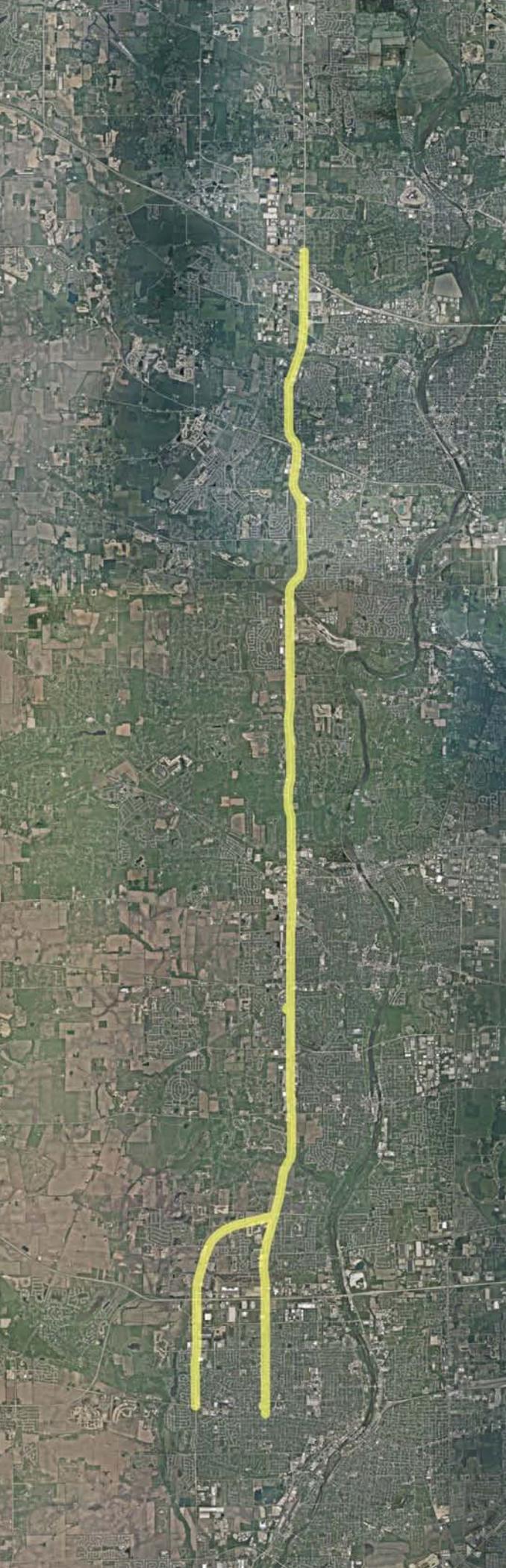




BRT and the Randall/Orchard Corridor

OCTOBER 2010



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Introduction

Kane County has embarked on this study to assess the future viability of implementing Bus Rapid Transit (BRT) in the Randall/Orchard Road Corridor. The project will identify future conditions needed to successfully accommodate BRT along the corridor in the 2040 timeframe, and will examine the potential benefits attainable from investing in an enhanced transit system and supporting land uses.

Incremental or phased implementation of BRT, along with transit-supportive land use and development are among several options for reducing vehicle travel demand that have been recommended by past long-range plans in Kane County. One motivation for reducing travel demand is the projected 2030 severe traffic congestion that would remain even after \$3.3 billion of arterial roadway projects, far in excess of available funding. Around the U.S., jurisdictions are recognizing the need to adapt transportation corridors for a broader conception of local and regional mobility and pursuing transit system development as a key element of such efforts. Kane County envisions using BRT as a mechanism for transforming Randall/Orchard Road from an auto-dominated commercial corridor to a pedestrian-friendly, multi-modal corridor while promoting economic development in the corridor.

The purpose of this document is to support an informed visioning and decision-making process for the Randall/Orchard Road BRT Task Force, providing appropriate background and context to position the project to make implementation recommendations appropriate to achieve the County's and local municipalities' goals for the Randall/Orchard Road corridor. This document is organized into two main sections:

- Overview of BRT and the benefits derived from this type of service
- Conditions along the Randall/Orchard Road corridor

BRT Overview

General Characteristics of BRT

Bus Rapid Transit (BRT) is a high quality transit service that integrates a variety of strategies aimed at improving transit travel speed, reliability, passenger comfort, and transit identity over traditional fixed-route bus service. These strategies include:

- **Dedicated running ways and/or transit signal priority** – roadway and intersection improvement allowing transit vehicles to bypass congestion.
- **Enhanced stations** – high amenity stations including customer convenience, quick passenger loading and unloading, and BRT service branding elements.
- **Specialized vehicles** – unique buses with customer amenities, high passenger-carrying capacity, and stylized to promote BRT service.
- **High quality transit service** – service that is competitive with automobile travel including reduced transit travel times, long spans of service, high frequency of service, and connections to destinations off of BRT corridor.
- **Enhanced fare collection systems** – innovative fare collection tools and methods that reduces passenger boarding times and therefore reducing delays as stops.
- **BRT branding** – unique designs and promotion to separate BRT from local bus service and highlight as quality service.



Source: Lane Transit District

BRT systems throughout North America employ a broad spectrum of these strategies based on available resources, corridor constraints and benefits desired. BRT systems are commonly differentiated by the range of strategies employed, falling into one of two primary categories: Full BRT and Rapid Bus. Full BRT employs many or all of the enhanced characteristics, most notably an exclusive or even segregated running way, while Rapid Bus is typically less capital intensive, applying only targeted strategies. For a frame of reference, Pace's plans for Arterial Rapid Transit will operate more like Rapid Bus.

BRT has operating costs on par with local bus service. Operator labor costs may be slightly higher if high-capacity or sophisticated vehicles are used, or if senior operators are assigned to BRT services. These potential increases are typically offset by increased ridership (lowering the cost per rider) and by improved reliability (eliminating costs to run extra buses due to poor schedule adherence stemming from congestion). As with local service, BRT operations are typically funded from local revenues (primarily sales tax and fares in Kane County).

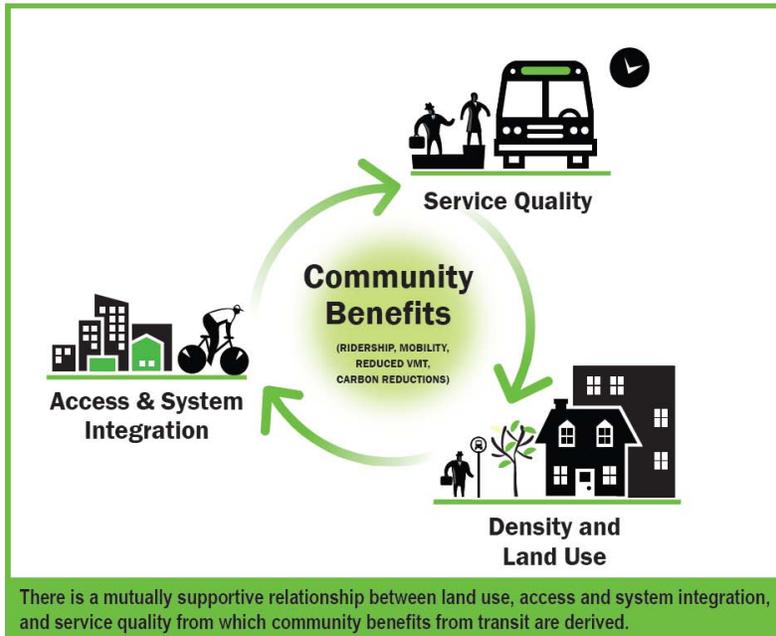
Capital costs for BRT service vary based on the strategies used. Dedicated running ways, high-end vehicles, sophisticated fare systems and full-feature stations have significant on-time costs associated them. Capital costs are often offset by federal grants, but a number of systems often compete for these funds.

Conditions for Successful BRT Projects

Successful BRT systems are often associated with the four following conditions:

- **Transit supportive land uses** – mixed-use developments (commercial, residential and other uses) to support high levels of dwelling units, employments opportunities and personal trip destinations near BRT station areas. Greater pedestrian and bicycle connections are offered within station areas.
- **Branding and marketing plan** – coordinated program to brand BRT service and all of its physical elements (vehicles, stations, signage etc.) to differentiate it from traditional bus service and promote it as a convenient and fast alternative to driving alone.
- **Multimodal connectivity** – accessibility to BRT from all modes of travel including: good transit connections between BRT station of other destination off of the corridor; convenient and safe bicycle / pedestrians paths and amenities.
- **Competitive with automobile travel** – investments in transit speed and reliability to assure that BRT vehicles can bypass congested roadways and intersections while also accessing desired destinations.

Figure 1 Transit, Land Use, and System Integration



As illustrated in the graphic at left, the success of BRT or any other transit system along the Randall/Orchard Corridor is contingent on:

- Evolving from mostly single-use development to mixed-use residential and employment activities at sufficient levels around identified station nodes to support frequent transit service.
- Establishing land use policies and guidelines to ensure consistent, transit-supportive development along the corridor.
- Integrating BRT service with local transit routes that serve the east-west corridors connecting Randall Road with residential areas and the downtowns of Fox Valley municipalities.

Transit supportive land uses are the most critical condition. Research and experience have shown that increased development activity with access to quality transit service results in a greater use of transit, pedestrian and bicycling modes of travel. In addition, average trip lengths in these mixed-use, Transit Oriented Developments (TODs) decrease for all modes, including auto travel. For BRT systems, transit supportive developments are best focused around each station. These station areas are typically developed radially one-half mile around the station – the distance potential riders will walk for high-quality transit service.

Station area developments are best thought of as having a unique character or focus. The notion of station typologies helps create a vision for each station area and helps balance the types and scale of uses throughout the many stations planned in a BRT corridor.

Figure 2 BRT Station Typology

Station Typology	Station Area Description
Core	<ul style="list-style-type: none"> • CBD-like land uses and development patterns • Able to sustain job and housing growth • Well-connected multimodal street grid and inviting pedestrian environment • High transit connectivity, including at least two HCT modes
Mixed Use Employment Center	<ul style="list-style-type: none"> • Adequate mix of zoning capacity to support vibrant mixed use • Provides a regional employment base or draw, typically function as a distinct residential or employment district • Bicycle and pedestrian friendly streetscape • At least 2 modes of 18 – 24 hour transit service
Mixed Use Residential Village	<ul style="list-style-type: none"> • Some but not all have zoning capacity necessary to achieve social and environmental goals • Smaller centers within the urban area, and no regional draws • Some but not all have high street connectivity • Secondary modes of frequent, high quality transit service are not readily available and residents of the village station area make up the ridership base
Commuter	<ul style="list-style-type: none"> • Lack of zoning capacity, street connectivity or civic amenities • Peripheral station areas; often serve as transit line terminus or stop along the corridor • Often placed along freeway corridors or areas that make residential development difficult or unattractive • Park and rides are the key multimodal facility and feeder service is the key connective service into HCT
Destination	<ul style="list-style-type: none"> • Refers to an attraction that creates a large, single user base (such as hospitals, universities, large employment campuses) • Large variance in physical character and performance (density and zoning capacity) • Street connectivity varies by the type of attraction • Transit service varies by use (i.e. universities often exhibit bell service, while employment campuses have frequent peak hour transit service)

Benefits of BRT

Transit agencies and communities in North America implement BRT to satisfy goals for mobility and greater level of service, as well as to leverage broader policy goals such as economic development, increased sustainability, and promotion of livable communities. Experience and research have demonstrated not only substantial time savings and increases in transit ridership relative to conventional bus service, but also highlight a number of community benefits associated with the implementation of BRT service including:

- **Congestion mitigation** – increased ridership on BRT lines promotes the shifting of some trips from automobile use to transit, freeing up roadway capacity for other drivers and for the movement of freight. Similarly, development of transit supportive land uses results in shorter trips for all modes – reducing vehicle miles traveled per capita
- **Cost effectiveness** – higher capacity BRT vehicles lower the operating costs per rider.
- **Economic Development**
 - **Increased economic productivity** – personal and employee time savings resulting from time not spent idly in traffic.
 - **Improved economic opportunities** – increased mobility options expand employment opportunities and reduce commuter transportation costs.
 - **Revitalization** –TOD development around stations can revitalize aging commercial areas creating economic opportunities and enhancing tax revenues for local jurisdictions.
 - **Increased land values** – investments in high-capacity transit stations and other infrastructure improve access, attract development, and increase land values.
 - **Job creation** – capital investments in BRT infrastructure support local construction, planning and design jobs.
- **Air quality** – by shifting trips to transit and shortening trip lengths, the combination of BRT and transit supportive land uses reduces tail pipe emissions per capita, improving air quality and reducing greenhouse gas emissions.
- **Community Health** – BRT and stations areas incorporating TOD concepts support active living goals by encouraging bicycling and walking to reach transit or for entire trips.

Based on the desired benefits, Bus Rapid Transit can employ a variety of technology and amenity packages ranging from Rapid Bus to Full BRT components. Whatever transit strategies are employed to serve the Randall/Orchard Road Corridor, BRT, in conjunction with coordinated land use planning, can help build thriving, livable communities in Kane County.

Randall/Orchard Corridor Conditions

This section provides an assessment of the Randall/Orchard Road corridor (as relates to the long-term vision for BRT service along the corridor as a mechanism for transforming Randall/Orchard Road from an auto-dominated commercial corridor to a pedestrian-friendly, multi-modal corridor and promoting economic development in the corridor. It identifies constraints and opportunities for BRT-supportive development, which are summarized in a table at the conclusion of this document.

Corridor Overview

The Randall/Orchard Road corridor runs for approximately 31 miles between the north and south boundaries of Kane County, between about one and three miles west of the downtowns of Fox Valley municipalities. Figure 3 highlights the corridor on a map. By car, travel time along the corridor is slightly more than an hour from end to end under normal driving conditions. Both Randall Road and Orchard Road are classified as Strategic Regional Arterials (SRAs)¹ and there is significant demand for access to destinations along the corridor, segments of which carry up to 60,000 vehicles per day.² Land use along the corridor is a mixture of suburban and rural character with primarily retail and commercial uses directly along the corridor and pockets of undeveloped and/or agricultural lands. There is significant residential development along the corridor, consisting primarily of low-density single-family units. There are several concentrations of major employers and industrial parks. Medical institutions are a major presence in Kane County. In particular, Sherman and Delnor Hospitals are two major medical facilities located directly on Randall Road, and Provena St. Joseph Hospital and Provena Mercy Medical Center are near the corridor.

Transportation and Access

Overall, the existing character of the corridor and development along it pose significant challenges to developing it as a transit corridor. Since BRT service has fewer stops than local bus service, integrating high-quality pedestrian and bicycle networks into new BRT stations is a critical element of successful BRT implementation. The difficulty of making pedestrian and bicycle connections along and across the Randall/Orchard Road corridor is one of the major impediments to transit service today.

Expansive Corridor Cross-Section. Randall Road has four travel lanes (two in each direction), with six lanes along some stretches, and is highly variable in width. Pavement width (excluding shoulders) varies from 52 feet (4-lane section with 4-foot striped median) to up to 112 feet (6-lane section with dual left-turn lanes, a 4-foot barrier median, and right-turn lanes).

Inconsistent or Missing Sidewalk Infrastructure. Sidewalks conditions along Randall Road vary. Sidewalks often do not exist or are discontinuous, may be deeply setback from the roadway, or do not provide a complete path to transit stops or intersections, including curb ramps at each street corner. The most comfortable walking environments use street trees or on-street parking to create a buffer or physical separation between pedestrians and vehicles; these features also serve a traffic calming function, discouraging excessive driving speeds. Although the corridor lacks these features, there is generally right-of-way between existing sidewalks and the curb that could be used to plant trees or provide landscaping that would create this separation. Pace has received an \$800,000 Federal Transit Administration (FTA) grant to fund infrastructure

¹ The Illinois Department of Transportation (IDOT) defines Strategic Regional Arterials as part of a “network of highways designed to accommodate long distance regional traffic, to complement a region’s major transit and highway facilities,” differentiated by urban, suburban, or rural environments. IDOT emphasizes the “need for cooperation among local governments and regional transportation agencies in coordinating land development” along SRAs and that “land use planning techniques can also encourage use of alternative modes of transportation, with policies favorable to mixed-use development.” Source: IDOT, Bureau of Design & Environment Manual - 2002 Edition, Chapter 46.

² Kane County 2030 Transportation Plan

improvements such as bus shelters, bus pads, and sidewalks for Pace Route 529 along Randall Road, expected to be completed in 2011.

Figure 3 Corridor Area Map

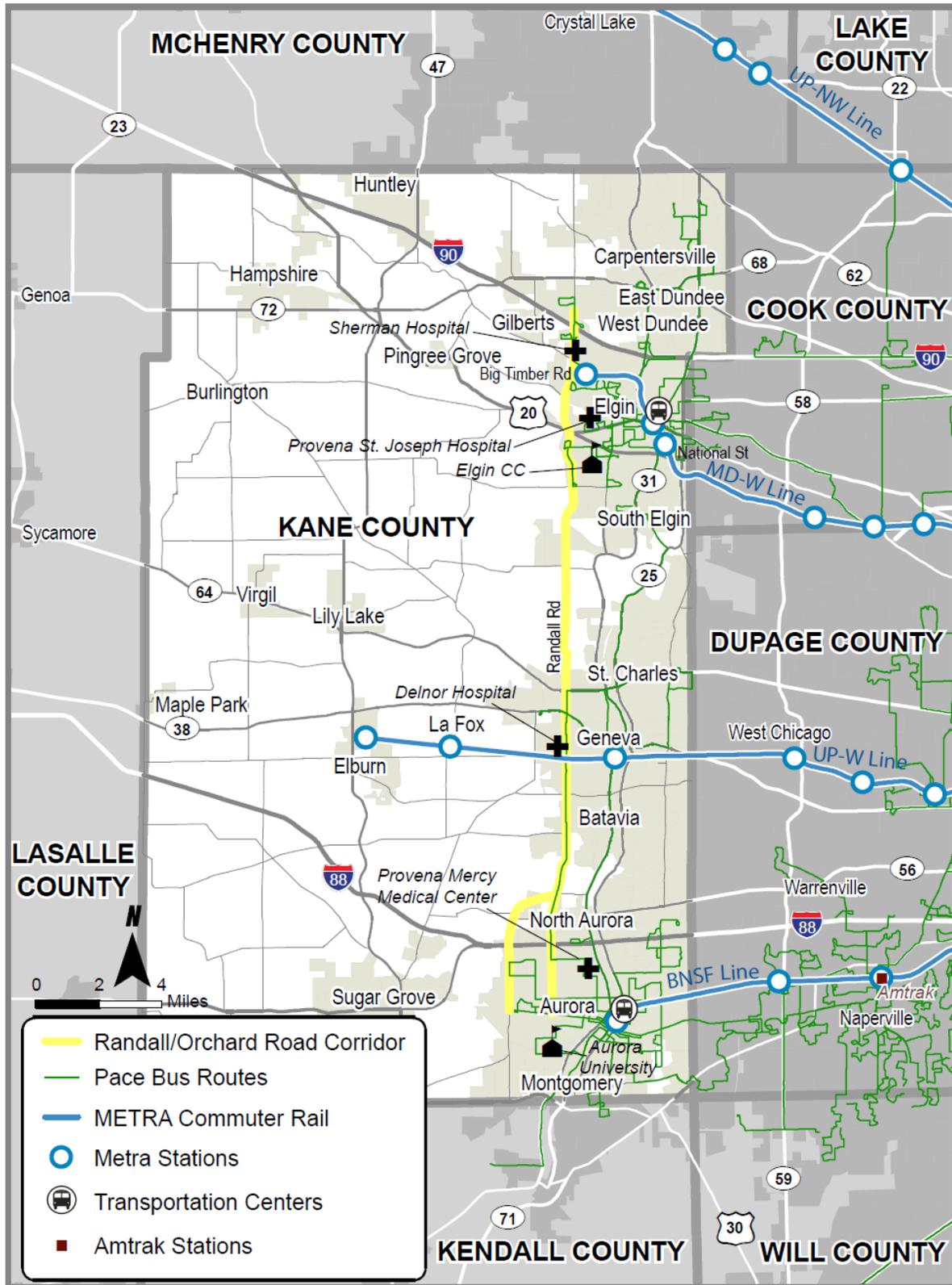


Figure 4 **Disconnect between Sidewalks and Transit**



A deeply setback sidewalk along Randall Road that doesn't serve the intersection or existing transit stop.

Source: Nelson\Nygaard

Large Setbacks. Buildings along the Randall/Orchard Road corridor are typically separated from the roadway by parking lots or green space. Large setbacks increase walking distances from transit stops, green space or landscaped areas that lack sidewalks or other walking paths impede accessibility, and traversing a vast expanse of parking on foot can be an unpleasant walk. In contrast, building up to the sidewalk line with windows and doors that face the street makes walking along the corridor more interesting, engaging, and safe. However, the existing setbacks may provide an opportunity for linear infill development along the corridor and to develop pedestrian and transit infrastructure in conjunction with a transit project.

Figure 5 **Examples of Large Setbacks along Randall Road**



Large setbacks for major institutions that are potential transit node anchors and much of the existing retail development are a barrier to existing local bus service but could provide right-of-way for future transit and pedestrian infrastructure.

Source: Nelson\Nygaard

Challenging Crossings at Signalized Intersections. Crossing a corridor as wide as 112 feet on foot within the duration of a traffic signal cycle can be challenging to pedestrians, especially if they have any impairment affecting their walking speed. Many signalized residential intersections lack crosswalks altogether. At commercial intersections with crosswalks, the curb design can significantly extend the crossing distance, such as to 160 feet at Bricher Road near Geneva Commons, as shown in Figure 6. Assuming a pedestrian walking speed of 3 to 4 feet per second, about 40-55 seconds would be required to cross Randall Road at this location. Pedestrian bulbouts and median refuges are examples of crosswalk design solutions that reduce the required pedestrian crossing distance and exposure to motor vehicles.

Figure 6 Crossing Distance, Randall Road at Bricher Road



Intersection design features such as curb extensions (bulbouts) or median refuge islands improve pedestrian safety by reducing pedestrian crossing distances and time in the intersection exposed to motor vehicle traffic.

Source: Google Maps

Lack of Street Crossings between Intersections. The distance between signalized intersections ranges from 0.2 to 0.4 miles through commercial areas (such as in Batavia or St. Charles) to a half mile or more (such as near Delnor Hospital and Geneva Commons). These distances are too long to allow transit riders to conveniently cross Randall Road at signalized intersections alone and there are no marked crossings between intersections. The County's typical access spacing for an SRA is 0.25 to 0.33 miles in commercial areas and 0.33 to 0.5 miles in residential areas.³

Figure 7 Long Intersection Spacing



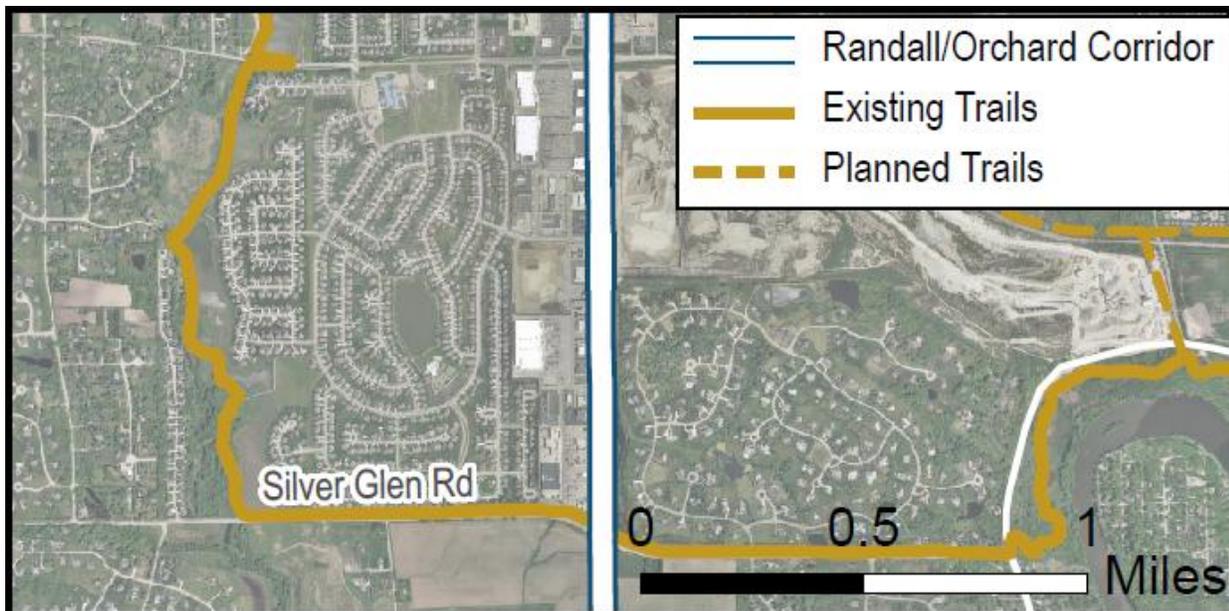
Along Randall Road in St. Charles, the intersection spacing of approximately a third of a mile between Main St. (IL 64) and both Dean Street to the north and Oak Street to the south is typical of the corridor.

Source: Nelson\Wvaard

Lack of Pedestrian Connectivity to/from Adjacent Residential Developments. Residential developments along the corridor assume auto-oriented access to the corridor and do not have pedestrian connections to Randall Road. These developments often “turn their backs to the corridor,” are separated from the corridor by fences, and/or do not have a strong internal street grid. These characteristics lead to indirect pedestrian routes and longer walking trips than most transit riders would be willing to make. The generally long stop spacing of BRT compared to local buses exacerbates both the lack of connectivity and lack of street crossings, since BRT would likely not be able to stop at each east-street connecting to the corridor. In Figure 8, the development east of Randall Road lacks good pedestrian access to the corridor, while west of Randall Road the development provides both a street connection and pedestrian cut-throughs from the cul-de-sacs just north of Silver Glen Road.

³ Kane County Division of Transportation, Permit Regulations and Access Control Regulations, 2004

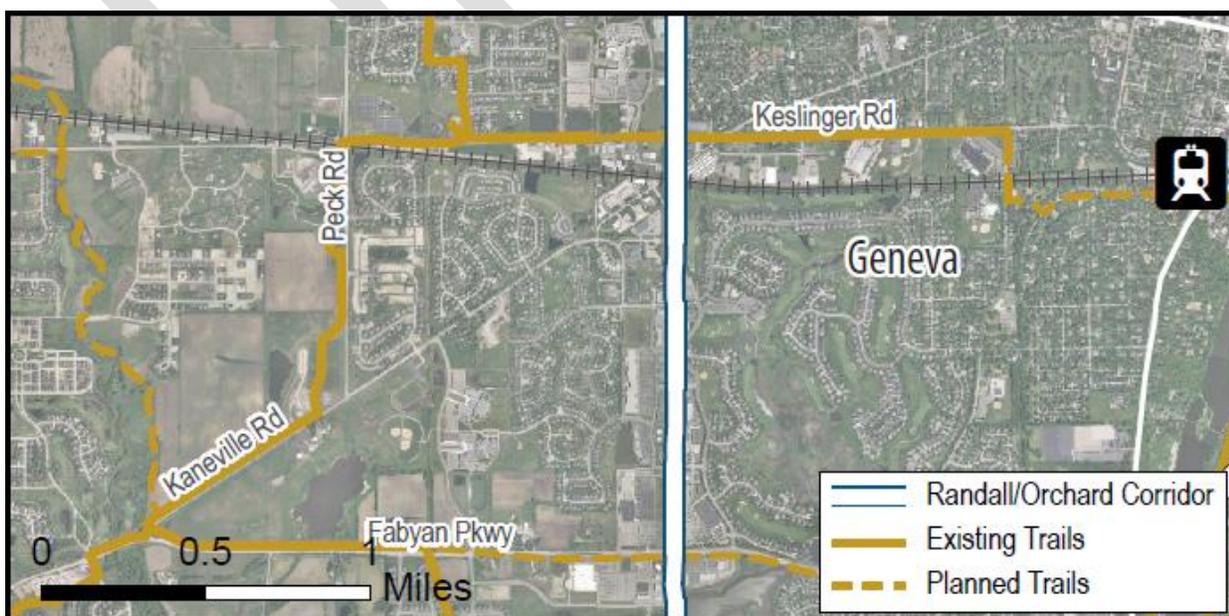
Figure 8 Pedestrian Connectivity from Residential Developments



Data Source: Kane County

Regional Trail System Parallel to the Corridor. The regional trails adjacent to the Randall/Orchard Road corridor present an excellent opportunity for accommodating bicycle and pedestrian access to the corridor, particularly given challenging on-street bicycle and pedestrian conditions in many locations. One example can be seen in Figure 9, where the existing and planned (dashed line) trails could serve a feeder function to BRT stations along Randall Road (the corridor maps included at the end of this document illustrate trails for the entire corridor). However, to provide safe transportation to and from Randall Road, these trails may require safe street crossings, additional wayfinding, and completing planned and other missing segments. In addition, regional trails would require complementary bicycle and pedestrian facilities along and across the corridor to provide local access to transit stations and other destinations.

Figure 9 Regional Trail Connection Example



Data Source: Kane County

Land Use

The connection between transit and land use refers to the mutually supportive relationship between quality of transit service, land use (density and form), and pedestrian and bicycle access to transit, illustrated in Figure 1 (above). Retail and employment destinations and several major institutions located along the Randall/Orchard Road corridor make it a major attractor for employees and residents accessing services. However, low-density and auto-oriented land use patterns limit the current ability to provide effective transit service. Transit accessibility to existing development along the corridor is limited by curvilinear and loop street patterns and lack of direct connections to Randall Road that increase walking distances to/from transit in the case of residential subdivisions, and by large setbacks in the case of commercial development. Although the uneven distribution of development and challenging pedestrian accessibility along the corridor is an impediment to local fixed-route bus service under existing conditions, the availability of large expanses of undeveloped land around potential station areas, along with redevelopable parcels, creates a future opportunity to increase development densities and improve pedestrian and bicycle access in the medium to long-term.

The success of BRT or any other transit system along the corridor is contingent on:

- Evolving from mostly single-use development to mixed-use residential and employment activities at sufficient levels around identified station nodes to support frequent transit service.
- Establishing land use policies and guidelines to ensure consistent, transit-supportive development along the corridor.
- Integrating BRT service with local transit routes that serve the east-west corridors connecting Randall/Orchard Road with residential areas and the downtowns of Fox Valley municipalities.



Low-rise multifamily homes (as shown above) and single-family homes on narrow lots can lead to modest density increases. Together with two- to four-story mixed use buildings, this type of development can increase density to rates supportive of high quality bus service.

Source: Nelson\Nygaard

BRT and the Image of Randall Road

Branding and marketing are critical to the success of transit in attracting “choice” riders – those who own or otherwise have access to a vehicle for making any particular trip. The marketing of a BRT service could capitalize on several elements of Randall Road’s image. Most importantly, Randall Road provides access to commercial and institutional (particularly medical) destinations that Kane County residents *want* to access. People live along and access the corridor from clusters of development around the corridor. Randall Road is also a direct north-south route through the County, running a few miles or less from Fox Valley town centers and Kane County’s Metra stations. Congestion along the corridor, a result of the desirability of destinations along and near the corridor, is also synonymous with its image. The Kane County 2030 Transportation Plan projects that Randall Road will see significant growth in traffic and segments with “extreme congestion” by 2030. Competitive and reliable travel times are key factors in enabling transit to compete with automobile travel and make transit attractive to commuters. To successfully market itself as an alternative to driving, BRT will need to be implemented with transit priority features and running way options that allow it to bypass traffic congestion, stay on schedule, and provide competitive travel times with automobiles.

While the above aspects of the corridor lend themselves to marketing BRT service, Randall Road is also known for poor walking conditions, which detract from the image of a transit corridor and would need to be addressed through design of BRT service and its marketing. Given that many Kane County residents do not look toward transit as a personal option, creating a positive image for BRT and marketing it as a premium service will also be essential for changing existing attitudes and attracting riders. A successful marketing strategy will also ensure that all aspects of the BRT system are easy for passengers to navigate, particularly first-time riders, including transfers to connecting transit services. The distinct identity of BRT should be evident in passenger information, yet its schedules and route maps should also be integrated and coordinated with all connecting transit routes and systems.

Transit Access and Integration

This section addresses opportunities and constraints affecting access to BRT service along the Randall/Orchard Road corridor and integration of BRT with bus and Metra service and stations in Kane County.

Direct Connections to Major Activity Centers

Major activity centers in Kane County that could feasibly be served by a Randall/Orchard Road corridor BRT service are those that are located directly along the corridor or could anchor one end of the route. If BRT service branches⁴ off of the corridor to reach an endpoint, activity centers could also be served enroute to the endpoint. A major strength of BRT relative to rail modes is its flexibility, allowing buses to provide direct service to multiple locations near either end of the route while providing the highest frequency service along the core of the route. Examples of such locations include:

- **Existing Transportation Centers:** The transportation centers in downtown Aurora and downtown Elgin are key locations for connecting to both local bus and Metra commuter rail service; it would be important to integrate BRT with both transportation centers as part of a branch and/or with connecting transit service.

⁴ Branching is a strategy that allows transit lines with different endpoints to use the same route for the bulk of their run when there are multiple options for endpoints.

- **North Kane County:** In the northern part of the county, other activity centers and potential options for routing BRT service include Algonquin, Upper Fox Valley municipalities, and Huntley. From Algonquin, an extension into McHenry County would be possible and is included in Pace’s map of long-term Arterial Rapid Transit (ART) corridors. Sherman Hospital is a key activity center located along the corridor. Elgin Community College is also a significant activity center but would need to be served as part of a branch.
- **South Kane County:** In the southern part of the county, activity centers and possible BRT routing options include Montgomery, along a proposed extension of the Metra BNSF line to Oswego (in Kendall County), Sugar Grove, and other locations in Kendall County. Negotiation of costs would be necessary for any extension into Kendall County, since it is currently not part of the six-county RTA service area.
- **Middle of the Corridor:** The middle part of the Randall/Orchard Road corridor is the core of the route, making it less feasible to provide direct BRT service to activity centers that are not located directly on Randall Road, including the downtowns of St. Charles, Geneva, and Batavia, which are located east of Randall Road, and the Kane County Judicial Center located west of Randall Road. Delnor Hospital is a major activity center located on the corridor, and could be served directly.

Connecting Transit Service

Other transit service would connect BRT stations to activity centers that cannot be served by BRT directly. Existing Pace bus routes in Kane County are illustrated in Figure 3 (above). The only existing transit connections between Fox Valley municipality downtowns and Randall Road are in Aurora, St. Charles/Geneva, and Elgin. Current service levels in the St. Charles/Geneva area lack the frequency and hours of service to integrate with BRT along the Randall/Orchard Road corridor, although the quality of service could be improved by 2040. BRT would likely increase demand for service both on existing transit corridors and other east-west corridors that connect to Randall Road but are not served by transit. In the Fox Valley, examples of these corridors are in Batavia, South Elgin, and Carpentersville. Although there is no existing fixed route bus service west of Randall Road, similar demand could be expected in municipalities such as Huntley and Sugar Grove. Frequent east-west circulator service connecting BRT stations along Randall Road with established downtowns, including the Geneva Metra station, would be one approach to meeting the connectivity needs that would accompany BRT service on the Randall/Orchard Road corridor.

Metra

The three Metra lines serving Kane County, shown in Figure 3 (above), attract significant regional travel demand, however the Metra stations/lines are not well connected to one another by transit service. A north-south BRT line connecting the Metra stations would improve regional transit access, however Randall Road is west of the existing stations on the BNSF and MDW lines and between the Geneva and La Fox stations on the UPW line. The following are opportunities and constraints for integrating BRT service along the Randall/Orchard Road corridor with existing Metra stations in Kane County:

- **BNSF Line:** Randall Road is slightly less than 2.5 miles west of the Aurora Transportation Center (ATC), the current terminus of the BNSF line; Orchard Road is about 3.5 miles west of the ATC. As discussed above, since Aurora is near the southern end of corridor, ATC could be a logical termination point for BRT service.
- **UPW Line:** Along the UPW Metra line, Randall Road is over 1.5 miles west of the Geneva Metra station and over 3.5 miles from the La Fox Metra station. Since the Geneva Metra station is located in the middle of the Randall/Orchard Road corridor, it would likely be infeasible for BRT to serve it directly but could be linked via connecting transit service.

- **MDW Line:** The Big Timber Road station on the Metra MDW line is the closest station to Randall Road, slightly less than a 0.5-mile straight-line distance, presenting both an opportunity for development around of significant node with both BRT and Metra service and a constraint in that the walking distance between the existing Metra station and a BRT station directly on Randall Road may preclude an easy transfer between the two services. The Elgin Transportation Center is about 3 miles from Randall Road, but as discussed above would be logical to integrate with BRT service, as a possible station or endpoint for a branch of BRT service and/or via convenient connections with other transit routes.

Municipalities in Kane County have been working on station area plans in anticipation of future Metra Commuter Rail extensions (of which some are included in the CMAP Go To 2040 plan while others are not). If these extensions are developed, they could present future opportunities to integrate BRT along the Randall/Orchard Road corridor with Metra. These opportunities include jointly developing BRT and Metra stations along the potential extensions. In addition, along the existing UPW line it may be possible to develop a Metra station along Randall Road (between the downtown Geneva and La Fox stations) in conjunction with a BRT Randall/Orchard Road BRT project.

Bicycle and Pedestrian Access

The existing and planned regional trail system in Kane County could be integrated with BRT service on the Randall/Orchard Road corridor to serve short-to-medium distance connections, and would tie-in to the County's goal of encouraging "active" transportation and helping residents realize the public health benefits of walking and bicycling. While pedestrian access to transit is generally considered to fall within a range of 0.25 to 0.5 miles, bicycle access trips can range from 1.5 to 3 miles. High-quality facilities such as trails can further extend this range. An example of the Kane County trail system is provided in Figure 9 (above) and complete aerial photographs of the corridor that illustrate the countywide trail system are provided below.

Corridor Opportunities and Constraints

The following maps, dividing the corridor into thirds (north, center, and south), illustrate existing land uses on aerial photos of the corridor. The overlays on the aerial photos illustrate the high-level land uses along the corridor, with an emphasis on identifying opportunities and constraints with respect to the location of potential BRT stations area developments:

- Undeveloped land and retail, employment, or services uses generally offer the greatest potential for development/redevelopment in conjunction with a BRT station area. Parcels with big box retail development may have consolidated ownership and thus provide better opportunity for redevelopment, while aging strip malls have a high redevelopment potential but may require dealing with a larger number of owners (although this level of analysis is beyond the scope of these maps).
- Major institutions, while themselves generally not opportunities for development, represent opportunities as potential anchors for development around BRT stations and for possible intensified densities. Hospitals and higher education institutions are examples of such institutions.
- Enduring public/private institutions (including schools and religious institutions) that do not turn over frequently are generally an established fixed land use, and typically do not generate significant transit ridership.
- Relatively low-density residential areas and parks/preserves are typically not considered for redevelopment but should be further studied for options to improve pedestrian access to the corridor (such as connections to the corridor for non-motorized travel).

Figure 10 Corridor Aerial and Map (North)

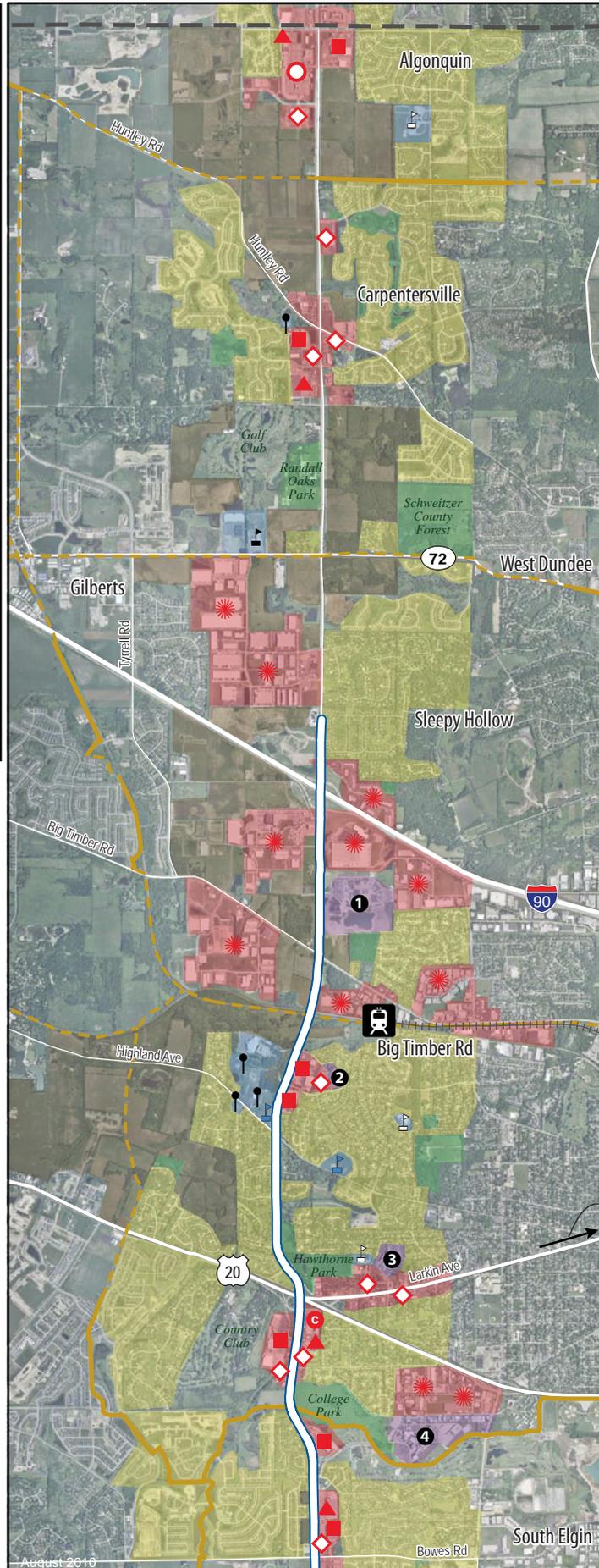
Corridor Aerial with Redevelopment Potential

- Agriculture / Undeveloped
- Retail / Employment / Services
- Other Institutional
- Major Institutions
- Residential
- Parks / Preserves

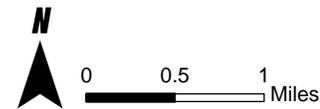
Greatest Opportunities ↓ **Greatest Constraints**

Retail / Employment / Service Categories

- Lifestyle Center
- Big Box Retail
- Supermarket
- Strip Mall
- Business Park / Industrial
- Cinema
- Religious Institutions
- Elementary Schools
- Middle / High Schools
- Other Private Schools
- Transportation Centers with Metra Stations
- Metra Stations
- County Boundaries
- Existing Trails
- Planned Trails



- 1** Sherman Hospital
 - 2** Sherman Family Health
 - 3** Provena St. Joseph Hospital
 - 4** Elgin Community College
- To Downtown Aurora & Aurora Transportation Center



Source: Kane County, Chicago Metropolitan Agency for Planning

Figure 11 Corridor Aerial and Map (Central)

Corridor Aerial with Redevelopment Potential

- Agriculture / Undeveloped
- Retail / Employment / Services
- Other Institutional
- Major Institutions
- Residential
- Parks / Preserves

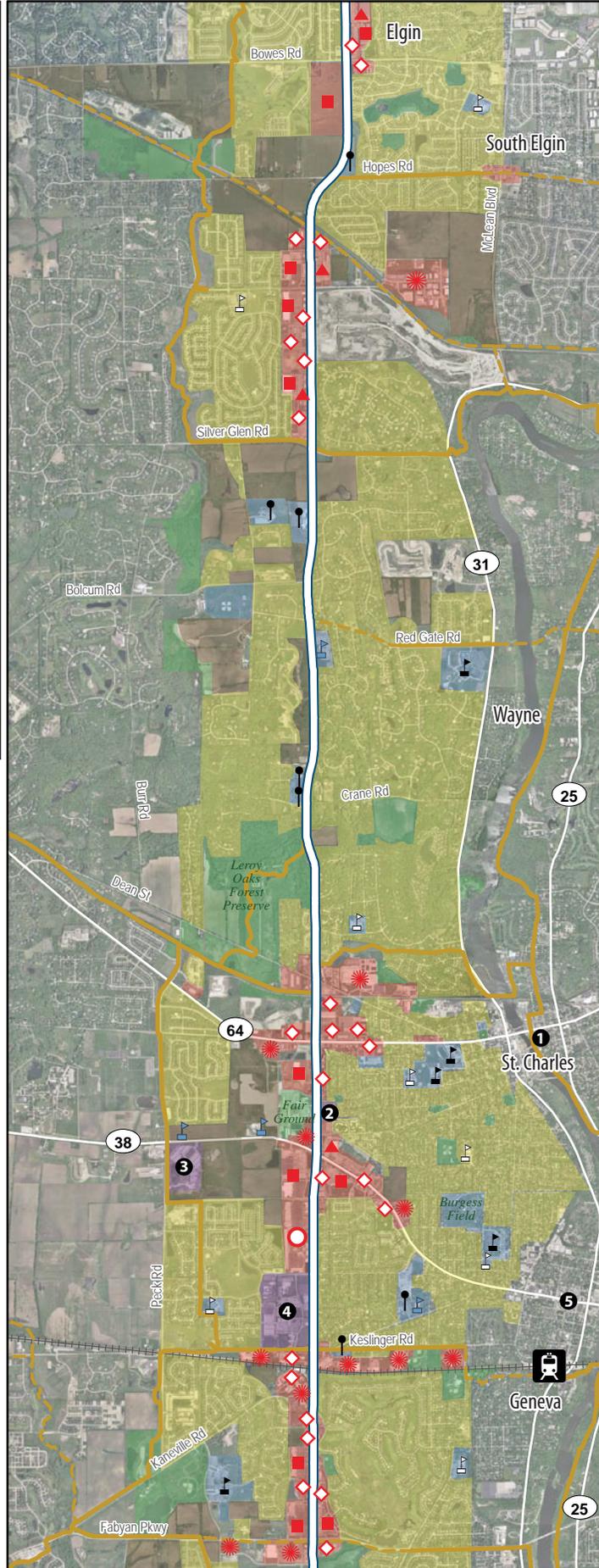
Greatest Opportunities
 ↓
 Greatest Constraints

Major Destinations

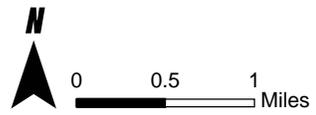
- Major Destinations

Retail / Employment / Service Categories

- Lifestyle Center
- Big Box Retail
- Supermarket
- Strip Mall
- Business Park / Industrial
- Cinema
- Religious Institutions
- Elementary Schools
- Middle / High Schools
- Other Private Schools
- Transportation Centers with Metra Stations
- Metra Stations
- County Boundaries
- Existing Trails
- Planned Trails



- 1** Downtown St. Charles
- 2** Circuit Court
- 3** Judicial Center
- 4** Delnor Hospital
- 5** Downtown Geneva



Source: Kane County, Chicago Metropolitan Agency for Planning

Figure 12 Corridor Aerial and Map (South)

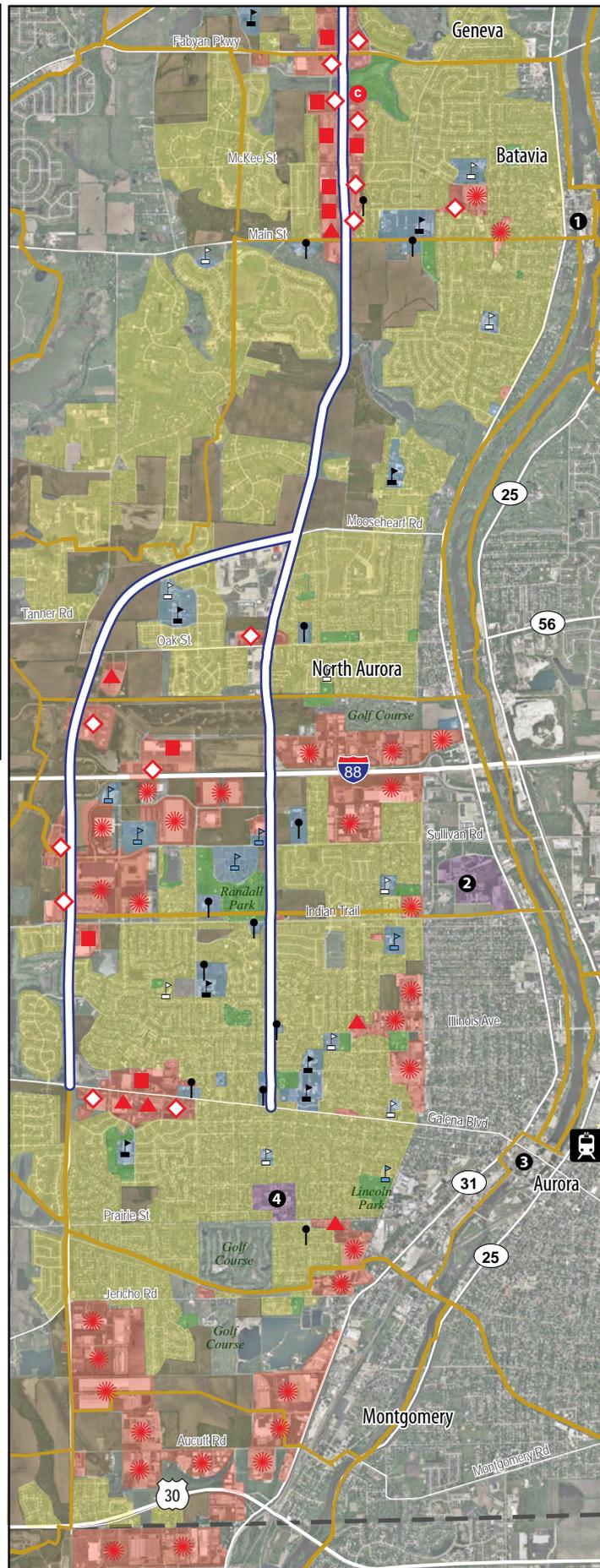
Corridor Aerial with Redevelopment Potential

- Agriculture / Undeveloped
- Retail / Employment / Services
- Other Institutional
- Major Institutions
- Residential
- Parks / Preserves

Retail / Employment / Service Categories

- Lifestyle Center
- Big Box Retail
- Supermarket
- Strip Mall
- Business Park / Industrial
- C Cinema
- Religious Institutions
- Elementary Schools
- Middle / High Schools
- Other Private Schools
- M Transportation Centers with Metra Stations
- M Metra Stations
- County Boundaries
- Existing Trails
- Planned Trails

Greatest Opportunities
 ↓
 Greatest Constraints



- 1** Downtown Batavia
- 2** Provena Mercy Medical
- 3** Downtown Aurora
- 4** Aurora University

0 0.5 1 Miles

Source: Kane County, Chicago Metropolitan Agency for Planning

Summary of Opportunities and Constraints

Figure 13 summarizes the major opportunities and constraints related to development of BRT along the Randall/Orchard Road corridor, discussed in more detail in the preceding sections.

Figure 13 Major Corridor Opportunities and Constraints

Opportunities	Constraints
<ul style="list-style-type: none"> • Higher density, potentially transit-intensive major institutions along or near the corridor (e.g. hospitals, community colleges) that can anchor a major transit node. Potential destinations include: <ul style="list-style-type: none"> ○ Sherman, Delnor and Mercy Hospitals – growing 24 hour/7 days a week/ 365 days/year service centers. ○ Elgin Community College, Aurora University, and Waubensee Community College (including satellite campuses). • Underdeveloped commercial strips without a major anchor can be more easily assembled into larger redevelopment. • Large retail developments with limited lifetimes that can be developed or repurposed. • Significant undeveloped or agricultural land could support future development, while higher density development along the corridor could further preservation of agricultural land and open space outside of the corridor. • Significant right-of-way exists to develop transit and pedestrian infrastructure along the corridor. • Regional trails along the corridor provide alternative access to the street network. • Connections to two major interstates with BRT potential. • Proximity to Metra stations and urban areas. • Increased congestion and higher energy prices in the future would make BRT more likely to succeed. 	<ul style="list-style-type: none"> • Existing pedestrian infrastructure that is not supportive of transit, e.g. building fronts set back from the corridor, large parking lots oriented to the corridor, lack of sidewalks and pedestrian crossings. • Low-density residential developments poorly connected with the corridor. • Relatively long signalized intersection spacing and no/few crossing opportunities between intersections. • Low-density, less transit-intensive public or private institutions (primary schools, religious institutions) that are not conducive to redevelopment. • Land use policies and incentives require coordination among multiple jurisdictions along the corridor (also an opportunity).