

Strategic Regional Arterial

**Orchard/Randall/Illinois 31
from U.S. Route 30 to
the Wisconsin State Line
(Vol. I)**



**Operation
GreenLight**

**Illinois Department of Transportation
April, 1993**

FOREWORD

Orchard Road/Randall Road/Illinois Route 31 (SRA) includes Orchard Road from U.S. Route 30 to Oak Street Road, Randall Road from Mooseheart Road to McHenry Avenue, Illinois Route 31 from about Three Oaks Road to U.S. Route 12, and U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line. This Strategic Regional Arterial (SRA) report for Orchard Road/Randall Road/Illinois Route 31 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, Orchard Road/Randall Road/Illinois Route 31 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, recommendations for ultimate and low-cost improvements, and exhibits of existing facility, environmental and developmental characteristics, recommended improvements and details. Volume II consists of documentation of the public involvement process including citizen comments.

SUMMARY OF RECOMMENDATIONS

The SRA Route Orchard Road/Randall Road/Illinois Route 31 is divided into thirteen route segments. (See *Figure i.i* and *i.ii*.) Recommendations are made for each route segment, and a summary of the major recommendations is presented below.

SRA Segment 1: Orchard Road from U.S. Route 30 to Oak Street Road

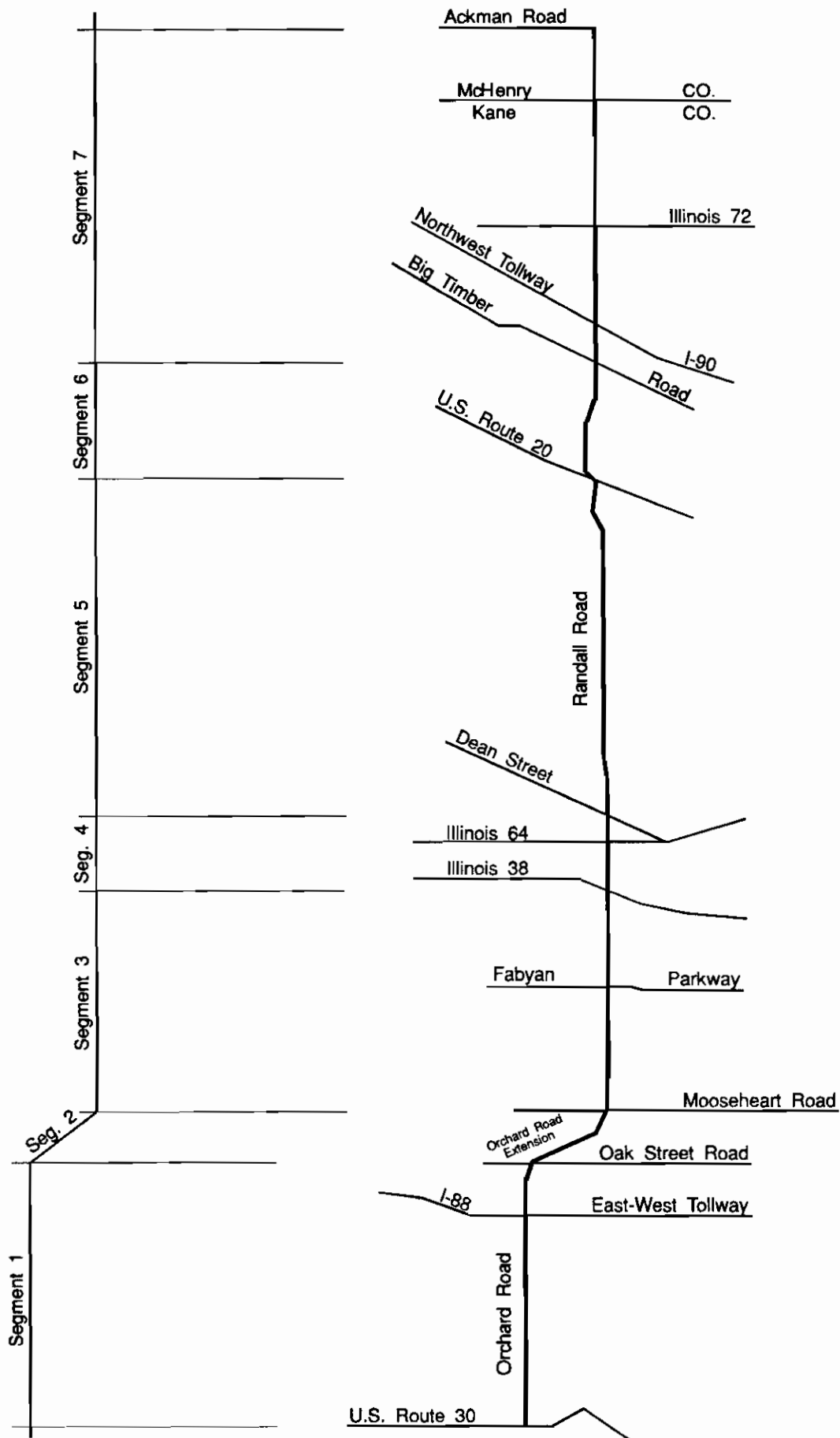
- U.S. Route 30 to Jericho Road, two through lanes in each direction with a 30-foot wide median within a desirable ultimate right-of-way 120 feet wide
- Jericho Road to New Indian Trail, two through lanes in each direction and a 30-foot wide median within the existing right-of-way
- New Indian Trail to Interstate 88 (East-West Tollway), three through lanes in each direction separated by a 30-foot wide median within the existing right-of-way
- Interstate 88 to Oak Street Road, three through lanes in each direction and a 30-foot wide median within a desirable ultimate right-of-way width of 150 feet
- Interconnected signal systems from U.S. Route 30 to Aucutt Road and from Jericho Road to the end of the segment
- Grade separations at the Burlington Northern Railroad and the Virgil Gilman Nature Trail
- Modify Interstate 88 interchange to provide full directional movements

SRA Segment 2: Orchard Road Extension from Oak Street Road to Randall Road

- Three through lanes in each direction and a 30-foot wide median within a desirable ultimate right-of-way width of 150 feet
- An interconnected signal system for all of the signals in the segment

SRA Segment 3: Randall Road from Orchard Road Extension to Illinois Route 38

- Orchard Road Extension to the Chicago and NorthWestern Railroad, three through lanes in each direction with a 30-foot wide median within a desirable ultimate right-of-way 150 feet wide
- Chicago & NorthWestern Railroad to Williamsburg Lane, three through lanes in each direction and a 30-foot wide median within the existing right-of-way

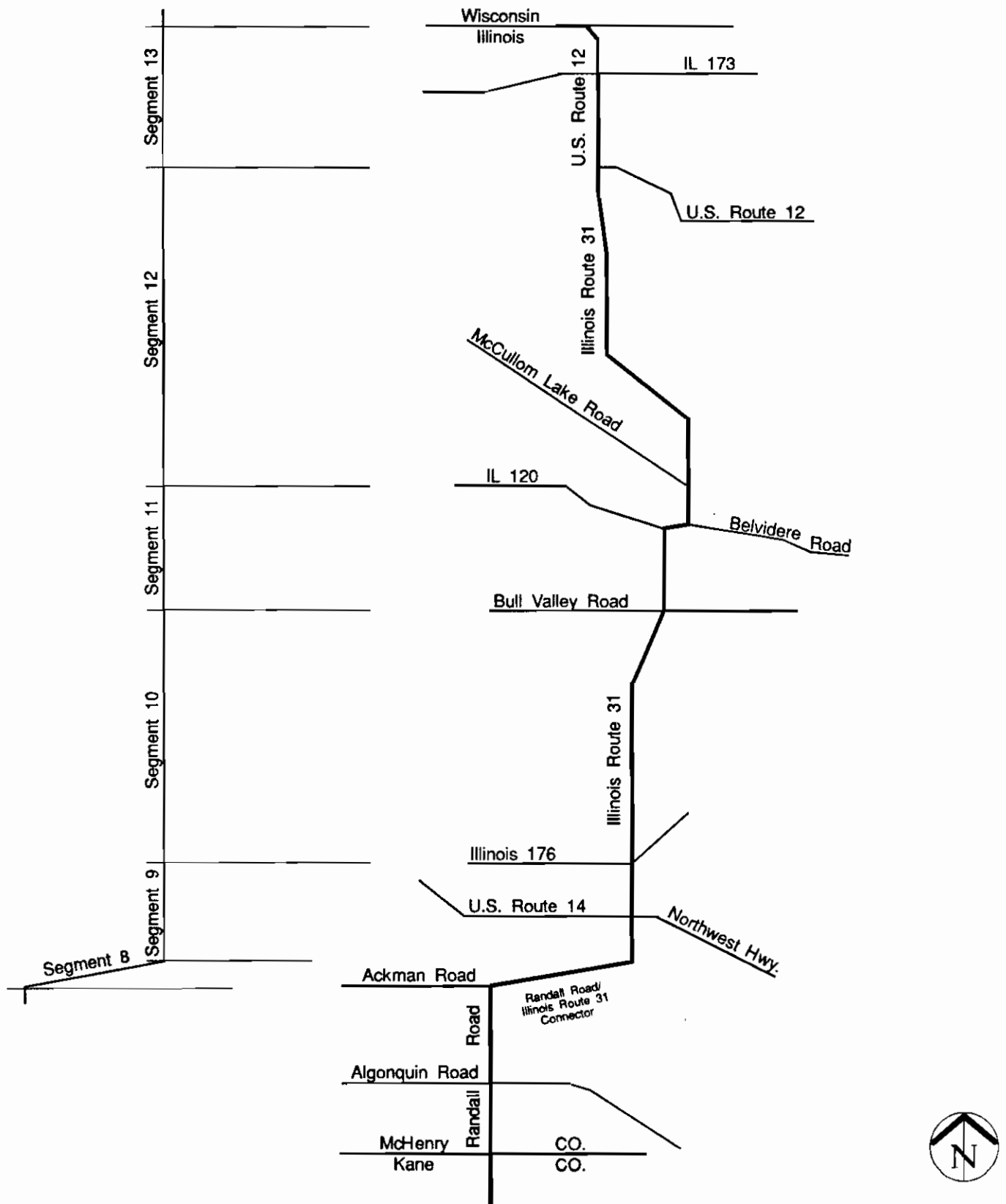


Orchard Road/Randall Road/ Illinois Route 31 (Kane)

prepared by Harland Bartholomew & Associates, Inc.

Segment Location Map

Figure I.I



**Orchard Road/Randall Road/
Illinois Route 31 (McHenry)**

prepared by Harland Bartholomew & Associates, Inc.

Segment Location Map

Figure i.ii

SUMMARY OF RECOMMENDATIONS_(cont.)

- Williamsburg Lane to Illinois Route 38, three through lanes in each direction and a 30-foot wide median within a desirable ultimate right-of-way 150 feet wide
- An interconnected signal system from Main Street in Batavia to Segment 4

SRA Segment 4: Randall Road from Illinois Route 38 to Dean Street

- Three through lanes in each direction with a 30-foot wide median within a 150-foot wide desirable ultimate right-of-way
- An interconnected signal system for the entire segment

SRA Segment 5: Randall Road from Dean Street to U.S. Route 20

- Three through lanes in each direction with a 30-foot wide median within a desirable ultimate right-of-way 150 feet wide
- Interconnected signal system from Segment 4 to Red Haw Lane; from Red Gate Road to Bolcum Road, from Bowes Road to Cottage Green Drive, and from South Street to Segment 6

SRA Segment 6: Randall Road from U.S. Route 20 to Big Timber Road

- Three through lanes in each direction separated by a 30-foot wide median within a desirable ultimate right-of-way 150 feet wide
- An interconnected signal system from South Street in Segment 5 to Royal Boulevard

SRA Segment 7: Randall Road from Big Timber Road to Randall Road/Illinois Route 31 Connector

- Big Timber Road to Illinois Route 72 (Higgins Road), three through lanes in each direction separated by a 30-foot wide median within a 150 foot wide desirable ultimate right-of-way
- Illinois Route 72 to Algonquin Road, two through lanes in each direction and a 30-foot wide median within a desirable ultimate right-of-way 150 feet wide
- Algonquin Road to Randall Road/Illinois 31 Connector, two through lanes in each direction with a 30-foot wide median within the existing right-of-way
- Interconnected signal systems from Big Timber Road to Miller Road and from Ackman Road to McHenry Avenue
- Modification of the Interstate 90 (Northwest Tollway) interchange to provide fully directional access

SRA Segment 8: Randall Road/Illinois Route 31 Connector from Randall Road to Illinois Route 31

- Randall Road to Pyott Road, two through lanes in each direction and a 30-foot wide median within the existing right-of-way
- Pyott Road to Illinois Route 31, two through lanes in each direction and a 30-foot wide median within a 120 foot wide desirable ultimate right-of-way
- Interconnected signal system from Pyott Road to Virginia Road and from Pingree Road to Three Oaks Road in Segment 9

SUMMARY OF RECOMMENDATIONS *(cont.)*

SRA Segment 9: Illinois Route 31 from Randall Road/Illinois Route 31 Connector to Illinois Route 176

- Two through lanes in each direction and a 30-foot wide median within existing right-of-way
- Interconnected signal systems from Segment 8 to Three Oaks Road and from Crystal Lake Avenue to Segment 10
- Modification of U.S. Route 14 interchange under ongoing IDOT Phase I Study
- Realign the east leg of Illinois Route 176 to intersect Illinois Route 31 at 90 degrees

SRA Segment 10: Illinois Route 31 from Illinois Route 176 to Bull Valley Road

- Illinois Route 176 to Gracy Road, two through lanes in each direction and a 30-foot wide median within a 120-foot wide desirable ultimate right-of-way
- Gracy Road to Bull Valley Road, two through lanes in each direction and a 46-foot wide median within a 170-foot wide desirable ultimate right-of-way in the West McHenry Bypass Corridor
- Interconnected signal systems from Segment 9 to mid-mile collector and from Edgewood Road to Gracy Road
- Realign Ames Road to intersect Illinois Route 31 opposite Edgewood Road

SRA Segment 11: Illinois Route 31 from Bull Valley Road to McCullom Lake Road

- Two through lanes in each direction separated by a 46-foot wide median within a 170-foot wide desirable ultimate right-of-way in the West McHenry Bypass Corridor
- SRA designation follows West McHenry Bypass alignment within identified bypass corridor

SRA Segment 12: Illinois Route 31 from McCullom Lake Road to U.S. Route 12 (Tryon Grove Road)

- McCullom Lake Road to School Road, two through lanes in each direction and a 46-foot wide median within a 170-foot wide desirable ultimate right-of-way in the West McHenry Bypass Corridor
- School Road to U.S. Route 12, two through lanes in each direction and a 46-foot wide median within a 170-foot wide desirable ultimate right-of-way

SRA Segment 13: U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line

- Route recommendations deferred pending ongoing IDOT study results

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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 the Illinois Route 31 segment of Orchard Road/Randall Road/Illinois Route 31, 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
- 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.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 1: Introduction

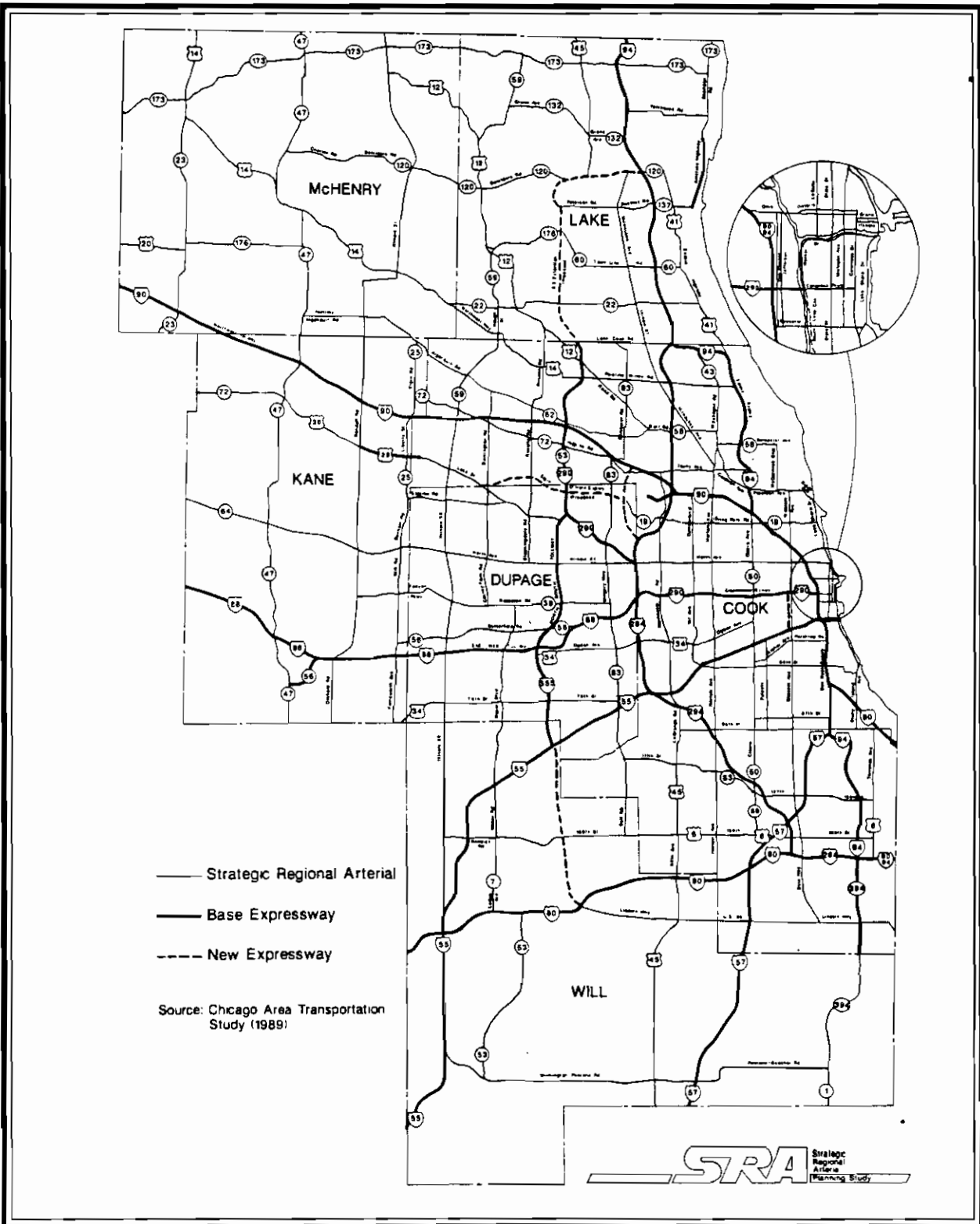


Figure 1.1 The Strategic Regional Arterial System

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 2010 density of development within the Chicago region. Orchard Road/Randall Road/Illinois Route 31 is designated as a suburban route south of the City of McHenry and a rural route north of the City of McHenry (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 control 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. *Tables 1.1* and *1.2* list desirable characteristics for SRA suburban and rural 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 SRA suburban and rural route cross-sections which are shown in *Figures 1.3* and *1.4*.

As planning criteria, these design features and other route characteristics are designed to be generally applicable to all SRA suburban and rural 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:

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 1: Introduction

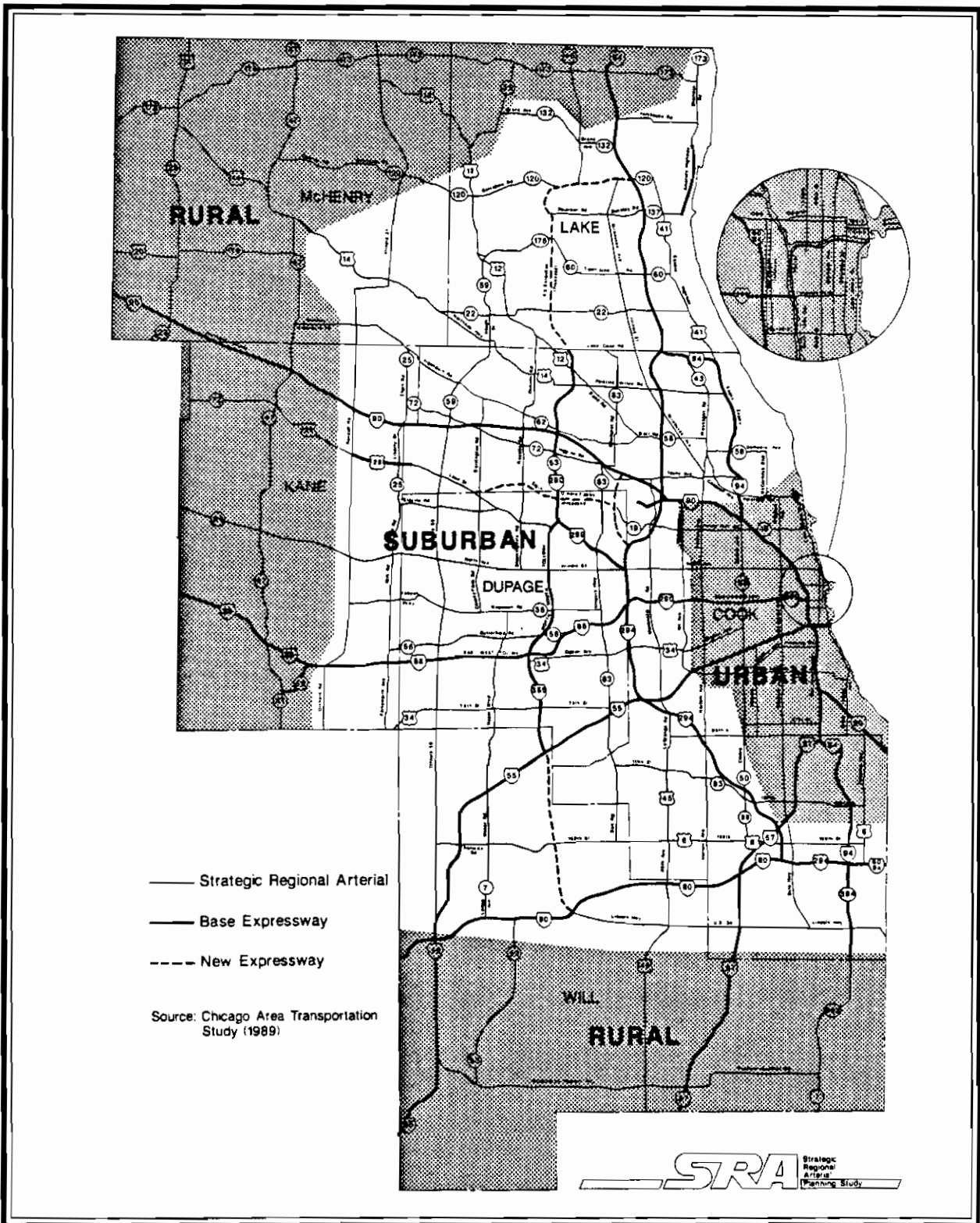


Figure 1.2 Route Types on the Strategic Regional Arterial System

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
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 Vertical Clearances	WB-55 typical/WB-60 Type II truck route New structures: 16'-3" Existing Structures: 14'-6"
Loading	Off-street loading

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 1: Introduction

Table 1.2
2010 Desirable Route Characteristics
Rural Strategic Regional Arterials

Right-of-way Width	168' - 210'
Level of Service (Peak Hour)/Design Speed	C / 60 mph
Number of Through Lanes	2 in each direction, 12' width; with provision for future expansion to 6 total lanes
Median Width	46' - 70'
Right Turns	Turn lanes at major cross-streets
Left Turns	Turn lanes at all intersections
Shoulders	10' right paved; 6' left paved
Curbs	No
Sidewalks	If needed
Parking	No
Cross Street Intersections	Permitted. Stop sign control for cross street
Curb Cut Access	Protect right-of-way for post-2010 construction of two-way frontage roads*
Transit	Bus pull-off and shelter. Express bus service and signal pre-emption potential
Number of Traffic Signals Per Mile	2
Signalization	Fully-actuated
Freight: Radii	WB 60; Standard
Vertical Clearance	New Structures: 16'-3"
	Existing Structures: 14'-6"
Loading	Off-street loading

*unless criteria and conditions of Section 6.3 are met

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 1: Introduction

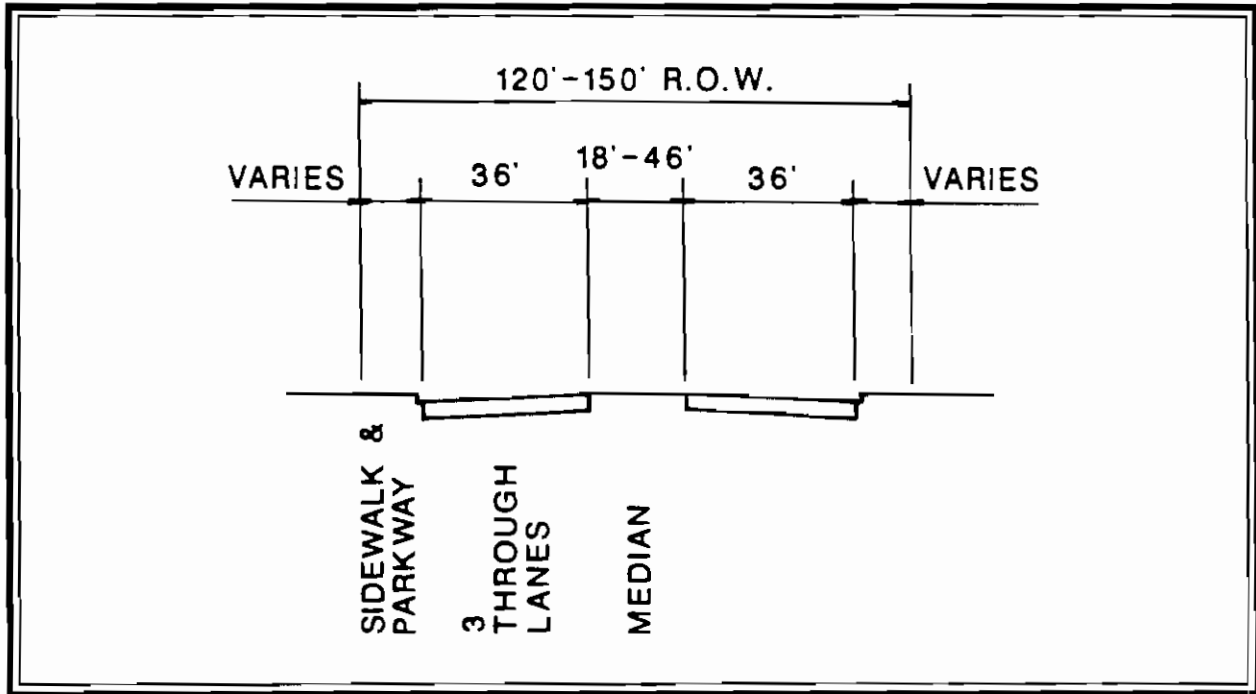


Figure 1.3 Desirable Suburban SRA Cross-Section

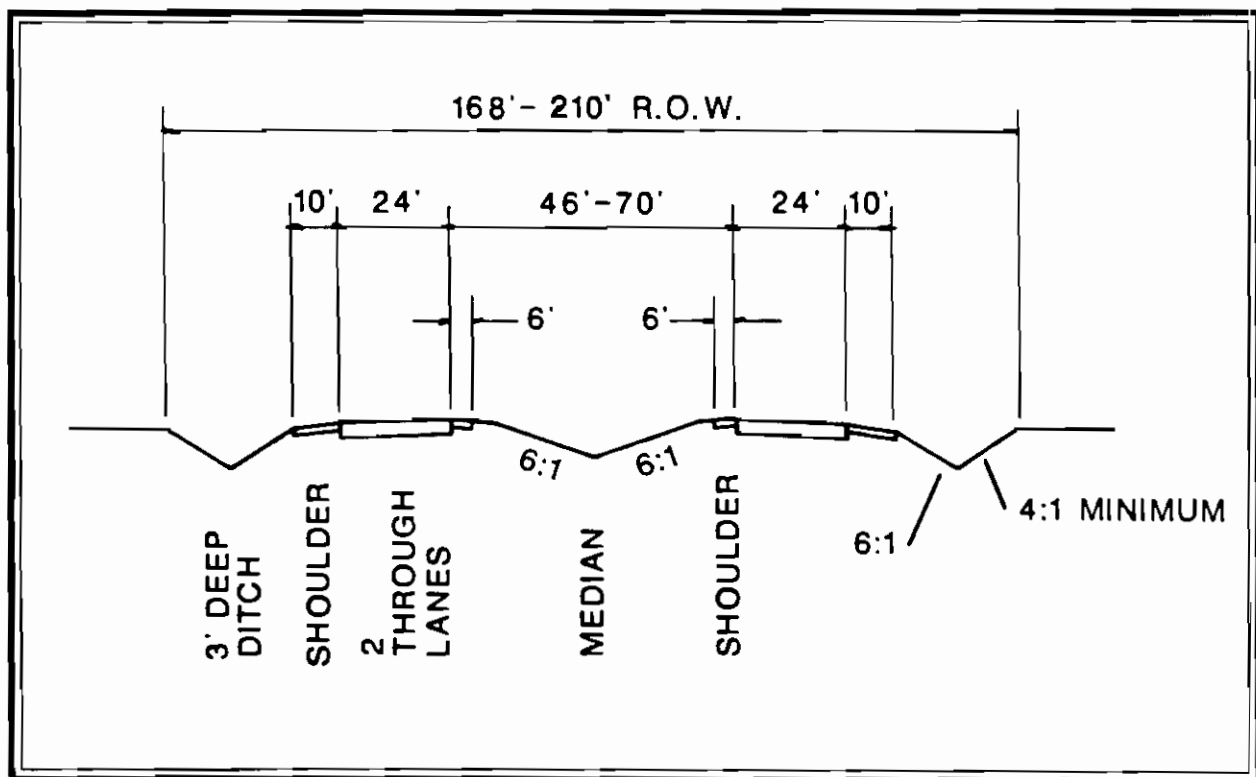


Figure 1.4 Desirable Rural SRA Cross-Section

- 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 Orchard Road/Randall Road/Illinois Route 31, they illustrate the range of treatments which have 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, Orchard Road/Randall Road/Illinois Route 31 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 Orchard Road/Randall Road/Illinois Route 31 study identifies both ultimate and low-cost 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 Orchard Road/Randall Road/Illinois Route 31, 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. The scope of the recommended improvements, whether ultimate or low-cost, is identified.

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 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, both 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 will also be conducted for each 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 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.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31

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, houses of worship, theaters, auditoriums, parks, cemeteries, recreation facilities, nature and forest preserves, hospitals, nursing homes, and hotels. 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 describes 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 Orchard Road/Randall Road/Illinois Route 31 SRA route study is divided into four sections:

Section One (Volume 1), 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 1), 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 1), Route Analysis, presents a detailed analysis of existing route characteristics and recommended route improvements. This section is organized by the following route segments on Orchard Road/Randall Road/Illinois Route 31:

ORCHARD ROAD

- **Section 3.1:** U.S. Route 30 to Oak Street Road

ORCHARD ROAD EXTENSION

- **Section 3.2:** Oak Street Road to Randall Road

RANDALL ROAD

- **Section 3.3:** Orchard Road Extension to Illinois Route 38
- **Section 3.4:** Illinois Route 38 to Dean Street
- **Section 3.5:** Dean Street to U.S. Route 20
- **Section 3.6:** U.S. Route 20 to Big Timber Road
- **Section 3.7:** Big Timber Road to Randall Road/Illinois Route 31 Connector

RANDALL ROAD/ILLINOIS ROUTE 31 CONNECTOR

- **Section 3.8:** Randall Road to Illinois Route 31

ILLINOIS ROUTE 31

- **Section 3.9:** Randall Road/Illinois Route 31 Connector to Illinois Route 176
- **Section 3.10:** Illinois Route 176 to Bull Valley Road

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 1: Introduction

- **Section 3.11:** Bull Valley Road to McCullom Lake Road
- **Section 3.12:** McCullom Lake Road to U.S. Route 12

U.S. ROUTE 12

- **Section 3.13:** Illinois Route 31 to the Wisconsin State Line

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 Orchard Road/Randall Road/Illinois Route 31 SRA Advisory Panels 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 ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31 SRA STUDY AREA

Orchard Road/Randall Road/Illinois Route 31 (SRA) includes Orchard Road from U.S. Route 30 to Oak Street Road, Randall Road from Mooseheart Road to McHenry Avenue, Illinois Route 31 from about Three Oaks Road to U.S. Route 12, and U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line. These segments will form a continuous 53 mile long route when the Orchard Road Extension and Randall Road/Illinois Route 31 Connector are constructed. Orchard Road/Randall Road/Illinois Route 31 is a suburban route south of the City of McHenry and a rural route north of the City of McHenry. (See *Figure 2.1.*) It passes through the communities of Montgomery, Aurora, North Aurora, Batavia, Geneva, St. Charles, South Elgin, Elgin, West Dundee, Sleepy Hollow, Carpentersville, Algonquin, Lake in the Hills, Crystal Lake, Prairie Grove, McHenry, Ringwood, and Richmond.

2.2 REGIONAL TRANSPORTATION FACILITIES

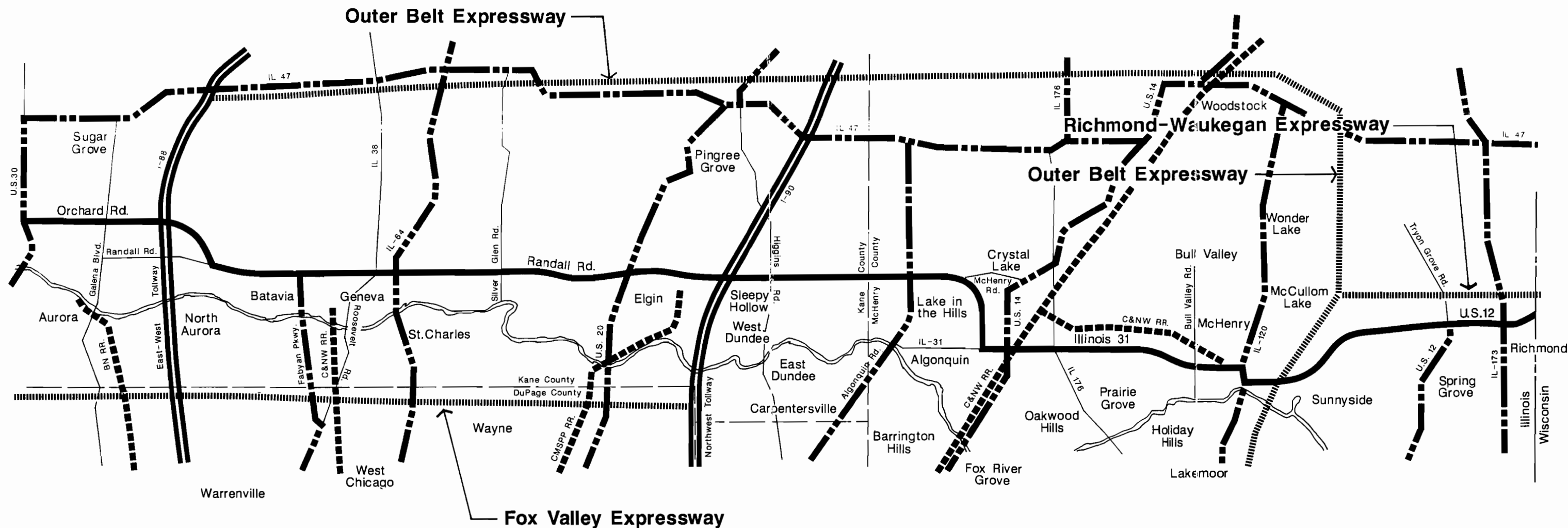
Figure 2.1 also indicates the existing and proposed facilities linking Orchard Road/Randall Road/Illinois Route 31 to the regional transportation system as defined in the 2010 Transportation System Development (TSD) Plan prepared by the Chicago Area Transportation Study (CATS).

Orchard Road/Randall Road/Illinois Route 31 intersects nine designated SRA routes: U.S. Route 30, Fabyan Parkway, Illinois Route 64 (North Avenue), U.S. Route 20, Algonquin Road, U.S. Route 14 (Northwest Highway), Illinois Route 120, U.S. Route 12 (Tryon Grove Road), and Illinois Route 173 (Kenosha Avenue). There is also access to Interstate 88 (East-West Tollway) and Interstate 90 (Northwest Tollway).

The Fox Valley Expressway, the Outer Belt Expressway, and the Richmond-Waukegan Expressway are Corridors of the Future identified in the 2010 TSD Plan which, if constructed, would affect the Orchard Road/Randall Road/Illinois Route 31 SRA route. However, Corridors of the Future are not anticipated to be in place by the Year 2010, and therefore, traffic forecasts on SRA routes do not reflect the impacts of these facilities. SRA project recommendations would have to be revisited if these future facilities are constructed.

The Fox Valley Expressway is a north-south corridor with an as yet unidentified right-of-way. A current IDOT engineering study of the Fox Valley Expressway extends from Interstate 80 to the Illinois/Wisconsin state line. The Outer Belt Expressway is an east-west corridor that would cross Illinois Route 31 north of McHenry and then extend southerly in the general vicinity of Illinois Route 47 to Interstate 88. The Richmond-Waukegan Expressway would parallel Illinois Route 31 to the west between the Outer Belt Expressway and the Illinois/Wisconsin state line and also extend to the east to connect with the proposed FAP 342 facility.

Metra provides service through stations at Crystal Lake and McHenry and, east of the route, at Aurora, Geneva and Elgin. Rail commuter service is provided by four Metra Lines:



**———— Illinois 31/Randall Road/
Orchard SRA Route**

----- Other SRA Route

===== Existing Expressway

----- Existing Major Transit Facility

----- Expressway Corridor of the Future



Orchard Road/Randall Road/Illinois Route 31

Regional Transportation Facilities



prepared by Harland Bartholomew & Associates, Inc. for the

ILLINOIS DEPARTMENT OF TRANSPORTATION

Figure 2.1

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31

SECTION 2: Route Overview

- Burlington Northern
- Chicago & NorthWestern Northwest,
- Chicago & NorthWestern West, and
- Milwaukee Road Division West.

The 2010 Plan identifies a circumferential routing that would connect Aurora to Barrington as a corridor of the future. While the proposed route uses the existing EJ&E tracks east of the Fox River, this service may accommodate riders who might otherwise use the Orchard Road/Randall Road/Illinois Route 31 route. The circumferential could have stations at all intersecting commuter rail lines as well as at some major intersecting arterial roads such as SRAs.

2.3 PROJECTED TRAVEL DEMAND

Figures 2.2 and 2.3 indicates the projected 2010 travel demand in terms of average annual daily traffic (AADT) for Orchard Road/Randall Road/Illinois Route 31. The projected 2010 AADT travel demand forecasts are taken from the regional travel simulation model developed by the Chicago Area Transportation Study (CATS).

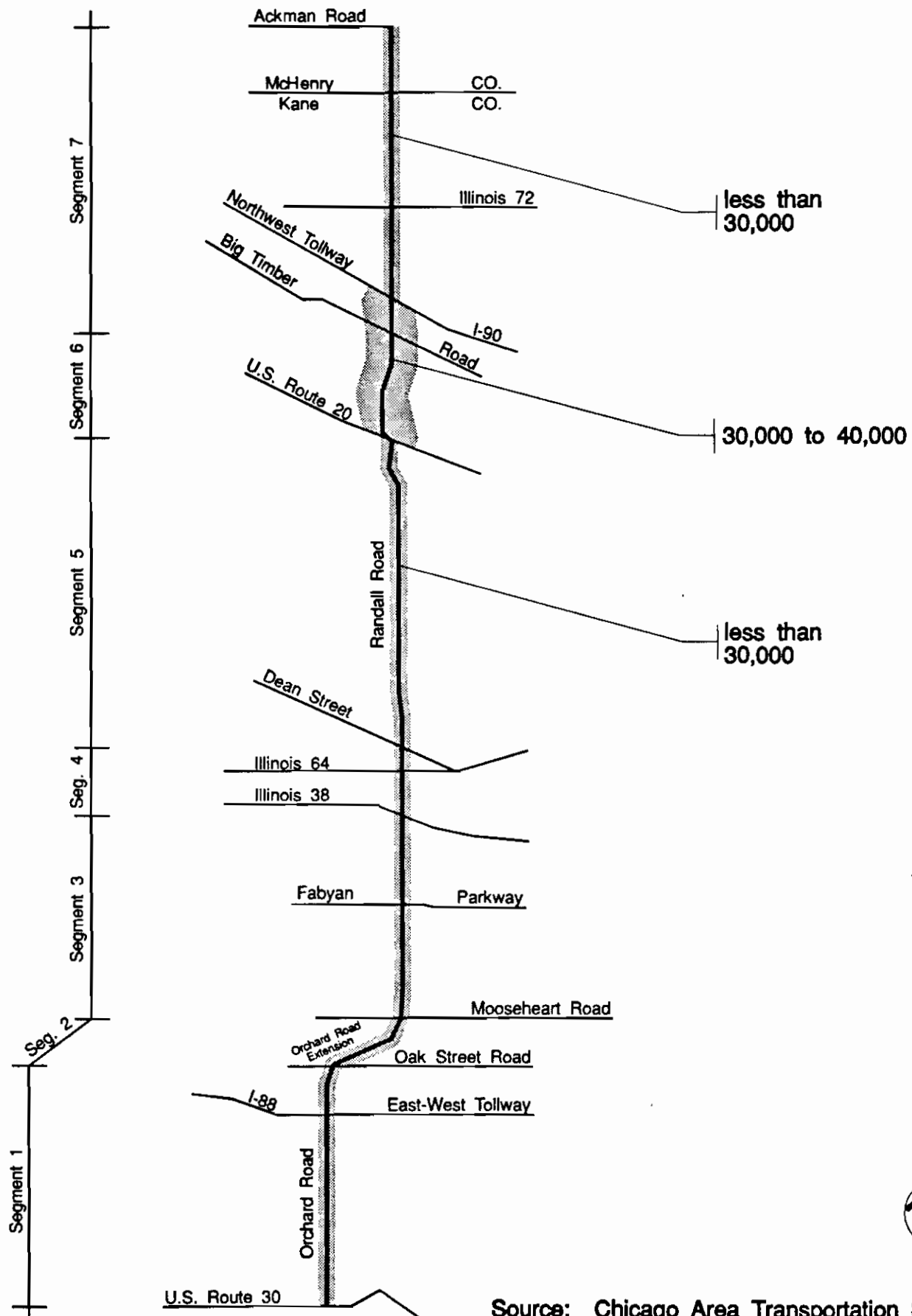
2.4 ROUTE AREA TYPES

Orchard Road/Randall Road/Illinois Route 31 is classified as a suburban SRA route from U.S. Route 30 to the City of McHenry and as a rural SRA route from the City of McHenry to the Illinois/Wisconsin State Line. Because the stretch of Illinois Route 31 between Gracy Road and School Road, and U.S. Route 12 between Tryon Grove Road and the Illinois/Wisconsin State Line exhibit many characteristics typical of urban areas (such as restricted right-of-way, no building setbacks and full development), they have been analyzed and evaluated with urban SRA route design criteria. The design speed for a rural SRA is 60 miles per hour, and the desirable minimum level of service is "C" at which average travel speeds are equal to the typical free flow speed of 55 miles per hour. 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.

2.5 ONGOING AND SCHEDULED COUNTY PROJECTS FOR ORCHARD ROAD AND RANDALL ROAD

Kane County is the jurisdictional agency responsible for Orchard Road and Randall Road within Kane County limits. McHenry County is the jurisdictional agency responsible for Randall Road within McHenry County limits.

Kane County and McHenry County have ongoing and scheduled roadway widening projects for Orchard Road and Randall Road at certain locations. Typically, the roadway cross-section that is proposed to be constructed is four through lanes separated by a 4- to 16-foot wide median. When these roadway widening projects are constructed, they will provide a very beneficial measure of congestion relief along Orchard Road and Randall Road.



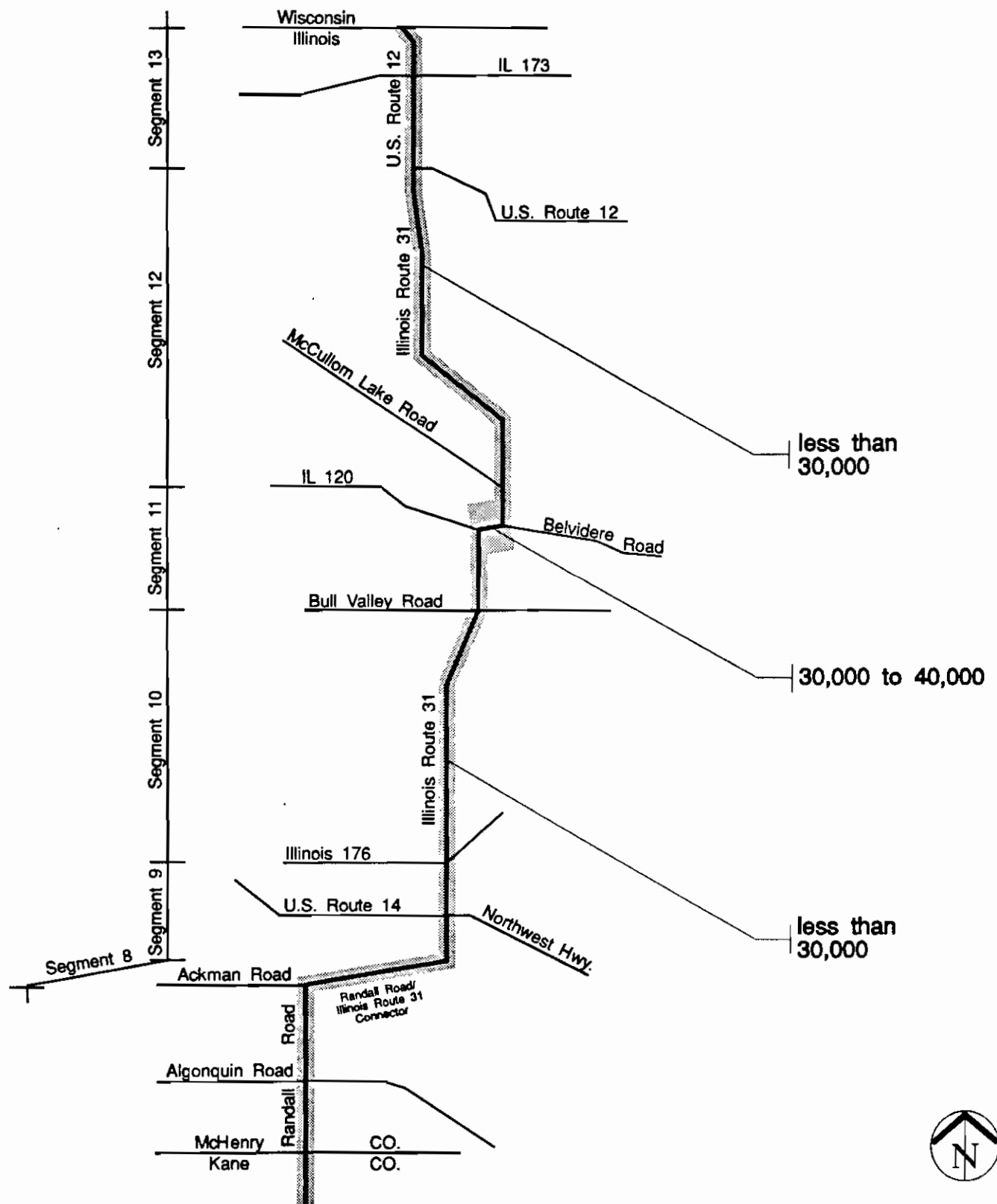
Source: Chicago Area Transportation Study

**Orchard Road/Randall Road/
Illinois Route 31 (Kane)**

2010 Projected Travel Demand Volumes

prepared by Harland Bartholomew & Associates, Inc.

Figure 2.2



Source: Chicago Area Transportation Study

**Orchard Road/Randall Road/
Illinois Route 31 (McHenry)**

2010 Projected Travel Demand Volumes

prepared by Harland Bartholomew & Associates, Inc.

Figure 2.3

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 2: Route Overview

The cross-section of four to six through lanes plus a 30-foot wide median as recommended for these SRA routes (see *Table 2.1* for specific location recommendation) may not easily lend itself to conversion from the roadway cross-section currently being used by Kane County and McHenry County. Although the SRA recommendation of a 30-foot wide median is the ideal standard for all suburban SRA routes, the 4- to 16-foot wide median currently being used by Kane County and McHenry County is a more economical design and is acceptable for existing and anticipated local conditions along Orchard Road and Randall Road.

TABLE 2.1				
Existing and Recommended Right-of-Way Width and Number of Through Traffic Lanes				
	Right-of-Way Width (feet)		Number of Through Lanes in Each Direction	
	Existing	Recommended	Existing	Recommended
DESIRABLE STANDARD FOR AN SUBURBAN SRA		120-150		3
Segment 1: Orchard Road U.S. Route 30 to Oak Street Road	100-170	120-170	1	2-3
Segment 2: Orchard Road Extension Oak Street Road to Randall Road	140 ⁽¹⁾	150	-0- ⁽¹⁾	3
Segment 3: Randall Road Orchard Road Extension to Illinois Route 38	140	150	2	3
Segment 4: Randall Road Illinois Route 38 to Dean Street	80-100	150	2	3
Segment 5: Randall Road Dean Street to U.S. Route 20	140-150	150	1-2	3
Segment 6: Randall Road U.S. Route 20 to Big Timber Road	100-140	150	2	3
Segment 7: Randall Road Big Timber Road to Randall/IL 31 Con.	66-200	120-200	1-2	2-3
Segment 8: Randall/IL 31 Con. Randall Road to Illinois Route 31	90-145	120-145	-0- ⁽¹⁾	2
Segment 9: Illinois Route 31 Randall/IL 31 Con. to Illinois Route 176	90-200	120-200	2	2
Segment 10: Illinois Route 31 Illinois Route 176 to Bull Valley Road	66-80	120-170 ⁽²⁾	1	2 ⁽²⁾
⁽¹⁾ Proposed alignment does not follow an existing roadway.				
⁽²⁾ Bypass recommended between Gracy Road and School Road.				

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 2: Route Overview

TABLE 2.1 (continued) Existing and Recommended Right-of-Way Width and Number of Through Traffic Lanes				
ILLINOIS ROUTE 31	Right-of-Way Width (feet)		Number of Through Lanes in Each Direction	
	Existing	Recommended	Existing	Recommended
Segment 11: Illinois Route 31 Bull Valley Road to McCullom Lake	66-80	170 ⁽²⁾	1	2 ⁽²⁾
DESIRABLE STANDARD FOR A RURAL SRA		168-210		2
Segment 12: Illinois Route 31 McCullom Lake Road to U.S. 12	80	170 ⁽²⁾	1	2 ⁽²⁾
Segment 13: U.S. Route 12 Illinois Route 31 to the Wisc State Ln	66-80	*	1	*
⁽²⁾ Bypass recommended between Gracy Road and School Road. * Final route recommendations pending results of ongoing IDOT study.				

2.6 EVALUATION OF EXISTING ROUTE CHARACTERISTICS AND RECOMMENDED ROADWAY IMPROVEMENTS

As shown in *Table 2.1*, both the existing right-of-way and number of through lanes are variable along the length of Orchard Road/Randall Road/Illinois Route 31. However, for most of the route, the current right-of-way width and number of through lanes are less than the desirable minimum for a suburban or rural SRA route as appropriate.

The results of the capacity analyses comparing the projected Year 2010 travel demand to the recommended roadway configurations for Orchard Road/Randall Road/Illinois Route 31 are given in *Table 2.2*.

The recommended roadway configuration for Orchard Road/Randall Road/Illinois Route 31 provides two through traffic lanes in each direction between U.S. Route 30 and New Indian Trail. North of New Indian Trail to Illinois Route 72 (Higgins Road) three through traffic lanes in each direction are recommended. North of Illinois Route 72 to U.S. Route 12, two through traffic lanes in each direction are recommended.

Between Illinois Route 31 and the Illinois/Wisconsin State Line, the SRA recommendations for U.S. Route 12 have been deferred. Ongoing IDOT studies in the Richmond area must be completed before the SRA recommendations can be finalized.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
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 U.S. Route 30 to Galena Boulevard (Orchard Road)	< 30,000	4 *	30,000 32,000	C D	Yes
		6	45,000	C	Yes
Segment 1B Galena Boulevard to Oak Street Rd (Orchard Road)	< 30,000	4 **	30,000 33,000	C D	Yes
		6 **	46,000	C	Yes
Segment 2 Oak Street Road to Randall Road (Orchard Road Ext.)	< 30,000	4	31,000 33,000	C D	Yes
		6 *	47,000	C	Yes
Segment 3A Orchard Road Ext. to Fabyan Parkway (Randall Road)	< 30,000	4	27,000 30,000	C D	Yes
		6 *	41,000	C	Yes
Segment 3B Fabyan Parkway to Illinois Route 38 (Randall Road)	< 30,000	4	32,000	D	Yes
		6 *	45,000	C	Yes
Segment 4 IL 38 to Dean St. (Randall Road)	< 30,000	4	27,000	D	No
		6 *	36,000	C	Yes
Segment 5A Dean Street to McDonald Road (Randall Road)	< 30,000	4	33,000	D	Yes
		6 *	46,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic (in vehicles)					
* - Indicates recommended number of through lanes for this segment. ** - Transition from four to six through lanes at New Indian Trail.					

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
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 5B McDonald Road to U.S. Route 20 (Randall Road)	< 30,000	4	31,000 33,000	C D	Yes
		6 *	47,000	C	Yes
Segment 6 U.S. Route 20 to Big Timber Road (Randall Road)	30 to 40,000	4	33,000	D	No
		6 *	46,000	C	Yes
Segment 7A Big Timber Road to Illinois Route 72 (Randall Road)	< 30,000 to 40,000	4	31,000	D	No
		6 *	43,000	C	Yes
Segment 7B Illinois Route 72 to County Line Road (Randall Road)	< 30,000	4 *	31,000	C	Yes
Segment 7C County Line Road to Randall/IL 31 Con. (Randall Road)	< 30,000	2	15,000	D	No
		4 *	29,000	C	Yes
Segment 8 Randall Road to Illinois Route 31 (Randall/IL 31 Con.)	< 30,000	2	16,000	D	No
		4 *	30,000	C	Yes
Segment 9 Randall/IL 31 Con. to Illinois Route 176 (Illinois Route 31)	< 30,000	2	17,000	D	No
		4 *	33,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic (in vehicles)					
* - Indicates recommended number of through lanes for this segment.					

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
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 10⁽³⁾ Illinois Route 176 to Bull Valley Road (Illinois Route 31)	< 30,000	2	16,000	D	No
		4 *	31,000	C	Yes
Segment 11⁽³⁾ Bull Valley Rd to McCullom Lake (Illinois Route 31)	< 30,000 to 40,000	2	13,000	D	No
		4	24,000 27,000	C D	No
		4 ⁽²⁾	25,000	C	No
Segment 12A ⁽³⁾ McCullom Lake to School Road (Illinois Route 31)	< 30,000	2	16,000	D	No
		4	30,000	C	Yes
Segment 12B School Road to U.S. Route 12 (Illinois Route 31)	< 30,000	2	15,000	D	No
		4 *	27,000	C	Yes
Segment 13 Illinois Route 31 to Wis. State Line (U.S. Route 12)	< 30,000	2 ⁽⁴⁾	15,000	D	No
		4 ⁽⁴⁾	28,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic (in vehicles) ⁽²⁾ Six lanes on Illinois 120. ⁽³⁾ 4 lane West McHenry Bypass recommended from Gracy Road to School Road. (No ultimate improvements recommended on existing alignment.) ⁽⁴⁾ Final route recommendations pending results on ongoing IDOT study.					
* Indicates recommended number of through lanes for this segment.					

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 2: Route Overview

The SRA route analysis for Orchard Road/Randall Road/Illinois Route 31 has indicated that the achievable right-of-way through the community of McHenry will be inadequate to provide the necessary roadway cross-section to safely accommodate the projected Year 2010 traffic demand; thus it is recommended that bypass alternatives be studied and that the SRA designation be considered on the proposed bypass.

2.7 TRANSIT

Existing transit service in the Orchard Road/Randall Road/Illinois Route 31 study area includes Pace bus service and Metra rail commuter service. The following sections discuss existing service and conditions, as well as the general type of recommended improvements for the overall route. Specific recommended improvements are discussed with their respective route segments in Section Three of this report.

2.7.1 EXISTING TRANSIT SERVICES AND FACILITIES

Bus Service

Pace provides conventional bus service supplemented by their Dial-a-Ride Program. The average weekday ridership and service type are shown in *Table 2.3*.

The Pace routes are primarily oriented to conveying commuters from home to rail service and shopping. There are, however, several routes connecting communities at the north end of the route.

Commuter Rail Service

Metra commuter rail service between the communities along Orchard Road/Randall Road/Illinois Route 31 is provided by four lines:

- the Metra/Burlington Northern line has a station in Aurora three and one-half miles east of Orchard Road;
- the Metra/Chicago & NorthWestern West line has a station in Geneva one and one-half miles east of Randall Road;
- the Metra/Milwaukee District West line has a station at Big Timber Road one-quarter mile east of Randall Road;
- the Metra/Chicago & NorthWestern Northwest line has a station in Crystal Lake one and one-half miles west of Illinois Route 31 and a station on Main Street in McHenry just west of Illinois Route 31.

Only the Chicago & NorthWestern Northwest line extends across the route to the west. These lines operate throughout the day. Midday and reverse commuter service is often hourly, except around noon when there are some two hour gaps.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 2: Route Overview

Table 2.3 Pace Bus Service		
Route Number	Service Type⁽¹⁾	Average Weekday Ridership
522	Satellite	267
524	Satellite	238
526	Satellite	468
531	Satellite	192
532	Satellite	257
545	Satellite	615
546	Satellite	521
547	Satellite	573
548	Satellite	369
549	Satellite	435
552	Satellite	513
801	Outer Suburban	386
803	Outer Suburban	268
805 ⁽²⁾	N/A	N/A
806 ⁽²⁾	N/A	N/A
807 ⁽²⁾	N/A	N/A
Source: Suburban Bus System Service Performance Report for the Period January-March 1990 ⁽¹⁾ Pace Service types are Inner Suburban (suburban Cook and Eastern DuPage Counties); Satellite City (Elgin, Aurora, Joliet and Waukegan); and Outer Suburban (collar Counties and less dense areas of suburban Cook); and Feeder (rush hour services to train stations.) ⁽²⁾ McHenry County bus routes #805, #806, and #807 are not included in the Pace Performance Report.		

The rail stations in the area are all in good condition. Most are new or have been rebuilt or improved within the last decade. Parking facilities are generally extensive and often full. Parking use at the Milwaukee West Line Station at Big Timber Road is not high, but this station is relatively new.

The stations in the study area with the heaviest ridership are on the Chicago & NorthWestern Lines and the Burlington Northern. The station at Crystal Lake boards 1,105 passengers each weekday and Aurora boards 1,056. Both are line termini. *Table 2.4* presents data for Metra routes serving the Orchard Road/Randall Road/Illinois Route 31 study area.

In addition, PACE also operates a Park-and-Ride facility in the parking lot of the First Baptist Church of Geneva providing shuttle service to and from the Geneva Metra station one mile to the east.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 2: Route Overview

Table 2.4 Commuter Rail Services				
Line	Station	Passengers Fall 1989	Entering Spaces 11/12/90	Parking Parking Use (%)
BN	Aurora	1,056	730	78.5
CNW-West	Geneva	1,290	728	94.1
NW	Cary	615	365	85.4
	Crystal Lake	1,105	692	85.4
	McHenry	115	121	66.1
MWD West	National St.	255	432	60.6
	Elgin	465	340	67.9
	Big Timber	33	299	27.8
Note: BN=Burlington Northern, CNW-Chicago and NorthWestern, and MWD=Milwaukee West Division. Sources: Metra Fall 1989 Station Passenger Count, Metra Parking Assessment, 11/12/90.				

2.7.2 RECOMMENDED IMPROVEMENTS

The following are the general types of recommended improvements for transit facilities. Specific recommended improvements for each segment of the Orchard Road/Randall Road/Illinois Route 31 route are discussed in Section Three with their respective route segments.

Bus Stops

Locations for bus stops are recommended consistent with provision of express bus service along the entire length of the route. Typically, these locations are at signalized intersections with a one-quarter to one-half mile spacing and near locations of existing or planned commercial and employment centers and other transportation facilities. Typically the recommended locations will 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 31 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. An example of this would be trips between Elgin and the Interstate 88 corridor. Elgin could be served by express buses to Interstate 88 which would stop at Park-and-Ride facilities along the route.

Transportation Center Facilities

The Transportation Center in Aurora is an example of how such facilities can be planned to accommodate the travel needs of area residents and employees. This type of facility offers a wider range of services than a Park-and-Ride facility. Such centers offer "pulse point" bus services to the rail lines, parking, drop-off points, taxi stand, and commuter related commercial space. It is also possible that excursion buses connecting these communities with rail service to major events and destinations could be marketed in conjunction with these centers.

Directional Signing

Consistent with the bus stop signage, signage indicating the direction to rail facilities and off-route bus stops should be visible within the right-of-way.

Transportation Management Association

It is recommended that the existing transportation management associations in the region be supported and new groups be developed as needed, transit needs do not always follow simple directional routes nor is their extent limited to village or county jurisdictional boundaries. The Illinois Corridor Transportation Management Association (ICTMA) serves the southern end of the route as far north as Illinois Route 64 (North Avenue). Members of ICTMA represent local governments and major employers along the Interstate 88 corridor in Kane and DuPage counties. Their recent survey (ICTMA, *Eisenhower/I-88 Corridor Study*, administered 11/90, published 5/91) showed a strong demand for suburb-to-suburb commuter facilities in addition to the Chicago to suburb facilities already in use. For instance, respondents mentioned a desire for express bus service linking St. Charles with such employment centers as Naperville and Oak Brook.

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. 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 and to avail themselves of the review service.

2.8 SUMMARY OF ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31 CONSTRUCTION COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 2.5*. Cost estimates are shown in 1991 dollars.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 2: Route Overview

Table 2.5 Construction Cost Estimates for Orchard Road/Randall Road/Illinois Route 31	
Improvement	Estimated Cost
Ultimate	
Roadway (includes West McHenry and Richmond Bypasses)	\$217,400,000
Intersection Improvements	\$26,600,000
Traffic Signals	\$5,700,000
Signal Interconnection	\$4,900,000
Structures	\$4,800,000
Interchange Improvements	\$7,500,000
Transit Improvements (includes land acquisition)	\$11,000,000
Right-of-way Acquisition	\$13,200,000
Total Estimated Cost for Ultimate Improvements	\$291,100,000
Low-Cost	
Intersection Improvements	\$5,700,000
Traffic Signals	\$300,000
Signal Interconnection	\$900,000
Transit Improvements	\$190,000
Right-of-way Acquisition	\$100,000
Total Estimated Cost for Low-Cost Improvements	\$7,190,000
Post-2010	
Orchard Road Extension/Randall Road Realignment	\$1,800,000
Total Estimated Cost for Post-2010 Improvements	\$1,800,000
Total Estimated Cost for All Improvements	\$300,090,000

SECTION THREE
ROUTE ANALYSIS

3.1 SRA SEGMENT 1: ORCHARD ROAD FROM U.S. ROUTE 30 TO OAK STREET ROAD

3.1.1 LOCATION

Segment 1 of the route is located on Orchard Road from U.S. Route 30 to Oak Street Road. (See Figure 3.1.) This segment is 5.9 miles long.

3.1.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 1 are shown on Route Maps A-1 and A-2.

Traffic Volumes

According to 1991 Kane County traffic counts, the Average Annual Daily Traffic (AADT) is 14,000 vehicles on Orchard Road south of Galena Road.

Right-of-Way

Between New Indian Trail and Interstate 88 (East-West Tollway) the existing right-of-way varies from 100 to 170 feet wide. From Interstate 88 to Oak Street Road the right-of-way is 140 feet wide.

Pavement Width and Number of Lanes

The existing pavement width in this segment is 26 feet wide and provides two through lanes (one in each direction). There is an unpaved shoulder on each side of the roadway.

Traffic Signals

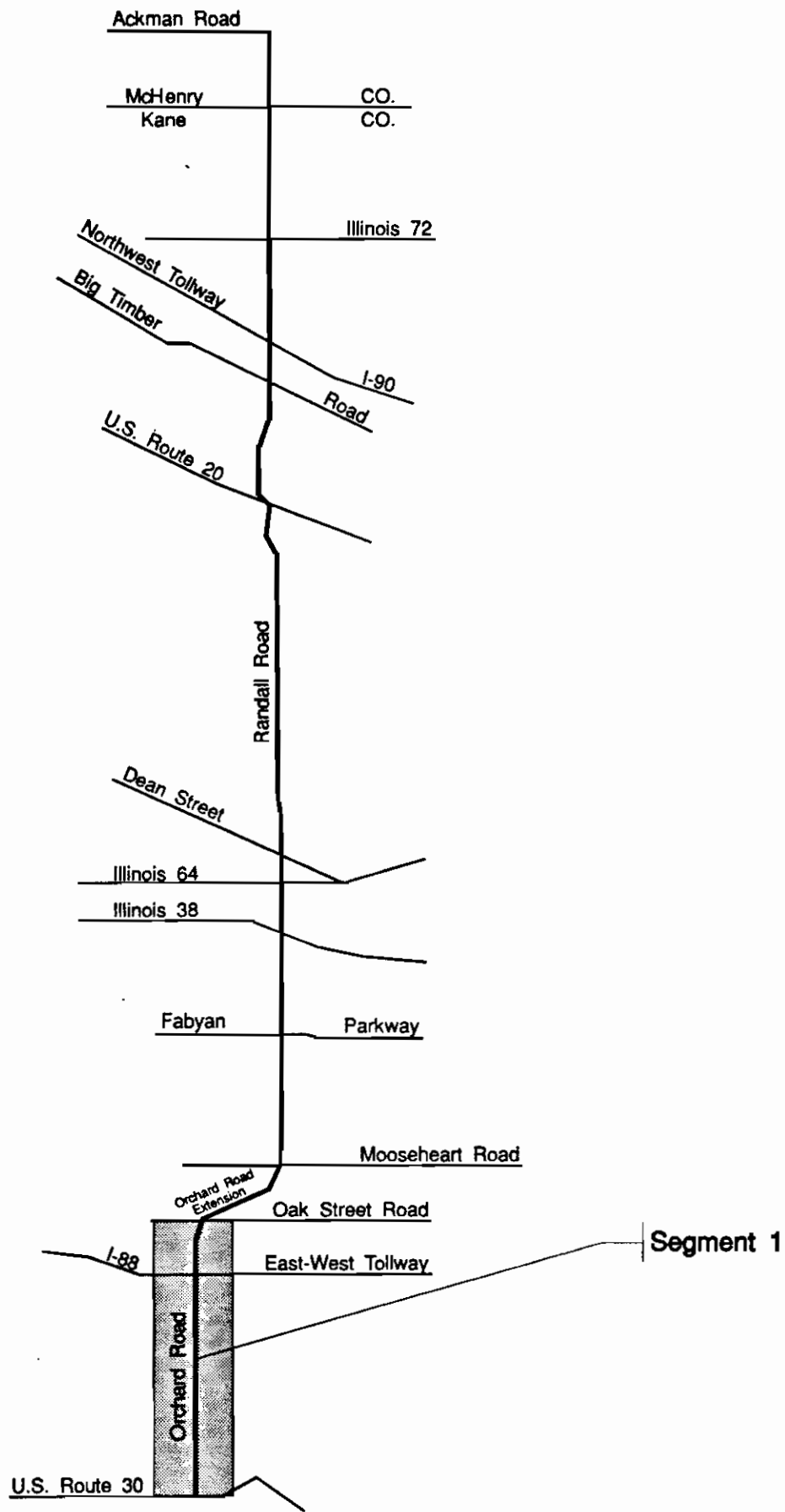
There are four existing traffic signals in Segment 1. They are listed from south to north on Table 3.1. In addition, there are stop signs on Orchard Road at Jericho Road.

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces, sidewalks, or frontage roads on this segment.

Structures

There is one structure on this segment, as shown in Table 3.2.



Orchard Road

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.1

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road from U.S. Route 30 to Oak Street Road

Table 3.1 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
U.S. Route 30	2	2	YES	WB	RTL for WB U.S. 30
Prairie Street	1	1	YES	NO	
Galena Boulevard	1	1	YES	NO	
Sullivan Road	1	1	YES	NO	
Note: NB = northbound; SB = southbound					

Table 3.2 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance Vert. Horiz.		Remarks
Interstate 88	045-3121	Orchard Road	N/A	44'	SRA over
Note: N/A=Information is not applicable					

Transit

Services are provided near and across the route segment. The dominant service pattern is east-west connecting Aurora and its environs with the City of Chicago and with shopping and schools.

Metra commuter rail service on the Burlington Northern line terminates at the City of Aurora Transportation Center, located east of the Fox River on the east side of downtown Aurora. The Center incorporates the restored rail station with its commuter convenience shopping and commuter parking. All buses meet or "pulse" there to provide timed transfer opportunities among the routes.

Pace #531 crosses the segment at Galena Boulevard. Pace #524, #526, and #532 near the segment ending about one-third of a mile east on Jericho Road at Edgelawn, at the West Aurora Shopping Center, and at the Math & Science Academy on Sullivan Road respectively. All these routes provide service to the Aurora Transportation Center as well.

Other Characteristics

There is an at-grade rail crossing of the Burlington Northern Railroad just south of Prairie Street and an at-grade crossing of a Burlington Northern Railroad spur south of Jericho Road.

3.1.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for this segment include wetlands, floodplains, prime farmland and sensitive land uses as shown on Route Maps B-1 and B-2.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road from U.S. Route 30 to Oak Street Road

Streams/Wetlands/Floodplains

This segment of Orchard Road crosses the Blackberry Creek floodplain south of Interstate 88. The crossing is 300 feet wide and there is a wetland associated with this floodplain.

In addition to this floodplain crossing, there are several wetland areas which may infringe upon the right-of-way of the route. These areas are between Aucutt Road and Jericho Road, Illinois Avenue and New Indian Trail, and Interstate 88 and Oak Street Road.

Prime Farmland

On the east side of the route, prime farmland extends from:

- Aucutt Road to 1/2 mile south of Jericho Road,
- 1/2 mile north of Prairie Street to Galena Boulevard, and
- New Indian Trail to Oak Street Road.

On the west side of Orchard Road, undeveloped land is classified as prime farmland along the entire length of the segment.

Sensitive Land Uses

Noise sensitive land uses on this segment include the Zion Baptist Church at the northwest corner of the intersection with Jericho Road and the Countryside Health Care Center at the southeast corner of the intersection with Galena Boulevard.

A public recreation use in this segment is the Virgil L. Gilman Nature Trail which crosses Orchard Road at Prairie Street.

Additionally, there is a public utility just south of Interstate 88 on the west side of the route.

3.1.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Maps C-1 and C-2.

Jurisdiction

The Village of Montgomery and the City of Aurora are the principal local jurisdictions exercising control over development on this segment of Orchard Road. The jurisdiction of Montgomery extends from U.S. Route 30 to Aucutt Road on the east side of the route. Aurora's jurisdiction lies between the Burlington Northern Railroad and Interstate 88. However, not all of this land is within the Aurora city limits. The jurisdiction of North Aurora extends from Interstate 88 to Mooseheart Road which includes the right-of-way for the proposed Orchard Road Extension.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road from U.S. Route 30 to Oak Street Road

Type and Intensity of Development

Agriculture is the predominant land use on this segment. Farmhouses are located in association with this agricultural land. There are, however, areas where more intense development has occurred. In Montgomery, the predominant land use is single-family residential. Additionally, there are multi-family residences as well as industrial establishments on the east side of the route between Aucutt Road and Jericho Road. Between Jericho Road and New Indian Trail there is substantial single-family residential development within subdivisions. Finally, industrial, warehousing, and office facilities are beginning to be developed at the interchange with Interstate 88, e.g. the new Toyota regional distribution facility.

Development Access and Setback

Most of the residential development does not front Orchard Road. These residences are set back significantly from the route. Industrial structures are set back significantly as well.

Development access to Orchard Road on this segment is limited. Direct access to developments, residential and industrial, is obtained through intersecting access roads and cross streets.

Future Development

Along the entire segment, there is a substantial amount of land used for agriculture. With rapid suburban growth occurring, it is foreseeable that more intense development will occur in these agricultural areas. Future plans to develop parcels of land on this segment include two planned unit developments just south of Interstate 88. One development will be located on the west side of the route from Galena Boulevard to Sullivan Road and on the east side of the route from Indian Trail Road to Sullivan Road. Uses within this development are planned to include residential, office and research, and commercial. Direct access from Orchard Road is planned to be controlled. The other project is located at the southwest corner of Orchard Road and Galena Boulevard and is planned to consist of 190 residential units as well as supporting commercial establishments.

3.1.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Orchard Road 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 roadway, intersection, 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 Maps D-1 and D-2.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road from U.S. Route 30 to Oak Street Road

Ultimate Improvements

Roadway

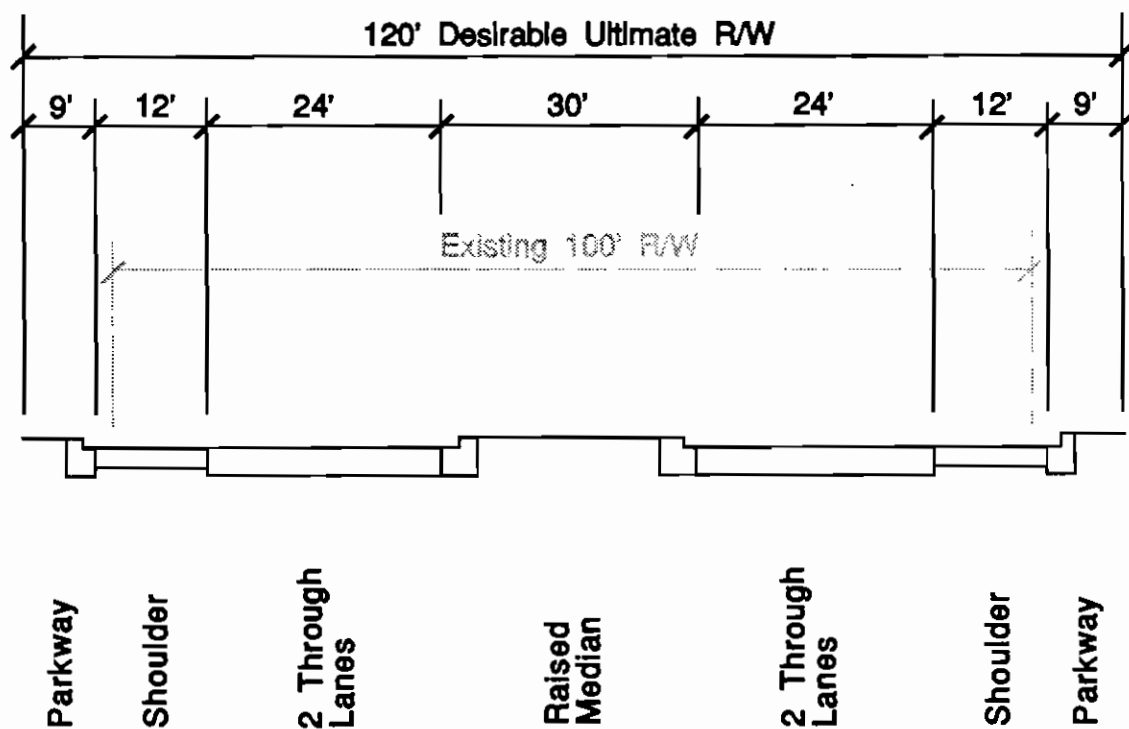
Between U.S. Route 30 and New Indian Trail the recommended roadway configuration provides two through lanes in each direction with a continuous 30-foot wide raised median. Twelve foot wide shoulders are recommended on each side of the roadway. (See Figures 3.2 and 3.3.) This 30-foot wide median will allow for the development of dual left-turn lanes where required. Between New Indian Trail and Oak Street Road, the recommended roadway configuration provides three through lanes in each direction with a continuous 30-foot wide raised median. (See Figures 3.4, 3.5 and 3.6.)

Results of the capacity analysis for this segment are shown in Table 3.3.

Table 3.3 Capacity Analysis for Segment 1 - Orchard Road					
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
U.S. Route 30 to Galena Boulevard	< 30,000	4 *	30,000 32,000	C D	Yes
		6	45,000	C	Yes
Galena Boulevard to Oak Street Rd	< 30,000	4 **	30,000 33,000	C D	Yes
		6 **	46,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment. ** - Transition from four to six through lanes at New Indian Trail					

Intersections

Major intersection improvements are recommended at the intersections of Orchard Road with U.S. Route 30 and New Indian Trail. At U.S. Route 30, separate right-turn lanes and dual left-turn lanes are recommended on all legs of the intersection. (See Detail 1) At New Indian Trail, a separate right-turn lane and dual left-turn lanes are recommended on southbound Orchard Road. (See Detail 2) Consideration should also be given to providing dual left-turn lanes on Orchard Road at Galena Road to accommodate potentially heavy turning volumes. The 30-foot wide median will allow development of either single or dual

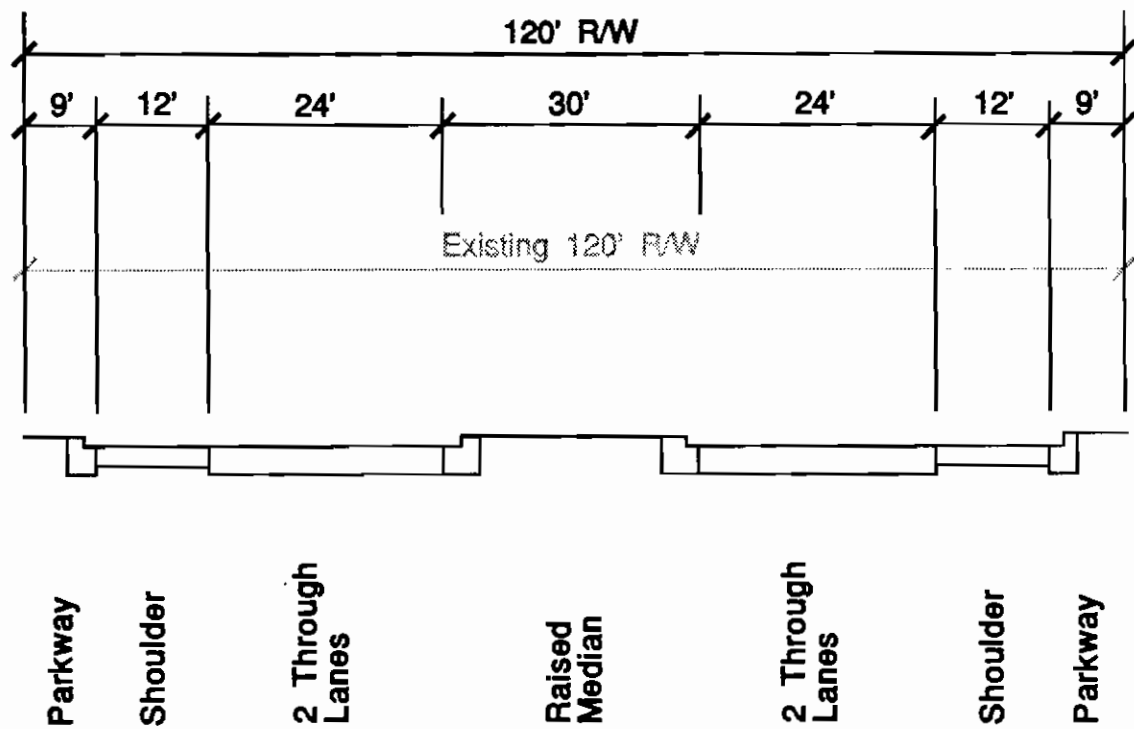


Orchard Road

**Section A-A
Recommended Roadway Typical Section
U.S. Route 30 to Jericho Road**

prepared by Harland Bartholomew & Associates, Inc.

Figure 3.2

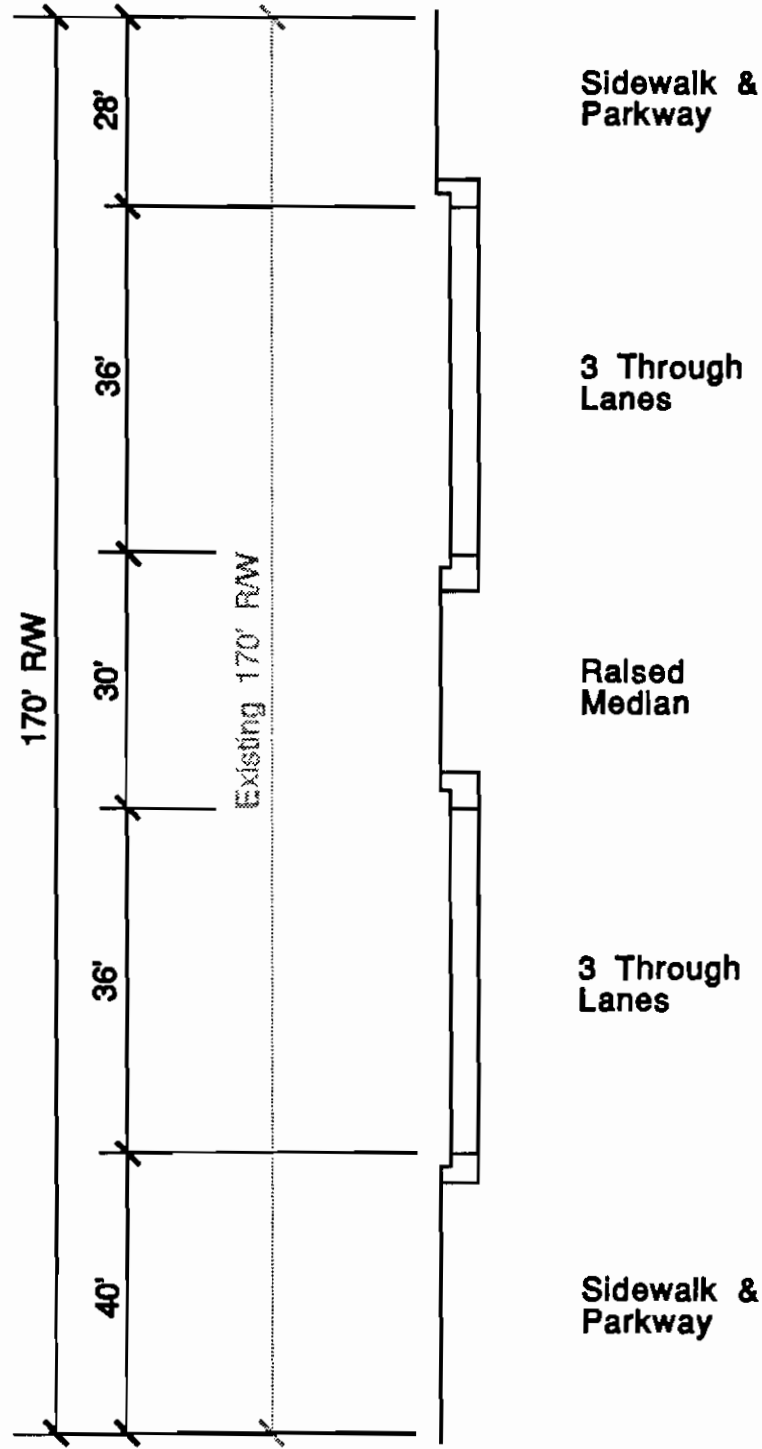


Orchard Road

**Section B-B
Recommended Roadway Typical Section
Jericho Road to New Indian Trail**

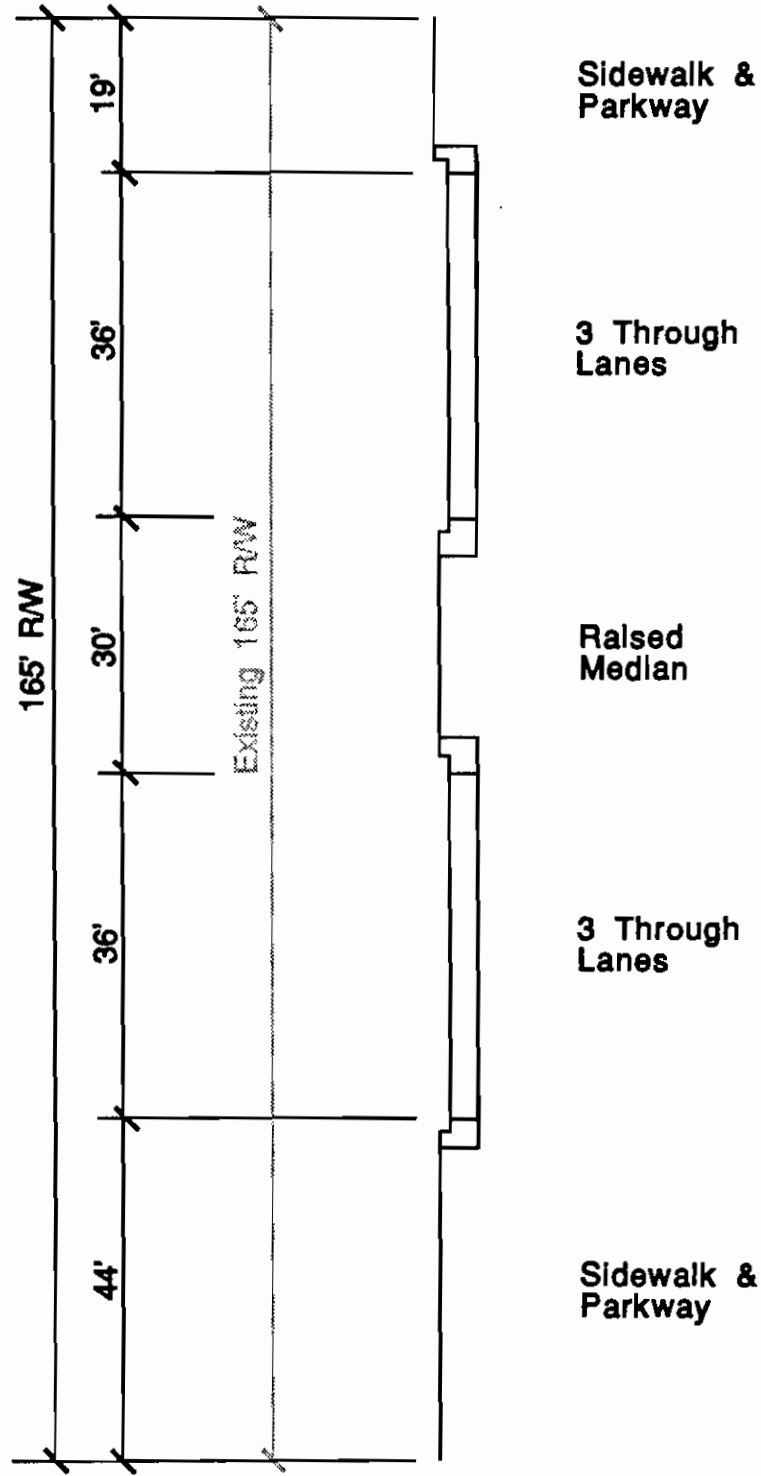
prepared by Harland Bartholomew & Associates, Inc.

Figure 3.3



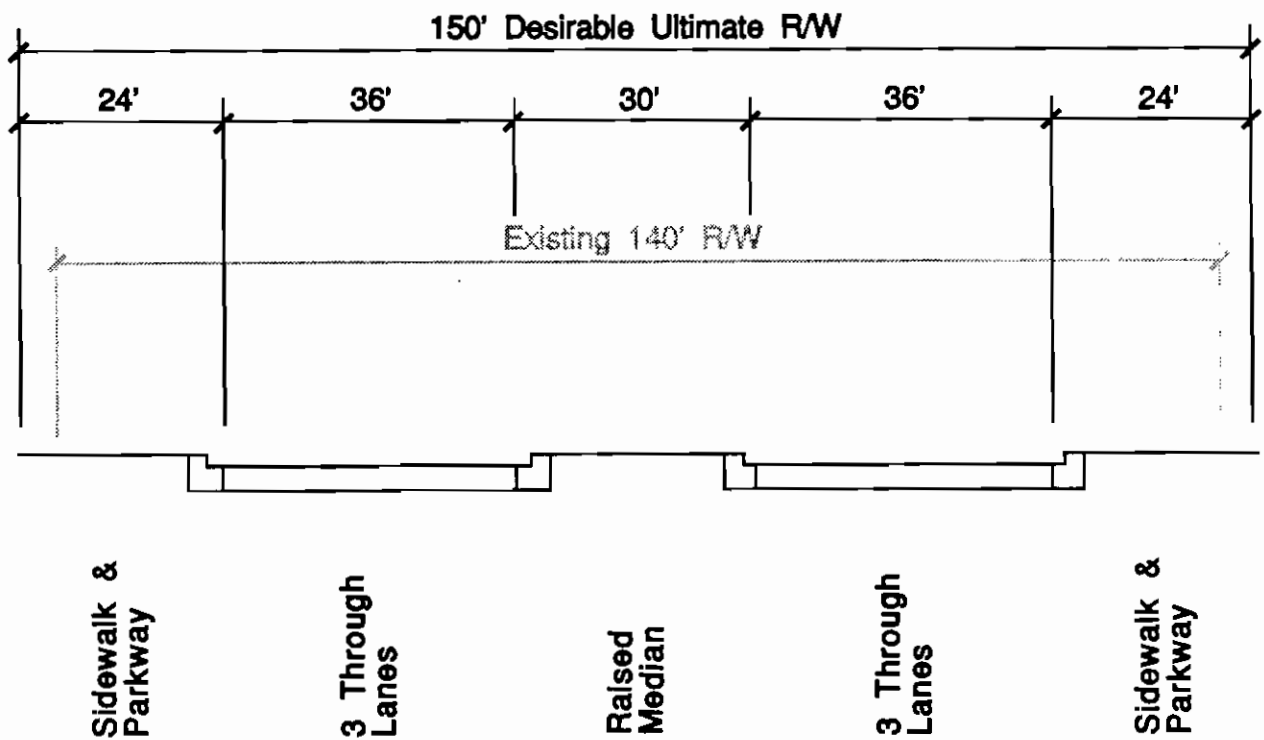
Orchard Road
 prepared by Harland Bartholomew & Associates, Inc.

Section C-C
Recommended Roadway Typical Section
New Indian Trail to Sullivan Road
Figure 3.4



Orchard Road
 prepared by Harland Bartholomew & Associates, Inc.

Section D-D
Recommended Roadway Typical Section
Sullivan Road to Interstate 88 (East-West Tollway)
Figure 3.5



Section E-E

Recommended Roadway Typical Section

Orchard Road Interstate 88 (East-West Tollway) to Oak Street Road

prepared by Harland Bartholomew & Associates, Inc. Figure 3.6

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road from U.S. Route 30 to Oak Street Road

left-turn lanes at other intersections. Separate right-turn lanes are also recommended at all signalized intersections.

Because U.S. Route 30 is also an SRA route, the level of service was calculated for each intersection movement and for the total intersection. For U.S. Route 30 the AADT used was 25,000 vehicles for Orchard Road the AADT used was 30,000 vehicles. The resulting levels of service are shown in *Table 3.4*.

Table 3.4 Orchard Road/U.S. Route 30 Intersection Level of Service		
Direction	Movement	Level of Service
Orchard Road northbound	left turn	D
Orchard Road northbound	through	C
Orchard Road northbound	right turn	B
Orchard Road southbound	left turn	D
Orchard Road southbound	through	B
Orchard Road southbound	right turn	A
U.S. Route 30 eastbound	left turn	D
U.S. Route 30 eastbound	through	C
U.S. Route 30 eastbound	right turn	B
U.S. Route 30 westbound	left turn	D
U.S. Route 30 westbound	through	B
U.S. Route 30 westbound	right turn	B
Total Intersection		C

Traffic Signalization

Locations are recommended for potential future signals, maintaining a typical spacing of approximately one-half mile between signals. The recommended future locations are Countryside Avenue; Aucutt Road; Jericho Road; Surrey Lane; Illinois Avenue; New Indian Trail; the Interstate 88 (East-West Tollway) ramps; and Oak Street Road. Existing signal locations at U.S. Route 30; Prairie Street; Galena Boulevard; and Sullivan Road would be retained. 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 SRAs 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 in coordinated systems is recommended. Ultimately two systems should be utilized for all signals in this segment. The first should connect all the signals

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road from U.S. Route 30 to Oak Street Road

between U.S. Route 30 and Aucutt Road and the second system should include all of the signals between Jericho Road and Oak Street Road.

Structures

The existing structure carrying Orchard Road over Interstate 88 has inadequate horizontal clearance to accommodate the recommended roadway cross-section. This structure should be modified to provide for the recommended six lane cross-section on Orchard Road shown in Detail 3.

A grade separation is recommended on Orchard Road at the intersection with the Burlington Northern Railroad. In order to implement this improvement, Prairie Street access to Orchard Road may have to be relocated. By providing additional structural clearance at this railroad grade separation, the Virgil L. Gilman Nature Trail crossing at Orchard Road could also be grade separated.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

Consideration should be given to development of Park-and-Ride facilities in conjunction with future express bus service along the SRA route. Potential locations for such facilities would be at U.S. Route 30, Galena Boulevard, and in the vicinity of Sullivan Road, where the proximity to Interstate 88 could allow coordination with express bus service to other regional destinations.

In the event passenger service on the Burlington Northern Railroad is extended across Orchard Road, right-of-way should be protected at the intersection of the two facilities for a potential future transit station. In the interim this right-of-way could serve as a Park-and-Ride for buses or car pools and van pools.

Other Improvements

The existing ramps at Interstate 88 only provide access from Orchard Road to eastbound Interstate 88 and from westbound Interstate 88 to Orchard Road. Modification of the interchange is recommended to provide full directional access. Due to the location of wetland areas to the west of Orchard Road and the proximity of the Deerpath Road overpass on Interstate 88, consideration of a partial cloverleaf interchange is recommended with loop ramps inside the existing direct ramps east of Orchard Road. (See Detail 3)

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road from U.S. Route 30 to Oak Street Road

Low-Cost Improvements

Intersections

Left-turn lanes are recommended at Countryside Avenue, Aucutt Road, Jericho Road, Surrey Lane and New Indian Trail. At the eastbound ramp to Interstate 88, construction of a right-turn lane from northbound Orchard Road is recommended. When a mid-mile collector is developed south of Oak Street Road, left turn lanes should also be constructed on Orchard Road at this intersection.

Traffic Signalization

The stop signs controlling the Orchard Road/Jericho Road intersection should be analyzed in accordance with SRA standards to determine whether traffic signals are warranted. Traffic signals should be installed at the remaining recommended locations when the signal warrants recommended for SRA routes are met.

Access Management

As parcels are developed or redeveloped, it is recommended that access to Orchard Road be limited to the locations shown on Route Maps D-1 and D-2. These locations are typically spaced approximately one-quarter mile apart and are consistent with the access agreement between Kane County and the City of Aurora.

Transit

Directional signage is recommended on this segment of Orchard Road for Metra Service on the Burlington Northern line at the Aurora station. This signage should be located at major intersections such as Jericho Road, Prairie Street and Galena Boulevard indicating distance and direction to the station.

3.1.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The desirable right-of-way width for this segment is 120 feet from U.S. Route 30 to Sullivan Road and 150 feet from Sullivan Road to Oak Street Road. To achieve this width an additional 20 feet of right-of-way is needed from U.S. Route 30 to Jericho Road and an additional 10 feet is needed from Interstate 88 (East-West Tollway) to Oak Street Road. The existing right-of-way between Jericho Road and Interstate 88 (East-West Tollway) is adequate to accommodate potential post-2010 improvements.

3.1.7 POTENTIAL ENVIRONMENTAL CONCERNS

Expansion of the roadway facilities into the prime farmland, floodplains and wetlands which abut the route will require further study during the design phases. The Countryside Health Care Center is set well back from the right-of-way, so is not expected to be impacted by roadway improvements, but may require further study.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road from U.S. Route 30 to Oak Street Road

3.18 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 1 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.5*.

Table 3.5	
Construction Cost Estimates for Segment 1 - Orchard Road	
Improvement	Estimated Cost
Ultimate	
Roadway	\$25,300,000
Intersection Improvements	\$4,100,000
Traffic Signals	\$900,000
Signal Interconnection	\$900,000
Structures	\$2,600,000
Interchange Improvements (loop ramps at Interstate 88)	\$3,000,000
Transit Improvements (includes land acquisition)	\$1,600,000
Right-of-way Acquisition	\$300,000
Total Estimated Cost for Ultimate Improvements	\$38,700,000
Low-Cost	
Intersection Improvements	\$800,000
Traffic Signals	\$100,000
Transit Improvements	\$20,000
Total Estimated Cost for Low-Cost Improvements	\$920,000
Total Estimated Cost for All Improvements	\$39,620,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road Extension from Oak Street Road to Randall Road

3.2 SRA SEGMENT 2: ORCHARD ROAD EXTENSION FROM OAK STREET ROAD TO RANDALL ROAD

3.2.1 LOCATION

This segment consists of the Orchard Road Extension, which is to be constructed on a new alignment between Orchard Road and Randall Road. (See Figure 3.7.) The length of this segment is approximately 1.5 miles.

3.2.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 2 are shown on Route Map A-2A.

Right-of-Way

The existing right-of-way from Oak Street Road to Randall Road is 140 feet wide. (Right-of-way plans)

Pavement Width and Number of Lanes

The existing pavement width in this segment is 48 feet wide and provides for two through lanes in each direction. (Preliminary Design)

Traffic Signals

There are no traffic signals in this segment.

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces, sidewalks, or frontage roads in this segment.

Structures

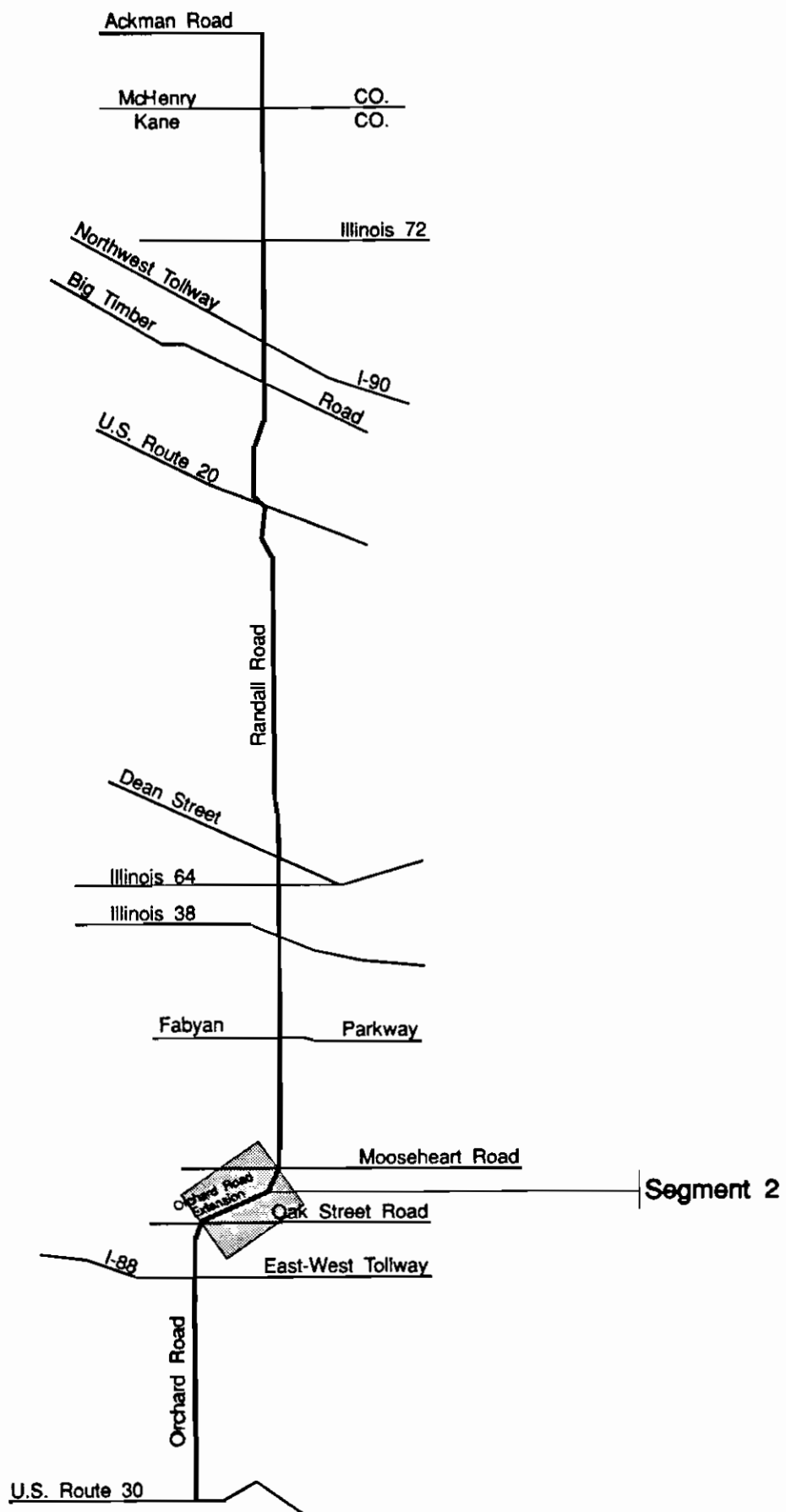
There are no structures in this segment.

Transit

Transit service is provided at the Aurora Metra station four and one-half miles southeast of the segment.

3.2.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for this segment include prime farmland and a sensitive land use as shown on Route Map B-2A.



Orchard Road Extension

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.7

Prime Farmland

The entire Orchard Road Extension alignment runs through prime farmland.

Sensitive Land Uses

The Seventh Day Adventist Church is located on the southeast corner of the Orchard Road Extension/Randall Road intersection.

3.2.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Map C-2A.

Jurisdiction

The Orchard Road Extension is located in North Aurora.

Type and Intensity of Development

This segment is primarily undeveloped with most of the land being used for agriculture. There are also several single-family residences in the area as well as the Seventh Day Adventist Church, located on the southeast corner of the Orchard Road Extension/Randall Road intersection.

Development Access and Setback

Development on this segment is mainly accessed from Deerpath Road and Mooseheart Road.

Future Development

According to municipal records as of August, 1990, there are no plans for development in the vicinity of the Orchard Road Extension.

3.2.5 RECOMMENDED IMPROVEMENTS

Improvements Orchard Road Extension have been recommended after evaluating the projected travel demand for the year 2010 along with the planned roadway characteristics. 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 in this section. Recommended improvements are shown on Route Map D-2A.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road Extension from Oak Street Road to Randall Road

Ultimate Improvements

Roadway

The recommended roadway configuration for this segment of Randall Road provides three through lanes in each direction with a continuous 30-foot wide raised median. (See Figure 3.8.) This median will allow for the development of dual left-turn lanes where required.

Results of the capacity analysis for this segment are shown in Table 3.6.

Table 3.6 Capacity Analysis for Segment 3 - Orchard Road Extension					
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
Oak Street Road to Randall Road	< 30,000	4	31,000 33,000	C D	Yes
		6 *	47,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment.					

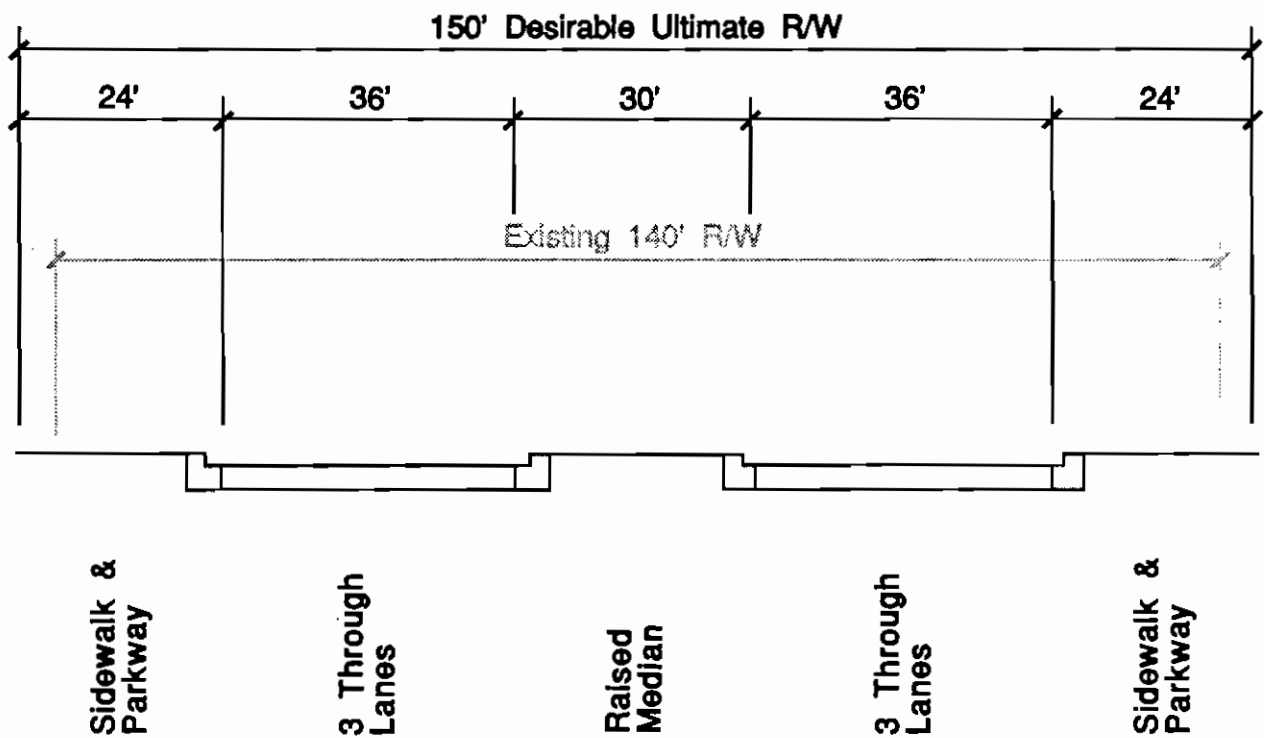
Intersections

Dual left-turn lanes and separate right-turn lanes are recommended on all legs of the intersection of Randall Road with the Orchard Road Extension. As a post-2010 improvement, consideration should be given to providing a direct alignment between Randall Road and the Orchard Road Extension as shown on Route Maps D-2 and D-2A. This realignment would give preference to through traffic on the SRA route.

In addition to the intersections with Oak Street Road and Randall Road, it is likely that three other intersecting roads will be developed along this segment. The 30-foot wide median will allow development of either single or dual left-turn lanes as necessary at these intersections. Separate right-turn lanes are also recommended at all signalized intersections.

Traffic Signalization

Recommended locations for future signals are at the mid-mile collectors and at Randall Road. 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 SRAs are discussed in Section 10.4.2 of the Strategic Regional Arterial Design



Section F-F

Recommended Roadway Typical Section

Orchard Road Extension **Oak Street Road to Randall Road**

prepared by Harland Bartholomew & Associates, Inc. **Figure 3.8**

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Orchard Road Extension from Oak Street Road to Randall Road

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 in coordinated systems is recommended. Ultimately one system should be utilized to interconnect all of the potential future signals from Oak Street Road to Randall Road.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

Consideration should be given to development of a Park-and-Ride facility in conjunction with future express bus service, car pools and van pools along the SRA route. A potential location for such a facility would be at the intersection of the Orchard Road Extension and Randall Road where the proximity to Interstate 88 (East-West Tollway) would allow coordination with express bus service to other regional destinations.

Low-Cost Improvements

Intersections

When mid-mile collectors are developed along the Orchard Road Extension, left turn lanes should be constructed along the Extension at these intersections.

Traffic Signalization

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

Access Management

As parcels on this segment are developed, it is recommended that future access be limited to the locations shown on Route Map D-2A.

Transit

Directional signage is recommended on this segment for the Aurora Metra Rail station four and one-half miles southeast of the Orchard Road Extension. The signage should be located at the Orchard Road Extension/Randall Road intersection.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31

SECTION 3: Route Analysis - Orchard Road Extension from Oak Street Road to Randall Road

3.2.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

Ten feet of additional right-of-way is required between Oak Street Road and Randall Road to achieve the recommended 150-foot desirable ultimate width.

Additional right-of-way should be preserved at the Randall Road intersection for providing a continuous through movement connection between Randall Road and the Orchard Road Extension.

3.2.7 POTENTIAL ENVIRONMENTAL CONCERNS

Construction and expansion of the roadway facilities into prime farmland which is located along the alignment will require further study during the design phase. The Seventh Day Adventist Church is set back significantly from the right-of-way and is not expected to be impacted by facility improvement, but may require further study.

3.2.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 2 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.7*.

Table 3.7	
Construction Cost Estimates for Segment 2 - Orchard Road Extension	
Improvement	Estimated Cost
Ultimate	
Roadway (widen existing four lanes to six lanes)	\$5,600,000
Intersection Improvements	\$1,300,000
Traffic Signals	\$400,000
Signal Interconnection	\$300,000
Transit Improvements (includes land acquisition)	\$600,000
Right-of-way Acquisition	\$300,000
Total Estimated Cost for Ultimate Improvements	\$8,500,000
Low-Cost	
Intersection Improvements	\$600,000
Transit Improvements	\$20,000
Total Estimated Cost for Low-Cost Improvements	\$620,000
Post-2010	
Orchard Road Extension/Randall Road Realignment	\$1,800,000
Total Estimated Cost for Post-2010 Improvements	\$1,800,000
Total Estimated Cost for All Improvements	\$10,920,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

3.3 SRA SEGMENT 3: RANDALL ROAD FROM ORCHARD ROAD EXTENSION TO ILLINOIS ROUTE 38

3.3.1 LOCATION

Segment 3 of the SRA route is composed of Randall Road from the Orchard Road Extension to Illinois Route 38. (See Figure 3.9.) This segment is 8.5 miles long.

3.3.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 3 are shown on Route Maps A-2, A-3 and A-4.

Traffic Volumes

According to 1991 Kane County traffic counts, the Average Annual Daily Traffic (AADT) on this segment is 22,000 vehicles.

Right-of-Way

The right-of-way width in this segment is 140 feet.

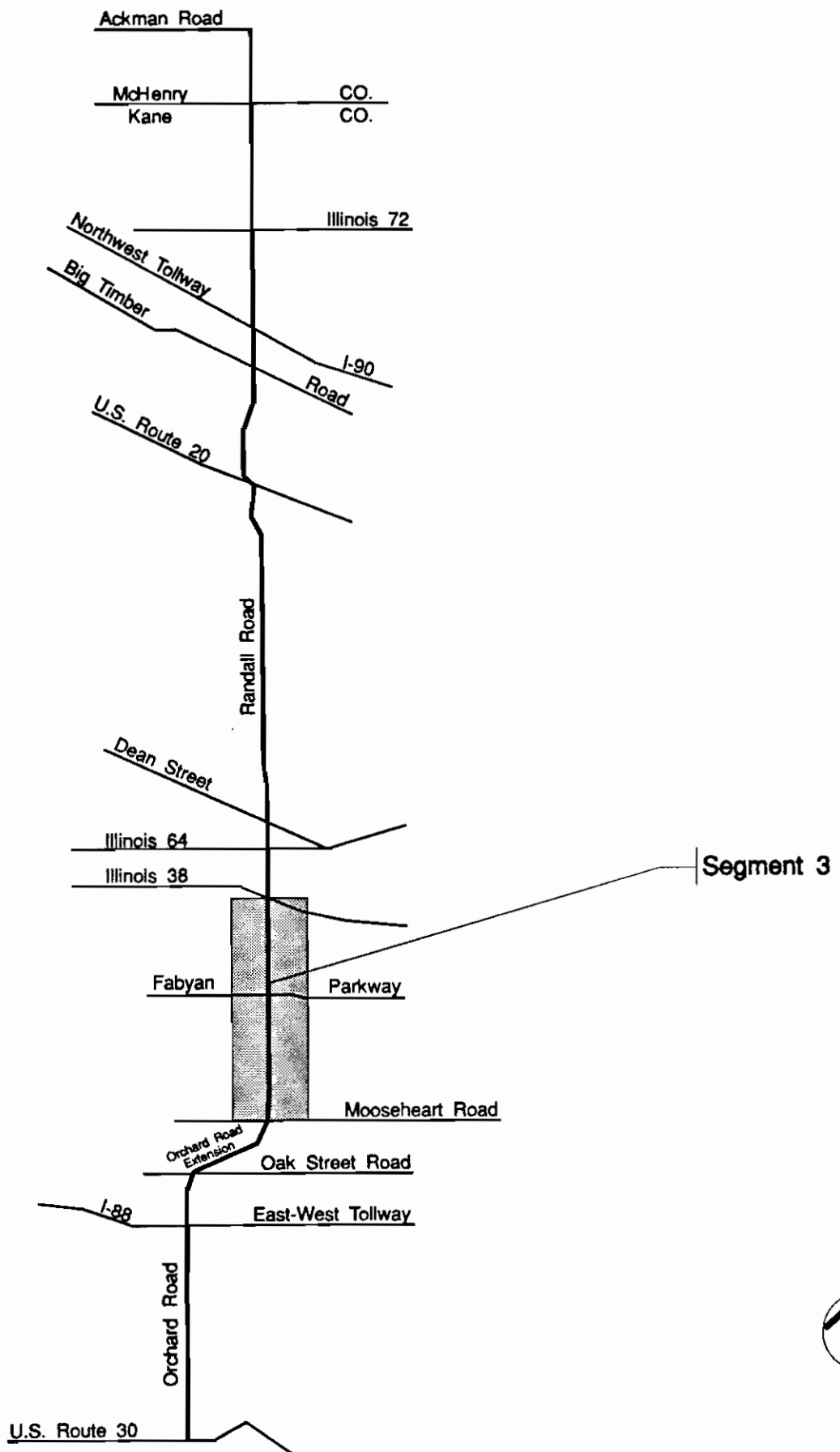
Pavement Width and Number of Lanes

The pavement in this segment ranges from 52 to 60 feet wide and provides four through lanes (two in each direction). From the Orchard Road Extension to Fabyan Parkway the pavement is 56 feet wide; and from Fabyan Parkway to Bricher Road the pavement is 52 feet wide. From Bricher Road to Illinois Route 38 (State Street) the pavement is 60 feet wide. There is an 8-foot wide bituminous shoulder on each side of the roadway.

Traffic Signals

There are five existing traffic signals in this segment, as shown in Table 3.8.

Table 3.8 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Main Street	2	2	YES	NO	
Wilson Street	2	2	YES	NO	
Fabyan Parkway	2	2	YES	NB	Southbound Dual Lefts
Keslinger/Kaneville Rd	2	2	YES	SB	
Illinois 38	2	2	YES	NO	Dual Lefts (IDOT Phase I)
Note: NB = northbound; SB = southbound					



Randall Road

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.9

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces, sidewalks, or frontage roads.

Structures

There are three existing bridge structures in Segment 3 as shown in *Table 3.9*.

Table 3.9					
Existing Structures					
Structure	Structure No. (SN)	Location	Clearance		Remarks
			Vert.	Horiz.	
Mill Creek	045-3029	N. of Mooseheart	N/A	68'	SRA over
Trib of Mill Creek	045-5009	S. of Main Street	N/A	68'	SRA over
C&NW RR	045-3028	S. of Keslinger	N/A	UA	SRA over
Note: N/A=Not Applicable; UA=Data Unavailable					

Transit

Metra commuter rail service on the Chicago & NorthWestern West line terminates at the Geneva station about one and one half miles east of the route. This station has also been restored and offers some limited convenience commercial and parking.

PACE provides Park-and-Ride service from the First Baptist Church of Geneva on South Street to the Geneva Metra station one mile to the east.

3.3.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for the Segment 3 include wetlands, floodplains, a significant nature area, prime farmland and sensitive land uses as shown on Route Maps B-2, B-3 and B-4.

Streams/Wetlands/Floodplains

On this segment of Randall Road, there are four floodplain crossings:

- Two crossings of Mill Creek south of Main Street where the floodplains are 400 feet wide and 800 feet wide,
- McKee Road Tributary to Mill Creek south of Fabyan Parkway where the floodplain is 300 feet wide, and
- McKee Road Tributary to Mill Creek south of Kaneville Road where the floodplain is 600 feet wide.

There are wetlands associated with these floodplains.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

Flora/Fauna

There is one significant nature area on this segment of the route. The Mooseheart Ravine is located south of Batavia on the Mooseheart Farm. (See Route Map B-2.) There is dry mesic upland forest and shadbrush within this ravine. These elements are considered to be significant and unique natural resources.

Prime Farmland

There is prime farmland on both sides of the route from the Orchard Road Extension to one-half mile south of Keslinger Road. Prime farmland continues on the west side of the route from Keslinger Road to Illinois Route 38 (State Street) and on the east side from Williamsburg Lane to Bricher Road.

Sensitive Land Uses

A noise sensitive land use on this segment is the Delnor Community Hospital at the northwest corner of the intersection with Keslinger Road.

The Geneva Water Works is at the southeast corner of the intersection with Keslinger Road.

3.3.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Maps C-2, C-3 and C-4.

Jurisdiction

This segment passes through the incorporated boundaries of four communities. The Village of North Aurora and the Cities of Batavia, Geneva, and St. Charles are the local jurisdictions exercising control over development on this segment of Randall Road. The jurisdiction of North Aurora ends at the southwest corner of Mooseheart Road. Batavia is on the east side of the route between Main Street and Fabyan Parkway and on the west side of the route between Main Street and McKee Street. The city limits of Geneva extend from Fabyan Parkway to 350 feet south of Bricher Road on the west side of the route and from 1300 feet north of Fabyan Parkway to Williamsburg Avenue on the east side of the route. Finally, St. Charles lies between Bricher Road and Illinois Route 38.

Type and Intensity of Development

Development on this segment is primarily located within the incorporated limits of Batavia, Geneva and St. Charles. Through Batavia from Main Street to McKee Street, the predominant land use is commercial flanked on the east by residential development. In the Geneva area, the predominant land use south of South Street is industrial, although an office development is located on the southeast corner of Randall Road and Kaneville Road. Delnor Community Hospital is north of Keslinger Road on the west side of the route while on the

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

east side there is a residential subdivision. On the north end of this segment, in St. Charles, there is single-family residential development on the east side of the route. In addition to development in these communities, there is scattered residential development.

Development Access and Setback

In Batavia and Geneva, structures are set back a substantial distance from the route. Access to these developments from Randall Road is limited. In the St. Charles area, however the residential development found north of Bricher Road is not set back a great distance and driveways provide access to the residences in the area.

Future Development

Since much of the undeveloped land is used for agriculture and this is considered to be a rapidly growing area, it is likely that significant future development will occur on this segment. Commercial development is planned on the west side of the route from Wilson Street to just south of Fabyan Parkway and on the east side of the route from McKee Street to Fabyan Parkway. Mixed office and commercial developments are planned in Geneva on the west side of the route from 1/2 mile north of Fabyan Parkway to 1/2 mile south of Kaneville Road and on the east side of the route from Fabyan Parkway to Kaneville Road. Extensive residential development is planned behind the proposed office and commercial areas abutting the roadway.

3.3.5 RECOMMENDED IMPROVEMENTS

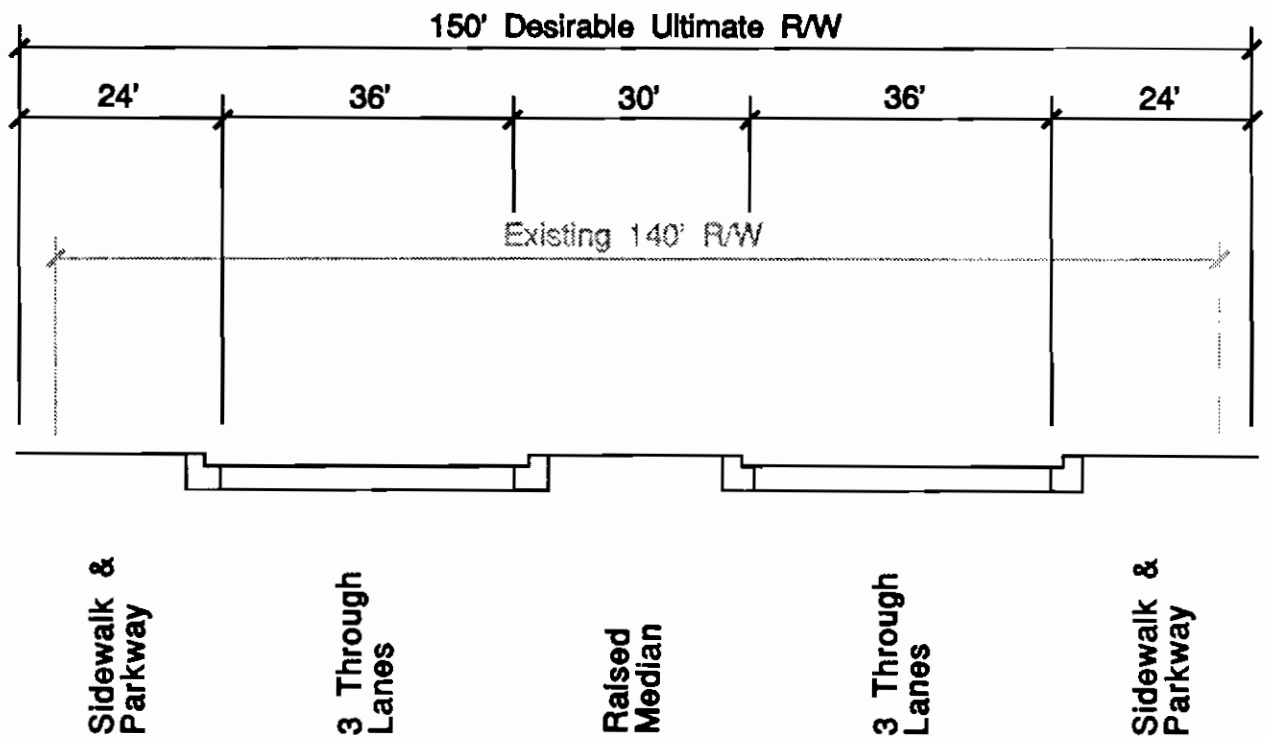
Improvements for this segment of Randall Road have been recommended after evaluating the projected travel demand for the year 2010 along with the existing roadway characteristics and character of development along the route. Improvements are categorized by ultimate, low-cost and post-2010, and divided 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 in this section. Recommended improvements are shown on Route Maps D-2, D-3 and D-4.

Ultimate Improvements

Roadway

The recommended roadway configuration for this segment of Randall Road provides three through lanes in each direction with a continuous 30-foot wide raised median. (See Figures 3.10, 3.11 and 3.12.) This median will allow for the development of dual left-turn lanes where required.

Results of the capacity analysis for this segment are shown in Table 3.10.

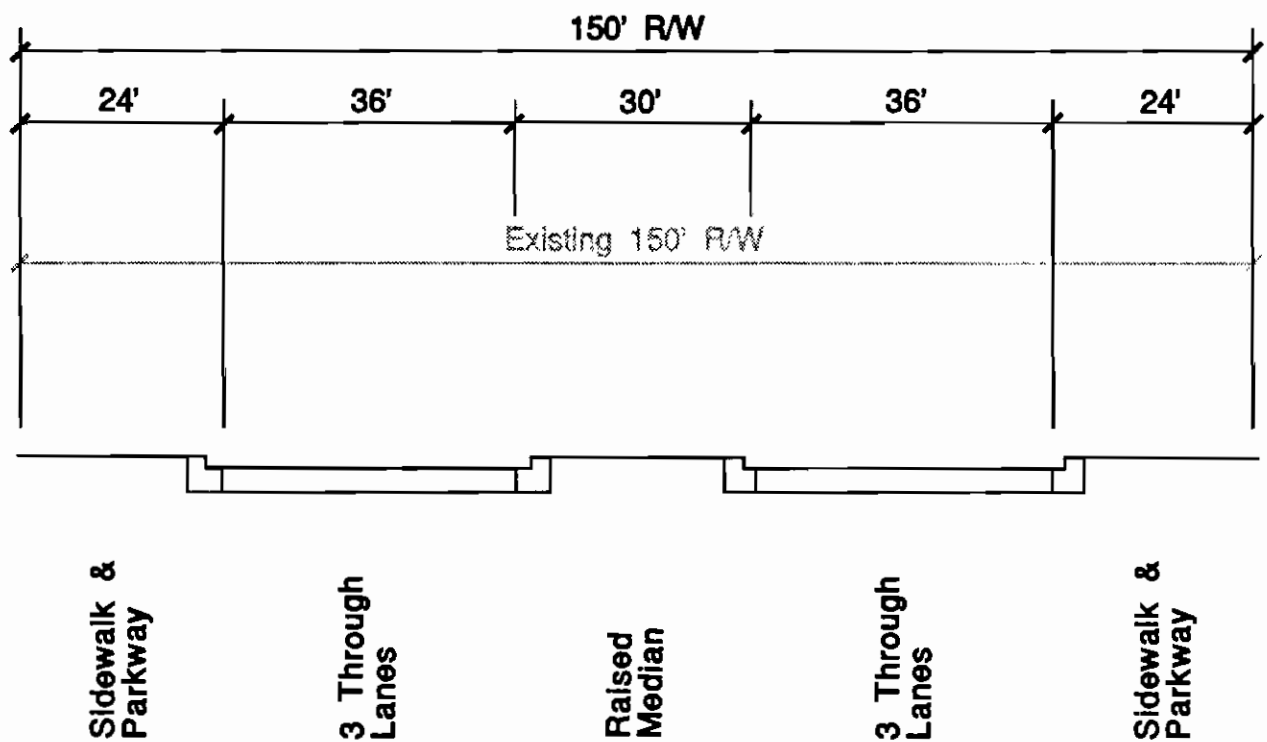


Section G-G

Recommended Roadway Typical Section
Orchard Road Extension to C&NW Railroad

Randall Road

prepared by Harland Bartholomew & Associates, Inc. Figure 3.10

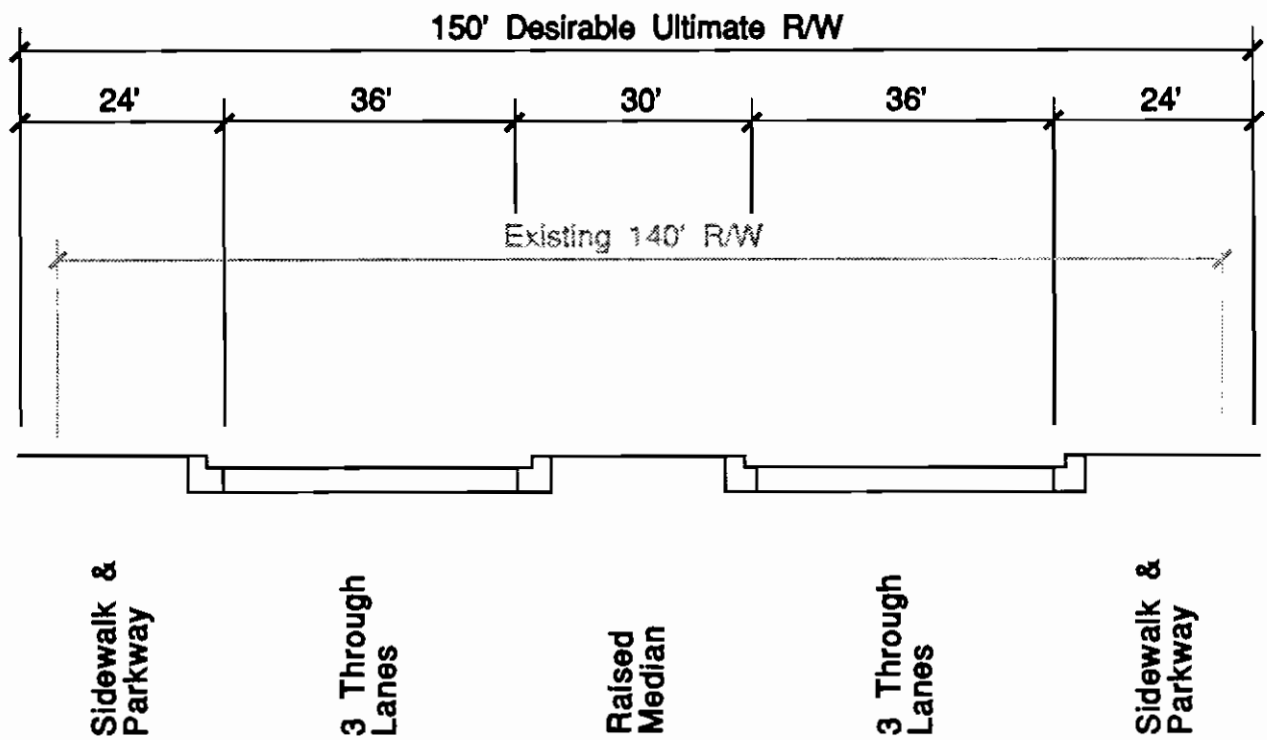


Randall Road

prepared by Harland Bartholomew & Associates, Inc.

Section H-H
Recommended Roadway Typical Section
C&NW Railroad to Williamsburg Lane

Figure 3.11



Section I-I
Recommended Roadway Typical Section
Randall Road
Williamsburg Lane to Illinois Route 38
 prepared by Harland Bartholomew & Associates, Inc. **Figure 3.12**

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

Table 3.10 Capacity Analysis for Segment 3 - Randall Road					
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
Orchard Road Ext. to Fabyan Parkway	< 30,000	4	27,000 30,000	C D	Yes
		6 *	41,000	C	Yes
Fabyan Parkway to Illinois Route 38	< 30,000	4	32,000	D	Yes
		6 *	45,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment.					

Intersections

The recommended roadway configuration allows development of single or dual left-turn lanes at intersecting streets in this segment as required. In addition to the major intersection improvements discussed below, separate right-turn lanes should be provided at all signalized intersections.

At the intersection of Randall Road and Fabyan Parkway, which is also a designated SRA route east of Randall, dual left-turn lanes are recommended on all legs of the intersection, and separate right-turn lanes are recommended on both legs of Randall Road and the east leg of Fabyan Parkway. (See Detail 4)

Because Randall Road and Fabyan Parkway are both SRA routes, the level of service for each intersection movement and for the total intersection was calculated. For this calculation the AADT volumes used were 43,000 on Randall Road and 22,000 on Fabyan Parkway. The resulting levels of service are shown in *Table 3.11*.

Consideration should also be given to providing dual left turn lanes on Randall Road at Main Street in Batavia and Keslinger Road to accommodate potentially heavy turning volumes. As part of a separate IDOT study, dual left-turn lanes will be constructed on Randall Road at Illinois Route 38.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

Table 3.11 Randall Road/Fabyan Parkway Intersection Level of Service		
Direction	Movement	Level of Service
Randall Road northbound	left turn	D
Randall Road northbound	through	C
Randall Road northbound	right turn	B
Randall Road southbound	left turn	D
Randall Road southbound	through	B
Randall Road southbound	right turn	A
Fabyan Parkway eastbound	left turn	D
Fabyan Parkway eastbound	through	C
Fabyan Parkway eastbound	right turn	B
Fabyan Parkway westbound	left turn	D
Fabyan Parkway westbound	through	B
Fabyan Parkway westbound	right turn	B
Total Intersection		C

Traffic Signalization

Six locations are recommended for potential future signals in this segment at McKee Street, Miller Road, Fargo Boulevard, Williamsburg Lane, Bricher Road and at the mid-mile collector one-half mile south of Fabyan Parkway.

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 SRAs 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.

Existing signals at Main Street (Batavia), Wilson Street, Fabyan Parkway, Kaneville/Keslinger Road and Illinois Route 38 would be retained, and interconnection of signals in coordinated systems is recommended. Ultimately, one signal system would be utilized to interconnect all of the signals in this segment from Main Street in Batavia to Illinois Route 38 in St. Charles.

Structures

All of the structures in this segment, over Mill Creek and over the Chicago & NorthWestern rail line, have inadequate horizontal clearance to accommodate the recommended roadway cross-section and should be modified to provide adequate horizontal clearance for the recommended six lane roadway section.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

It is recommended that right-of-way be preserved for a potential future transit station in the vicinity of the Chicago and NorthWestern Railroad and Kaneville Road in the event that passenger service is extended west of Randall Road.

Potential locations for Park-and-Ride lots are in conjunction with the potential train station west of Randall Road and at Fabyan Parkway. Development of this type of facility would be possible with express bus service, car pools and van pools along Randall Road and other SRA routes to other regional destinations.

Low-Cost Improvements

Intersections

Consideration should be given to the construction of left-turn lanes on Randall Road at McKee Street, Miller Road and Bricher Road. When a mid-mile collector is developed south of Fabyan Parkway left-turn lanes should also be constructed on Randall Road at this intersection.

Traffic Signalization

Interconnection of the existing signals at Main Street and Wilson Street is recommended. Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met.

Access Management

As parcels are developed or redeveloped, it is recommended that access to Randall Road be limited to the locations shown on Route Maps D-2, D-3 and D-4. These locations are typically spaced approximately one-quarter to one-half mile apart and are consistent with the access agreement between Kane County and the City of Batavia.

Transit

Additional directional signage is recommended on this segment for Metra service at the Geneva station of the Chicago & NorthWestern West line. This signage should be located at major intersections such as Fabyan Parkway and Illinois Route 38, indicating distance and direction to the station.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

3.3.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The desirable right-of-way width for this segment is 150 feet. To achieve this right-of-way, an additional ten feet will be required between the Orchard Road Extension and the Chicago & NorthWestern Railroad, and between Williamsburg Lane and Illinois Route 38. The existing right-of-way between the Chicago & NorthWestern Railroad and Williamsburg Lane provides sufficient width for the recommended roadway cross-section. North of Bricher Road, the right-of-way should be taken entirely from the west side of the route in order to lessen the impacts to homes on the east side.

3.3.7 POTENTIAL ENVIRONMENTAL CONCERNS

Expansion of the roadway facilities into prime farmland, floodplains and wetlands which abut the route will require further study during the design phase of any improvement. Potential increases in noise levels at the Delnor Community Hospital should also be studied. The Mooseheart Farm is well set back from the proposed right-of-way, so is not expected to be of concern.

3.3.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 3 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.12*.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Orchard Road Extension to Illinois Route 38

Table 3.12 Construction Cost Estimates for Segment 3 - Randall Road	
Improvement	Estimated Cost
Ultimate	
Roadway	\$26,600,000
Intersection Improvements	\$2,700,000
Traffic Signals	\$600,000
Signal Interconnection	\$700,000
Structures	\$1,000,000
Transit Improvements (includes land acquisition)	\$1,200,000
Right-of-way Acquisition	\$500,000
Total Estimated Cost for Ultimate Improvements	\$33,300,000
Low-Cost	
Intersection Improvements	\$800,000
Signal Interconnection	\$100,000
Transit Improvements	\$20,000
Right-of-way Acquisition	\$100,000
Total Estimated Cost for Low-Cost Improvements	\$1,020,000
Total Estimated Cost for All Improvements	\$34,320,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Illinois Route 38 to Dean Street

3.4 SRA SEGMENT 4: RANDALL ROAD FROM ILLINOIS ROUTE 38 TO DEAN STREET

3.4.1 LOCATION

Segment 4 includes Randall Road from Illinois Route 38 to Dean Street and is just over one mile long. (See Figure 3.13.)

3.4.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for this segment can be found on Route Map A-4.

Traffic Volumes

The Average Annual Daily Traffic (AADT) for this segment is 34,000 vehicles according to 1991 Kane County traffic counts.

Right-of-Way

The right-of-way varies from 80 to 100 feet wide.

Pavement Width and Number of Lanes

The pavement width varies from 52 to 56 feet. This provides four through lanes (two in each direction), a striped median, and curb-and-gutter.

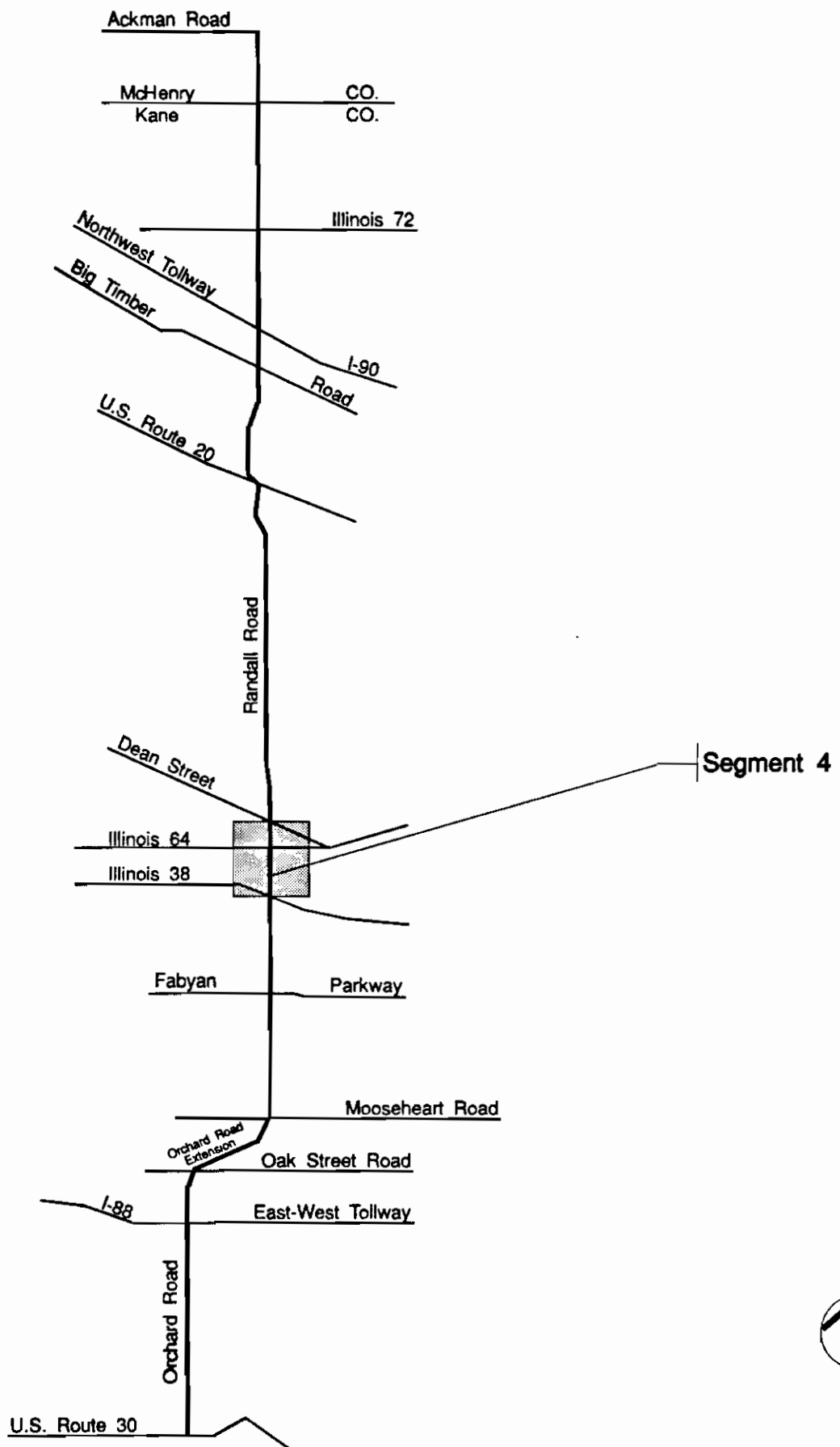
Traffic Signals

There are three traffic signals in the segment. They are listed from south to north in Table 3.13.

Table 3.13 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Prairie Street	2	2	YES	NO	
Illinois 64 (Main Street)	2	2	YES	NB	
Dean Street	2	2	YES	NO	
Note: NB = northbound; SB = southbound					

Parking, Sidewalks, and Frontage Roads

There is no on-street parking or frontage roads, however, there are some short sections of sidewalk.



Randall Road

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.13

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Illinois Route 38 to Dean Street

Structures

There are no structures in this segment.

Transit

Metra commuter rail service is provided by the Chicago & NorthWestern West line at the Geneva station approximately two miles southeast of the Illinois Route 38 intersection.

Other Characteristics

There is an at-grade rail crossing for a Chicago & NorthWestern Railroad spur south of Dean Street, however, this line is abandoned just west of the route.

3.4.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics on the segment include a waste disposal site and prime farmland. They are shown on Route Map B-4.

Waste Disposal Sites/Hazardous Waste Sites

A waste disposal site is located on the east side of the route north of Main Street.

Prime Farmland

Virtually all undeveloped land on the west side of the segment has been identified as prime farmland.

3.4.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Map C-4.

Jurisdiction

This segment is entirely within the City of St. Charles.

Type and Intensity of Development

There is mixed land use on this segment consisting of commercial, office, industrial, and single-family residential development. The Kane County Fairgrounds is at the northwest corner of the Illinois Route 38 intersection. There is a significant amount of large scale commercial development near this intersection. The intersection with Illinois Route 64 (Main Street) is commercially developed as well. Residential development is located on the east side of the route between these commercial land uses. There is industrial development located north of Illinois Route 64 on both sides of the route. The only office building is at the southwest corner of Randall Road and Dean Street.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Illinois Route 38 to Dean Street

Development Access and Setback

Access to the large scale commercial activity is primarily handled by Prairie Street, an intersecting cross street. Development is set back a significant distance except for the commercial establishments around Illinois Route 64 as well as several industrial buildings to the north. Direct access to these developments is frequent from Randall Road. Curb cuts service nearly all development north of Prairie Street.

Future Development

While much of this land is currently developed, a large property west of the route is proposed as a mixed use development. The Kane County Fairgrounds is also being considered for redevelopment. Another vacant area of land is located south of the office building adjacent to the Chicago & NorthWestern Railroad, however, there are no specific plans to develop this property.

3.4.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Randall Road 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 roadway, intersection, 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-4.

Ultimate Improvements

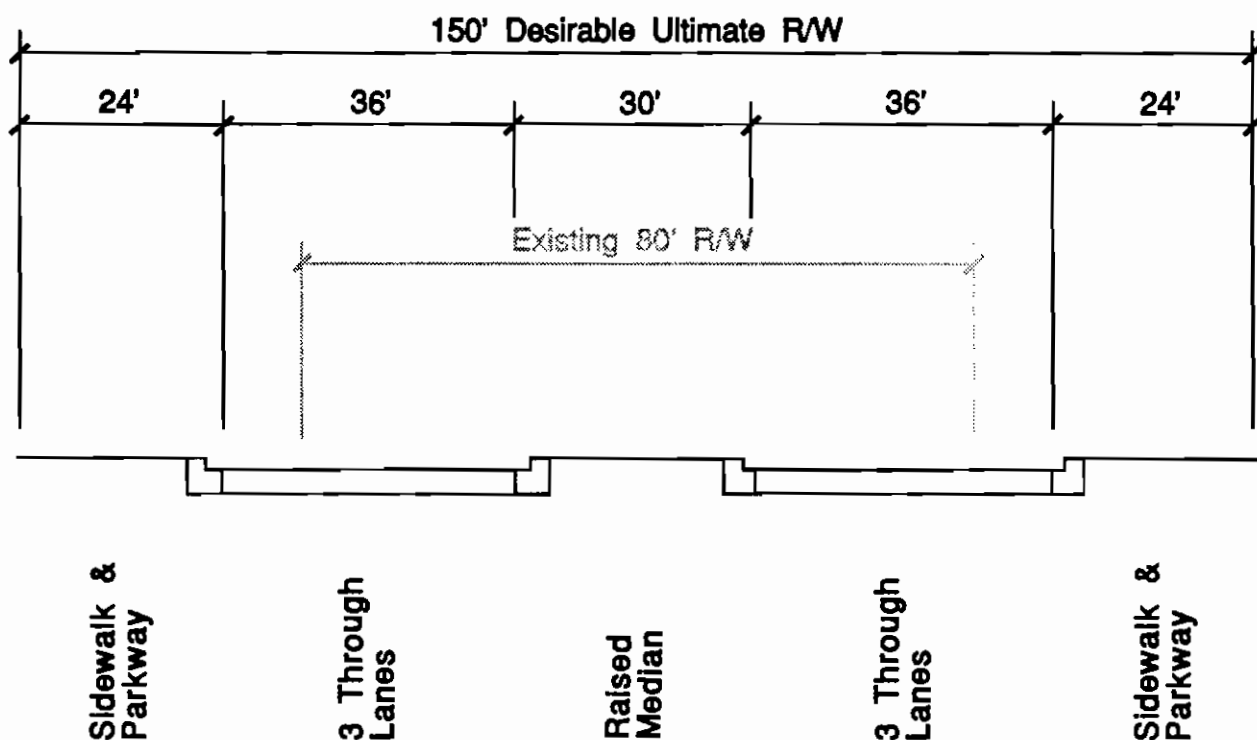
Roadway

In this segment the recommended roadway configuration provides three through lanes in each direction with a continuous 30-foot wide raised median. (See Figures 3.14 and 3.15.) This median width will allow for the development of dual left-turn lanes where required.

Results of the capacity analysis for this segment are shown in Table 3.14.

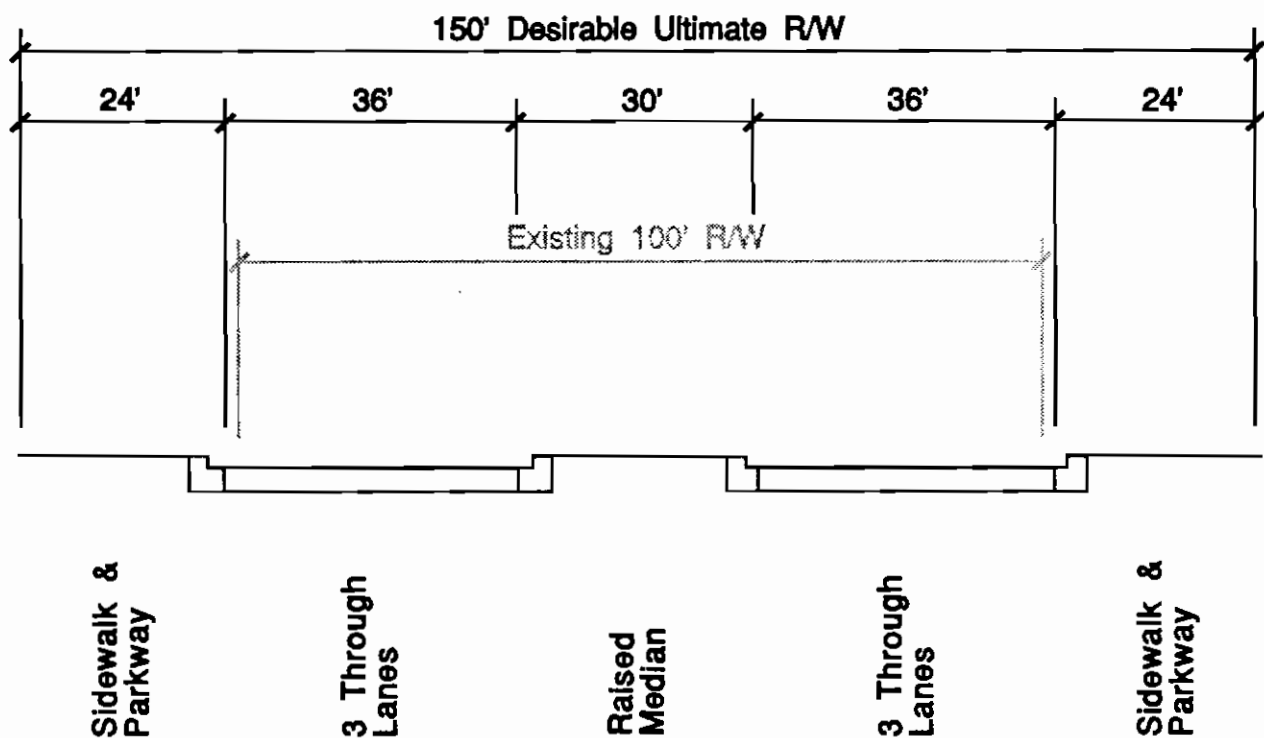
Intersections

Major intersection improvements are recommended at the intersection of Randall Road with Illinois Route 64, providing separate right-turn lanes and dual left-turn lanes on all legs of the intersection. (See Detail 5) The 30-foot wide median will allow development of either single or dual left-turn lanes at other intersections. Separate right-turn lanes are also recommended at Prairie Street, Oak Street and Dean Street.



Randall Road
 prepared by Harland Bartholomew & Associates, Inc.

Section J-J
Recommended Roadway Typical Section
Illinois 38 to Illinois 64 (Main Street)
Figure 3.14



Section K-K
Recommended Roadway Typical Section
Randall Road Illinois Route 64 (Main Street) to Dean Street
 prepared by Harland Bartholomew & Associates, Inc. **Figure 3.15**

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Illinois Route 38 to Dean Street

Table 3.14 Capacity Analysis for Segment 4 - Randall Road					
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 Route 38 to Dean Street	< 30,000	4	27,000	D	No
		6 *	36,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment.					

Because Illinois Route 64 is also an SRA route, the level of service was calculated for each intersection movement and for the total intersection. For Illinois Route 64 the AADT used was 25,000 vehicles and for Randall Road the AADT used was 36,000 vehicles. The resulting levels of service are shown in *Table 3.15*.

Table 3.15 Randall Road/Illinois Route 64 Intersection Level of Service		
Direction	Movement	Level of Service
Randall Road northbound	left turn	D
Randall Road northbound	through	C
Randall Road northbound	right turn	B
Randall Road southbound	left turn	D
Randall Road southbound	through	C
Randall Road southbound	right turn	B
Illinois Route 64 eastbound	left turn	D
Illinois Route 64 eastbound	through	C
Illinois Route 64 eastbound	right turn	B
Illinois Route 64 westbound	left turn	D
Illinois Route 64 westbound	through	B
Illinois Route 64 westbound	right turn	B
Total Intersection		C

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Illinois Route 38 to Dean Street

Traffic Signalization

A recommended location for a potential future signal is at Oak Street south of Illinois Route 64 (Main Street). 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 SRAs 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 in coordinated systems is recommended. Ultimately one system should be utilized for all the signals in this segment and incorporated into the Segment 3 system beginning at Main Street in Batavia.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

Consideration should be given to development of Park-and-Ride facilities in conjunction with future express bus service, car pools and van pools along the SRA route. Potential locations for such facilities would be between Illinois Route 38 and Illinois Route 64 in the vicinity of the Kane County Fairgrounds.

Low-Cost Improvements

Traffic Signalization

Interconnection of existing signals at Illinois Route 38 and Prairie Street and the existing signals at Illinois Route 64 and Dean Street is recommended. Traffic signals should be installed at Oak Street when the signal warrants recommended for SRA routes are met.

Access Management

As parcels are developed or redeveloped, it is recommended that access to Randall Road be limited to the locations shown on Route Map D-4. These locations are typically spaced approximately 800 to 1000 feet apart.

Transit

Directional signage is recommended on this segment of Randall Road for Metra service on the Chicago & NorthWestern West line at the Geneva station. This signage should be located at major intersections such as Illinois Route 38 and Illinois Route 64 indicating distance and direction to the station.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Illinois Route 38 to Dean Street

3.4.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The desirable right-of-way width for this segment is 150 feet. To achieve this right-of-way, an additional 70 feet of right-of-way will be needed between Illinois Route 38 and Illinois Route 64 (Main Street), and an additional 50 feet of right-of-way will be needed between Illinois Route 64 and Dean Street.

3.4.7 POTENTIAL ENVIRONMENTAL CONCERNS

Expansion of the roadway facilities into the prime farmland which abuts the west side of route will require further study during the design phase of the improvement. The waste disposal site appears far enough removed from the right-of-way that expansion of the roadway facilities should not conflict, however, more detailed studies should ensure that the perimeter of the site is not within the right-of-way.

3.4.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 4 of Orchard Road/Randall Road/Illinois Route 31 is shown in Table 3.16.

Table 3.16	
Construction Cost Estimates for Segment 4 - Randall Road	
Improvement	Estimated Cost
Ultimate	
Roadway	\$4,800,000
Intersection Improvements	\$1,300,000
Traffic Signals	\$100,000
Signal Interconnection	\$100,000
Transit Improvements (includes land acquisition)	\$600,000
Right-of-way Acquisition	\$3,300,000
Total Estimated Cost for Ultimate Improvements	\$10,200,000
Low-Cost	
Signal Interconnection	\$100,000
Transit Improvements	\$10,000
Total Estimated Cost for Low-Cost Improvements	\$110,000
Total Estimated Cost for All Improvements	\$10,310,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Dean Street to U.S. Route 20

3.5 SRA SEGMENT 5: RANDALL ROAD FROM DEAN STREET TO U.S. ROUTE 20

3.5.1 LOCATION

Segment 5 is located on Randall Road and extends from Dean Street to U.S. Route 20. (See Figure 3.16.) The segment is eight miles long.

3.5.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for the segment can be found on Route Maps A-4, A-5 and A-6.

Traffic Volumes

The Average Annual Daily Traffic (AADT) in this segment is 25,000 vehicles according to the 1988 IDOT Kane County Traffic Map.

Right-of-Way

The right-of-way is 140 feet wide except between Dean Street and Red Haw Lane where it is 160 feet wide.

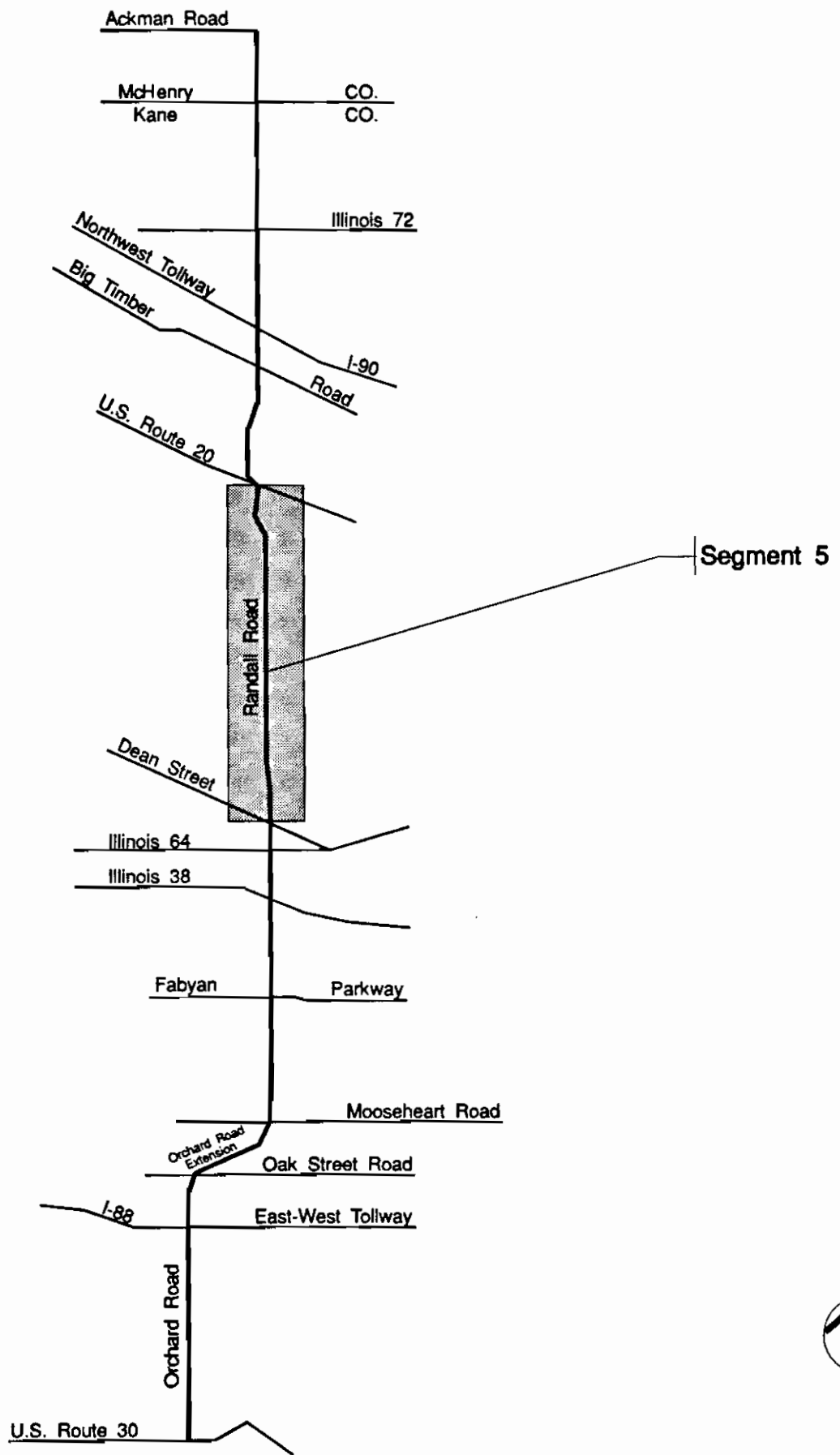
Pavement Width and Number of Lanes

From Dean Street to Silver Glen Road, the pavement is approximately 56 feet wide which provides two through lanes in each direction and a four-foot median. There are eight-foot wide shoulders on each side. North of Silver Glen Road to South Street, the pavement narrows to 24 feet and provides one through lane in each direction with 8-foot wide aggregate shoulders at each edge. From South Street to the end of the segment there are two through lanes in each direction on 48 feet of pavement with a 6-foot wide paved shoulder at each edge.

Traffic Signals

There are three signalized intersections in Segment 5 of Randall Road. They are listed from south to north on Table 3.17.

Table 3.17					
Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Bowes Road	2	2	YES	NO	
U.S. 20 south ramps	2	2	YES	SB	
U.S. 20 north ramps	2	2	YES	NO	
Note: NB = northbound; SB = southbound					



Randall Road

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.16

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Dean Street to U.S. Route 20

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces, sidewalks, or frontage roads.

Structures

There are two structures in this segment. They are shown in *Table 3.18*.

Table 3.18 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance Vert. Horiz.		Remarks
Ferson Creek	045-3027	S. of Crane Road	N/A	60'	SRA over
U.S. Route 20	045-0060	_____	_____	80'	SRA over
Note N/A=Not Applicable					

Transit

Transit service in this segment is provided at the Big Timber Metra station two miles north of U.S. Route 20 and at the Elgin Metra station two and one-half miles east of Randall Road.

Other Characteristics

There is an at-grade rail crossing located north of McDonald Road that serves the Chicago Central & Pacific Railroad. There also is a fully directional interchange in this segment with U.S. Route 20.

3.5.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics for the segment include wetlands, floodplains, a significant nature area, prime farmland and sensitive land uses and are shown on Route Maps B-4, B-5 and B-6.

Streams/Wetlands/Floodplains

Floodplains cross Randall Road at three points along this segment. The identified flood boundaries are at Ferson Creek, Otter Creek, and an Otter Creek Tributary. The Ferson Creek floodplain is 150 feet wide at the Randall Road crossing south of Crane Road. The Otter Creek floodplain is 1,200 feet wide at the Randall Road crossing south of South Street, and the Otter Creek Tributary floodplain is 100 feet wide at the crossing north of South Street. There are wetlands associated with all of these floodplains.

Randall Road also crosses another tributary of Ferson Creek north of Crane Road, but there is no base floodplain identified with this water body.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Dean Street to U.S. Route 20

Additionally, there are wetlands at the northeast corner of Silver Glen Road and south of Bowes Road which are very close to the existing right-of-way.

Flora/Fauna

There is one significant nature area located on this segment. Within the LeRoy Oaks Forest Preserve is the Murray Prairie, a high alkaline prairie, which is a diminishing resource.

Prime Farmland

On the west side of the route, there is farmland along the entire segment except at Crane Road and where development has occurred. Approximately 25 percent of the farmland, on the west side, does not meet the classification of prime farmland.

On the east side of the route, prime farmland exists in all areas except for an area of land extending one-half mile north from Red Haw Lane and one mile north from Crane Road, as well as other areas where there is development.

Sensitive Land Uses

Noise sensitive land uses on this segment include three churches: two at the northwest corner of the intersection with Crane Road and one approximately one-quarter mile north of Bowes Road on the west side of the right-of-way.

Public uses include LeRoy Oaks Forest Preserve, Spartan Meadows Golf Course, and a public utility in Elgin.

3.5.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Maps C-4, C-5 and C-6.

Jurisdiction

Most of this segment is in unincorporated Kane County. However, Randall Road does pass through the city limits of Elgin between Bowes Road and U.S. Route 20.

Type and Intensity of Development

The land use on this segment is mixed, consisting of residential, agricultural, and office development. Most land is agricultural. Office development is found in two locations: north of Dean Street on both sides of the route and on the northwest corner of Randall Road and Bowes Road. Low-density residential development extends from Red Haw Lane to Red Gate Road on the east side of the route. On the west side of Randall Road through this same area, there are also three small areas of low-density residential development that are set well back of the right-of-way.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Dean Street to U.S. Route 20

Development Access and Setback

Building setbacks through this segment are ample and should not infringe on right-of-way expansion. Residential subdivisions have little or no access from Randall Road. Some single-family structures have driveways which intersect Randall Road.

Future Development

There are plans to develop two residential projects. The first site is on Hopps Road, east of Randall Road, and will consist of 146 acres of single-family homes. The other development extends both east and west of Randall Road between McDonald Road and South Street and is planned for 250 townhouses, 250 apartments and 191 single-family homes as well as 51 acres of commercial use.

3.5.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Randall Road 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 roadway, intersection, 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 Maps D-4, D-5 and D-6.

Ultimate Improvements

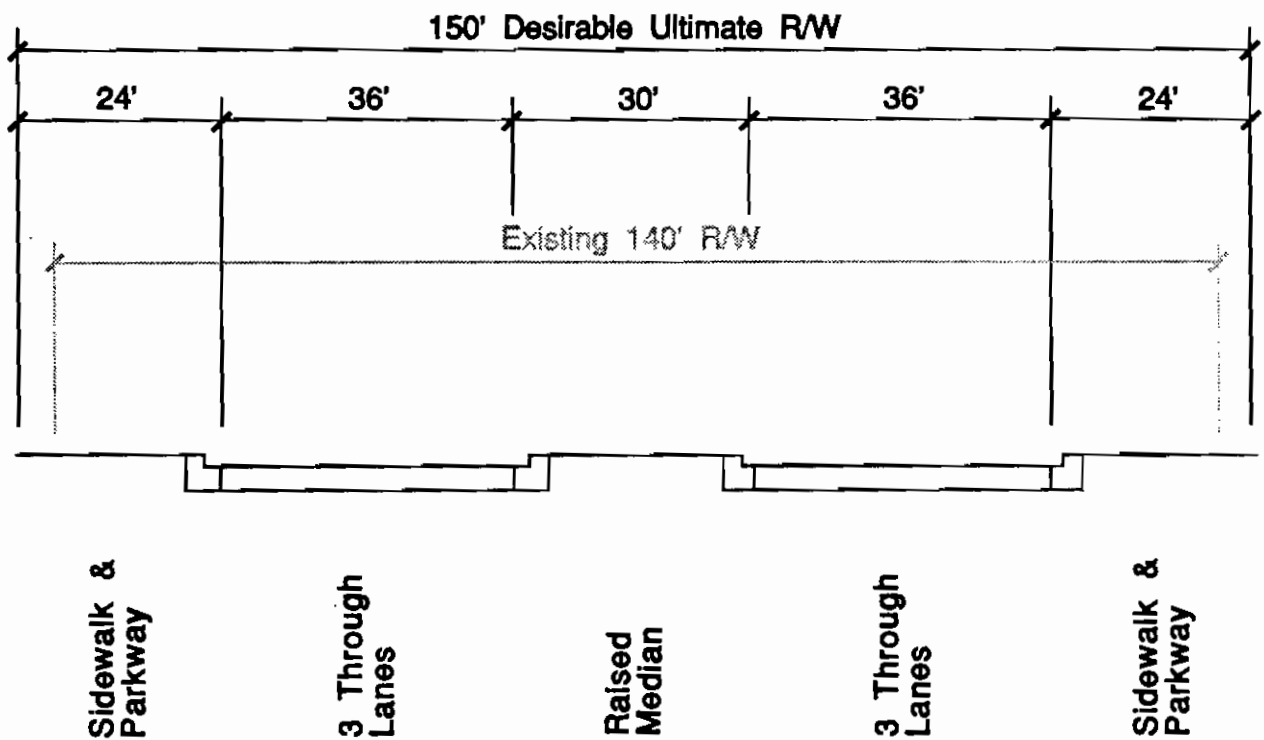
Roadway

In this segment the recommended roadway configuration provides three through lanes in each direction with a continuous 30-foot wide raised median. (See *Figure 3.17.*) This median width will allow for the development of dual left-turn lanes where required.

Results of the capacity analysis for this segment are shown in *Table 3.19.*

Intersections

It is recommended that consideration be given to providing dual left-turn lanes on Randall Road at the Silver Glen Road and Bowes Road intersections to accommodate potentially heavy turning volumes. The 30-foot wide median will allow development of dual left-turn lanes at other cross-roads if warranted. Separate right-turn lanes are also recommended at all signalized intersections.



Randall Road

Section L-L
Recommended Roadway Typical Section
Dean Street to U.S. Route 20

prepared by Harland Bartholomew & Associates, Inc.

Figure 3.17

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Dean Street to U.S. Route 20

Table 3.19 Capacity Analysis for Segment 5 - Randall Road					
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
Dean Street to McDonald Road	< 30,000	4	33,000	D	Yes
		6 *	46,000	C	Yes
McDonald Road to U.S. Route 20	< 30,000	4	31,000 33,000	C D	Yes
		6 *	47,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment.					

Traffic Signalization

Locations are recommended for potential future signals, maintaining a typical spacing of approximately one-half mile between signals. The recommended future locations are Red Haw Lane, Middlecreek Lane, Red Gate Road, Bolcum Road, Silver Glen Road, McDonald Road, Hopps Road, College Green Drive and South Street.

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 SRAs 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.

The existing signals at Bowes Road and the U.S. Route 20 ramps would be retained, and interconnection of signals in coordinated systems is recommended. Ultimately four signal systems would be utilized to interconnect signals in this segment. The signal at Red Haw Lane would be interconnected into the system extending from Main Street in Segment 3 and the South Street and U.S. Route 20 ramp signals would be interconnected into the system extending to Royal Boulevard in Segment 6. The other signal systems would be formed by interconnecting the Red Gate Road and Bolcum Road traffic signals and by interconnecting the Bowes Road and College Green Drive traffic signals.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Dean Street to U.S. Route 20

Structures

The existing structures carrying Randall Road over Ferson Creek and U.S. Route 20 have inadequate horizontal clearance to accommodate the recommended roadway cross-section. Both structures should be modified to provide for the recommended six lane roadway section on Randall Road.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

Consideration should be given to development of Park-and-Ride facilities in conjunction with future express bus service, car pools and van pools along the SRA route. Potential locations for such facilities would be at Silver Glen Road, Hopps Road and Weld Road, where the proximity to U.S. Route 20 could allow coordination with express bus service to other regional destinations.

The Park-and-Ride facility at Hopps Road could provide a potential future transit station site in the event passenger service is introduced on the Chicago, Central and Pacific Railroad.

Low-Cost Improvements

Intersections

Left-turn lanes are recommended at Thorn Tree Road, Clesen Drive, Middlecreek Lane, McDonald Road and Hopps Road.

Traffic Signalization

The existing signals at the U.S. Route 20 ramps should be interconnected. Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met.

Access Management

As parcels are developed or redeveloped, it is recommended that access to Randall Road be limited to the locations shown on Route Maps D-4, D-5 and D-6.

Transit

Directional signage is recommended on this segment of Randall Road for Metra Service on the Milwaukee Road West line at the Elgin and Big Timber stations. This signage should be located at major intersections and the U.S. Route 20/Larkin Avenue interchange indicating distance and direction to the station.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Dean Street to U.S. Route 20

3.5.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The desirable right-of-way for this segment is 150 feet wide. To achieve this width, five feet of right-of-way will be required on each side of the route from Red Haw Lane to U.S. Route 20.

3.5.7 POTENTIAL ENVIRONMENTAL CONCERNS

Expansion of the roadway facilities into the LeRoy Oaks Forest Preserve, prime farmland, floodplains and wetlands which abut the route will require further study during the design phase of any improvement. The relatively narrow strip of additional right-of-way is not expected to impact any buildings near the route or to raise any additional environmental concerns. The churches in this segment would appear to be far enough removed from the right-of-way that any noise increase would be minimal.

3.5.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 5 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.20*.

Table 3.20	
Construction Cost Estimates for Segment 5 - Randall Road	
Improvement	Estimated Cost
Ultimate	
Roadway	\$32,000,000
Intersection Improvements	\$2,600,000
Traffic Signals	\$900,000
Signal Interconnection	\$300,000
Structures	\$800,000
Transit Improvements (includes land acquisition)	\$1,600,000
Right-of-way Acquisition	\$400,000
Total Estimated Cost for Ultimate Improvements	\$38,600,000
Low-Cost	
Intersection Improvements	\$700,000
Signal Interconnection	\$100,000
Transit Improvements	\$20,000
Total Estimated Cost for Low-Cost Improvements	\$820,000
Total Estimated Cost for All Improvements	\$39,420,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from U.S. Route 20 to Big Timber Road

3.6 SRA SEGMENT 6: RANDALL ROAD FROM U.S. ROUTE 20 TO BIG TIMBER ROAD

3.6.1 LOCATION

Segment 6 is located on Randall Road and extends from U.S. Route 20 to Big Timber Road. (See Figure 3.18.) The segment is 2.3 miles long.

3.6.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 6 can be found on Route Map A-6.

Traffic Volumes

According to the 1988 IDOT Kane County Traffic Map, the Average Annual Daily Traffic (AADT) for this segment of Randall Road is 18,000 vehicles.

Right-of-Way

The right-of-way width ranges from 100 feet to 140 feet. The right-of-way is 100 feet wide between U.S. Route 20 and Highland Avenue and 140 feet wide from Highland Avenue to Big Timber Road.

Pavement Width and Number of Lanes

The pavement width is 52 feet wide and has four through lanes (two in each direction). There are 6 foot to 10 foot wide shoulders along each edge.

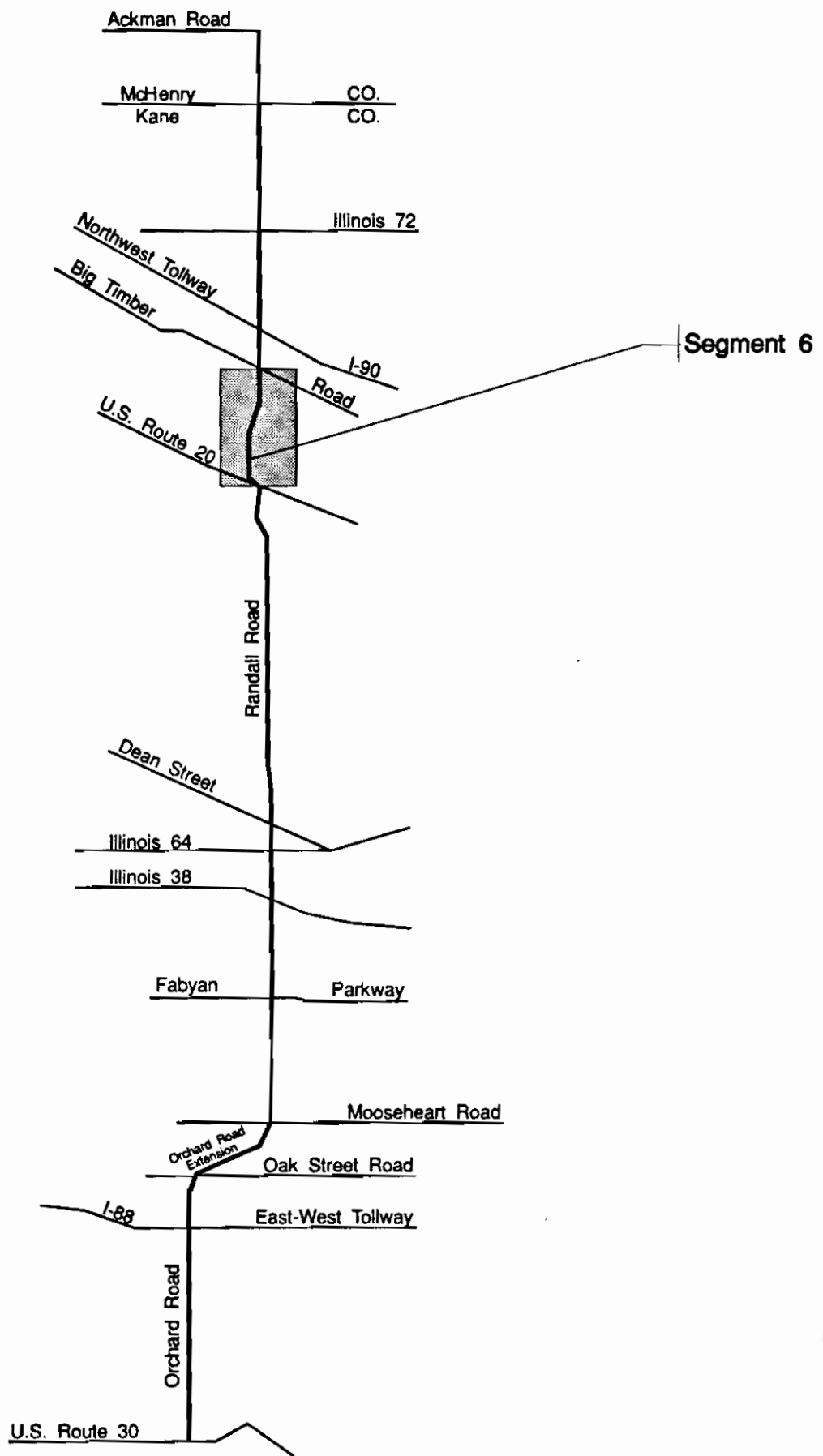
Traffic Signals

There are two signalized intersections in this segment, as shown in Table 3.21. In addition, there are stop signs on Randall Road at Highland Avenue.

Table 3.21 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Royal Boulevard	2	2	YES	NO	
Big Timber Road	2	2	NO	NO	
Note: NB = northbound; SB = southbound					

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces, sidewalks, or frontage roads.



Randall Road

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.18

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from U.S. Route 20 to Big Timber Road

Structures

There are two structures in this segment, as shown in *Table 3.22*.

Table 3.22 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance		Remarks
			Vert.	Horiz.	
Tyler Creek	045-3025	S. of Big Timber	N/A	31.8'	SRA over
CMSTP&P RR	045-3115	S. of Big Timber	N/A	68'	SRA over
Note: N/A=Not Applicable					

Transit

The terminus of the Milwaukee West Division Metra commuter service is east of Randall Road at Big Timber. There is no bus service on this segment, but Pace routes in the vicinity serve the Metra stations at Elgin (#552, #545, #546, #547, and #548) and Big Timber (#549).

3.6.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The environmental characteristics include wetlands, floodplains, a waste disposal site, prime farmland and sensitive land uses as shown on Route Map B-6.

Streams/Wetlands/Floodplains

There are two floodplain crossings on this segment: the Randall Road Tributary of Tyler Creek and Tyler Creek. The Tributary floodplain crosses approximately one-half mile north of U.S. Route 20 and is 75 feet wide. The Tyler Creek floodplain crosses just south of the Chicago Milwaukee St. Paul Pacific Railroad tracks and is 300 feet wide.

There are wetlands associated with and adjacent to these floodplains. The Tributary wetlands follow the right-of-way to the interchange with U.S. Route 20. Additionally, there are wetlands near the right-of-way just south of Big Timber Road.

Historical Significance

The Lawrence House is listed in the Inventory of Historic Landmarks and is located one-quarter mile north of Highland Avenue on the west side of the route. The structure is set back from the route approximately 750 feet.

Waste Disposal Sites/Hazardous Waste Sites

There is one waste disposal site reported on this segment. It is northeast of the U.S. Route 20 interchange adjacent to Foothill Road.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from U.S. Route 20 to Big Timber Road

Prime Farmland

North of Highland Avenue, approximately 50 percent of the land on either side of the route is prime farmland.

Sensitive Land Uses

Noise sensitive land uses on this segment include three churches at the intersection with Highland Avenue.

3.6.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Map C-6.

Jurisdiction

The City of Elgin is the only local jurisdiction exercising control over development on this segment. The jurisdiction extends from U.S. Route 20 to the Randall Road Tributary of Tyler Creek and from 800 feet north of Highland Avenue to the Chicago Milwaukee St. Paul Pacific Railroad tracks.

Type and Intensity of Development

The predominant land uses on this segment are agriculture and single-family residential. Most homes are part of subdivision developments that are located between U.S. Route 20 and Highland Avenue. Industrial development, while not directly fronting the route, is also located on this segment east of the U.S. Route 20 interchange as well as northeast of Chicago Milwaukee St. Paul Pacific Railroad tracks.

Development Access and Setback

Development most closely situated to the route is found on the west side of the route south of Highland Avenue and on the east side of the route north of the railroad.

Since a majority of the land fronting the route is either undeveloped or used for agriculture, there are a limited number of access points on this segment. Direct access to development on this segment is primarily via access roads which intersect the route. However, south of Highland Avenue on the west side of the route and on the east side of the route to the north and south of the railroad tracks several residences have driveway access to Randall Road.

Future Development

Between the agricultural and undeveloped land, this segment has a substantial amount of developable area. Future plans for development include six residential projects. An office project and a major mixed use development north of Highland Avenue are also planned.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from U.S. Route 20 to Big Timber Road

A total of six new residential developments are planned which, when constructed, will encompass approximately 600 acres of land either fronting or adjacent to land fronting Randall Road. A 31 acre subdivision is planned northwest of the interchange at U.S. Route 20. South of Highland Avenue on the east side of the route, a 58 unit townhouse development, is planned on 31 acres. Around the northeast corner of Highland Avenue, three housing developments are under construction on a total of approximately 33 acres. These developments will consist of 52 townhouses and 20 acres of single-family residential development. The largest development proposed for this segment is planned north of Highland Avenue on the east side of the route. The 500 acre site will include 1,130 multi-family, 118 duplex and 890 single-family residential units along with supporting commercial uses.

An 80 acre site proposed for the development of corporate offices is located on the west side of Randall Road north of Highland Avenue.

In addition to these developments a 90 acre site on the west side of the route around Tyler Creek has been reserved as a detention area.

3.6.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Randall Road 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 roadway, intersection, 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-6.

Ultimate Improvements

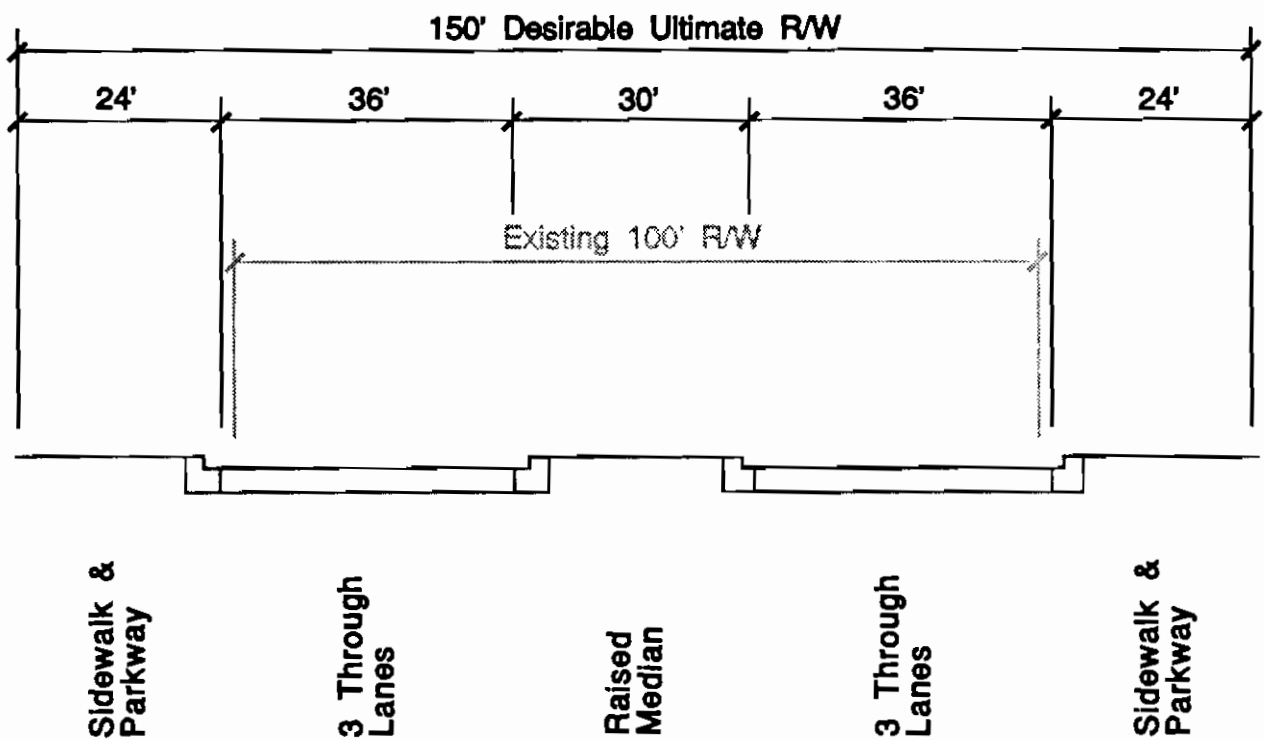
Roadway

In this segment the recommended roadway configuration provides three through lanes in each direction with a continuous 30-foot wide raised median. (See *Figures 3.19 and 3.20.*) This median width will allow for the development of dual left-turn lanes where required.

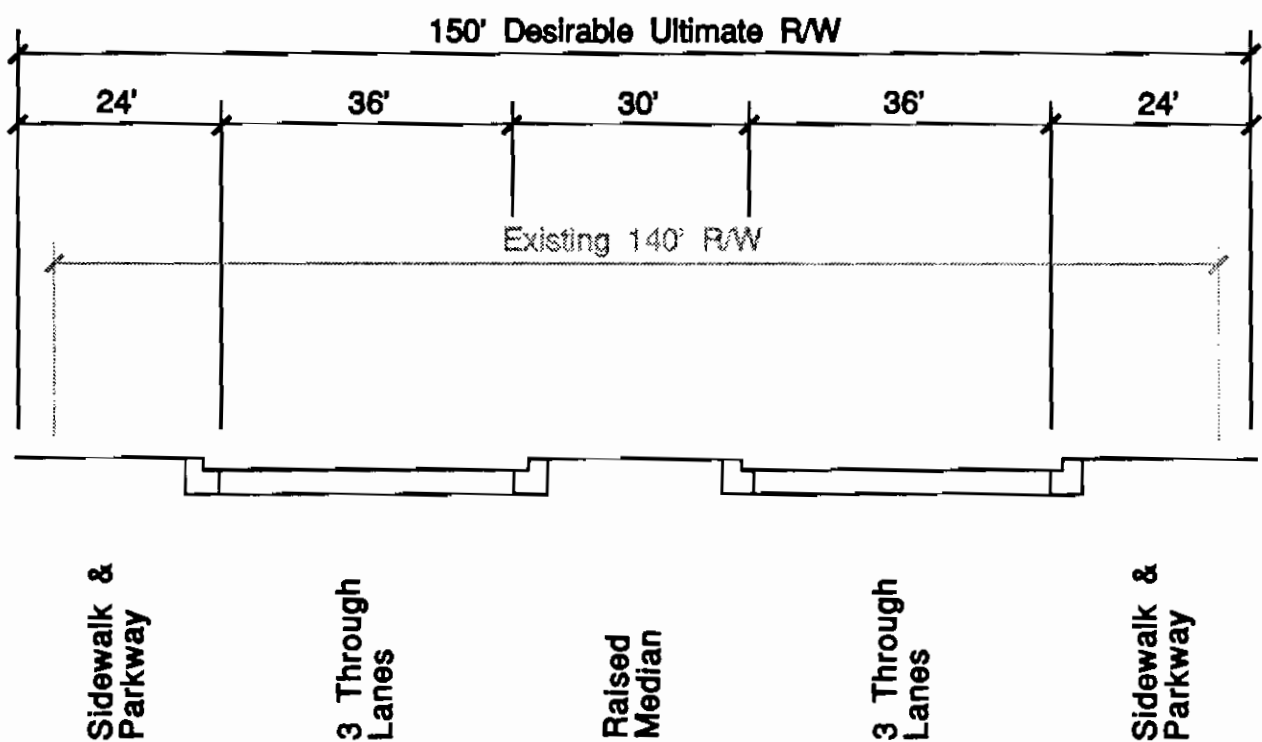
Results of the capacity analysis for this segment are shown in *Table 3.23.*

Intersections

It is recommended that consideration be given to providing dual left turn lanes on Randall Road at the Highland Avenue and Big Timber Road intersections to accommodate potentially heavy turning traffic. The 30-foot wide median will allow development of either single or dual left-turn lanes at other intersections. Separate right-turn lanes are also recommended at all signalized intersections.



Section M-M
Recommended Roadway Typical Section
U.S. Route 20 to Highland Avenue
Randall Road
 prepared by Harland Bartholomew & Associates, Inc. Figure 3.19



Randall Road

prepared by Harland Bartholomew & Associates, Inc.

Section N-N
Recommended Roadway Typical Section
Highland Avenue to Big Timber Road

Figure 3.20

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from U.S. Route 20 to Big Timber Road

Table 3.23 Capacity Analysis for Segment 6 - Randall Road					
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
U.S. Route 20 to Big Timber Road	30 to 40,000	4	33,000	D	No
		6 *	46,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment.					

Traffic Signalization

Locations recommended for potential future signals are Brookside Drive and Highland Avenue.

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 SRAs 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.

The existing signals at Royal Boulevard and Big Timber Road would be retained and interconnection of signals in coordinated systems is recommended. Ultimately two systems should be utilized for all of the signals in this segment. The Brookside Drive, Highland Avenue and Royal Boulevard signals should be interconnected into a system extending to South Street in Segment 5, and the Big Timber signal should be interconnected into a system extending north to Miller Road in Segment 7.

Structures

The existing structures carrying Randall Road over Tyler Creek and the Milwaukee Road rail line have inadequate horizontal clearance to accommodate the recommended roadway cross-section. The structures should be modified to provide adequate clearance for the recommended six-lane roadway section for Randall Road.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from U.S. Route 20 to Big Timber Road

Low-Cost Improvements

Intersections

Left-turn lanes are recommended at Brookside Drive, Highland Avenue and Big Timber Road.

Traffic Signalization

Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met. The stop signs controlling the Randall Road/Highland Avenue intersection should be analyzed in accordance with SRA standards to determine whether traffic signals are warranted.

Access Management

As parcels are developed or redeveloped, it is recommended that access to Randall Road be limited to the locations shown on Route Map D-6. These locations are typically spaced approximately one-quarter to one-half mile apart and are consistent with the access agreement between Kane County and the City of Elgin.

Access from Fletcher Drive to Randall Road should be restricted to right-in/right-out only due to the Randall Road profile and proximity of Fletcher Drive to the Tyler Creek structure. Development of parcels between Fletcher Drive and Royal Boulevard should include adequate internal circulation between the two cross streets such that full access only need be provided at Royal Boulevard.

Transit

Directional signage is recommended on this segment of Randall Road for Metra Service on the Milwaukee Road West line at the Elgin and Big Timber stations. This signage should be located at major intersections such as Highland Avenue and Big Timber Road indicating distance and direction to the station.

3.6.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The desirable right-of-way width for this segment is 150 feet. To achieve this right-of-way, an additional 50 feet will be required between U.S. Route 20 and Highland Avenue, and an additional ten feet will be required between Highland Avenue and Big Timber Road.

3.6.7 POTENTIAL ENVIRONMENTAL CONCERNS

Expansion of the roadway facilities into the prime farmland, floodplains and wetlands which abut the route will require further study during the design phase of any improvement. Also of concern are the waste disposal site northeasterly of the interchange with U.S. Route 20, and the homes and churches between U.S. Route 20 and Highland Avenue. The waste

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from U.S. Route 20 to Big Timber Road

disposal site appears quite close to the existing right-of-way, however, additional study is necessary to determine whether or not the perimeter of the site is within the right-of-way. Further north, the right-of-way is abutted by homes on the west side and wetlands on the east side. There are churches on all but the northeast corner of the intersection with Highland Avenue.

The Lawrence House is far enough from the proposed right-of-way that expansion of the right-of-way alone is not expected to threaten the resource. Potential widening of the Tyler Creek floodplain due to roadway improvements may negatively impact the House and therefore should be taken into consideration during Phase I studies of such improvements.

3.6.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 6 of Orchard Road/Randall Road/Illinois Route 31 is shown in Table 3.24.

Table 3.24	
Construction Cost Estimates for Segment 6 - Randall Road	
Improvement	Estimated Cost
Ultimate	
Roadway	\$10,000,000
Intersection Improvements	\$1,600,000
Traffic Signals	\$100,000
Signal Interconnection	\$300,000
Structures	\$700,000
Transit Improvements (includes land acquisition)	\$100,000
Right-of-way Acquisition	\$300,000
Total Estimated Cost for Ultimate Improvements	\$13,100,000
Low-Cost	
Intersection Improvements	\$600,000
Traffic Signal	\$100,000
Transit Improvements	\$10,000
Total Estimated Cost for Low-Cost Improvements	\$710,000
Total Estimated Cost for All Improvements	\$13,810,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Big Timber Road to Randall/IL 31 Connector

3.7 SRA SEGMENT 7: RANDALL ROAD FROM BIG TIMBER ROAD TO RANDALL ROAD/ILLINOIS ROUTE 31 CONNECTOR

3.7.1 LOCATION

Segment 7 is located on Randall Road and extends from Big Timber Road to the Randall Road/Illinois Route 31 Connector. (See *Figure 3.21.*) The segment is 8.6 miles long.

3.7.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for the segment can be found on Route Maps A-6, A-7, A-8 and A-9.

Traffic Volumes

According to 1991 Kane County traffic counts, the Average Annual Daily Traffic (AADT) in this segment is 19,000 vehicles on Randall Road south of Interstate 90 and 15,000 vehicles north of Interstate 90.

Right-of-Way

The right-of-way width varies greatly throughout this segment: from Big Timber Road to Illinois Route 72 (Higgins Road) the right-of-way width is only 66 feet; from Illinois Route 72 (Higgins Road) to County Line Road the right-of-way width is 80 feet; and from County Line Road to Ackman Road the right-of-way width is 120 feet.

Pavement Width and Number of Lanes

The 24-foot wide pavement provides two through lanes (one in each direction). The pavement widens crossing over Interstate 90 (Northwest Tollway) to accommodate four through lanes in the interchange area. There are six-foot to eight-foot wide aggregate shoulders on both sides of the pavement.

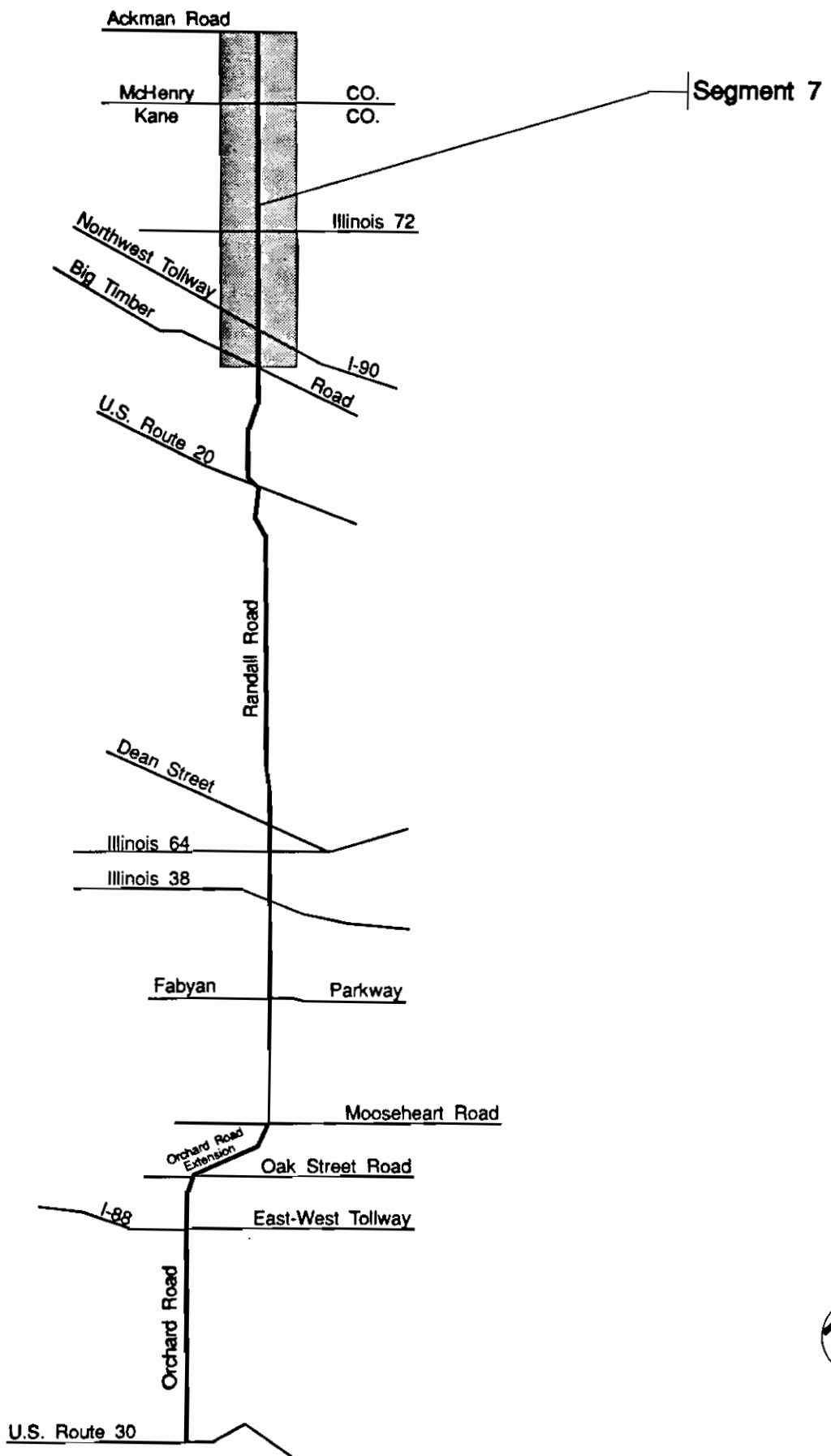
Traffic Signals

There are six signalized intersections in this segment, as shown in *Table 3.25*. In addition, there are stop signs on Randall Road at Huntley Road.

Plans for the Randall Road/Illinois Route 31 Connector include the installation of traffic signals at the Ackman Road intersection.

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces or sidewalks. There is a frontage road on the east side of the route from Miller Road to Roosevelt Street.



Randall Road

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.21

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Big Timber Road to Randall/IL 31 Connector

Table 3.25 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Fox Lane	1	1	SB	NO	
Alft Lane	1	1	YES	NO	
I-90 EB entrance ramp	2	2	YES	NO	
I-90 WB exit ramp	2	2	NO	NO	
Illinois 72 (Higgins Road)	1	1	YES	NO	
Algonquin Road	2	2	YES	NB	Widens at intersection only
Note: NB = northbound; SB = southbound					

Structures

There are two structures as shown in *Table 3.26*.

Table 3.26 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance Vert. Horiz.		Remarks
Interstate 90	045-9909	_____	N/A	UA	SRA over
Woods Creek	056-3204	N. of Algonquin	N/A	44'	SRA over
Note: N/A=Not Applicable UA= Data Unavailable					

Transit

The Metra/Milwaukee Division West line provides commuter rail service one-quarter mile east of the route at the Big Timber station.

Other Characteristics

There is a half-diamond interchange at Interstate 90 (Northwest Tollway). This interchange provides eastbound entrance to the tollway and a westbound exit movement from the tollway.

3.7.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics include wetlands, floodplains, historic structures, endangered species, prime farmland and sensitive land uses as shown on Route Maps B-6, B-7, B-8 and B-9.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Big Timber Road to Randall/IL 31 Connector

Streams/Wetlands/Floodplains

There are two floodplain crossings on this segment: a Tributary of Woods Creek and Woods Creek. The Tributary crosses about one-half mile north of Algonquin Road and is 250 feet wide. Woods Creek crosses north of Algonquin Road and is 2,000 feet wide at this point.

There are some wetlands associated with these floodplains. Also there are wetlands scattered throughout this segment that are within or immediately adjacent to the right-of-way.

Historical Significance

On this segment, there are three historically significant buildings. Teeple Barn, south of Interstate 90 on the east side of the route, is listed on the National Register of Historic Places. There are two residences listed as noteworthy: the residence one-half mile north of Interstate 90 on the west side of Randall Road and the Strepek-Farrell House on the southeast corner of the intersection with Higgins Road. The latter is on the Inventory of Historic Landmarks and is very close to the right-of-way.

Flora/Fauna

The yellow-headed blackbird is an endangered species reported within one mile of this segment.

Waste Disposal Sites/Hazardous Waste Sites

East of Randall Road and north of Interstate 90, septic tanks in existing residential areas abut the right-of-way.

Prime Farmland

On this segment, there are large areas of prime farmland on both sides of the route from:

- Big Timber Road to approximately three-quarters of a mile north of Interstate 90,
- One-half mile south to one and one-half miles north of Illinois Route 72 (Higgins Road), and
- County Line Road to Ackman Road.

Also north of Higgins Road extending to the County Line, much of the land is farmland, but only about 25 percent of it is considered prime.

Sensitive Land Uses

Noise sensitive land uses on this segment include one church south of Joy Lane and Jacobs High School south of Algonquin Road.

Randall Oaks Park and Randall Oaks Golf Club are southwest of the intersection with Binnie Road.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Big Timber Road to Randall/IL 31 Connector

3.7.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are displayed on Route Maps C-6, C-7, C-8 and C-9.

Jurisdiction

This segment passes through the incorporated areas of the Cities of Elgin and Crystal Lake and the Villages of Sleepy Hollow, Algonquin and Lake In The Hills. Elgin is on the east side of the route between Big Timber Road and Fox Lane. Sleepy Hollow is between Hilltop Drive and Deer Lane on the east side of the route. Algonquin extends for one mile south from Algonquin Road on the east side of the route. Lake In The Hills extends north from Algonquin Road for one-half mile on the west side of the route and on the east side of the route from one-half mile north of Algonquin Road to Roosevelt Street. The Crystal Lake corporate limits begin at Miller Road on the west side of the route and continue through the end of the segment.

Type and Intensity of Development

Development on this segment includes agricultural, residential, office, commercial, and industrial uses.

Most land is agricultural. Residential development is primarily rural single-family, but there are two subdivision developments along Randall Road in Sleepy Hollow and Lake In The Hills. Office and industrial development is located directly south of the interchange at Interstate 90 and also at the northwest corner of Big Timber Road. Through Algonquin there is a limited amount of commercial and industrial development. There is a large subdivision in Crystal Lake at Village Road on the west side of the route.

Development Access and Setback

The rural single-family residences fronting Randall Road have driveways which intersect the route. Commercial and industrial developments have their own access onto Randall Road. None of these structures are situated close to the existing right-of-way line.

Future Development

Along this segment, rapid growth is occurring and a substantial amount of development has been proposed.

The land north of the interchange has been annexed by the City of Elgin for proposed industrial activity. The sum of all parcels annexed for this purpose is roughly 150 acres. While no specific plans for development have been presented to the City, it is reasonable to conclude that substantial development will occur on this property which is currently zoned M-2, a manufacturing/light industrial zone. In Algonquin, undeveloped areas have been annexed for industrial and commercial uses. A 40-acre light industrial development is under

construction across from H.D. Jacobs High School on the east side of Randall Road. South of the intersection at Algonquin Road, land has been annexed for commercial development, consisting of a gas station and a shopping center. At the far north end of this segment, two large residential developments are planned. One development is planned on the northwest corner at Ackman Road and will consist of 213 housing units, 110 single-family homes and 103 townhouses. The other development is also at Ackman and Randall Roads and will include 172 apartment units.

3.7.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Randall Road 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 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 Maps D-6, D-7, D-8 and D-9.

Ultimate Improvements

Roadway

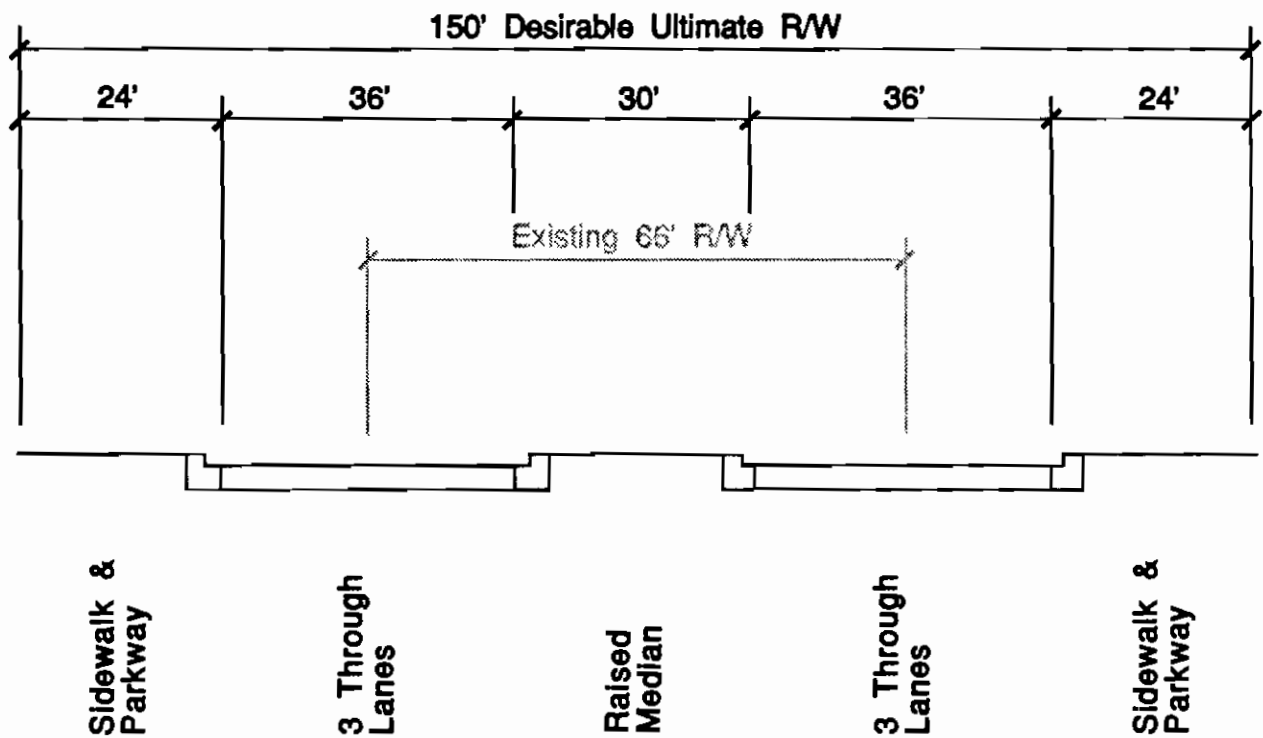
Between Big Timber Road and Illinois Route 72 (Higgins Road), the recommended roadway configuration provides three through lanes in each direction with a continuous 30-foot wide raised median. (See Figure 3.22.) This median width will allow for the development of dual left-turn lanes where required. Between Illinois Route 72 and the Randall Road/Illinois Route 31 Connector, the recommended roadway configuration provides two through lanes in each direction with a continuous 30-foot wide raised median. (See Figures 3.23, 3.24 and 3.25.)

Results of the capacity analysis for this segment are shown in Table 3.27.

Intersections

Major intersection improvements are recommended at the intersections of Randall Road with Illinois Route 72 and Algonquin Road, with separate right-turn lanes and dual left-turn lanes on all legs of the intersections. (See Details 7 and 8.) Dual left-turn lanes and separate right-turn lanes are recommended at the Interstate 90 ramps. The 30-foot wide median will allow development of either single or dual left-turn lanes at other intersections. Separate right-turn lanes are also recommended at all signalized intersections.

Because Algonquin Road is also an SRA route, the level of service was calculated for each intersection movement and for the total intersection. For Algonquin Road the AADT used was 26,000 vehicles. For Randall Road the AADT used was 29,000 vehicles. The resulting levels of service are shown in Table 3.28.

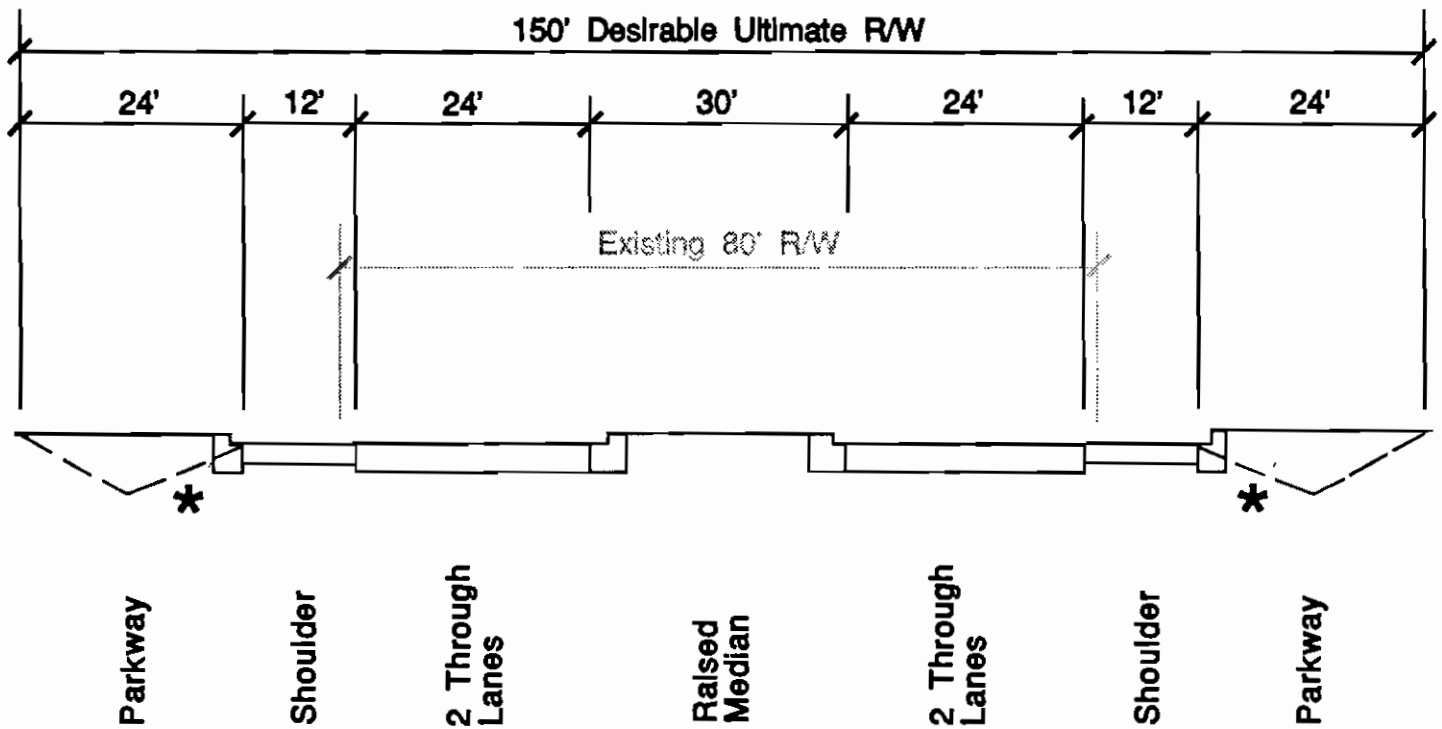


Section O-O

Recommended Roadway Typical Section

Randall Road Big Timber Road to Illinois Route 72 (Higgins Road)

prepared by Harland Bartholomew & Associates, Inc. Figure 3.22



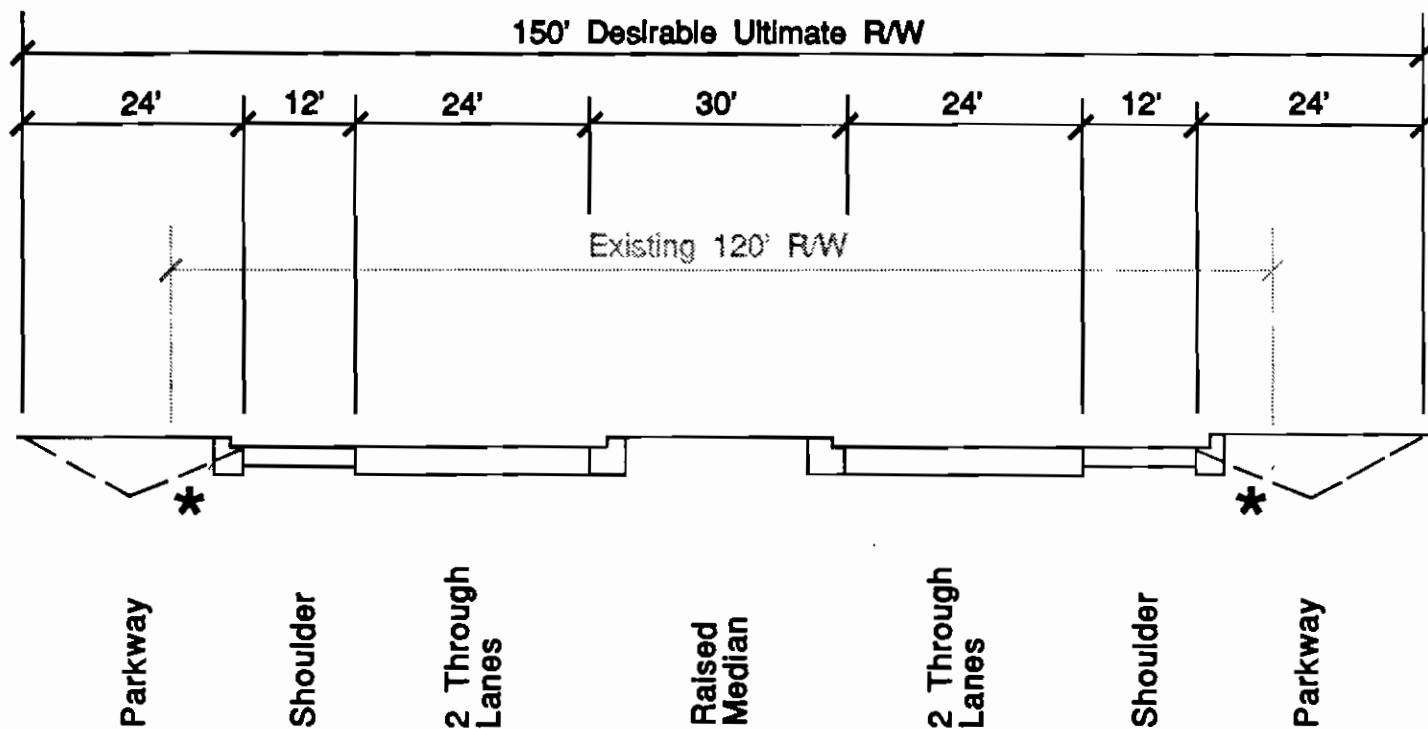
* closed or open drainage system

Section P-P

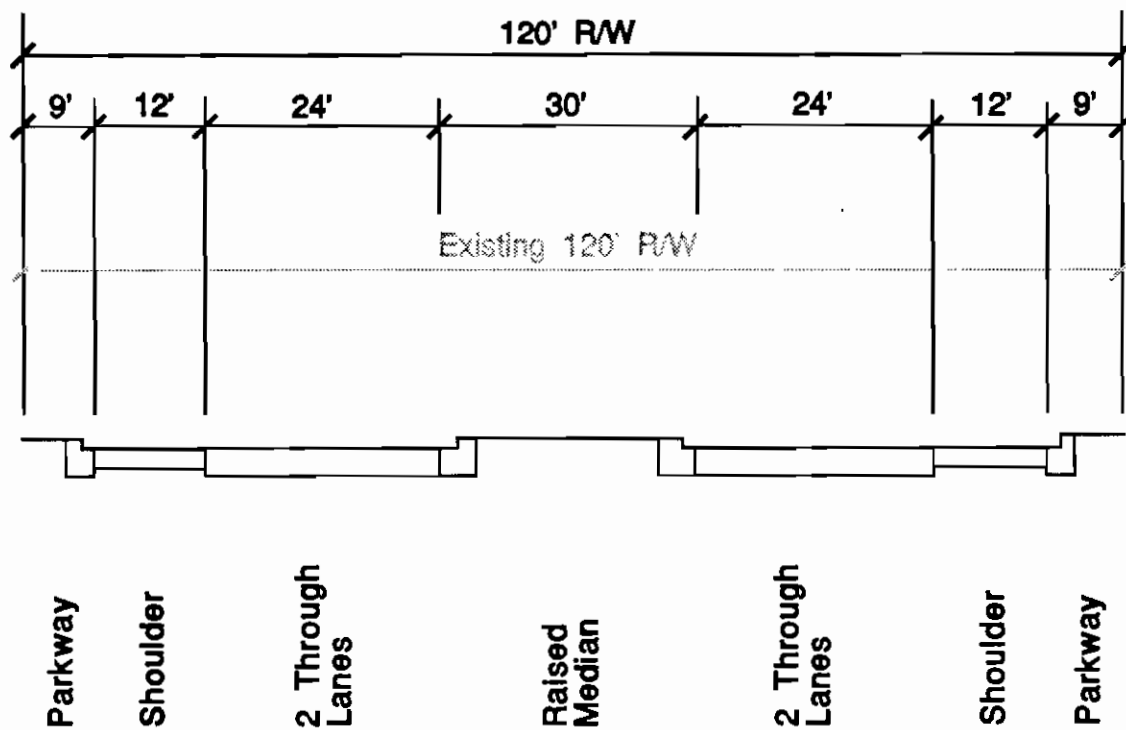
Recommended Roadway Typical Section

Randall Road Illinois Route 72 (Higgins Road) to County Line Road

prepared by Harland Bartholomew & Associates, Inc. Figure 3.23



* closed or open drainage system



Section R-R

Recommended Roadway Typical Section

Randall Road Huntley/Algonquin Road to Randall/IL 31 Connector

prepared by Harland Bartholomew & Associates, Inc. Figure 3.25

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Big Timber Road to Randall/IL 31 Connector

Table 3.27 Capacity Analysis for Segment 7 - Randall Road					
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
Big Timber Road to Illinois Route 72	< 30,000 to 40,000	4	31,000	D	No
		6 *	43,000	C	Yes
Illinois Route 72 to County Line Road	< 30,000	4 *	31,000	C	Yes
County Line Road to Ackman Road	< 30,000	2	15,000	D	No
		4 *	29,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment.					

Table 3.28 Randall Road/Algonquin Road Intersection Level of Service		
Direction	Movement	Level of Service
Randall Road northbound	left turn	D
Randall Road northbound	through	C
Randall Road northbound	right turn	B
Randall Road southbound	left turn	D
Randall Road southbound	through	B
Randall Road southbound	right turn	B
Algonquin Road eastbound	left turn	D
Algonquin Road eastbound	through	C
Algonquin Road eastbound	right turn	B
Algonquin Road westbound	left turn	D
Algonquin Road westbound	through	B
Algonquin Road westbound	right turn	B
Total Intersection		C

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Big Timber Road to Randall/IL 31 Connector

Traffic Signalization

Locations are recommended for potential future signals, maintaining a typical spacing of approximately one-half mile between signals. The recommended future locations are Joy Lane, Binnie Road, Huntley Road, County Line Road, Acorn Lane and Miller Road. Additional potential locations would be at the future Holmes Road extension, Jacobs High School and the six mid-mile collector roads between Interstate 90 and Ackman Road.

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 SRAs 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.

Existing signals would be retained and interconnection of signals in coordinated systems is recommended. Ultimately all of the signals from Big Timber Road to Miller Road could be interconnected into a signal system.

Structures

The existing structures carrying Randall Road over Interstate 90 and Woods Creek have inadequate horizontal clearance to accommodate the recommended roadway cross-section. The Interstate 90 structure should be modified to provide for the recommended 102-foot wide cross-section for Randall Road shown in Detail 6. The structure over Woods Creek should be modified to accommodate the recommended four-lane roadway section.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

Consideration should be given to development of Park-and-Ride facilities in conjunction with future express bus service, car pools and van pools along the SRA route. Potential locations for such facilities would be at Interstate 90, Illinois Route 72 (Higgins Road), Algonquin Road and Ackman Road, where the proximity to expressways and other SRA routes could allow coordination with express bus service to other regional destinations.

Other Improvements

The existing ramps at Interstate 90 only provide access from Randall Road to eastbound Interstate 90 and from westbound Interstate 90 to Randall Road. Modification of the interchange is recommended to provide full directional access. Due to the proximity of existing development in the southwest quadrant of the interchange and proposed development in the northwest quadrant, consideration of a partial cloverleaf interchange is

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Big Timber Road to Randall/IL 31 Connector

recommended. Loop ramps should be constructed within the existing direct ramps on the northeast and southeast quadrant as shown on Detail 6.

Low-Cost Improvements

Intersections

Left-turn lanes are recommended at Joy Lane, Binnie Road, Huntley Road, County Line Road and Ackman Road. When Holmes Road is extended and future mid-mile collector roads are constructed between Interstate 90 and Ackman Road, left-turn lanes should also be provided on Randall Road at these intersections.

Traffic Signalization

Interconnection of the existing signals at the Interstate 90 ramps is recommended.

Traffic signals should be installed at the recommended locations when the signal warrants recommended for SRA routes are met. The stop signs controlling the Randall Road/Huntley Road intersection should be analyzed in accordance with SRA standards to determine whether traffic signals are warranted.

Access Management

As parcels are developed or redeveloped, it is recommended that access to Randall Road be limited to the locations shown on Route Maps D-6, D-7, D-8 and D-9. These locations are typically spaced at least one-quarter mile apart.

Transit

Directional signage is recommended on this segment of Randall Road for Metra Service on the Milwaukee Road West line at the Big Timber station and the Chicago & NorthWestern Northwest line at the Crystal Lake station. This signage should be located at the Interstate 90 ramps and at major intersections such as Illinois Route 72 (Higgins Road) and Algonquin Road indicating distance and direction to the nearest station.

3.7.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The desirable right-of-way width for a suburban SRA is 150 feet. To achieve this width between Big Timber Road and Algonquin Road, requirements for additional right-of-way are:

- 84 feet between Big Timber Road and Illinois Route 72 (Higgins Road),
- 70 feet between Illinois Route 72 (Higgins Road) and County Line Road, and
- 30 feet between County Line Road and Algonquin Road.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall Road from Big Timber Road to Randall/IL 31 Connector

The existing right-of-way north of Algonquin Road is adequate for the 4 lane cross-section and can still provide additional space for post-2010 improvements.

3.7.7 POTENTIAL ENVIRONMENTAL CONCERNS

Expansion of the roadway facilities into Randall Oaks Park, prime farmland, floodplains and wetlands which abut the route will require further study during the design phase of any improvement. The exact location of the habitat of the yellow-headed blackbird should be determined during preliminary phases of any improvements. Of the noteworthy historic sites only the Strepek-Farrell House appears close enough to the existing right-of-way that expansion of facilities might impact it. As an Illinois historic landmark, it warrants further study. Jacobs High School is far enough from the right-of-way that expansion of the roadway is not expected to cause environmental concern. Also of concern is the portion of Randall Road just north of Interstate 90 which has a historic structure to the west and septic fields adjacent to the right-of-way on the east.

3.7.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 7 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.29*.

Table 3.29 Construction Cost Estimates for Segment 7 - Randall Road	
Improvement	Estimated Cost
Ultimate	
Roadway	\$31,800,000
Intersection Improvements	\$4,500,000
Traffic Signals	\$1,400,000
Signal Interconnection	\$1,500,000
Structures	\$900,000
Interchange Improvements (loop ramps at Interstate 90)	\$3,000,000
Transit Improvements (includes land acquisition)	\$2,200,000
Right-of-way Acquisition	\$3,600,000
Total Estimated Cost for Ultimate Improvements	\$48,900,000
Low-Cost	
Intersection Improvements	\$1,400,000
Traffic Signals	\$100,000
Signal Interconnection	\$200,000
Transit Improvements	\$30,000
Total Estimated Cost for Low-Cost Improvements	\$1,730,000
Total Estimated Cost for All Improvements	\$50,630,000

3.8 SRA SEGMENT 8: RANDALL ROAD/ILLINOIS ROUTE 31 CONNECTOR FROM RANDALL ROAD TO ILLINOIS ROUTE 31

3.8.1 LOCATION

Segment 8 consists of the Randall Road/Illinois Route 31 Connector to be constructed from Randall Road at Ackman Road to Illinois Route 31 south of U.S. Route 14. (See Figure 3.26.) This segment is approximately 3 miles long.

3.8.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 8 are shown on Route Map A-9.

Right-of-Way

The existing right-of-way from McHenry Avenue to Pyott Road is 200 feet wide, and from Pyott Road to Illinois Route 31 the right-of-way is 100 feet wide. (Right-of-way plans)

Pavement Width and Number of Through Lanes

The pavement width in this segment is 24 feet wide not including paved shoulders. This provides for one through lane in each direction.

Traffic Signals

Plans for the Randall Road/Illinois Route 31 Connector include the installation of traffic signals at Ackman Road and McHenry Avenue.

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces, sidewalks, or frontage roads in this segment.

Structures

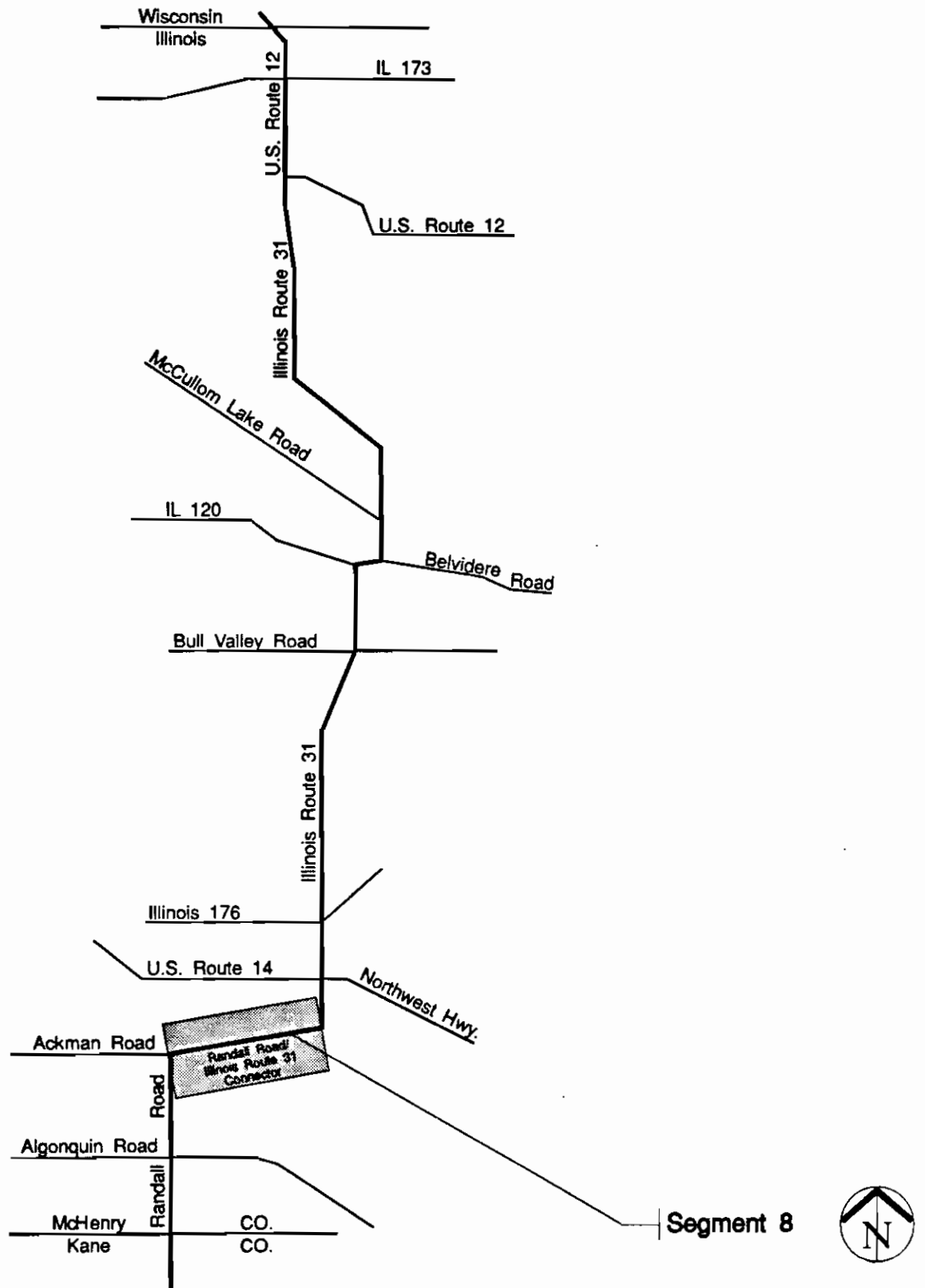
There are no structures in this segment.

Transit

Transit service is provided at the Crystal Lake Metra station two miles north of the segment.

3.8.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

Existing environmental characteristics for Segment 8 include floodplains, wetlands, and sensitive land uses and are indicated on Route Map B-9.



ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall/IL 31 Connector from Randall Road to Illinois Route 31

Streams/Wetlands/Floodplains

The right-of-way of the Randall Road/Illinois Route 31 Connector crosses Crystal Creek northeast of Ackman Road. The floodplain is approximately 200 feet wide at the crossing.

Although no wetlands appear to infringe upon the right-of-way, one large wetland, created as a result of extensive mining operations, is located on the north side of the proposed alignment between Virginia Road and Pingree Road.

Sensitive Land Uses

A sewage treatment plant is located along McHenry Avenue, near the proposed alignment of the Connector.

A public recreation use in this segment is the Prairie Trail South which crosses the route between Pyott Road and Virginia Road.

3.8.4 DEVELOPMENT CHARACTERISTICS

Development characteristics for Segment 8 are indicated on Route Map C-9.

Jurisdiction

The proposed alignment of the Randall Road/Illinois Route 31 Connector is primarily within the Lake In The Hills Village boundaries. However, portions of the alignment pass through Crystal Lake.

Type and Intensity of Development

Much of the land along the proposed alignment, especially to the south, is undeveloped. There is residential development on the western end of the segment and industrial activity in the vicinity of Pyott Road and the Chicago & NorthWestern Railroad. Other land use activity in the area, which is not adjacent to the right-of-way, includes a sewage treatment plant, the Lake In The Hills Airport and a gravel pit. Much of the land along the proposed alignment is now being mined or is planned to be mined.

Development Access and Setback

The proposed right-of-way of the Connector provides substantial existing building setback in most areas. Possible areas of concern are on the south side of the right-of-way between Pyott Road and the Chicago & NorthWestern Railroad and on both sides of the right-of-way where the Connector intersects Illinois Route 31.

Proposed access along the Connector is currently limited to the intersecting cross streets.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall/IL 31 Connector from Randall Road to Illinois Route 31

3.8.5 RECOMMENDED IMPROVEMENTS

Improvements to Randall Road/Illinois Route 31 Connector have been recommended after evaluating the projected travel demand for the year 2010 along with the planned roadway configuration for the Connector and character of development along the route. Improvements are categorized by ultimate, low-cost and post-2010, and divided into those related to 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-9.

Ultimate Improvements

Roadway

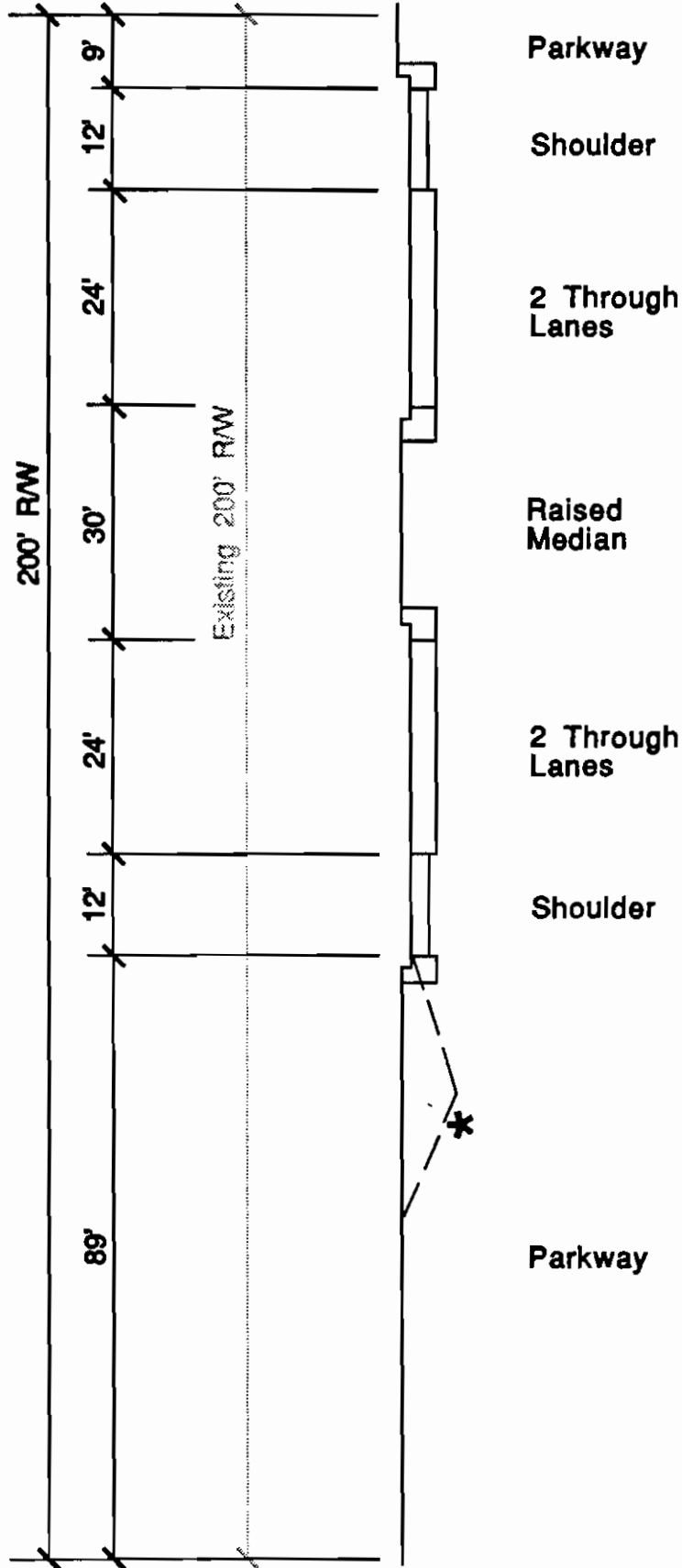
In this segment the recommended roadway configuration provides two through lanes in each direction with a continuous 30-foot wide raised median. (See Figures 3.27 and 3.28.) This median width will allow for the development of dual left-turn lanes where required.

Results of the capacity analysis for this segment are shown in Table 3.30.

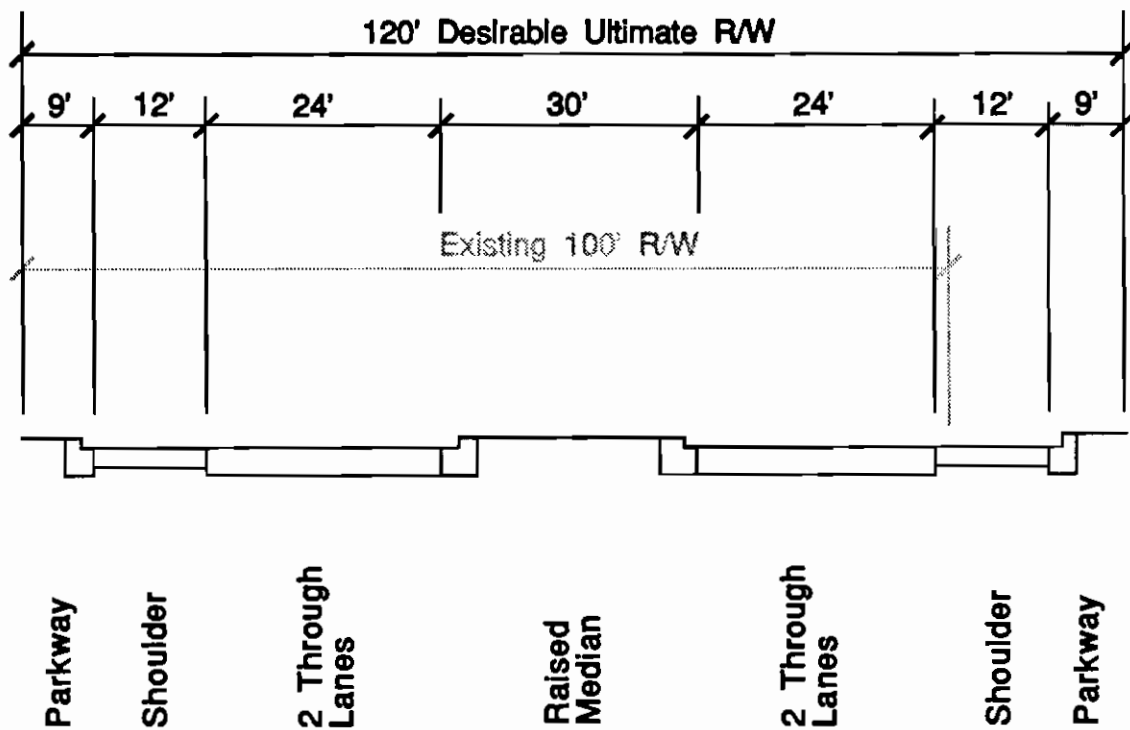
Table 3.30 Capacity Analysis for Segment 8 - Randall/Illinois 31 Connector					
Segment	Projected Travel Demand (AADT) ⁽¹⁾	Number of Through Traffic Lanes	Arterial Capacity (AADT) ⁽¹⁾	Peak Direction Level of Service	Adequate to Meet Projected Demand
Randall Road to Illinois Route 31	< 30,000	2	16,000	D	No
		4 *	30,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment.					

Intersections

Consideration should be given to providing dual left turn lanes northbound on the connector at McHenry Avenue and eastbound on the connector at Illinois Route 31 due to potentially heavy turning volumes. The 30-foot wide median will allow development of either single or dual left-turn lanes at other intersections. Separate right-turn lanes are also recommended at all signalized intersections.



* closed or open drainage system



Section T-T

Recommended Roadway Typical Section

Randall Road/Illinois 31 Connector **Pyott Road to Illinois Route 31**

prepared by Harland Bartholomew & Associates, Inc. Figure 3.28

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall/IL 31 Connector from Randall Road to Illinois Route 31

Traffic Signalization

Locations are recommended for potential future signals at Pyott Road, Virginia Road, Pingree Road and Illinois Route 31.

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 SRAs 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 in coordinated systems is recommended. The Pyott and Virginia Road signals should be interconnected into a signal system, and the Pingree Road and Illinois Route 31 signals should be included in the system that extends to Three Oaks Road in Segment 9.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

Consideration should be given to development of Park-and-Ride facilities in conjunction with future express bus service along the SRA route. A potential location for such facilities would be in the vicinity of the Connector with Illinois Route 31.

Other Improvements

A grade separation should be constructed at the intersection of the connector and the Prairie Trail South to elevate the Prairie Trail over the SRA route.

Low-Cost Improvements

Traffic Signalization

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

Access Management

As parcels are developed or redeveloped, it is recommended that access to the Randall Road/Illinois Route 31 Connector be limited to the locations shown on Route Map D-9.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Randall/IL 31 Connector from Randall Road to Illinois Route 31

Transit

Directional signage is recommended on this segment for Metra Service on the Chicago & NorthWestern Northwest line at the Crystal Lake station. This signage should be located at major intersections such as McHenry Avenue, Pyott Road, and Pingree Road indicating distance and direction to the station.

3.8.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

To achieve the 120-foot wide right-of-way, an additional 20 feet will be needed from Pyott Road to Illinois Route 31. Due to existing development and a gravel pit on the north side of the route, additional right-of-way should be obtained from the south side of the route between Pyott Road and Pingree Road.

3.8.7 POTENTIAL ENVIRONMENTAL CONCERNS

Construction and expansion of the roadway facilities into floodplains and wetlands will require further study during the design phase of any improvement. Also of concern in this segment is the noise increase and visual impact of additional lanes on residential development north of the route between Randall Road and Pyott Road.

3.8.8 CONSTRUCTION /RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 8 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.31*.

Table 3.31 Construction Cost Estimates for Segment 8 - Randall/Illinois 31 Connector	
Improvement	Estimated Cost
Ultimate	
Roadway (widen existing two lanes to four lanes)	\$10,200,000
Intersection Improvements	\$2,300,000
Traffic Signals	\$400,000
Signal Interconnection	\$200,000
Transit Improvements (includes land acquisition)	\$600,000
Right-of-way Acquisition	\$200,000
Total Cost for Ultimate Improvements	\$13,900,000
Low-Cost	
Transit Improvements	\$10,000
Total Estimated Cost for Low-Cost Improvements	\$10,000
Total Estimated Cost for All Improvements	\$13,910,000

3.9 SRA SEGMENT 9: ILLINOIS ROUTE 31 FROM RANDALL ROAD/ILLINOIS ROUTE 31 CONNECTOR TO ILLINOIS ROUTE 176

3.9.1 LOCATION

Segment 8 is located on Illinois Route 31 and extends from the Randall Road/Illinois Route 31 Connector to Illinois Route 176 (Terra Cotta Avenue). (See Figure 3.29.) The segment is three miles long.

3.9.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 9 are shown on Route Map A-10.

Traffic Volumes

According to the 1989 IDOT McHenry County Traffic Map, the Average Annual Daily Traffic (AADT) in this segment varies from 11,400 vehicles south of Three Oaks Road to 19,000 vehicles north of Three Oaks Road .

Right-of-Way

The right-of-way between the Randall Road/Illinois Route 31 Connector and Three Oaks Road is 120 feet wide. North of Three Oaks Road the right-of-way ranges from 110 feet to over 200 feet wide.

Pavement Width and Number of Lanes

The existing pavement is 24 feet wide between the Connector and Three Oaks Road and provides for two through lanes (one in each direction). There are 10-foot wide bituminous shoulders on each side of the roadway.

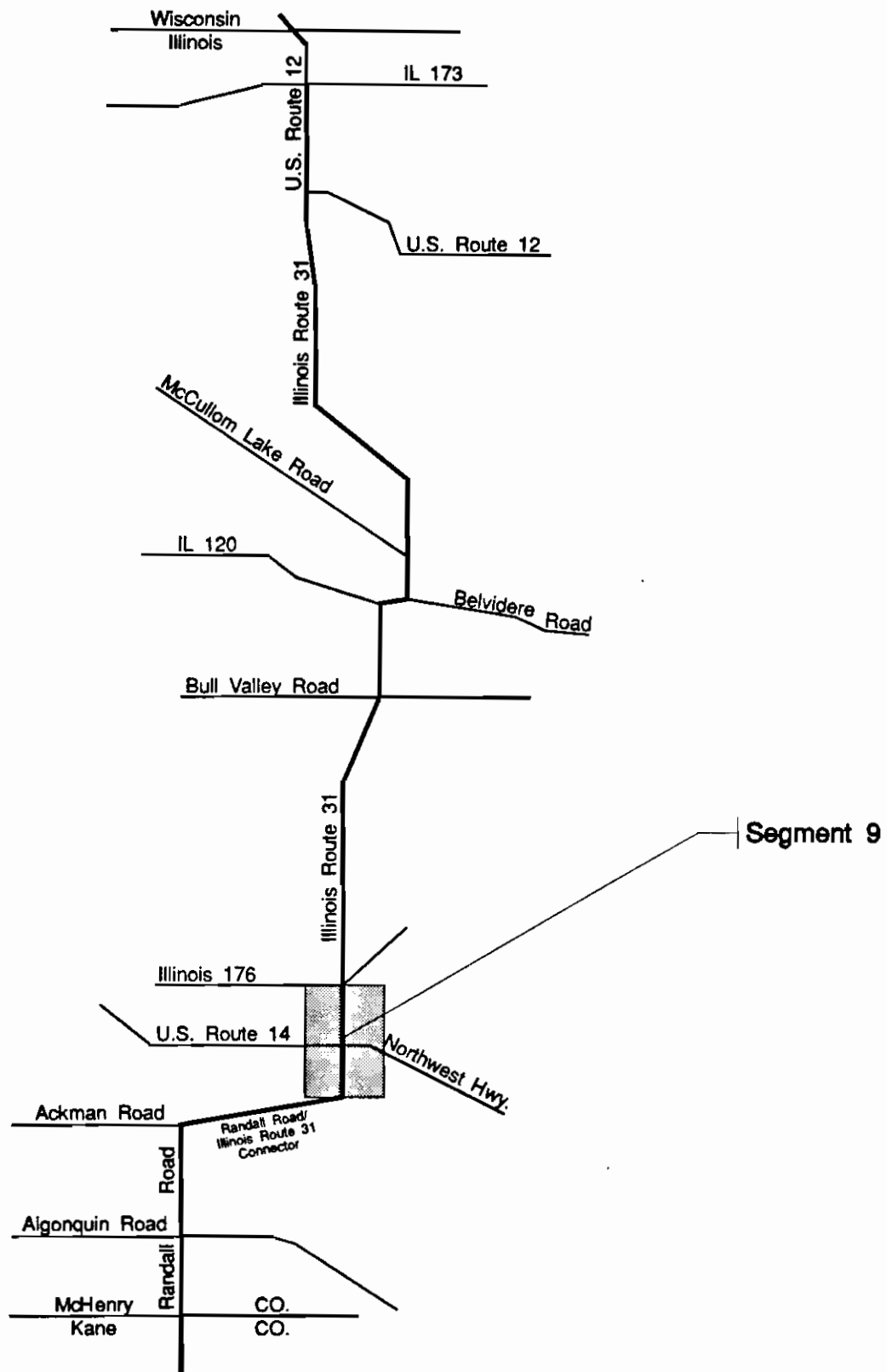
Between Three Oaks Road and Illinois Route 176 the pavement is 48 feet wide and includes four through lanes (two in each direction). There is a 10-foot wide paved shoulder with curb and gutter along each side of the roadway and a raised median with left turn lanes.

Traffic Signals

There are three existing signalized intersections on this segment, as shown in Table 3.32.

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces or sidewalks. There are frontage roads on both sides of the roadway north of the Chicago & NorthWestern Railroad for one quarter mile.



ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Randall/IL 31 Connector to Illinois Route 176

Table 3.32 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Three Oaks Road	1	1	YES	YES	
Crystal Lake Avenue	2	2	YES	NO	
IL 176 (Terra Cotta Ave)	2	2	YES	YES	Five-legged intersection
Note: NB = northbound; SB = southbound					

Structures

There are two structures in this segment which are shown in *Table 3.33*.

Table 3.33 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance		Remarks
			Vert.	Horiz.	
U.S. Route 14	056-0002	_____	14'-3"	UA	SRA under
C&NW RR	056-0040	N. of U.S. Rte. 14	N/A	92'	SRA over
Note: N/A=Not Applicable UA=Unavailable					

Transit

Illinois Route 31 offers more transit service than Randall Road. This segment is connected with Elgin by the Pace route #801 and with Spring Hill Mall by the #803 and #805. Crystal Lake passengers may reach McHenry on the route #806.

Other Characteristics

There is a fully-directional, cloverleaf interchange U.S. Route 14. The interior ramps are stop controlled due to the geometrics of the interchange.

3.9.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The environmental characteristics include a threatened plant species and sensitive land uses as shown on Route Map B-10.

Flora/Fauna

Habitat of the forked aster, a threatened plant species in Illinois, is listed within one mile of this segment.

Sensitive Land Uses

Noise sensitive land uses on this segment include two churches on the east side of the right-of-way near Crystal Lake Avenue, one about one-half mile south and one just north.

Other sensitive uses include Twin Ponds Golf Course, Lake Region YMCA, and a public utility adjacent to the right-of-way just south of Illinois Route 176.

3.9.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Map C-10.

Jurisdiction

The primary local jurisdictions exercising control over development on this segment are the Village of Lake In The Hills and the City of Crystal Lake. The Village Limits of Lake In The Hills extend north from Virginia Avenue for approximately one and one-half miles on the west side of Illinois Route 31. Crystal Lake City Limits abut the right-of-way on both sides of the route from the Connector to one-half mile south of Crystal Lake Avenue.

Type and Intensity of Development

Existing land use is mixed consisting of single-family residential, commercial, and industrial development.

Industrial development is between the Randall Road/Illinois Route 31 Connector and Three Oaks Road, and also northeast of the interchange at U.S. Route 14 (Northwest Highway). Developed property near the interchange with U.S. Route 14 (Northwest Highway) and the intersection with Illinois Route 176 (Terra Cotta Avenue) is commercial. Residential development is single-family and primarily between the Chicago & NorthWestern Railroad and Illinois Route 176 (Terra Cotta Avenue).

Development Access and Setback

It appears that no building along this segment is within 30 feet of the right-of-way.

Residential development is accessed in two ways: the independent single-family residences have driveway access onto Illinois Route 31 and the residential subdivisions are serviced by cross streets. All but one of the streets servicing the residential neighborhood south of Crystal Lake Avenue are right-in/right-out, because of the barrier median present through this area. The commercial development which predominates south of Illinois Route 176 (Terra Cotta Avenue) is serviced by several access points within a relatively small distance. Other commercial and industrial development is either directly accessed from Illinois Route 31 or via an access road or cross street intersecting Illinois Route 31.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Randall/IL 31 Connector to Illinois Route 176

Future Development

There are two plans to develop vacant land near the intersection at Three Oaks Road, one an industrial complex southeast of the intersection and the other an office project northwest of the intersection.

3.9.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Illinois Route 31 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 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-10.

Ultimate Improvements

Roadway

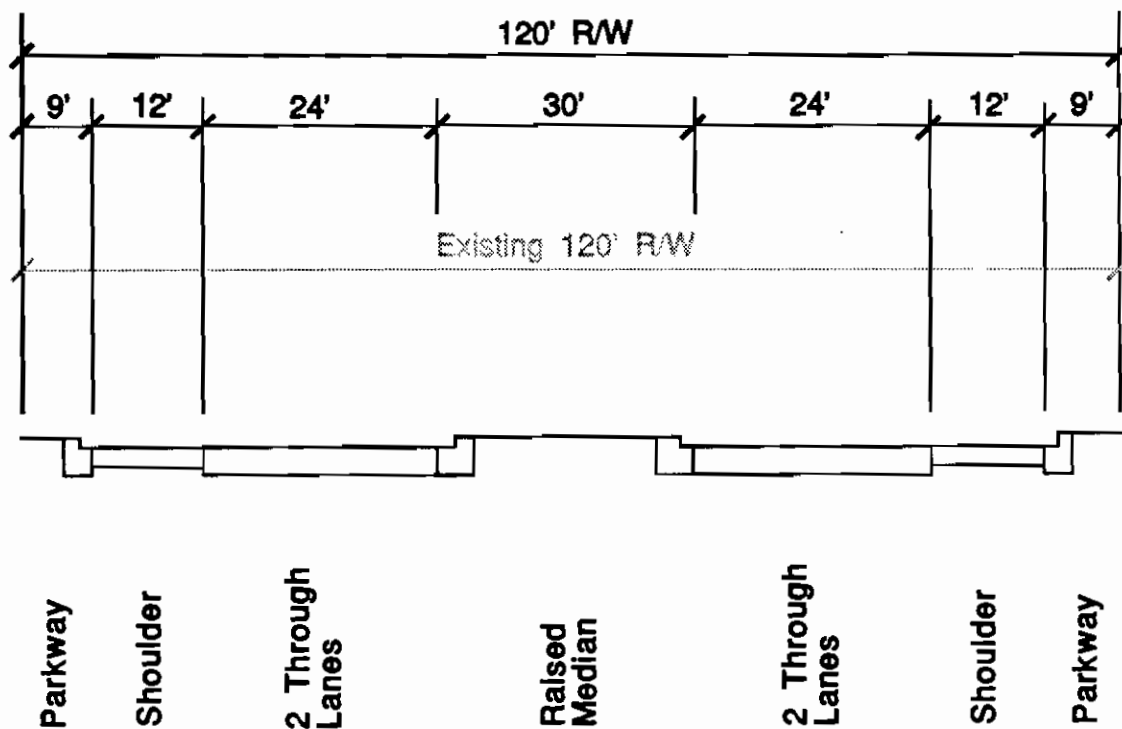
In this segment the recommended roadway configuration provides two through lanes in each direction with a continuous 30-foot wide raised median. (See Figure 3.30.) This median width will allow for the development of dual left-turn lanes where required.

Results of the capacity analysis for this segment are shown in Table 3.34.

Table 3.34 Capacity Analysis for Segment 9 - Illinois Route 31					
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
Randall/IL 31 Con to Illinois Route 176	< 30,000	2	17,000	D	No
		4 *	33,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of traffic lanes for this segment.					

Intersections

Major intersection improvements are recommended at the intersection of Illinois Route 31 with Illinois Route 176. Dual left-turn lanes and separate right-turn lanes are recommended



Section U-U

Recommended Roadway Typical Section

Illinois Route 31 Randall/Illinois 31 Connector to Illinois Route 176

prepared by Harland Bartholomew & Associates, Inc. Figure 3.30

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Randall/IL 31 Connector to Illinois Route 176

on all legs of the intersection. Realignment of the east leg of Illinois Route 176 is recommended so that it intersects Illinois Route 31 at 90 degrees. This will reduce the total number of vehicle movements and signal phases at this intersection. (See Detail 9.) The 30-foot wide median will allow development of either single or dual left-turn lanes at other intersections. Separate right-turn lanes are also recommended at all signalized intersections.

Traffic Signalization

No additional locations are recommended for potential future traffic signals in this segment.

All existing signal locations would be retained, and interconnection of signals in coordinated systems is recommended. Ultimately the signal at Three Oaks Road should be included with the system beginning at Pingree Road on the Randall Road/Illinois Route 31 Connector.

Structures

The U.S. Route 14 structure has substandard vertical clearance and should be modified to provide at least 14'6" of clearance over the SRA route.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the [Pace Development Guidelines](#).

Consideration should be given to development of Park-and-Ride facilities in conjunction with future express bus service, car pools and van pools along the SRA route. A potential location for this facility would be between Crystal Lake Avenue and Illinois Route 176.

Other Improvements

The Illinois Route 31/U.S. Route 14 interchange is currently under IDOT Phase I Study. Preliminary recommendations from this study include replacing the substandard cloverleaf interchange with a diamond interchange configuration.

Low-Cost Improvements

Traffic Signalization

Existing signals at Crystal Lake Avenue and Illinois Route 176 should be interconnected.

Access Management

As parcels are developed or redeveloped, it is recommended that access to Illinois Route 31 be limited to the locations shown on Route Map D-10. Where possible, existing access

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Randall/IL 31 Connector to Illinois Route 176

between Crystal Lake Avenue and Illinois Route 176 should also be consolidated approximately 500 feet apart at the designated access points as shown on Route Map D-10.

Transit

Directional signage is recommended on this segment of Illinois Route 31 for Metra Service on the Chicago & NorthWestern Northwest line at the Crystal Lake station. This signage should be located at major intersections such as Crystal Lake Avenue and Illinois Route 176 indicating distance and direction to the station.

3.9.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The recommended right-of-way width for this segment is 120 feet. No additional right-of-way will be needed to achieve this width.

Additional right-of-way will be necessary to improve the geometry of the five-legged intersection with Illinois Route 176 and Terra Cotta Avenue and to reconstruct the U.S. Route 14 interchange. The Illinois Route 176 realignment would require at least 80 to 100 feet of right-of-way through a developing area.

The exact amount of right-of-way necessary for the U.S. Route 14 interchange reconstruction will be determined in the ongoing IDOT Phase I Study. The right-of-way limits for this improvement shown on Route Map D-10 are based on the right-of-way requirements for compressed diamond interchanges in Section 8.3.2 of the Strategic Regional Arterial Design Concept Report.

3.9.7 POTENTIAL ENVIRONMENTAL CONCERNS

Most of the existing right-of-way is sufficient for the roadway improvements recommended in this segment. Two exceptions would be at the Illinois Route 176 intersection and the U.S. Route 14 interchange. The intersection with Illinois Route 176 and Terra Cotta Avenue is fully developed with commercial enterprises which should be considered in any proposed realignment. Potential economic and social disruption would be minimized if right-of-way is protected as soon as possible. The effect of realigning Illinois Route 176 on the habitat of the threatened species would be determined during Phase I studies of that improvement.

Environmental concerns associated with the U.S. Route 14 interchange reconstruction will be addressed in detail in the ongoing IDOT Phase I Study.

3.9.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 9 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.35*.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Randall/IL 31 Connector to Illinois Route 176

Table 3.35	
Construction Cost Estimates for Segment 9 - Illinois Route 31	
Improvement	Estimated Cost
Ultimate	
Roadway (including Interchange at U.S. Route 14)	\$15,000,000
Intersection Improvements (includes IL 176 realignment)	\$4,000,000
Signal Interconnection	\$100,000
Transit Improvements (includes land acquisition)	\$600,000
Right-of-way Acquisition	\$1,800,000
Total Estimated Cost for Ultimate Improvements	\$21,500,000
Low-Cost	
Signal Interconnection	\$100,000
Transit Improvements	\$10,000
Total Estimated Cost for Low-Cost Improvements	\$110,000
Total Estimated Cost for All Improvements	\$21,610,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Illinois Route 176 to Bull Valley Road

3.10 SRA SEGMENT 10: ILLINOIS ROUTE 31 FROM ILLINOIS ROUTE 176 TO BULL VALLEY ROAD

3.10.1 LOCATION

Segment 10 is located on Illinois Route 31 and extends from Illinois Route 176 (Terra Cotta Avenue) to Bull Valley Road. (See Figure 3.31.) The segment is approximately six miles long.

3.10.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 10 are shown on Route Maps A-10 and A-11.

Traffic Volumes

According to the 1989 IDOT McHenry County Traffic Map, the Average Annual Daily Traffic (AADT) for this segment of Illinois Route 31 is 13,000 vehicles.

Right-of-Way

The existing right-of-way ranges from 66 to 80 feet wide.

Pavement Width and Number of Lanes

The pavement is 30 feet wide and provides two through lanes (one in each direction). There are 6-foot wide bituminous shoulders on each side of the route.

Traffic Signals

There is one signalized intersection in this segment, as shown in Table 3.36.

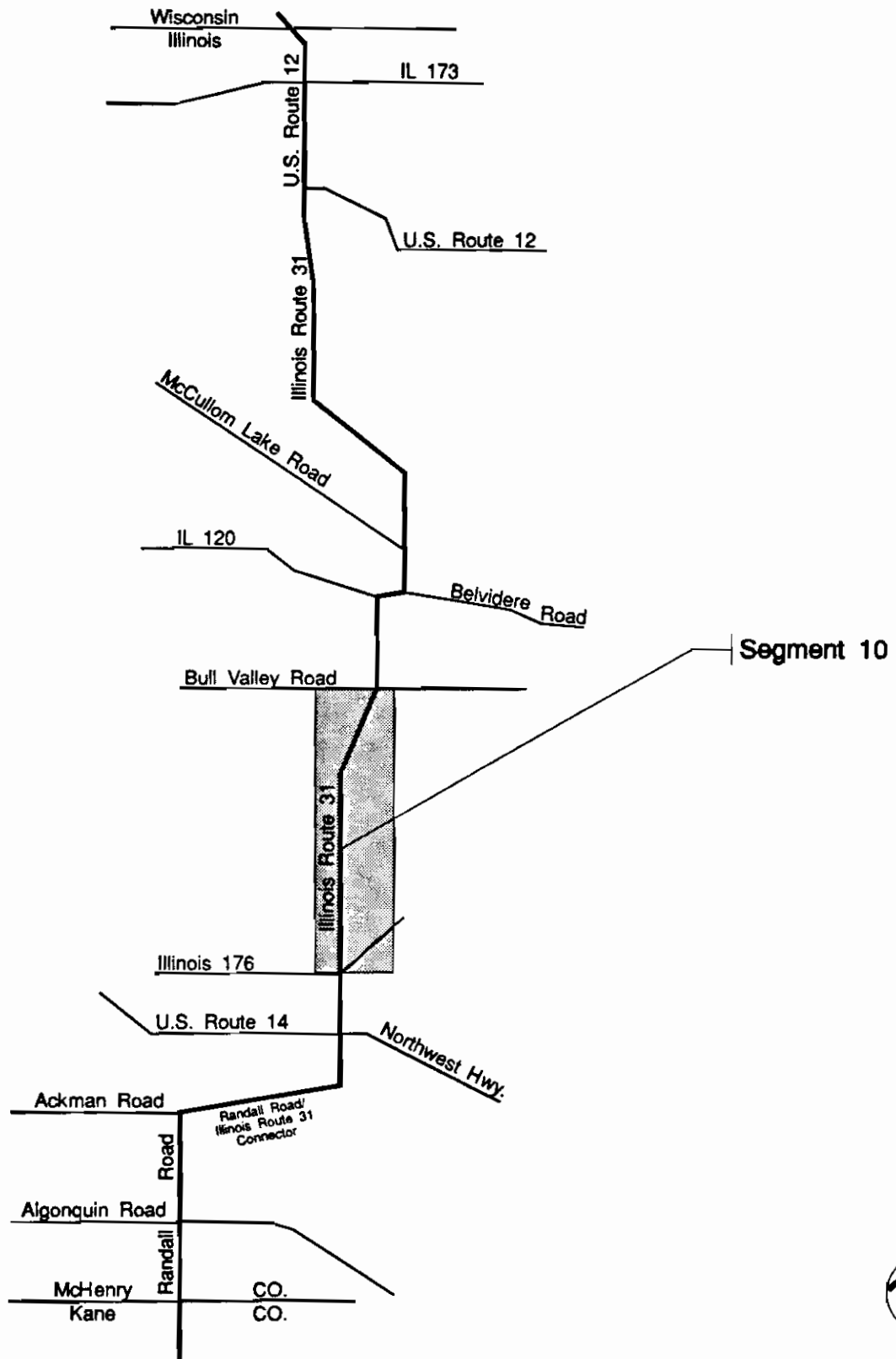
Table 3.36 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Bull Valley Road	1	1	YES	NB	
Note: NB = northbound; SB = southbound					

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces, sidewalks, or frontage roads.

Structures

There are no structures in this segment.



ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Illinois Route 176 to Bull Valley Road

Transit

Pace provides the #805 bus service between Spring Hill Mall and the Metra station, and the #806 and #807 provide service to the medical facilities and employment sites during peak periods. The Chicago & NorthWestern northwest line operates a station one and one-half miles west of the route in Crystal Lake and a station in McHenry one and one-half miles north of Bull Valley Road on the west side of the route.

3.10.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics include streams, wetlands, floodplains, historic structures, prime farmland and sensitive land uses as shown on Route Maps B-10 and B-11.

Streams/Wetlands/Floodplains

There is one 200-foot wide floodplain crossing north of Squaw Creek Road. Also, there are minor stream crossings and wetland areas associated with Thunderbird Lake.

Historical Significance

TC Industries is listed in the Inventory of Historic Landmarks and is located on the northwest corner of the intersection with Squaw Creek Road.

Prime Farmland

Prime farmland on this segment extends from approximately Gracy Road to Bull Valley Road on both sides of the route.

Sensitive Land Uses

Noise sensitive land uses on this segment include Crystal Lake Ambuttal Medical Center, McMillan Cemetery, Canterbury Retirement Center, and McHenry Hospital.

There are two public utilities: one south of Ames Road east of the right-of-way and one west of the right-of-way south of Bull Valley Road.

3.10.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Maps C-10 and C-11.

Jurisdiction

The Village of Prairie Grove and the Cities of Crystal Lake and McHenry are the local jurisdictions exercising control over development on this segment. The Crystal Lake limits

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Illinois Route 176 to Bull Valley Road

extend north for one mile from Terra Cotta Avenue. The Village Limits of Prairie Grove are between Squaw Creek Road and Gracy Road. Finally, there are several areas south of Bull Valley Road that are within the McHenry City Limits. The remainder of the land adjacent to the route is in unincorporated McHenry County.

Type and Intensity of Development

The land uses found on this segment include agricultural, commercial, residential, industrial, and office. Development is scattered and not particularly dense in any one area. Between Illinois Route 176 (Terra Cotta Avenue) and Drake Drive, development consists of commercial, industrial, and office uses as well as a Medical Center. North of Drake Drive, to Squaw Creek Road, low-density residential is the predominant development type. Then from Squaw Creek Road to the end of the route segment, the predominant land use is industrial, but residential and office uses are also found. Industrial development is concentrated at the intersections with Squaw Creek Road, Ames Road, Gracy Road and Albany Street.

Development Access and Setback

On this segment building setbacks are significant except for TC Industries, located at Squaw Creek Road.

Since most of the development on this segment is independent, each use has its own access drive. North of Illinois Route 176, there are several curb cuts allowing access to the industrial and commercial activity in the area. The residential development north of Drake Drive is accessed from intersecting cross streets which service only this development. From Squaw Creek Road to Bull Valley Road, curb cuts provide access for development including driveways onto Illinois Route 31 from single-family residences.

Future Development

There is a significant amount of land still undeveloped on this segment. Plans to develop certain parcels of this land include a residential development north of Illinois Route 176 and west of Illinois Route 31, and one east of Illinois Route 31 south of Bull Valley Road. Four new industrial developments are either proposed or have been approved around Albany and Dayton Streets.

3.10.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Illinois Route 31 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 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 Maps D-10 and D-11.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Illinois Route 176 to Bull Valley Road

Ultimate Improvements

Roadway

Between Illinois Route 176 and Gracy Road the recommended roadway configuration provides two through lanes in each direction with a continuous 30-foot wide raised median. (See Figure 3.32.) This median width will allow for the development of dual left-turn lanes where required. North of Gracy Road, it is recommended that the West McHenry Bypass be constructed to provide two through lanes in each direction with a continuous 46-foot wide median. No SRA roadway improvements are recommended on the existing alignment of Illinois Route 31 north of Gracy Road.

It is recommended in this segment that Ames Road be realigned to the north to intersect Illinois Route 31 opposite Edgewood Road. This realignment will ease east-west travel in the Prairie Grove area by providing a direct movement across Illinois Route 31.

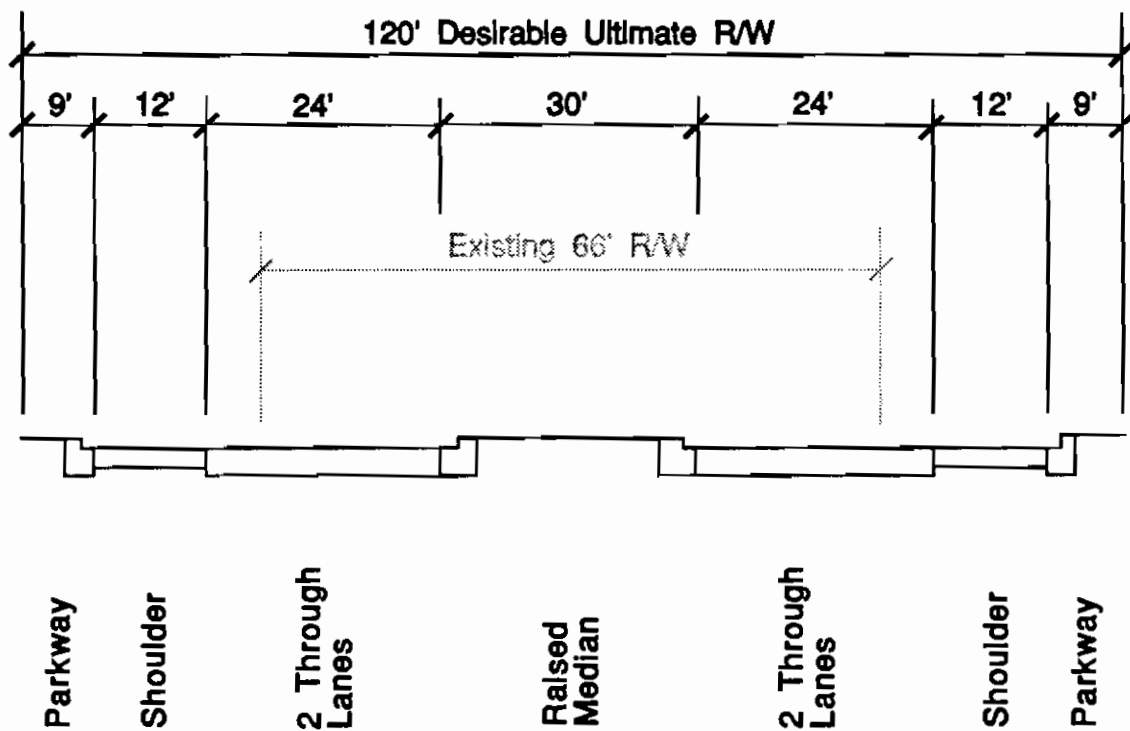
Results of the capacity analysis for this segment are shown in Table 3.37.

Table 3.37 Capacity Analysis for Segment 10 - Illinois Route 31					
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 Route 176 ⁽³⁾ to Bull Valley Road	< 30,000	2	16,000	D	No
		4 ⁽²⁾ *	31,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic ⁽²⁾ From Illinois Route 176 to Gracy Road ⁽³⁾ 4 lane West McHenry Bypass recommended from Gracy Road to School Road. (No ultimate improvements recommended on existing alignment.)					
* - Indicates recommended number of through lanes for this segment.					

Intersections

Between Illinois Route 176 and Gracy Road, the 30-foot wide median will allow development of either single or dual left-turn lanes at intersections. Separate right-turn lanes are also recommended at all signalized intersections between Illinois Route 176 and Gracy Road.

Because the bypass route is intended to carry through traffic, intersections should be limited to those necessary to provide for continuity of travel on existing roads. Where intersections are located on the bypass route, the recommended 46-foot wide median will allow for single or dual left-turn lanes as required. Separate right-turn lanes should also be provided on the bypass at all signalized intersections.



Illinois Route 31

**Section V-V
Recommended Roadway Typical Section
Illinois Route 176 to Gracy Road**

prepared by Harland Bartholomew & Associates, Inc.

Figure 3.32

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Illinois Route 176 to Bull Valley Road

Traffic Signalization

Recommended locations for potential future signals are at Squaw Creek Road, Edgewood Road, Gracy Road and the mid-mile collector one-half mile north of Illinois Route 176. Additional potential locations would be at intersections along the bypass route north of Gracy Road.

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 SRAs 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.

All existing signals would be retained, and interconnection of signals in coordinated systems is recommended. The mid-mile collector signal north of Illinois Route 176 should be incorporated into the system beginning at Crystal Lake Avenue in Segment 9. The Edgewood Road and Gracy Road signals should be interconnected into a signal system.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

Low-Cost Improvements

Intersections

Left-turn lanes are recommended at Drake Drive, Ames Road, Edgewood Road and Gracy Road. When future mid-mile collectors are constructed 1/2 mile north of Illinois Route 176, left turn lanes should be provided on Illinois Route 31 at this intersection.

Traffic Signalization

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

Access Management

As parcels between Illinois Route 176 and Gracy Road are developed or redeveloped, it is recommended that access to Illinois Route 31 be limited to the locations shown on Route Maps D-10 and D-11. Access to abutting property should not be permitted along the bypass route so that its capacity to serve through traffic can be preserved.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Illinois Route 176 to Bull Valley Road

Transit

Directional signage is recommended on this segment of Illinois Route 31 for Metra Service on the Chicago & NorthWestern Northwest line at the Crystal Lake and McHenry stations. This signage should be located at major intersections such as Gracy Road and Bull Valley Road indicating distance and direction to the station.

3.10.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

The minimum desirable right-of-way width for this segment is 120 feet. To achieve this right-of-way, an additional 64 feet of right-of-way will be required for the section between Illinois Route 176 and Gracy Road. No additional right-of-way is recommended for the existing alignment of Illinois Route 31 between Gracy Road and Bull Valley Road.

Right-of-way should be preserved between Ames and Edgewood Roads on the east side of the route for the realignment of Ames Road. Exact amounts will be determined during Phase I activities.

The right-of-way for the bypass for McHenry is recommended to be 170 feet wide. McHenry County has identified a corridor for the bypass, but to date, no specific alignment has been identified.

3.10.7 POTENTIAL ENVIRONMENTAL CONCERNS

Expansion of the roadway facilities into the prime farmland, floodplains and wetlands which abut the route will require further study during the design phase of any improvement. The Crystal Lake Ambulatory Medical Center, Northern Illinois Medical Center, and Canterbury Retirement Center appear set back far enough from the right of way that expansion and improvement of the roadway will have minimal impact.

The proximity of the floodplain, wetlands, utility and TC Industry structures to Illinois Route 31 could constrain the acquisition of additional right-of-way. The exact location of the wetlands and the significance of the TC Industries buildings should be examined as part of the preliminary design of improvements. Expansion of right-of-way adjacent to McMillan Cemetery may require a westerly shift in the roadway alignment in order to avoid any impact.

Environmental concerns associated with the West McHenry Bypass will be determined during the alignment study for the improvement. A previous study of the bypass alignment identified floodplains, prime farmland and historic structures as potential environmental concerns in the improvement corridor.

3.10.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 10 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.38*.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Illinois Route 176 to Bull Valley Road

Table 3.38 Construction Cost Estimates for Segment 10 - Illinois Route 31	
Improvement	Estimated Cost
Ultimate	
West McHenry Bypass cost estimate is listed in Section 3.11.	
Roadway	\$10,500,000
Intersection Improvements (includes Ames Rd. realignment)	\$800,000
Traffic Signals	\$400,000
Signal Interconnection	\$200,000
Transit Improvements (including land acquisition)	\$100,000
Right-of-way Acquisition	\$1,900,000
Total Estimated Cost for Ultimate Improvements	\$13,900,000
Low-Cost	
Intersection Improvements	\$400,000
Transit Improvements	\$10,000
Total Estimated Cost for Low-Cost Improvements	\$410,000
Total Estimated Cost for All Improvements	\$14,310,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Bull Valley Road to McCullom Lake Road

3.11 SRA SEGMENT 11: ILLINOIS ROUTE 31 FROM BULL VALLEY ROAD TO MCCULLOM LAKE ROAD

3.11.1 LOCATION

Segment 11 is located on Illinois Route 31 and extends from Bull Valley Road to McCullom Lake Road. (See *Figure 3.33*.) The segment is 2.4 miles long.

3.11.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 11 are shown on Route Maps A-11 and A-12. Existing signals and laneage on Illinois Route 120 between the two offset Illinois Route 31 intersections are shown on Detail 10.

Traffic Volumes

According to the 1989 IDOT McHenry County Traffic Map, the Average Annual Daily Traffic (AADT) for this segment is between 11,200 and 17,500 vehicles between Bull Valley Road and Illinois Route 120; 33,800 vehicles on the portion of Illinois Route 31 that overlaps Illinois Route 120; and 22,500 vehicles between Illinois Route 120 and McCullom Lake Road.

Right-of-Way

The right-of-way varies from 66 to 80 feet wide.

Pavement Width and Number of Lanes

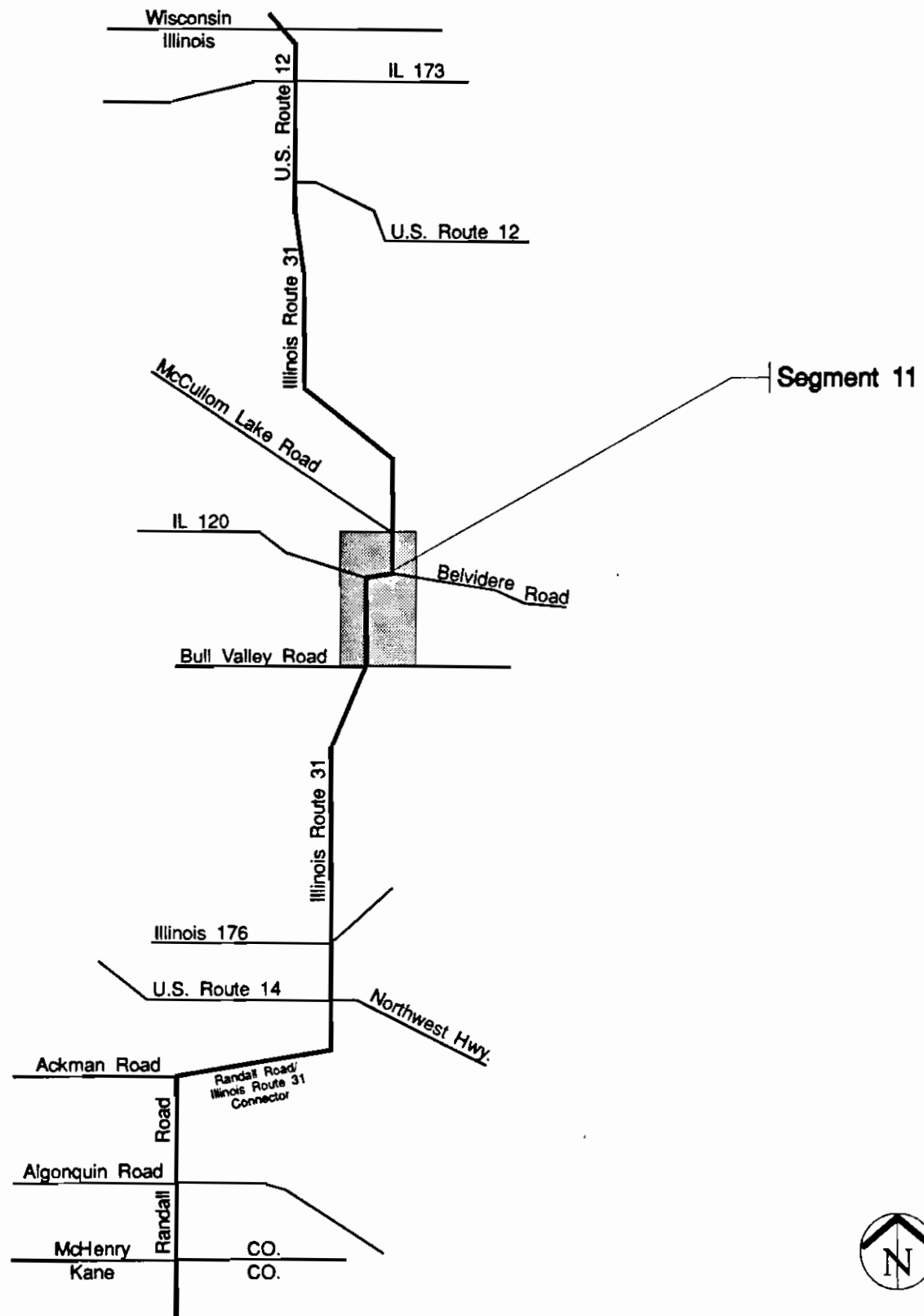
From Bull Valley Road to Illinois Route 120, the pavement is approximately 42 feet wide. This includes one through lane in each direction, a striped median, and curb-and-gutter. Where Illinois Route 120 and Illinois Route 31 are on the same alignment, the pavement is approximately 60 feet wide. This width provides two through lanes in each direction, a striped median, and curb-and-gutter. From Illinois Route 120 to McCullom Lake Road the roadway is 32 to 36 feet wide. This provides one through lane in each direction, a striped median, and curb-and-gutter.

Traffic Signals

There are five signalized intersections in this segment. They are listed from south to north on *Table 3.39*.

Parking, Sidewalks, and Frontage Roads

There are three blocks of on-street parking on the west side of Illinois Route 31 south of Illinois Route 120 (Elm Street) and for one block on the north side of Elm Street just east of Front Street. There are sidewalks on both sides of the route from Lillian Street north to McCullom Lake Road. There are no frontage roads.



Illinois Route 31

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.33

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Bull Valley Road to McCullom Lake Road

Table 3.39 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Lillian/Grove Street	1	1	YES	NO	
Illinois 120 (Elm Street)	1	2 ⁽¹⁾	YES	NB	⁽¹⁾ 2 through lanes westbound
Illinois 120 (Belvidere)	2 ⁽²⁾	1	YES	SB	⁽²⁾ 2 through lanes eastbound
Pearl Street	1	1	SB	NB	
McCullom Lake Road	1	1	YES	NO	
Note: NB=northbound; SB=southbound; WB=westbound; EB=eastbound					

Structures

There is one structure in this segment, as shown in *Table 3.40*.

Table 3.40 Existing Structures					
Structure	Structure No. (SN)	Location	Clearance Vert. Horiz.		Remarks
Boone Creek	056-0013	along IL 120	N/A	40'	SRA over
Note: N/A=Not Applicable					

Transit

Pace operates the #806 bus along Illinois Route 120 to the Metra station just west of the right of way. The Chicago & NorthWestern Northwest line runs commuter service to the Main Street station several times each work day.

3.11.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics include streams, floodplains, a historic structure, prime farmland, and sensitive land uses as shown on Route Maps B-11 and B-12.

Streams/Wetlands/Floodplains

The only floodplain crossing on this segment occurs in the City of McHenry where Illinois Route 31 crosses Boone Creek. The floodplain is 75 feet wide at this point. Illinois Route 31 also crosses an unnamed stream between Anne Street and Lillian Street, but there is no 100-year floodplain associated with this stream.

Historical Significance

St. Mary's Church, listed in the Inventory of Historic Structures, is located on Illinois Route 31 at Pearl Street on the west side of the route.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Bull Valley Road to McCullom Lake Road

Prime Farmland

Since most of this segment runs through the heart of McHenry, there is not a substantial amount of prime farmland. The farmland areas extend from Bull Valley Road to the beginning of development in McHenry.

Sensitive Land Uses

Noise sensitive land uses on this segment include McHenry High School, which has facilities on both sides of Green Street south of Boone Creek, St. Mary's Church and Montini School north of Boone Creek.

Other sensitive uses include the McHenry City Hall, McHenry Country Club and Golf Course on Green Street south of Boone Creek, Knox Park and St. Mary's Cemetery.

3.11.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Maps C-11 and C-12.

Jurisdiction

The entire segment of Illinois Route 31 is within the City of McHenry.

The West McHenry Bypass corridor falls within the planning jurisdiction of three communities: Prairie Grove, Bull Valley and McHenry.

Type and Intensity of Development

The southern end of this segment is not completely developed. The land use in this area is mixed consisting of small commercial and industrial developments. Further north where McHenry development is more land intensive, single-family residential development predominates until Kane Avenue. Through downtown McHenry, the majority of the land use consists of commercial activity. North of the central business district until the McCullom Lake Road intersection, single-family residential development is again the predominant land use. There is new commercial development north of the intersection with McCullom Lake Road.

Development Access and Setback

Most development has direct access to Illinois Route 31. Buildings tend to be situated very close to the right-of-way line and, in the downtown area, they abut the sidewalk.

Future Development

The majority of undeveloped land is south of Lillian Street. There are several plans for both commercial and industrial development just north of Bull Valley Road along Illinois Route 31.

3.11.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Illinois Route 31 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. While the projected travel demand in this segment is as high as 40,000 vehicles per day, it is not feasible to provide a level of improvement along the existing alignment which would accommodate this demand. The limited existing right-of-way combined with the intensity of existing commercial and residential development abutting the right-of-way preclude widening the roadway to provide additional lanes. For these reasons, it is recommended that the West McHenry Bypass be developed to provide an alternative SRA route. A preliminary corridor for the West McHenry Bypass has been identified by McHenry County in its 1986 Feasibility Study and is shown on Route Maps D-15 through D-19. Additional study is recommended in order to determine a definite alignment for the improvement due to continued development and mining activities in the bypass corridor.

Recommended improvements are categorized by ultimate, low-cost and post-2010, and divided into those related to roadway, intersections, traffic signalization, structures, access, transit and other improvements. Low-cost improvements recommended for the existing alignment of Illinois Route 31 are shown on Route Map D-12. Right-of-way requirements, potential environmental concerns and improvement cost estimates are also provided in this section.

Ultimate Improvements

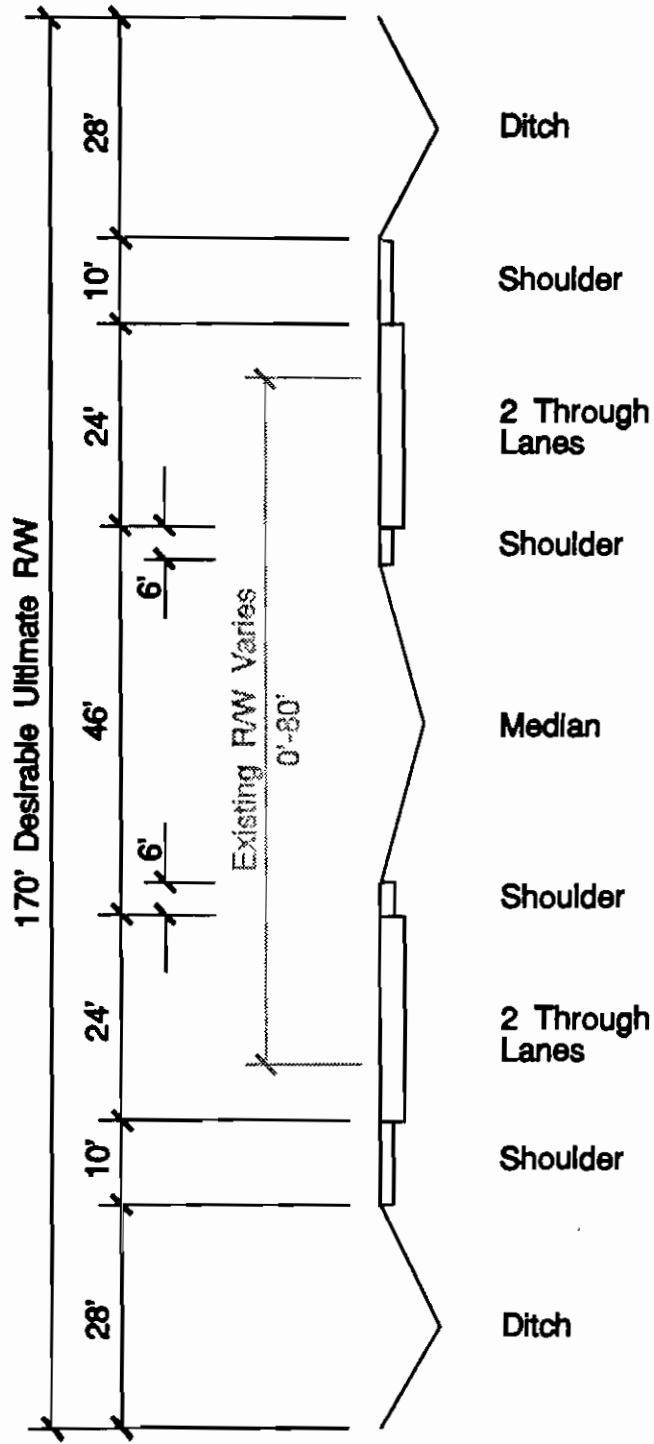
Roadway

The recommended roadway configuration for the McHenry Bypass provides two through lanes in each direction with a continuous 46-foot wide median. (See *Figure 3.34*.) No ultimate SRA roadway improvements are recommended on the existing alignment of Illinois Route 31 in this segment.

Results of the capacity analysis for the existing alignment of Illinois Route 31 in this segment are shown in *Table 3.41*.

Intersections

Because the bypass route is intended to carry through traffic, intersections should be limited to those necessary to provide for continuity of travel on existing roads. Where intersections are located on the bypass route, the recommended 46-foot wide median will allow for single or dual left-turn lanes as required. At the intersection of Illinois Route 120 with the bypass, dual left-turn lanes and separate right-turn lanes should be provided on all legs. Separate right-turn lanes should also be provided on the bypass at all other signalized intersections.



ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Bull Valley Road to McCullom Lake Road

Table 3.41 Capacity Analysis for Segment 11 - Illinois Route 31					
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
Bull Valley Rd to McCullom Lake ⁽³⁾	< 30,000 to 40,000	2	13,000	D	No
		4	24,000 27,000	C D	No
		4 ⁽²⁾	25,000	C	No
⁽¹⁾ Average Annual Daily Traffic ⁽²⁾ 6 lanes on Illinois 120 ⁽³⁾ 4 Lane West McHenry Bypass recommended from Gracy Road to School Road. (No ultimate improvements recommended on existing alignment.)					
* - Indicates recommended number of through lanes for this segment.					

Traffic Signalization

Potential future signals should be considered at all intersections along the bypass route in this segment. No changes in existing signal locations on the existing alignment of Illinois Route 31 are recommended.

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

Access Management

Access to abutting property should not be permitted along the bypass route so that its capacity to serve through traffic can be preserved.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Bull Valley Road to McCullom Lake Road

Consideration should be given to development of Park-and-Ride facilities in conjunction with future express bus service, car pools and van pools along the SRA route. Potential locations for such a facility in this segment would be at the intersection of Illinois Route 120 with the bypass where the proximity to two SRAs would allow the facility to serve two routes.

Low-Cost Improvements

Traffic Signalization

All existing signals on this segment from Lillian Street to McCullom Lake Road should be interconnected into a signal system.

Transit

Directional signage is recommended on this segment of Illinois Route 31 for Metra Service on the Chicago & NorthWestern Northwest line at the McHenry station. This signage should be located at major intersections such as the Illinois Route 120 intersections indicating distance and direction to the station.

3.11.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

No additional right-of-way is recommended along the existing alignment of Illinois Route 31, because development of the West McHenry Bypass is recommended to accommodate the projected Year 2010 traffic demand on this segment.

The recommended right-of-way for the West McHenry Bypass is 170 feet wide to allow for a rural cross-section with depressed median. The amount of additional right-of-way required to achieve this width will depend on the alignment chosen for the improvement.

3.11.7 POTENTIAL ENVIRONMENTAL CONCERNS

Construction of a bypass and retention of the existing right-of-way through downtown McHenry is expected to significantly reduce any historic, social, and economic impacts that improvement of the roadway to the ultimate desirable cross-section may have had. In addition to retaining the integrity of historic sites and natural resources adjacent to the right-of-way, resources along parallel routes which may have been used by motorists seeking less congested alternates are also protected. Such resources include McHenry High School, City Hall, and the McHenry Country Club and Golf Course.

Environmental concerns associated with the West McHenry Bypass will be determined during the alignment study for the improvement. A previous study of the bypass alignment identified floodplains, prime farmland and historic structures as potential environmental concerns in the improvement corridor.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from Bull Valley Road to McCullom Lake Road

3.11.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 11 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.42*.

Table 3.42	
Construction Cost Estimates for Segment 11 - Illinois Route 31	
Improvement	Estimated Cost
Ultimate	
West McHenry Bypass	\$19,000,000
Transit Improvements (includes land acquisition)	\$600,000
Total Estimated Cost for Ultimate Improvements	\$19,600,000
Low-Cost	
Signal Interconnection	\$300,000
Transit Improvements	\$10,000
Total Estimated Cost for Low-Cost Improvements	\$310,000
Total Estimated Cost for All Improvements	\$19,910,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from McCullom Lake Road to U.S. Route 12

3.12 SRA SEGMENT 12: ILLINOIS ROUTE 31 FROM MCCULLOM LAKE ROAD TO U.S. ROUTE 12

3.12.1 LOCATION

Segment 12 is located on Illinois Route 31 and extends from McCullom Lake Road to U.S. Route 12 at Tryon Grove Road. (See Figure 3.35.) The segment is 7.5 miles long.

3.12.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics are shown on Route Maps A-12, A-13 and A-14.

Traffic Volumes

According to the 1989 IDOT McHenry County Traffic Map, the Average Annual Daily Traffic (AADT) in Segment 12 is 12,000 vehicles.

Right-of-Way

The right-of-way is 80 feet wide throughout Segment 12.

Right-of-way has been purchased on Illinois Route 31 1/2 mile north of McCullom Lake Road for the crossing of FAP 420 (Richmond-Waukegan Expressway).

Pavement Width and Number of Lanes

The 32-foot wide pavement provides for one through lane in each direction. There are 4-foot wide aggregate shoulders along each edge of the roadway.

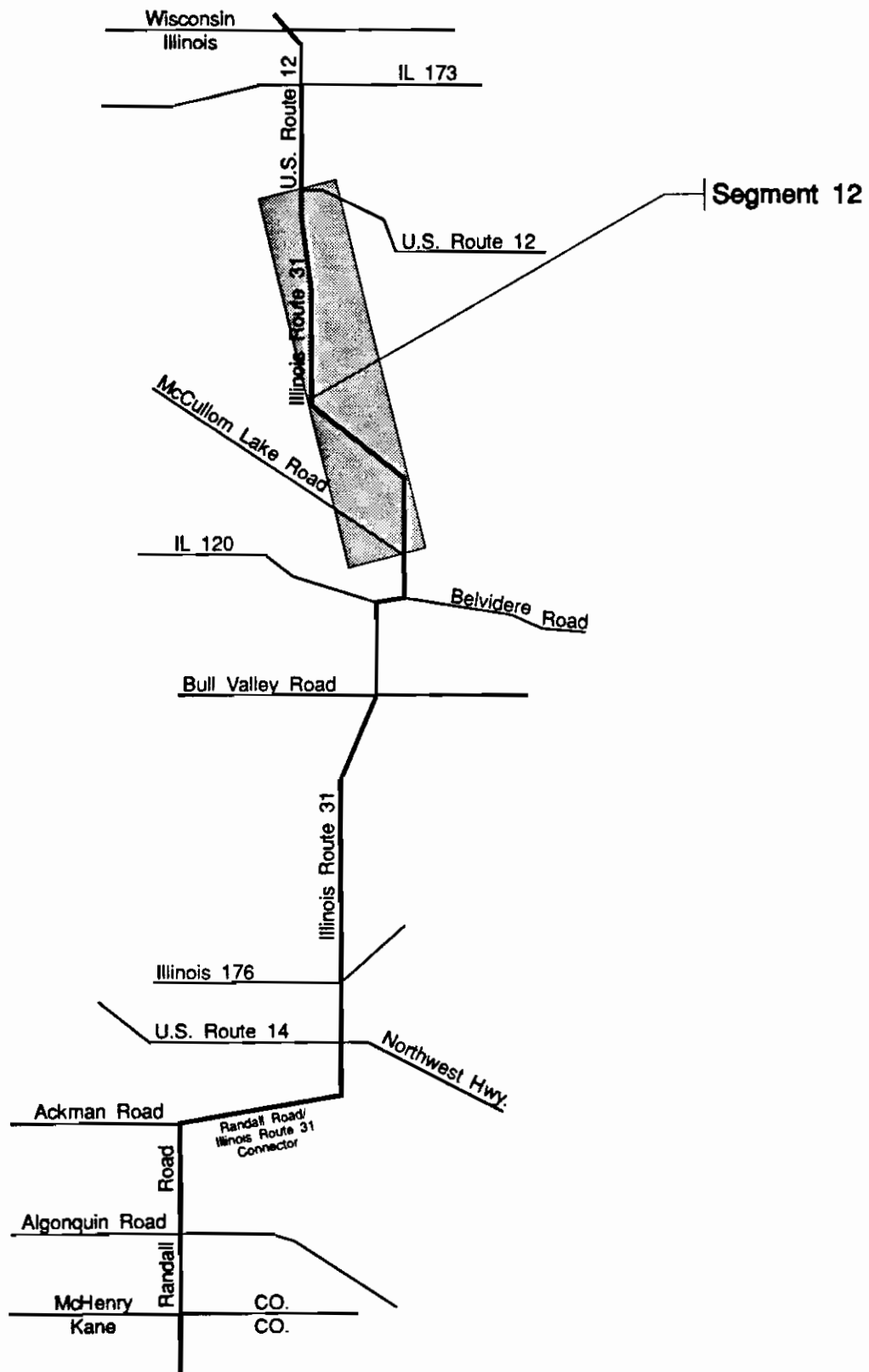
Traffic Signals

There are two signalized intersections in this segment, as shown in Table 3.43.

Table 3.43 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Johnsburg Road	1	1	SB	NB	
U.S. Route 12	1	1	NO	NO	
Note: NB = northbound; SB = southbound					

Parking, Sidewalks, and Frontage Roads

There are no on-street parking spaces, sidewalks, or frontage roads.



ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from McCullom Lake Road to U.S. Route 12

Structures

There are two structures in this segment, as shown in Table 3.44.

Table 3.44					
Existing Structures					
Structure	Structure No. (SN)	Location	Clearance		Remarks
			Vert.	Horiz.	
Dutch Creek	056-2005	S. of Johnsburg	N/A	40'	SRA over
Nippersink Creek	056-0037	S. of W. Solon Rd	N/A	44'	SRA over
Note: N/A=Not Applicable					

Transit

Transit service is provided at the Metra/Chicago & NorthWestern station on Main Street in McHenry one mile southwest of the McCullom Lake Road intersection.

Other

The alignment for FAP 420 intersects Illinois Route 31 1/2 mile north of McCullom Lake Road.

3.12.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The environmental characteristics include wetlands, floodplains, endangered species and sensitive land uses as shown on Route Maps B-12, B-13 and B-14.

Streams/Wetlands/Floodplains

There are three floodplain crossings on this segment:

- The Dutch Creek floodplain is 150 feet wide at the crossing one-half mile south of Johnsburg Road,
- The Dutch Creek North Fork of Branch to Northeast is 200 feet wide at the crossing one-quarter mile south of Barnard Mill Road, and
- Nippersink Creek is 600 feet wide at the crossing one-half mile north of Harts Road

There are wetland areas associated with the floodplains and other wetlands which may infringe on the route. Three are located in the Ringwood area, and two are located south of Harts Road.

Flora/Fauna

Two plant species, listed on the state's endangered list, have been reported within one mile of this segment. The species are the small white lady's slipper and the prairie white fringed orchid.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from McCullom Lake Road to U.S. Route 12

Sensitive Land Uses

McHenry Township Park is located at Johnsborg Road on the westerly side of the right-of-way. Glacial Park is located on the east and west sides of the route between Harts and West Solon Roads. Also in this segment is the Prairie Trail North which parallels Illinois Route 31 from Ringwood Road to the Wisconsin state line.

3.12.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Maps C-12, C-13 and C-14.

Jurisdiction

This segment passes through the City of McHenry and unincorporated McHenry County.

Type and Intensity of Development

A majority of land on this segment is used for agriculture. Where there is development, land use is mixed consisting of commercial, industrial, and residential uses. Commercial development on this segment can first be found north of McCullom Lake Road. North of this commercial activity to Johnsborg Road, there are a few single-family residences. At the intersection of Johnsborg Road, there is industrial, commercial, and residential development. Continuing north to Ringwood, the only development is a few single-family residences. Through the unincorporated community of Ringwood, there is residential, commercial, and industrial development. North of Ringwood there are just a few residential units. Finally, at the southeast corner of U.S. Route 12 there is commercial development.

Development Access and Setback

Structures on this segment are set back significantly from the route.

Access to single-family residences is through drives intersecting Illinois Route 31 except for the area near Johnsborg Road where most developments, including those which are non-residential, have consolidated access.

Future Development

Throughout this segment, there is a substantial amount of undeveloped land. However, there are no plans for new development in this area. As areas further south on Illinois Route 31 begin to develop, it is reasonable to expect development to extend to this segment as well.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from McCullom Lake Road to U.S. Route 12

3.12.5 RECOMMENDED IMPROVEMENTS

Improvements to this segment of Illinois Route 31 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 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 Maps D-12, D-13 and D-14.

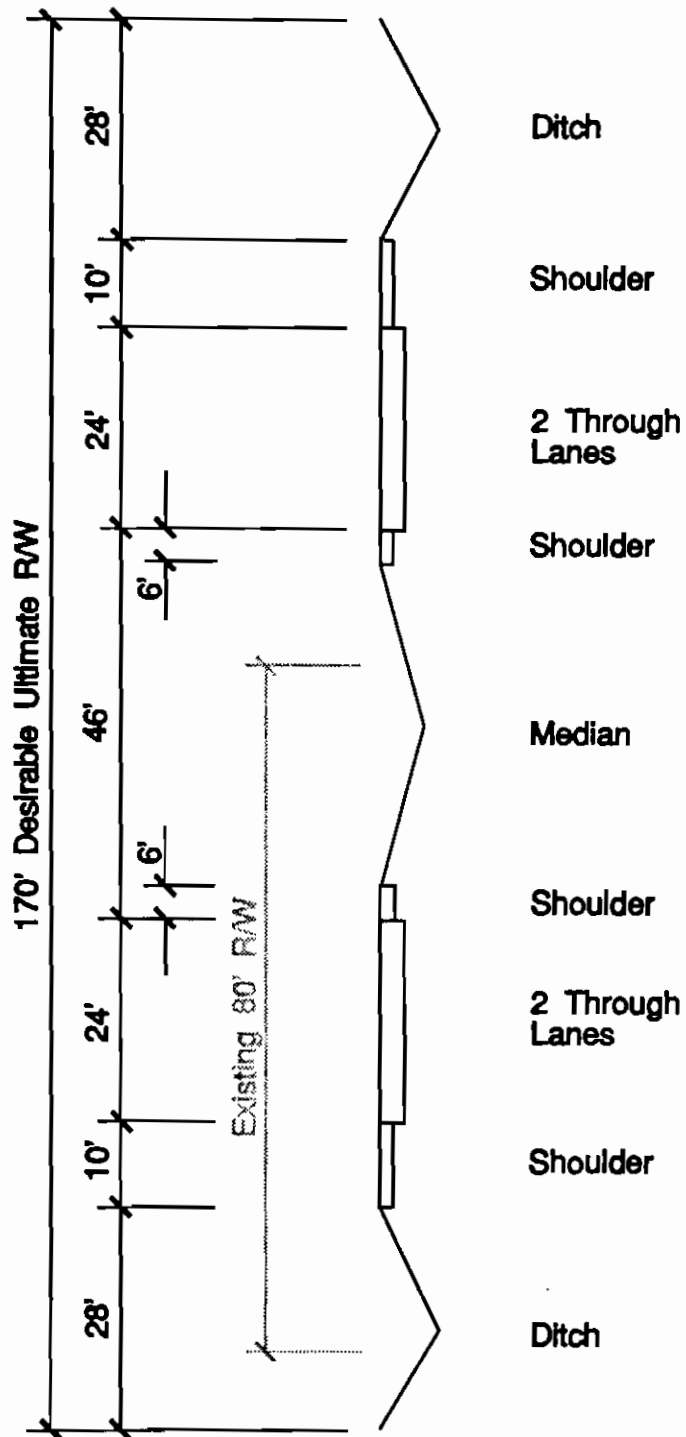
Ultimate Improvements

Roadway

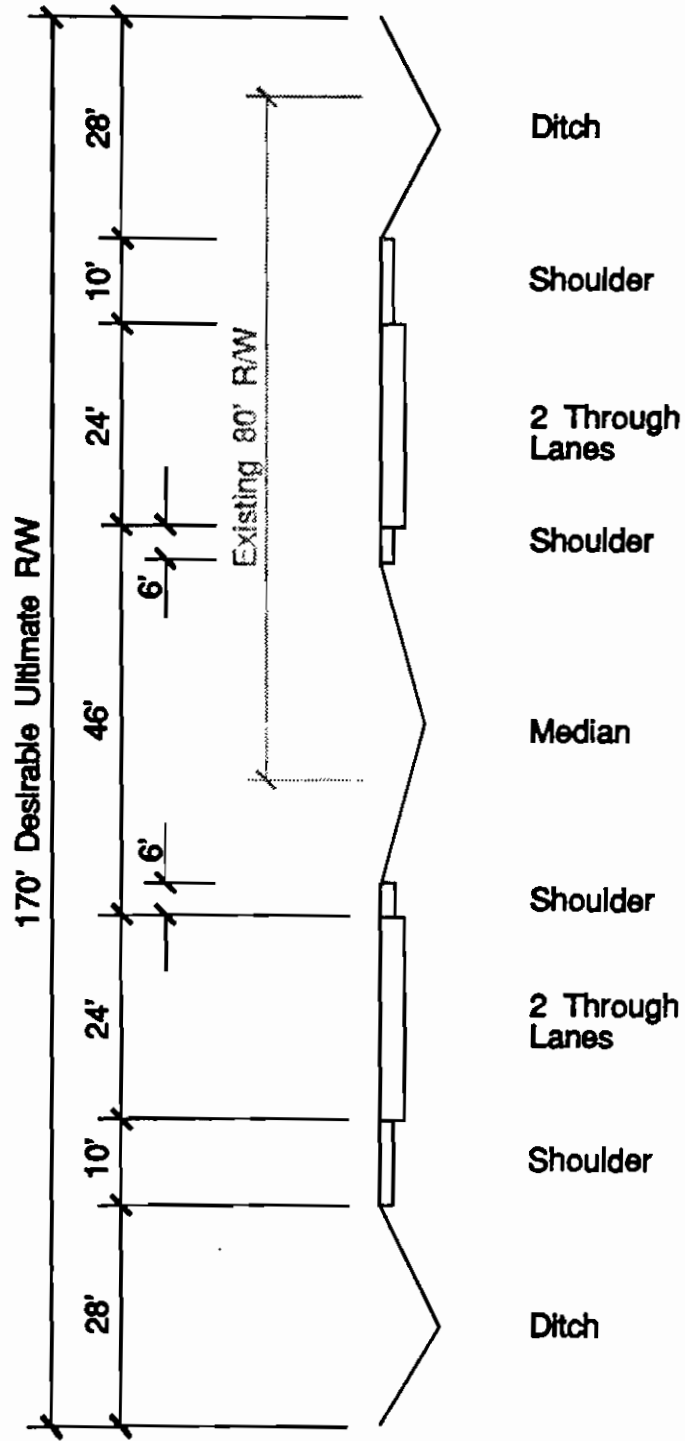
Between McCullom Lake Road and School Road the recommended SRA improvement is to construct the McHenry Bypass. At School Road, the bypass alignment merges with Illinois Route 31 and the SRA designation will follow Illinois Route 31 from that point to the end of the segment. Due to the rural classification of Illinois Route 31 north of the City of McHenry, the recommended roadway configuration in Segment 12 provides two through lanes in each direction and a 46-foot wide median. (See Figures 3.36 and 3.37.) No ultimate SRA roadway improvements are recommended for the existing alignment of Illinois Route 31 south of School Road.

Results of the capacity analysis for this segment are shown in Table 3.45.

Table 3.45 Capacity Analysis for Segment 12 - Illinois Route 31					
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
McCullom Lake ⁽²⁾ to School Road	< 30,000	2	16,000	D	No
		4	30,000	C	Yes
School Road to U.S. Route 12	< 30,000	2	15,000	D	No
		4 *	27,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
⁽²⁾ 4 lane West McHenry Bypass recommended from McCullom Lake Road to School Road.					
* - Indicates recommended number of through lanes for this segment.					



Section X-X
 Recommended Roadway Typical Section
 School Road to West Solon Road
 Illinois Route 31
 prepared by Harland Bartholomew & Associates, Inc.
 Figure 3.36



Illinois Route 31
 prepared by Harland Bartholomew & Associates, Inc.

Section Y-Y
 Recommended Roadway Typical Section
 West Solon Road to U.S. Route 12
 Figure 3.37

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from McCullom Lake Road to U.S. Route 12

Intersections

Major intersection improvements are recommended at the intersection of Illinois Route 31 with U.S. Route 12/Tryon Grove Road. Dual left-turn lanes are recommended on all legs of the intersection. (See Detail 11.) The recommended geometry for this intersection is subject to change upon completion of the U.S. Route 12 alignment study. The 46-foot wide median will allow development of either single or dual left-turn lanes at other intersections. Separate right-turn lanes are also recommended on the SRA route at all signalized intersections.

Traffic Signalization

Locations are recommended for potential future signals, maintaining a spacing of at least one-half mile between signals. The recommended future locations are School Road, Harts Road and West Solon Road. Additional potential locations would be at the two mid-mile collector roads between School Road and Harts Road and intersections on the McHenry Bypass at major collector roads.

Because U.S. Route 12 is also an SRA route, the level of service was calculated for each intersection movement and for the total intersection. For Illinois Route 31 the AADT used was 29,000 vehicles. For U.S. Route 12, the AADT used was 29,000 vehicles. The resulting levels of service are shown in Table 3.46.

Table 3.46 Illinois Route 31/U.S. Route 12 Intersection Level of Service		
Direction	Movement	Level of Service
Illinois Route 31 northbound	left turn	D
Illinois Route 31 northbound	through	D
Illinois Route 31 northbound	right turn	B
U.S. Route 12 southbound	left turn	D
U.S. Route 12 southbound	through	C
U.S. Route 12 southbound	right turn	B
Tryon Grove Road eastbound	left turn	D
Tryon Grove Road eastbound	through	D
Tryon Grove Road eastbound	right turn	B
U.S. Route 12 westbound	left turn	D
U.S. Route 12 westbound	through	C
U.S. Route 12 westbound	right turn	B
Total Intersection		D

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from McCullom Lake Road to U.S. Route 12

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 SRAs 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.

The existing signal location at U.S. Route 12/Tryon Grove Road would be retained and, interconnection of signals in coordinated systems is recommended. Ultimately, the signals from School Road to Harts Road would be interconnected into a signal system.

Structures

The existing structure carrying Illinois Route 31 over Nippersink Creek has inadequate horizontal clearance to accommodate the recommended four-lane roadway section, but could be modified to provide service for southbound traffic if a parallel two-lane structure were constructed for northbound vehicles.

Access Management

Access to abutting property should not be permitted along the bypass route so that its capacity to serve through traffic can be preserved.

Transit

Locations for future bus stops in this segment are recommended for all signalized intersections. These locations should be developed with bus turnout areas, shelters and other amenities as recommended in the Pace Development Guidelines.

Consideration should be given to development of Park-and-Ride facilities in conjunction with future express bus service along the SRA route. Potential locations for such a facility in this segment would be at the intersection of U.S. Route 12 with Illinois Route 31 where the proximity to two SRAs would allow the facility to serve transit needs on both routes.

Low-Cost Improvements

Intersections

Left-turn lanes are recommended at Harts Road and West Solon Road. Left-turn lanes should also be provided on Illinois Route 31 at any future mid-mile collector road.

Traffic Signalization

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

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from McCullom Lake Road to U.S. Route 12

Access Management

As parcels are developed or redeveloped, it is recommended that access to Illinois Route 31 be limited to the locations shown on Route Maps D-12, D-13 and D-14. These locations are typically spaced approximately one-quarter mile apart.

Transit

Directional signage is recommended on this segment of Illinois Route 31 for Metra Service on the Chicago & NorthWestern Northwest line at the McHenry station. This signage should be located at major intersections such as School Road and U.S. Route 12 indicating distance and direction to the station.

3.12.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

Between McCullom Lake Road and School Road, no additional right-of-way on the existing alignment of Illinois Route 31 is recommended. North of School Road, it is recommended that additional right-of-way be acquired to provide a total width of 170 feet. The recommended right-of-way width to be acquired for the bypass is also 170 feet. In order to avoid existing development and environmentally sensitive areas and to preserve as much of the existing roadway as possible, the desirable ultimate right-of-way on Illinois Route 31 can be shifted about the centerline.

3.12.7 POTENTIAL ENVIRONMENTAL CONCERNS

Construction of a bypass and retention of the existing right-of-way through McHenry is expected to significantly reduce any historic, social, and economic impacts that improvement of the existing roadway to the ultimate desirable cross-section may have had. The impacts of a new structure, roadway improvements, and right-of-way expansion on the Glacial Park, Nippersink Creek floodplain, wetlands and surrounding development will be studied during Phase I of any improvement. Also, environmental assessments conducted as a part of project design should include a survey for the small white lady slipper and the prairie white fringed orchid to ensure their habitats are not threatened. Minor roadway realignments may be possible to avoid the most sensitive areas.

3.12.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

A summary of the construction cost estimates for the recommended improvements to Segment 12 of Orchard Road/Randall Road/Illinois Route 31 is shown in *Table 3.47*.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - Illinois Route 31 from McCullom Lake Road to U.S. Route 12

Table 3.47 Construction Cost Estimates for Segment 12 - Illinois Route 31	
Improvement	Estimated Cost
Ultimate	
West McHenry Bypass cost estimate is listed in Section 3.11.	
Roadway	\$12,600,000
Intersection Improvements	\$1,400,000
Traffic Signals	\$500,000
Signal Interconnection	\$300,000
Structures	\$300,000
Transit Improvements (includes land acquisition)	\$600,000
Right-of-way Acquisition	\$600,000
Total Estimated Cost for Ultimate Improvements	\$16,300,000
Low-Cost	
Intersection Improvements	\$400,000
Transit Improvements	\$20,000
Total Estimated Cost for Low-Cost Improvements	\$420,000
Total Estimated Cost for All Improvements	\$16,720,000

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line

3.13 SRA SEGMENT 13: U.S. ROUTE 12 FROM ILLINOIS ROUTE 31 TO THE WISCONSIN STATE LINE

3.13.1 LOCATION

Segment 13 is located on U.S. Route 12 and extends from the intersection of U.S. Route 12 and Illinois Route 31 to the Wisconsin state line. (See *Figure 3.38*.) This segment is just over three miles long.

3.13.2 EXISTING FACILITY CHARACTERISTICS

The existing facility characteristics for Segment 13 are shown on Route Map A-14. The existing signal and laneage at the Illinois Route 173 intersection is shown on Detail 12.

Traffic Volumes

According to the 1989 IDOT McHenry County Traffic Map, the Average Annual Daily Traffic (AADT) on Segment 13 is 12,600 vehicles.

Right-of-Way

The existing right-of-way width in this segment is: 80 feet wide from Tryon Grove Road to May Avenue; 66 feet wide from May Avenue to Burlington Road; and 80 feet wide from Burlington Road to the Wisconsin State Line.

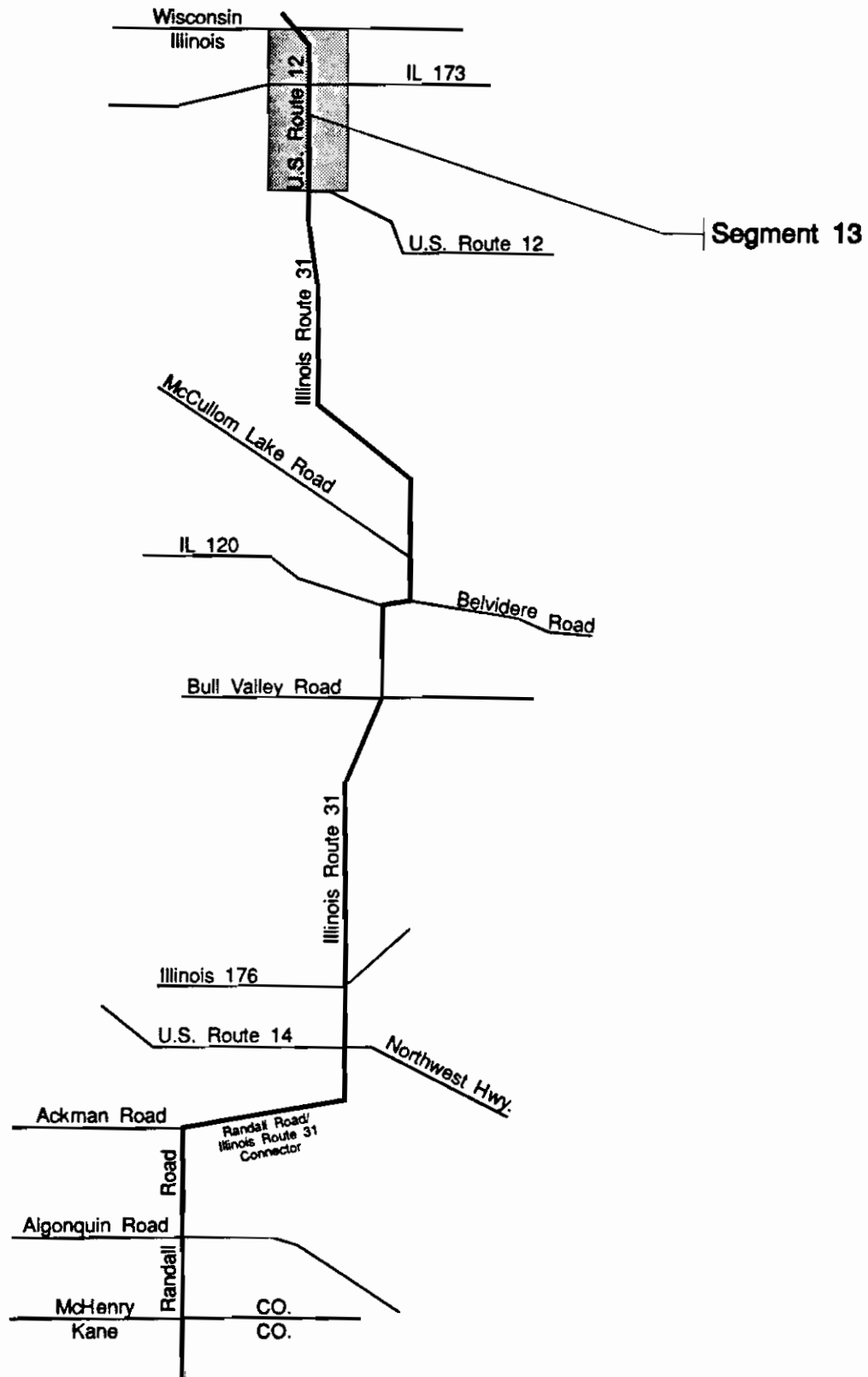
Pavement Width and Number of Lanes

The existing pavement width ranges from 24 to 50 feet wide. One through lane is provided in each direction over this entire segment on: 36 feet of pavement from Illinois Route 31 to George Street; 50 feet of pavement from George Street to Mill Street; 42 feet of pavement from Mill Street to Walnut Street; and 24 feet of pavement from Walnut Street to the State Line. Six foot to eight foot aggregate shoulders are provided from Illinois Route 31 to South Street and from Elm Street to the State Line. Curb and gutter is provided from South Street to Elm Street.

Traffic Signals

There is one signalized intersection in this segment, as shown in *Table 3.48*.

Table 3.48 Signalized Intersections					
Intersection	No. of Through Lanes		Turn Bays		Remarks
	NB	SB	Left	Right	
Illinois Route 173	1	1	NO	NO	
Note: NB = northbound; SB = southbound					



U.S. Route 12

prepared by Harland Bartholomew & Associates, Inc.

Location Map

Figure 3.38

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line

Parking, Sidewalks, and Frontage Roads

There is on-street parking from George Street to Mill Street on both sides of the route. Sidewalks are located on both sides of the route from May Avenue to Elm Street. There are no frontage roads in this segment.

Structures

There are two existing structures located in this segment, as shown in *Table 3.49*.

Table 3.49					
Existing Structures					
Structure	Structure No. (SN)	Location	Clearance		Remarks
			Vert.	Horiz.	
CMSTP&P RR	056-0043	N. of Tryon Grove	UA	UA	SRA under
Nippersink Creek	056-0017	S. of IL 173	N/A	47.8'	SRA over
Note: N/A=Not Applicable UA=Data Unavailable					

Transit

Transit service is provided at the Metra/Chicago & NorthWestern station in McHenry nine and one-half miles south of Richmond.

3.13.3 EXISTING ENVIRONMENTAL CHARACTERISTICS

The existing environmental characteristics include wetlands, floodplains, historic structures and sensitive land uses and are shown in Route Map B-14.

Streams/Wetlands/Floodplains

There are two floodplain crossings on this segment. A tributary of North Branch of Nippersink Creek is 150 feet wide at its crossing north of the Chicago Milwaukee St. Paul and Pacific Railroad. The North Branch Nippersink Creek is 50 feet wide at its crossing north of Mill Street.

There are several wetlands associated with these floodplains.

Historical Significance

On the section through downtown Richmond, there are five buildings listed on the Inventory of Historic Structures and one historic site plaqued by the McHenry County Historic Preservation Agency. Of the structures of interest two are residential buildings and three are commercial buildings. The historic site is known as the Old Richmond Mill site. All are clustered about the North Branch of Nippersink Creek, between Richmond Road and Illinois Route 173 (Kenosha Avenue).

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line

Sensitive Land Uses

Sensitive land uses on this segment include Richmond Burton Community High School at South Street, Hunter Country Club south of Illinois Route 173, and a cemetery at Burlington Road.

3.13.4 DEVELOPMENT CHARACTERISTICS

Existing development characteristics and potential future development are indicated on Route Map C-14.

Jurisdiction

The Village of Richmond extends from a point just north of Hill Road to the Wisconsin state line.

Type and Intensity of Development

Between Tryon Grove Road and Hill Road, there is a minimal amount of development consisting of office, commercial, residential and agricultural uses. North of Hill Road land uses include residential, commercial and industrial developments. The heart of downtown Richmond contains both residential and commercial development. North of Richmond, the primary land use is commercial while office, industrial and residential development also front U.S. Route 12 north of Burlington Road.

Development Access and Setback

Outside of Richmond building setback is significant. In downtown Richmond, buildings are not set back a great distance from the right-of-way and, in some instances, directly abut the sidewalk.

Access to most development can be obtained directly from U.S. Route 12.

Future Development

There is still a significant amount of land which could be developed more intensely, however there are no specific plans for development along this segment.

3.13.5 RECOMMENDED IMPROVEMENTS

Specific improvements on U.S. Route 12 are being deferred pending the results of ongoing IDOT studies in the Richmond area. These studies will determine the most desirable future alignment for U.S. Route 12 based on the required level of improvement, existing conditions and other factors. Alternate alignments under consideration include the existing U.S. Route 12 alignment and a new western arterial bypass.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line

Until an alignment is specified, SRA recommendations will be applied to both the existing alignment and a potential western bypass. Where possible, special distinctions will be made between alignment alternates based on SRA recommendations.

SRA improvements have been recommended after an evaluation of the projected travel demand for the year 2010 along with the roadway characteristics and character of development in Segment 13. Improvements are divided into those related to the roadway, intersections, traffic signalization, structures, access management and transit. Right-of-way requirements and potential environmental concerns are also provided in this segment.

Ultimate Improvements

Roadway

Regardless of the outcome of the ongoing alignment studies, the recommended roadway configuration for this segment provides two through traffic lanes in each direction to satisfy the 2010 travel demand. Results of the capacity analysis for this segment are shown in *Table 3.50*.

Table 3.50 Capacity Analysis for Segment 13 - U.S. Route 12					
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 Route 31 to Wis. State Line	< 30,000	2	15,000	D	No
		4 *	28,000	C	Yes
⁽¹⁾ Average Annual Daily Traffic					
* - Indicates recommended number of through lanes for this segment.					

A continuous median is desirable to separate opposing traffic and to channelized left turns on either the existing or bypass alternates.

Intersections

Intersections on U.S. Route 12 should be upgraded to provide left turn channelization wherever left turns are allowed. Peak hour turn restrictions could be used where left turn lanes cannot be provided but where street closure is undesirable. Right turn lanes should be provided at all signalized intersections. Burlington Road should be realigned to intersect U.S. Route 12 at 90 degrees to remove the skewed intersection.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line

If a western arterial bypass is constructed, at-grade intersections should be minimal. Only one major east-west road presently crosses the area north of Tryon Grove Road. Since Illinois Route 173 is also an SRA, the intersection between the two facilities should be of a high-type design with channelized left and right turn lanes. Future intersections should be kept to a minimum so as not to adversely affect capacity on the new roadway.

Traffic Signalization

Potential future traffic signals are recommended at Burlington Road on the U.S. Route 12 alignment and at Tryon Grove Road and Illinois Route 173 on the bypass alignment. The existing signals on U.S. Route 12 at Illinois Route 31 and Illinois Route 173 should remain.

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 SRAs 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 existing structure at the Chicago Milwaukee St. Paul & Pacific Railroad has inadequate horizontal clearance and should be modified for the four through lane cross-section if the existing U.S. Route 12 alignment is selected for future improvement.

New structures along the bypass over wetlands, Nippersink Creek North Branch and the Prairie Trail north should provide adequate horizontal clearance for the four through lane cross-section.

Transit

A location for a future bus stop in this segment is recommended near the intersection of U.S. Route 12 and Illinois Route 173. This location should be developed with a bus turnout area, shelter and other amenities as recommended in the Pace Development Guidelines.

Consideration should be given to the development of a Park-and-Ride facility in the vicinity of Illinois Route 173 and U.S. Route 12 or the bypass. The facility could provide a collection point for car pools and van pools utilizing either SRA route.

Access Management

As parcels are developed or redeveloped along U.S. Route 12, it is recommended that access be limited to a maximum of one curb cut for each 500 feet. Wherever possible in areas of existing development, access should also be consolidated at points spaced approximately 500 feet apart.

ORCHARD ROAD/RANDALL ROAD/ILLINOIS ROUTE 31
SECTION 3: Route Analysis - U.S. Route 12 from Illinois Route 31 to the Wisconsin State Line

Access to abutting property should not be permitted along the bypass route so that its capacity to serve through traffic can be preserved.

3.13.6 ADDITIONAL RIGHT-OF-WAY REQUIREMENTS

Construction of a western arterial bypass in the FAP 420 corridor will require only a limited amount of additional right-of-way since most of the FAP 420 right-of-way has been purchased in the Richmond area. Any additional amounts for the arterial bypass in this or any other corridor will be identified during design studies for the improvement.

Right-of-way through Richmond is not available in the amounts necessary for a rural SRA. Richmond has a more urban character with limited existing right-of-way and short building setbacks. Maintaining a rural cross-section through this area would negatively impact existing development and may not be necessary if a more compact cross-section could provide adequate capacity for 2010 traffic volumes. Additional right-of-way for this reduced section may be necessary for pavement widening, embankments, drainage and sidewalks. The exact amount would be determined during design studies for the improvement.

3.13.7 POTENTIAL ENVIRONMENTAL CONCERNS

Ongoing studies of U.S. Route 12 have identified potential environmental concerns associated with widening the existing route and with a new western bypass. Some of these concerns include floodplain and wetland encroachment, increased noise and visual impact.

3.13.8 CONSTRUCTION/RIGHT-OF-WAY COST ESTIMATES

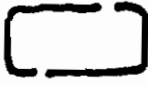
In order to provide an upper limit for the cost of improvements, only the cost of the western arterial bypass is included in the estimate for Segment 13. This cost in 1991 dollars is based on an estimate in a previously published report and is shown in *Table 3.51*

Table 3.51	
Construction Cost Estimates for Segment 13 - Illinois Route 31	
Improvement	Estimated Cost
Ultimate	
Richmond Bypass	\$14,000,000
Transit Improvements (includes land acquisition)	\$600,000
Total Estimated Cost for All Improvements	\$14,600,000

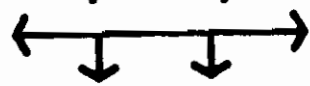
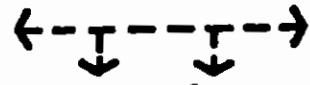
FACILITY CHARACTERISTICS

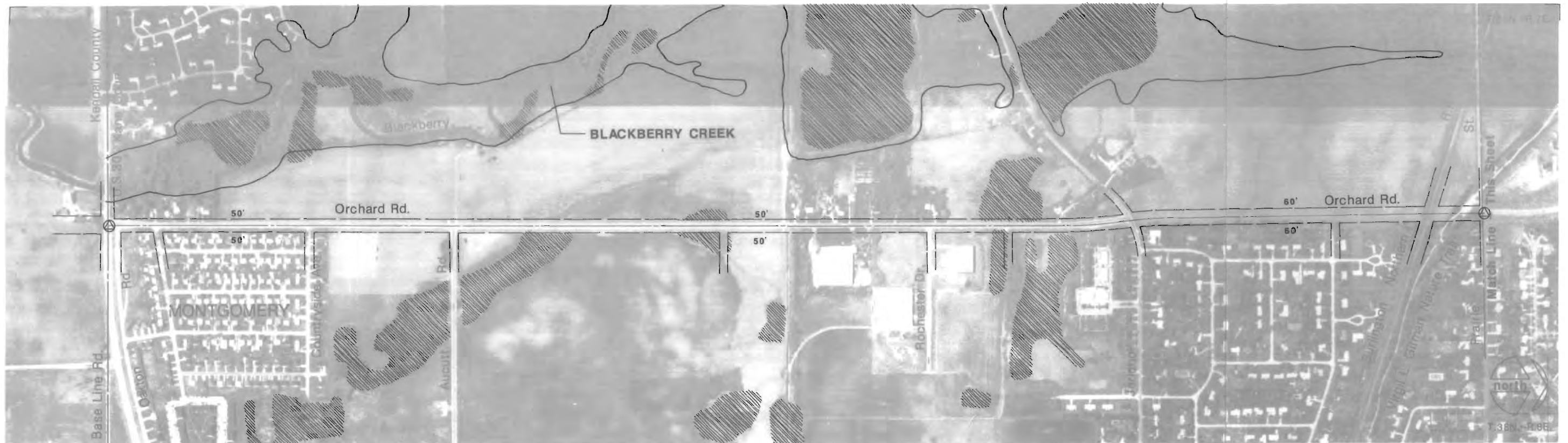
	Existing R/W
	Existing Signal
	Existing Structure

ENVIRONMENTAL CHARACTERISTICS

	Wetlands
	Floodplain
	Historic Site
	Sensitive Land Use
	Waste Disposal/Hazardous Waste Site

RECOMMENDED IMPROVEMENTS

	Proposed R/W
	Proposed Signal
	Modify Structure
	Consolidate Access
	Maintain Access
	Mid-Mile Collector



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Existing Facility Characteristics





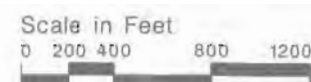
Orchard/Randall Road/Illinois 31

Existing Facility Characteristics



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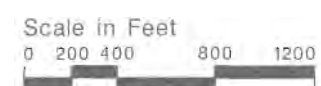


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Route Map A-2A



Orchard/Randall Road/Illinois 31

Existing Facility Characteristics **SRA** Strategic Regional Arterial Planning Study

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Scale in Feet
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Route Map A-3



Orchard/Randall Road/Illinois 31

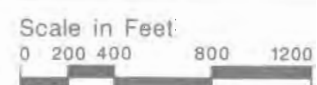
Existing Facility Characteristics

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Orchard/Randall Road/Illinois 31

Existing Facility Characteristics

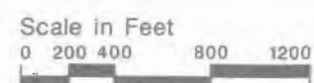
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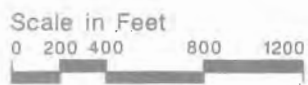
Existing Facility Characteristics





Orchard/Randall Road/Illinois 31

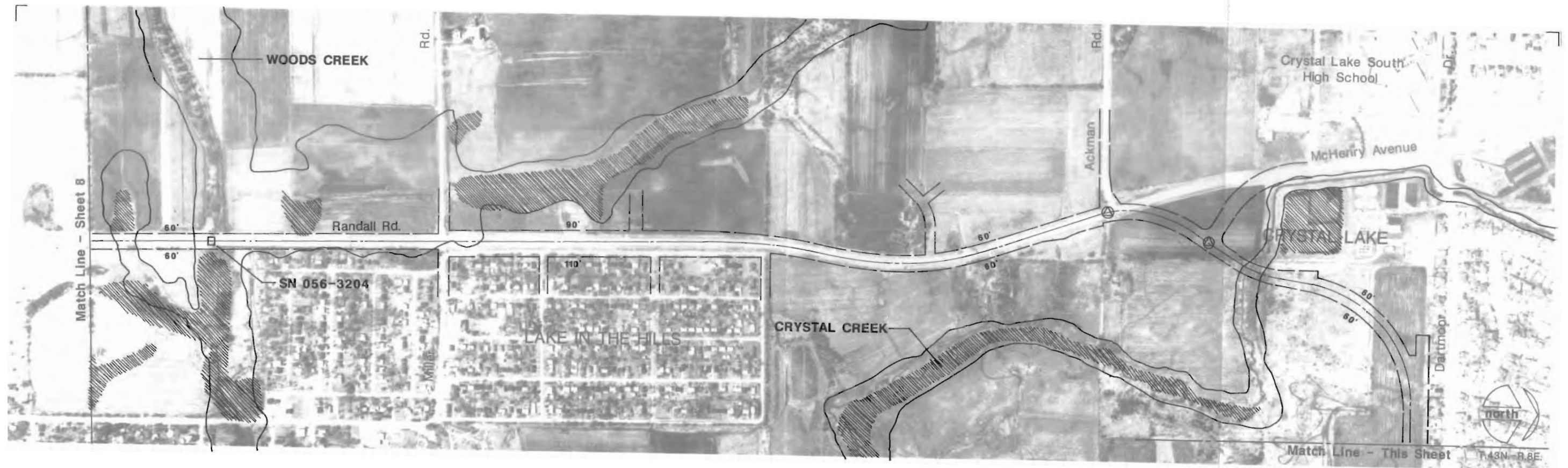
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Existing Facility Characteristics



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Orchard/Randall Road/Illinois 31

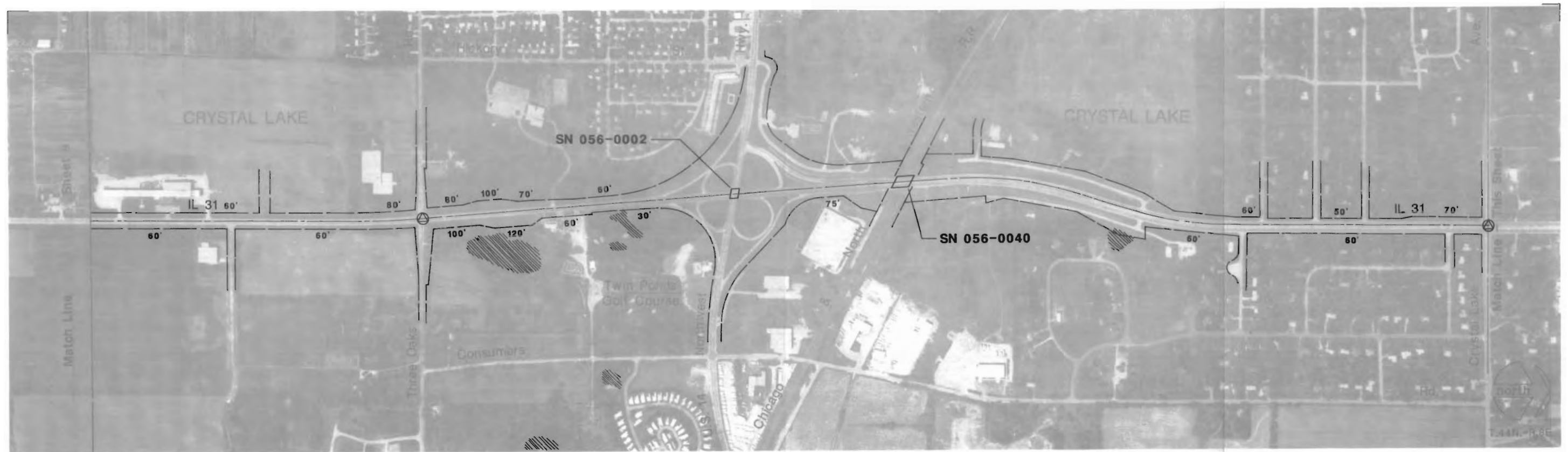
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Existing Facility Characteristics

SRA Strategic Regional Arterial Planning Study



Orchard/Randall Road/Illinois 31

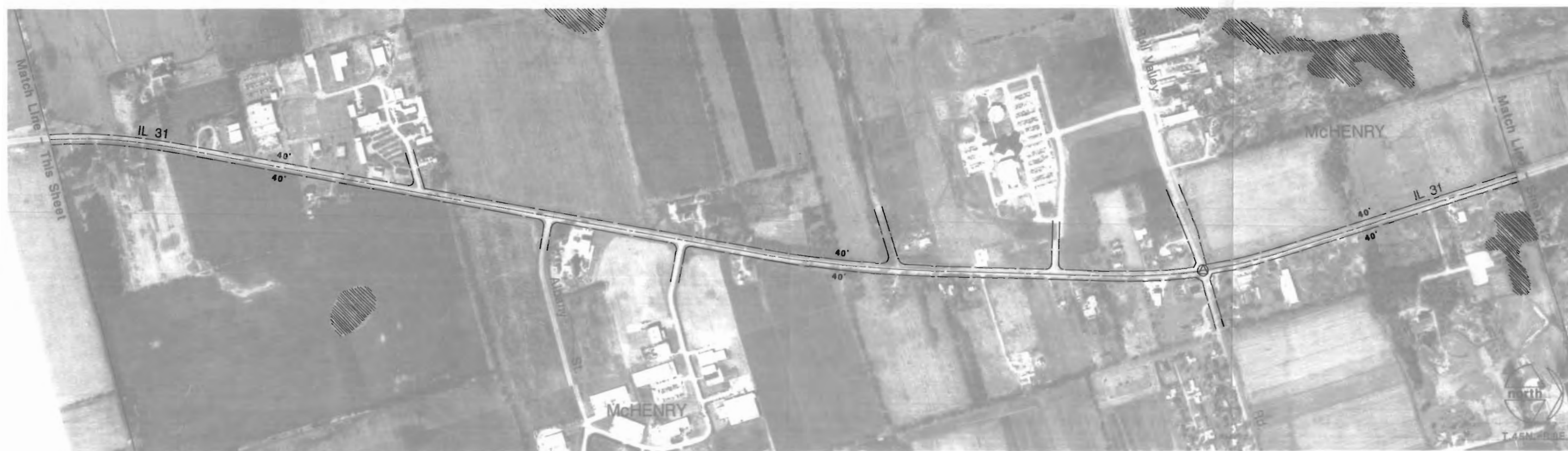
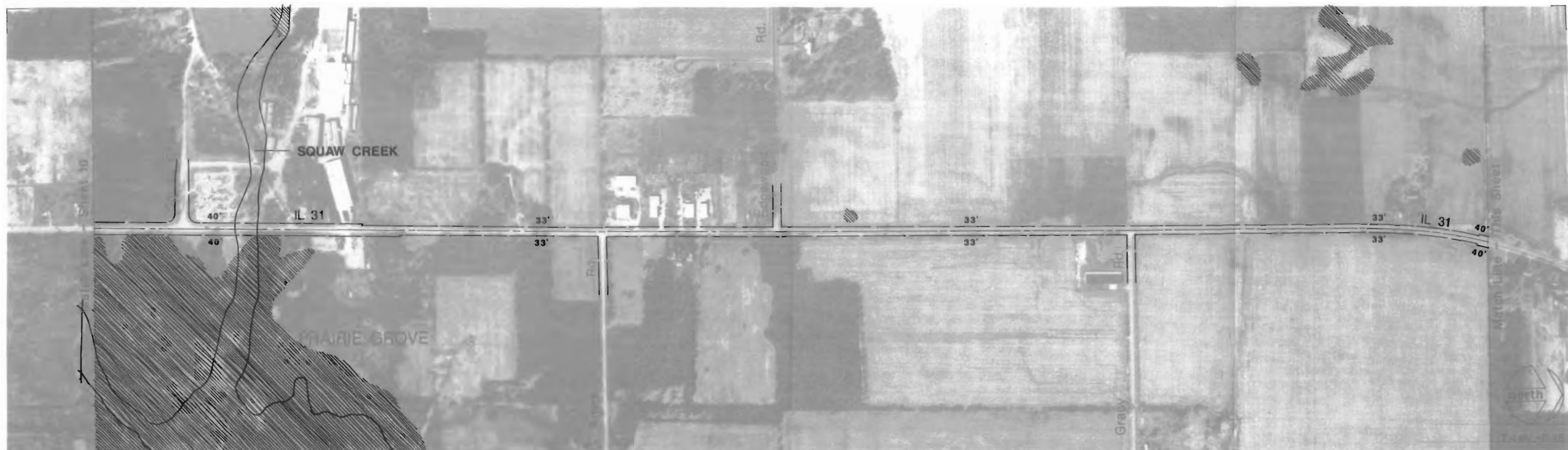
Existing Facility Characteristics



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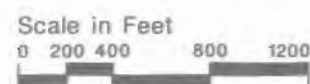
Orchard/Randall Road/Illinois 31

Existing Facility Characteristics

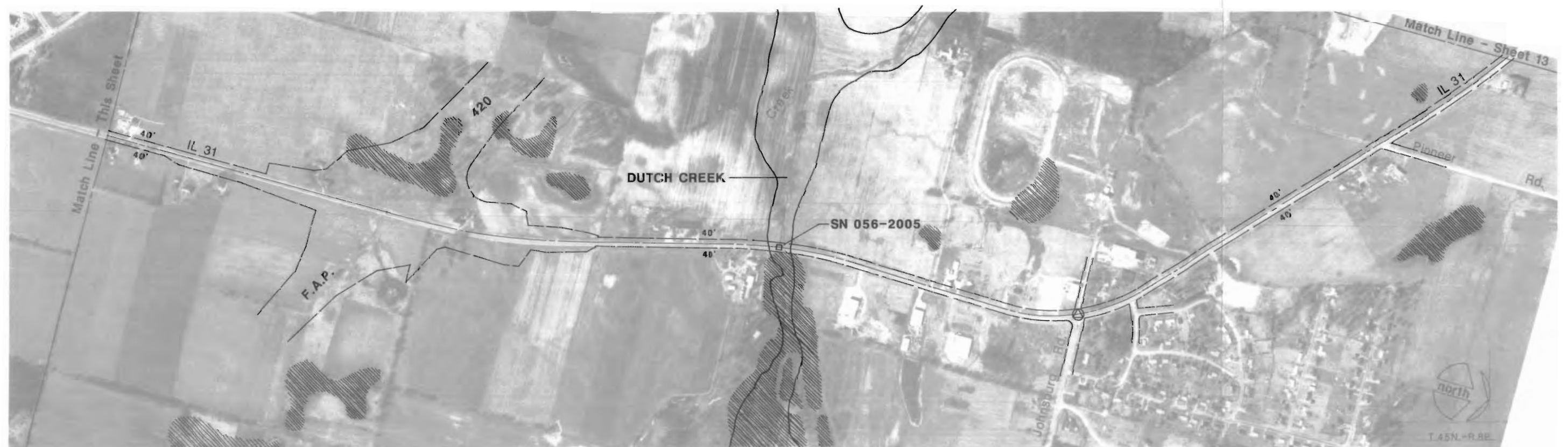
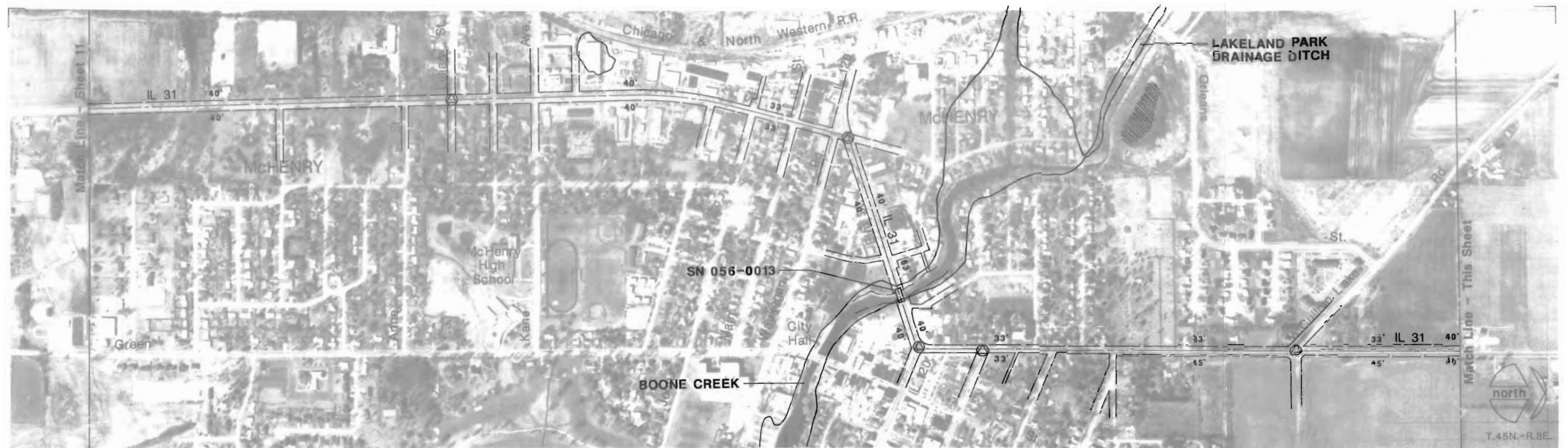


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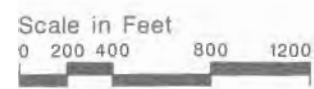


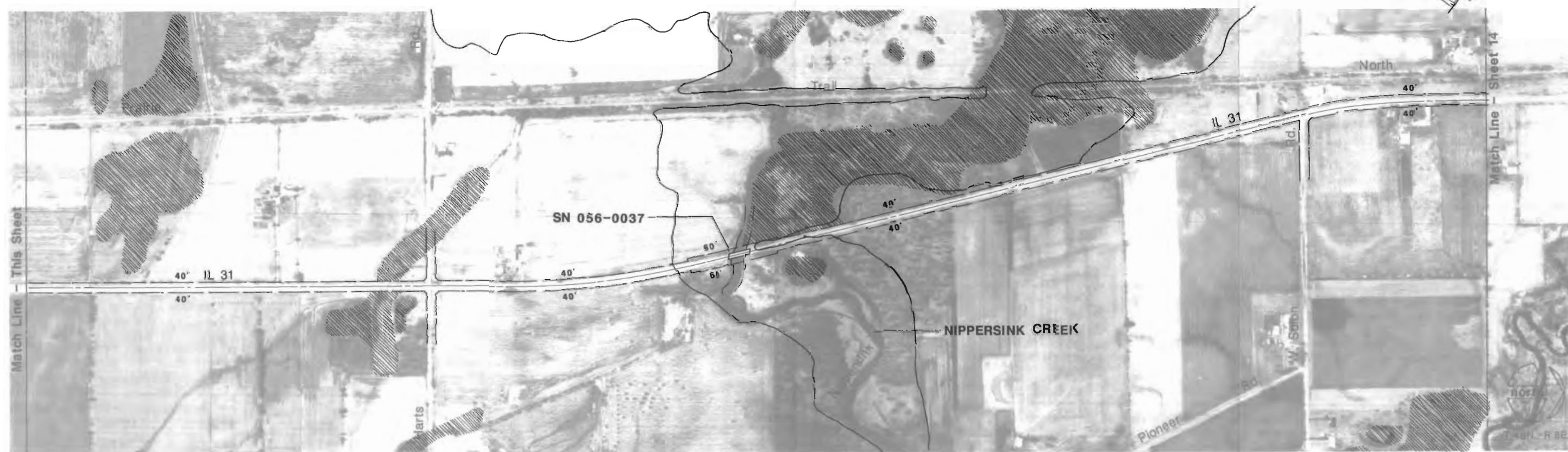
Route Map A-11



Orchard/Randall Road/Illinois 31

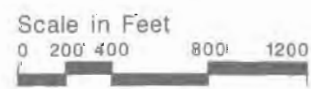
Existing Facility Characteristics





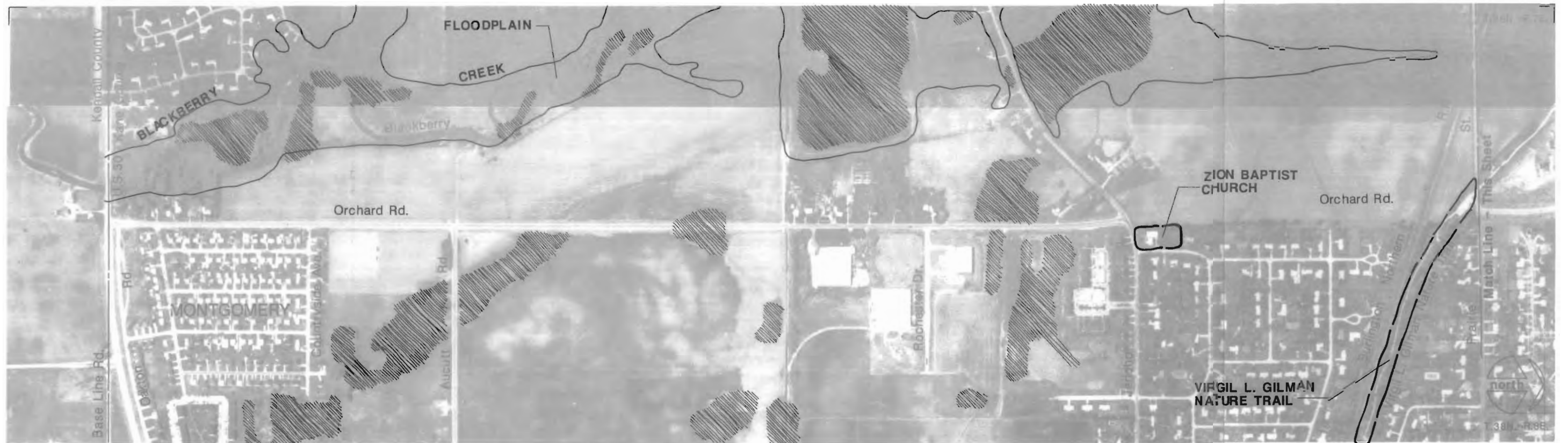
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Existing Facility Characteristics





Orchard/Randall Road/Illinois 31

Environmental Characteristics

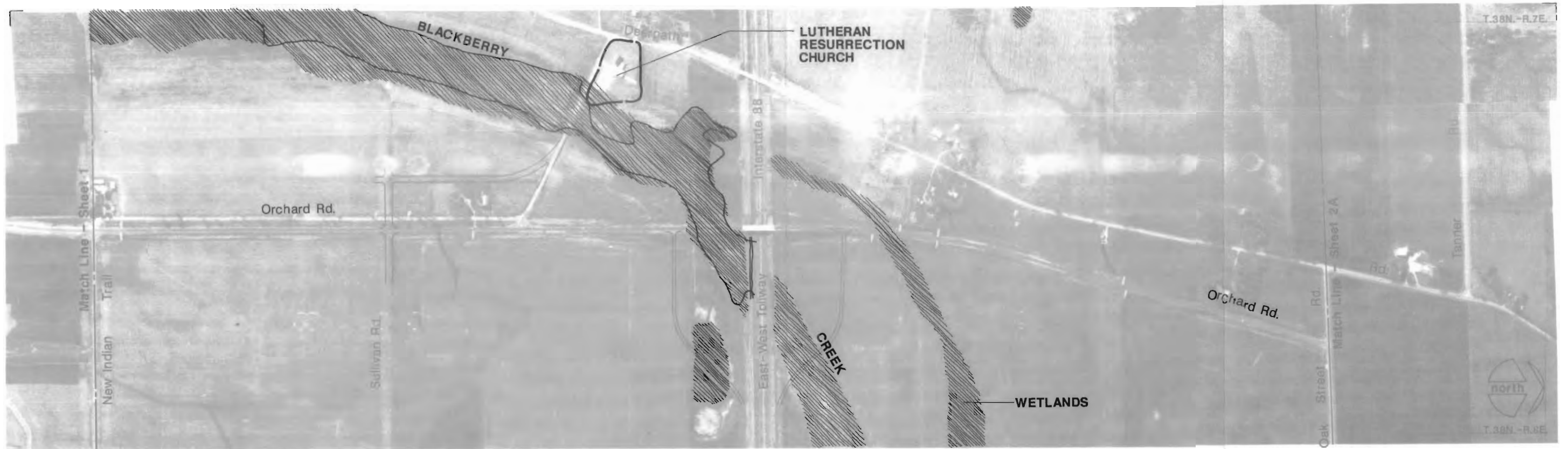


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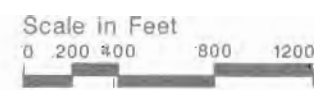


Route Map B-1



Orchard/Randall Road/Illinois 31

Environmental Characteristics





Orchard/Randall Road/Illinois 31

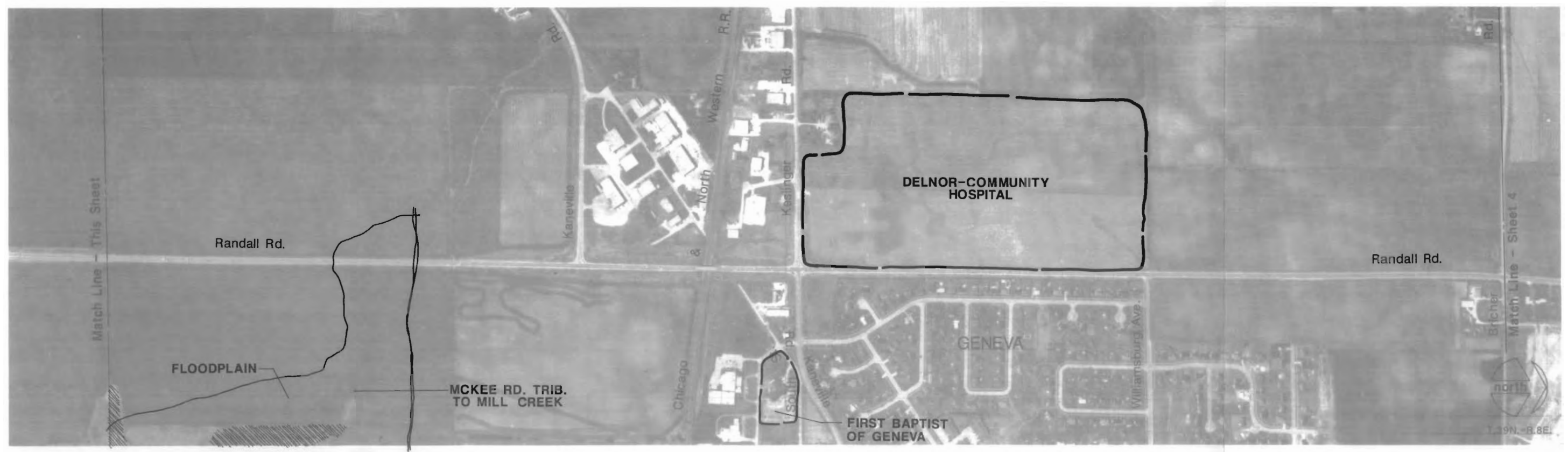
Environmental Characteristics



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Route Map B-2A



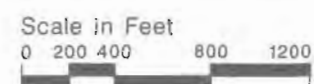
Orchard/Randall Road/Illinois 31

Environmental Characteristics

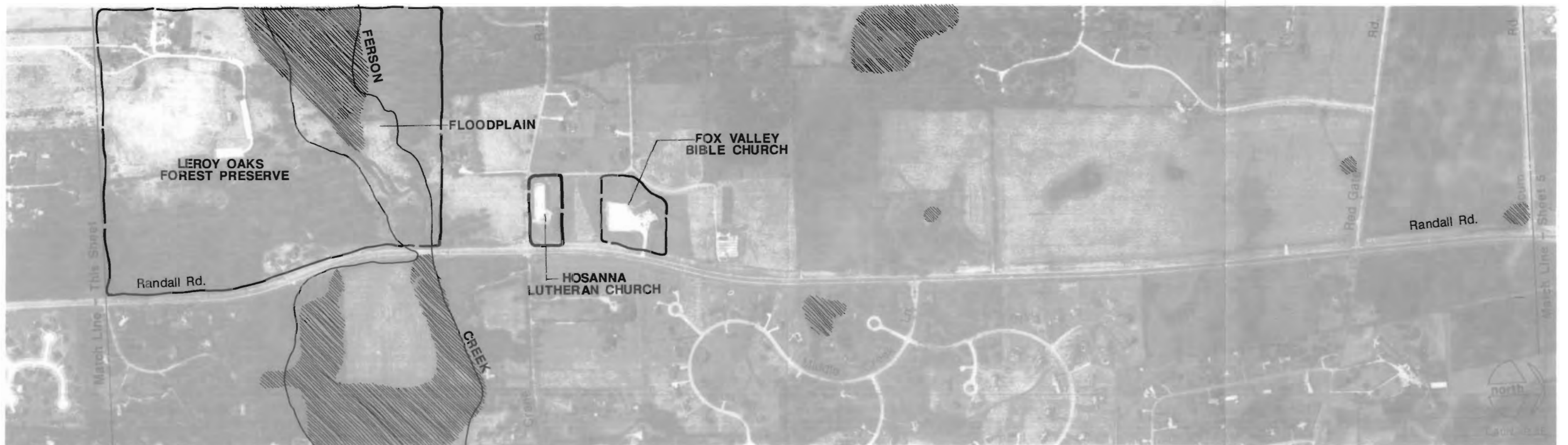


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Route Map B-3



Orchard/Randall Road/Illinois 31

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Environmental Characteristics



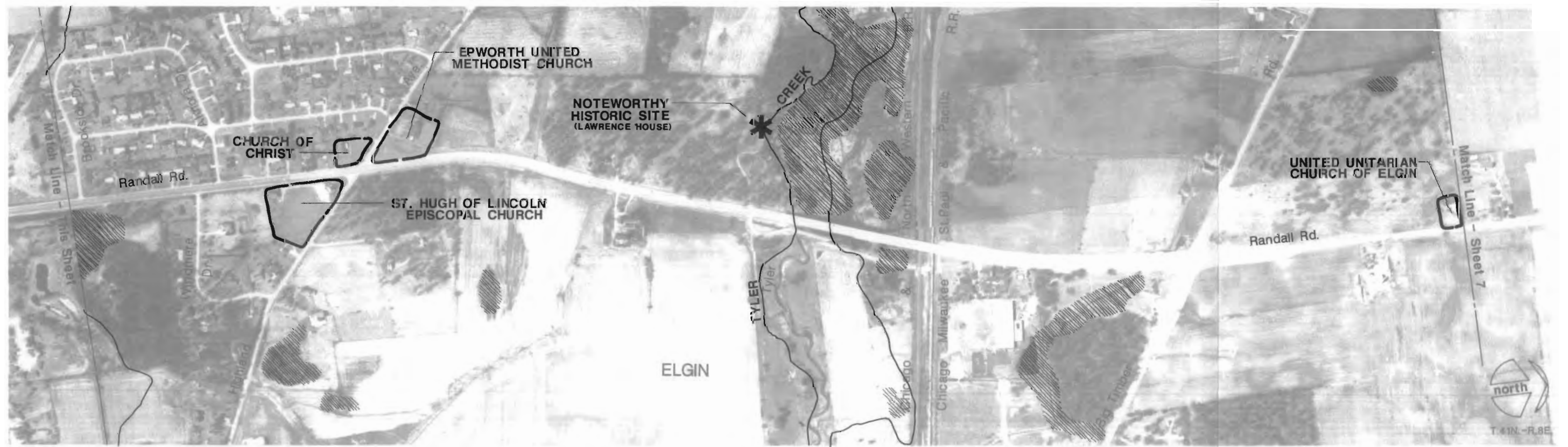


Orchard/Randall Road/Illinois 31

Environmental Characteristics

SRA

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Arterial
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Orchard/Randall Road/Illinois 31

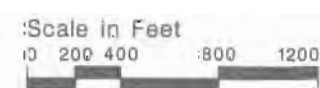
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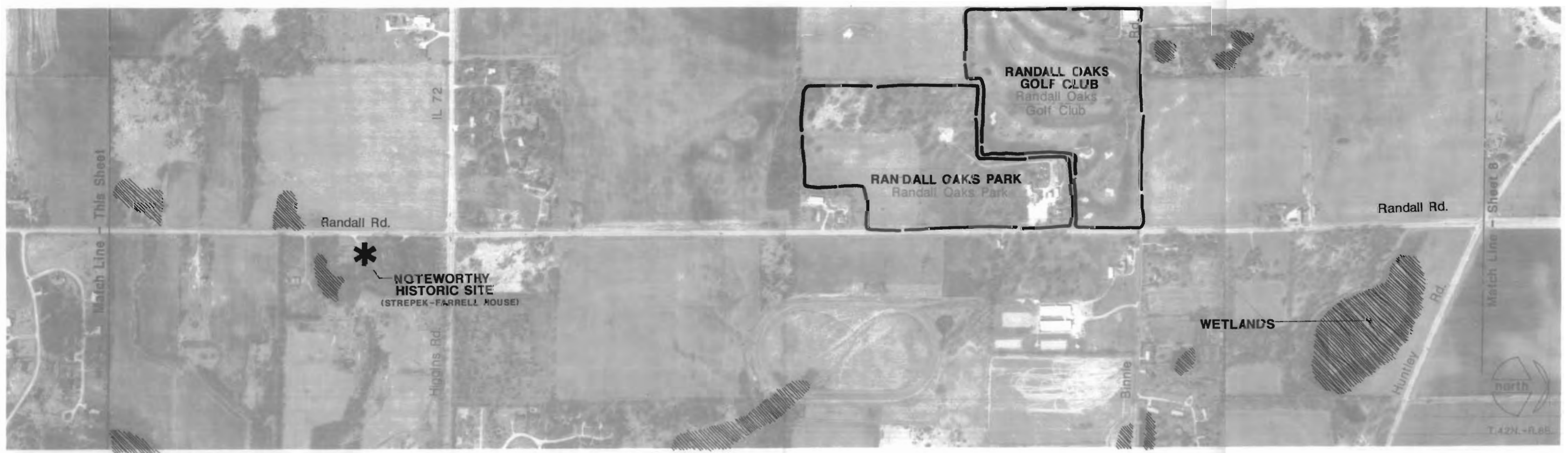
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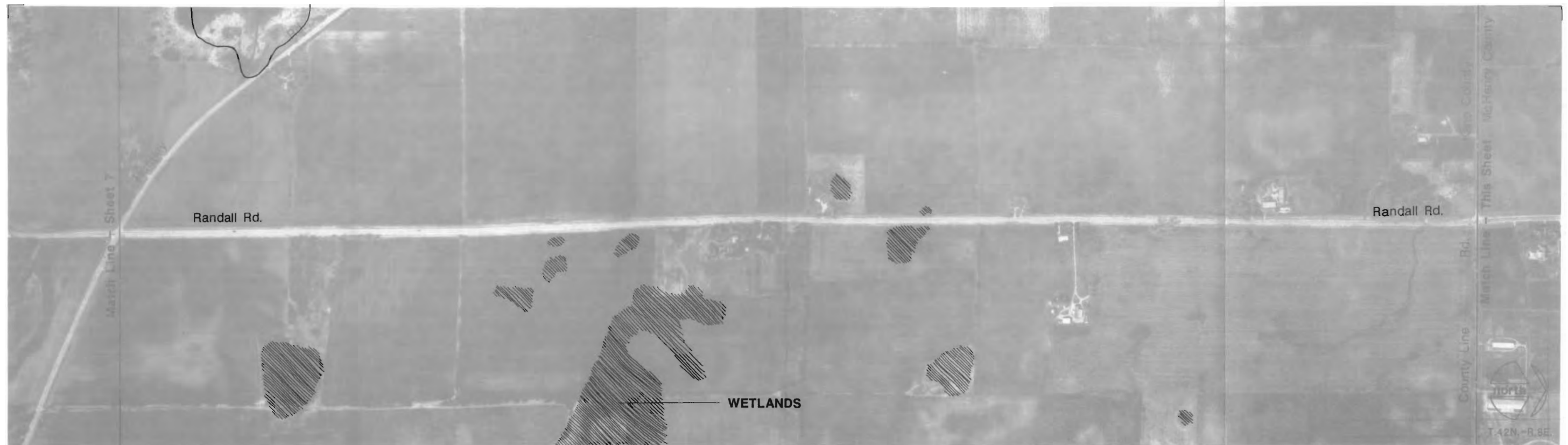
Environmental Characteristics



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Route Map B-7



Orchard/Randall Road/Illinois 31

Environmental Characteristics

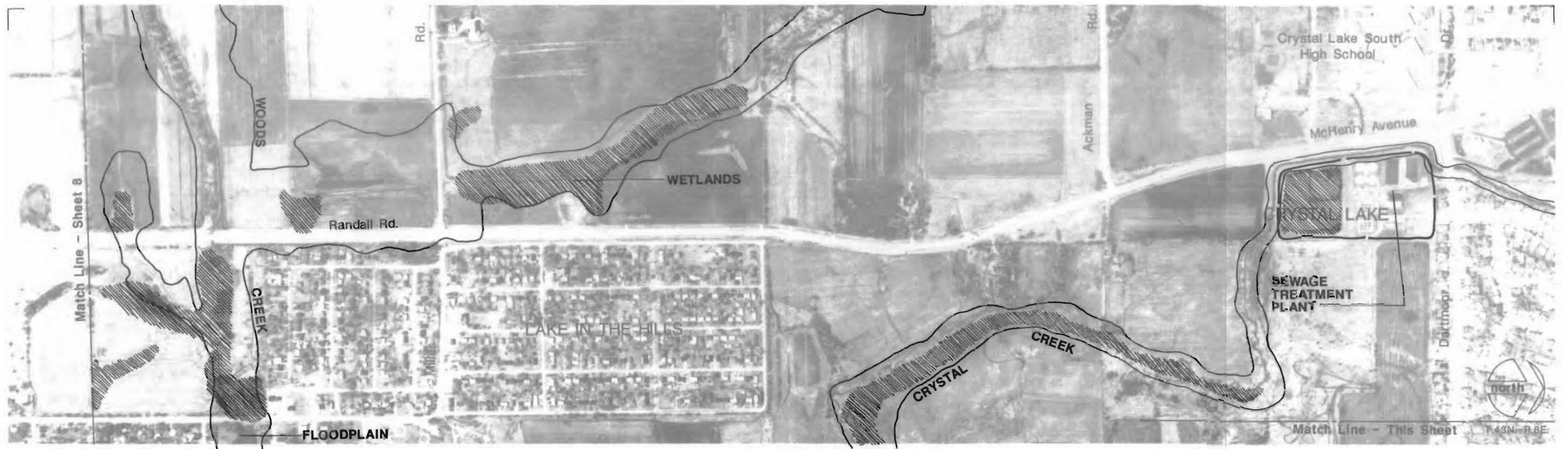


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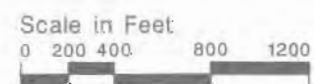


Route Map B-8



Orchard/Randall Road/Illinois 31

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Environmental Characteristics





Orchard/Randall Road/Illinois 31

Environmental Characteristics

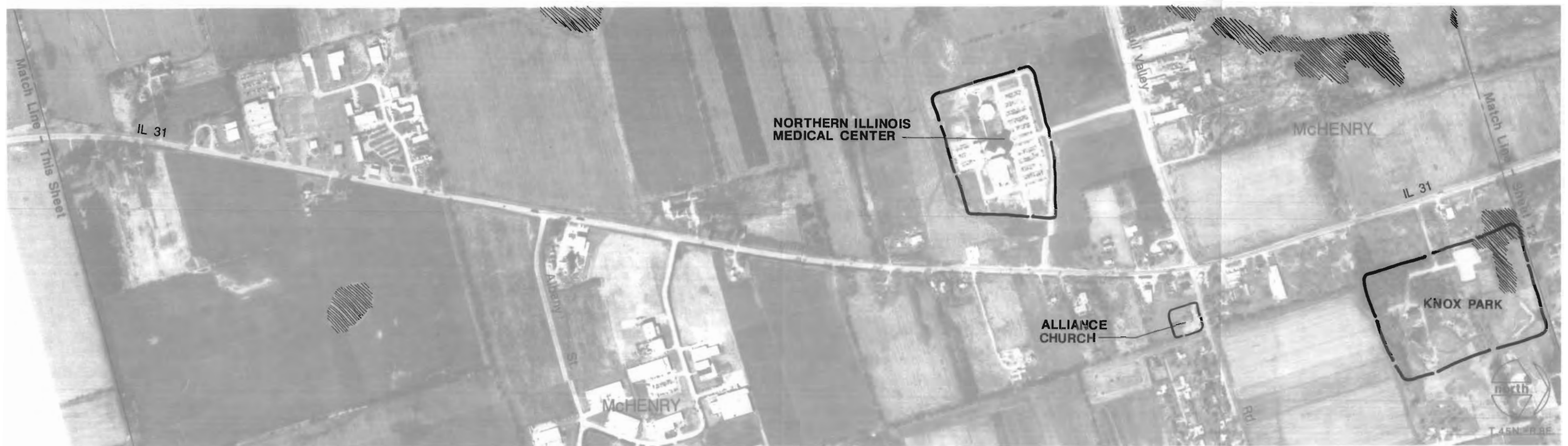


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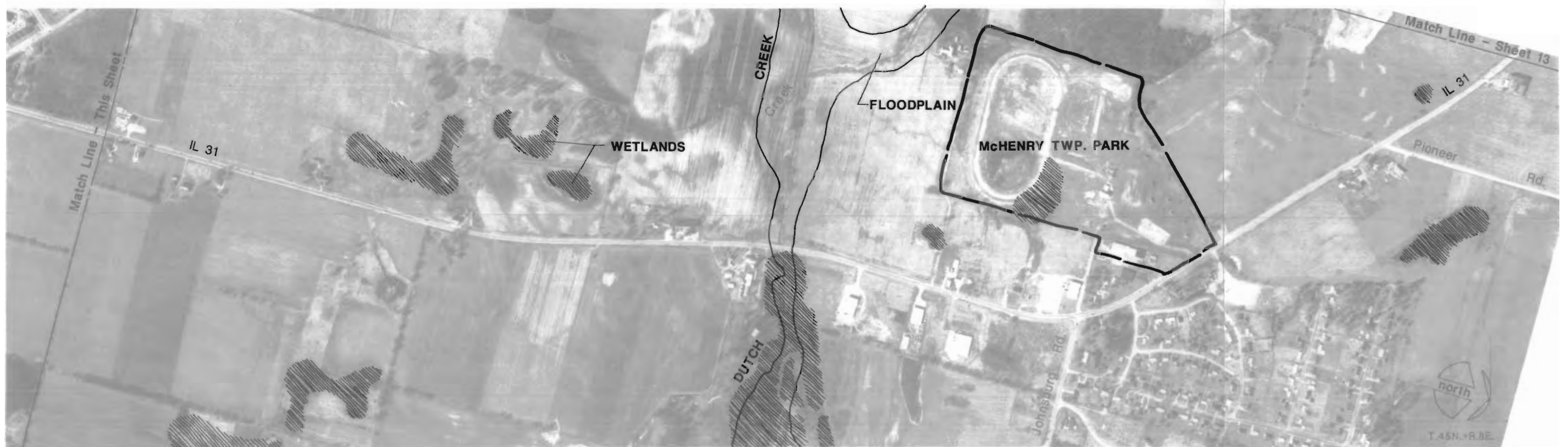
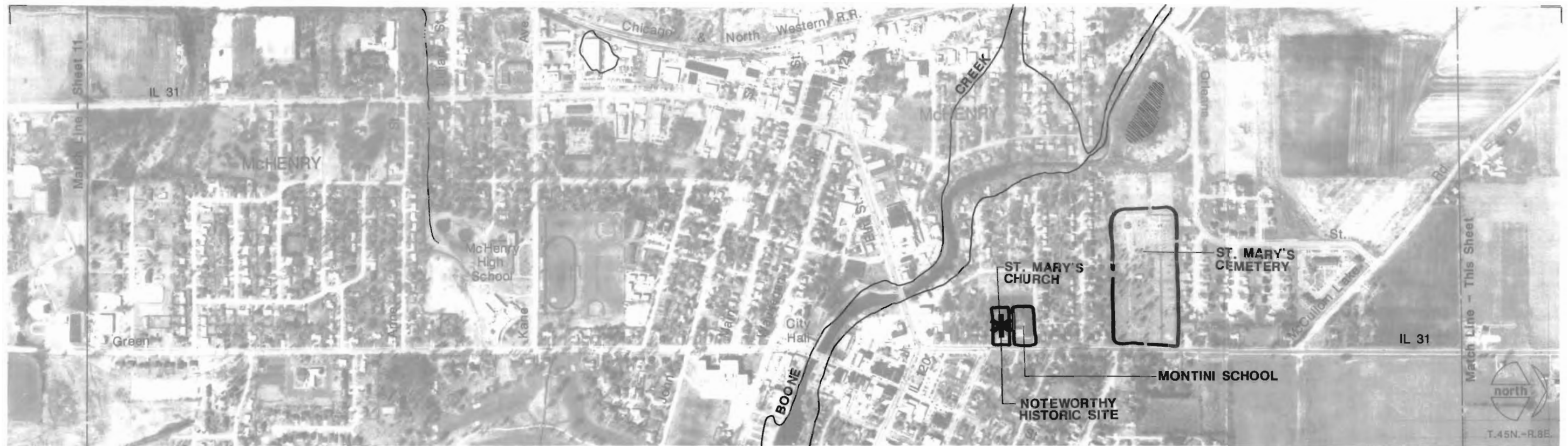
Route Map B-10



Orchard/Randall Road/Illinois 31

Environmental Characteristics





Orchard/Randall Road/Illinois 31

Environmental Characteristics

SRA

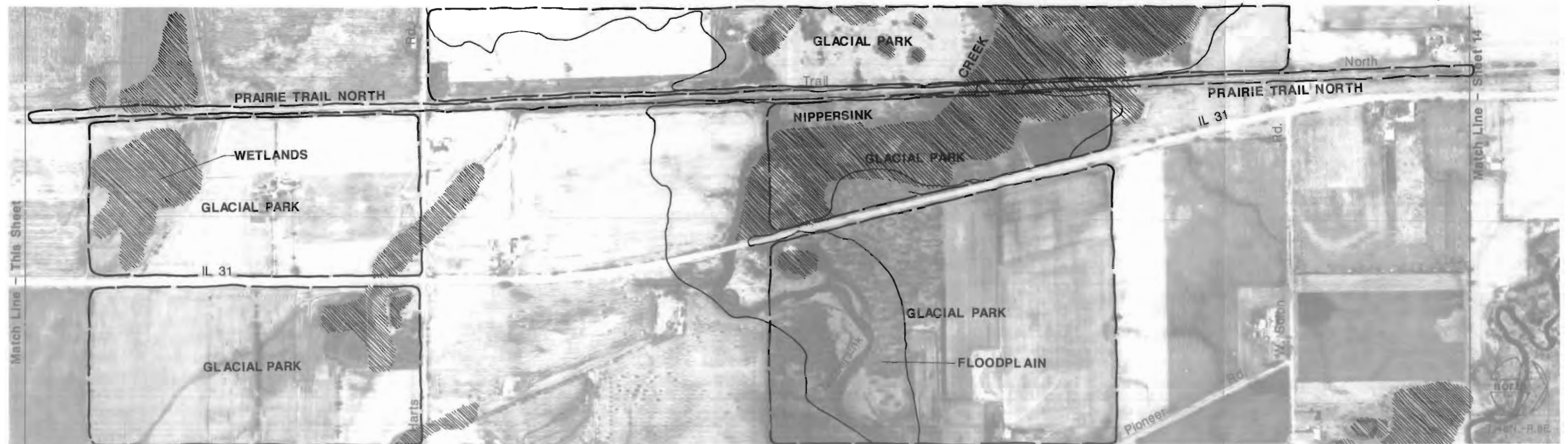
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Scale in Feet
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Route Map B-12



Orchard/Randall Road/Illinois 31

Environmental Characteristics

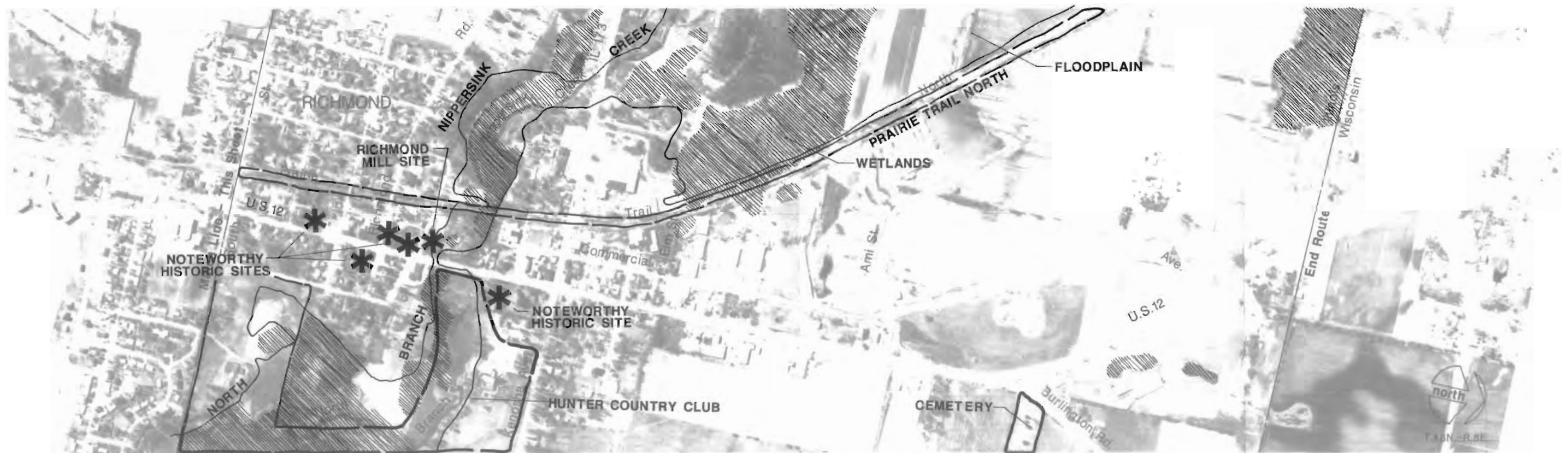
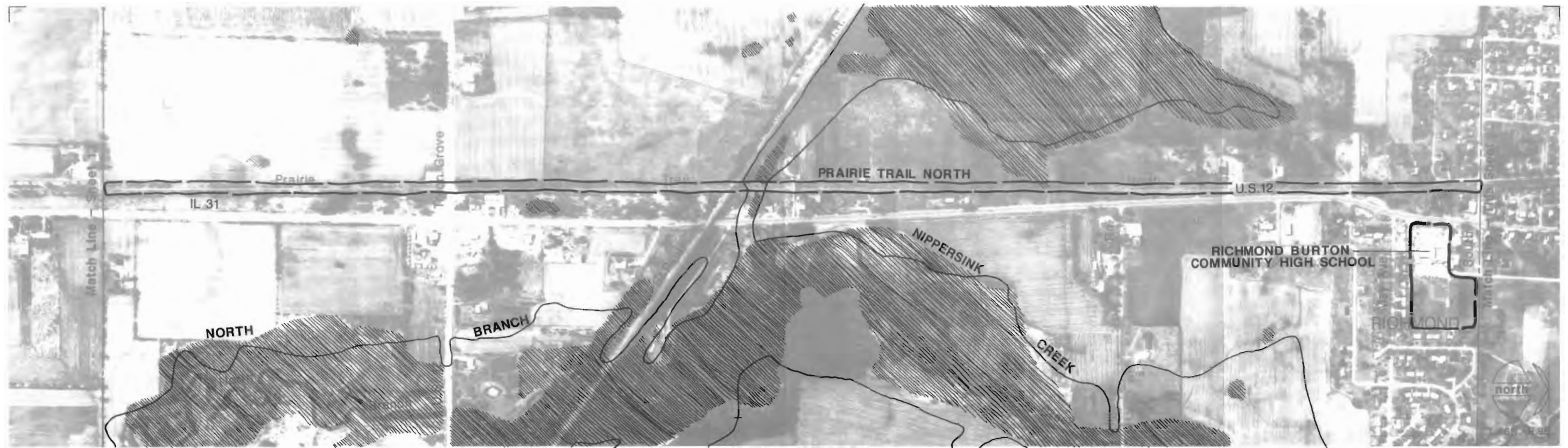


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Route Map B-13



Orchard/Randall Road/Illinois 31

Environmental Characteristics

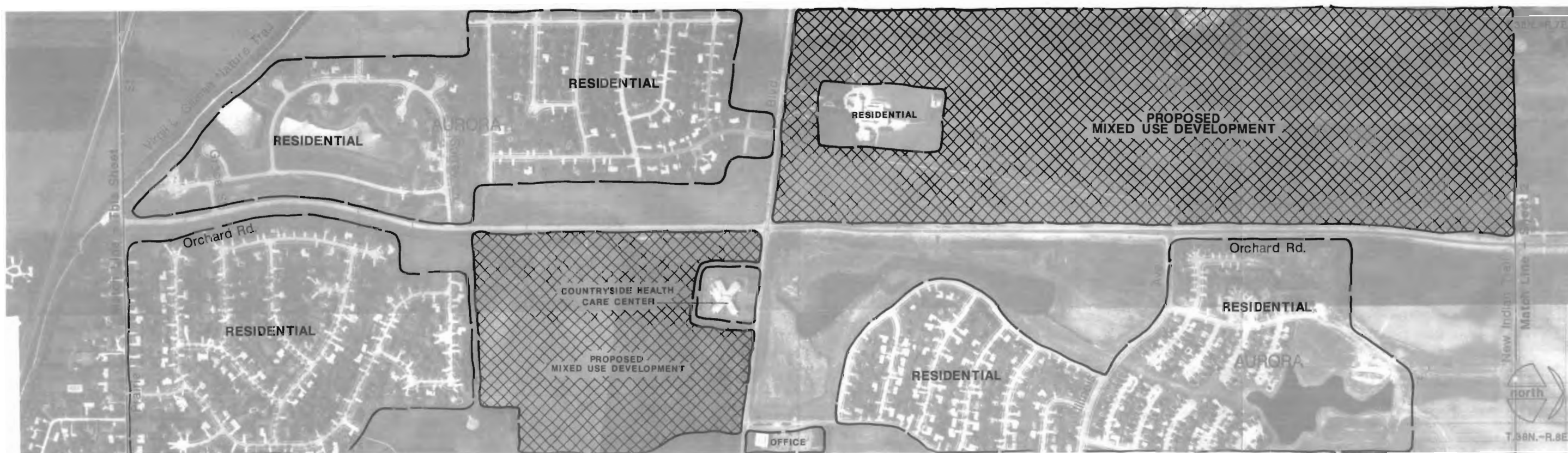


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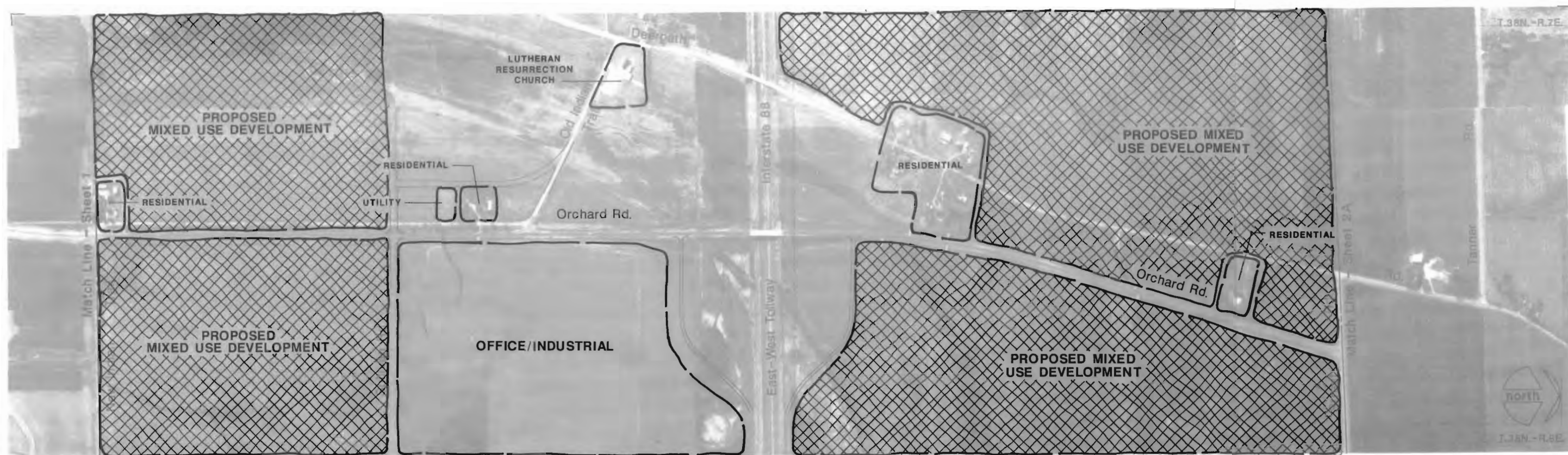
Route Map B-14



Orchard/Randall Road/Illinois 31

Development Characteristics





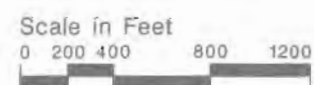
Orchard/Randall Road/Illinois 31

Development Characteristics

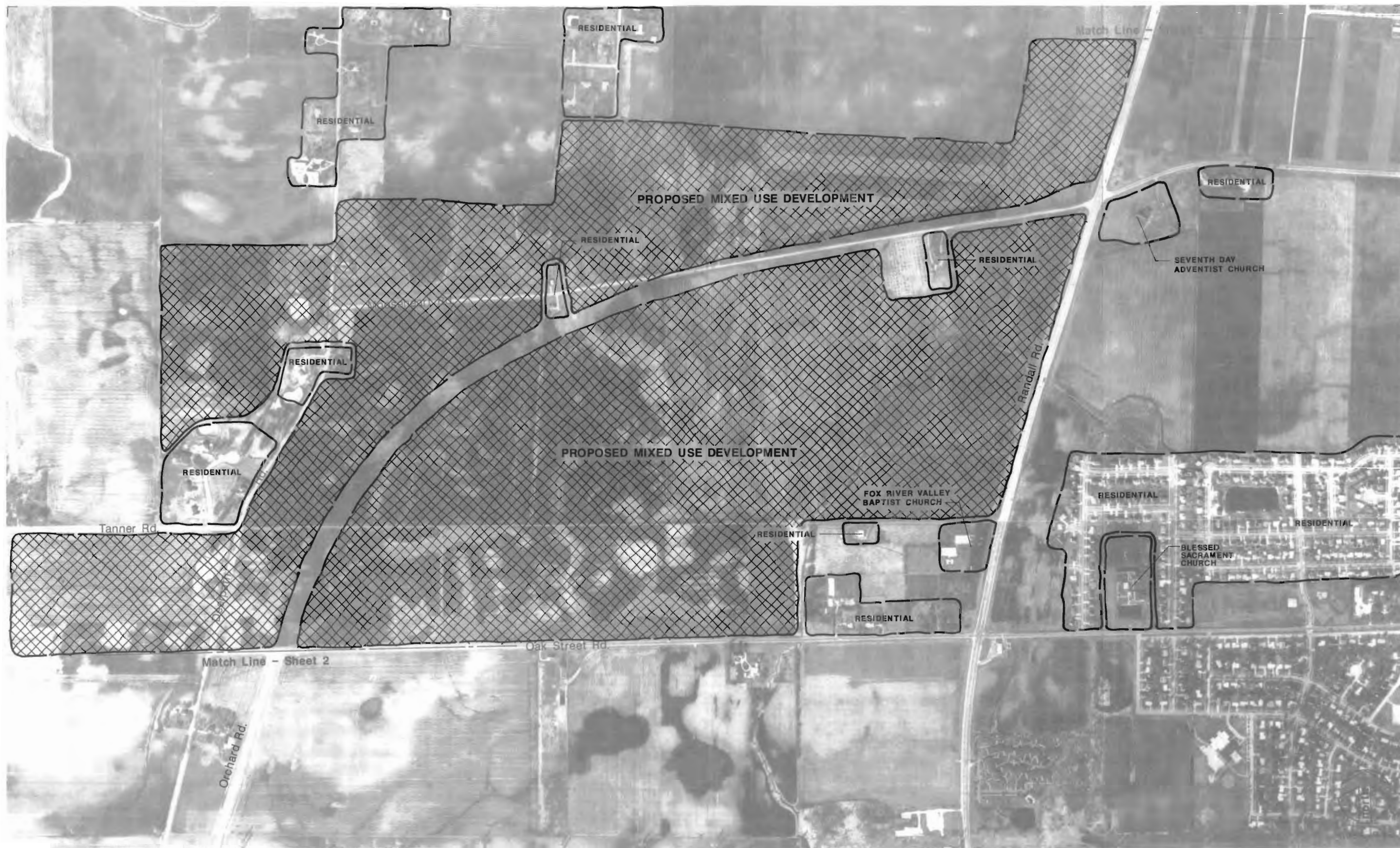


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Route Map C-2



Orchard/Randall Road/Illinois 31

Development Characteristics

SRA

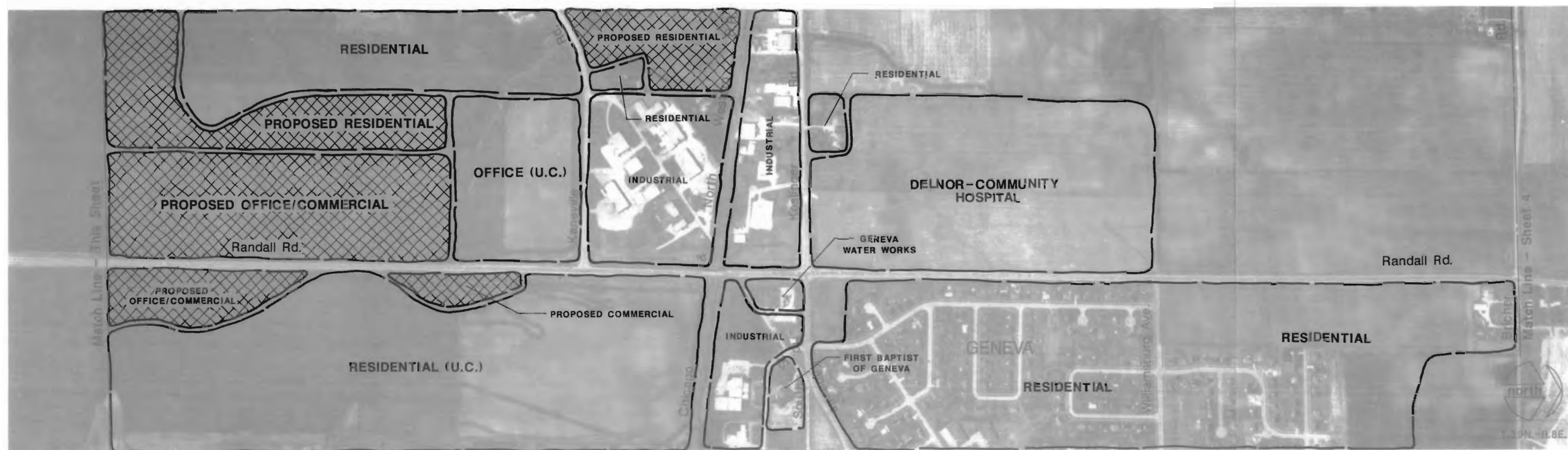
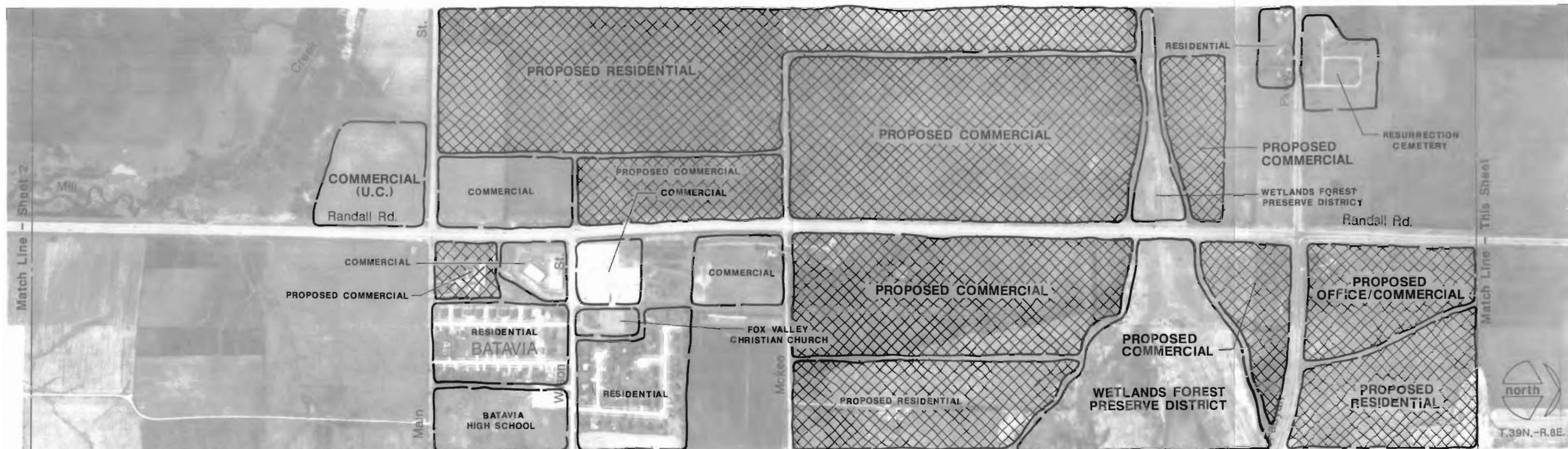
Strategic
Regional
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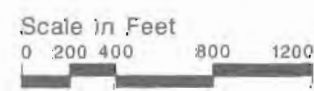
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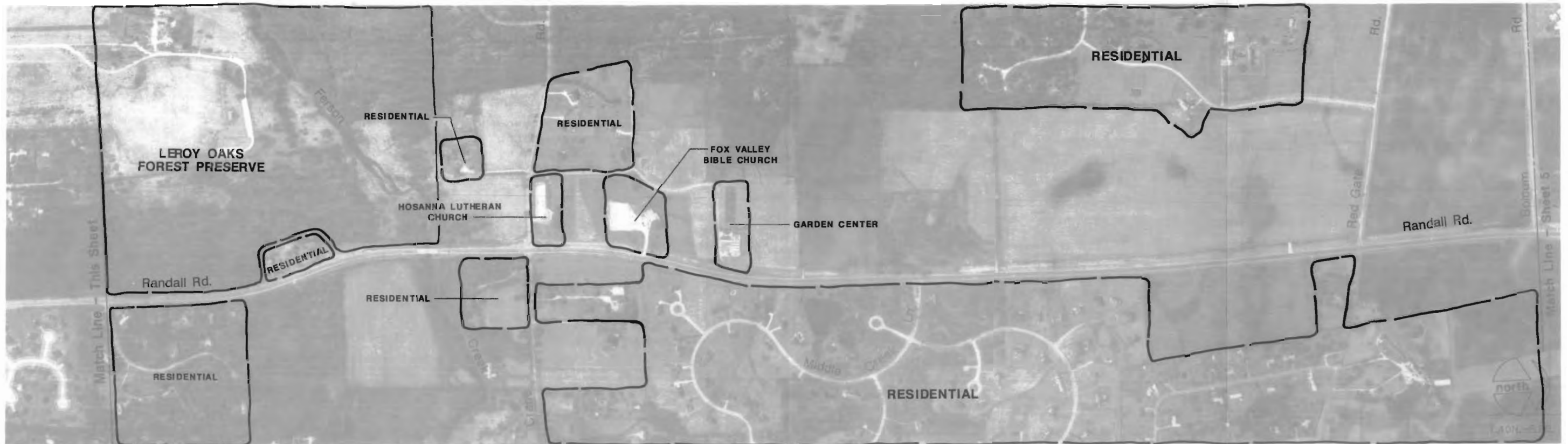
Route Map C-2A



Orchard/Randall Road/Illinois 31

Development Characteristics

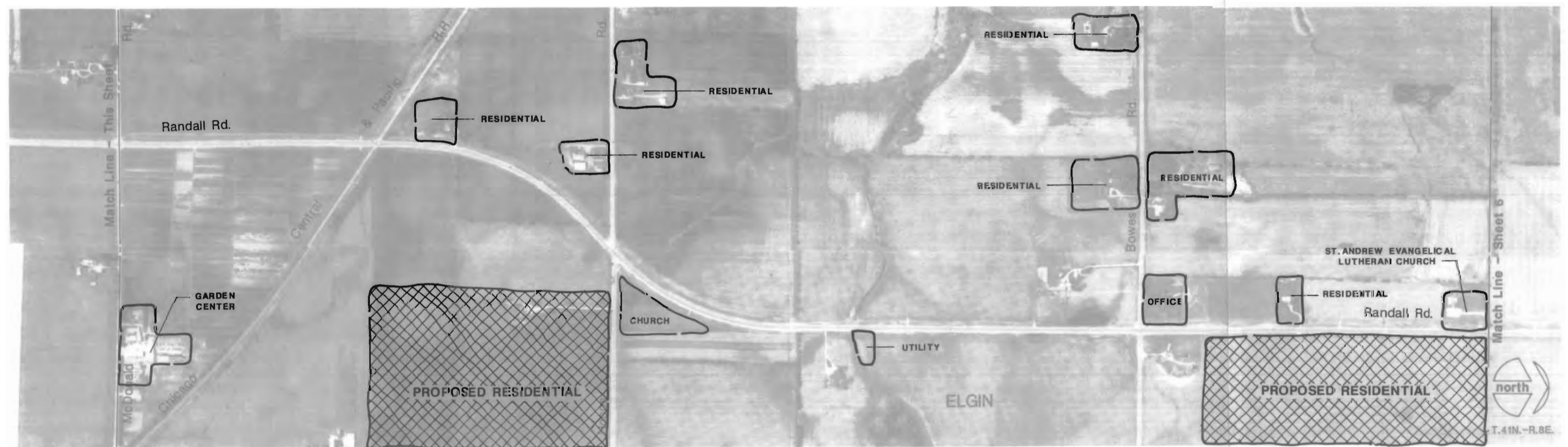
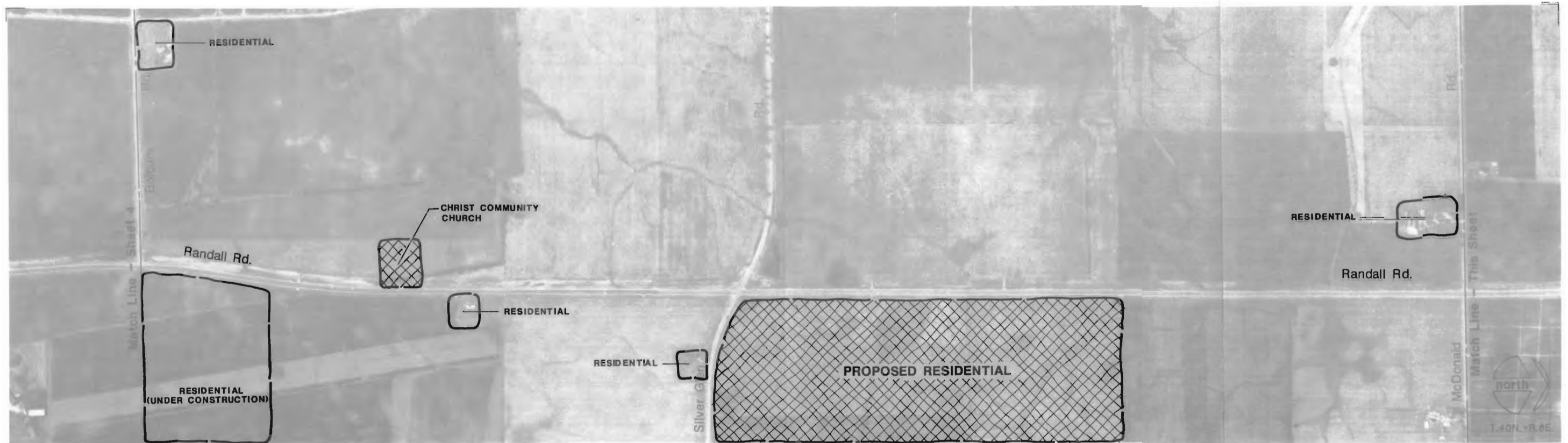




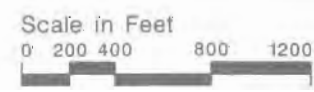
Orchard/Randall Road/Illinois 31

Development Characteristics

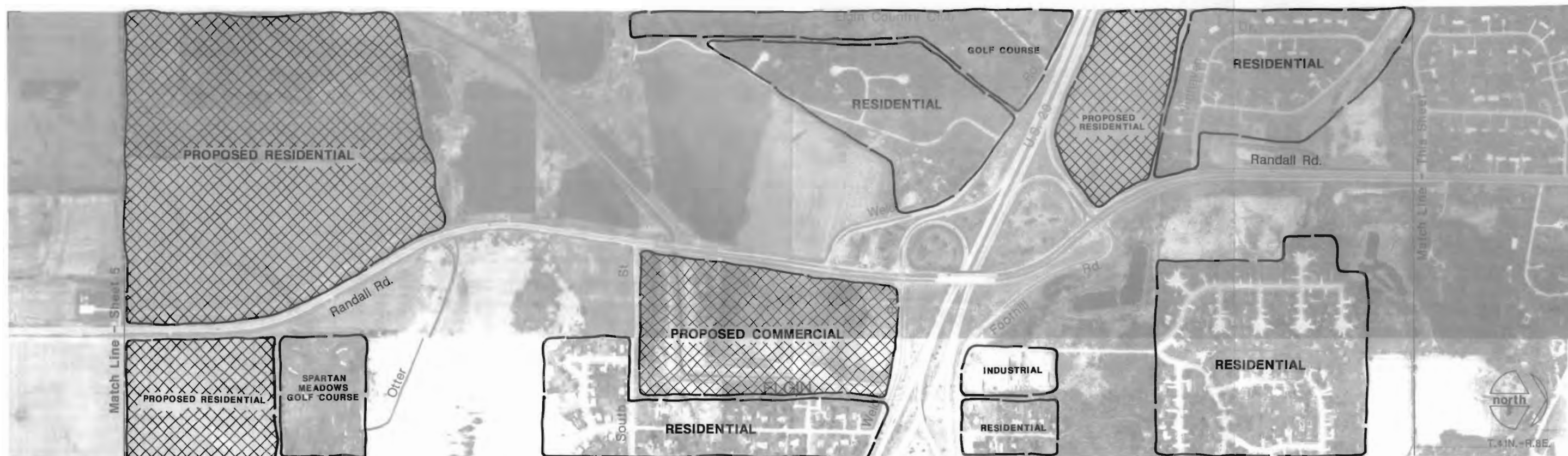




Orchard/Randall Road/Illinois 31

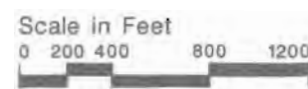


Development Characteristics



Orchard/Randall Road/Illinois 31

Development Characteristics





Orchard/Randall Road/Illinois 31

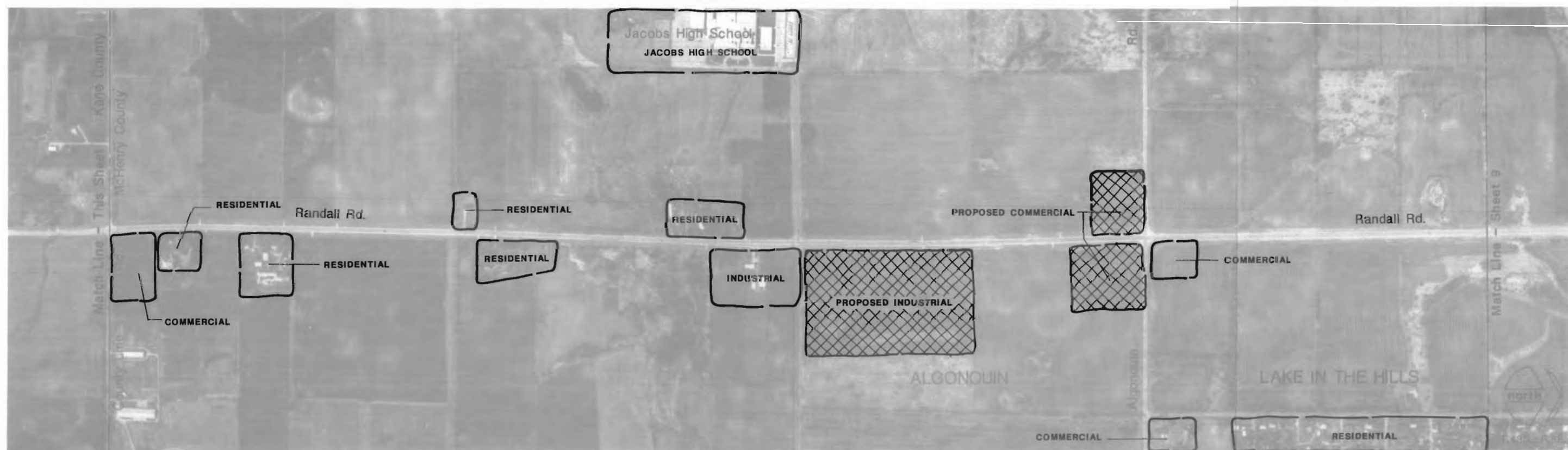
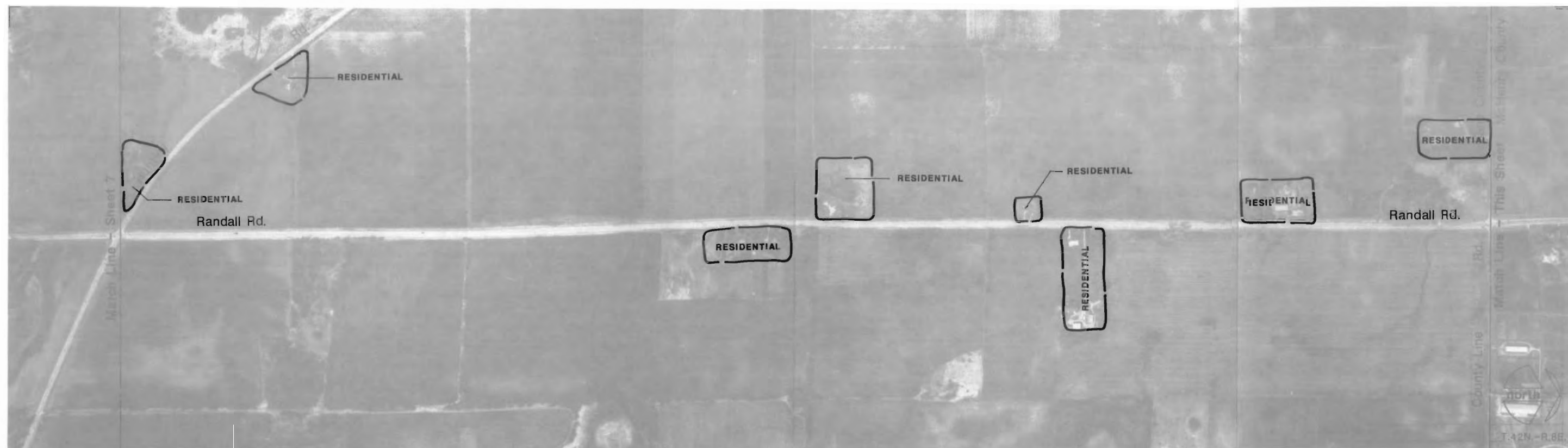
Development Characteristics



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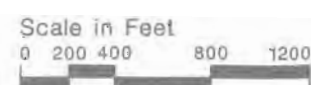


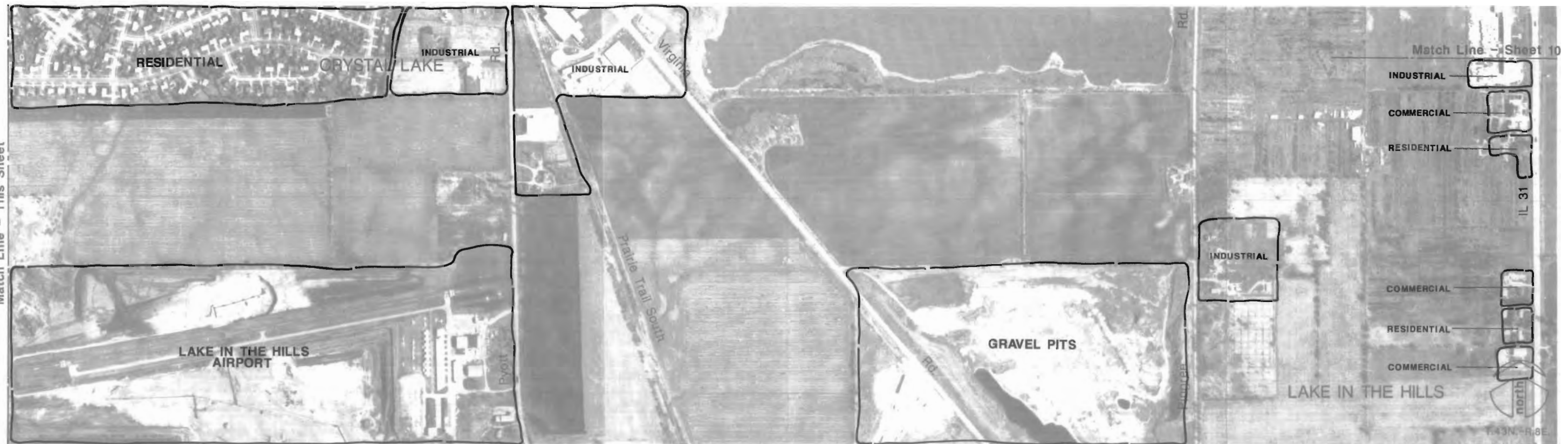
Orchard/Randall Road/Illinois 31

Development Characteristics



Strategic
Regional
Arterial
Planning Study



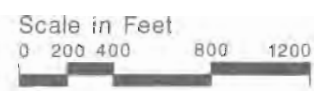


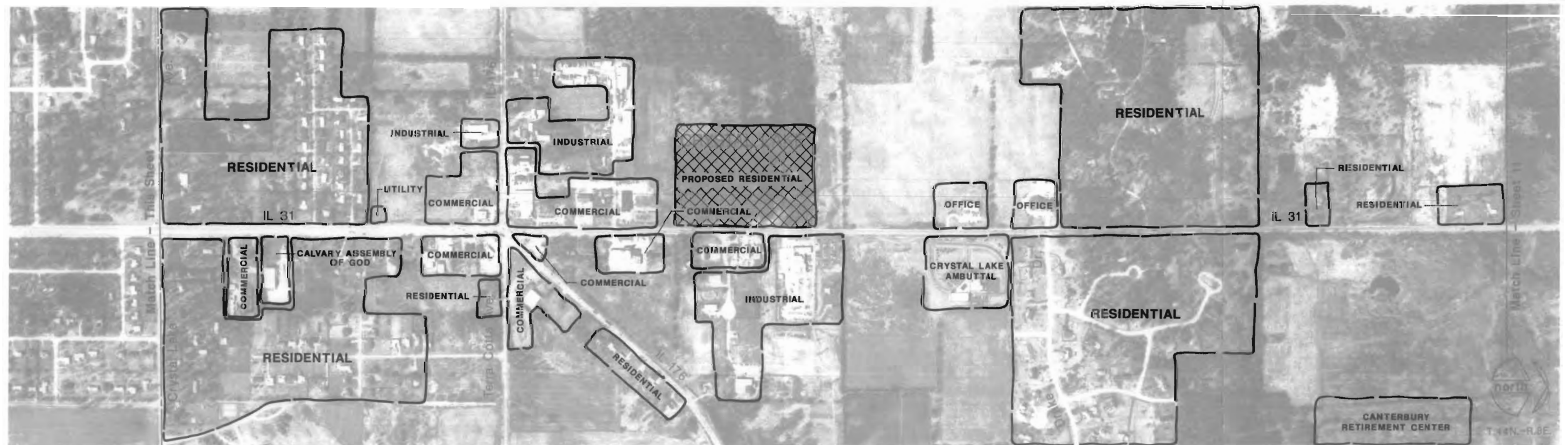
Orchard/Randall Road/Illinois 31

Development Characteristics



Strategic
Regional
Arterial
Planning Study





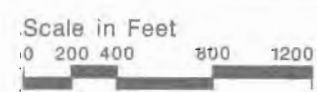
Orchard/Randall Road/Illinois 31

Development Characteristics

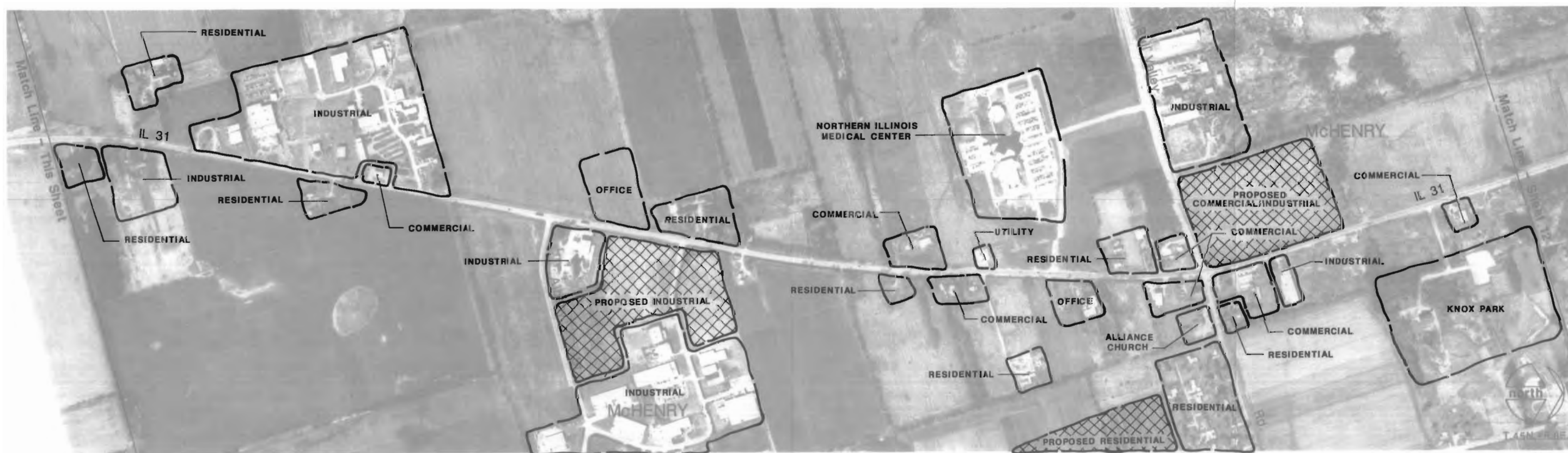
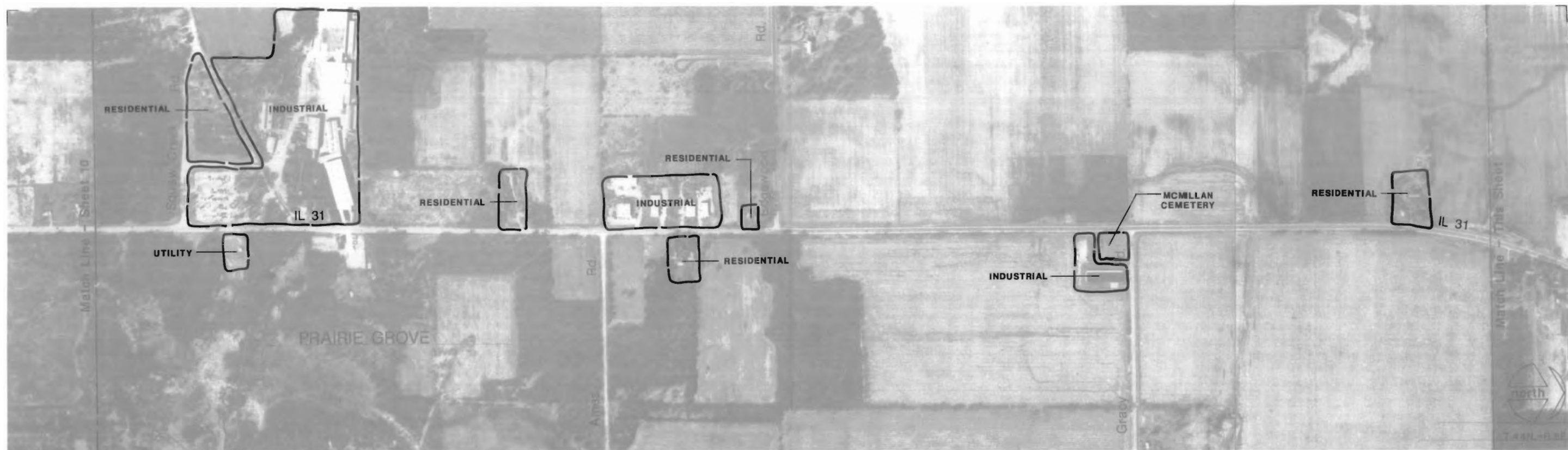


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Route Map C-10



Orchard/Randall Road/Illinois 31

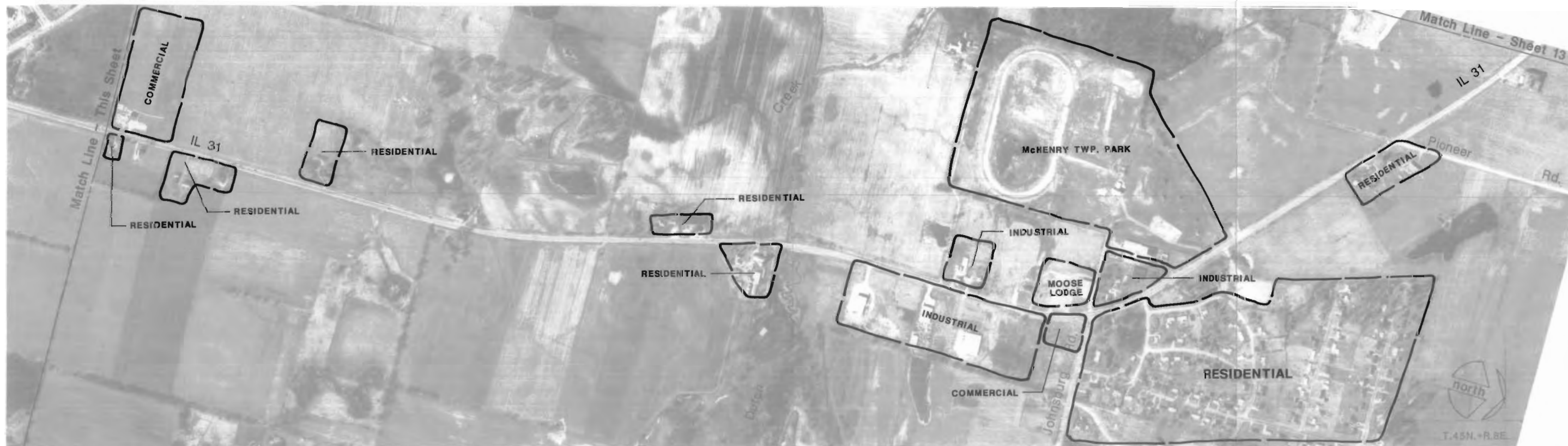
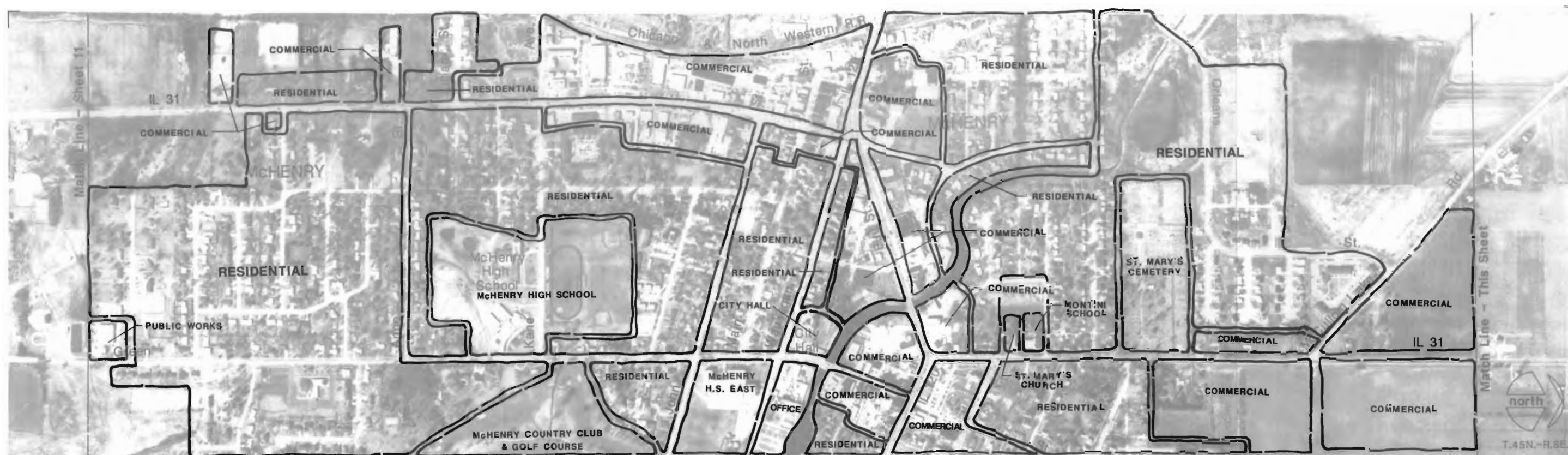
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Development Characteristics

SRA Strategic
Regional
Arterial
Planning Study

Route Map C-11



Orchard/Randall Road/Illinois 31

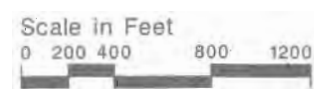
Development Characteristics

SRA

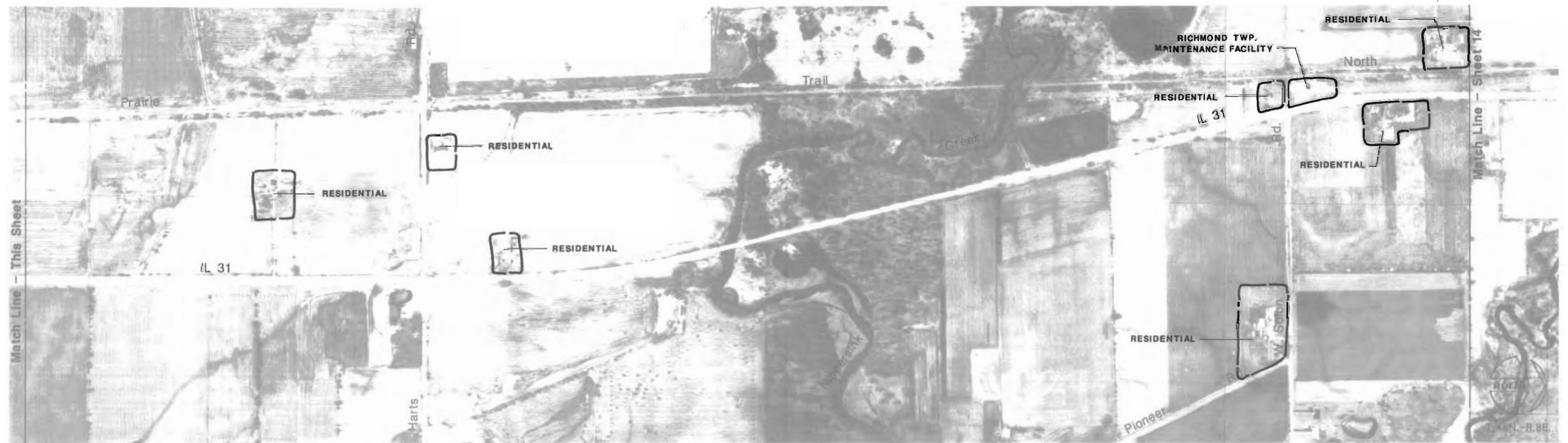
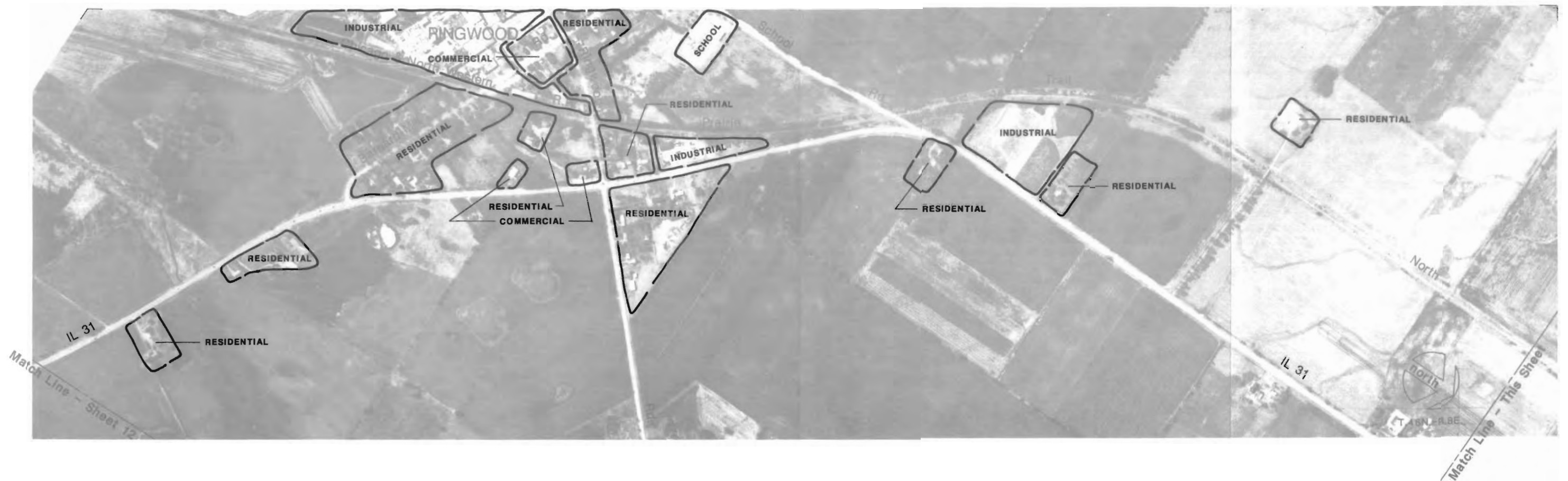
Strategic
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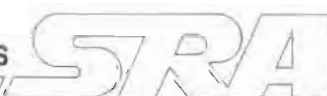


Route Map C-12



Orchard/Randall Road/Illinois 31

Development Characteristics



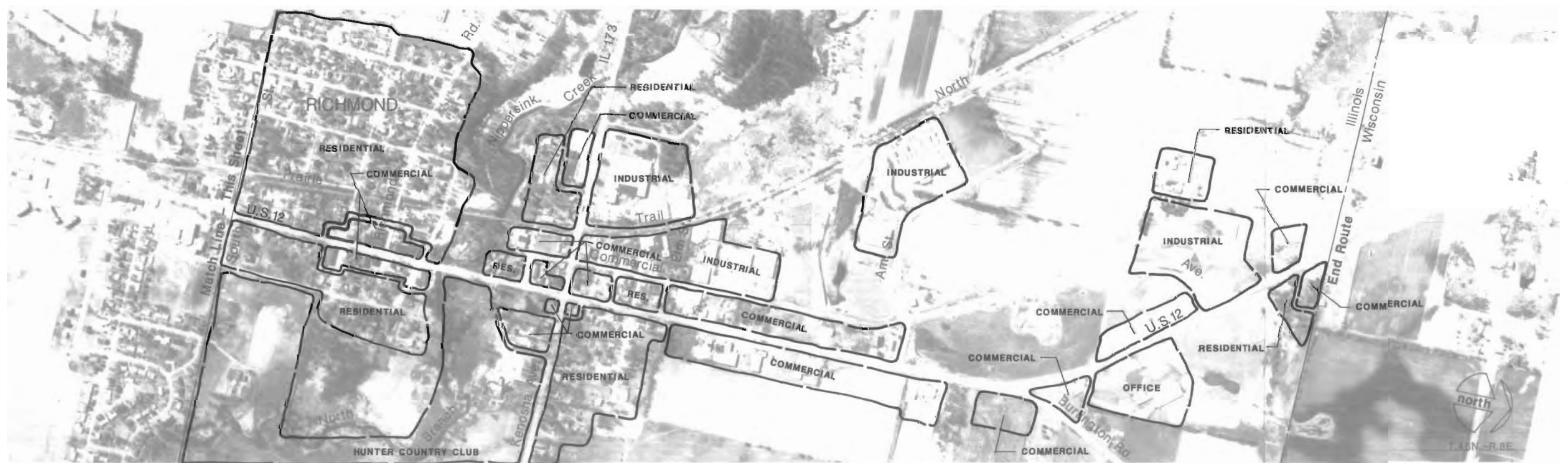
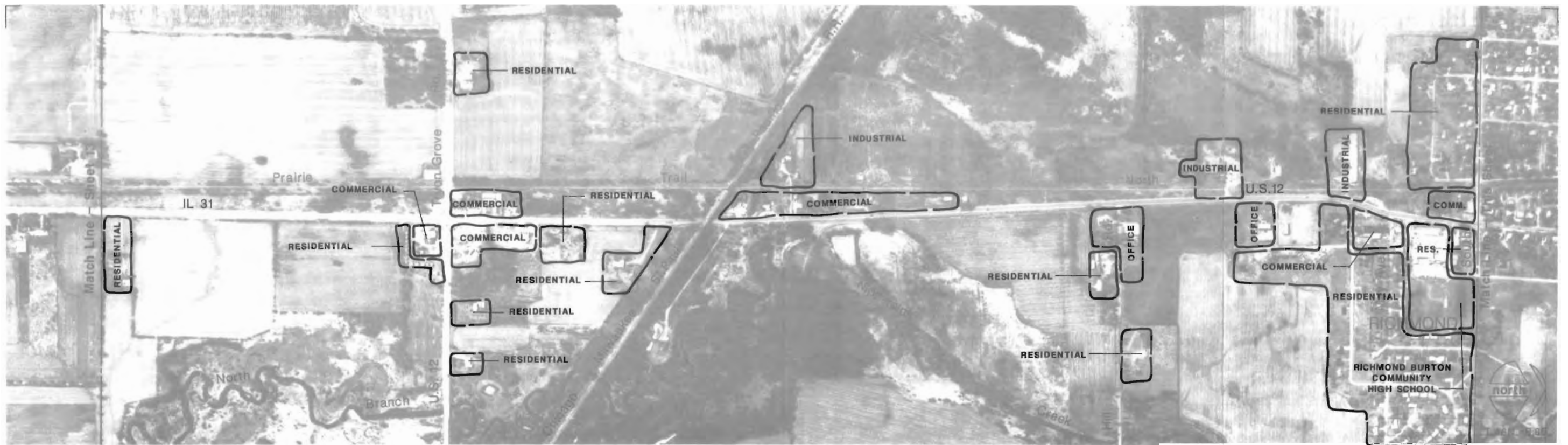
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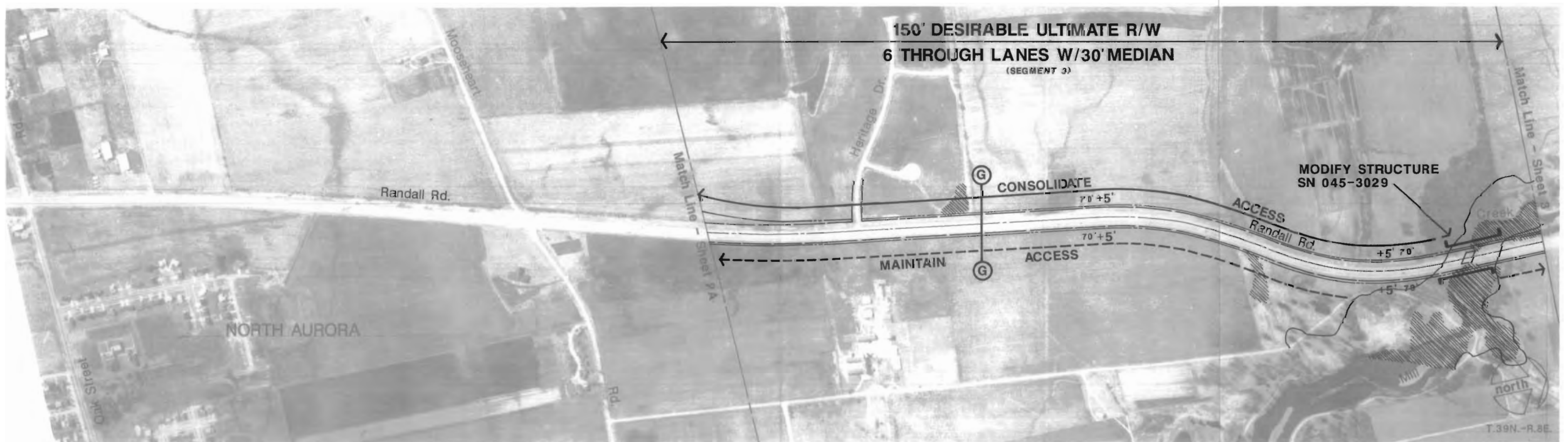
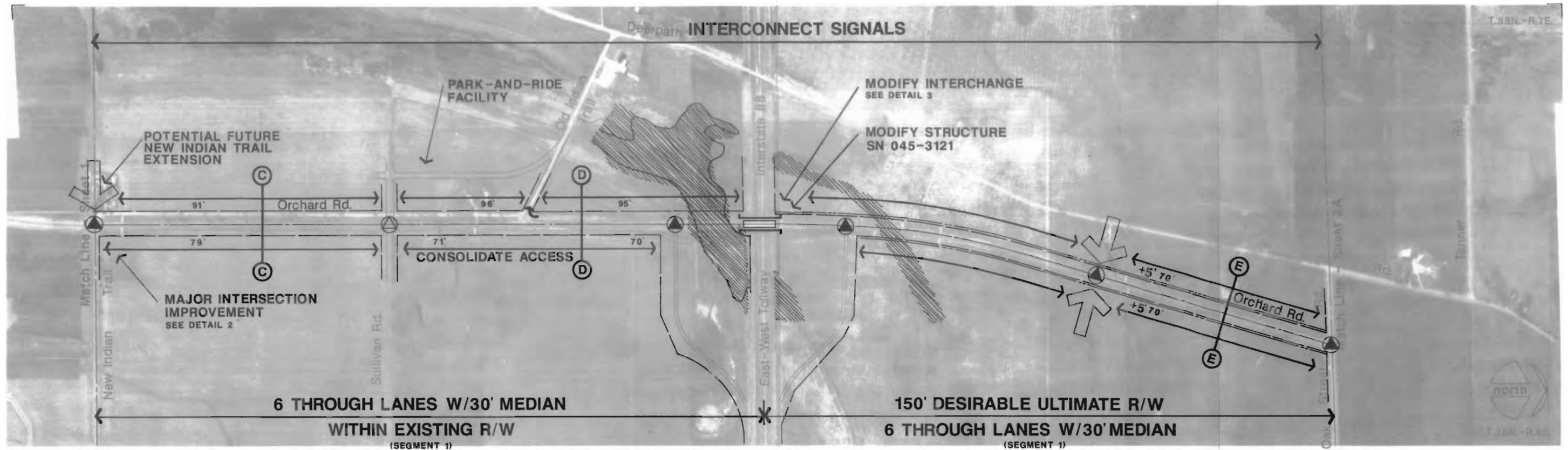
Route Map C-13



Orchard/Randall Road/Illinois 31

Development Characteristics



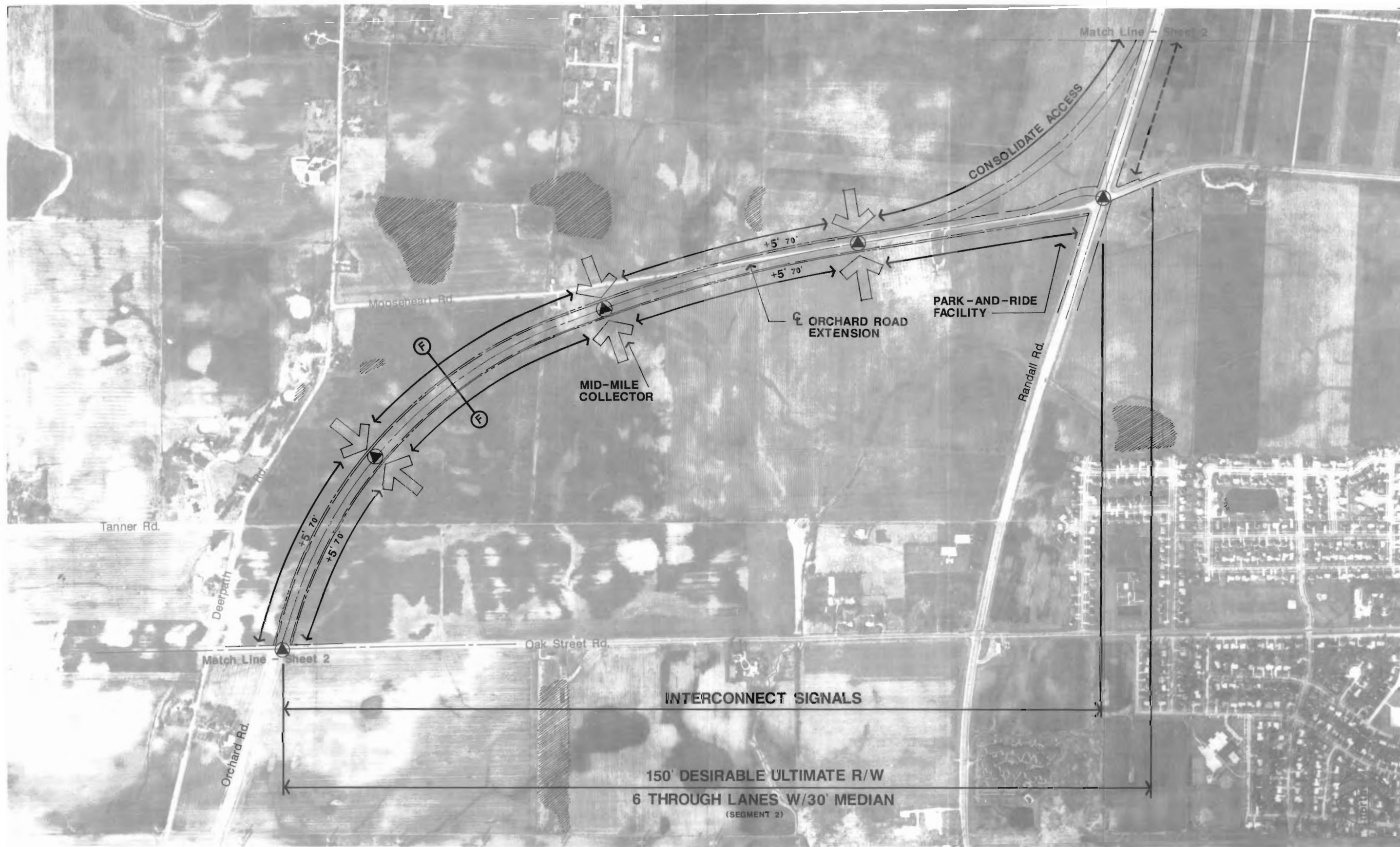


Orchard/Randall Road/Illinois 31

Recommended Improvements **SRA** Strategic Regional Arterial Planning Study

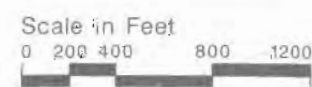
prepared by Harland Bartholomew & Associates, Inc. for the
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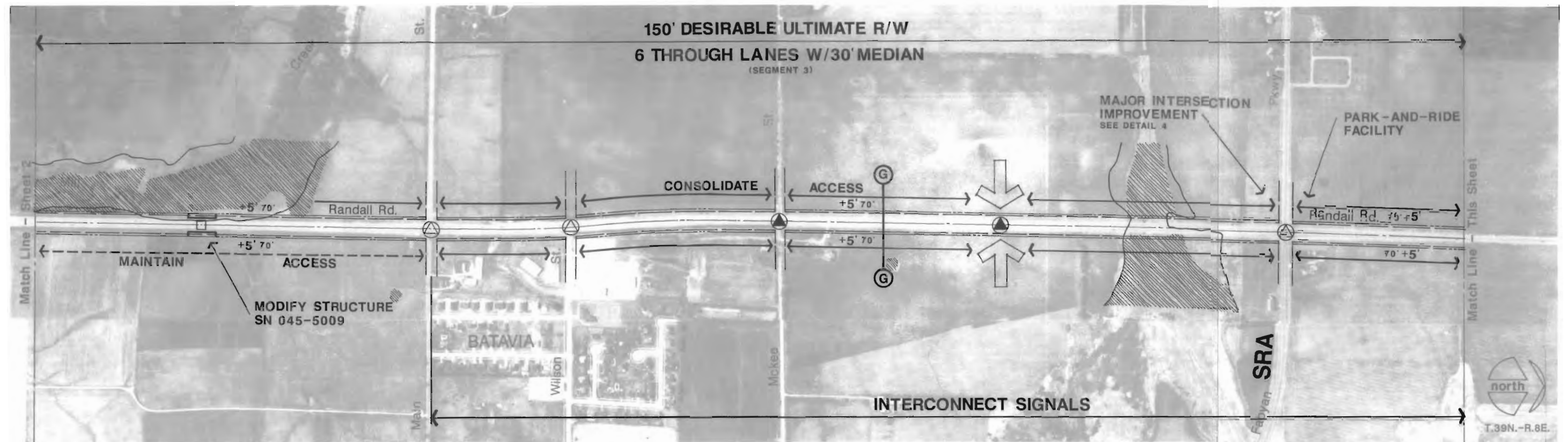




Orchard/Randall Road/Illinois 31

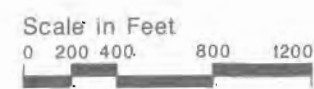
Recommended Improvements



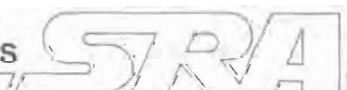


Orchard/Randall Road/Ilinois 31

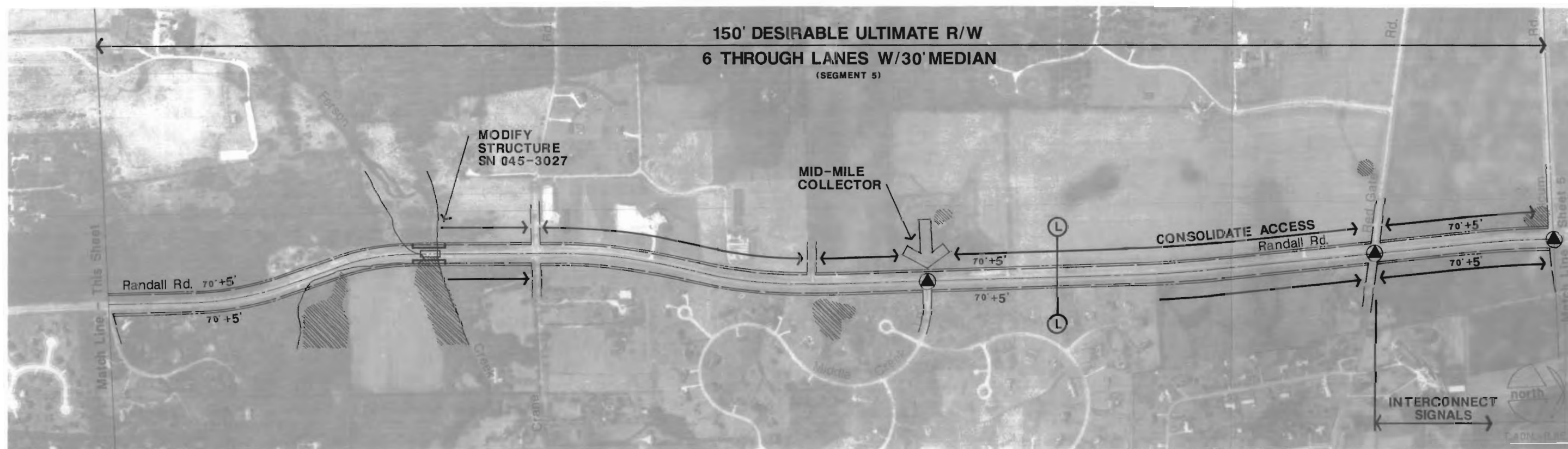
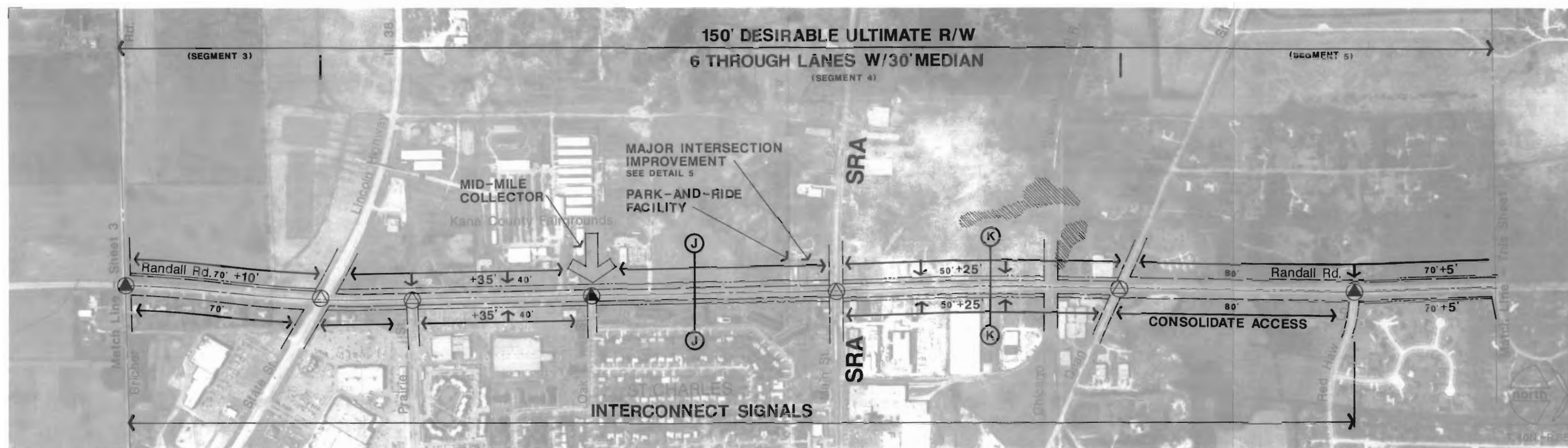
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Recommended Improvements



Strategic
Regional
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Planning Study



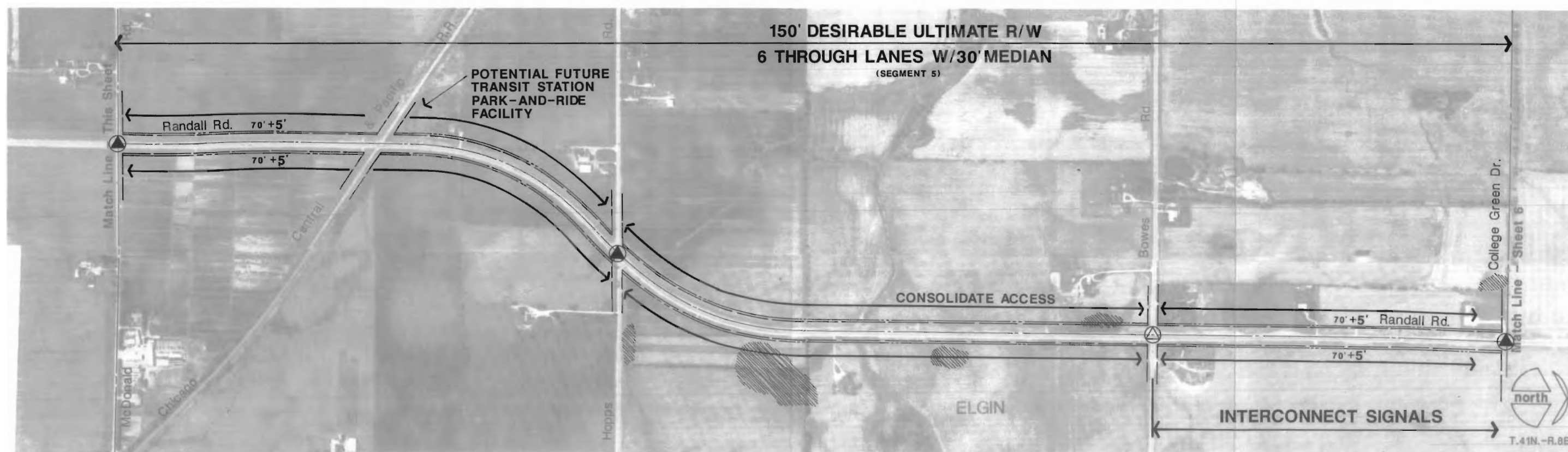
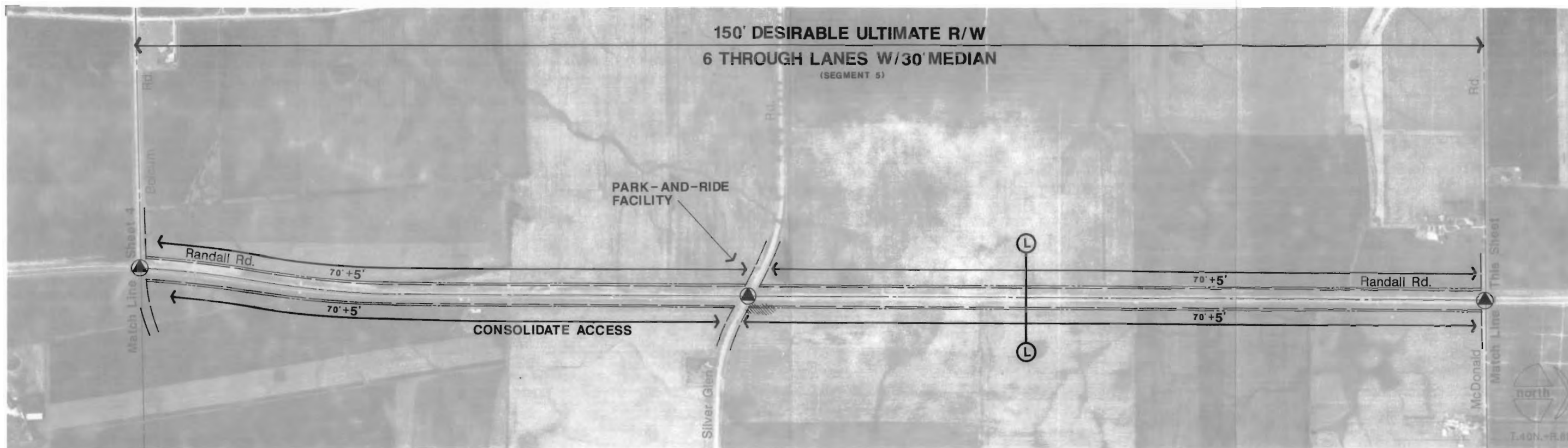
Orchard/Randall Road/Ilinois 31

Recommended Improvements



Strategic
Regional
Arterial
Planning Study





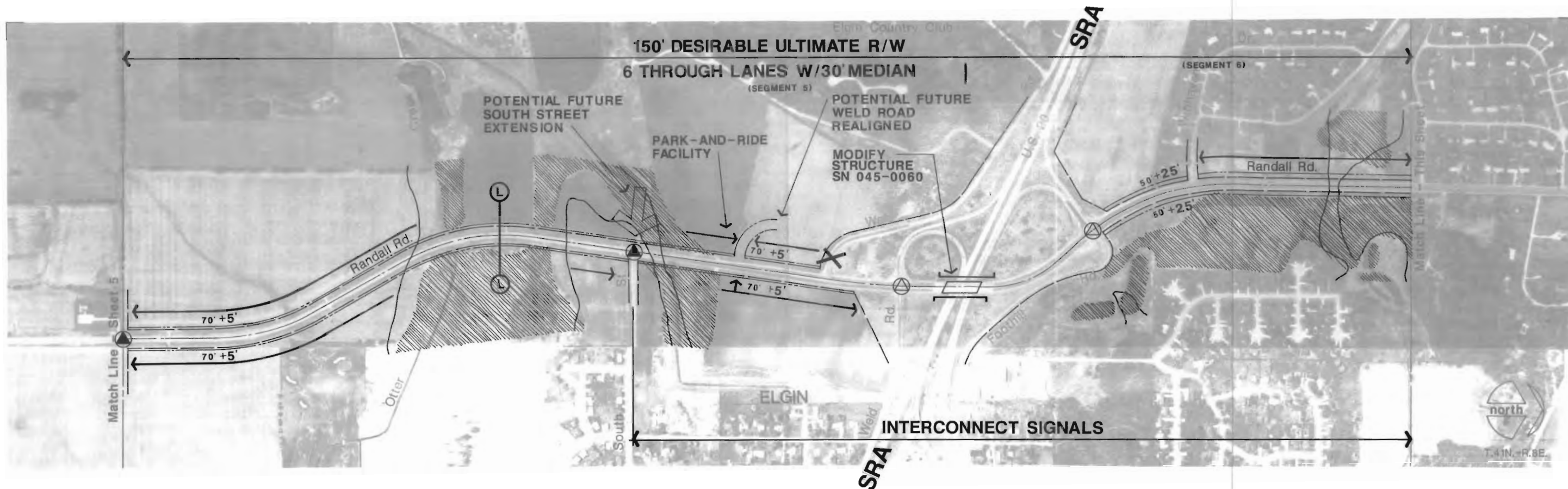
Orchard/Randall Road/Illinois 31

Recommended Improvements



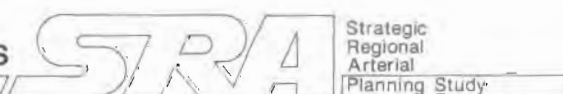
Strategic
Regional
Arterial
Planning Study

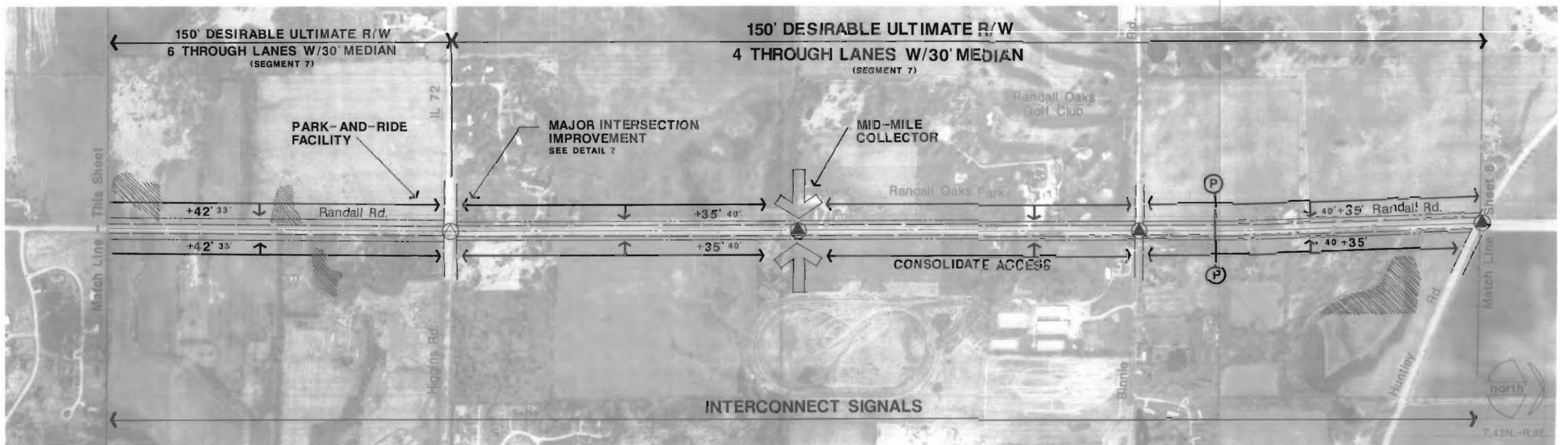
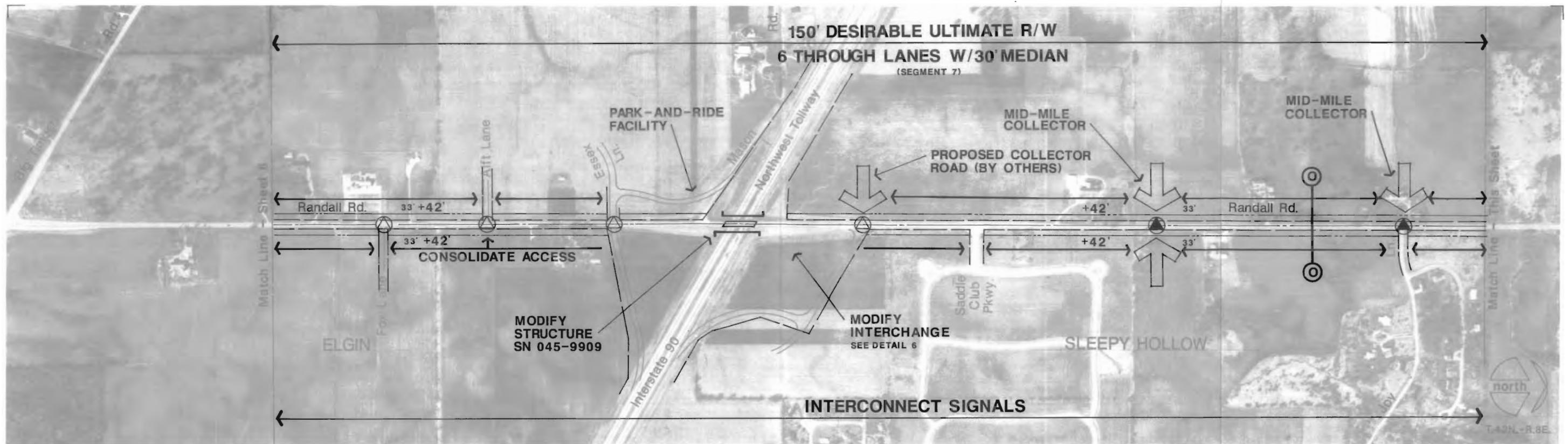




Orchard/Randall Road/Illinois 31

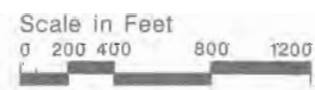
Recommended Improvements



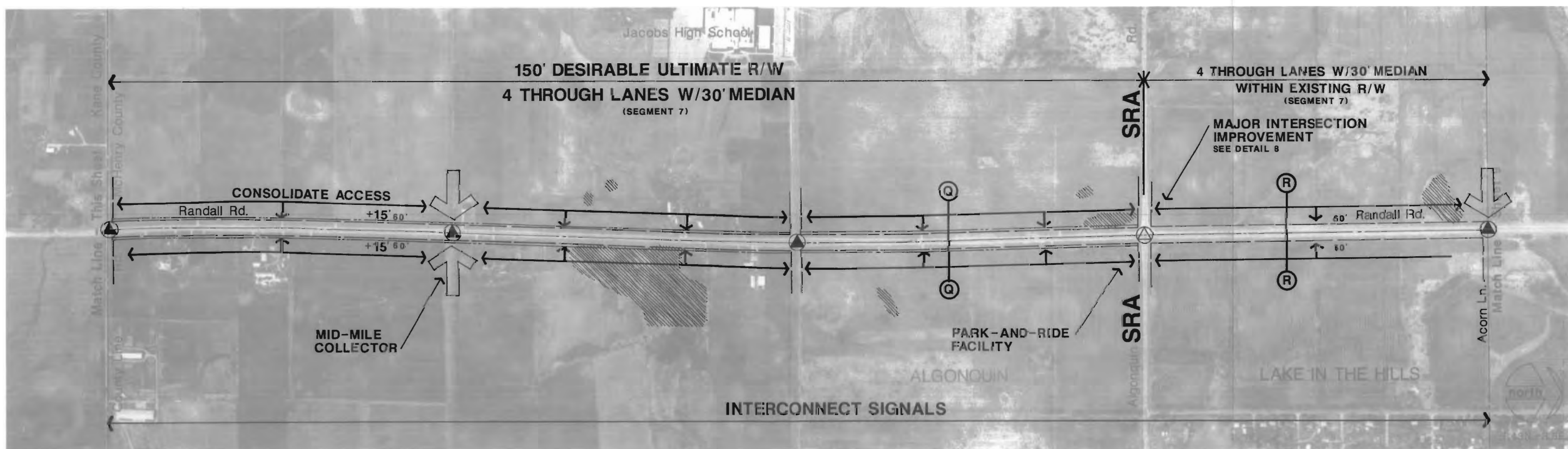
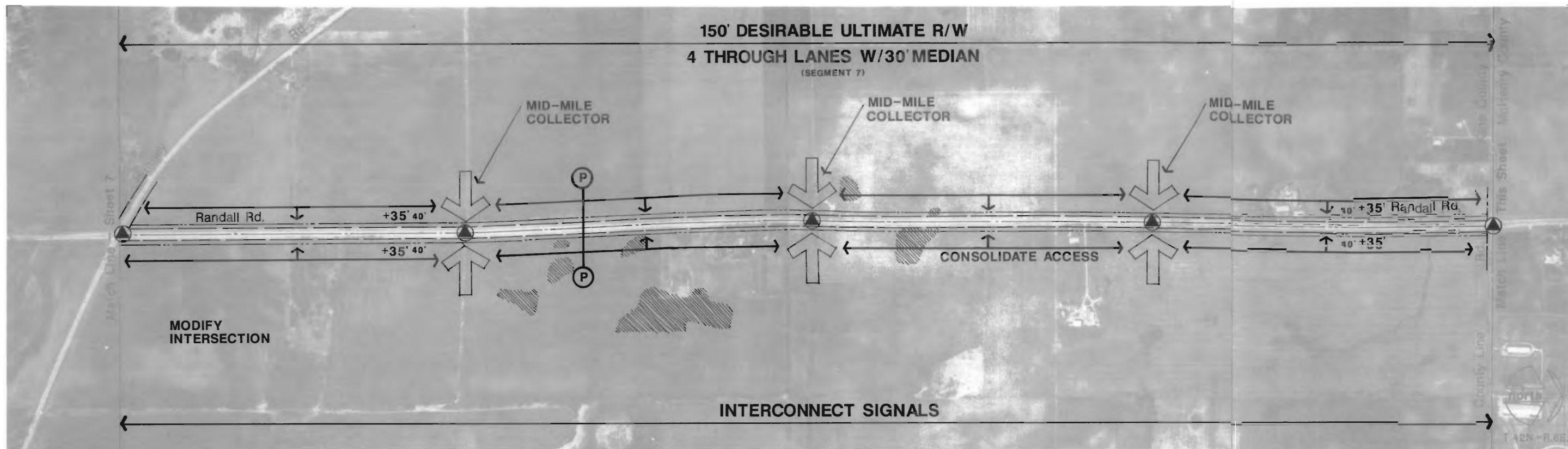


Orchard/Randall Road/Illinois 31

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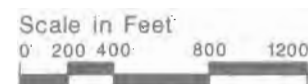


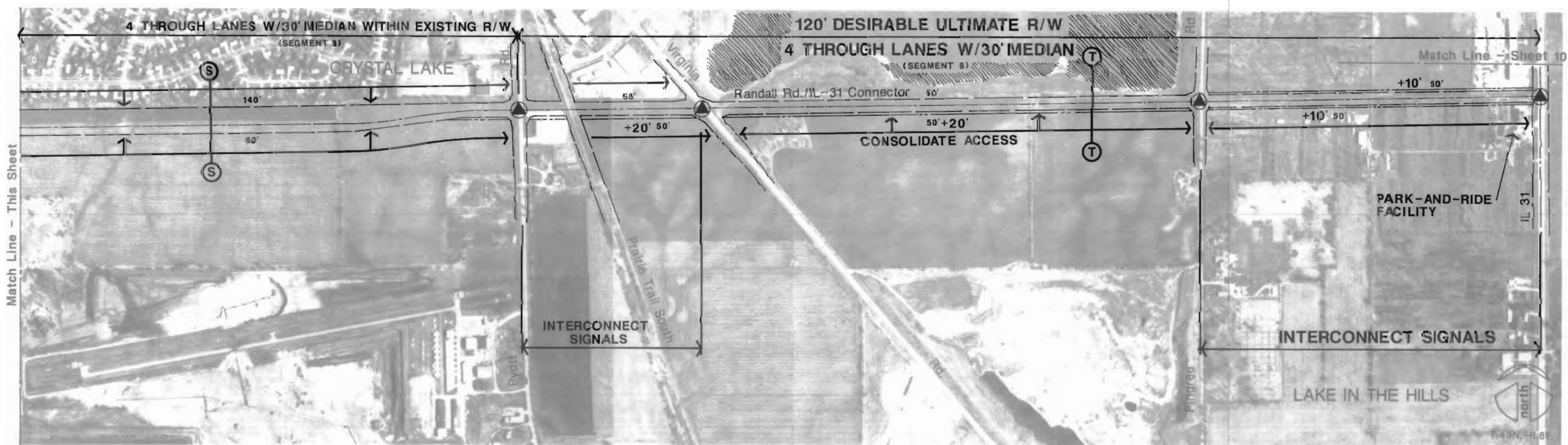
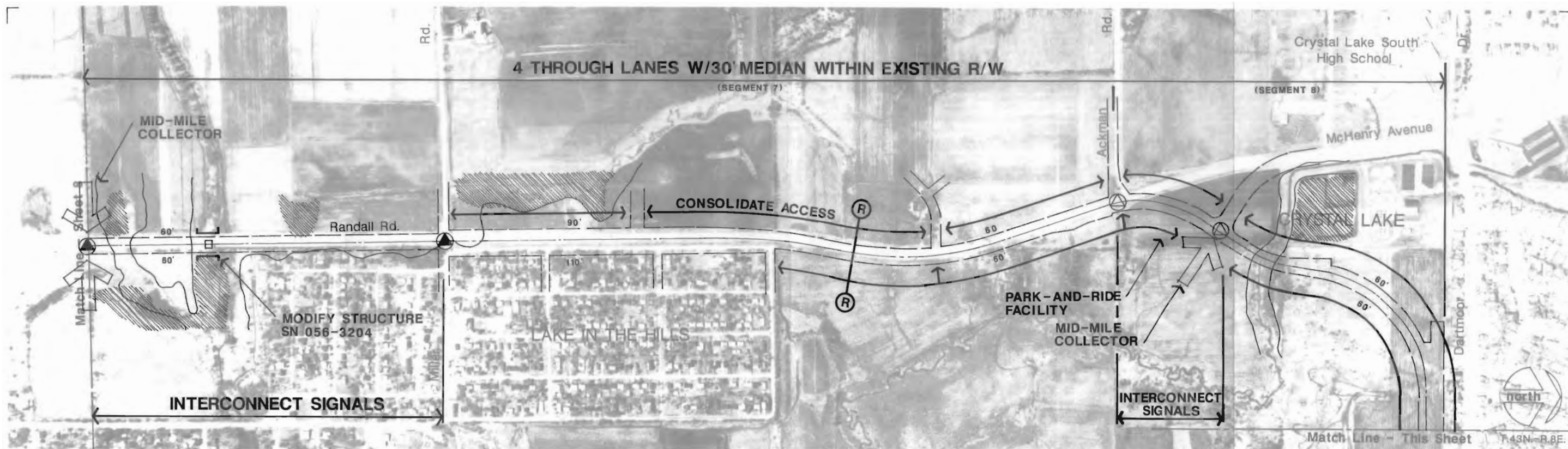
Recommended Improvements **SRA** Strategic Regional Arterial Planning Study



Orchard/Randall Road/Ilinois 31

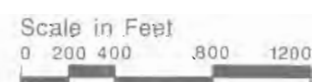
Recommended Improvements

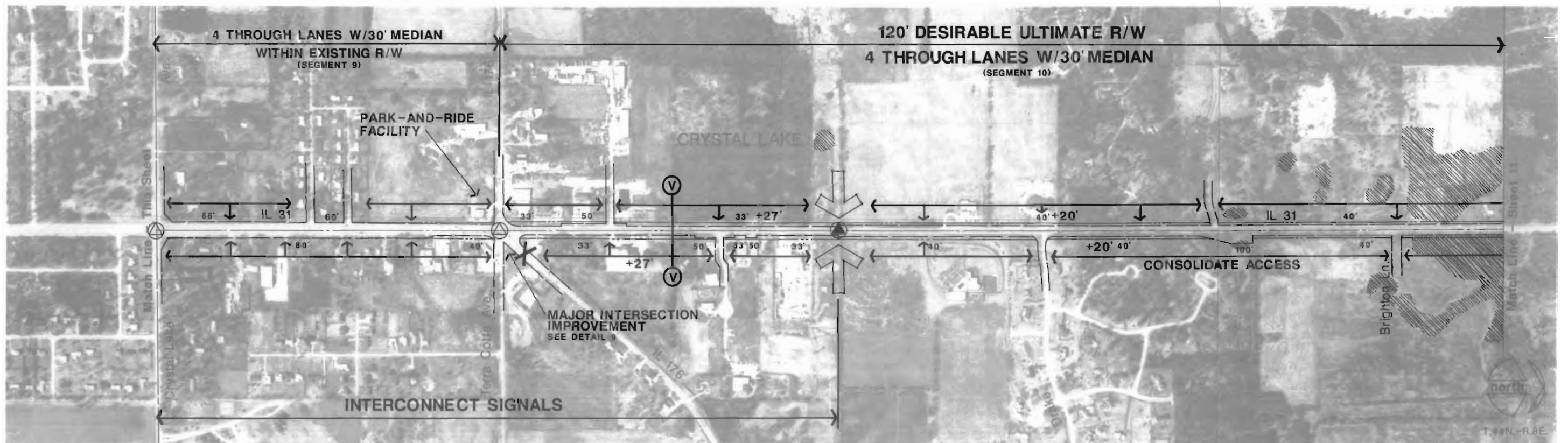




Orchard/Randall Road/Illinois 31

Recommended Improvements



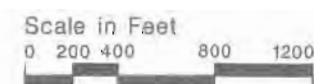


Orchard/Randall Road/Ilinois 31

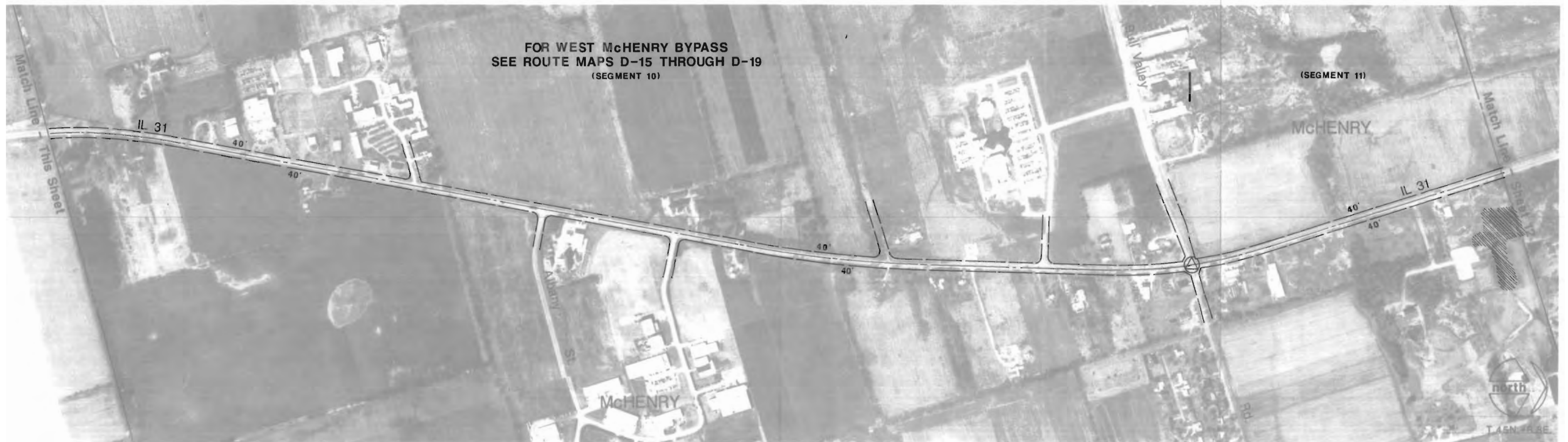
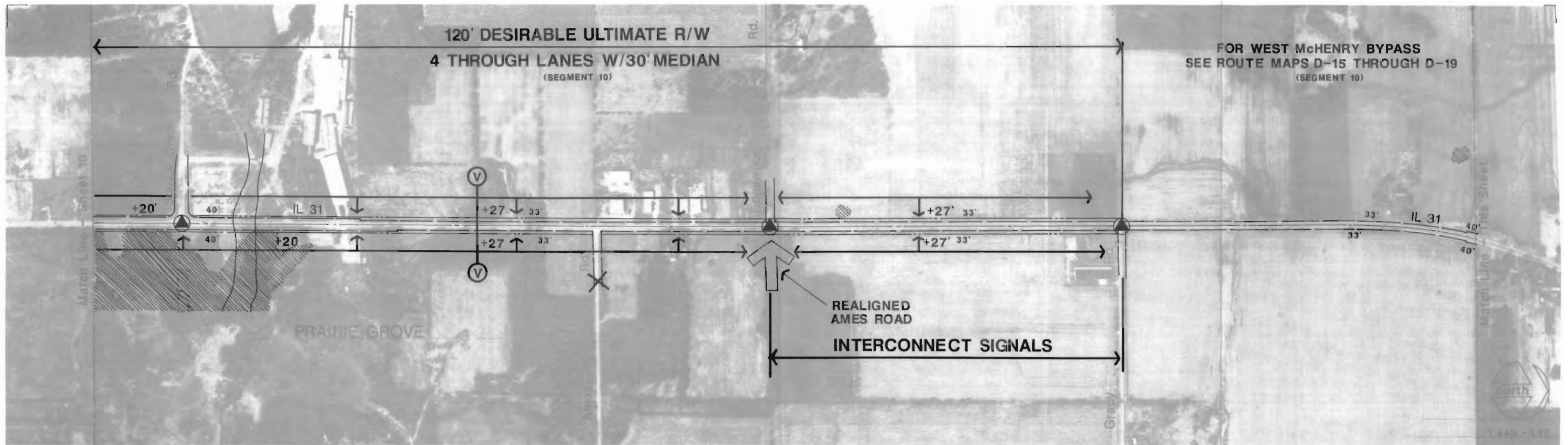
Recommended Improvements



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Route Map D-10



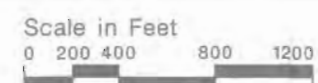
Orchard/Randall Road/Illinois 31

Recommended Improvements

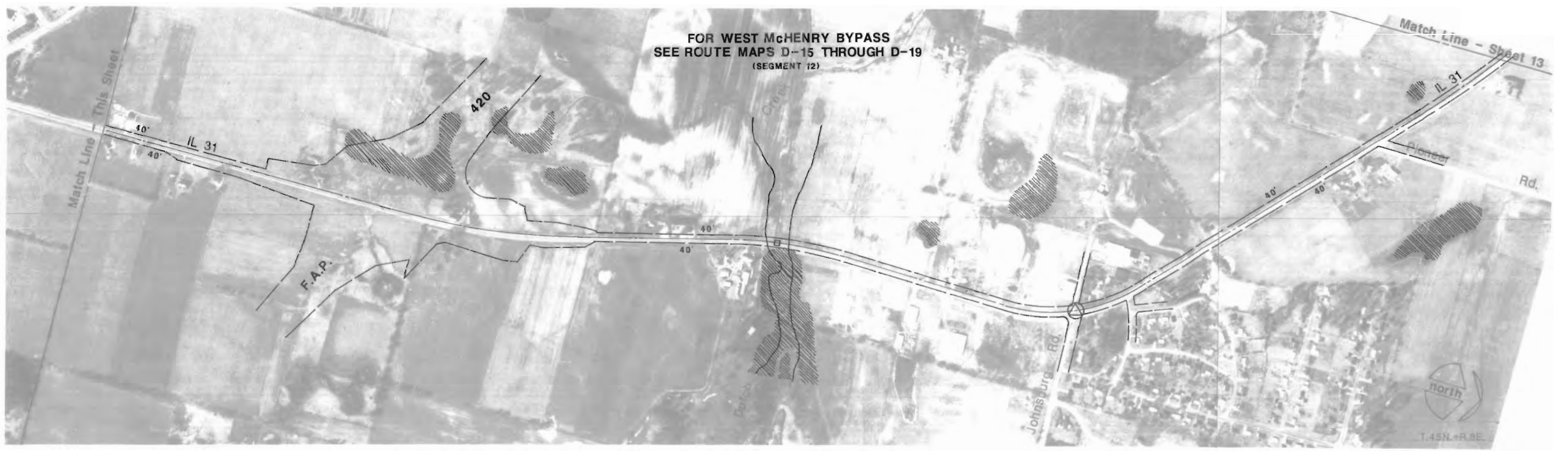
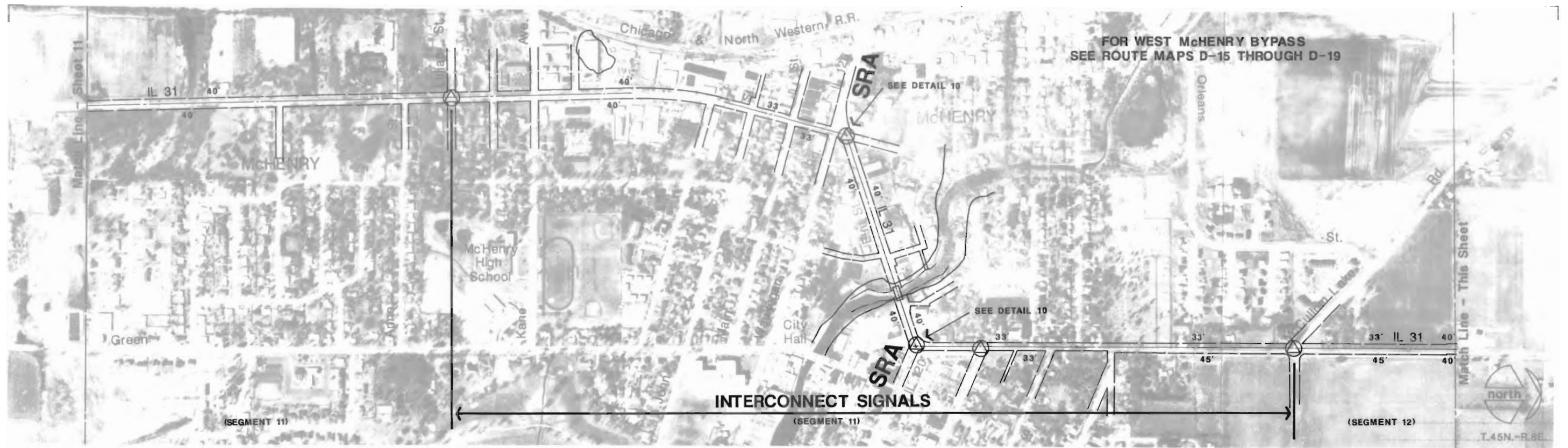


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Route Map D-11



Orchard/Randall Road/Illinois 31

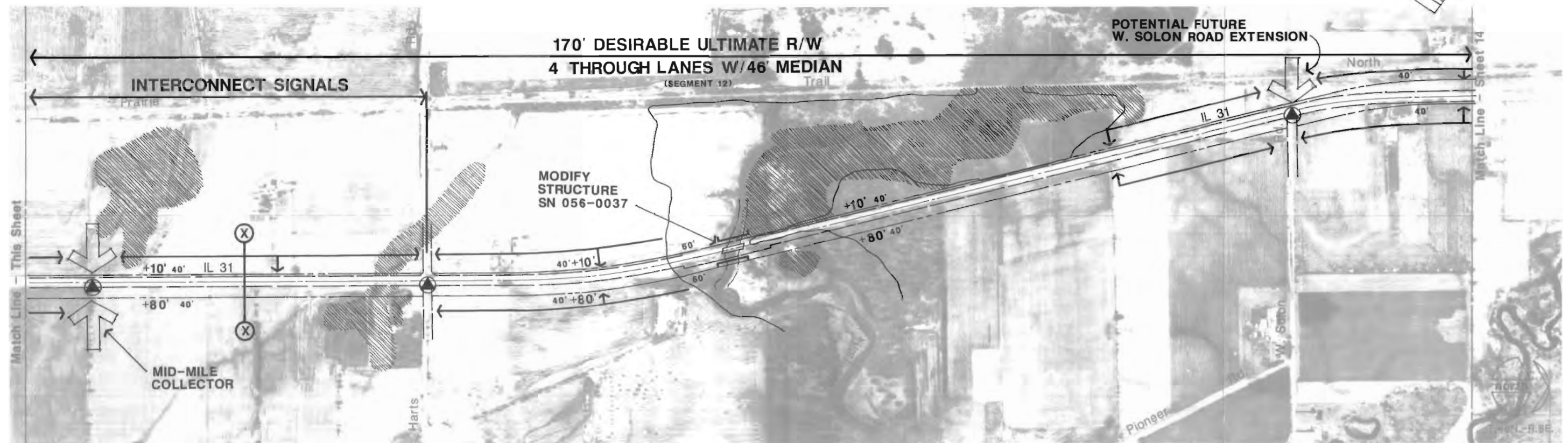
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Recommended Improvements



Route Map D-12



Orchard/Randall Road/Illinois 31

Recommended Improvements

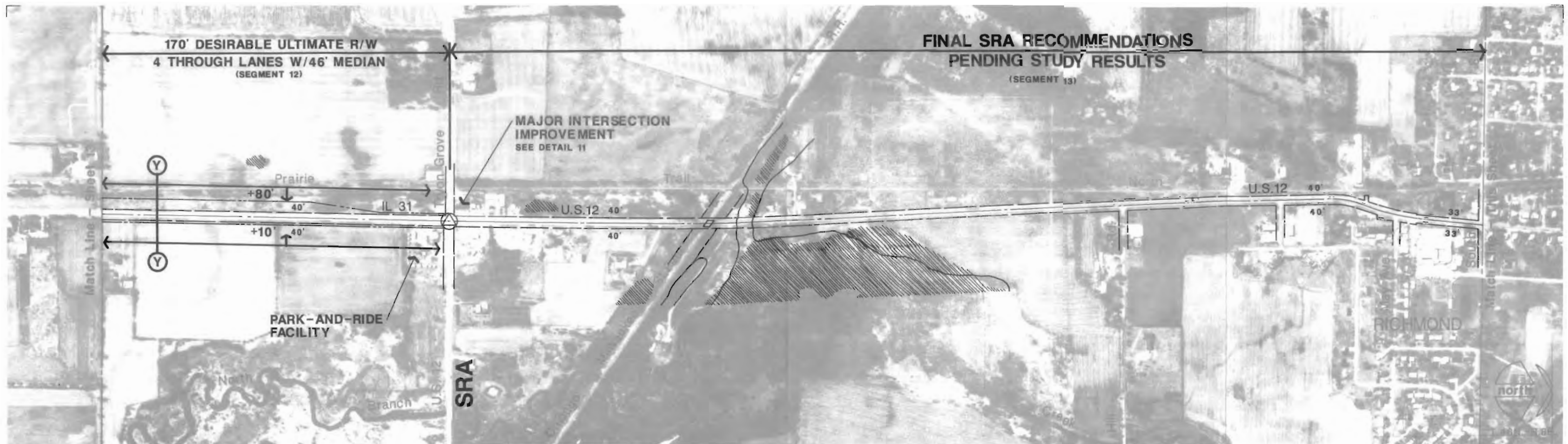


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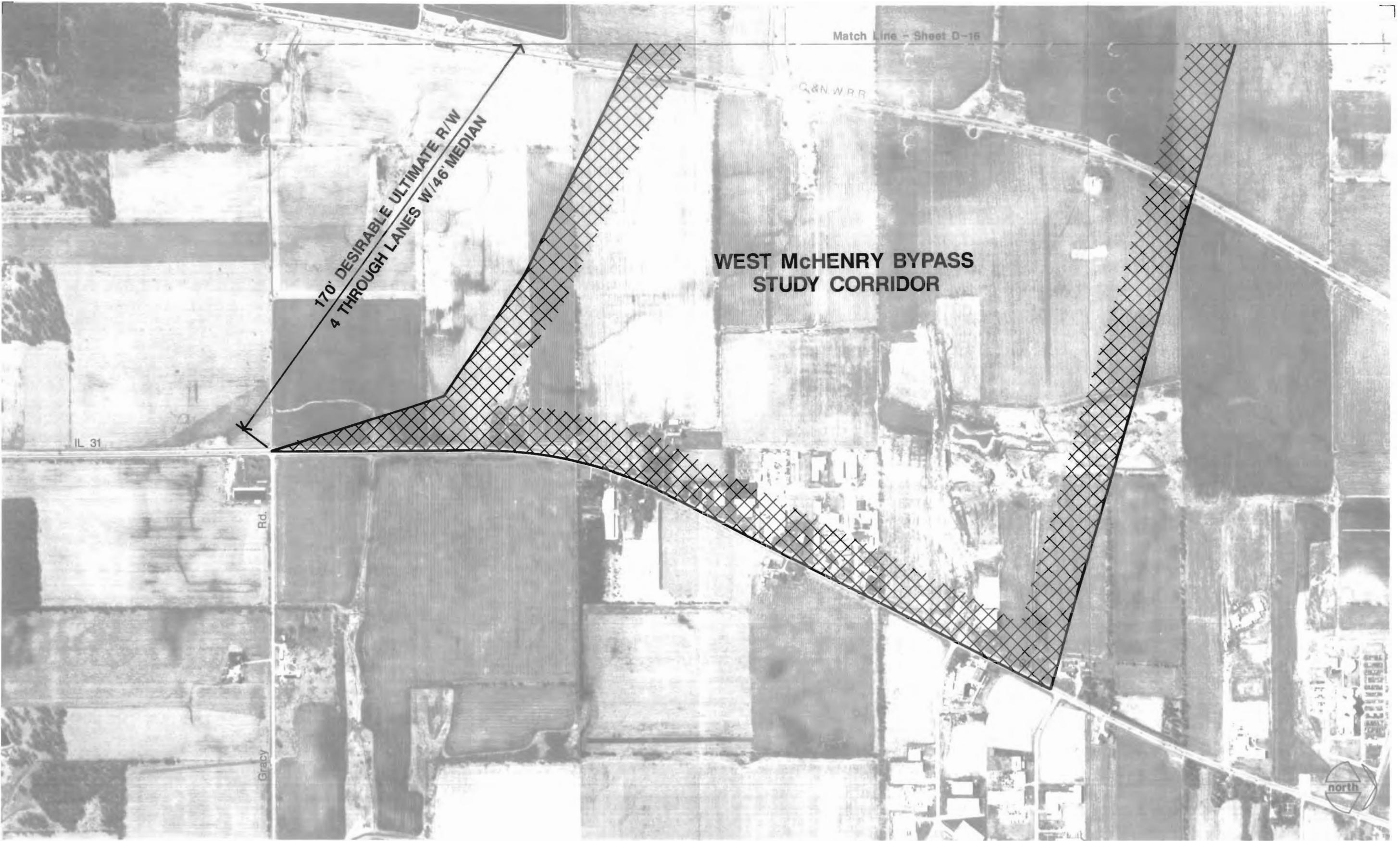
Route Map D-13



Orchard/Randall Road/Illinois 31

Recommended Improvements





Orchard/Randall Road/Illinois 31

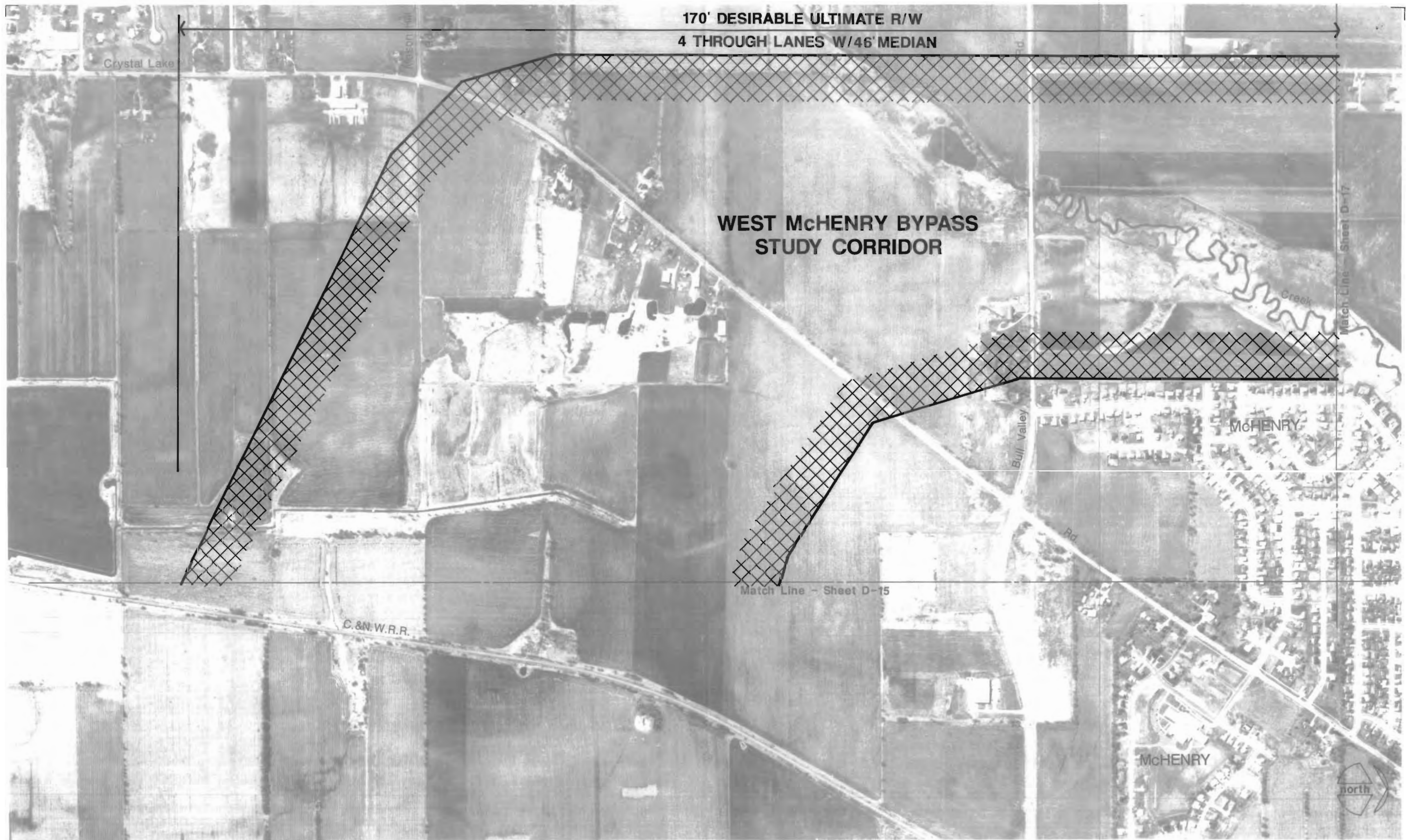
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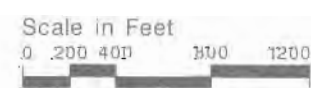
Route Map D-15



Orchard/Randall Road/Illinois 31

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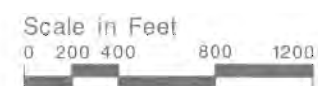
SRA Strategic
Regional
Arterial
Planning Study



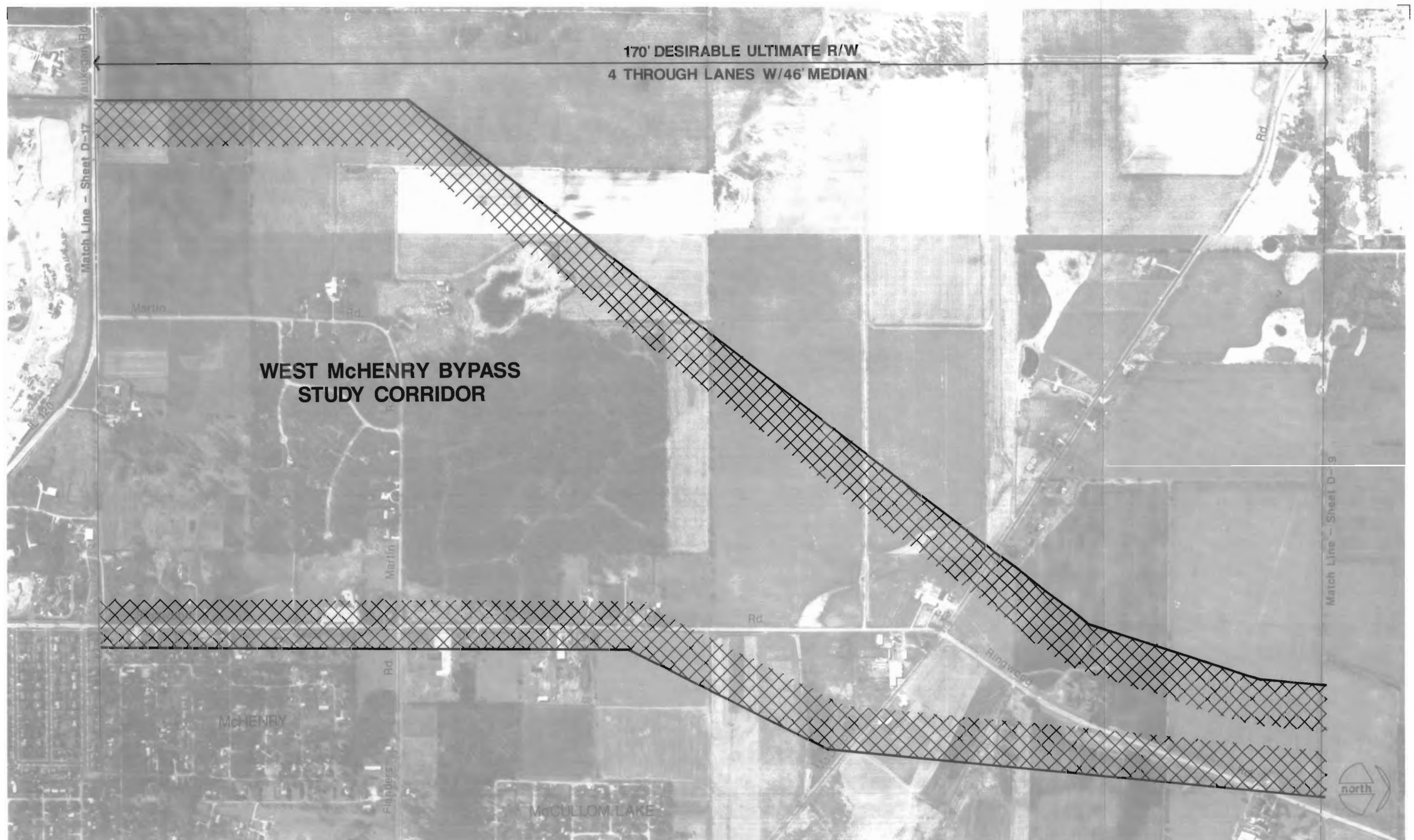
Orchard/Randall Road/Illinois 31

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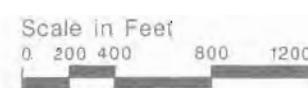
SRA Strategic
Regional
Arterial
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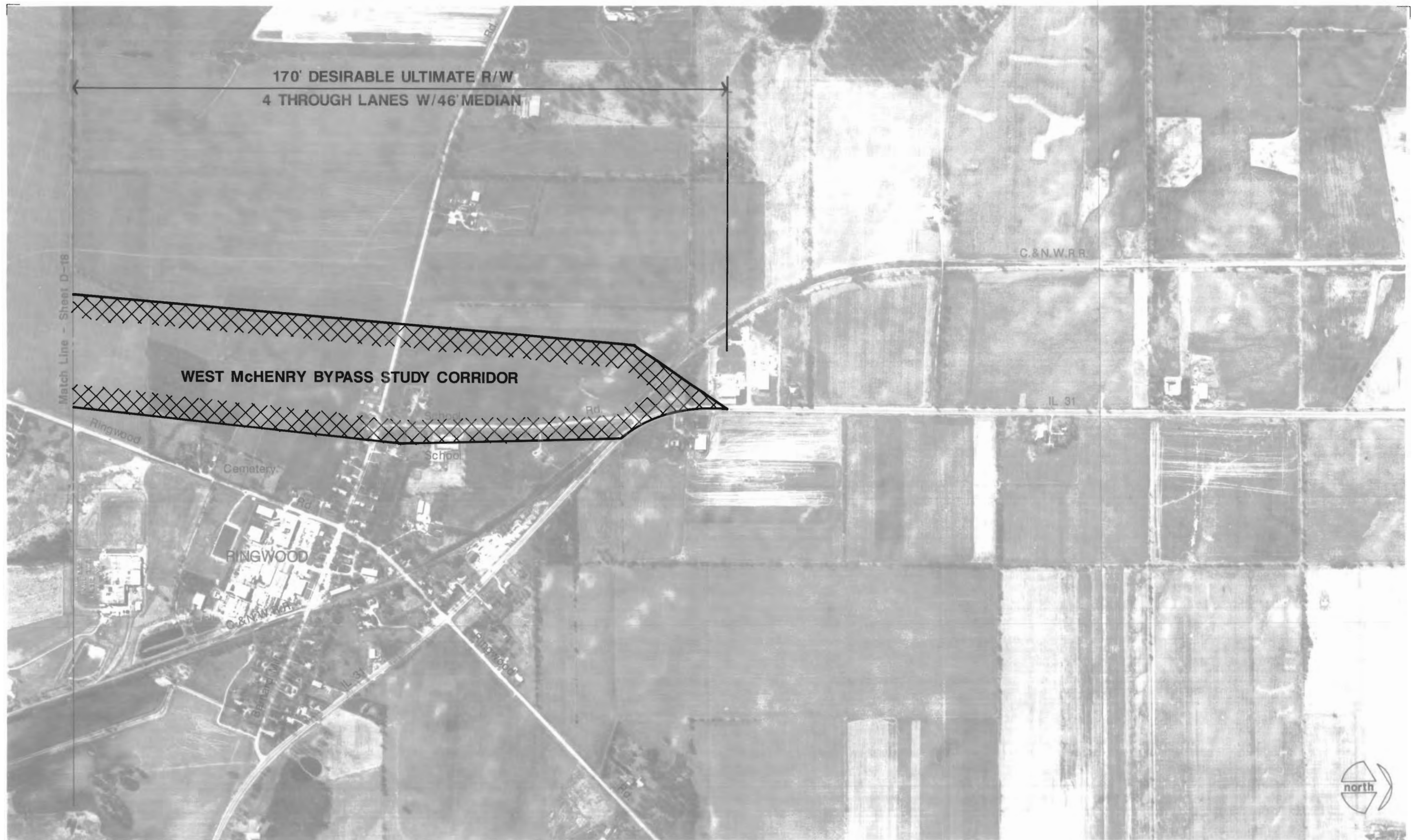
Orchard/Randall Road/Illinois 31



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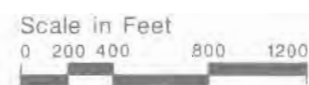


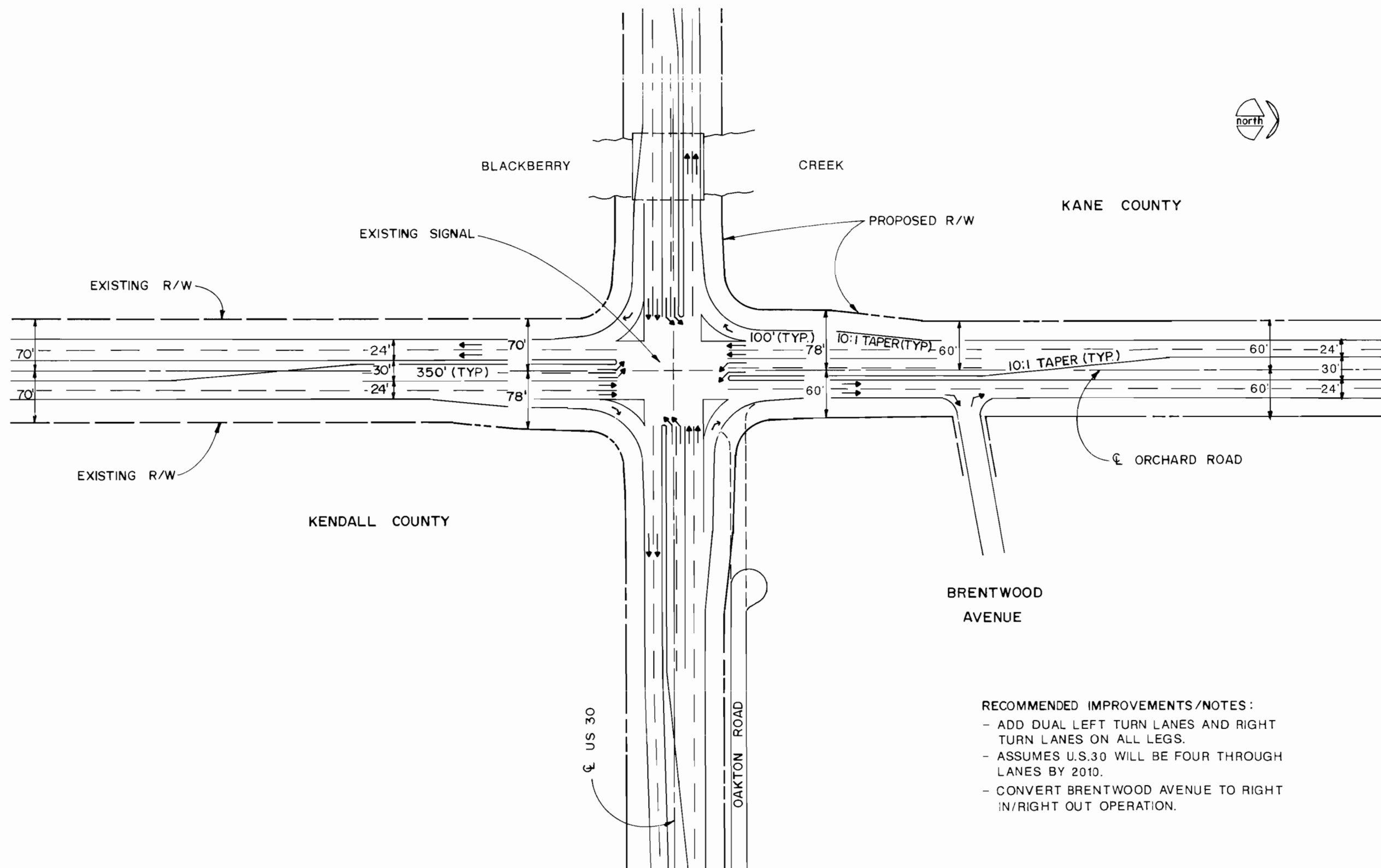
Route Map D-18



Orchard/Randall Road/Illinois 31

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- RECOMMENDED IMPROVEMENTS/NOTES:
- ADD DUAL LEFT TURN LANES AND RIGHT TURN LANES ON ALL LEGS.
 - ASSUMES U.S.30 WILL BE FOUR THROUGH LANES BY 2010.
 - CONVERT BRENTWOOD AVENUE TO RIGHT IN/RIGHT OUT OPERATION.

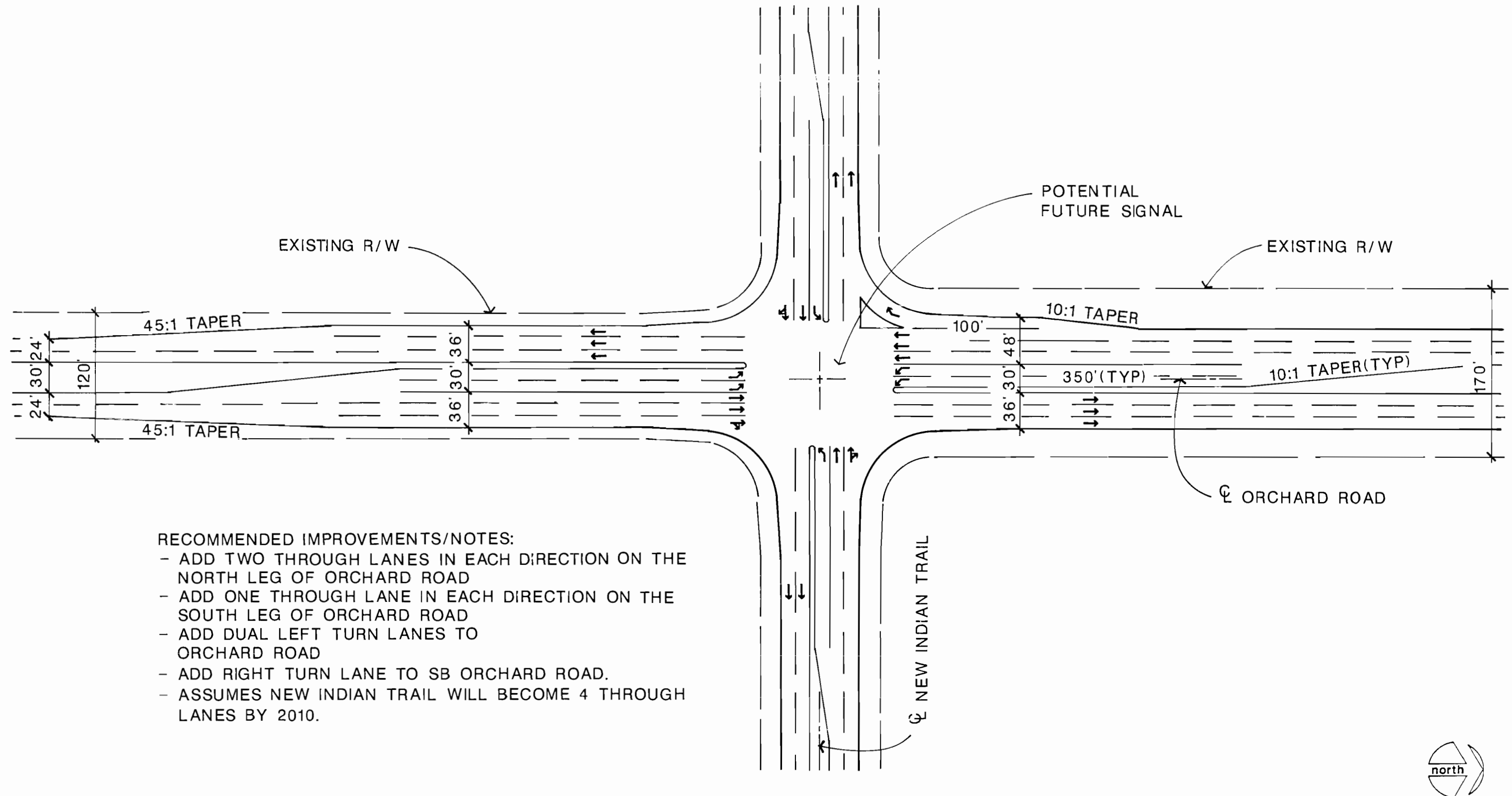
Orchard Road @ U.S. 30

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STRA Strategic Regional Arterial Planning Study

Detail 1



Orchard Road @ New Indian Trail

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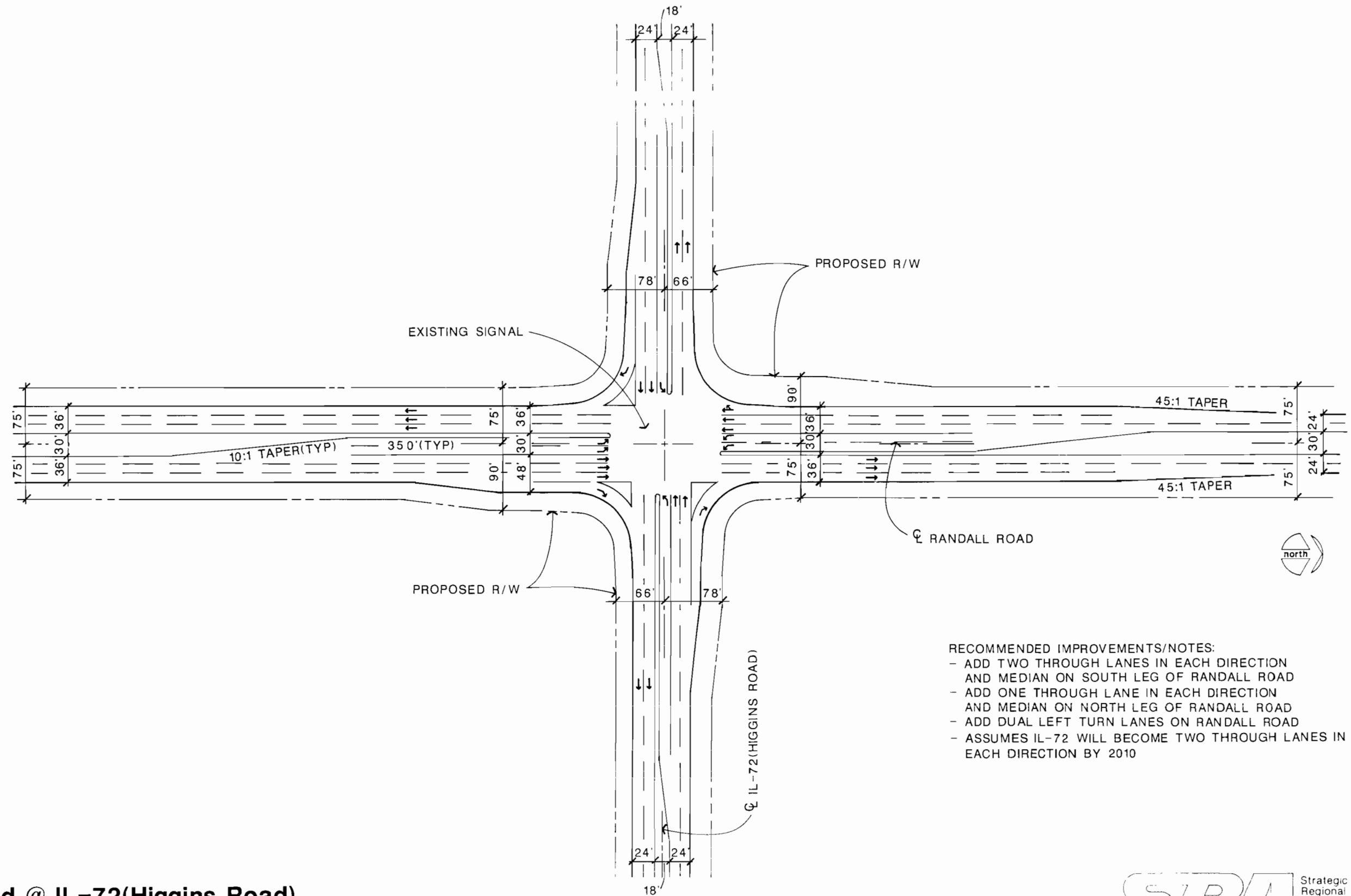
Randall Road @ IL-64(North Avenue)

prepared by Harland Bartholomew & Associates, Inc. for the

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SRA Strategic Regional Arterial Planning Study

Detail 5



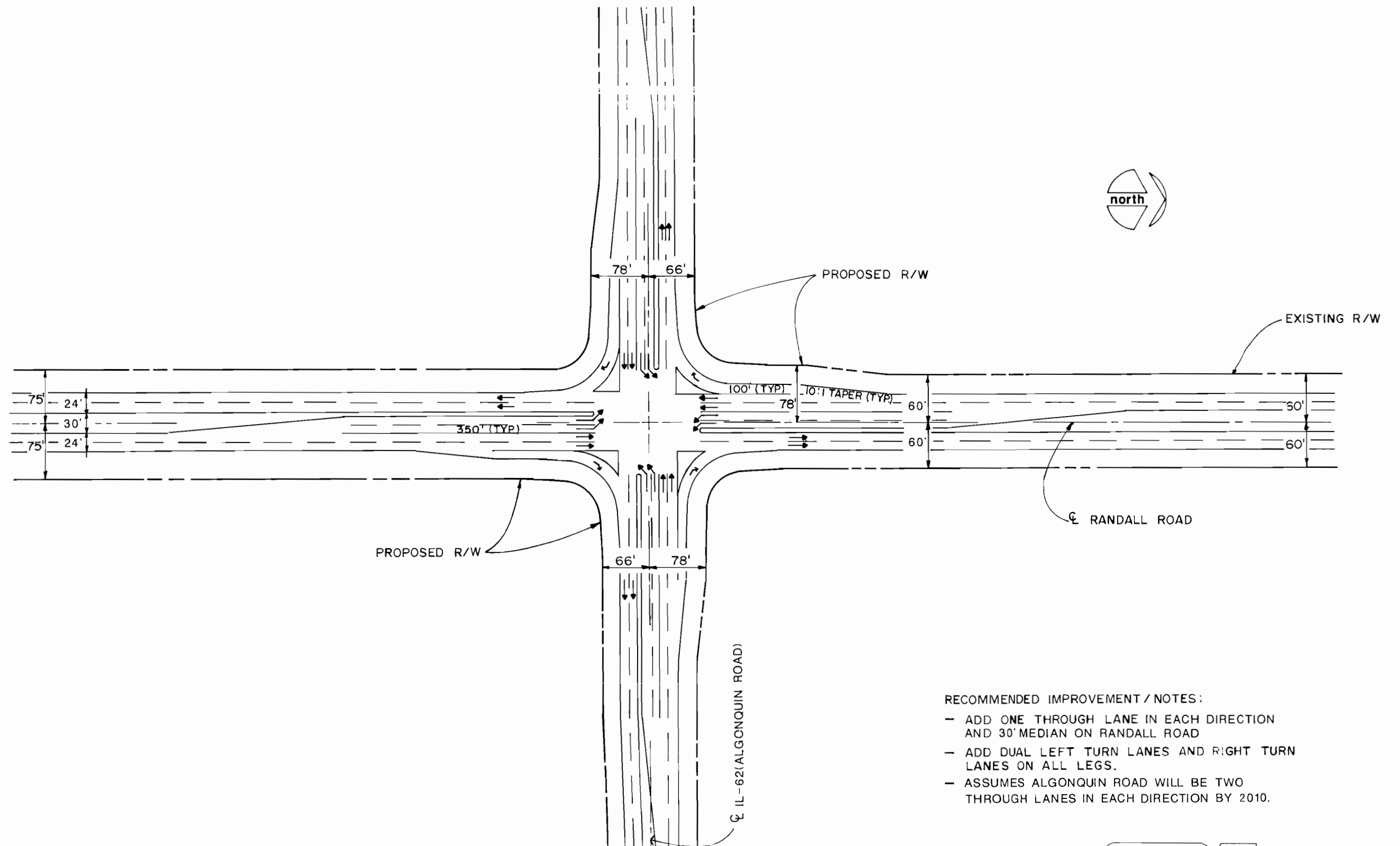
Randall Road @ IL-72(Higgins Road)

prepared by Harland Bartholomew & Associates, Inc. for the

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SRA Strategic Regional Arterial Planning Study

Detail 7



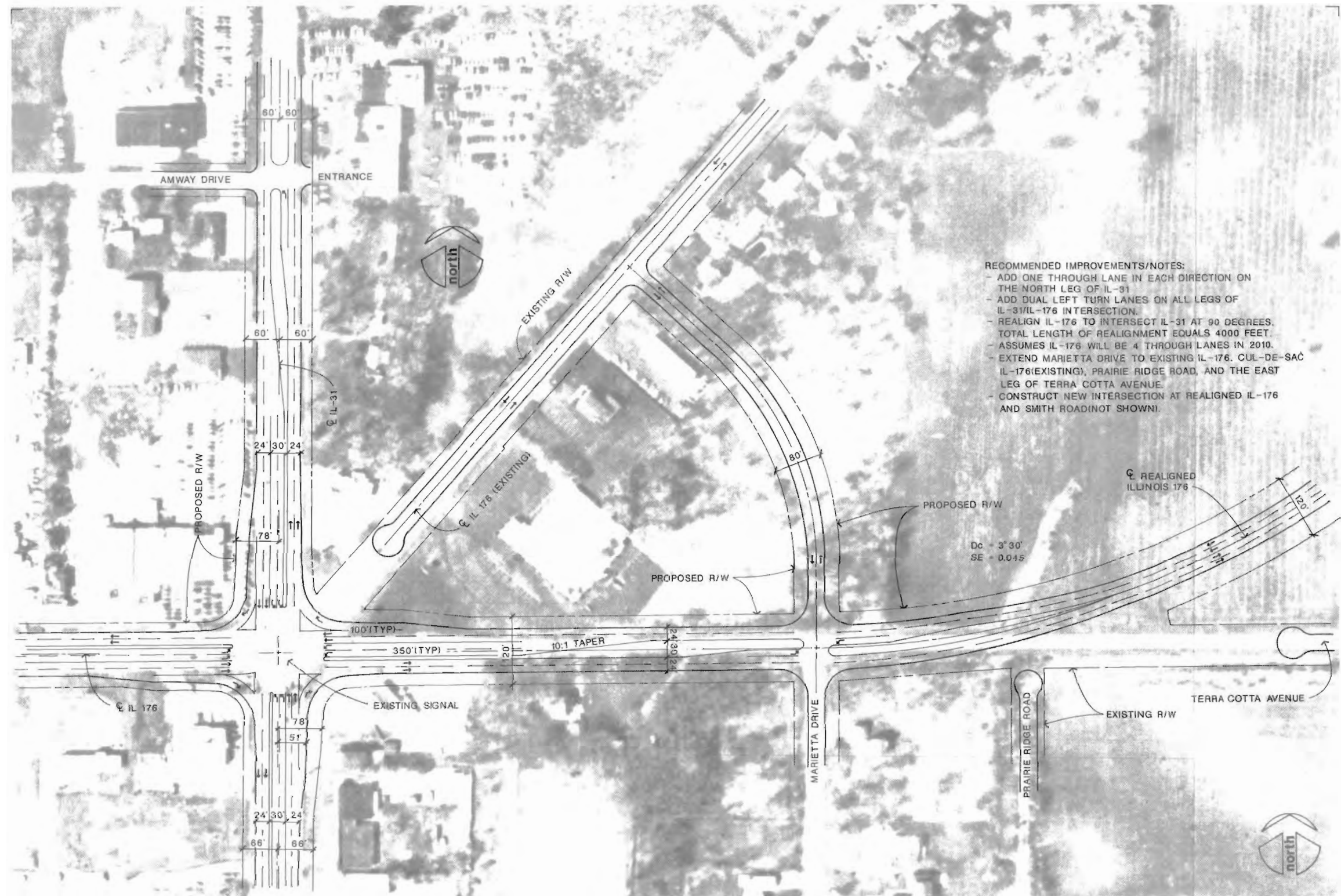
Randall Road @ IL-62(Algonquin Road)

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Detail 8

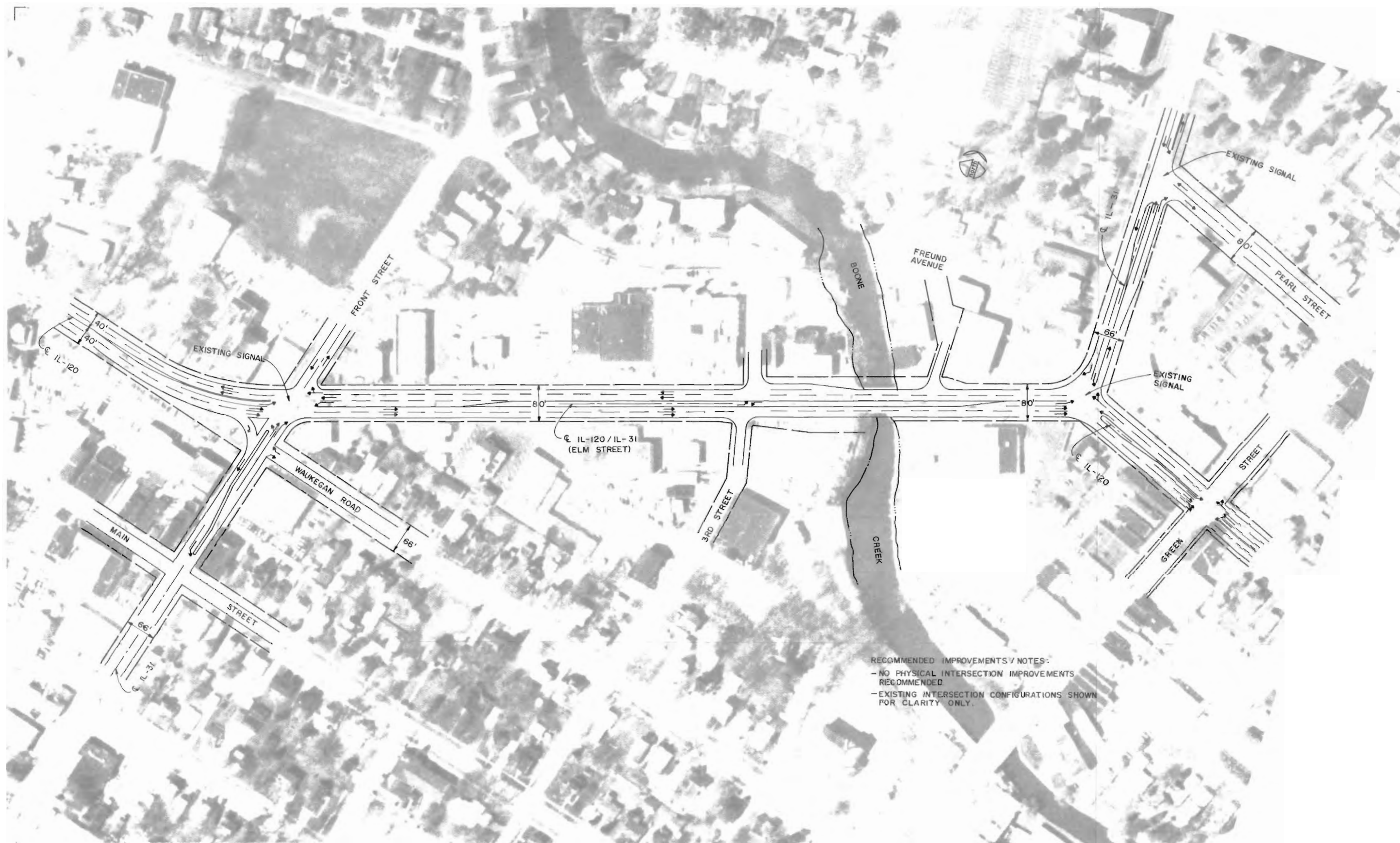


IL-31 @ IL-176

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SRA Strategic
 Regional
 Arterial
 Planning Study

Detail 9

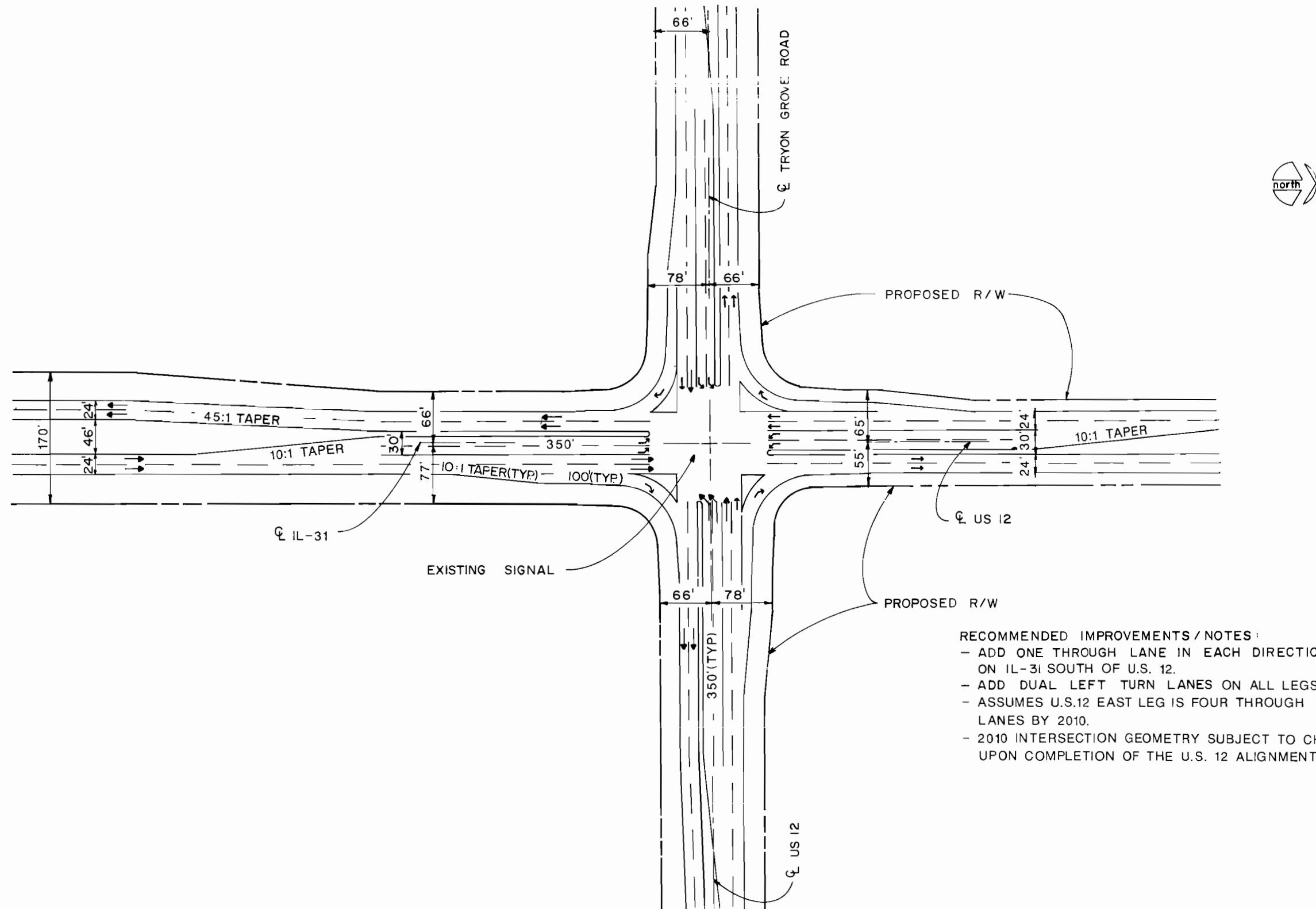


IL-31 @ IL-120

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Arterial
Planning Study



- RECOMMENDED IMPROVEMENTS / NOTES:
- ADD ONE THROUGH LANE IN EACH DIRECTION ON IL-31 SOUTH OF U.S. 12.
 - ADD DUAL LEFT TURN LANES ON ALL LEGS.
 - ASSUMES U.S.12 EAST LEG IS FOUR THROUGH LANES BY 2010.
 - 2010 INTERSECTION GEOMETRY SUBJECT TO CHANGE UPON COMPLETION OF THE U.S. 12 ALIGNMENT STUDY.

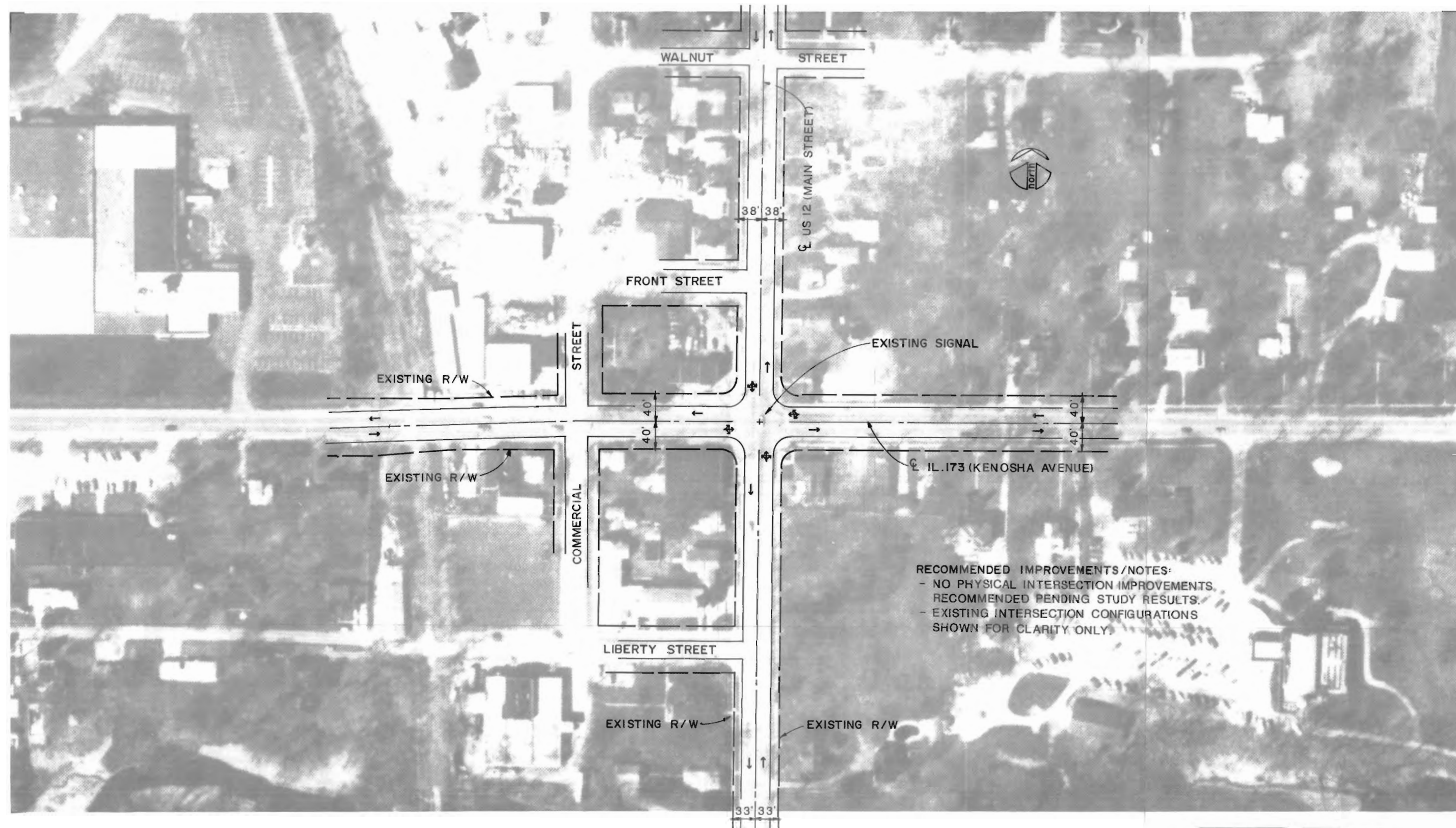
IL-31 @ U.S. 12

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Detail 11



U.S. 12 @ IL-173

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Detail 12