additional vacant land scattered throughout this segment. Most undeveloped land in Wheeling is planned for commercial and office development. Wheeling ordinances require development of this nature to be set back 90 to 100 feet from the centerline of Illinois Route 21.

The nature of development between the Palwaukee Airport and Hintz Road would seem to indicate that redevelopment may occur as the opportunity arises. The Village of Wheeling has an adopted redevelopment plan for the intersection with Illinois Route 68 (Dundee Road). The plan calls for extensive demolition at this intersection to allow for a more serviceable roadway and to redevelop adjacent properties. A roadway design study is underway as part of this effort.

In 1973, the Village of Wheeling adopted a downtown plan for redevelopment of the area at and near the intersection with Dundee Road. The plan calls for expansion of the roadway to allow for turning lanes. Additional right-of-way would be acquired by demolishing selected structures at the west side of the existing Illinois Route 21 right-of-way. Plans also call for access consolidation.

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Palatine/Willow Road to Wolf Road

3.3.5 RECOMMENDED IMPROVEMENTS

Improvements have been recommended after evaluating the projected travel demand for the Year 2010 along with the existing roadway characteristics and character of development along the route. Improvements are categorized by ultimate and low cost, and divided into those related to the roadway, intersections, traffic signalization, structures, access, transit and other improvements. Right-of-way requirements, potential environmental concerns and improvement cost estimates are also provided. Recommended improvements are shown on Route Map D-3.

Ultimate Improvements

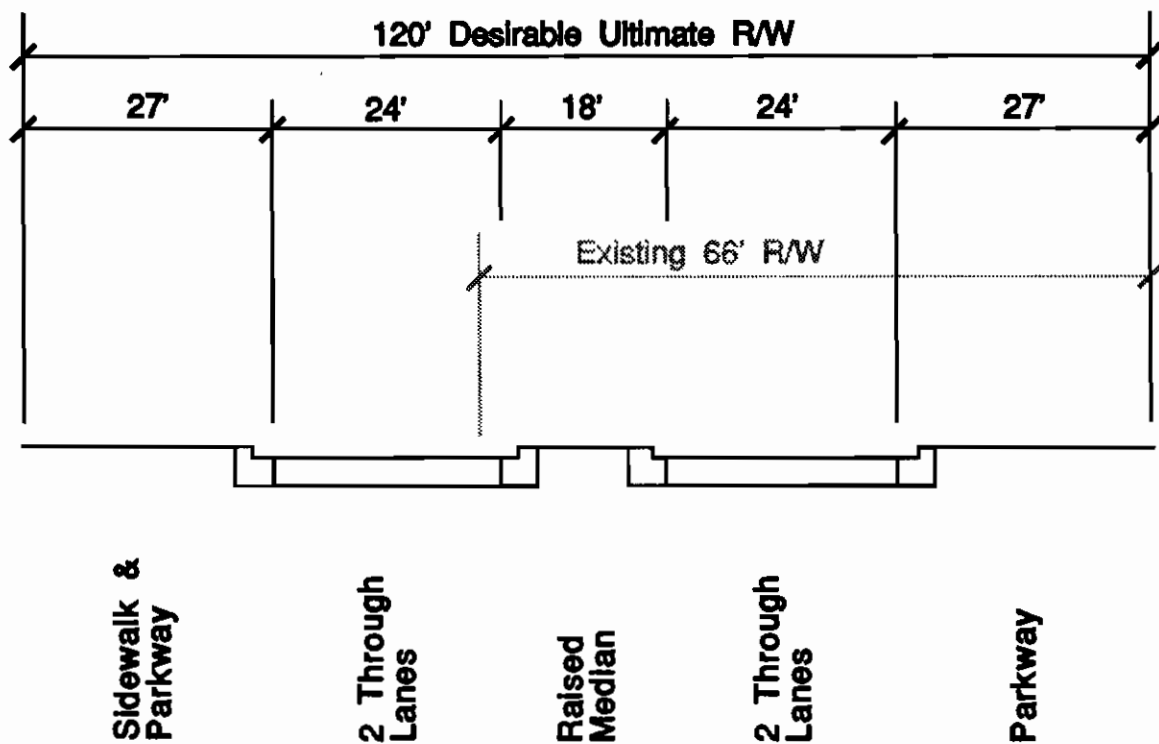
Roadway

This segment is the subject of a current IDOT Phase I study. Current plans include four 11-foot wide lanes plus a 12-foot wide, flush median between Hintz Road and Dundee Road. This level of improvements will require the removal of the parkway, but the existing development along Illinois Route 21 will remain largely as it is.

The recommended ultimate roadway configuration provides for two 12-foot wide through lanes in each direction, with an 18-foot wide continuous barrier median between Palatine/Willow Road and Hintz Road, and a 12-foot wide flush median between Hintz Road and Wolf Road. (See *Figures 3.10* and *3.11*.) This varies slightly from the Phase I planning for this intersection in that 500 feet north and south of the intersection with Illinois 68 (Dundee Road) is planned to be developed as 11-foot lanes. It is recommended the desirable lane width be developed when the additional right-of-way becomes available with redevelopment of the district.

Results of the capacity analysis for Segment 3 are shown in Table 3.13.

Table 3.13 Capacity Analysis for Segment 3 of Illinois Route 21					
Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Palatine/Willow to Wolf Road	30 to 40,000	4 *	30,000 32,000	C D	Yes
		6	45,000 49,000	C D	Yes
⁽¹⁾ Average Annual Daily Traffic					
* Recommended number of through lanes for this segment.					

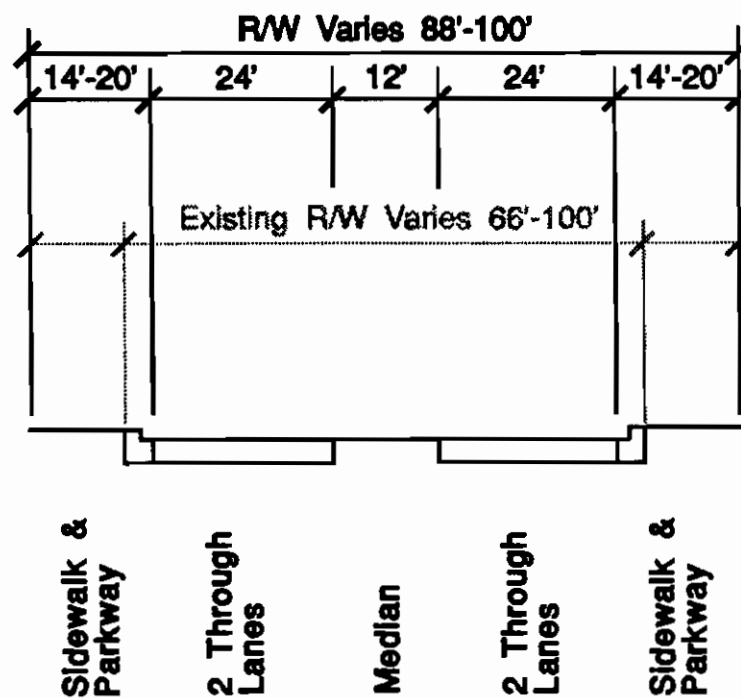


Illinois Route 21

prepared by Harland Bartholomew & Associates, Inc.

Section F-F
Recommended Roadway Typical Section
Palatine Road to Hintz Road

Figure 3.10



ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Palatine/Willow Road to Wolf Road

Intersections

The recommended roadway configuration allows development of single left-turn lanes for northbound Illinois Route 21 traffic at all signalized locations. It is recommended dual left turn lanes and channelized right turn lanes in both directions on Illinois Route 21 at the intersection with Illinois Route 68 (Dundee Road) be constructed. With the exception of the channelized right turns this is consistent with the current IDOT Phase I study. It is recommended that any differences between the recommendations and the current project be resolved with redevelopment of the district around the intersection. Redevelopment is expected to occur prior to Year 2010.

Traffic Signalization

New traffic signals are recommended at the intersections with Manchester Drive and Strong Avenue. It is not recommended any signals be removed. Future signals should be installed on the route only at the recommended locations and only when the signal warrants recommended for SRA routes are met. (Recommended signal warrants for SRA's are discussed in section 10.4.2 of the *Strategic Regional Arterial Design Concept Report*.) Signals should not be installed at other than the recommended locations; additional signals would tend to impede traffic flow on the SRA route and interfere with optimization and progression of signal systems.

It is recommended that signals be interconnected into coordinated systems. Two systems are recommended in this segment: the first extending from Hintz Road to Manchester Drive, and the second extending from Illinois Route 68 (Dundee Road) to Busch Road in Segment 4.

Structures

The structure over the Wheeling Ditch (SN 016-0241) should be modified to accommodate the recommended roadway cross-section.

Access Management

Redevelopment plans for the properties near the intersection with Illinois Route 68 (Dundee Road) include substantial access consolidation.

Transit

A potential location for a proposed park-and-ride facility is indicated at Palatine/Willow Road in the area between the west bound on-ramp and the main roadway. It is possible that this on-ramp will be recommended for conversion to one-way westbound operation. The parcel has been used for airport related commercial uses, but would lose full access with on-ramp conversion. This facility, a bus turnout area southwesterly of the intersection with Palatine/Willow, and safe pedestrian access should be further examined.

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Palatine/Willow Road to Wolf Road

Near the intersection with Illinois Route 68 (Dundee Road) bus turnouts or stops out of the right-of-way should be part of the design for redevelopment of the district about the intersection.

Low-Cost Improvements

Traffic Signalization

Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met.

It is recommended that the existing traffic signals at Sumac Road and Hintz Road be interconnected into a signal system.

Access Management

It is recommended that access be limited to a maximum of one curb cut for each property or 500 feet as parcels are developed or redeveloped. Wherever possible in areas of existing development, consolidation of access via mutual access easements between adjacent parking lots should be encouraged.

Transit

It is recommended bus shelters be constructed at existing bus stop locations.

Post-2010 Improvement

It is recommended the roadway between Palatine/Willow Road and Hintz Road be expanded to six through lanes, if traffic demand reaches a level at which it is warranted.

3.3.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The minimum desirable right-of-way width for a suburban SRA is 120 feet. This width is recommended for the section between Palatine/Willow Road and Hintz Road. Because of the Dam No. 1 Woods on the easterly side of the existing right-of-way and substantial setbacks of buildings on the westerly side, it is recommended that new right-of-way be protected from the westerly side of the existing right-of-way only.

Additional right-of-way will be required through the intersection with Illinois Route 68 (Dundee Road) to accommodate the recommended cross section, sidewalks, and bus turnouts. It is recommended this additional right-of-way be protected and improved during redevelopment.

Transit facilities may require acquisition of properties that would not otherwise be acquired. The park-and-ride facility is recommended at its specific location, because the parcel could be acquired as part of the interchange improvements. The bus turnout opposite this facility is discussed in Section 3.2.

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Palatine/Willow Road to Wolf Road

3.3.7 POTENTIAL ENVIRONMENTAL CONCERNS

Significant sections of the existing right-of-way are within the floodplain of the DesPlaines River. This environmental concern should be studied in the design phase of recommended improvements.

3.3.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 3 of Illinois Route 21 (Milwaukee Avenue) is shown in *Table 3.14*.

Table 3.14	
Construction Cost Estimates for Segment 3 - Illinois Route 21	
Improvement	Estimated Cost
Ultimate	
Roadway	\$4,700,000
Intersection Improvements	\$500,000
Traffic Signals	\$200,000
Signal Interconnection	\$300,000
Structure Modification	\$300,000
Transit Improvements (includes land acquisition)	\$500,000
Right-of-way Acquisition	\$1,500,000
Total Estimated Cost for Ultimate Improvements	\$8,000,000
Low-Cost	
Signal Interconnection	\$100,000
Transit Improvements	\$100,000
Total Estimated Cost for Low-Cost Improvements	\$200,000
Post-2010	
Roadway	\$5,400,000
Total Estimated Cost for Post-2010 Improvements	\$5,400,000
Total Estimated Cost for All Improvements	\$13,600,000

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

3.4 SRA SEGMENT 4: WOLF ROAD TO ILLINOIS ROUTE 60 (TOWN LINE ROAD)

3.4.1 LOCATION

Segment 4 extends from Wolf Road to Illinois Route 60 (Town Line Road), a distance of just over six miles. (See Figure 3.12.)

3.4.2 EXISTING FACILITY CHARACTERISTICS

Existing facility characteristics for Segment 4 of Illinois Route 21 are shown on Route Maps A-3, A-4 and A-5.

Traffic Volumes

The average annual daily traffic (AADT) volumes of 30,650 vehicles north of Deerfield Road are indicated on the 1988 IDOT Lake County Traffic Map. 1989 IDOT Signal Coordination and Timing (SCAT) System Automatic Traffic Recorder counts between Continental Executive Parke and Illinois Route 60 (Town Line Road) show an AADT of 34,000 vehicles.

Right-of-Way

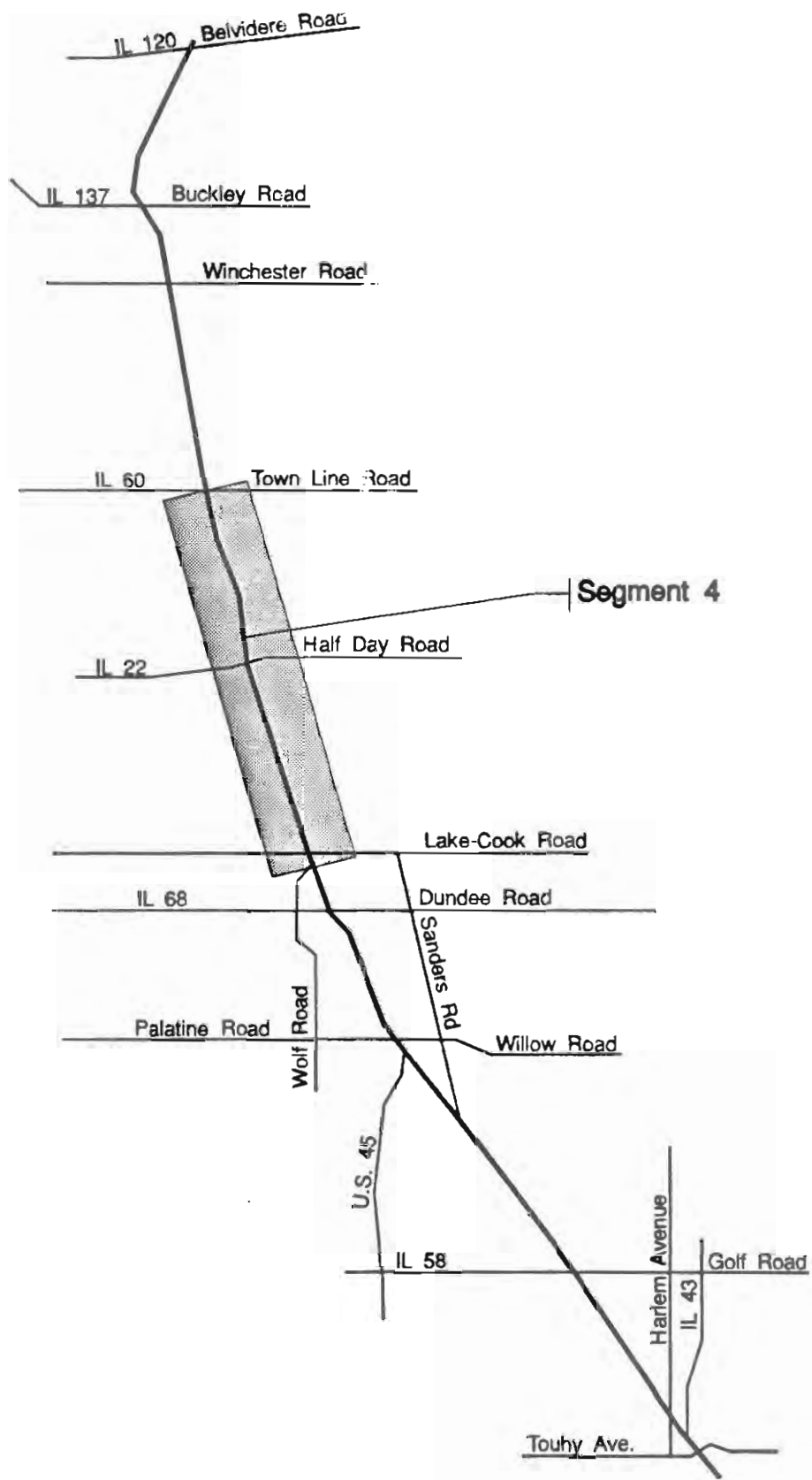
The right-of-way width along this route segment varies between 60 feet and 120 feet wide, but along most of the segment it is 100 feet wide. A 60-foot width extends from Illinois Route 22 northward for about one mile. Recently, ten to 20 feet has been acquired on the west side of the route for just over 2,000 feet south of Illinois Route 60 (Town Line Road).

Pavement Width and Number of Lanes

The existing roadway configuration provides four through traffic lanes along the entire segment with two through lanes of travel in each direction separated by striped pavement markings. The total paved roadway width is 48 feet except for the section between Wolf Road and Lake Cook Road which is 52 feet wide.

This segment contains areas of both curb and gutter and two- to ten-foot shoulders as follows:

- From Wolf Road to Lake-Cook Road there are two- to ten-foot gravel shoulders along both sides of the roadway;
- From Lake-Cook Road to Inverrary Lane there is curb-and-gutter;
- From Inverrary Lane to Marriott Drive there are two- to ten-foot gravel shoulders along both sides of the roadway; and
- From Marriott Drive northerly to the end of the segment there is curb-and-gutter.



SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)**Traffic Signals**

There are thirteen signalized intersections in this segment. They are listed from south to north on *Table 3.15*. Existing interconnected signal systems include Knightsbridge Parkway to Illinois Route 22 and a system which includes the signalized intersections from Rivertree Court Center to the North Entrance to Hawthorn Mall.

Table 3.15 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Lake-Cook Road	2	2	YES	NO	Interchange planned
Columbus Parkway	2	2	NO	NO	Temporary
Inverrary Lane	2	2	NB	NO	"T" Intersection
Deerfield Road	2	2	SB	NO	"T" Intersection
Busch Road	2	2	NB	SB	"T" Intersection
Long Grove-Aptakisic	2	2	NB	NO	"T" Intersection
Tower Parkway	2	2	NB	NO	"T" Intersection
Knightsbridge Pkwy	2	2	NB	NO	"T" Intersection, Interconnected
Marriott Drive	2	2	YES	YES	Interconnected
Illinois 22	2	2	YES	NO	Interconnected
U.S. 45	2	2	YES	NB	
Rivertree Court Center	2	2	YES	NB	Interconnected
Illinois 60	2	2	DUAL	SB	Interconnected
Note: NB = northbound; SB = southbound					

Parking, Sidewalks and Frontage Roads

There are no on-street parking spaces or frontage roads along this segment of Illinois Route 21.

There are sidewalks on the west side of the route between Linden Drive and Chevy Chase Drive and on the east side of the route between Marquette Drive and Johnson Drive.

Structures

There are two structures within this segment, as shown in *Table 3.16*.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

Table 3.16 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance Vert. Horiz.		Remarks
Aptakisic Creek	049-0007	S. of Deerfield Rd	N/A	60'	SRA over
Indian Creek	049-0006	north of Illinois 22	N/A	46.2'	SRA over
Note: N/A=Not Applicable					

Transit

Pace routes #626 and #691 are two rush hour services which operate on Illinois Route 21, to the Deerfield Metra station and Lake-Cook Road respectively.

Other Conditions

The Village of Buffalo Grove has approved a connector road between Busch Road west of Illinois Route 21 and Deerfield Road east of Illinois Route 21. The intersection with Illinois Route 21 will have dual left turns at all legs except southbound on Illinois Route 21. Deerfield Road will remain two lanes, one in each direction. This is a joint project between the Village and the developer of the property upon which the connecting road will be constructed. It is expected to significantly reduce the flow of east-west traffic which now uses Illinois Route 21 to travel from Busch Road to Deerfield Road. The connector is assumed to be an existing condition.

3.4.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for Segment 4 of Illinois Route 21 include wetlands, floodplains, historic landmarks, waste disposal and hazardous waste sites, prime farmland, and sensitive land uses and are shown in Route Maps B-3, B-4 and B-5.

Streams/Wetlands/Floodplains

On this segment, the DesPlaines River runs parallel to Illinois Route 21 on the east side of the route. There are eight floodplain crossings on this segment including those of:

- Aptakisic Creek, north of Inverrary Lane, where the floodplain is 500 feet wide;
- The DesPlaines River at Deerfield Road where the floodplain is 900 feet wide;
- The DesPlaines River, north of Busch Parkway, where the floodplain is 1600 feet wide;
- The DesPlaines River, south of Knightsbridge Parkway, where the floodplain is 400 feet wide;
- Indian Creek at Old Half Day Road where the floodplain is 200 feet wide; and

SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

- a DesPlaines River Tributary, north of Corporate Woods Parkway, where the floodplain is 50 feet wide.

In addition, there are wetlands which may infringe upon the right-of-way on the west side of the route around the intersections with Deerfield Road and Knightsbridge Parkway.

Historical Significance

On this segment, there are four historic landmarks which are listed on *Table 3.17*. Of these, Foote's Tavern has been significantly altered.

Table 3.17 Historic Landmarks		
Name	Location	Type
Residence	Southeast of Inverrary Lane	Ill. Hist. Lndmk. Surv
Residence	On Estonian Lane	Ill. Hist. Lndmk. Surv
Daniel Wright landmark	1/3 mi. south of Long Grove	Ill. Hist. Lndmk. Surv
Foote's Tavern	Northwest corner U.S.45	Ill. Hist. Struc. Surv.

Waste Disposal Sites/Hazardous Waste Sites

One hazardous waste site and one waste disposal site are listed on this segment. The area listed as having hazardous waste is located north of the intersection at Wolf Road. The waste disposal site is located on the west side of the Illinois Route 21 south of Long Grove-Aptakisic Road.

Prime Farmland

On this segment, there is prime farmland on either side of Illinois Route 21 between Deerfield Road and Riverside Road; extending north on the east side from Woodlands Parkway for approximately mile, and on both sides of the roadway just southerly of Illinois Route 60 (Town Line Road).

Sensitive Land Uses

Noise sensitive land uses on this segment include a church northwest of the intersection with U.S. Route 45 and Parkside Lodge about one and one half miles north of U.S. Route 45 on the east side of Illinois Route 21.

There are two forest preserves which border this segment: Dam No. 1 Woods south of Lake-Cook Road and Captain Daniel Wright south of Illinois Route 60 (Town Line Road). The Chevy Chase Country Club is located northwest of the intersection with Lake-Cook Road.

The Vernon Township Fire Department is in the Half Day area between Illinois Route 22 and U.S. Route 45 on the east side of the route.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

3.4.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development for Segment 4 of Illinois Route 21 (Milwaukee Avenue) are indicated on Route Maps C-3, C-4 and C-5.

Jurisdiction

Local jurisdictions are the Villages of Wheeling, Riverwoods, Buffalo Grove, Lincolnshire, Mettawa and Vernon Hills. The Village of Wheeling extends to just south of Lake-Cook Road. Riverwoods is situated along Illinois Route 21 on the east side of the route between Deerfield Road and Chicory Lane. The Buffalo Grove Village boundaries are at Lake-Cook Road, and at Busch Parkway and Estonian Lane on the westerly and easterly sides of the roadway respectively. The Village of Lincolnshire begins at Riverside Road and extends to U.S. Route 45. Vernon Hills begins on the west side of the route between North Woodbine Circle and Continental Executive Parke and extends to the north beyond the limits of this segment. A small portion of Mettawa abuts Illinois Route 21 approximately one-third of mile north of North Woodbine Circle on the east side of the route.

While a significant portion of this segment is undeveloped and unincorporated, the planning areas of these communities encompass the entire segment and in some instances overlap each other.

Type and Intensity of Development

Land use along this segment is mixed commercial, industrial, office and residential. In addition to these uses and the forest preserves, there remains a significant amount of undeveloped land. Commercial development is mainly found at or near the intersections with Deerfield Road, Long Grove-Aptakisic Road, Marriott Drive, and in the area between Illinois Route 22 and U.S. Route 45 commonly known as Half Day. Much of this development is strip commercial. North of U.S. Route 45 to Illinois Route 60 (Town Line Road), virtually all commercial development is in shopping centers.

Industrial development is mainly confined to the west side of the route between Deerfield Road and Long Grove-Aptakisic Road. There are two industrial developments north of U.S. Route 45, but they do not front Illinois Route 21. The majority of office development is located between Long Grove-Aptakisic Road and Illinois Route 22 on the west side of the route.

Residential development is primarily single-family and is dispersed throughout this segment. Significantly, some is located on relatively large parcels easterly of the route, and these parcels may be redeveloped.

Development Access and Setback

Access to much of the commercial development on this segment is provided through curb cuts. Industrial uses fronting Illinois Route 21 are accessed in the same manner. Office

development access is more consolidated, and three to four collector streets have been developed to provide access to the parking facilities of several office buildings. With the notable exception of the large lot residential uses easterly of the roadway, residential development is not directly accessed from Illinois Route 21, but rather from collector streets which intersect the route.

Setbacks on Segment 4 vary depending on land use. Strip commercial development near Long Grove-Aptakisic Road and between Illinois Route 22 and U.S. Route 45 are set back approximately 10 to 15 feet. Near Long Grove-Aptakisic Road off-street parking is located in front of the commercial establishments. Between Illinois Route 22 and U.S. Route 45 off-street parking is located in front of those of the commercial buildings which are set back greater than 15 feet.

Commercial development at Marriott Drive and north of U.S. Route 45 is set back approximately 30 to 40 feet with off-street parking fronting Illinois Route 21. This parking, however, does not abut the right-of-way line. Industrial and office developments are set back significantly from the route throughout this segment. North of U.S. Route 45 there are several residences which are approximately 20 feet from the roadway.

Future Development

Existing projects are being completed on developments northeast of the intersections with Lake-Cook Road, between Deerfield Road and Busch Parkway, at Knightsbridge Parkway, and at the Continental Executive Parke. This trend is expected to continue through the Year 2010; however municipal records as of August, 1990, indicate there are no development plans proposed for other parcels on this segment.

The approved plat for the parcel southwest of the intersection with Busch Parkway includes plans for a connector through the site between Busch Parkway and Deerfield Road.

Comprehensive plans developed for the communities on this segment indicate that commercial and office development are planned uses for land along Illinois Route 21. The Village of Lincolnshire has adopted a Tax Increment Financing (TIF) District which includes properties abutting the right-of-way between Illinois Route 22 and U.S. Route 45. The Village has already begun the redevelopment process and plans to continue. Current zoning ordinances require such development to be set back from the route 25 feet in Buffalo Grove, 12 to 50 feet in Lincolnshire, and 60 feet in Vernon Hills.

3.4.5 RECOMMENDED IMPROVEMENTS

Improvements have been recommended after evaluating the projected travel demand for the Year 2010 along with the existing roadway characteristics and character of development along the route. Improvements are categorized by ultimate and low-cost, and divided into those related to the roadway, intersections, traffic signalization, structures, access, transit and other improvements. Right-of-way requirements, potential environmental concerns and improvement cost estimates are also provided. Recommended improvements are shown on Route Maps D-3, D-4 and D-5.

ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

Ultimate Improvements

Roadway

The recommended roadway configuration for this segment is six through lanes with an 30-foot wide continuous, barrier median. (See *Figures 3.13, 3.14, 3.15 and 3.16.*)

Results of the capacity analysis for Segment 4 are shown on *Table 3.18.*

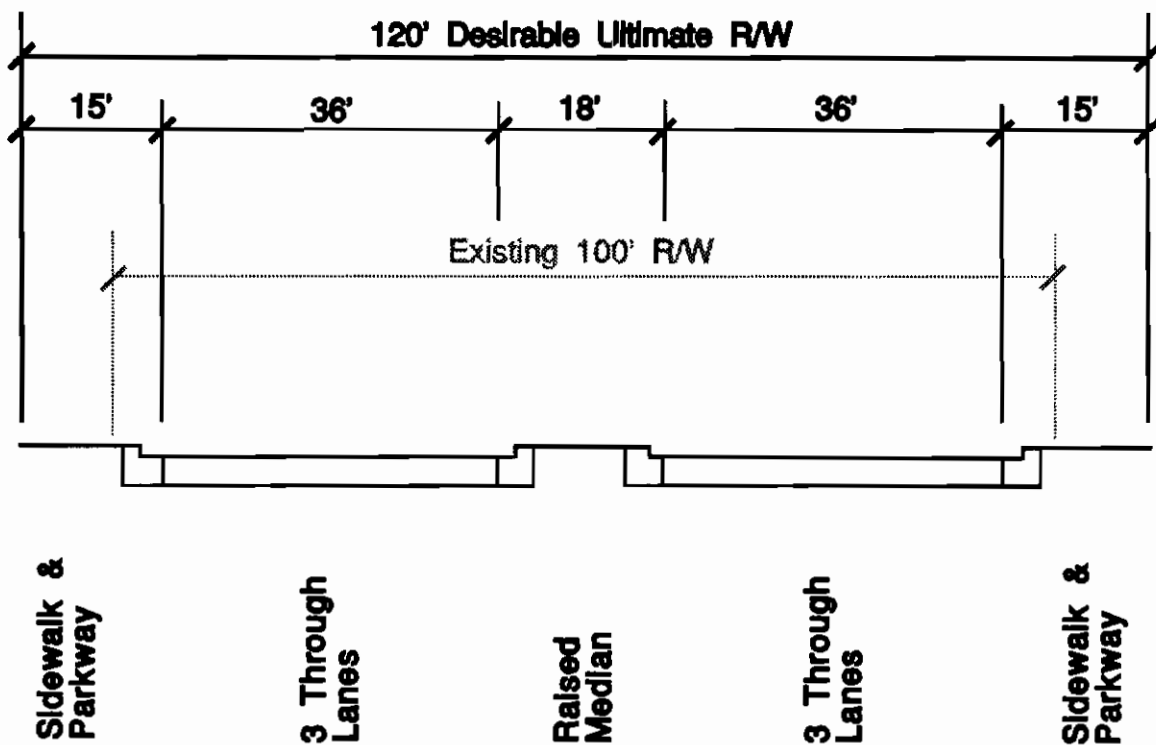
Table 3.18 Capacity Analysis for Segment 4 of Illinois Route 21					
Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Wolf Road to Illinois 22	30 to 40,000	4	27,000 30,000	C D	No
		6 *	41,000 46,000	C D	Yes
Illinois 22 to Illinois 60	30 to 40,000	4	27,000 30,000	C D	No
		6 *	41,000 46,000	C D	Yes
⁽¹⁾ Average Annual Daily Traffic					
* Recommended number of through lanes for this segment.					

Intersections

The recommended roadway configuration allows development of left-turn lanes within the median at all signalized intersections.

Detail 5 shows the recommended improvements for the intersection at Wolf Road to accommodate the transition from four through lanes southerly of the intersection to six through lanes northerly of the intersection. This improvement is in the design phase.

Detail 6 shows the recommended configuration of the intersection with Illinois Route 22. Using an AADT of 46,000 for Illinois Route 21 and 35,000 for Illinois Route 22, the levels of service for each intersection movement and for the total intersection were calculated and

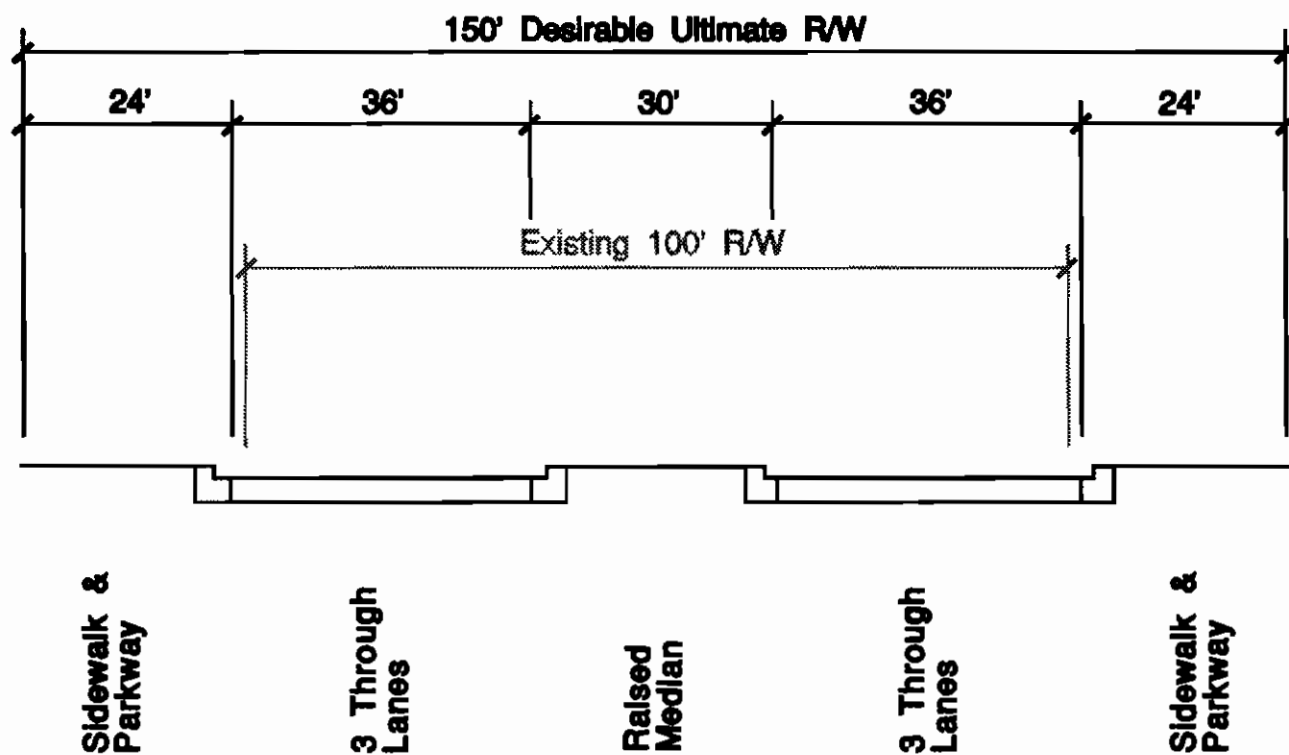


Illinois Route 21

prepared by Harland Bartholomew & Associates, Inc.

**Section H-H
Recommended Roadway Typical Section
Wolf Road to Lake-Cook Road**

Figure 3.13

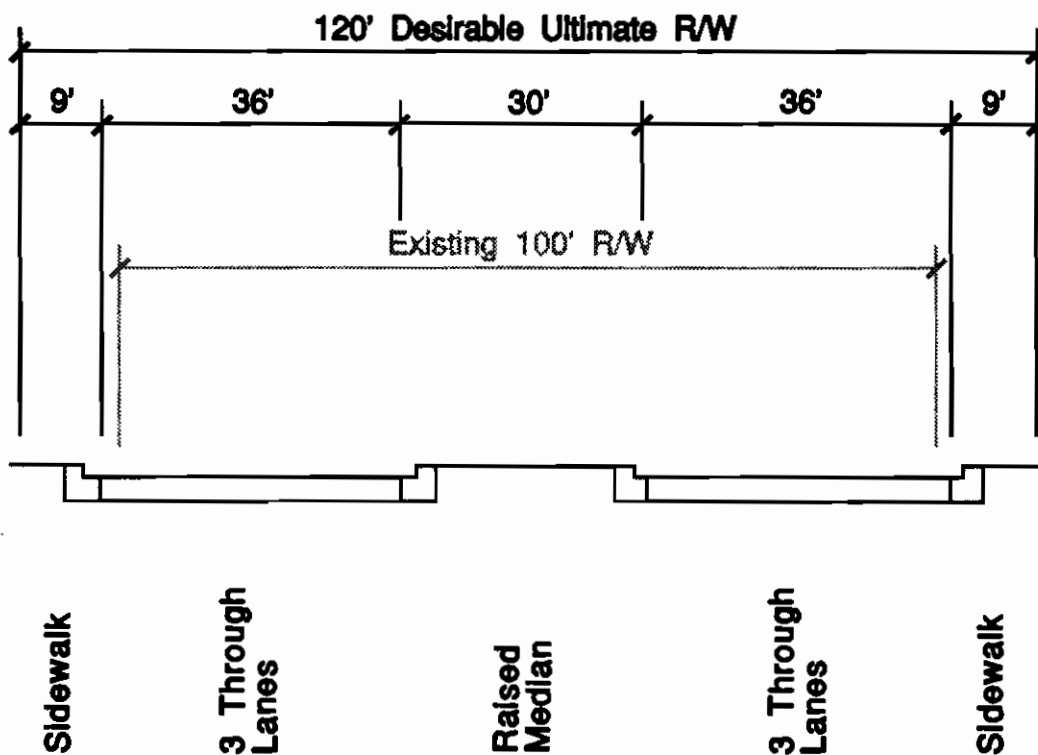


Illinois Route 21

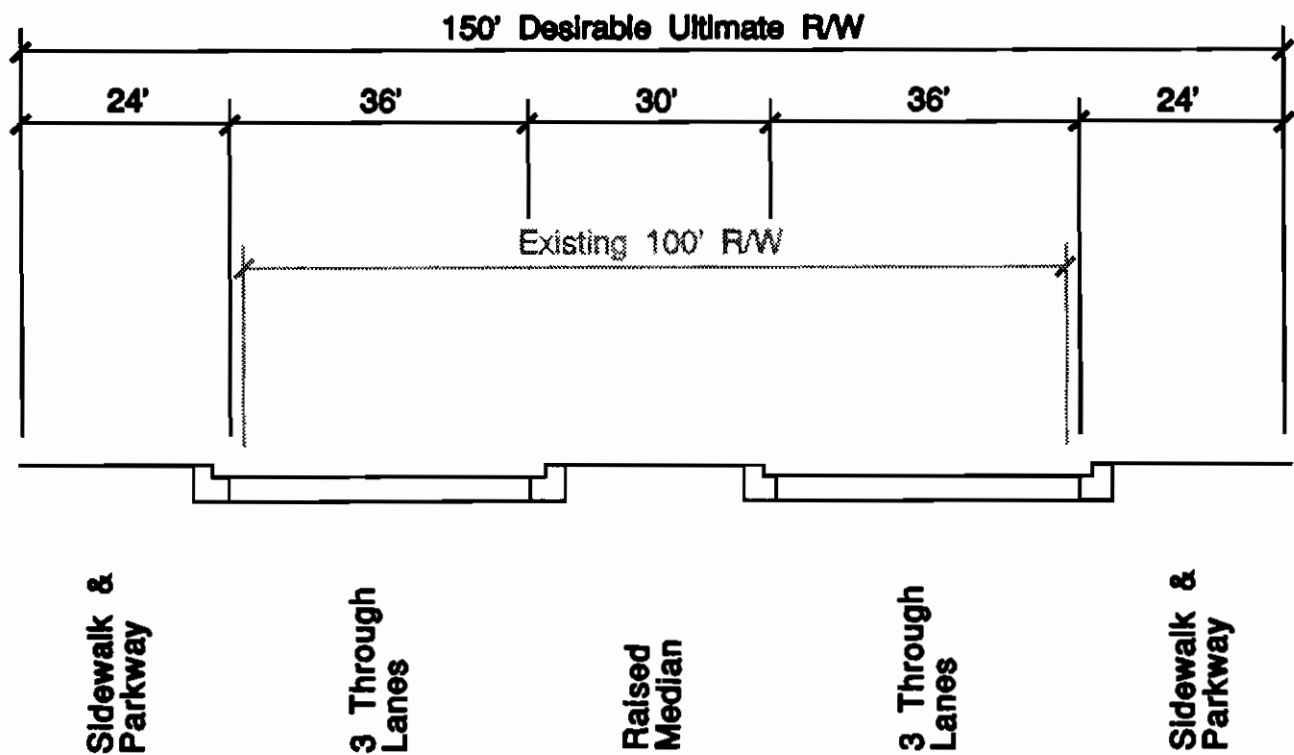
**Section H-I
Recommended Roadway Typical Section
Lake-Cook Road to Illinois Route 22**

prepared by Harland Bartholomew & Associates, Inc.

Figure 3.14



Section J-J
Recommended Roadway Typical Section
Illinois Route 21 **Illinois Route 22 to U.S. 45 (Half Day Road)**
 prepared by Harland Bartholomew & Associates, Inc. **Figure 3.15**



Section K-K

Recommended Roadway Typical Section

Illinois Route 21 U.S. 45 (Half Day Road) to Illinois 60 (Town Line Road)

prepared by Harland Bartholomew & Associates, Inc. Figure 3.16

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

are shown in *Table 3.19*. Illinois Route 22 is also an SRA, so it is recommended that dual-left turn lanes and separate right turn lanes be constructed for each leg of the intersection. Such a configuration now exists on Illinois Route 21 at Illinois Route 60 (Town Line Road), and should be provided for the other two legs of the intersection as shown in Detail 7. Using an AADT of 46,500 for Illinois Route 21 and 35,000 for Illinois Route 60 (Town Line Road), the levels of service for each intersection movement and for the total intersection were calculated and are shown in *Table 3.20*.

Table 3.19 Illinois 21/Illinois 22 Intersection Level of Service		
Direction	Movement	Level of Service
Illinois Route 21 northbound	left turn	D
Illinois Route 21 northbound	through	D
Illinois Route 21 northbound	right turn	B
Illinois Route 21 southbound	left turn	D
Illinois Route 21 southbound	through	C
Illinois Route 21 southbound	right turn	B
Illinois Route 22 eastbound	left turn	E
Illinois Route 22 eastbound	through	D
Illinois Route 22 eastbound	right turn	B
Illinois Route 22 westbound	left turn	D
Illinois Route 22 westbound	through	C
Illinois Route 22 westbound	right turn	B
Total Intersection		D

Traffic Signalization

Four new signal locations are recommended for the section between U.S. Route 45 and Illinois Route 60 (Town Line Road). The intersections include those with Woodlands Parkway, Corporate Woods Parkway, Continental Drive, and Executive Way Drive. The southerly pair should be interconnected and the northerly pair should be added to the existing system beginning at Illinois Route 60. It is not recommended that any signals be removed.

Future signals should be installed on the route only at the recommended locations and only when the signal warrants recommended for SRA routes are met. (Recommended signal warrants for SRA's are discussed in Section 10.4.2 of the *Strategic Regional Arterial Design Concept Report*.) Signals should not be installed at other than the recommended locations; additional signals would tend to impede traffic flow on the SRA route and interfere with optimization and progression of signal systems.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

Table 3.20		
Illinois 21/Illinois 60 Intersection Level of Service		
Direction	Movement	Level of Service
Illinois Route 21 northbound	left turn	D
Illinois Route 21 northbound	through	D
Illinois Route 21 northbound	right turn	B
Illinois Route 21 southbound	left turn	D
Illinois Route 21 southbound	through	C
Illinois Route 21 southbound	right turn	B
Illinois Route 60 eastbound	left turn	E
Illinois Route 60 eastbound	through	D
Illinois Route 60 eastbound	right turn	B
Illinois Route 60 westbound	left turn	D
Illinois Route 60 westbound	through	C
Illinois Route 60 westbound	right turn	B
Total Intersection		D

Structures

The structures over Aptakisic Creek (SN 049-0007) and Indian Creek (SN 049-0006) should be modified to accommodate the proposed six-lane cross-section.

Transit

The intersection of the two commuter rail lines identified in the CATS TSD plan, the Wisconsin Central line and the EJ&E line, provides an opportunity for development of a transportation center west of Illinois Route 21 northwest of the intersection of Illinois Route 60 with Butterfield Road.

Low-Cost Improvements

Traffic Signalization

Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met.

The existing signals at Inverrary Lane, Deerfield Road, and Busch Road should be interconnected into a system which includes the signal at Columbus Parkway when it is permanently installed. All existing signals between Long Grove-Aptakisic Road and U.S. Route 45 should be interconnected into a system by extending the existing Knightsbridge Parkway to Illinois Route 22 signal system.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

Access Management

Strip commercial development along the route tends to have more than one curb cut for each 500 feet. It is recommended that, as parcels are redeveloped, access is limited to a maximum of one curb cut for each property or 1,000 feet, whichever is the greater distance. Wherever possible in areas of existing development access should be consolidated via mutual access easements between adjacent parking lots. Specific consolidation recommendations are displayed on Route Maps D-3, D-4, and D-5.

Transit

It is recommended bus shelters be constructed at existing bus stop locations. Shelters should also be provided at stops used by any future express bus service. Directional signs to the Buffalo Grove park-and-ride facility and, when operational, to the nearest Wisconsin Central and EJ&E commuter rail station should be provided at Lake-Cook Road, Deerfield Road, Illinois Route 22, U.S. Route 45 and Illinois Route 60.

Other Improvements

It is recommended that roadway improvements to Butterfield Road be considered to accommodate traffic from the Cuneo development.

3.4.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The ultimate desirable right-of-way width for a suburban SRA is 150 feet. This width is recommended for the entire segment, except for that section between Illinois Route 22 and U.S. Route 45 known as the Half Day area. In this section parcels abutting the right-of-way are not large enough to allow for a 150-foot right-of-way. However, the Half Day area is within a Tax Increment Financing (TIF) district, so the Village of Lincolnshire may ultimately be able to protect right-of-way adequate to bring the total to 120 feet. This redevelopment could be complete by the Year 2010.

3.4.7 POTENTIAL ENVIRONMENTAL CONCERNS

Significant sections of the existing and expanded right-of-way lie within the floodplain of the DesPlaines River or are considered to be prime farmland. Roadway improvement design studies should also consider the hazardous waste site at Wolf Road, and right-of-way recommended for acquisition through the Daniel Wright Forest Preserve and at U.S. Route 45 affecting Foote's Tavern.

3.4.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 4 of Illinois Route 21 (Milwaukee Avenue) is shown in *Table 3.21*.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Wolf Road to Illinois Route 60 (Town Line Road)

Table 3.21	
Construction Cost Estimates for Segment 4 - Illinois Route 21	
Improvement	Estimated Cost
Ultimate	
Roadway	\$29,700,000
Intersection Improvements	\$3,500,000
Traffic Signals	\$600,000
Signal Interconnection	\$200,000
Structure Modification	\$400,000
Right-of-way Acquisition	\$7,600,000
Total Estimated Cost for Ultimate Improvements	\$42,000,000
Low-Cost	
Signal Interconnection	\$500,000
Transit Improvements	\$200,000
Total Estimated Cost for Low-Cost Improvements	\$700,000
Total Estimated Cost for All Improvements	\$42,700,000

3.5 SRA SEGMENT 5: ILLINOIS ROUTE 60 (TOWN LINE ROAD) TO WINCHESTER ROAD

3.5.1 LOCATION

Segment 5 extends from Illinois Route 60 (Town Line Road) on the south to Winchester Road on the north, a distance of approximately four miles. (See Figure 3.17.)

3.5.2 EXISTING FACILITY CHARACTERISTICS

Existing facility characteristics for Segment 5 of Illinois Route 21 are shown on Route Maps A-5 and A-6.

Traffic Volumes

The average annual daily traffic (AADT) volumes of 34,000 vehicles between Illinois Route 60 (Town Line Road) and Golf Road were obtained as part of the 1989 IDOT Signal Coordination and Timing Traffic (SCAT) Automatic Traffic Recorder (ATR) counts.

Right-of-Way

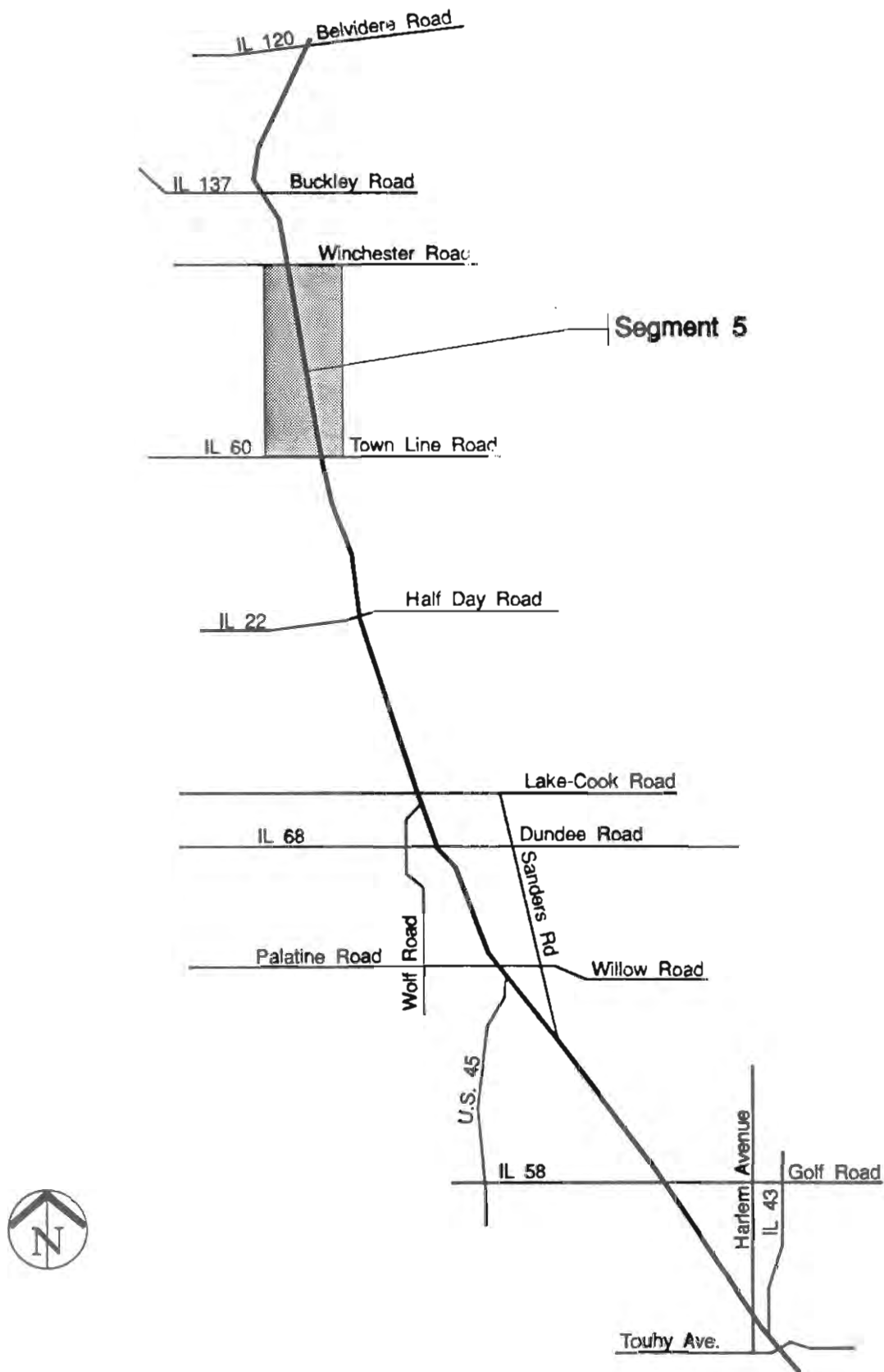
The existing right-of-way width along this route segment varies between 66 feet and 130 feet wide. The right-of-way width tapers from 130 feet at Illinois Route 60 (Town Line Road) to 80 feet within one-quarter of a mile. Until just south of Rockland Road the right-of-way width varies between 80 and 95 feet. In the remainder of the segment the right-of-way width varies between 66 and 82 feet.

Pavement Width and Number of Lanes

The existing roadway configuration provides four traffic lanes along the entire route segment with two through lanes of travel in each direction. North of the Hawthorn Center Drive there is an eight- to 12-foot mountable median. From this point north to Illinois Route 176 (Park Avenue) the traffic lanes are separated by an eight- to 12-foot striped median that includes a two-way left-turn lane. North of Illinois Route 176 (Park Avenue) through downtown Libertyville, the traffic lanes are separated by striped pavement markings. North of the downtown area there is an eight- to 12-foot striped median that accommodates left-turn bays. This route segment contains curb and gutter along its entire length.

The paved roadway width varies from 48 to 66 feet along the length of this route segment as follows:

- Illinois Route 60 (Town Line Road) to Illinois Route 176 (Park Avenue) is 60 feet wide,
- Illinois Route 176 (Park Avenue) to Broadway is 60 feet wide,
- Broadway Street to Church Street is 66 feet wide,



ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 60 (Town Line Road) to Winchester Road

- Church Street to Newberry Avenue is 60 feet wide, and
- Newberry Avenue to Winchester Road is 48 feet wide.

Traffic Signals

There are eleven signalized intersections along Segment 5. They are listed on *Table 3.22*.

Table 3.22 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Hawthorn South	2	3	YES	SB	"T" intersection, Interconnected
Hawthorn Center Dr.	2	2	YES	SB	"T" intersection, Interconnected
Greentree/Red Top Dr.	2	2	YES	SB	Interconnected
Golf Road	2	2	YES	NO	Interconnected
Valley Park Road	2	2	YES	NO	"T" intersection, Interconnected
Rockland Avenue	2	2	YES	NO	Interconnected
Illinois 176 (Park Ave.)	2	2	YES	NO	Interconnected
Church Avenue	2	2	NO	NB	
Cook Avenue	2	2	NO	NO	
Lake Street	2	2	NO	NO	"T" intersection
Winchester Road	2	2	YES	NO	
Note: NB = northbound; SB = southbound					

The signalized intersections from Rivertree Court Shopping Center north to the Hawthorn Center Drive combine to form an interconnected signal system. This system is a crossing arterial signal system with Illinois Route 60 (Town Line Road). The signalized intersections from Greentree Parkway north to Illinois Route 176 (Park Avenue) combine to form another system.

Parking, Sidewalks, and Frontage Roads

On-street parking is confined to downtown Libertyville. There are sidewalks along both sides of the roadway from Greentree Parkway to Winchester Road. There are no frontage roads along this route segment.

Structures

There are no structures on the route segment.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 60 (Town Line Road) to Winchester Road

Transit

Metra commuter rail service is provided by the Milwaukee Road North line. The Libertyville station is located on the west side of Illinois Route 21. Pace route #572 operates on Illinois Route 21 between Hawthorn Shopping Center and the Libertyville Metra station.

Other Characteristics

There are two at-grade rail crossings in this segment: the EJ&E Railroad Line approximately one mile north of Illinois Route 60 (Town Line Road) and the Milwaukee Road line just north of Lake Street.

3.5.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for Segment 5 of Illinois Route 21 include wetlands, historic structures, prime farmland, and sensitive land uses. They are displayed on Route Maps B-5 and B-6.

Streams/Wetlands/Floodplains

There are wetlands at the EJ&E Railroad crossing which may infringe upon the right-of-way.

Historical Significance

There are four historic structures in downtown Libertyville, as listed in *Table 3.23*.

Table 3.23 Historic Landmarks		
Name	Location	Type
Public Service Building	344-354 North Milwaukee Ave	National Register
Libertyville Federal Savings	SE corner of IL 21 and Church	Ill. Hist. Lndmk. Surv
Cook-House Public Library	413 North Milwaukee Avenue	Ill. Hist. Lndmk. Surv
American Legion Town Hall	NW crnr of IL 21 and Newberry	Ill. Hist. Lndmk. Surv

Prime Farmland

On this segment, an area on the west side of the route extending from Hawthorn Center Drive to just south of Greentree Parkway is considered to be prime farmland. This area is also known as the Cuneo property and is expected to be developed.

Sensitive Land Uses

Noise sensitive land uses on this segment include a church and school east of the route south of Church Avenue.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 60 (Town Line Road) to Winchester Road

Cook Memorial Park is between Cook Street and Church Avenue west of the route. Maple Park is east of the right-of-way south of Church Avenue. The post office and fire department are west of the route south of Church Avenue and Lake Street respectively.

3.5.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development for Segment 5 of Illinois Route 21 (Milwaukee Avenue) are indicated on Route Maps C-5 and C-6.

Jurisdiction

Segment 5 is entirely within the Villages of Vernon Hills and Libertyville. Vernon Hills begins south of the boundaries of this segment and extends north to Hawthorn Center Drive on the east side of the route and to Red Top Drive on the west side. Directly north of Vernon Hills is Libertyville which extends throughout the remainder of this segment.

Type and Intensity of Development

While there are office and residential uses fronting the route, land use is primarily commercial. Large scale commercial development is located on three of the corners at Illinois Route 60 (Town Line Road) as well as southeast of the crossing at the EJ&E Railroad. In this same area an office development is located on the east side of the route and two residences are located on the west side. From the EJ&E Railroad to Red Top Drive are additional office and commercial uses.

Illinois Route 21 serves as the main north-south thoroughfare through downtown Libertyville. Land is most intensely developed between Red Top Drive and Winchester Road, and the predominant land use is commercial.

Office development is located south of Rockland Road. Residential development is predominant to the east and west of the corridor development as well as fronting Illinois Route 21 in some areas. Most residential development is single-family.

South of Red Top Drive, there is still a substantial amount of undeveloped land. The largest parcel is generally known as the Cuneo Property.

Development Access and Setback

South of Rockland Road, access is limited to the roadways and curb cuts serving office and commercial developments. While some of this access is relatively well consolidated, most complexes are served by more than one curb cut.

Between Rockland Road and Winchester Road, there are numerous curb cuts accessing commercial development. Access to residential development on this segment is primarily via intersecting streets.

SECTION 3: Route Analysis - Illinois Route 60 (Town Line Road) to Winchester Road

From Illinois Route 60 (Town Line Road) to Rockland Road, and north of the Milwaukee Road railroad almost all building setbacks are adequate to accommodate off-street parking. The exception is a multi-family residential development south of Rockland Road which is set back only about 15 feet.

Through the heart of downtown Libertyville, from Broadway Street to the Milwaukee Road rail line, buildings are not set back from the right-of-way. Several properties have provided on-street parking or sidewalk adjacent to the dedicated right-of-way. A curb cut serving the Metra station through a small strip shopping center is located immediately south of the tracks.

Future Development

According to municipal records as of August, 1990, there are no active approved plans for future development on this segment. The last major parcel of land on the segment is commonly known as the Cuneo property. It stretches between Hawthorn Center and Greentree Parkway and between Illinois Route 21 and Butterfield Road. It is planned for residential and commercial development. Requirements of the tentative plan included at least one east-west arterial street connecting Illinois Route 21 with Butterfield Road and no more than two exits onto Illinois Route 21. Final plans are expected to include the traffic plan as outlined whenever the site is developed.

Comprehensive plans for both Vernon Hills and Libertyville indicate that commercial and office uses are planned for the remaining undeveloped parcels. Current zoning ordinances require such development to be set back a minimum of 60 feet in Vernon Hills. Excluding the central business district where no setback is required, Libertyville requires the development of this nature is setback at least 25 and as much as 200 feet.

In August of 1990, the Village of Libertyville adopted a downtown subarea plan. Its circulation plan calls for off-route circulation for local traffic that makes use of existing alleyways and parking lots as north-south local access ways. There are two such access ways west of Illinois Route 21: between Maple Avenue and Church Street aligned with Stewart Avenue and between Lake Street and Cook Avenue behind the buildings fronting on Illinois Route 21. An easterly access way extends continuously between Broadway Street and Newberry Avenue. The Village has begun to acquire access agreements from affected property owners.

The Downtown Subarea Plan also calls for acquisition of additional properties south of the Metra station to create a continuous block of land for commuter parking. One of the existing parcels extends from the station to the north end of Brainard Avenue at Lake Street.

3.5.5 RECOMMENDED IMPROVEMENTS

Improvements have been recommended after evaluating the projected travel demand for the Year 2010 along with the existing roadway characteristics and character of development along the route. Improvements are categorized by ultimate, low-cost and post-2010, and

divided into those related to the roadway, intersections, traffic signalization, structures, access, transit and other improvements. Right-of-way requirements, potential environmental concerns and improvement cost estimates are also provided. Recommended improvements are shown on Route Maps D-5 and D-6.

Even though the projected travel demand in this segment is less than 30,000 vehicles per day, adequate capacity can only be provided through all portions of this segment if other plans for improvements in local traffic circulation are implemented as well as improvements to Illinois Route 21. In the downtown area of Libertyville, between Illinois Route 176 (Park Avenue) and the Milwaukee Road rail line, the right-of-way is as narrow as 60 feet wide and is lined by commercial buildings. Also, between Broadway Street and Lake Street, which is the heart of the downtown area, there is on-street parking on both sides of the street. There are no feasible opportunities to relocate all of this parking off-street. These factors preclude widening the existing pavement through this segment to provide either additional traffic lanes or a continuous median for left-turns.

A variety of on-route improvements are recommended to improve the flow of traffic, including traffic signal interconnection, traffic signal removal, prohibition of left-turns in areas without medians, and intersection capacity improvements. Off-route improvements include construction of an east-west local arterial route across the Cuneo property connecting Illinois Route 21 and Butterfield Road, as well as capacity improvements to north-south routes paralleling Illinois Route 21, such as Butterfield Road and St. Marys Road. Also the Village of Libertyville's plan for local accessways paralleling Illinois Route 21 in the downtown area should be implemented to provide an alternative to the SRA route for local circulation and access.

Assumed in the CATS traffic demand projections for the Year 2010 is the completion of Illinois Route 53 to Illinois Route 120 as planned in its TSD Plan.

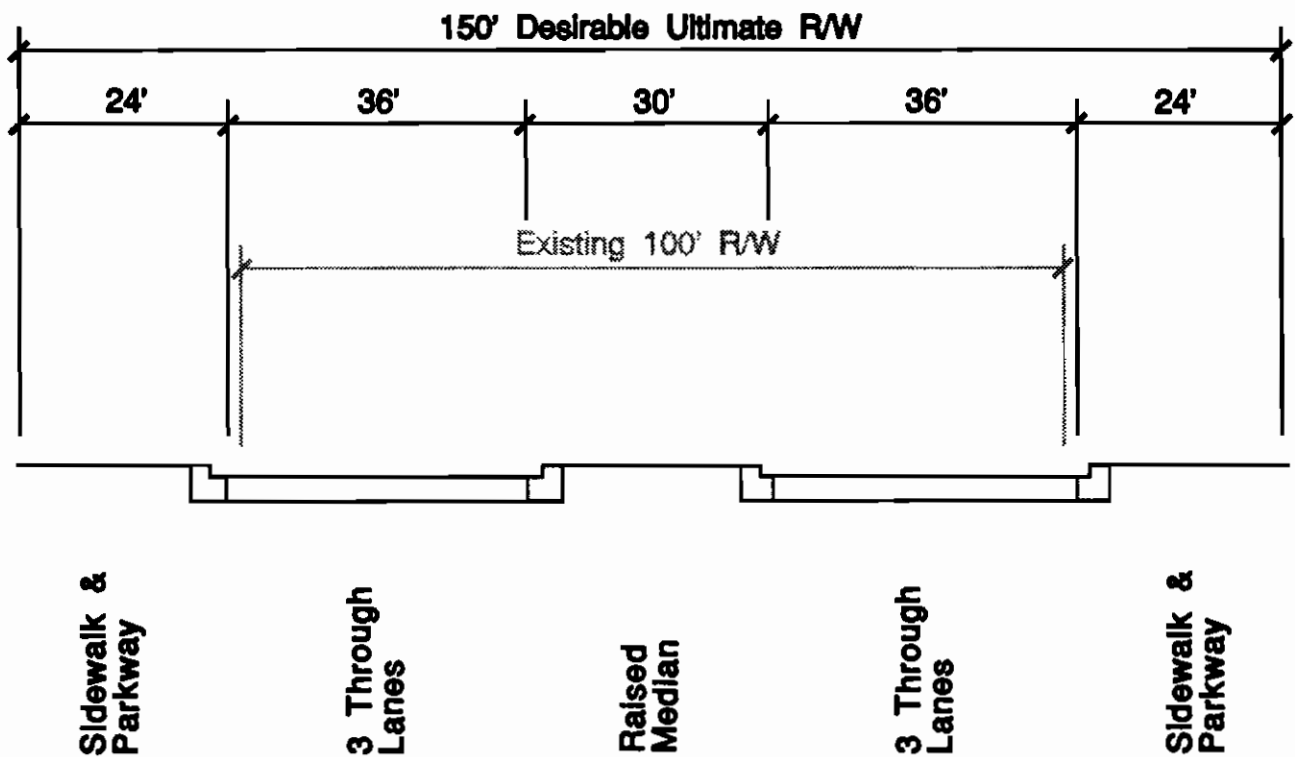
Ultimate Improvements

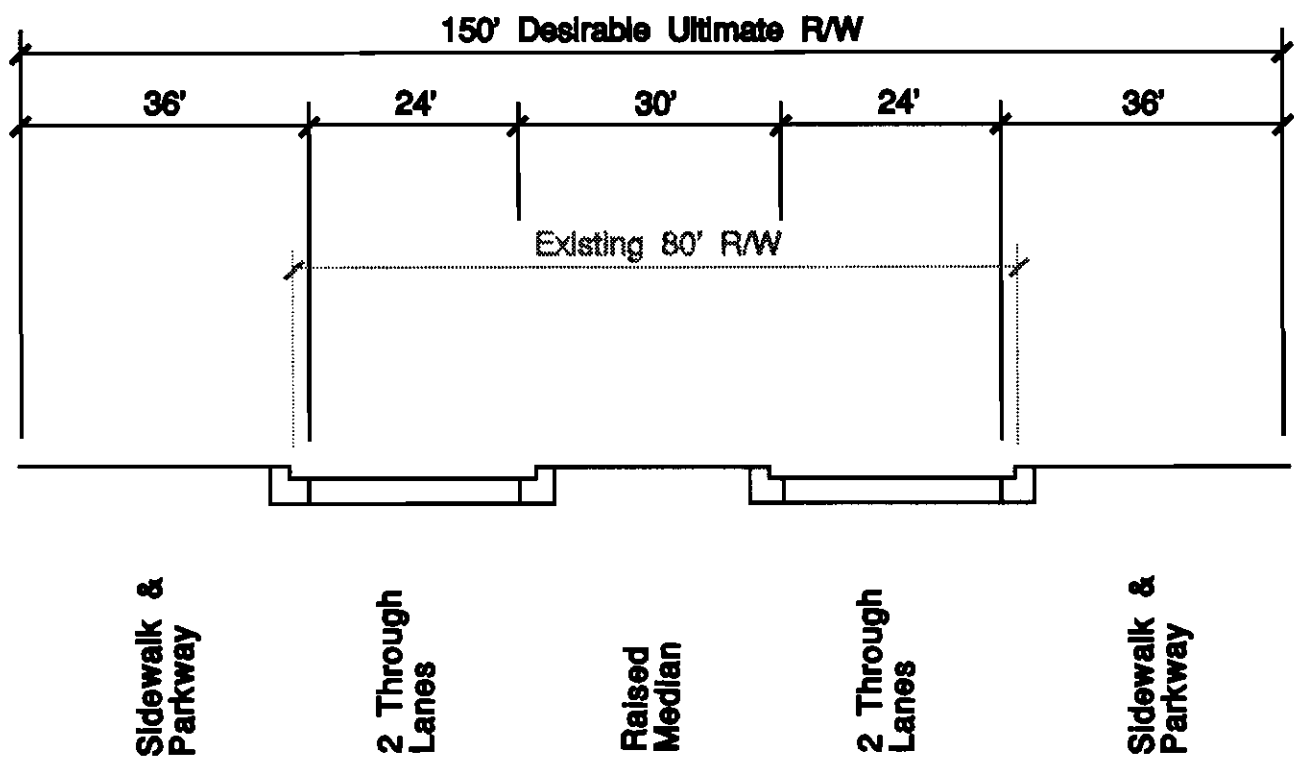
Roadway

The recommended roadway configuration for this segment provides six through lanes with a 30-foot wide continuous barrier median from Illinois Route 60 (Town Line Road) to the north entrance to the Cuneo property. (See *Figure 3.18.*) From this point, two through traffic lanes in each direction are recommended for the remainder of the segment. (See *Figures 3.19, 3.20, 3.21 and 3.22.*) South of Illinois Route 176 (Park Avenue) and north of the Milwaukee Road rail line, there is a median which should remain.

Between Illinois Route 176 (Park Avenue) and the Milwaukee Road rail line, there is no median. It is recommended that left turns be prohibited at unsignalized intersections during the peak periods.

Results of the capacity analysis for Segment 5 are shown on *Table 3.24.*



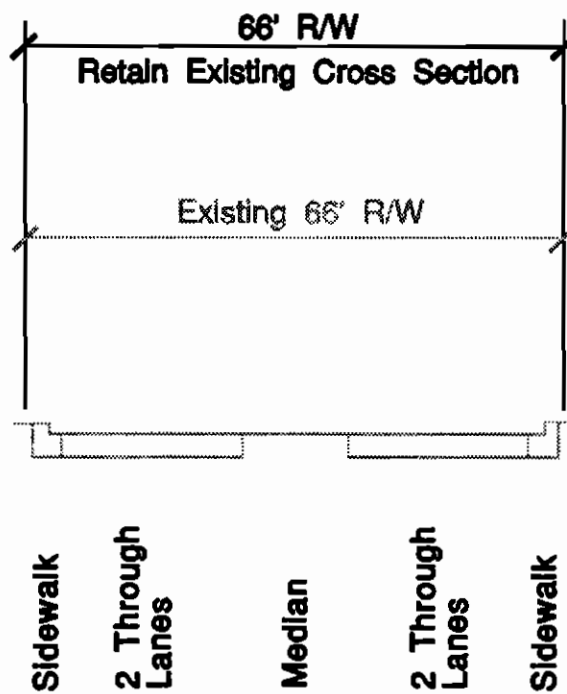


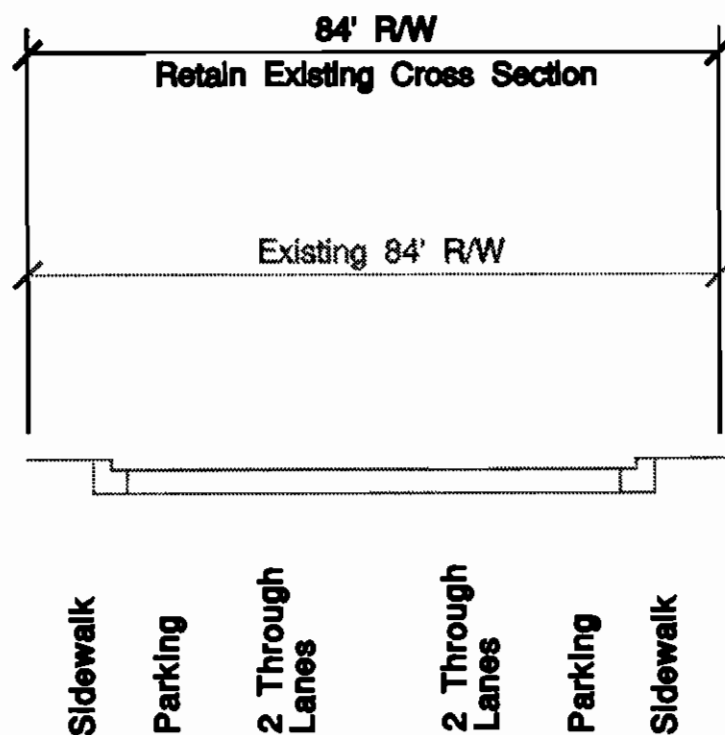
Illinois Route 21

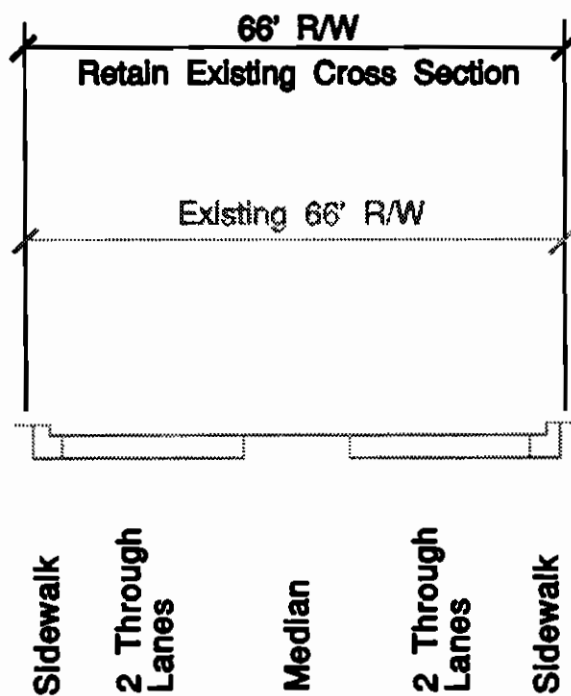
prepared by Harland Bartholomew & Associates, Inc.

**Section L-L
Recommended Roadway Typical Section
Cuneo Property to Golf Road**

Figure 3.19







ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 60 (Town Line Road) to Winchester Road

Table 3.24 Capacity Analysis for Segment 5 of Illinois Route 21					
Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Illinois 60 to Golf Road	< 30,000	4 ^{*(2)}	28,000 31,000	C D	Yes
		6 ^{*(2)}	43,000 47,000	C D	Yes
Golf Road to Winchester Road	< 30,000	4 *	28,000 31,000	C D	No
		6	42,000 47,000	C D	Yes
(1) Average Annual Daily Traffic					
(2) Six lanes from Cuneo property south; four lanes from Cuneo property north.					
* - Recommended number of through lanes for this segment.					

Intersections

In Libertyville, two alternatives are recommended for evaluation to improve traffic flow through the signalized intersections at Church Street and Cook Avenue. One alternative would involve the conversion of the existing traffic signal at Cook Avenue for use only by emergency vehicles and the removal of on-street parking in the immediate vicinity of Church Street to allow for left turn channelization. The second alternative consists of retention of the existing traffic signals at Church Street and Cook Avenue, retention of on-street parking and implementation of peak hour turn restrictions at those signalized intersections.

It is recommended that on-street parking be removed in the immediate vicinity of the signalized intersection at Lake Street to allow implementation of left turn channelization.

All other unsignalized intersections between Illinois Route 176 and the Milwaukee Road rail line should have peak hour turn restrictions.

Traffic Signalization

Two new signal locations are recommended at access points for the Cuneo property. These signals should be placed opposite existing access points, such as the northerly end of Artaius Parkway and the southerly end of Hollander Drive. Existing signal interconnects should be extended to the new signals.

Future signals should be installed on the route only at the recommended locations and only when the signal warrants recommended for SRA routes are met. (Recommended signal warrants for SRA's are discussed in Section 10.4.2 of the Strategic Regional Arterial Design Concept Report.) Signals should not be installed at other than the recommended locations; additional signals would tend to impede traffic flow on the SRA route and interfere with optimization and progression of signal systems.

Transit

In lieu of the intersection of the Wisconsin Central with the EJ&E commuter rail lines, the intersection of the Wisconsin Central line with the Milwaukee Division North line could also provide an opportunity for a transportation center, if the Village of Libertyville and Metra were to move the Milwaukee Division North line from its existing station. This intersection is located west of Illinois Route 21 near Butterfield Road and Winchester Road. These facilities would require further study as part of the future commuter rail facilities and would complement the SRA route.

A potential location in this segment for a park-and-ride lot is the northwest corner of the intersection with Illinois Route 60 (Town Line Road) in the Hawthorn Shopping Center parking lots where there would be access to intersecting SRA routes. Lot space should be multiple use, so available for park-and-ride on week days only leaving the spaces available to shoppers on the weekends.

Low-Cost Improvements

Traffic Signalization

Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met.

Existing signals between Illinois Route 176 (Park Avenue) and Illinois Route 137 (Buckley Road) in Segment 6 should be interconnected into the existing Greentree Parkway to Park Avenue signal system.

Access Management

It is recommended that, as parcels are redeveloped, access is limited to a maximum of one curb cut for each property or 1,000 feet, whichever is the greater distance. The flow of traffic would benefit from access consolidation by existing development southerly of Golf Road. This could be accomplished through mutual access easements joining the parking lots where more than one property owner would be served by one curb cut. Specific consolidation recommendations are displayed on Route Maps D-5 and D-6.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 60 (Town Line Road) to Winchester Road

Transit

Direction signage for the Libertyville Metra Station is recommended. This should include informational signs at major intersections such as Illinois Route 60 (Town Line Road), indicating direction and distance to the station. Within a half-mile of the station, signs should provide specific directions to the entrance for passenger drop-off and for the different parking lots. It is recommended bus shelters be constructed at existing bus stop locations. Shelters should also be provided at stops used by any future express bus service, such as near the intersections with Red Top Drive/Greentree Parkway or at Golf Road and at the Libertyville Metra station.

Other Improvements

When the Cuneo property is approved for development, it is recommended the design include an east-west arterial connecting Illinois Route 21 with Butterfield Road to improve the flow of traffic throughout the area. It is recommended that roadway improvements to Butterfield Road be considered to accommodate traffic from the Cuneo development.

Assumed in the recommendations for this segment is implementation of the Libertyville downtown plan.

Post-2010 Improvement

Grade Separation

If the EJ&E rail line is used as a commuter rail line and if the number of trains using the line during the peak period warrants, a grade separation should be constructed at Illinois Route 21. Extensive development east of the roadway would appear to preclude acquisition of additional right-of-way on this side, so a retaining wall is recommended.

3.5.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The ultimate right-of-way width for a suburban SRA is 150 feet. This width is recommended for that section of the route southerly of Golf Road.

Additional right-of-way west of the route should be protected to accommodate the grade separation at the EJ&E rail line.

The section northerly of Golf Road falls within the area definition of a suburban SRA, but has neither the projected demand for, nor the foreseeable capability to protect additional right-of-way. To address this particular situation, a modified cross section with a reduced right-of-way width is recommended. This strategy is particularly important in the downtown area of Libertyville, where continued commercial viability depends upon the retention of historic structures.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Illinois Route 60 (Town Line Road) to Winchester Road

3.5.7 POTENTIAL ENVIRONMENTAL CONCERNS

With the exception of right-of-way acquisition near the EJ&E railroad, none of the ultimate or low-cost improvements is expected to raise environmental concern. Preservation of the existing right-of-way throughout downtown Libertyville will preserve the historic buildings and parks which line the right-of-way.

At the EJ&E rail line, the recommended 150-foot ultimate desirable right-of-way and grade separation recommended as a Post-2010 improvement should be studied with respect to its impact on the wetland that is in the recommended right-of-way.

3.5.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 5 of Illinois Route 21 (Milwaukee Avenue) is shown in *Table 3.25*.

Table 3.25	
Construction Cost Estimates for Segment 5 - Illinois Route 21	
Improvement	Estimated Cost
Ultimate	
Roadway	\$4,200,000
Intersection Improvements	\$1,000,000
Traffic Signals	\$200,000
Signal Interconnection	\$200,000
Transit Improvements(includes land acquisition)	\$500,000
Right-of-way Acquisition	\$3,600,000
Total Estimated Cost for Ultimate Improvements	\$9,700,000
Low-Cost	
Signal Interconnection	\$200,000
Transit Improvements	\$100,000
Total Estimated Cost for Low-Cost Improvements	\$300,000
Post-2010	
Grade Separation at EJ&E Railroad	\$2,500,000
Total Estimated Cost for Post-2010 Improvements	\$2,500,000
Total Estimated Cost for All Improvements	\$12,500,000

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Winchester Road to Illinois Route 120 (Belvidere Road)

3.6 SRA SEGMENT 6: WINCHESTER ROAD TO ILLINOIS ROUTE 120 (BELVIDERE ROAD)

3.6.1 LOCATION

Illinois Route 21 (Milwaukee Avenue) Segment 6 extends from Winchester Road to Illinois Route 120 (Belvidere Road), a distance of approximately four miles. (See Figure 3.23.)

3.6.2 EXISTING FACILITY CHARACTERISTICS

Existing facility characteristics for Segment 6 of Illinois Route 21 are shown on Route Maps A-6 and A-7.

Traffic Volumes

The average annual daily traffic (AADT) volume in this segment is 17,100 vehicles north of Illinois Route 137 (Buckley Road) according to the 1988 IDOT Lake County Traffic Map.

Right-of-Way

Except for the intersection with Illinois Route 137 (Buckley Road), the existing right-of-way along this route segment is a continuous 80-foot width. North of the the intersection with Winchester Road the right-of-way is about 73 feet wide in front of the Lake County government buildings. Illinois Route 21 widens to 105 feet just southerly of the intersection with Illinois Route 137 (Buckley Road) and returns to 80 feet at the northerly leg of the intersection. The Illinois Route 137 intersection is being redesigned and right-of-way is being acquired west of the existing alignment under an ongoing IDOT improvement project.

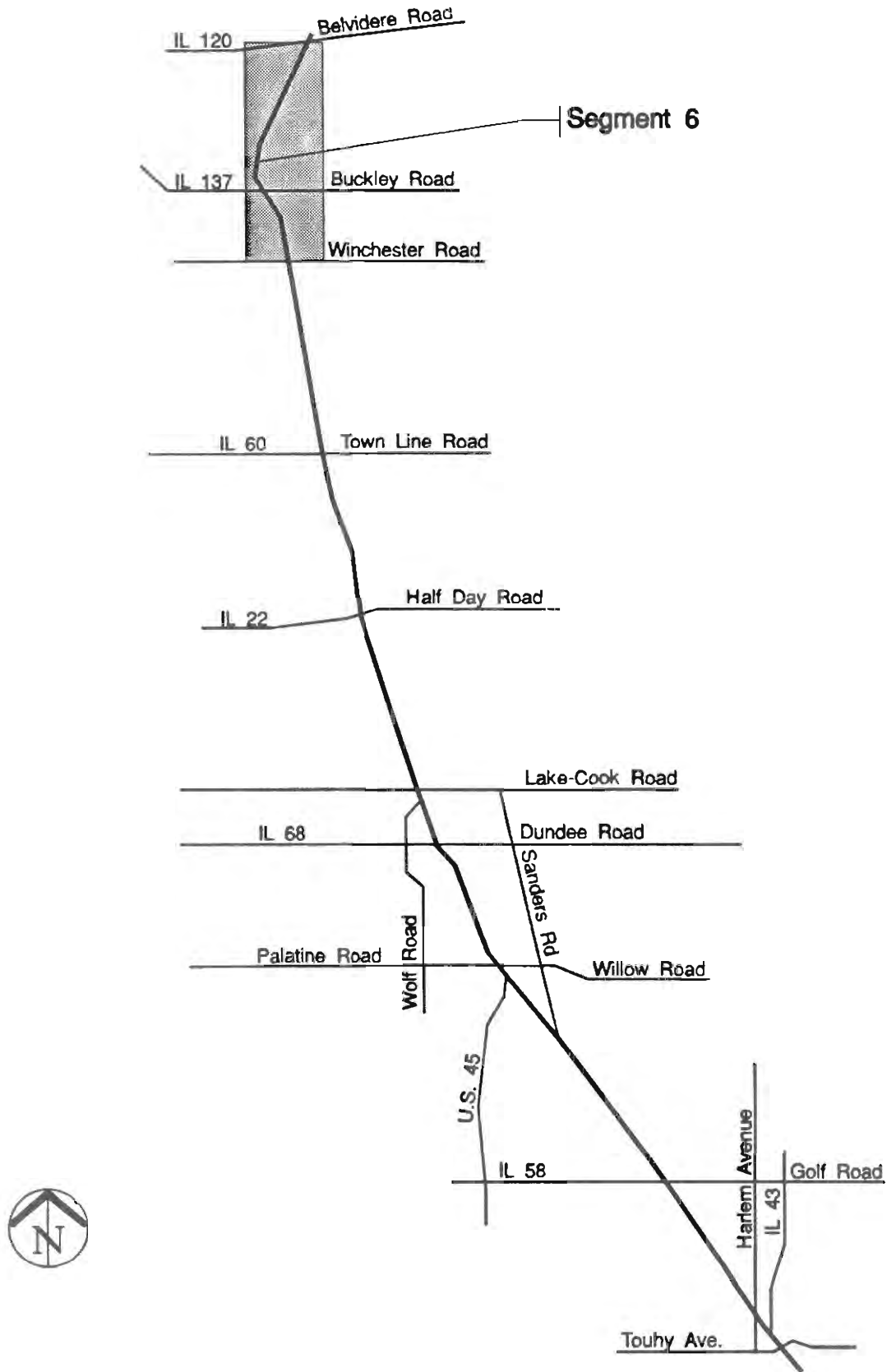
Pavement Width and Number of Lanes

The existing roadway configuration between Winchester Road and Illinois Route 137 provides four traffic lanes with two through lanes of travel in each direction separated by an eight to 12-foot striped median which accommodates left-turn bays. The pavement is about 60 feet wide and includes curb-and-gutter along its entire length.

Between Illinois Route 137 and Illinois Route 120 there are two traffic lanes with one through lane of travel in each direction separated by striped pavement markings. The paved roadway width is about 22 feet wide and is flanked by two- to 12-foot gravel shoulders along each side of the roadway.

Traffic Signals

There are two signalized intersections along Segment 6. The signal at the fire station stops through traffic only to allow emergency vehicles to enter the right-of-way. The signal remains in a green phase at all other times. Both signals are listed on Table 3.26.



ILLINOIS ROUTE 21 (Milwaukee Avenue)
SECTION 3: Route Analysis - Winchester Road to Illinois Route 120 (Belvidere Road)

Table 3.26 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Fire Station	2	2	YES	YES	For station use only
Illinois 137 (Buckley Rd)	2	2	YES	NO	
Note: NB = northbound; SB = southbound					

Parking, Sidewalks, and Frontage Roads

Sidewalks serving residential development southerly of Buckley Road are the only sidewalks on the segment. There are no on-street parking spaces or frontage roads.

Structures

There are three structures on this route segment. They are listed on *Table 3.27*.

Table 3.27 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance		Remarks
			Vert.	Horiz.	
Bull Creek	049-0027	north of IL 137	N/A	40'	SRA over
Small Stream	049-0026	south of IL 120	N/A	68'	SRA over
Illinois 120	049-0025	—————	N/A	56'	SRA over
Note: N/A=Not Applicable					

Transit

Pace Route #572 operates along this segment of Illinois Route 21 from Libertyville to Illinois Route 137 (Buckley Road) where it turns west to North Chicago and Waukegan. There is no other transit service on or crossing Illinois Route 21 in this segment.

3.6.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for Segment 6 of Illinois Route 21 include floodplains, wetlands, an historic structure, waste disposal and hazardous waste sites, prime farmland, and sensitive land uses. They are shown in Route Maps B-6 and B-7.

Streams/Wetlands/Floodplains

The most significant environmental characteristic of this segment is its proximity to the DesPlaines River. The floodway is just easterly of the route. There are three floodplain crossings:

- Bull Creek is 100 feet wide and crosses north of Illinois Route 137 (Buckley Road),
- A DesPlaines River Tributary is 150 feet wide and crosses south of Casey Road, and
- Belvidere Road Tributary is 150 feet wide and at the Illinois Route 120 (Belvidere Road) interchange.

There are also wetlands north of Illinois Route 137 (Buckley Road), north of Casey Road, and south of Illinois Route 120 (Belvidere Road) which may infringe upon the right-of-way of the route, as well as additional wetlands associated with the floodplains.

Historical Significance

On this segment there is one structure listed on the National Register of Historic Places. It is the Church of the Saint Sava Orthodox Monastery, and it is located approximately one-half mile south of Illinois Route 120 (Belvidere Road).

Waste Disposal Sites/Hazardous Waste Sites

This segment is listed as having one waste disposal and two hazardous waste sites. One of the hazardous waste sites is reported at Illinois Route 137 (Buckley Road), while the other hazardous waste site and the waste disposal site are reported at the Illinois Route 120 (Belvidere Road) interchange.

Prime Farmland

There are two prime farmland areas on this segment. The first extends north from Bull Creek for one mile. The second area of prime farmland extends southerly for one-half mile from Illinois Route 120 (Belvidere Road).

Other Sensitive Land Uses

There is a cemetery associated with Church of Saint Sava Orthodox Monastery.

Adler Memorial Park and School is located just southeasterly of the intersection with Illinois Route 137 (Buckley Road). There is a Lake County forest preserve north of Illinois Route 137 (Buckley Road) on the east side of the right-of-way. The Lake County Forest Preserve District Headquarters is within the preserve.

Lake County government buildings, the Radio Facility of Lake County, and Winchester Center are located at the northwesterly corner of Winchester and Illinois Route 21. There is a fire station south of Illinois Route 137 and west of the right-of-way.

3.6.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development on Segment 7 of Illinois Route 21 (Milwaukee Avenue) are indicated on Route Maps C-6 and C-7.

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Winchester Road to Illinois Route 120 (Belvidere Road)

Jurisdiction

Most of the segment is within unincorporated Lake County. The northerly Libertyville municipal limits extend to the northwesterly corner of the intersection with Illinois Route 137 (Buckley Road). The Waukegan boundary extends along the west side of the route north from the Warren/Libertyville Township line for approximately one-half mile.

The northernmost end of the segment is within the Village of Gurnee planning area, and the Village is considering annexation of the southwesterly corner of Illinois Route 120 (Belvidere Road) and Illinois Route 21.

Type and Intensity of Development

Land on this segment is almost entirely undeveloped, much of this in forest preserve. Where there is development, it is primarily single-family residential. Additionally there is commercial development near Winchester Road and on the northwesterly corner of Illinois Route 137 (Buckley Road), and there is industrial development southeasterly of the interchange at Illinois Route 120 (Belvidere Road).

Development Access and Setback

South of Illinois Route 137 (Buckley Road) there are curb cuts for each development except for a small residential subdivision. A collector street provides access to these homes.

Subdivisions north of Buckley Road are served by access roads. Single family homes on large lots have driveway access.

Most development is set back more than 70 feet from the right-of-way. An exception includes some developed properties which are being acquired to accommodate the improvement and realignment of the intersection with Illinois Route 137.

Future Development

While there is a significant amount of undeveloped land, according to municipal records as of August, 1990, there were no plans to develop any vacant parcel on this segment. Since that time, a plan to develop the southwesterly corner of Illinois Route 120 (Belvidere Road) and Illinois Route 21 as residential and commercial uses has been submitted to the Lake County Planning Department. Tentative circulation plans for the development call for no access to Illinois 21.

3.6.5 RECOMMENDED IMPROVEMENTS

Improvements have been recommended after evaluating the projected travel demand for the Year 2010 along with the existing roadway characteristics and character of development along the route. Improvements are categorized by ultimate, low-cost, and post-2010, and divided into those related to the roadway, intersections, traffic signalization, structures,

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Winchester Road to Illinois Route 120 (Belvidere Road)

access, transit and other improvements. Right-of-way requirements, potential environmental concerns and improvement cost estimates are also provided. Recommended improvements are shown on Route Maps D-6 and D-7.

Ultimate Improvements

Roadway

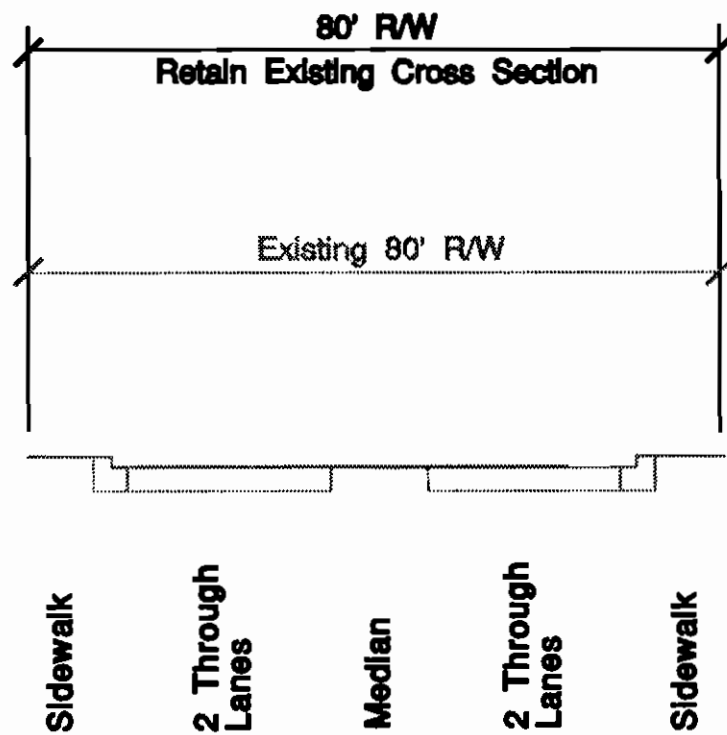
The recommended roadway configuration for the subsegment between Winchester Road and Illinois Route 137 (Buckley Road) is retention of the existing roadway cross section of two through lanes in each direction and median within the existing right-of-way. (See *Figure 3.24.*) North of Illinois Route 137 (Buckley Road) a total right-of-way width of 150 feet is recommended. Within this right-of-way four through lanes and an 30-foot raised median is expected to be adequate to accommodate the Year 2010 traffic. (See *Figure 3.25.*) While the SRA designation ends at Illinois Route 120 (Belvidere Road), it is recommended that the SRA designation be reviewed for continuation to U.S. Route 41 (Skokie Highway). The proposed cross section for Segment 6 of Illinois Route 21 would be extended to U.S. Route 41 (Skokie Highway).

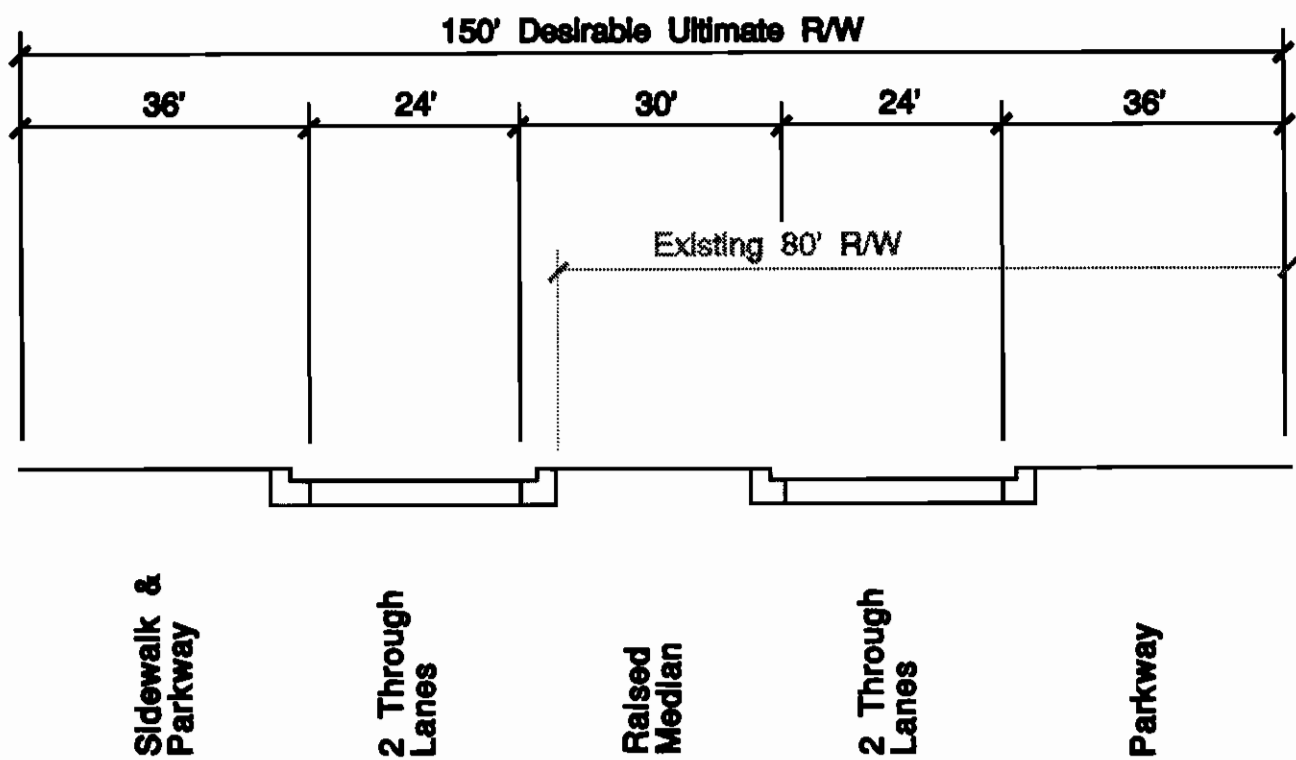
Results of the capacity analysis for Segment 6 are shown on *Table 3.28.*

Table 3.28 Capacity Analysis for Segment 6 of Illinois Route 21					
Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Winchester Road to Illinois 120	< 30,000	4 *	30,000 32,000	C D	Yes
		6	45,000 49,000	C D	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Recommended number of through lanes for this segment.					

Intersections

Detail 8 shows the improvements recommended for the intersection with Illinois Route 137 (Buckley Road). Dual left-turn lanes and a separate right-turn lanes are recommended for each leg of the intersection except southbound on Illinois Route 21 where a single left turn lane is recommended. Using an AADT of 32,000 for Illinois Route 21 and 25,000 for Illinois Route 137 (Buckley Road), the levels of service for each intersection movement and for the total intersection were calculated and are shown in *Table 3.29.*





Illinois Route 21

**Section Q-Q
Recommended Roadway Typical Section
Illinois 137 to Illinois 120**

prepared by Harland Bartholomew & Associates, Inc.

Figure 3.25

ILLINOIS ROUTE 21 (Milwaukee Avenue)

SECTION 3: Route Analysis - Winchester Road to Illinois Route 120 (Belvidere Road)

Table 3.29 Illinois 21/Illinois 137 Intersection Level of Service		
Direction	Movement	Level of Service
Illinois Route 21 northbound	left turn	D
Illinois Route 21 northbound	through	B
Illinois Route 21 northbound	right turn	B
Illinois Route 21 southbound	left turn	D
Illinois Route 21 southbound	through	D
Illinois Route 21 southbound	right turn	B
Illinois Route 137 eastbound	left turn	D
Illinois Route 137 eastbound	through	D
Illinois Route 137 eastbound	right turn	B
Illinois Route 137 westbound	left turn	D
Illinois Route 137 westbound	through	B
Illinois Route 137 westbound	right turn	A
Total Intersection		D

Traffic Signalization

A future signal is recommended approximately midway between Casey Road and Illinois Route 120 (Belvidere Road) just opposite an existing entrance to the forest preserve. It is not recommended that any signals be removed.

Future signals should be installed on the route only at the recommended locations and only when the signal warrants recommended for SRA routes are met. (Recommended signal warrants for SRA's are discussed in Section 10.4.2 of the *Strategic Regional Arterial Design Concept Report*.) Signals should not be installed at other than the recommended locations; additional signals would tend to impede traffic flow on the SRA route and interfere with optimization and progression of signal systems.

Structures

The Illinois Route 21 structures over Bull Creek (SN 049-0027), the DesPlaines River tributary (SN 049-0026), and Illinois Route 120 (Belvidere Road) (SN 049-0025) should be modified to accommodate the recommended four lane roadway cross-section.

Transit

A potential location in this segment for a park-and-ride facility would be at Illinois Route 120 (Belvidere Road) where it would complement future express bus service on the route. Such a facility would also serve the proposed extension of Illinois Route 53, which uses the Illinois

Route 120 (Belvidere Road) alignment in this area, and Interstate 94 (Tri-State Tollway) and could allow coordination with express bus service to other regional locations. The ultimate location will depend upon the final design for the interchange. Interchange design should include park-and-ride access.

Low-Cost Improvements

Traffic Signalization

Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met.

The existing traffic signals at the fire station and Illinois Route 137 (Buckley Road) should be interconnected into a signal system by extending the existing signal interconnect from Park Avenue in Segment 5.

Access Management

It is recommended that as parcels are developed, access is limited to a maximum of one curb cut for each property or 1,000 feet, whichever is the greater distance. Wherever possible in areas of existing development local governments should work with properties owners to consolidate access via mutual access easements between adjacent parking lots. Specific access management and consolidation recommendations are displayed on Route Maps D-6 and D-7.

Transit

It is recommended bus shelters be constructed at existing bus stop locations. Shelters should also be provided at stops used by any future express bus service.

Directional signage for the Libertyville Metra Station is recommended. This should include informational signs at major intersections such as those with Illinois Route 137 (Buckley Road) and Illinois Route 120 (Belvidere Road), indicating direction and distance to the station.

3.6.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The range of desirable right-of-way widths for a suburban SRA is between 120 and 150 feet. No additional right-of-way is recommended for the section between Winchester Road and Illinois Route 137 (Buckley Road); a 150-foot wide right-of-way is recommended for the remainder of the segment. It is recommended that additional right-of-way in the vicinity of the Church of the Saint Sava Orthodox Monastery and cemetery be acquired westerly of the existing right-of-way and none from the National Register Historic Place property itself. This strategy should be used to avoid acquisitions within the Forest Preserve and would be consistent with current Phase I planning. However, if agreement can be reached with the Forest Preserve to acquire right-of-way on the east side of Illinois Route 21 during the current Phase I design study, then the SRA recommendation should be revised to be consistent.

3.6.7 POTENTIAL ENVIRONMENTAL CONCERNS

The recommended desirable right-of-way should be studied with respect to its impact on Alder Park, floodplain, wetlands, prime farmland and forest preserve. A westward shift in the centerline between Casey Road and Illinois Route 120 (Belvidere Road) would be expected to reduce these impacts, but will not eliminate them altogether.

It is expected that design studies for improvements at Illinois Route 137 and Illinois Route 120 have included or will include study of these hazardous waste sites at these intersections.

3.6.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 6 of Illinois Route 21 (Milwaukee Avenue) is shown in *Table 3.30*.

Table 3.30	
Construction Cost Estimates for Segment 6 - Illinois Route 21	
Improvement	Estimated Cost
Ultimate	
Roadway	\$14,000,000
Intersection Improvements	\$1,000,000
Traffic Signals	\$100,000
Structure Modification	\$1,400,000
Transit Improvements(includes land acquisition)	\$500,000
Right-of-way Acquisition	\$1,400,000
Total Estimated Cost for Ultimate Improvements	\$18,400,000
Low-Cost	
Signal Interconnection	\$200,000
Transit Improvements	\$100,000
Total Estimated Cost for Low-Cost Improvements	\$300,000
Total Estimated Cost for All Improvements	\$18,700,000

FACILITY CHARACTERISTICS



Existing R/W



Existing Signal



Existing Structure

ENVIRONMENTAL CHARACTERISTICS



Wetlands



Floodplain



Historic Site



Sensitive Land Use

RECOMMENDED IMPROVEMENTS



Proposed R/W



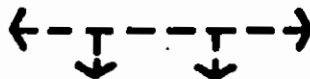
Proposed Signal



Modify Structure



Consolidate Access



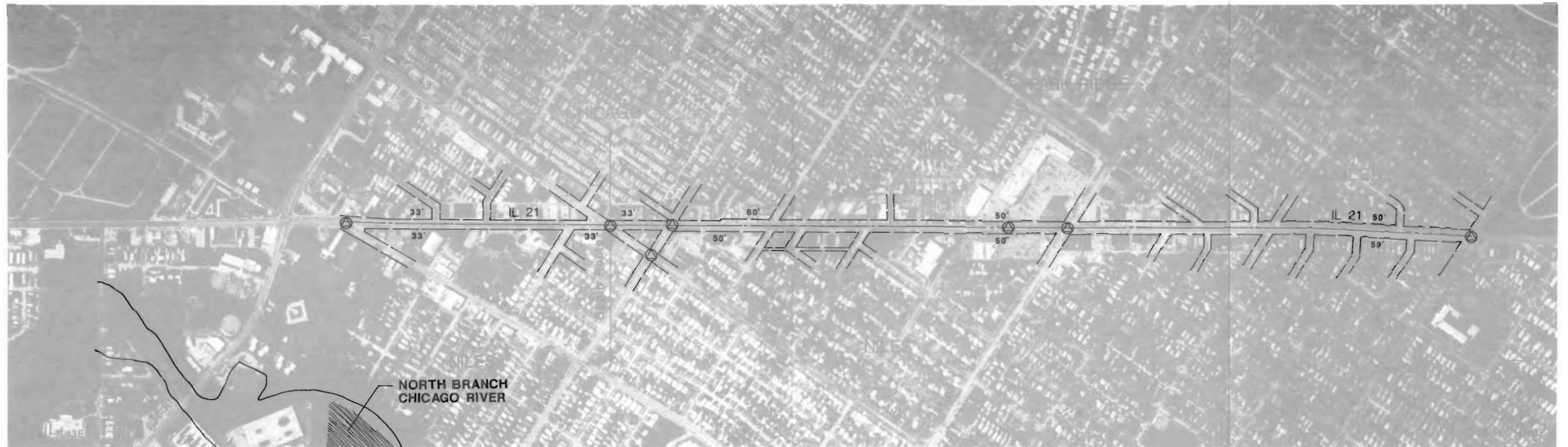
Maintain Access



Mid-Mile Collector



Bus Turnout



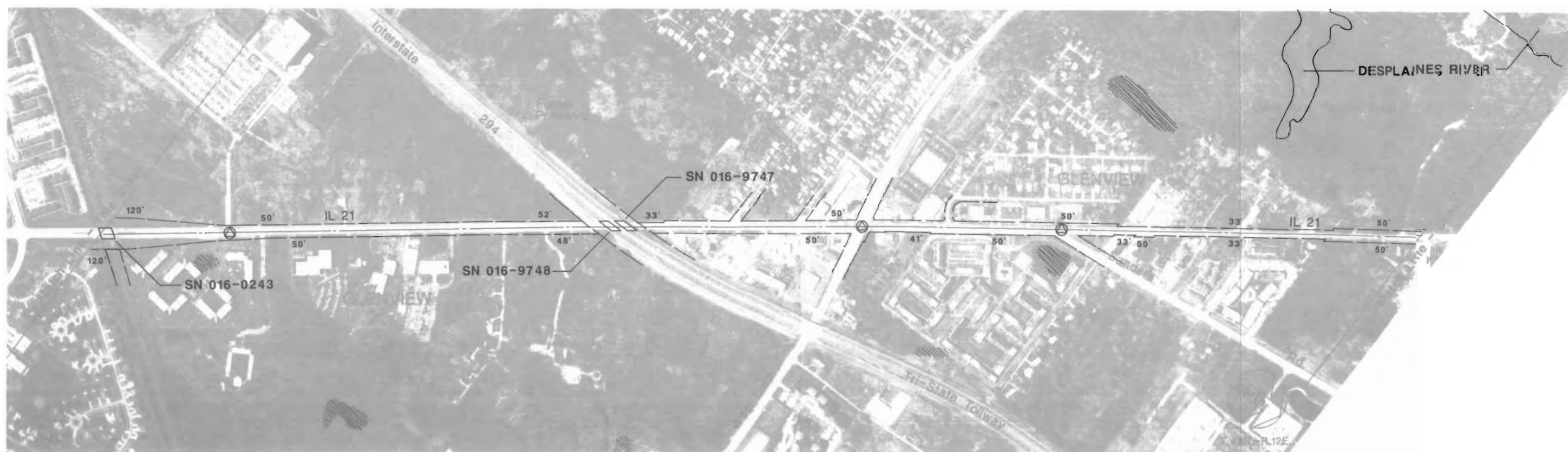
Illinois 21

Existing Facility Characteristics



Strategic
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Illinois 21

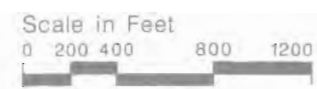
Existing Facility Characteristics





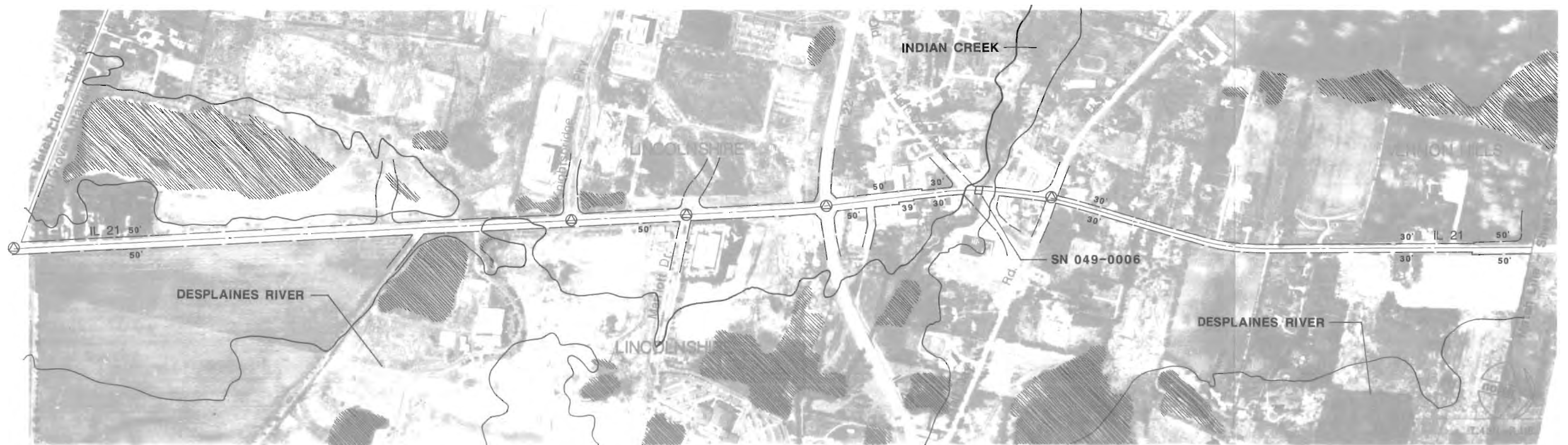
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Existing Facility Characteristics





Illinois 21

Existing Facility Characteristics

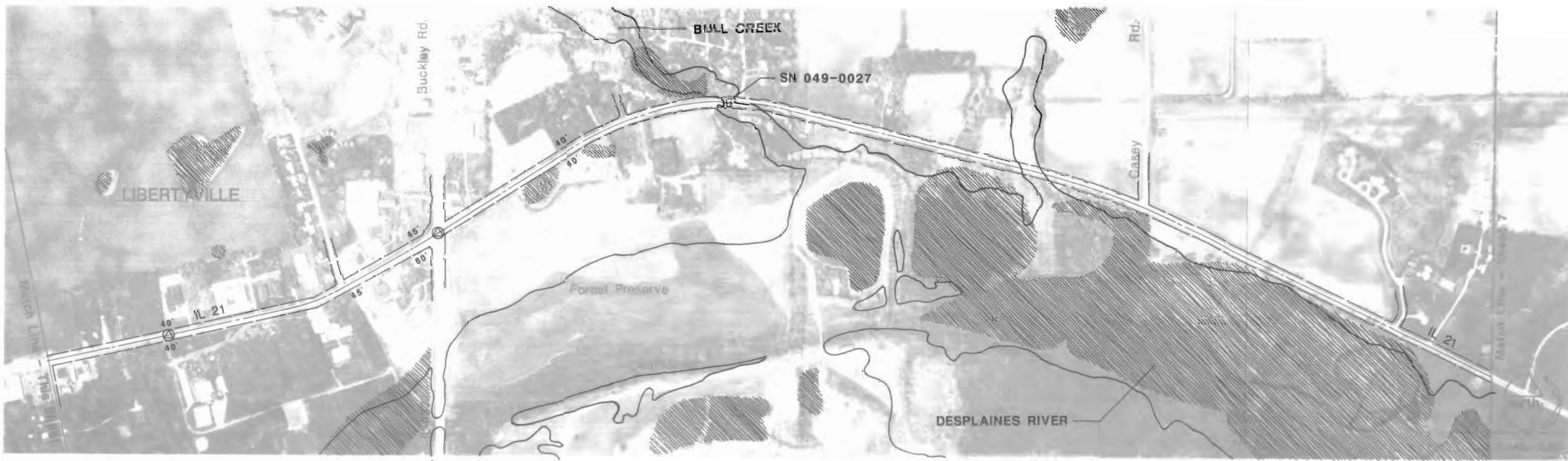
SRA Strategic
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Planning Study

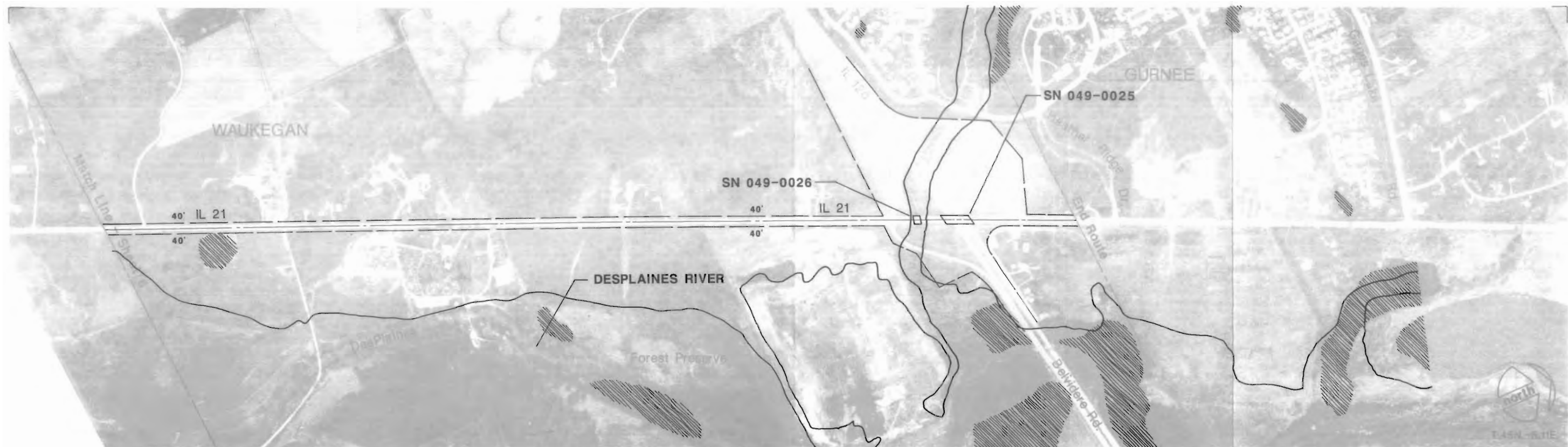


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Existing Facility Characteristics

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Existing Facility Characteristics



Route Map A-7



Illinois 21

Environmental Characteristics

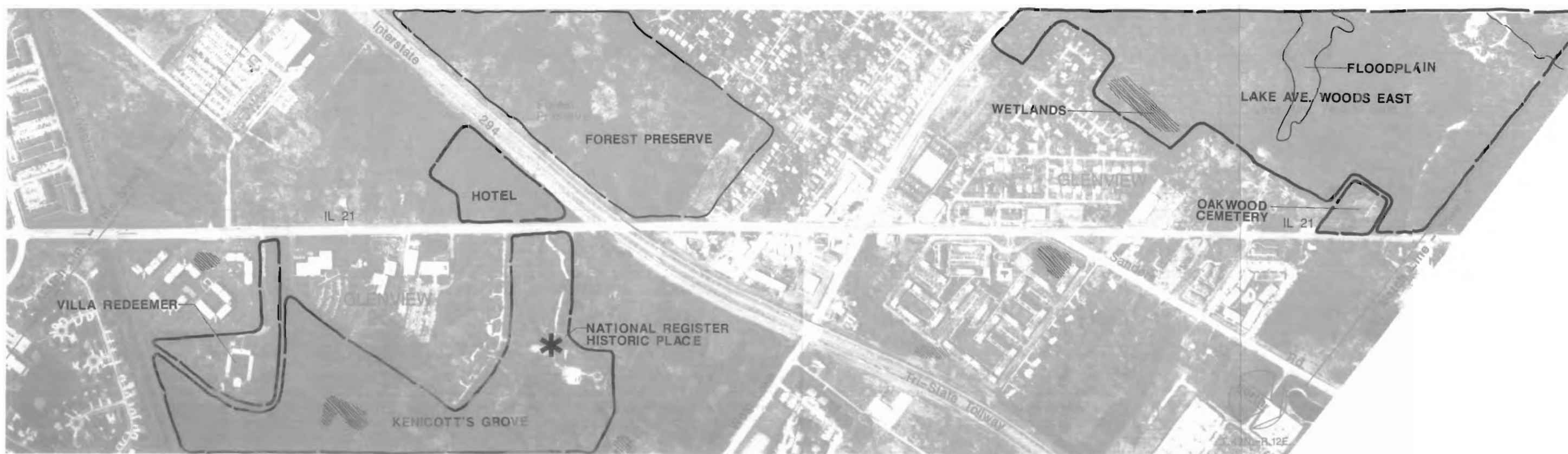


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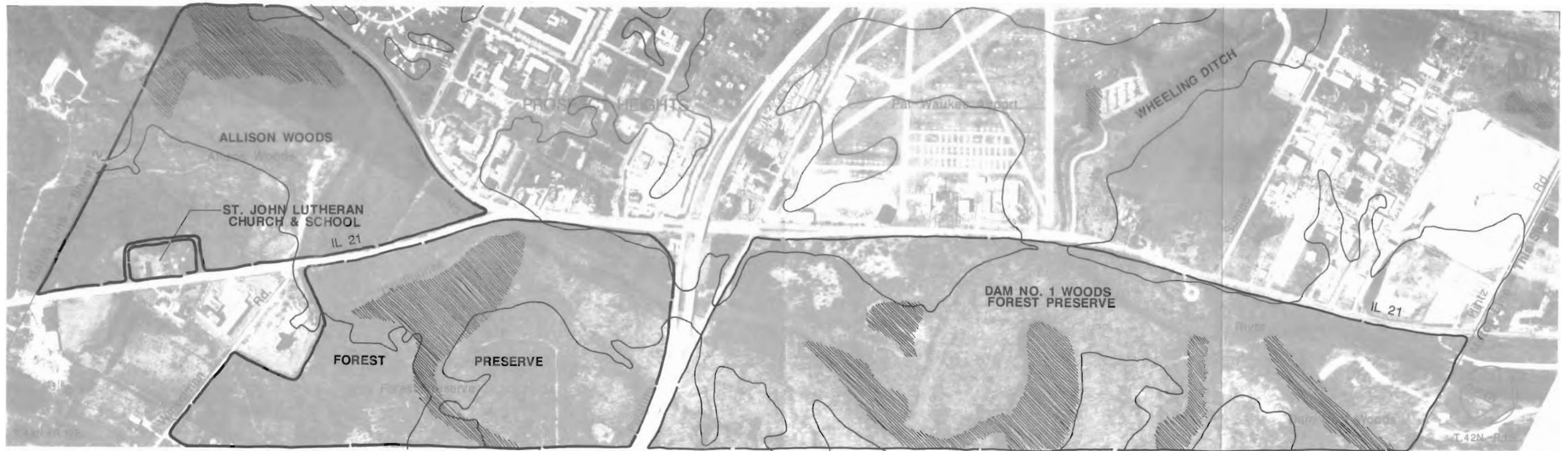
Route Map B-1



Illinois 21

Environmental Characteristics

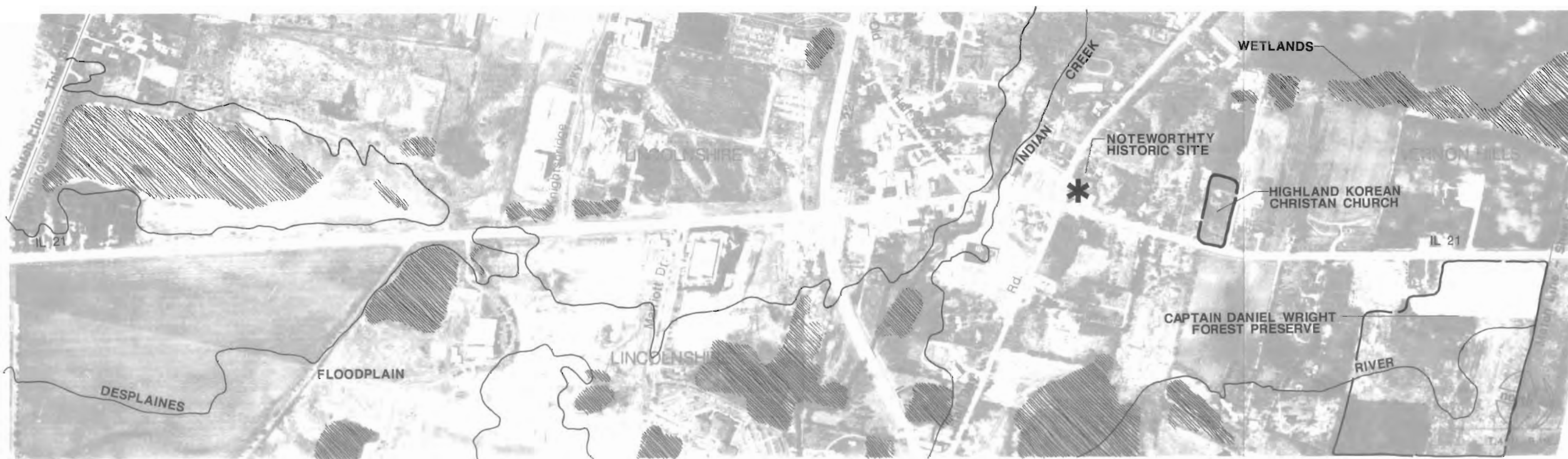




Illinois 21

Environmental Characteristics

SRA Strategic Regional Arterial Planning Study



Illinois 21

Environmental Characteristics

SRA

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Route Map B-4



Illinois 21

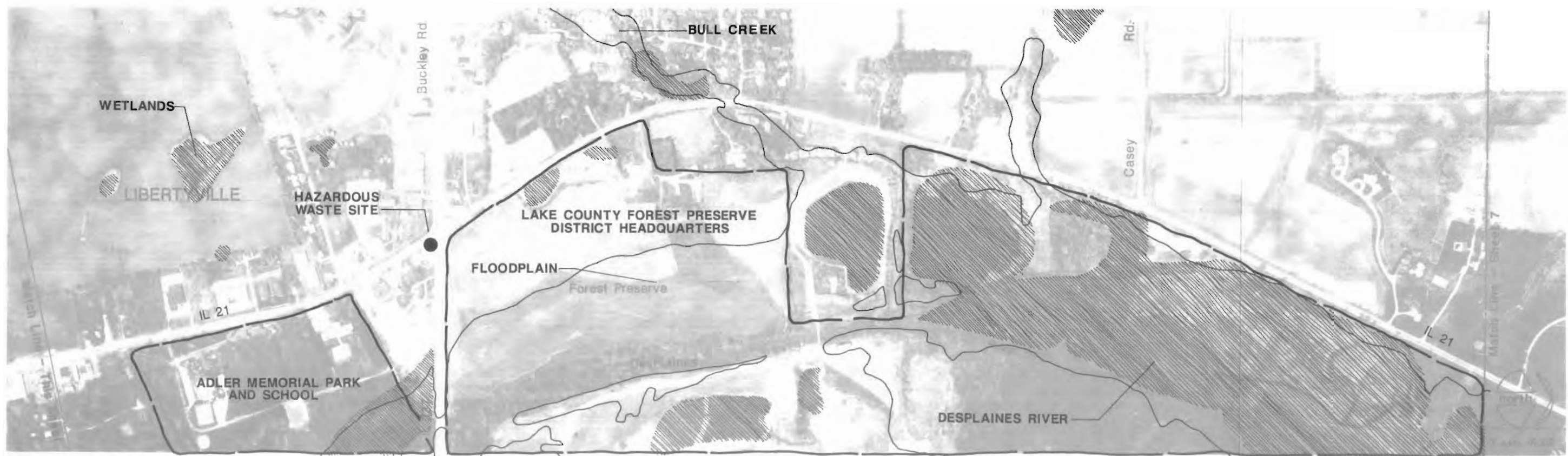
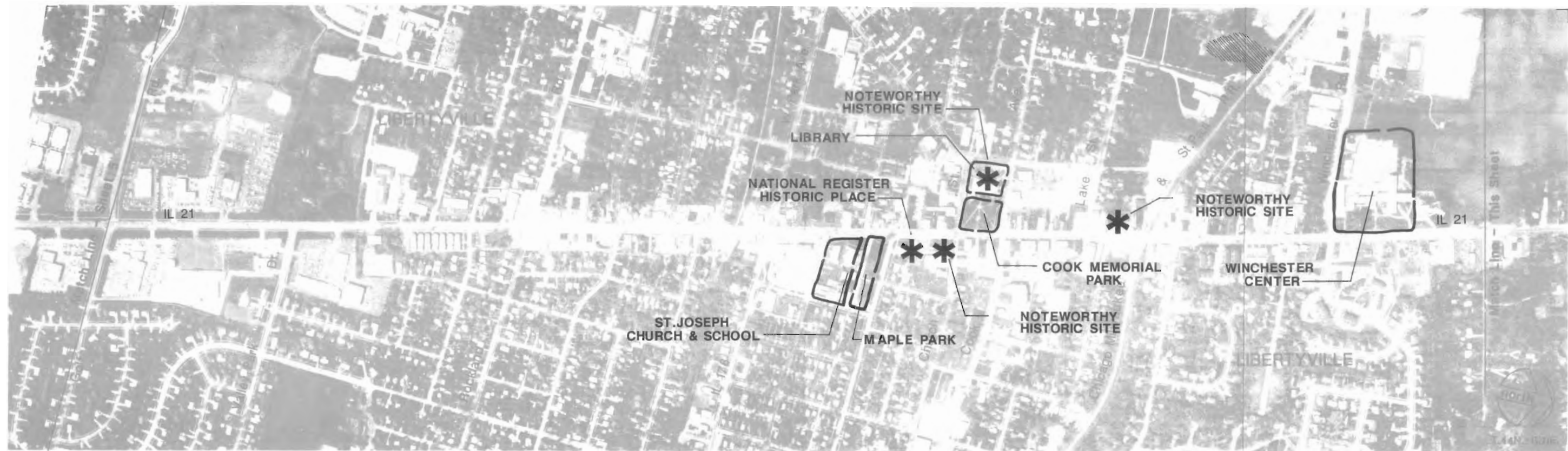
Environmental Characteristics



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Route Map B-5



Illinois 21

Environmental Characteristics

SRA

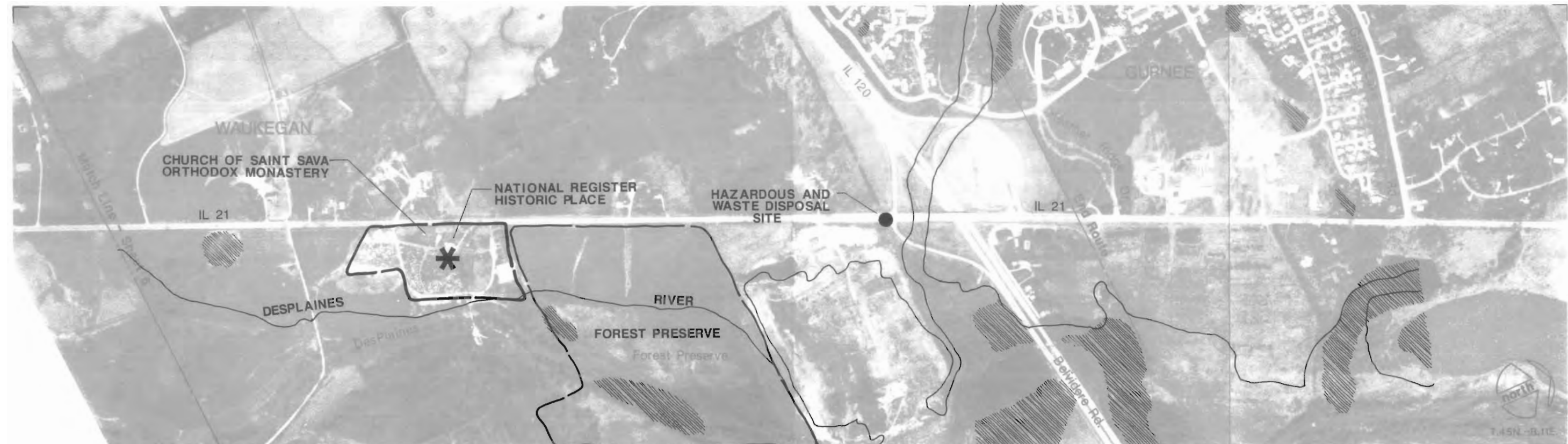
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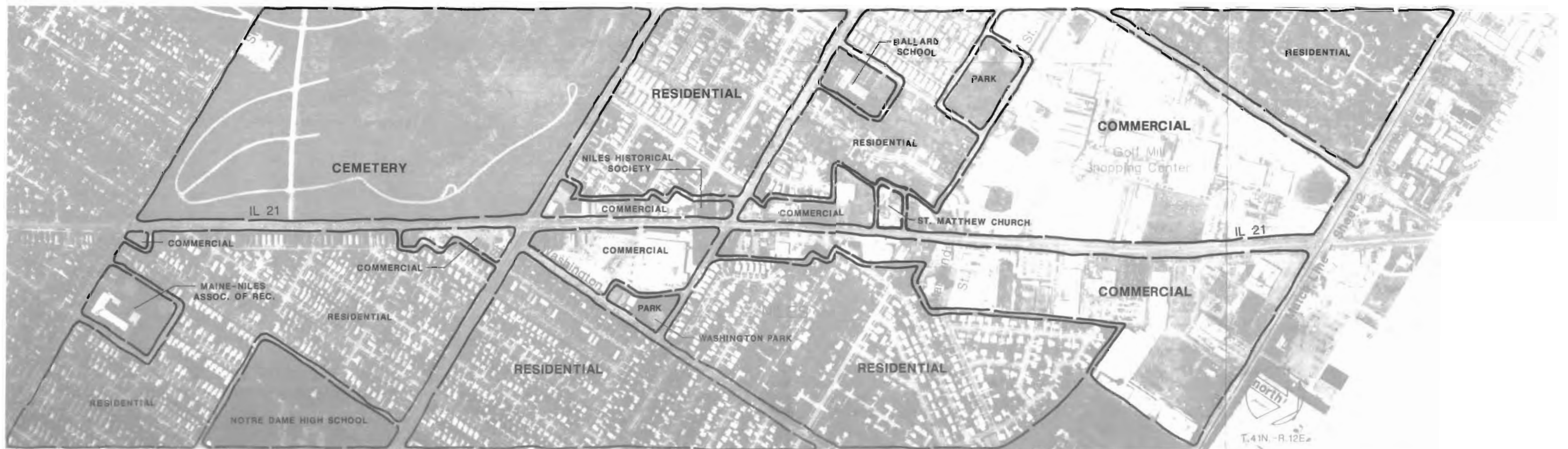
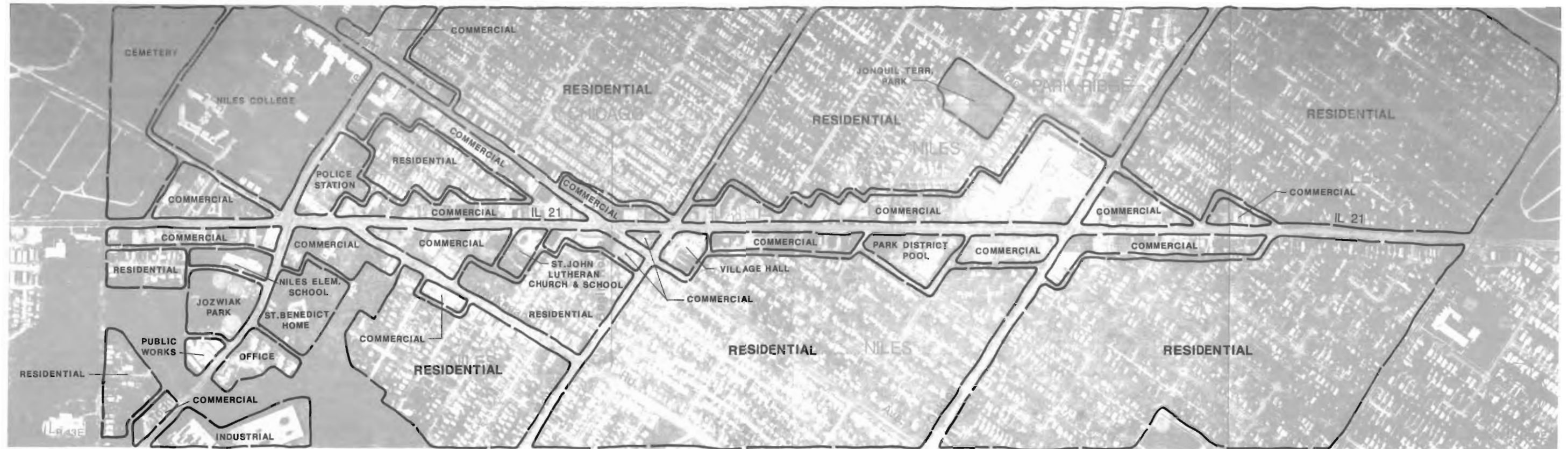
Route Map B-6



Illinois 21

Environmental Characteristics



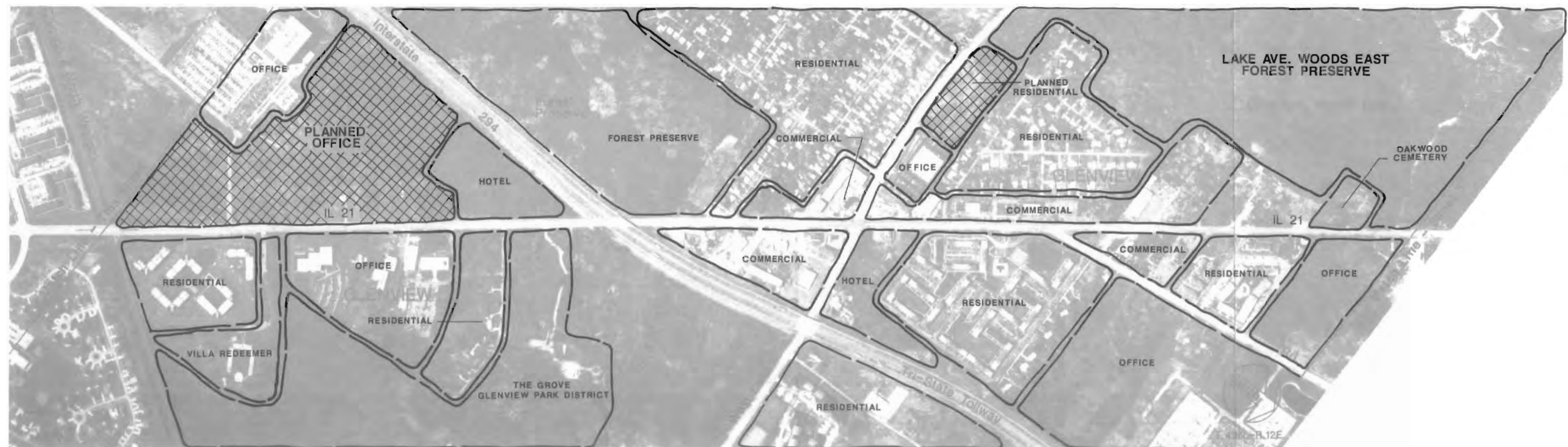


Illinois 21

Development Characteristics

SRA

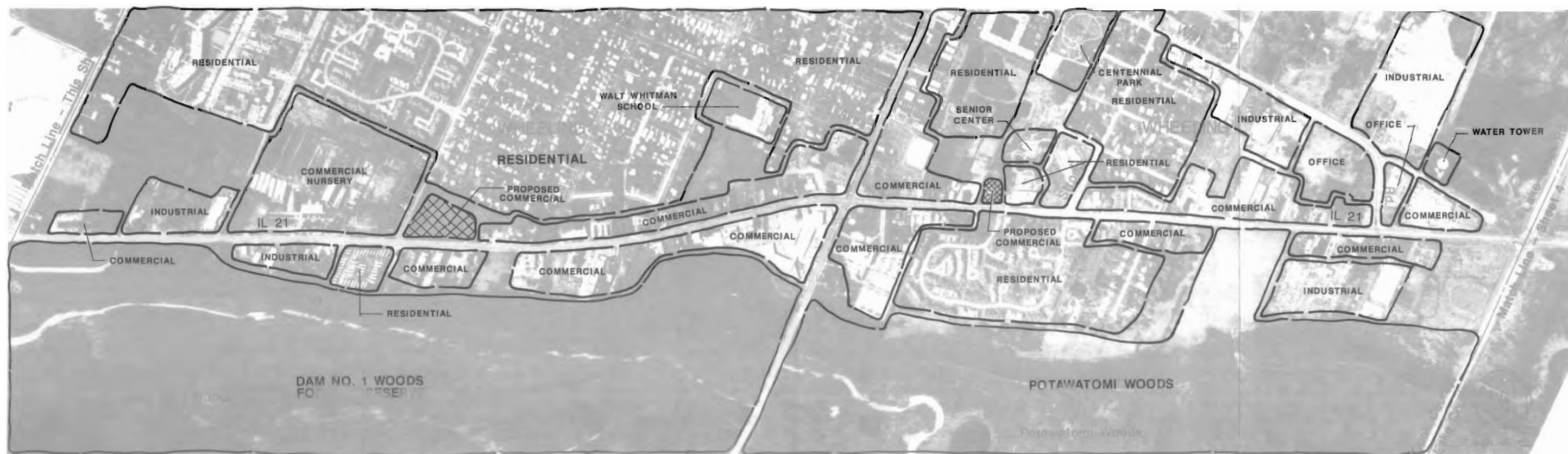
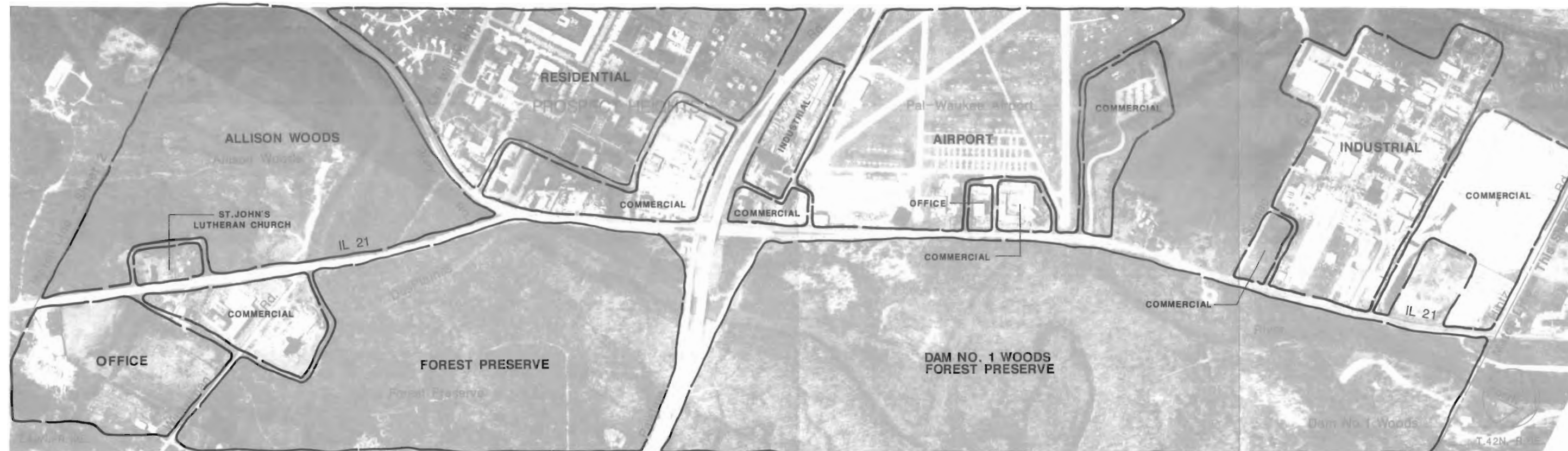
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Illinois 21

Development Characteristics

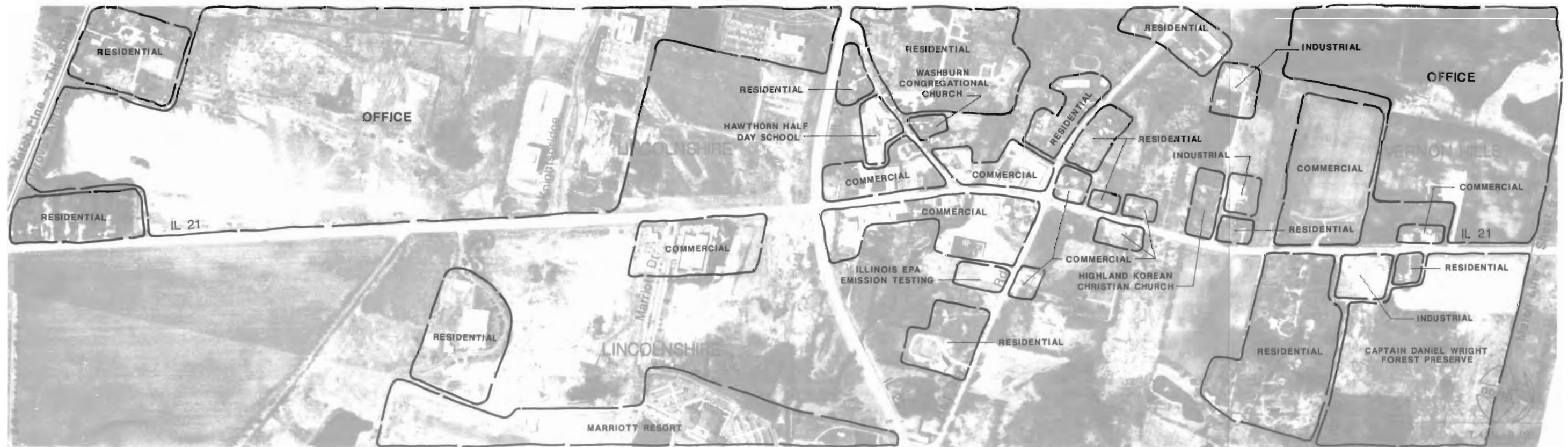
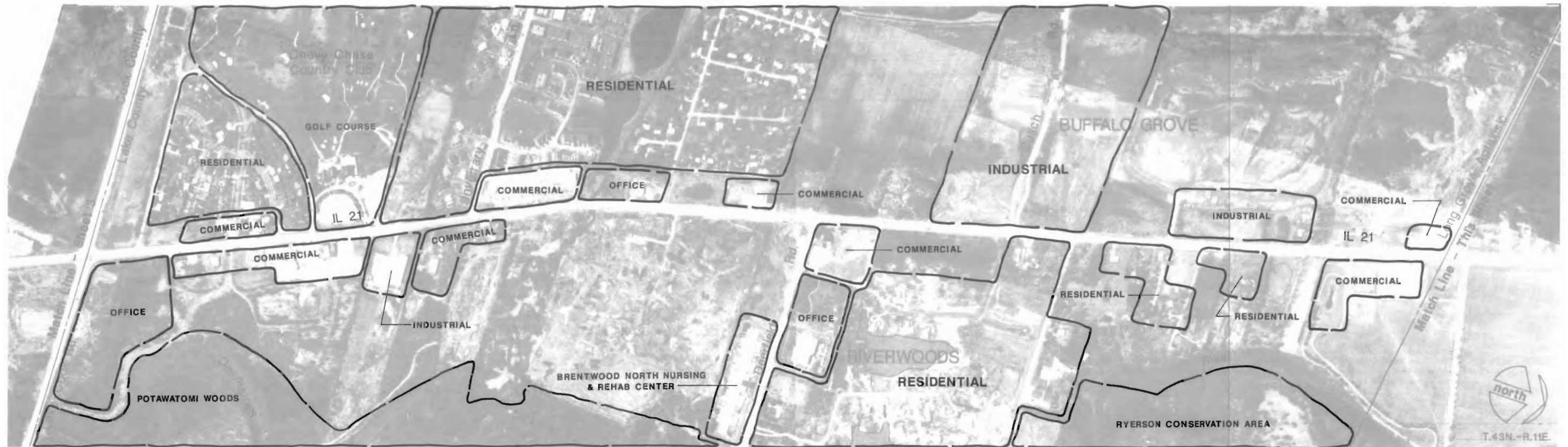




Illinois 21

Development Characteristics

SRA Strategic
Regional
Arterial
Planning Study



Illinois 21

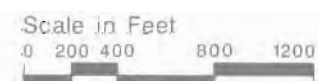
Development Characteristics

SRA

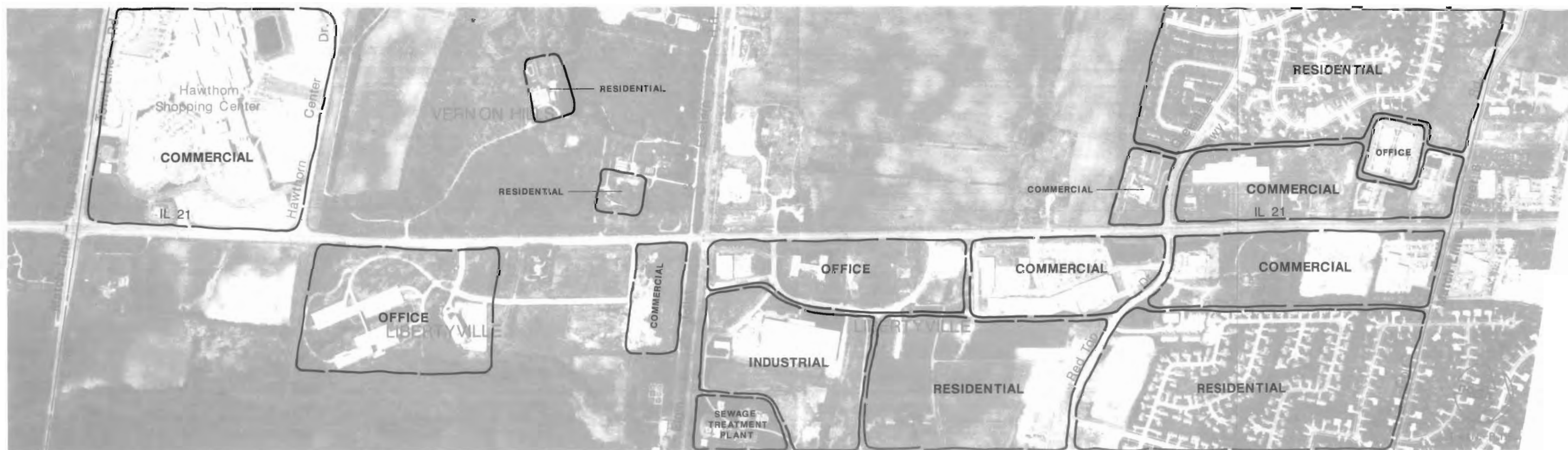
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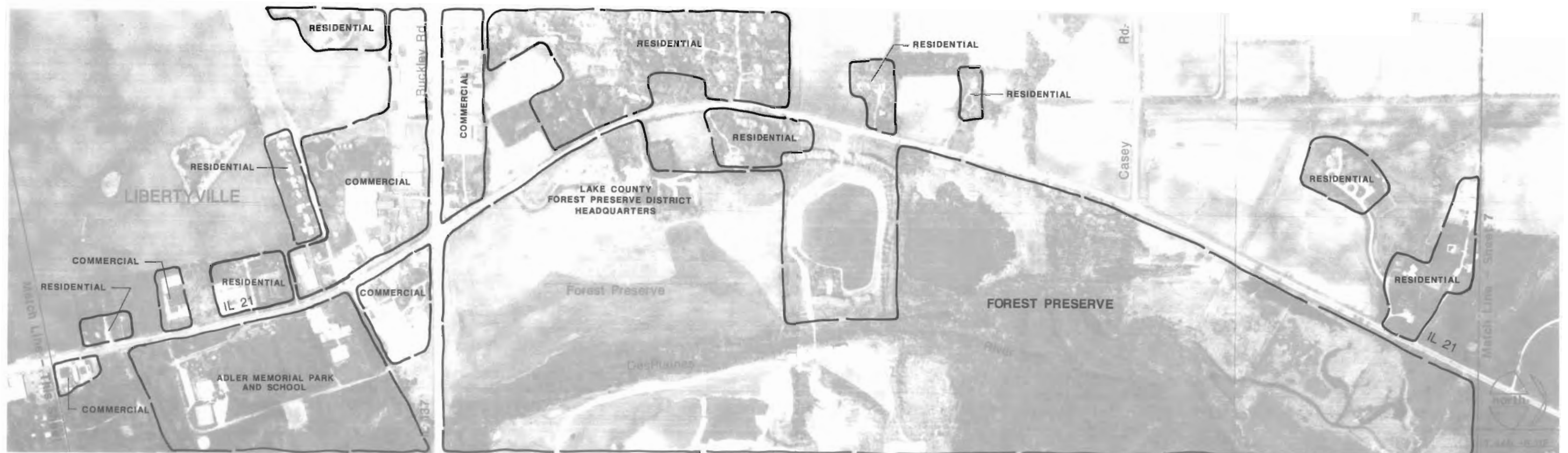
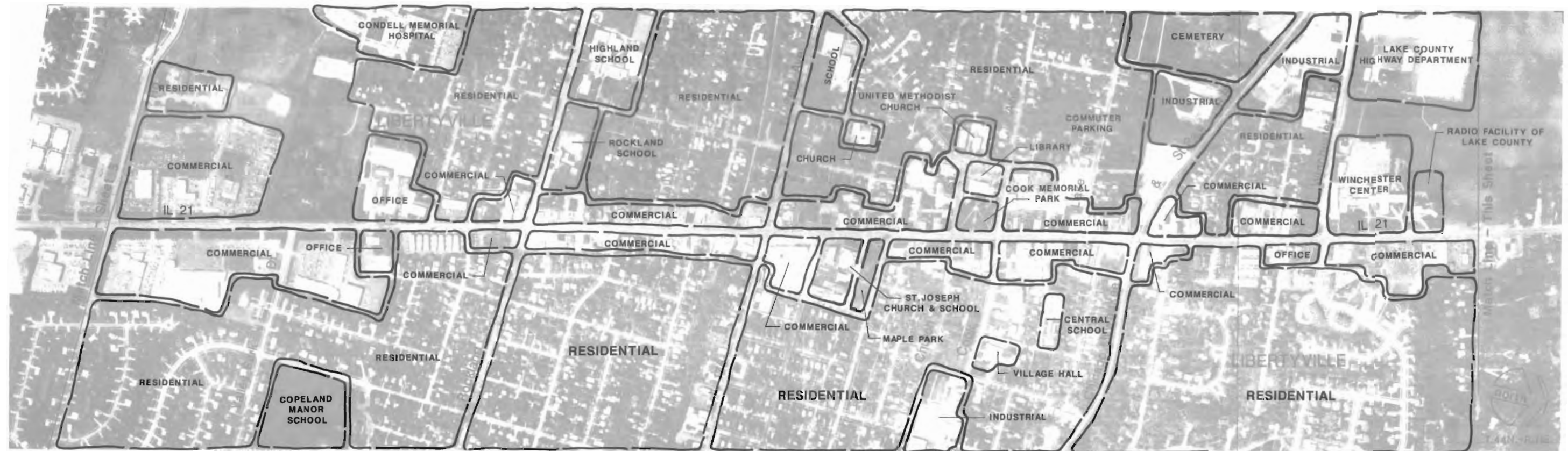
Route Map C-4



Illinois 21

Development Characteristics

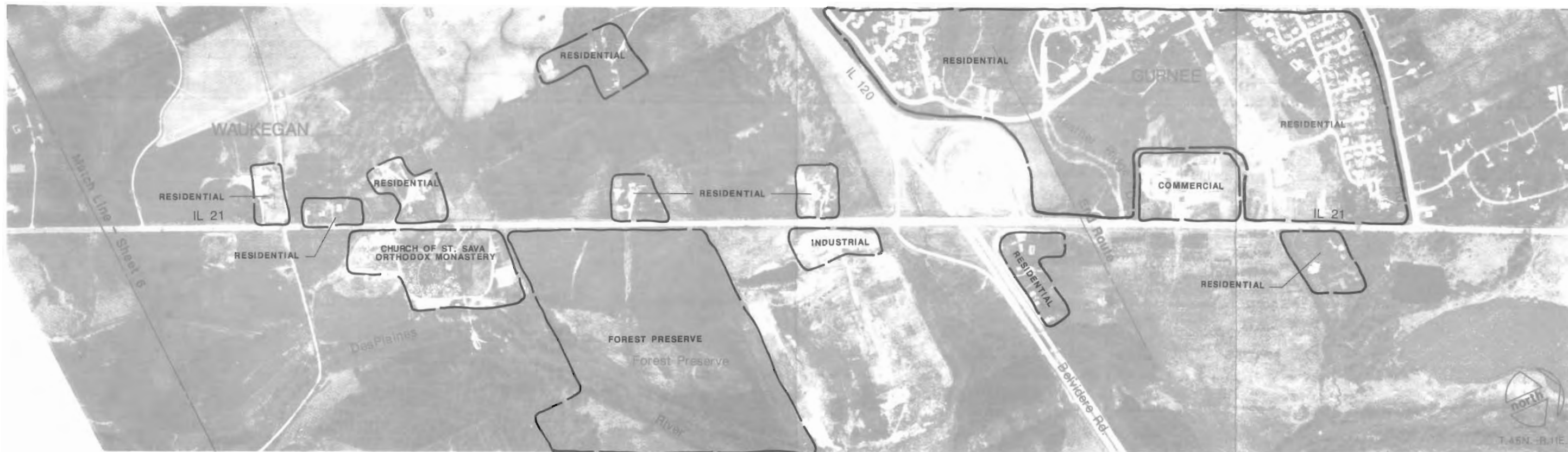




Illinois 21

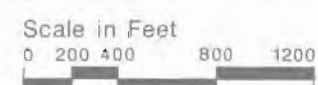
Development Characteristics

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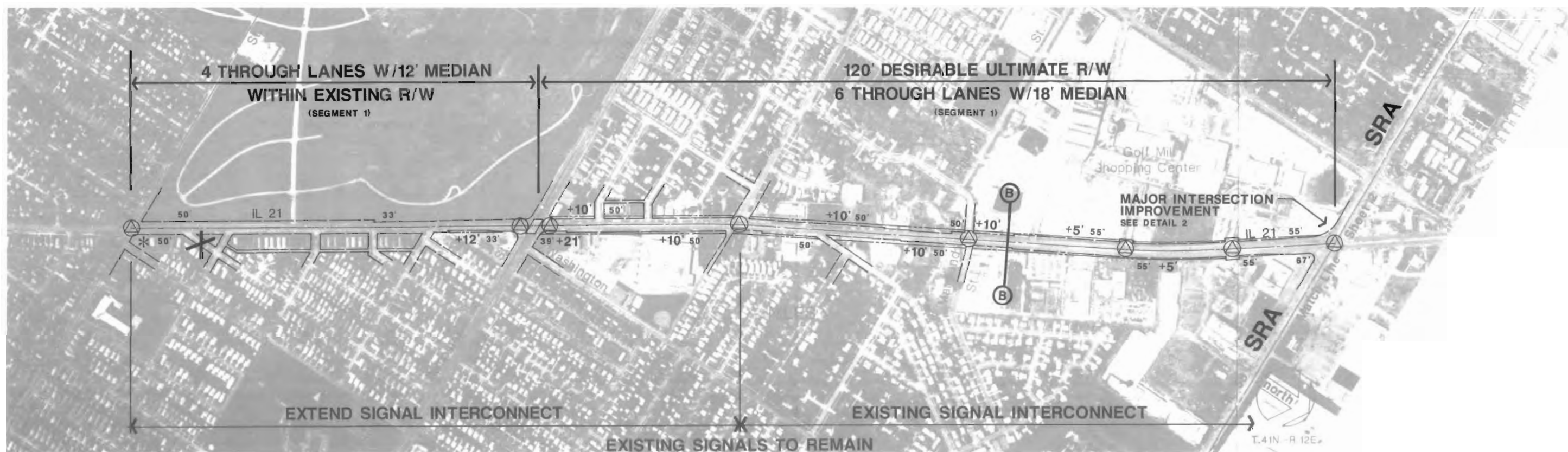
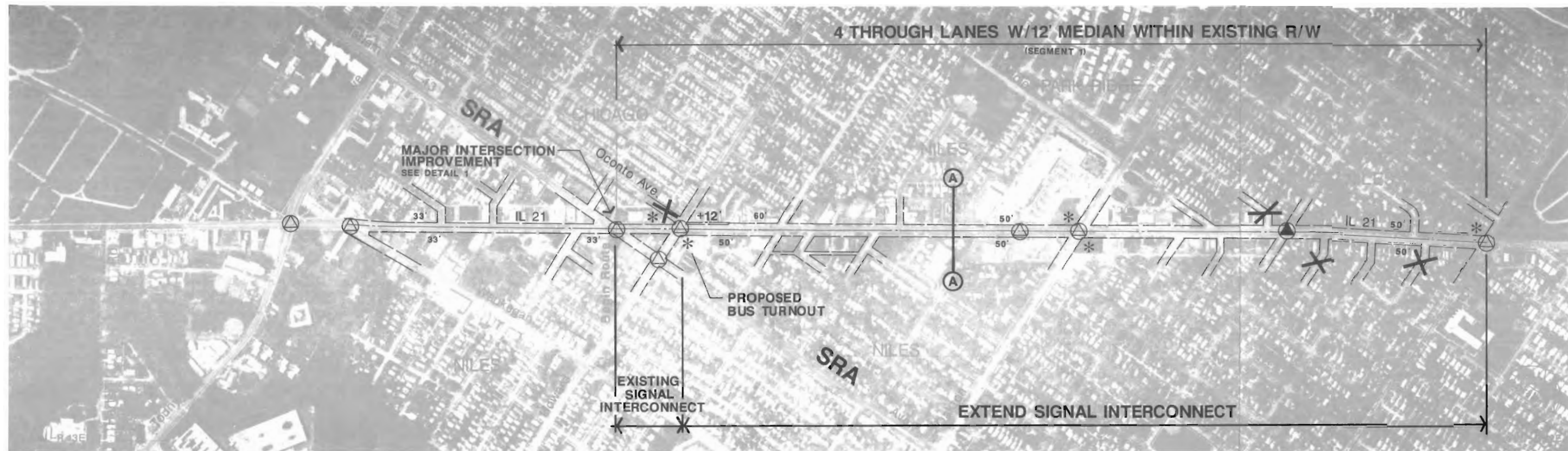


Development Characteristics



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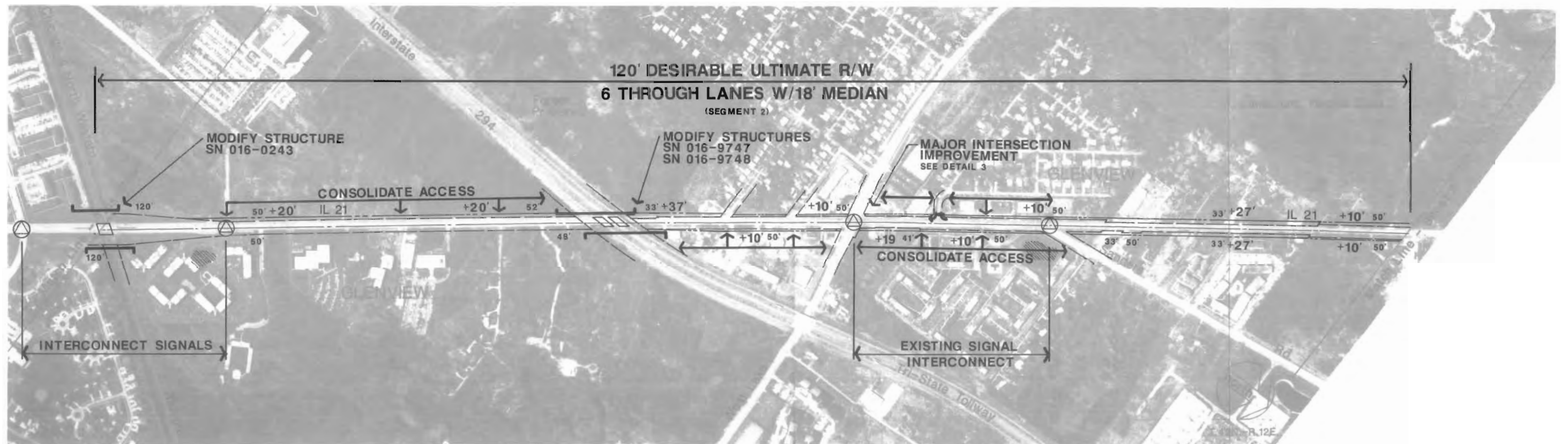
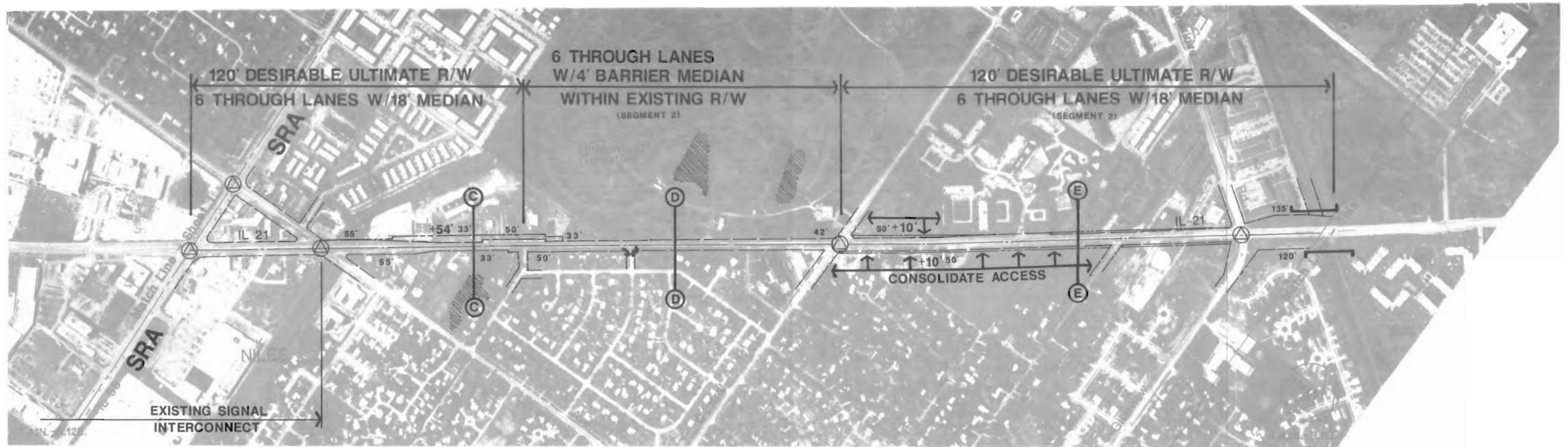
Route Map C-7



Illinois 21

Recommended Improvements



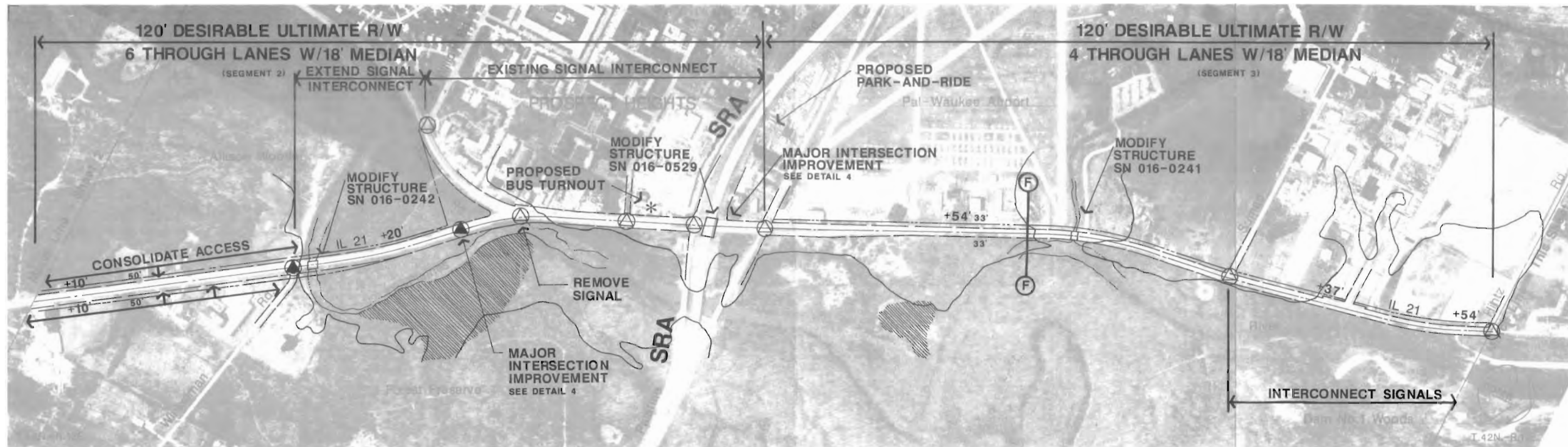


Illinois 21

Recommended Improvements

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Arterial
Planning Study

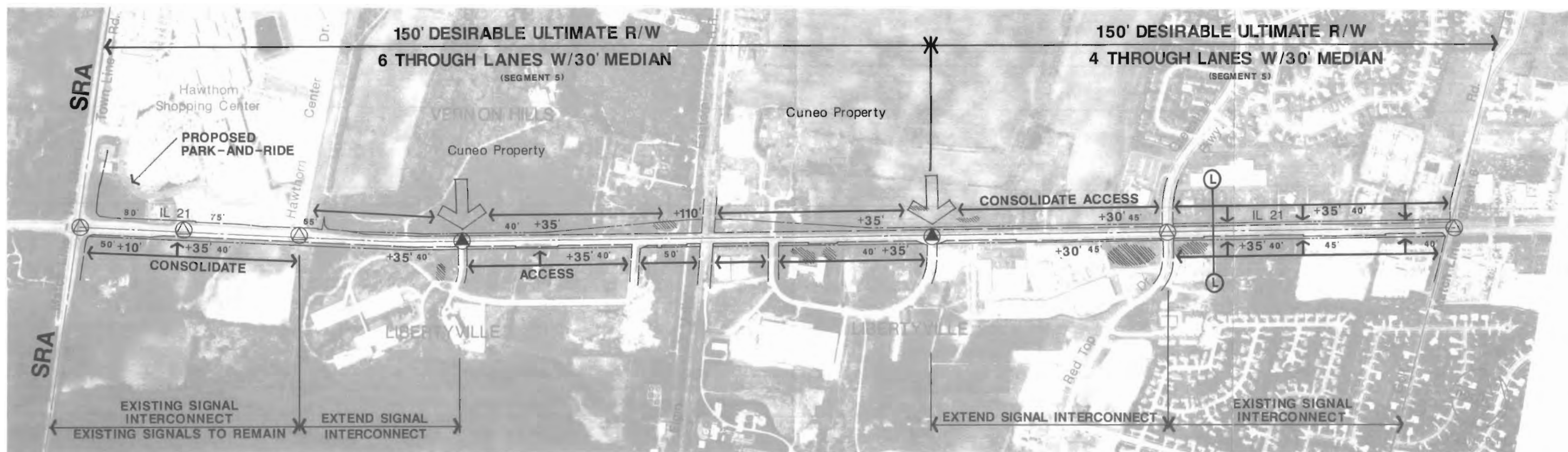
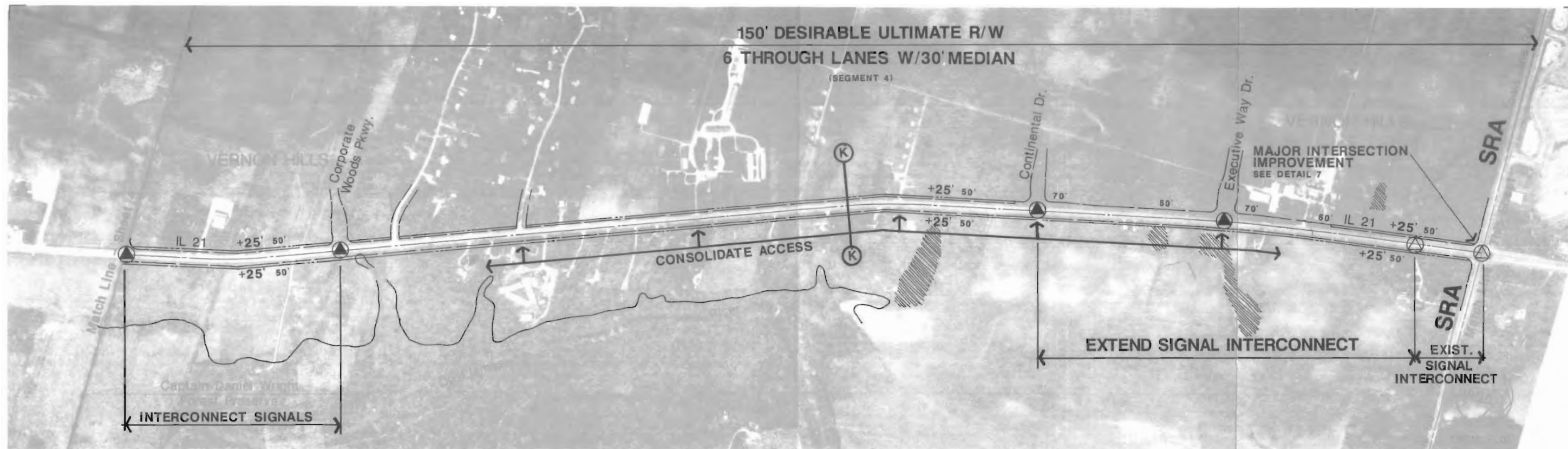


Illinois 21

Recommended Improvements

SRA

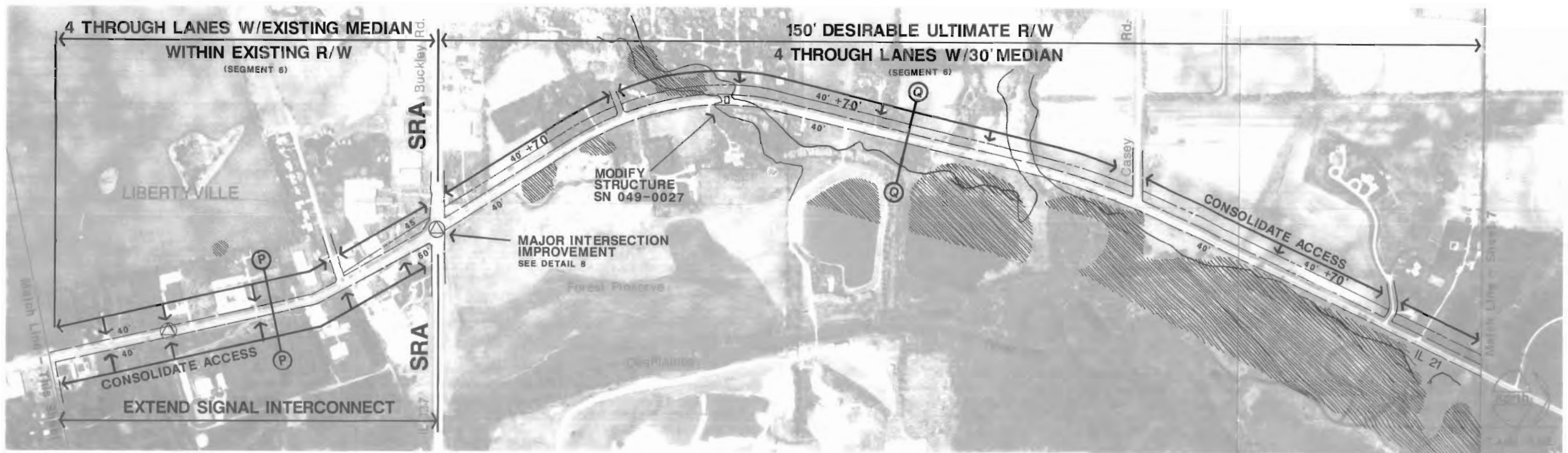
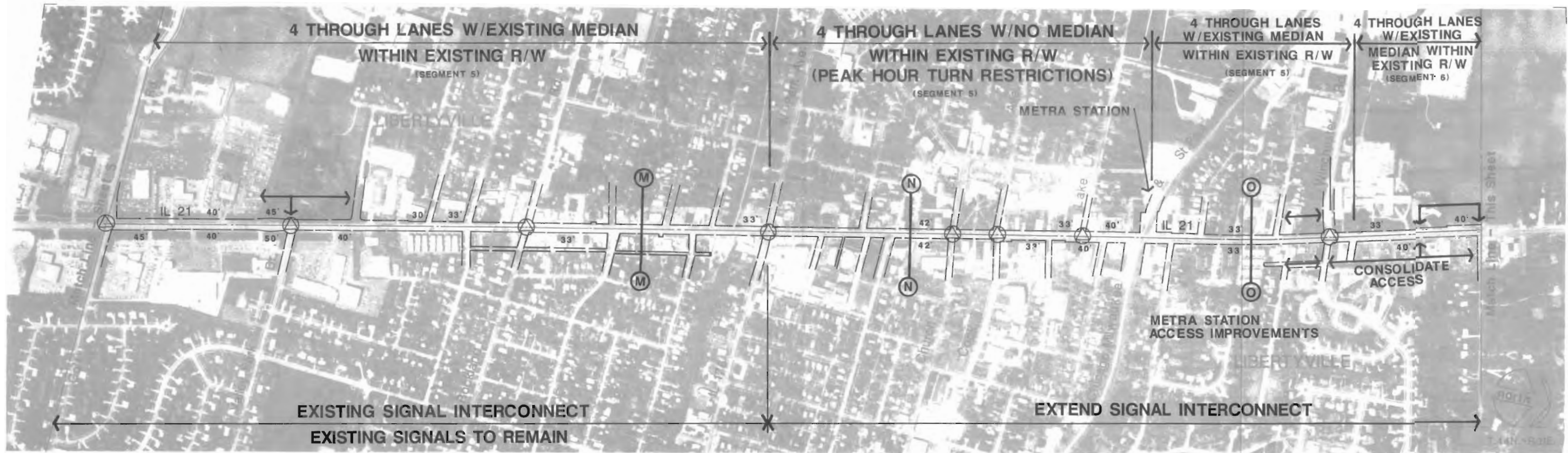
Strategic
Regional
Arterial
Planning Study



Illinois 21

Recommended Improvements

SRA Strategic Regional Arterial Planning Study



Illinois 21

Recommended Improvements

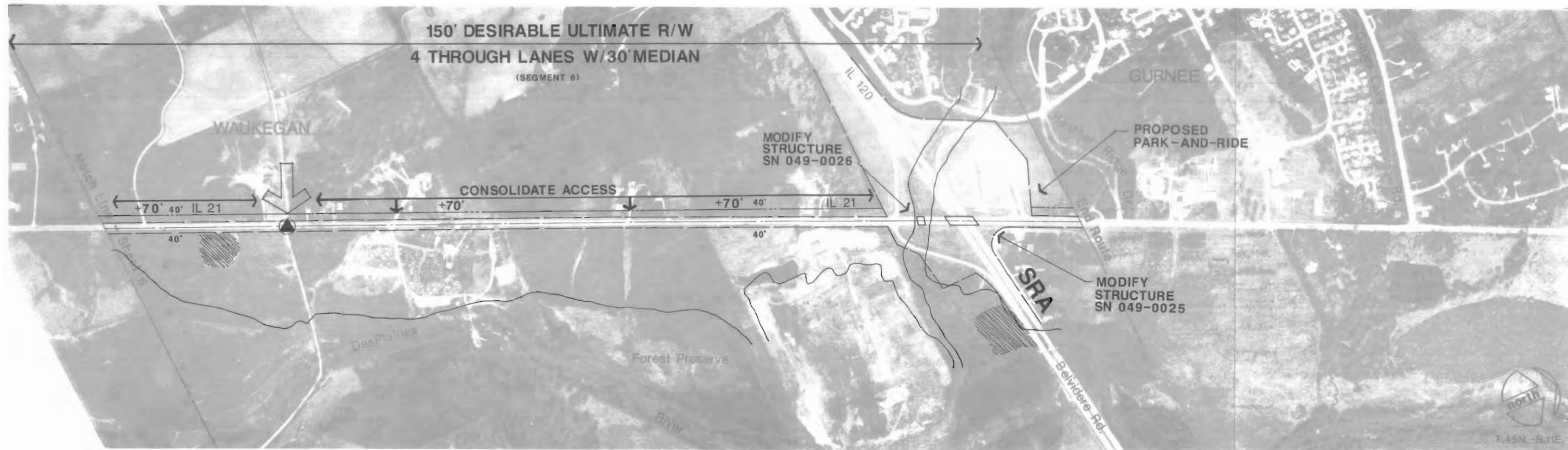


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Route Map D-6



Illinois 21

Recommended Improvements

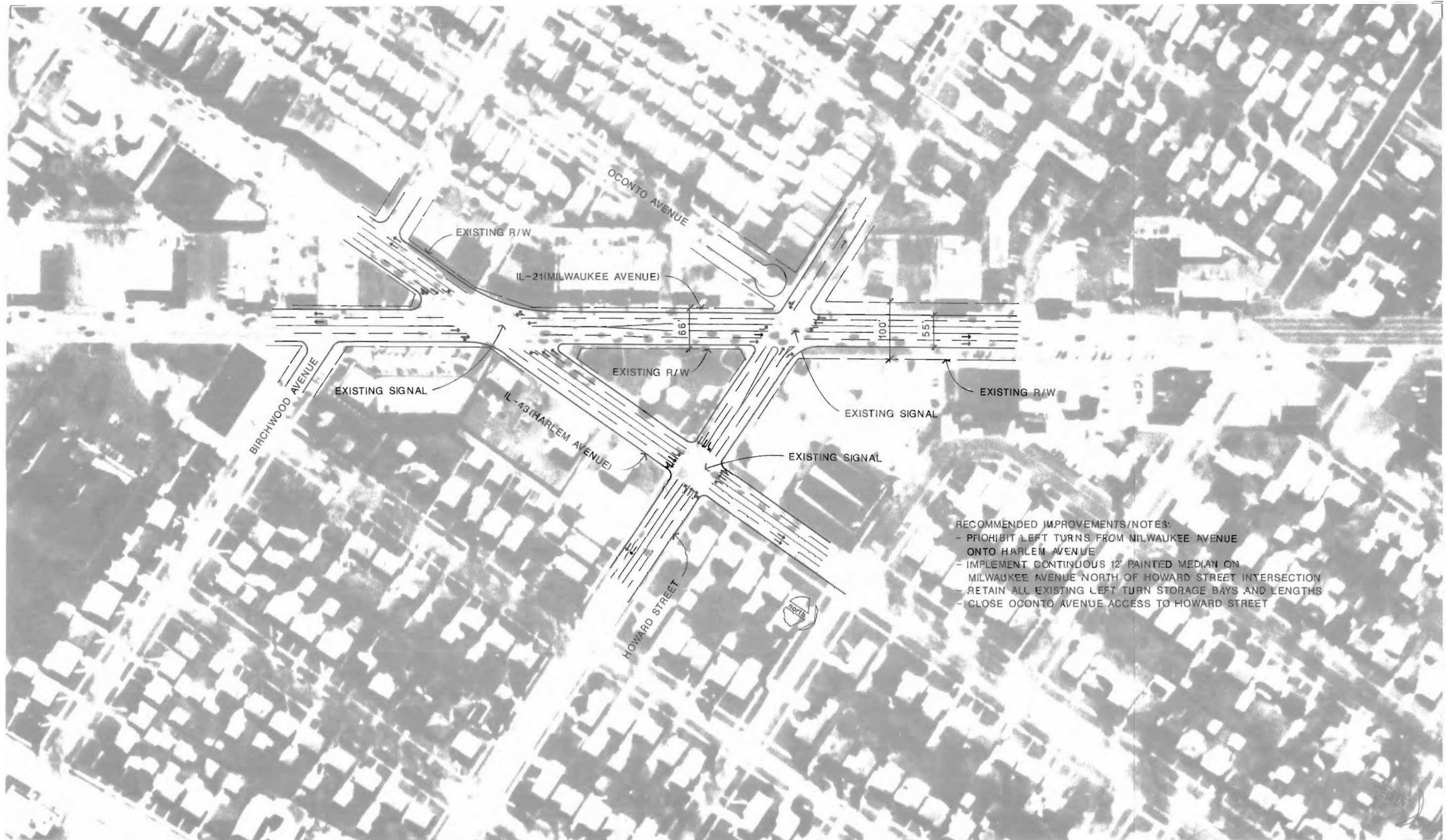
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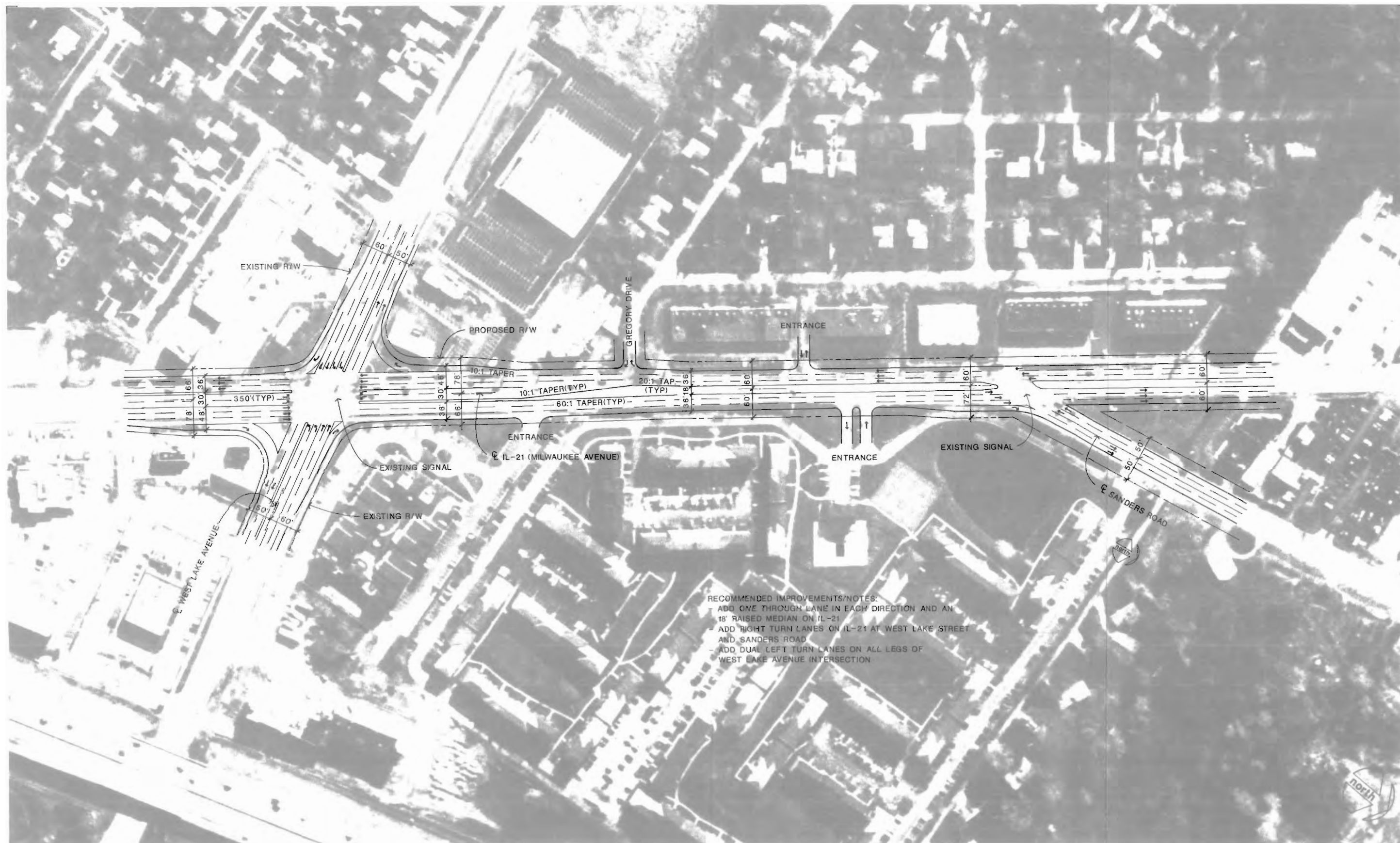
Scale in Feet
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Route Map D-7



IL-21 @ Harlem Avenue/Howard Street

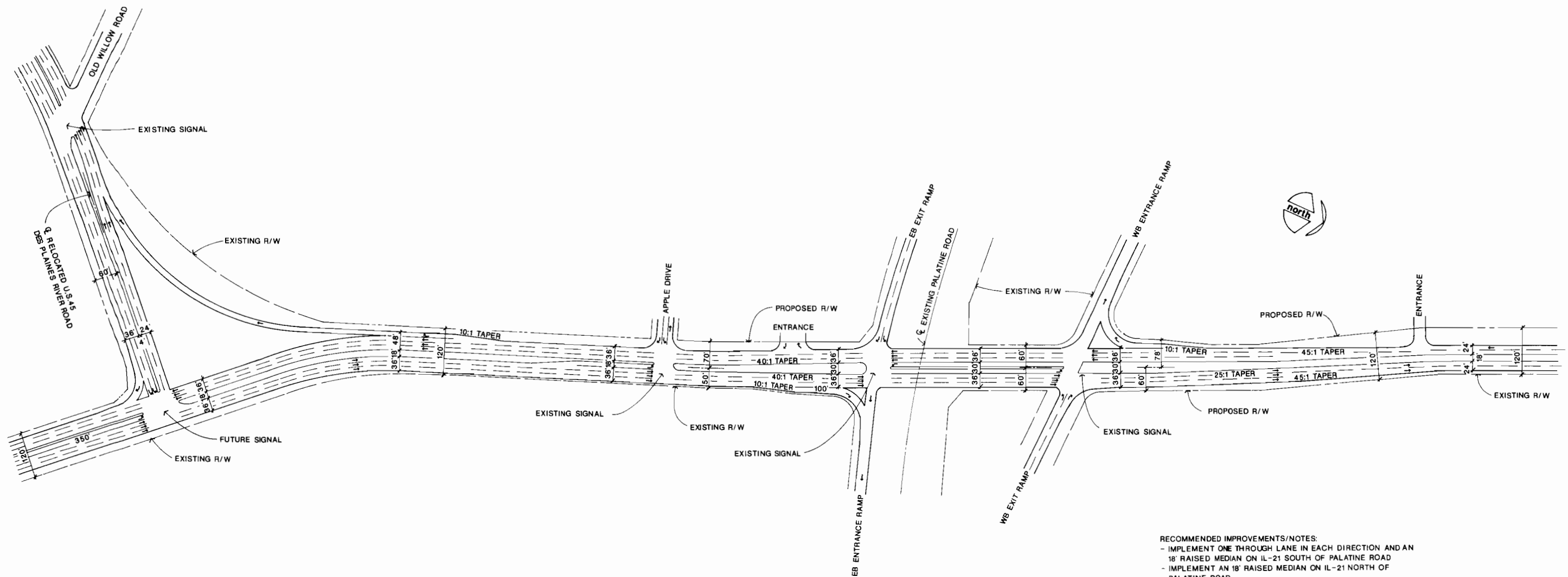
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IL-21 @ West Lake Avenue/Sanders Road

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- RECOMMENDED IMPROVEMENTS/NOTES:
- IMPLEMENT ONE THROUGH LANE IN EACH DIRECTION AND AN 18' RAISED MEDIAN ON IL-21 SOUTH OF PALATINE ROAD
 - IMPLEMENT AN 18' RAISED MEDIAN ON IL-21 NORTH OF PALATINE ROAD
 - IMPLEMENT EXCLUSIVE RIGHT TURN LANES ON IL-21 AT EB AND WB ENTRANCE RAMP
 - RELOCATE DES PLAINES RIVER ROAD TO CREATE 'T' INTERSECTION AT MILWAUKEE AVENUE
 - POTENTIAL FUTURE SIGNAL AT DES PLAINES RIVER ROAD

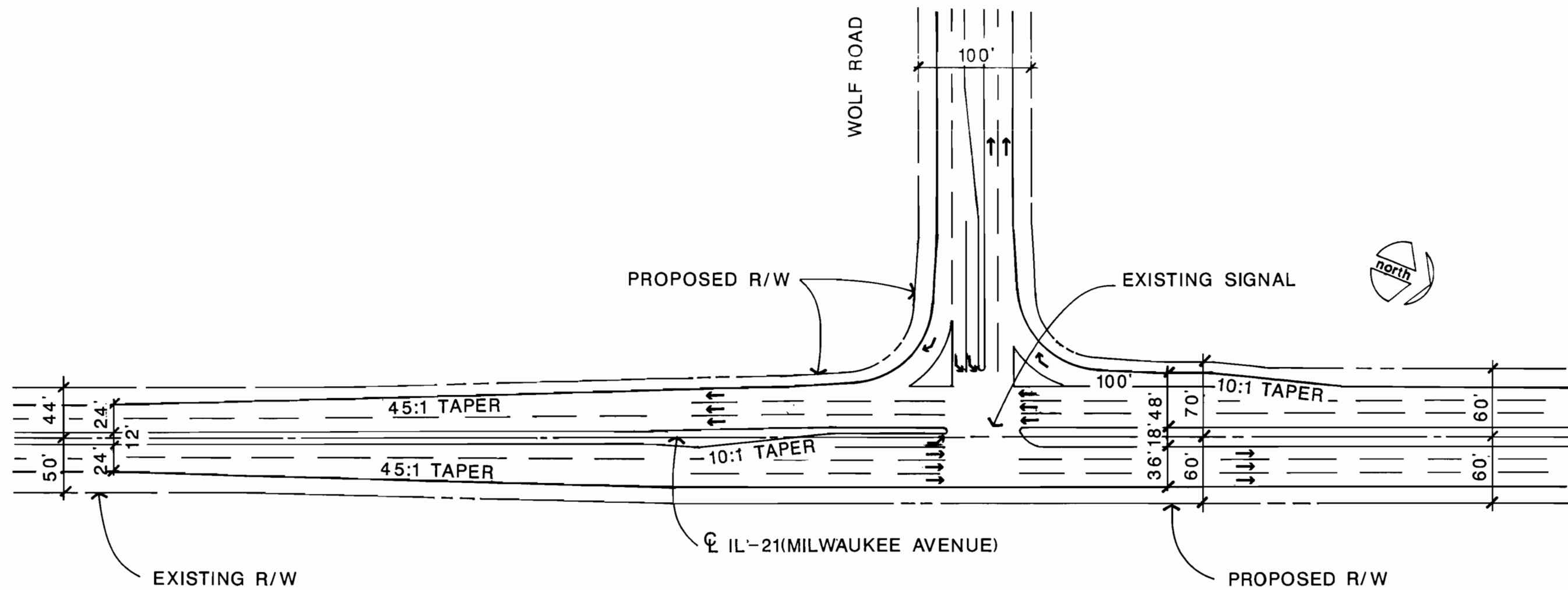
IL-21(Milwaukee Avenue) @ Palatine Road

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Detail 4



RECOMMENDED IMPROVEMENTS/NOTES:

- IMPLEMENT 6 THROUGH LANES PLUS 18 FOOT MEDIAN ON IL-21 NORTH OF WOLF ROAD
- IMPLEMENT 4 THROUGH LANES PLUS 12 FOOT MEDIAN ON IL-21 SOUTH OF WOLF ROAD
- DROP SOUTHBOUND IL-21 THROUGH LANE AT WOLF ROAD

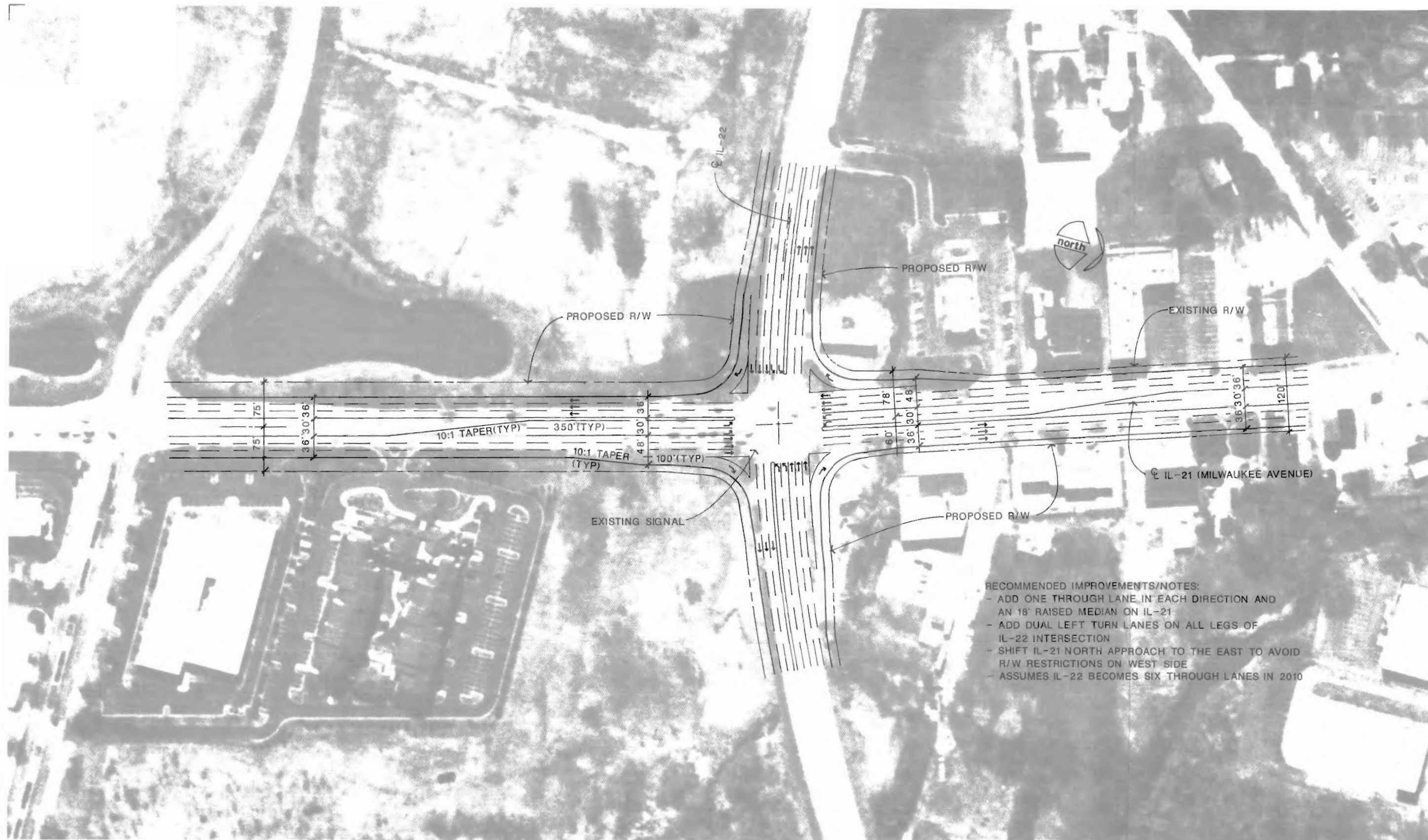
IL-21 @ Wolf Road

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Detail 5



IL-21(Milwaukee Avenue) @ IL-22(Half Day Road)



IL-21 (Milwaukee Avenue) @ IL-60 (Town Line Road)

