Village of North Aurora

Non-Motorized Transportation Plan

June 2001

League of Illinois Bicyclists

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Introduction

Why plan for bicycles and pedestrians?

The Village of North Aurora has contracted with the League of Illinois Bicyclists to produce this non-motorized transportation plan. The transportation modes emphasized in this plan will be bicycling and walking. Other user groups and non-motorized modes can usually be accommodated by facilities for cyclists and/or pedestrians.

The overall motivating goals and guiding principles for this work are:

- To provide safe conditions for those who bike or walk in North Aurora by choice or necessity;
- By actively improving cycling and pedestrian conditions, to encourage other residents to use these transportation alternatives more often.

Throughout the country, there is a strong latent demand for better bicycling and pedestrian conditions. People want to be able to walk and bike around town. A bike- and ped-friendly town is associated with a high quality of life and an intangible sense of community. Nationally, sedentary lifestyles and obesity rates have soared in the previous decades, as development patterns and safety concerns have led to near-exclusive dependence on the automobile. National research has shown that 27% of all automobile trips are one mile or less; 40% are two miles or less; and 49% are three miles or less in length[1]. All of these trips are within reasonable bicycling distance – if a community is designed to make bicycle trips just as easy and convenient as automobile trips. Besides those who bicycle or walk by choice, there are residents – including children, many teenagers, and some low-income workers – who rely on these modes by necessity. The Village of North Aurora is clearly dedicated to providing its citizens with safe alternatives.

This plan takes an overall look at the Village in an attempt to remove barriers to safe, convenient bicycling and walking. Capital improvements including trails, sidewalks, crosswalks, and bicycle racks are prioritized. Recommendations for bike/ped accommodation are described for future roadwork on arterials and collectors. Policies are suggested to ensure that future development encourages bicycling and walking. Described are possible funding sources – most of which give preference to projects that are part of a village plan.

An overall look at North Aurora and the Plan

North Aurora, like other Fox River communities at the edge of Chicagoland, is in the middle of an extended period of growth. Subdivisions are being built on both the east and far west sides. Commercial development is occurring along Randall Road with more being planned along Orchard Road. This new growth is accessible only by arterial roads, and these roads are becoming increasingly busier.

North Aurora is highlighted by the Fox River Trail along the river's entire west bank and its east bank north of State Street. This popular trail is part of the north-south system that has increased the attractiveness of downtowns along the Fox Valley. Its importance as a transportation corridor would

be increased by adding more access points. Also, existing impediments either cause some residents to drive to get to the trail, or discourage them from using it altogether.

In addition to the trail, there are other areas with higher rates of bicycling and walking. Many residents use these modes between the near east side along Butterfield Road to retail areas just west of the river. Many students walk to school –half of Goodwin Elementary children, for example. Some retail and service industry workers walk or bike to jobs along the south Illinois 31 corridor and the retail areas at Oak and Randall Roads.

The original sections of the village, on the near northeast and near west sides, were built without sidewalks. All recent development has been required to include sidewalks with curb cuts, but painted crosswalks are rare.

The North Aurora Police Department reports a negligible number of accidents between motor vehicles and either pedestrians or bicyclists. Incidents have generally been limited to bicycle theft and accidents among trail users. The challenge is to increase accessibility and use of these modes while maintaining the current low accident rates.

PACE provides bus service mostly along the Illinois 31 corridor to downtown Aurora, the towns north of North Aurora, two Metra stations, and a major employer in Addison. PACE has announced that they will be adding bike racks to the front to their buses, so safe access to bus stops becomes important to extend ridership range further into the village.

As North Aurora extends east and west, the Village and Teska Associates, Inc. are studying ways to revitalize the "downtown" Illinois 31 corridor. Part of the revitalization plan includes a "trailhead" at the ComEd right-of-way, including a restaurant/park area and an east-west trail from the Fox River Trail to the west. Development of an east-to-west "ComEd trail" is the top priority of this non-motorized plan. There is a very real potential to connect with Kane County Forest Preserve's conceptual "Mid-County Trail" to the west and the Illinois Prairie Path's Batavia Spur (via Aurora) to the east. Besides serving an important east-west need for village residents, this major regional connector trail would make the proposed trailhead area and island park a significant attraction in the Fox Valley.

The ComEd trail and its neighborhood connections will be a major focus of this plan. In general, bicycling and walking conditions to significant destinations – usually along arterial roads – will be emphasized.

Planning Approach

Walking and bicycling are different enough to consider separately in this plan. Since almost everyone walks at some point, pedestrian needs and facilities are commonly recognized. This plan will prioritize a list of missing sidewalks and painted crosswalks according to certain criteria. Additional comments offer other safety improvements for pedestrians.

Since many adults do not bicycle – or only ride recreationally on trails – the needs and facilities for bicycling are not as well known. Besides planning for new trails, this plan specifies improvements for

utilitarian bicycling on the road network. Knowledge of the needs and concerns of different levels of cyclists is important to the planning process. The Federal Highway Administration has developed a system of designating three levels of bicycling ability for design purposes[2]:

Group A – Advanced Bicyclists: Experienced cyclists who can ride under most traffic conditions. Like motorists, Group A cyclists prefer quick, direct access to destinations with a minimum of stops. Often, these conditions are found only on collectors and arterials, and most bicyclists found on these roads are Group A. These cyclists prefer to have sufficient roadway space to eliminate the need for either themselves or a passing motor vehicle to shift position.

Group B – Basic Bicyclists: Casual or new adult and teenage riders who are less confident in their ability to operate in traffic without special provisions for bicycles. Most people fall into this category. Some will improve to Group A over time. Group B cyclists prefer comfortable access to destinations on bike-friendly roads, on separate bike paths, or on well-defined bike lanes or shoulders along arterials and collectors.

Group C – Children: Pre-teen riders whose bicycling activity is initially monitored by their parents. Their bicycling requires access from residential areas to schools, recreation facilities, and shopping, on quiet residential streets or well-defined bicycle facilities. Before age 10, bike-riding choices are extremely limited and parental supervision is extremely important. While sidewalks are the best choices for such young riders, sidewalks have many problems if promoted for bicycle use by Groups A and B.

The bicycle portion of this plan will target Group A and B bicyclists. The FHWA proposed a set of design treatments based on a two-tier system, with one set recommended as a minimum for all streets and highways (based on the needs of Group A cyclists), and a second set of treatments for routes expected to serve Group B and C cyclists. Planning for the needs of the youngest Group C cyclists will be grouped into the pedestrian section, since their needs are similar.

Recommended Bicycle Plan

AASHTO Guide

This plan recommends a mixture of on-road and trail facilities to provide a comprehensive network of desirable bicycle routes that link the various areas of the Village. The 1999 Guide for the Development of Bicycle Facilities[3] by the American Association of State Highway and Transportation Officials (AASHTO) forms the technical basis for the recommendations. The Illinois Department of Transportation recommends that this publication be utilized when developing a bicycle plan[4]. A summary of the types of bicycle facilities is included below, but all of the engineering design details should be taken from the AASHTO guide. (A copy has been provided to the Village.) The guidelines described by AASHTO are generally recognized by the industry – and the court system – as the standard for bicycle facility design. Following them would be the Village's best protection from liability concerns.

Bikeway Types

A variety of on-road and off-road bicycle facilities can accommodate bicyclists[5,6,7]:

Wide Outside (Curb) Lane
Outside lanes that are 14 ft wide may be provided to allow an average sized motor vehicle to pass a bicyclist without crossing over into the adjacent lane. Wide outside lanes are generally considered an appropriate facility for Group A advanced riders on busy urban arterials. "Share the Road" warning signs (standard bicycle warning plate with a subplate stating "Share the Road") may be used. For retrofit projects where wide outside lanes are to be installed, the roadway may either be physically widened or re-striped to reduce the lane width of inner lanes and increase the width of outer lanes.

Bike Lane
A bike lane is a portion of the roadway designated for use by bicyclists, typically with a width of 4-5 ft. Bicycle lanes serve the needs of all types of cyclists, providing them with their own travel lane on the street surface. They are designated with signage, edge striping, and bicycle icons. On two-way streets, bike lanes are always installed on both sides – two-way bike lanes should not be installed on one side of the street. Regular maintenance by street cleaners is important for bike lanes because of the tendency to collect debris.

Paved Shoulders
Paved shoulders can also serve bicyclists' needs on streets. While any additional space is beneficial, a 4-6 ft shoulder is preferred. Paved shoulders should be included on both sides of the roadway. In addition to the benefits to bicyclists, paved shoulders can also extend pavement life and provide a motorist breakdown area. Regular maintenance is essential if paved shoulders are to be useful to bicyclists. Also, paved shoulders that include rumble strips can be essentially useless to bicyclists. In most cases, rumble strips are not recommended unless they are designed to provide bicyclists with an adequate amount of space in which to operate.

Most Americans are reluctant to ride bicycles in the absence of designated bike lanes and separated pathways. There are several advantages to bike lanes and paved shoulders. Motorists are less likely to encroach into the adjacent lane when passing a bicyclist riding on a paved shoulder or bike lane. Bicyclists are more likely to ride further from the edge of the roadway in a bike lane or paved shoulder than they are in a wide curb lane. This does not significantly reduce the separation between motorist and bicyclist, but it does increase the distance to the right of the bicyclist that can be used to maneuver around debris. The presence of the stripe separating bicyclists from motor vehicles enhances the comfort level of both, as both vehicles guide off the lane stripe – rather than the other vehicle – in their clearly defined space.

Sidepaths

Sidepaths are trails running immediately parallel to a roadway, like a sidewalk. In the past, bicycle sidepaths were developed to separate cyclists from roadways to reduce opportunities for conflict. It is now widely accepted that bicycle paths parallel to roads or on sidewalks actually cause greater conflicts. For this reason, they are not recommended in most cases.

Sidepath riders are 1.8 times at risk of being involved in a collision with a motor vehicle than cyclists on the street. Wrong-way sidepath riders (those riding against motor traffic) are 4.5 times at risk of being involved in a collision than path riders traveling in the same direction of traffic[8]. The AASHTO guide describes problems with sidepaths, including[3]:

- At intersections, motorists entering or crossing the roadway often will not notice bicyclists coming from their right, as they are not expecting contra-flow vehicles. Even bicyclists coming from the left often go unnoticed, especially when sight distances are poor.
- Although the sidepath should be given the same priority through intersections as the parallel road, motorists falsely expect bicyclists to stop or yield at all cross-streets and driveways. Efforts to require or encourage bicyclists to yield or stop at each cross-street and driveway are inappropriate and frequently ignored by bicyclists.
- Many bicyclists will use the roadway instead of the sidepath because they have found the roadway to be safer, more convenient, or better maintained. Bicyclists using the roadway are often subjected to harassment by motorists who feel that in all cases bicyclists should be on the path instead.
- Stopped cross-street motor vehicle traffic or vehicles exiting side streets or driveways may block the path crossing.

A "Sidepath Suitability Algorithm", included as Appendix B, incorporates many of these issues into a score of a sidewalk or sidepath's suitability as a bicycle facility. The algorithm can be used to rate current conditions and to plan improvements for existing sidepaths. When a planned sidepath is appropriate, or in cases where on-road facilities are impossible physically or politically, the algorithm can help minimize problems and accident risk.

Trails

Multi-use trails are physically separated from motor vehicle traffic, except at road crossings. Trails are usually built either within an independent right-of-way (such as a utility corridor or abandoned railway), or along easements across private lands. Trails accommodate a variety of users – including pedestrians, bicyclists, and other user groups – for both recreation and transportation purposes. Except for low volume, short segments, paved trails should be 10 feet wide. AASHTO provides extensive trail design guidelines – with road intersections being of particular importance.

Bicycle Maps

The four maps of Figure 1 show the Village's "Existing Bicycle Conditions and Proposed Trails." Included in the maps are:

- A color-coded rating of roadway suitability for bicycles, for the most significant roads in the Village planning area. The rating algorithm is found in Appendix A. All neighborhood roads are assumed to be Green (High Suitability), appropriate for all Class A and B cyclists. When a neighborhood road can serve as an alternative for a collector/arterial, it is rated on the map.
- A color-coded rating of sidepath/sidewalk suitability as a bicycle facility. The rating algorithm is found in Appendix B. Only those main roads with a roadway suitability of Yellow (Medium Suitability) or worse have their sidewalks rated, if there are sideswalks. The lines with these ratings are thinner and to the outside of the thicker lines with roadway suitability. Note that gaps and abrupt sidewalk ends lower the suitability scores considerably.
- Existing trails.
- Proposed trails, with footnotes or references to specific comments in the "Trail Proposals" section.
- Significant local destinations.
- Locations of proposed "spot improvements," with footnotes to specific comments in Table 1 of the "Spot Improvements" section below.
- "Keep Access" locations, where a right-of-way or easement should be preserved during development, for possible access to a trail in the future.

Both the existing bicycle conditions depicted on these maps and the locations of significant destinations help to determine deficiencies and demand. They serve as the basis for prioritizing the proposed bicycle improvements in the "Trail Proposals" and "Arterial and Collector Road Recommendations" sections.

Spot Improvements

Table 1 lists some miscellaneous, very localized improvements that are indicated on the Figure 1 maps as brown asterisks.

Table 1 – Spot Improvement recommendations

1	Sidewalk link from Oak St sidewalk to townhouses
2	Sidewalk connection from Courtyard Village West apartments to bank/strip mall
3	Taper sidewalk's 90 deg turn just west of Oak/Walnut intersection
4	John St access to Fox River Trail
5	Sullivan Rd access to Fox River Trail
6	Just east of bridge, taper sidewalk's 90 deg turn, cut down 18" cement wall
7	Pedestrian crossing signs and crosswalks, maybe raised median refuge
8	Schneider School zone sign – add a flashing light timed for arrival, dismissal
9	Schneider School zone sign – add a flashing light timed for arrival, dismissal
10	Short sidewalk link between Long and Patterson

Figure 1(a)
Existing Bicycling Conditions and Proposed Trails
East Sector

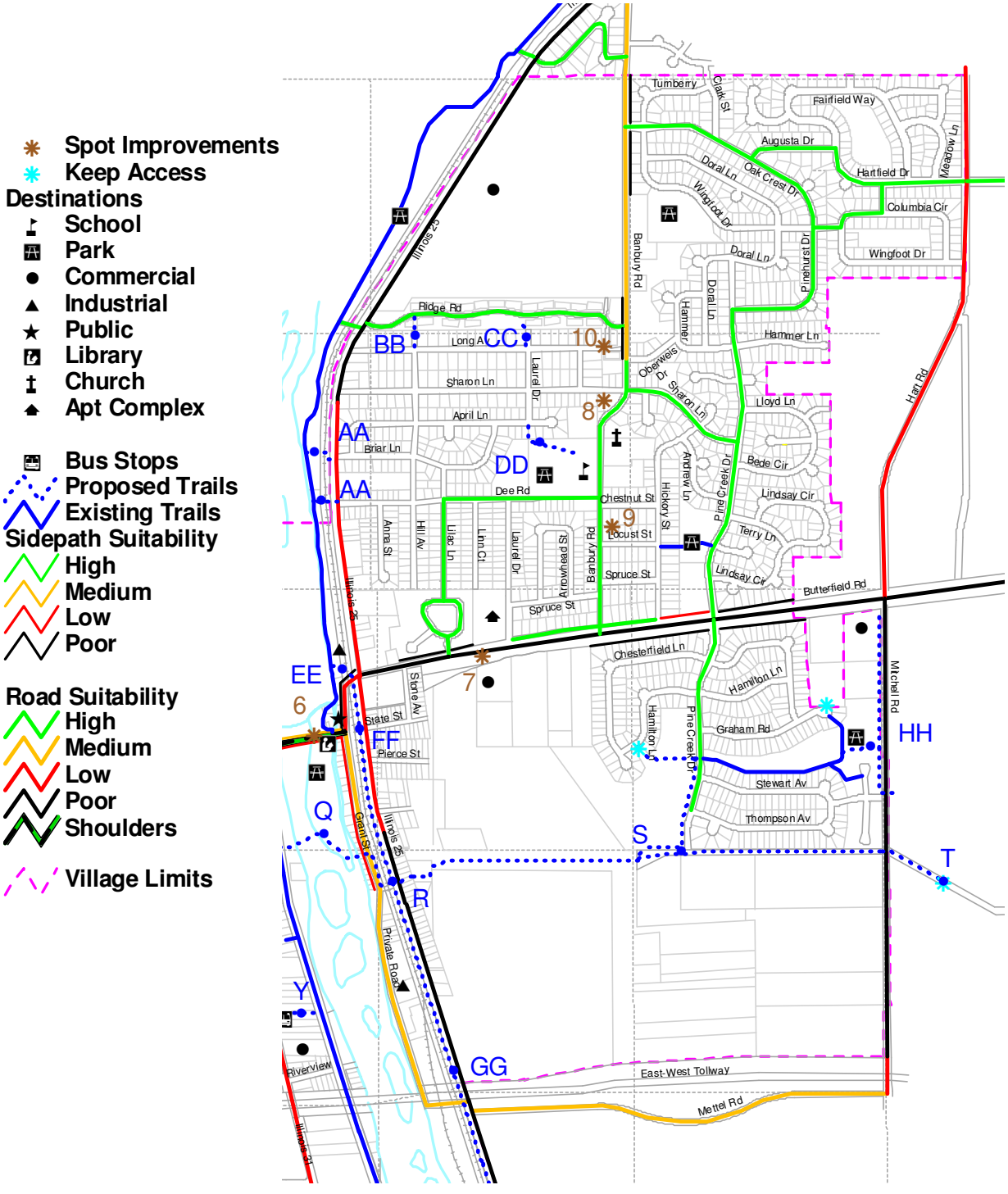


Figure 1(b)
Existing Bicycling Conditions and Proposed Trails
Central Sector

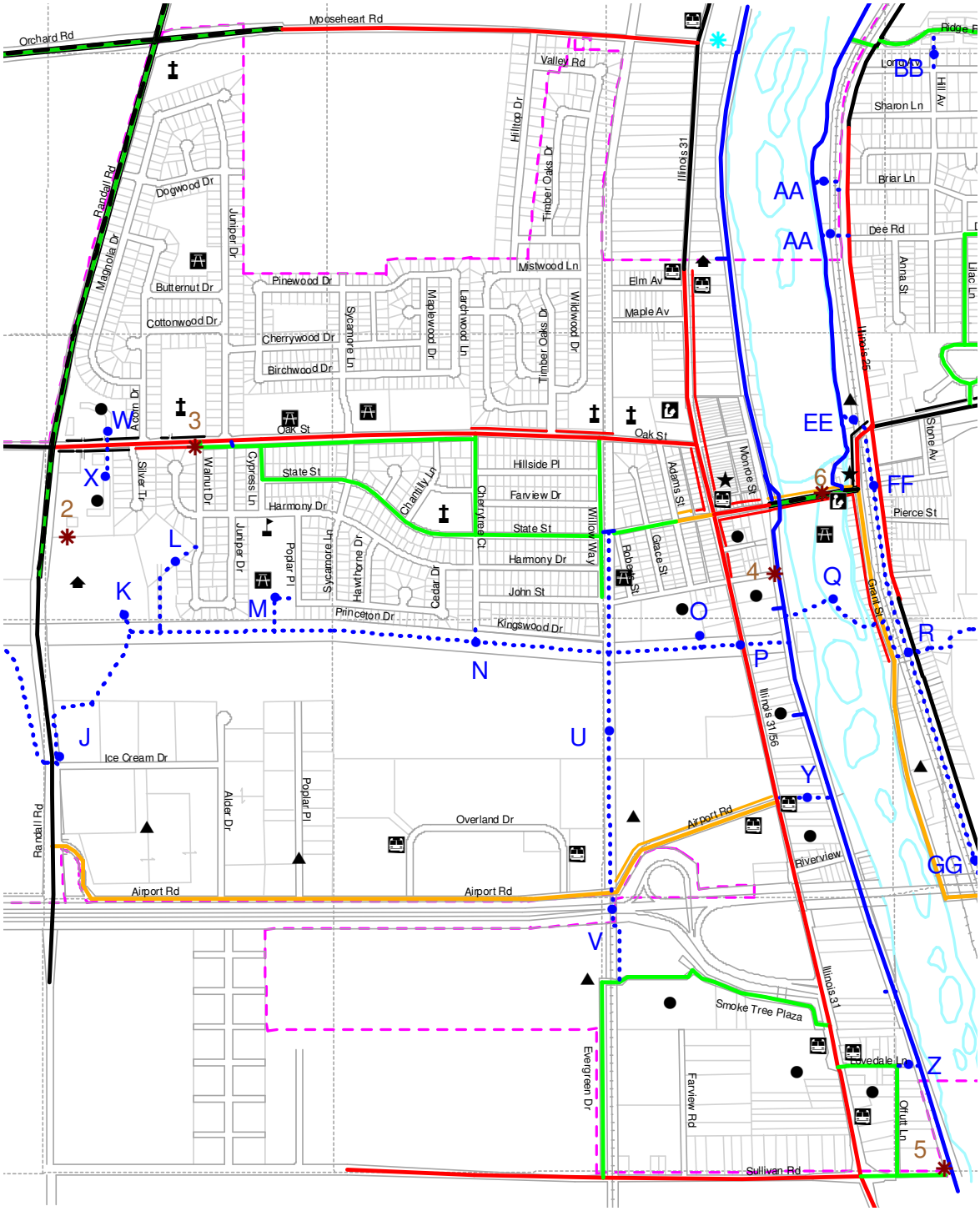


Figure 1(c)
Existing Bicycle Conditions and Proposed Trails
West Sector

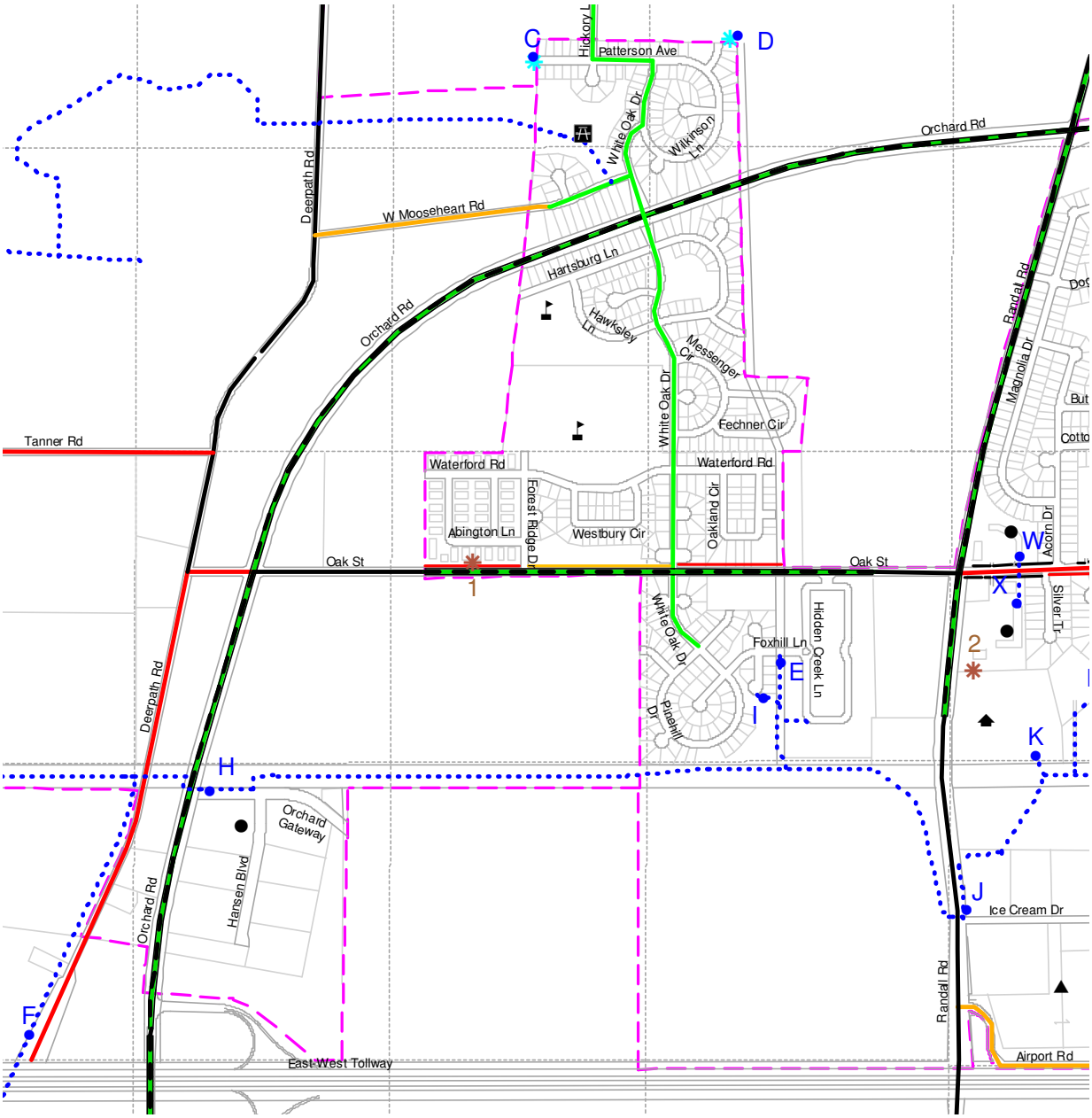
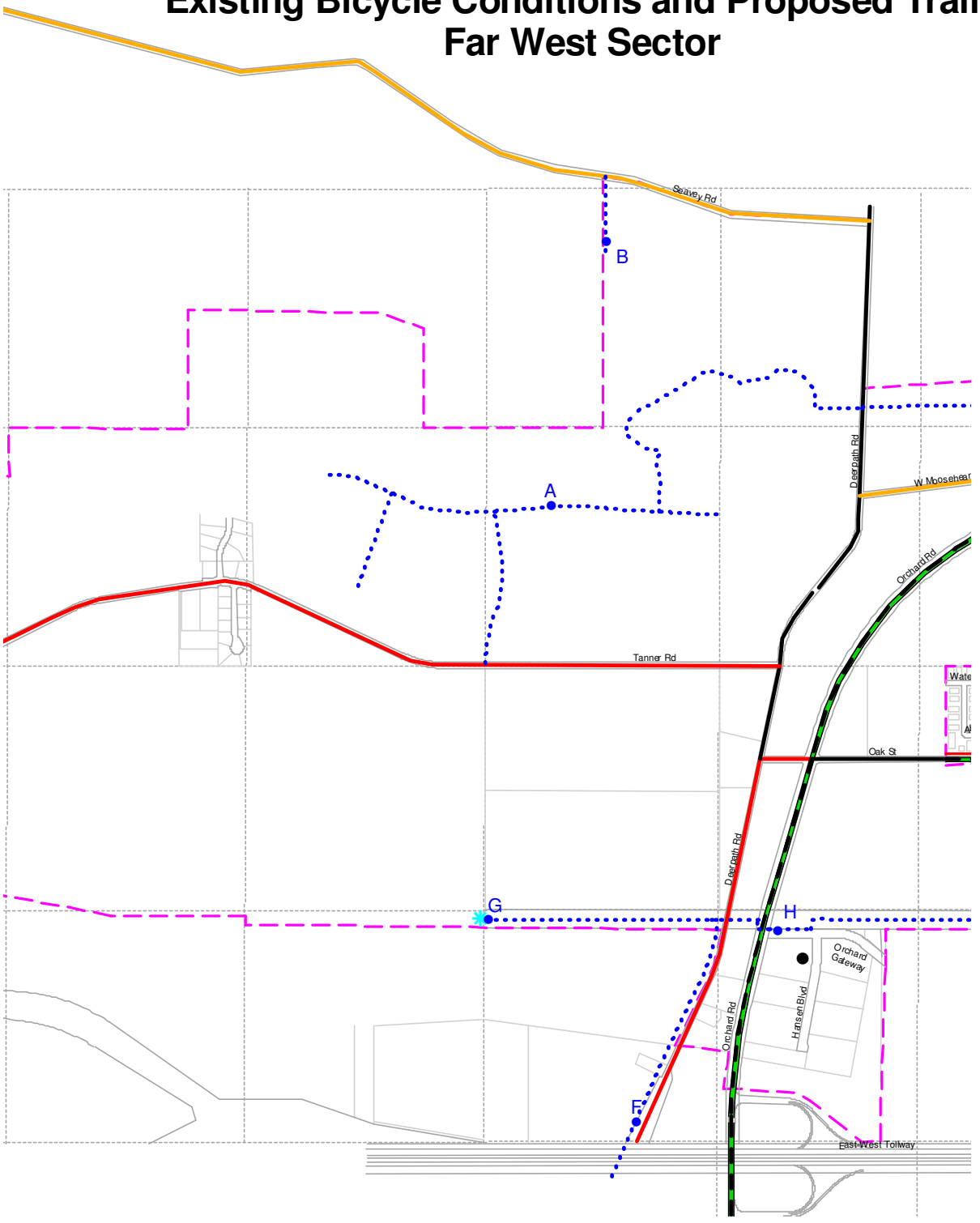


Figure 1(d)
Existing Bicycle Conditions and Proposed Trails
Far West Sector



Bike Parking

Providing secure bicycle parking is a necessity of a useful bicycle system. Investing in bicycle parking will allow people to use their bicycles for transportation purposes and reduce parking in undesirable places. The most important considerations to ensure successful bicycle parking are a good location and a good rack.

A good bike rack provides support for the bicycle frame and allows both the frame and wheels to be secured to the rack with one lock. The most common styles include the inverted "U" and the wave or continuous curve style. Old-fashioned "school racks," which secure only one wheel, are a poor choice for today's bicycles. Enclosed bike lockers, high security racks, and storage inside a building are longer-term bike parking options providing additional security and protection from the weather.

The best locations for racks are near main building entrances, conveniently located, highly visible, and, preferably, protected from the weather. Ideally, all multi-family and non-residential buildings should provide at least a few parking spaces. The following sample ordinance is recommended for adoption[6]:

> *"All residential uses except single family residential and duplexes, and all non-residential uses, shall provide sufficient bicycle parking facilities consisting of not less than one (1) bicycle parking space for every twenty (20) required automobile spaces, with a minimum of two (2) bicycle parking spaces for any use."*

Bike racks currently exist at a few locations throughout the Village, most noticeably the Activity Center, library, the schools, and a couple of businesses with heavier bicycle traffic. The Chicago Area Transportation Study and Kane County Council of Mayors currently are offering participation in a discounted bicycle rack purchase program. It is recommended that North Aurora participate and work agreements to install racks at the following locations, at least:

- Village Hall
- Strip mall at northeast corner of Oak and Randall
- Strip mall at southeast corner of Oak and Randall
- New strip mall at Butterfield and Mitchell
- New strip mall at Butterfield and Laurel

Recommended Pedestrian Plan

The earliest development in North Aurora did not include sidewalks, but sidewalks have been required with all development since then. Sidewalks not only encourage walking, but they also improve the safety of pedestrians. Streets without sidewalks have 2.6 times more pedestrian and automobile collisions than expected on the basis of exposure, while streets with sidewalks on only one side had 1.2 times more pedestrian crashes[9].

Deterrents to walking include: missing sections of sidewalks, missing curb cuts, and difficult street crossings. On the other hand, continuous sidewalks, safe street crossings, pedestrian signs and signals, crosswalk markings, sidewalk setbacks, and street landscaping all encourage pedestrians. This plan makes prioritized recommendations for the elimination of impediments and the addition of encouragements to walking in the Village.

Sidewalks

The three maps of Figure 2 show the Village's "Existing and Proposed Sidewalks." Included in the maps are:

- Existing sidewalks, including separated and adjacent (carriage) sidewalks.
- Proposed sidewalks, with an assigned priority based on criteria below.
- Existing and proposed trails, since trails are used by both bicyclists and pedestrians.
- Significant local destinations.
- Proposed "spot improvements" and "keep access" locations, described earlier.

Table 2, with proposed sidewalks and their priority, appears below. Priority was assigned based on a number of factors:

- High existing pedestrian levels.
- Area of significant latent demand, with no safe alternatives.
- Streets with significant commercial and other destinations.
- Proximity to a school or a bus stop.
- Existing street conditions.
- Physical obstacles to implementation.

In single-family residential areas, sidewalks of at least 4 feet are recommended[5]. Higher pedestrian use areas should have wider sidewalks – at least 5 feet along arterials and collectors, more if the sidewalk is relatively suitable for bicyclist use. A recommended source for sidewalk design issues is the Design and Safety of Pedestrian Facilities[10].

Table 2 – Proposed Sidewalks with Priority

Priority	Streetname	Sides	From	To
High	Banbury Rd	both	Oberweis Dr	Sharon Ln
High	Butterfield Rd	north	Illinois 25	McKee Door
High	Illinois 25	east	Dee Rd	Butterfield Rd

Priority	Streetname	Sides	From	To
High	Illinois 31	both	State St	Airport Rd
High	Illinois 31	east	Airport Rd	Riverview
High	Illinois 31	both	Smoke Tree	Sullivan Rd
High	Laurel Dr	west	north of Butterfield Trails apts	
High	Oak St	south	White Oak Dr	NICor easement
High	Oak St	south	Summer Wind	Randall Rd
High	Oak St	north	Randall Rd	Juniper - 3 gaps
High	Oak St	north	Juniper Dr	Timber Oaks
High	Oak St	south	Cherrytree	Willow Way
High	Oak St	both	Willow Way	Illinois 31
High	Banbury Rd	east	S of Oak Crest	Oberweis Dr
Medium	Adams St	both	Oak St	State St
Medium	Airport Rd	north	Alder Dr	RR ROW
Medium	Alder Dr	both	Ice Cream Dr	Airport Rd
Medium	Butterfield Rd	north	Woodland Lakes	Laurel Dr
Medium	Butterfield Rd	south	Uncle Pat's	Centex
Medium	Butterfield Rd	both	Village limits	Hart/Mitchell
Medium	Dee Rd	both	Illinois 25	Linn Ct
Medium	Harmony Dr	both	Cherrytree	Willow Way
Medium	Ice Cream Dr	both	Randall Rd	Alder Dr
Medium	Illinois 25	east	Ridge Rd	Dee Rd
Medium	Illinois 31	both	Mooseheart Rd	Elm Av
Medium	Illinois 31	west	Airport Rd	I-88
Medium	Illinois 31	both	I-88	Smoke Tree
Medium	Oak St	north	NICor easement	Randall Rd
Medium	Randall Rd	east	Ice Cream Dr	Oak St
Medium	Ridge Rd	south	Illinois 25	Banbury Rd
Medium	State St	both	Cherrytree	Willow Way
Medium	Sullivan Rd	both	RR ROW	Illinois 31
Low	Airport Rd	north	Randall Rd	Alder Dr
Low	Banbury Rd	east	Spruce St	Butterfield Rd
Low	Banbury Rd	east	Schneider	Chestnut St
Low	Dee Rd	south	Laurel Dr	Banbury Rd
Low	Hill Av	both	Long Av	Dee Rd
Low	John St	north	Willow Way	Illinois 31
Low	John St	both	Illinois 31	Fox River Trail
Low	Laurel Dr	west	Spruce St	Butterfield Rd
Low	Lilac Ln	both	Dee Rd	Woodland Lakes
Low	Overland Dr	both	Airport Rd	Airport Rd
Low	Pine Creek Dr	east	Butterfield Rd	Lindsay Cir
Low	Poplar Pl	both	north end	Airport Rd
Low	Sharon Ln	both	Illinois 25	Banbury Rd
Low	State St	south	Roberts St	Illinois 31
Low*	April Ln	both	Hill Av	Laurel Dr
Low*	Briar Ln	both	Illinois 25	Hill Av

* - Increases to medium priority if Dee Road sidewalks are omitted, or for river trail access at Briar.

Figure 2(a)
Existing and Proposed Sidewalks
East Sector

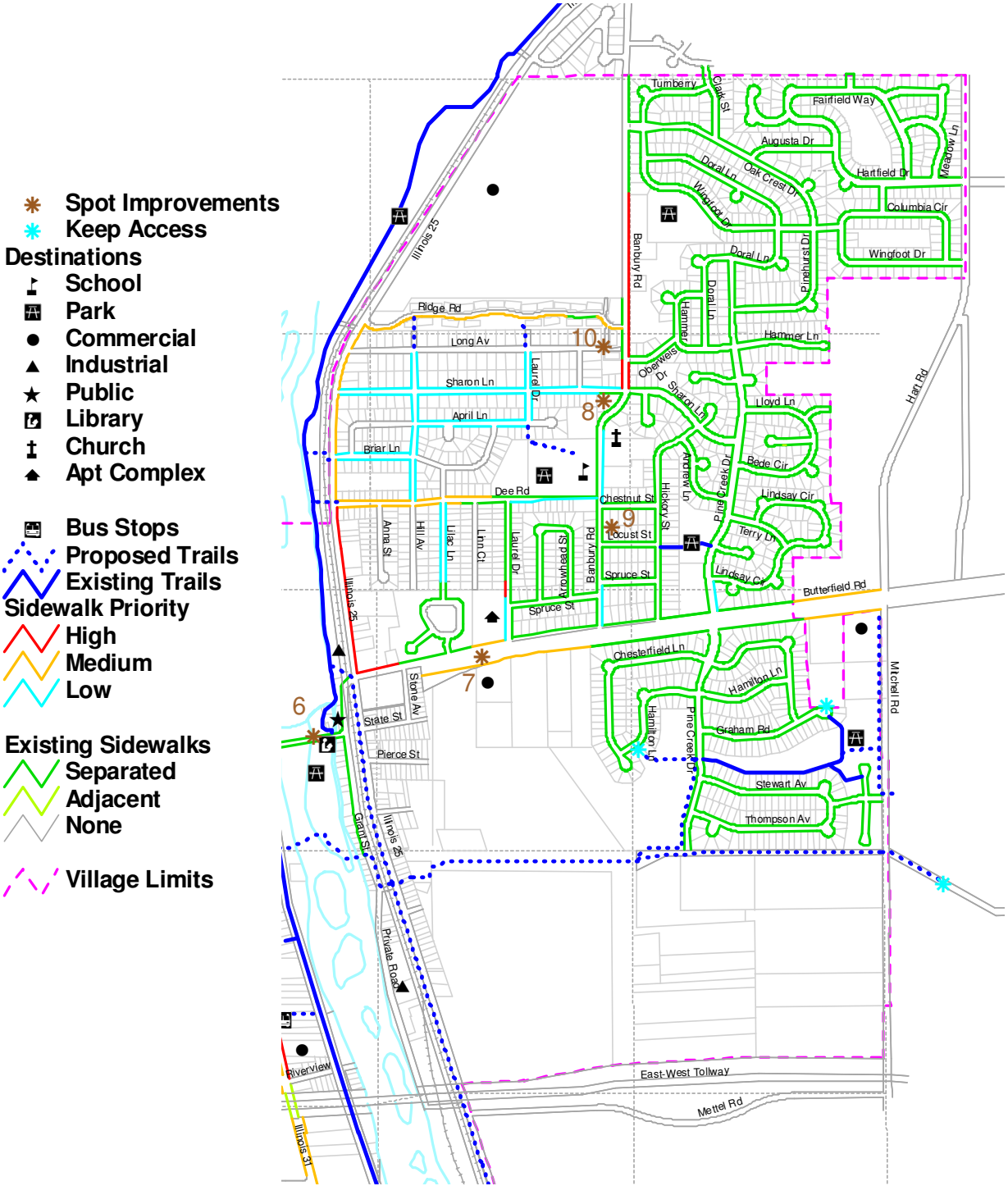


Figure 2(b)
Existing and Proposed Sidewalks
Central Sector

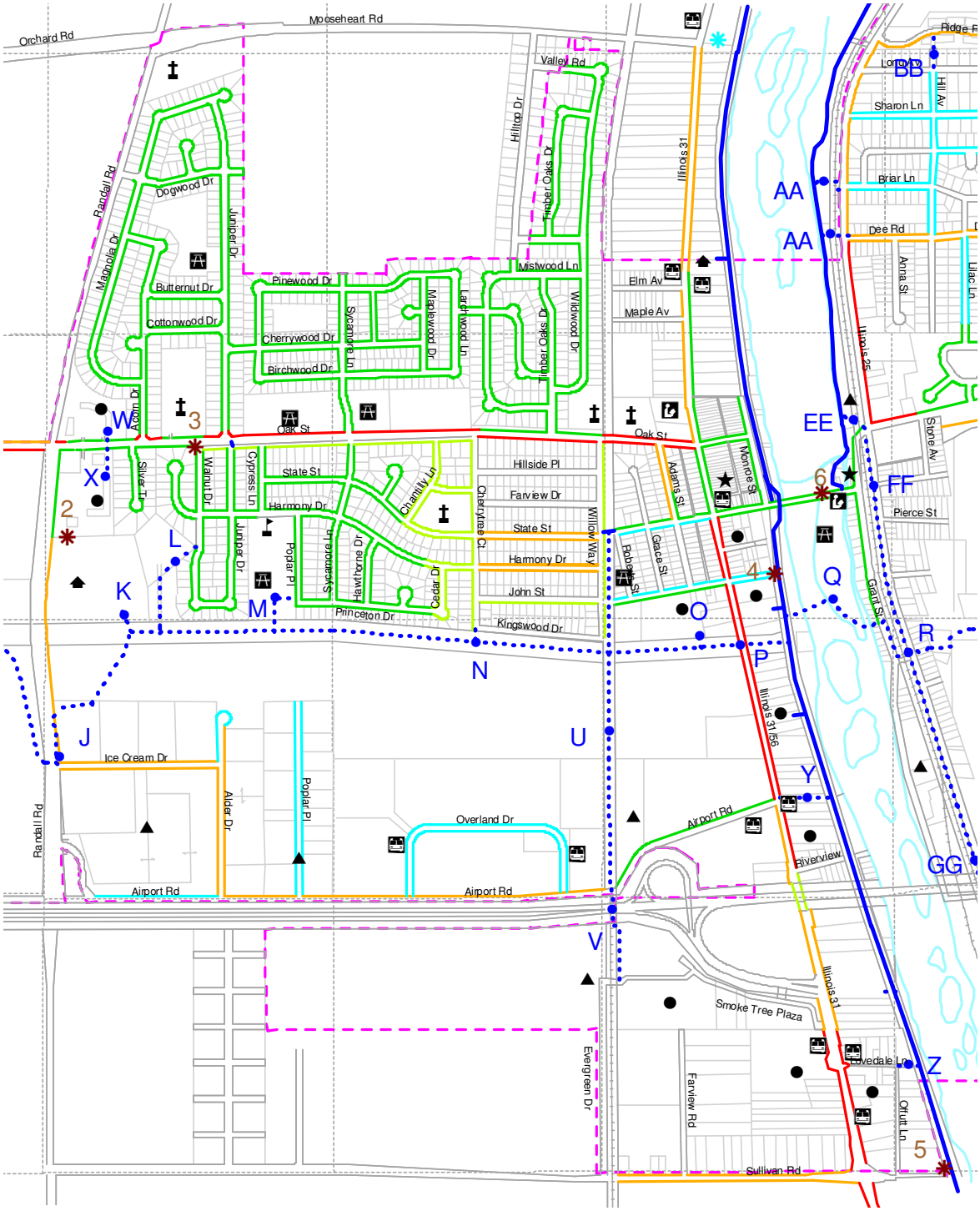
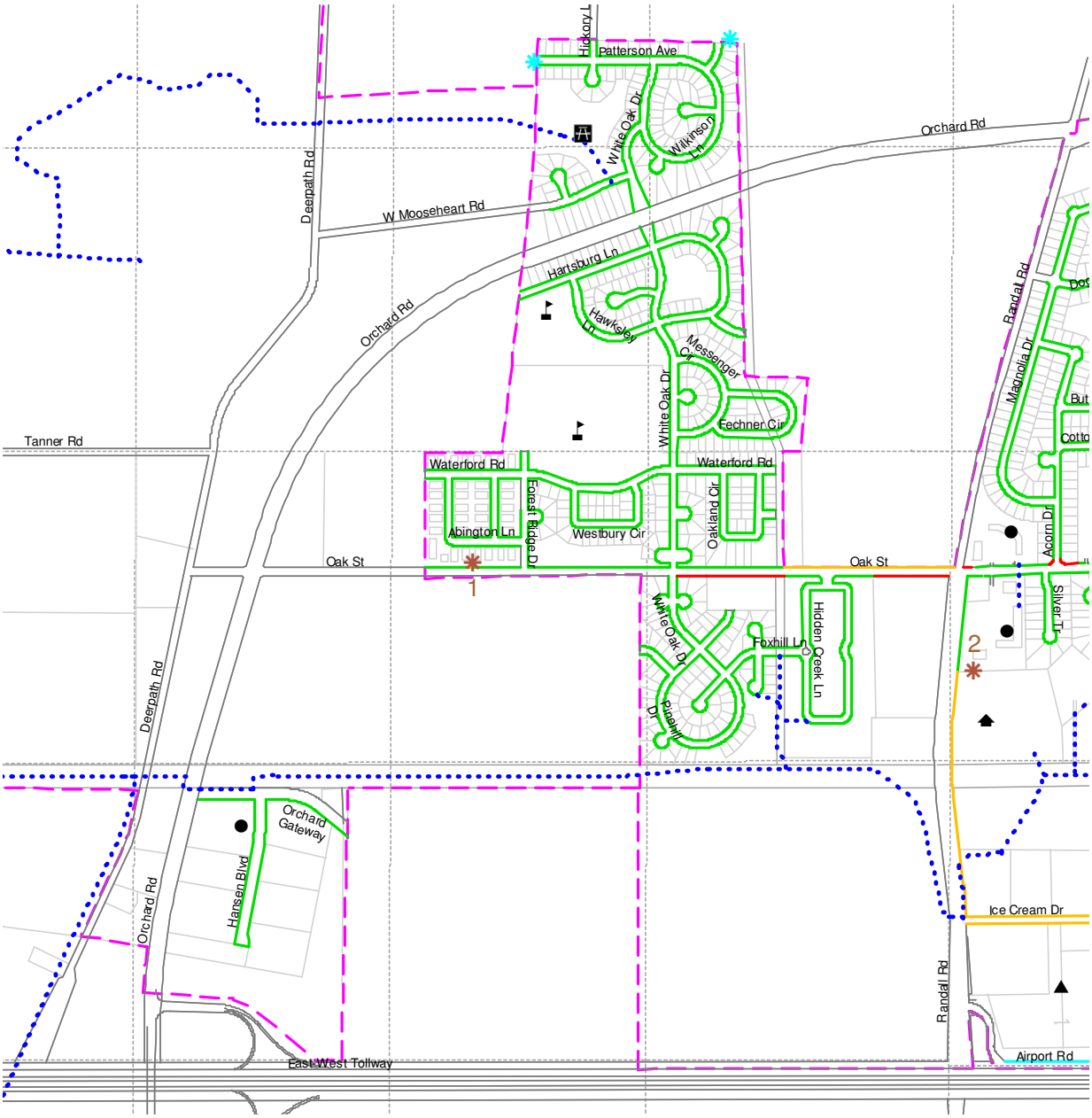


Figure 2(c)
Existing and Proposed Sidewalks
West Sector



Intersections and Crosswalks

Intersection design is extremely important for the safety of pedestrians. Several features that guide pedestrians, improve their visibility, or reduce their crossing distances include:

- Marked crosswalks, described below.
- Pedestrian signals at stoplights, with pedestrian activation buttons.
- Curb cuts/ramps, in accordance with the Americans with Disabilities Act.
- Pedestrian medians and refuge areas, in particular cases.
- Curb extensions or "bulb-outs" – but not at the expense of bicyclist space on the road.
- Smaller corner curb radius. The loss in turning radius for long trucks can be compensated by using wider outside lanes, which accommodate bicyclists.

Marked crosswalks should be provided at intersections with a significant number of pedestrians. Crosswalks channel pedestrian traffic through intersections, and heighten motorists' awareness of possible pedestrian crossings. The Manual on Uniform Traffic Control Devices gives criteria for installing crosswalks, based on traffic and pedestrian volumes[11]. The MUTCD also provides design guidance and examples. High visibility designs are recommended, particularly for the higher priority crosswalks in the maps of Figure 3. Potential bicycle use increases the need for high visibility crosswalks. In addition to MUTCD suggestions, the Kane County Division of Transportation can be consulted for new techniques. Another idea, borrowed from sidewalk intersections with residential driveways, is to use cement sidewalks to cross asphalt commercial entrances. Besides increased visibility, it delivers the message that pedestrians belong and have the right-of-way.

The three maps of Figure 3 show the Village's "Existing and Proposed Crosswalks." Included in the maps are:

- Existing and proposed sidewalks.
- Existing crosswalks (mainly around school areas).
- Proposed crosswalks, with an assigned priority based on criteria below.
- Existing and proposed trails.
- Significant local destinations.

Those proposed crosswalks with "High" or "Highest" priority should use high visibility techniques. These are primary crossings for pedestrians and many Class B/C bicyclists, usually at arterials and collectors or near schools. Crosswalks with "Medium" or "Lower" priority are at lesser residential streets. Traditional, parallel stripes may be enough to accommodate these crossings, if crosswalks are implemented at all. Suggested crosswalks for proposed sidewalks are not shown on the map, but crosswalk decisions can be based on these same prioritization factors.

Other Pedestrian Facilities

Pedestrian refuge areas, like raised medians, can be important for large, multilane intersections. They allow a resting area for slower pedestrians to cross one direction of traffic at a time, if they cannot make it across the whole intersection in the time allotted. In this case, they can reduce the overall delay to motor vehicles. Intersections with crossing distances over 75 feet – like crossings of Randall

Figure 3(a)
Existing and Proposed Crosswalks
East Sector

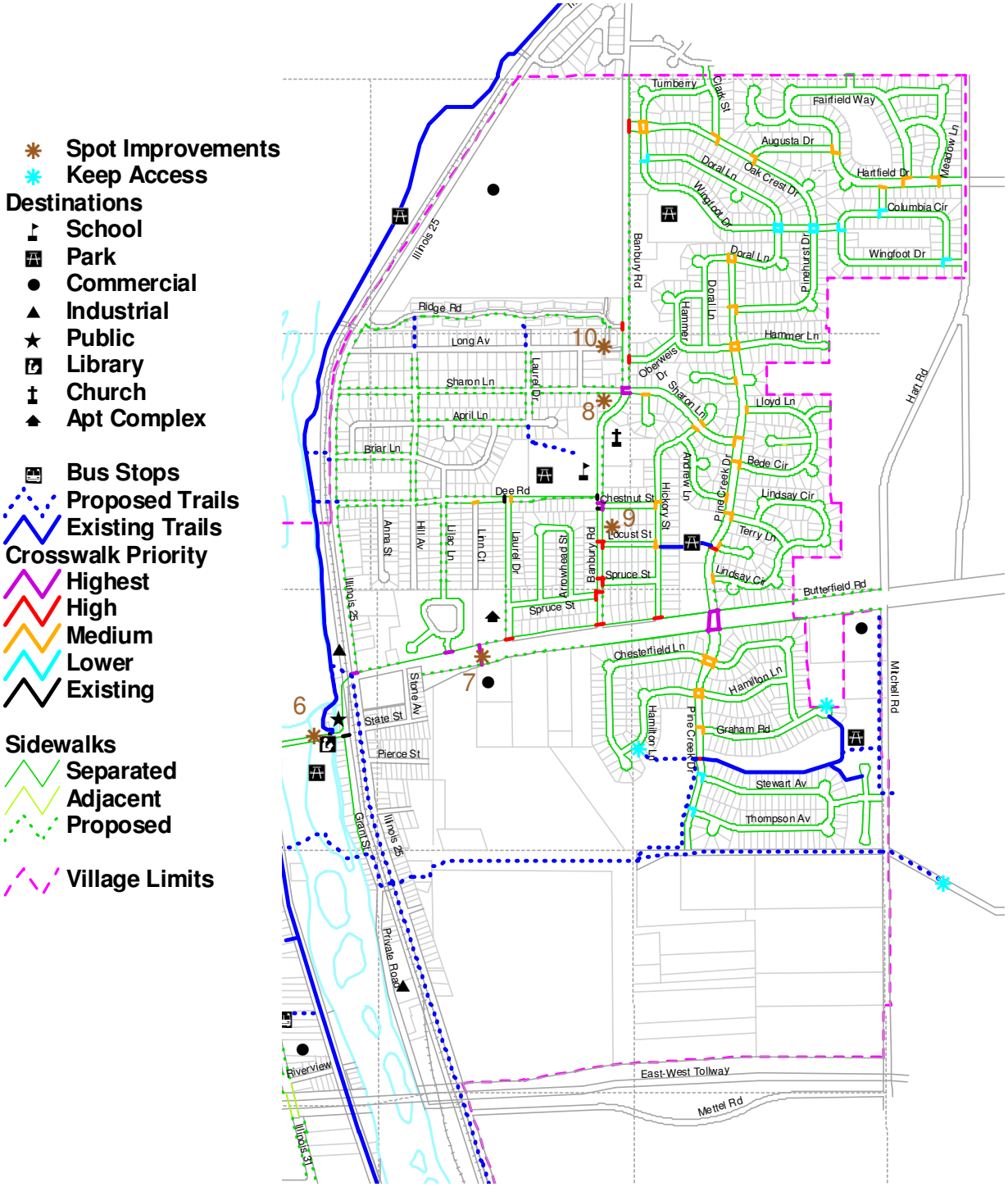


Figure 3(b)
Existing and Proposed Crosswalks
Central Sector

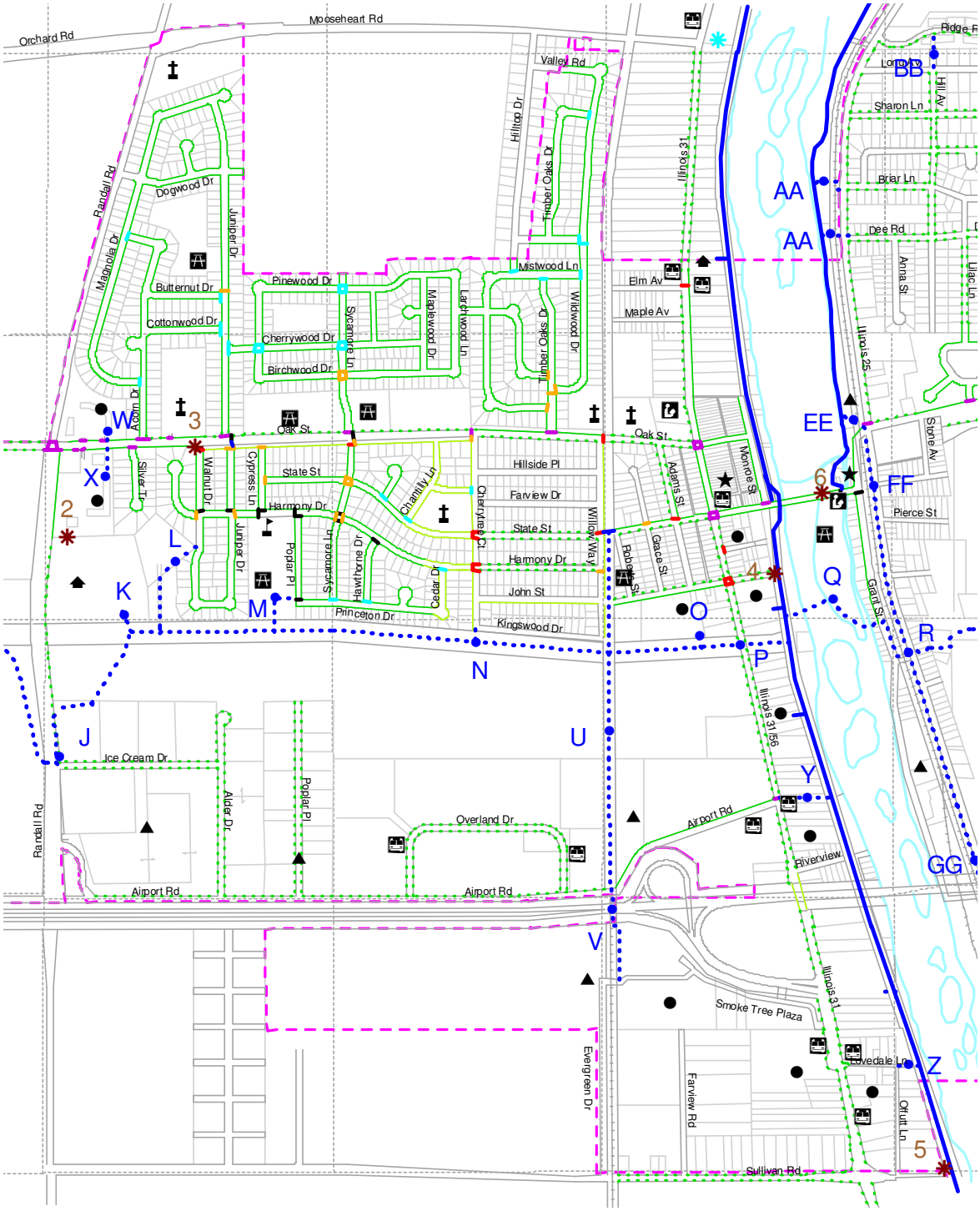
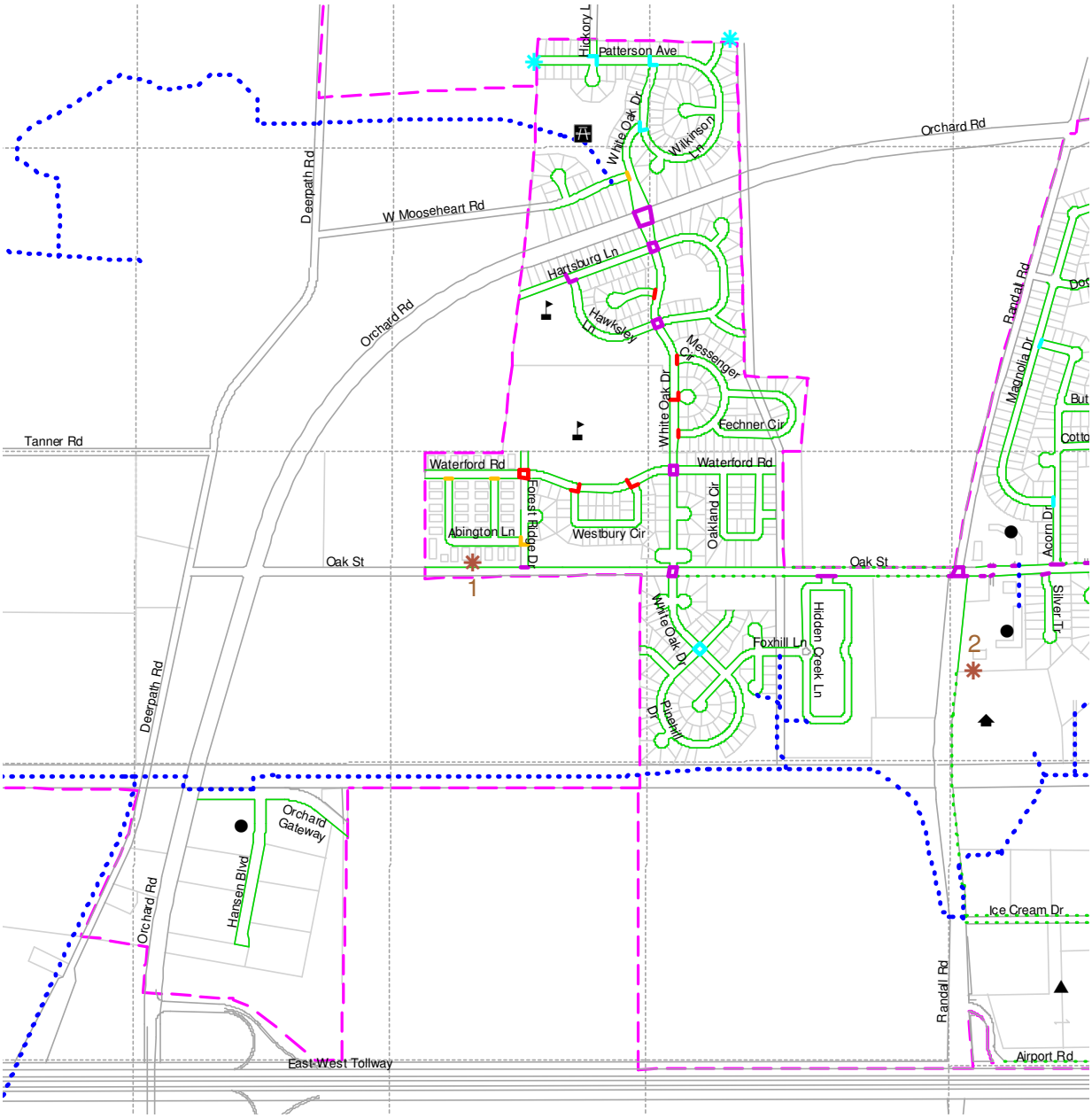


Figure 3(c)
Existing and Proposed Crosswalks
West Sector



and Orchard - are prime candidates for pedestrian refuge areas. Additionally, refuges should be considered at major trail crossings, such as those specified for the proposed ComEd trail.

Midblock crossings should generally be discouraged unless any of these conditions apply:

- Frequent pedestrian crossings already occur, or are anticipated due to a new development;
- The land use is such that a pedestrian is highly unlikely to cross the street at an adjacent intersection, and when midblock crossings would be frequent;
- Spacing between adjacent signals exceeds 600 feet.

A popular midblock crossing is anticipated at Butterfield, between the Butterfield Trails apartment complex and the new strip mall across the street. A pedestrian refuge is recommended there.

Grade-separated crossings are very expensive. They should only be considered at carefully selected locations where there is high pedestrian demand to cross an expressway or other high-speed or high-volume roadway. An overpass is recommended for the proposed ComEd trail crossing of Illinois 31, but this opportunistic improvement should be done as part of the roadway's scheduled reconstruction. Eventually, overpasses may become justified to replace crossings at intersections, for the proposed ComEd trail at Randall and Orchard. A possible need could develop for an overpass of Orchard just west of White Oak, so the residential areas north of Orchard could access Fearn and Jewell schools.

Specific pedestrian concerns have been raised by the Village's school principals. At Schneider School, problems exist for pedestrians crossing Banbury Road at arrival and departure time. Principal Cheng has recommended that parking be banned – and the curb painted yellow – on the east side of Banbury by the school. Also, appropriately timed flashing yellow lights are needed on the two school zone speed limit signs on Banbury. Additional enforcement would deter violators of this school speed zone and Banbury's stop sign at Chestnut-Dee. The crosswalks at that intersection need to be re-painted and improved. Principal Brusak of Goodwin School has requested consideration of stop signs at key crossings of Cherrytree, and more visible school crossing signs (or flashing lights) for the designated Oak Street crossings at Sycamore and Juniper.

Trail Proposals

The "Existing Bicycle Conditions and Proposed Trails" maps (Figure 1) include footnote references along the proposed trails. Details of these trails are described here, referencing the map locations. Included are a suggested priority, time frame, and cost range for *North Aurora's anticipated contribution*. An estimated trail project cost is $55/ft[7], but certainly, other factors can reduce (or increase) this cost. When relevant, possible partnering agencies for the North Aurora sections are listed.

Far West Subdivision Trails

Medium priority, medium-range, no cost (paid by developers)

A series of trails and sidepaths are proposed for subdivisions currently being planned in the far western part of the city. On the east, this trail system would connect to a new park at White Oak Drive and West Mooseheart Road (A). The trail would cross Deerpath Road at an entrance to the proposed Wiseman-Hughes subdivision. It would connect to sidepaths within Neumann Homes' Tanner Trails subdivision (B), currently under review. These sidepaths would connect to Tanner Road and also the western edge of the subdivision, not far from Lake Run and a potential "Mid-County Trail" being considered by the Kane County Forest Preserve District. Finally, it is recommended to reserve right-of-way between the northernmost road in Tanner Trails, on the western edge of the proposed retention pond, to Seavey Road (C). This link would allow bicyclists and walkers to access Seavey Road and a large Forest Preserve holding without using Deerpath Road, which has a poor bicycle suitability. Potential partners: developers, Batavia Park District, Fox Valley Park District

White Oak/NICOR corridor

Low priority, long-range, low cost (for the on-street alternative)

A NICOR easement runs from the ComEd easement to the north. The park districts of Batavia and (especially) Geneva are considering a possible trail along this right-of-way. If this occurs, then a connection to the proposed ComEd trail would be very desirable. However, due to the difficult crossings of Orchard Road and Oak Street (and the huge cost of bridges or tunnels), the on-street alternative of White Oak Drive is recommended – perhaps with a painted bike lane. To allow this possibility, a small right-of-way link from the easement to Cromwell Street (D) should be preserved during any future development. Any future stoplights installed at the White Oak intersections with Orchard and Oak should include pedestrian push-button and bicycle on-street activation, along with high-visibility crosswalks and appropriate signal timing. The connection to the ComEd trail is technically possible with one of two short links: south along the NICOR easement from Foxhill Lane (E); or from the end of Creekside Court, along the north and east edges of the retention pond (I). A short link could also be made to Hidden Creek Lane. Potential partners: None.

"Mid-County Trail" Connections

High priority, long-range, medium cost

The Forest Preserve District of Kane County is acquiring open space for a possible north-south "mid-county" greenway and trail system. Preliminary plans call for use of a re-constructed Deerpath Road bridge over I-88, and for acquisition of land near the western planning boundary for North Aurora.

Connection to the proposed ComEd trail would be critical to link the Mid-County Trail with the Fox River Trail and the Illinois Prairie Path regional network. It is recommended that any North Aurora development along Deerpath (F) include a trail link from the Deerpath bridge to the ComEd easement. Also, it is recommended to protect the possibility of trail development along the ComEd easement from Deerpath west to Lake Run (G), as this section may become part of the Mid-County Trail. Potential partners: Developers, Kane County Forest Preserve District, Fox Valley Park District.

ComEd trail

Highest priority, medium to long-range, very high cost

The main recommendation of this plan is the development of a major east-west trail, roughly following the ComEd right-of-way across the entire North Aurora planning area. Such a trail would provide the best east-west route through the Fox Valley area, connecting the Mid-County Trail, the Fox River Trail, and potentially the Illinois Prairie Path's Batavia Spur. Many accesses to North Aurora neighborhoods would make this a valuable transportation and recreation amenity for the Village. The intersection of the ComEd trail and the Fox River Trail, with the "trailhead" combined-use area recommended in the Route 31 revitalization plan, would be a major community focal point.

The ComEd right-of-way has a major crossing of Orchard Road at Orchard Gateway (H). It is recommended that the proposed stoplight at this intersection be designed to handle an adjacent trail crossing on its north side, including ped and bike activation, ped signals with sufficient timing, high-visibility crosswalks, a smaller turning radius from Orchard Gateway westbound to Orchard Road northbound, and possibly a pedestrian median area. The eventual solution for this trail crossing would be a bridge, which would be justified at this location.

East from Orchard Road, the trail is recommended to parallel Orchard Gateway – with an access to Hansen Blvd. – until the road turns southeast. The trail should then follow the ComEd right-of-way until it approaches Randall Road. The aforementioned linkages to Pinehill Drive (I) and Foxhill Lane (via the NICOR easement, E) provide access for far western subdivisions.

The trail should "detour" south to cross Randall Road at the new Ice Cream Drive signalized intersection (J), to be constructed in 2001. It is recommended to construct that intersection for a trail crossing on its north side, with the same techniques recommended for the Orchard Road crossing. East of Randall, the trail should return north to the ComEd right-of-way. The exact routing of the detour south to Ice Cream Drive will be affected by right-of-way and wetlands issues. Also, the trail on at least one side of Randall should be significantly offset from the road, to discourage mid-block crossings at the ComEd right-of-way. Eventually, it may be desired to build a bridge over Randall, further increasing safety and eliminating the extra distance of the detour to Ice Cream Drive.

Proceeding east, the trail should include short linkages to provide access to nearby neighborhoods, including the Courtyard Village West apartments (K), Walnut Drive (along an existing right-of-way, L), Schneider School and park (M), Cherrytree Court (N), and Willow Way – at an intersection with a proposed trail on the abandoned Burlington Northern right-of-way. Another connection should be made to the extension of Adams Street (O). Just to the east of this, the right-of-way elevation drops significantly to the river. The top of this slope would be an excellent, panoramic location for a viewing area, with benches and landscaping.

Teska Associates, Inc., the consultant agency planning re-vitalization of the Illinois 31 corridor, offers some recommendations in agreement with this plan. Teska recommends development of the ComEd trail, with a grade separation at Illinois 31, a mixed-use trailhead area between IL31 and the river, and connection to the Fox River Trail (P). The significant slope complicates the design. A bridge and gentle switchbacks may be the best treatment, but further study is needed.

A trail bridge is recommended between the Fox River Trail and Fox Valley Park District's island park, north of the ComEd trail intersection, where the river is narrower (Q). This bridge would increase the popularity of both the island park and the proposed trailhead area. It would likely see heavy pedestrian traffic, so a widened bridge is recommended – similar to the newer, easternmost bridge in Batavia's island park system. The trail should proceed to the southern tip of the island and a small bridge to the east bank, where some grading is needed to rise to the street level.

The trail is recommended to cross the railroad tracks and Illinois 25 along the north side of the Grant Street crossing (R). First, it should cross Grant Street at the ComEd right-of-way, north of Grant Street's turn to the east. This minor mid-block crossing will be made safer if Grant Street becomes a one-way street, as has been proposed. Some grading is needed to bring the trail to the Grant Street crossing of the railroad tracks. The non-signalized crossing of Illinois 25 should include high-visibility crosswalks and warning signs (possibly with flashing lights) along the street.

After crossing Illinois 25, the trail should be routed to minimize impact on the existing developments along the road, then follow the ComEd easement east. Fences are recommended on the quarry side of the right-of-way. When the right-of-way turns south, the trail should continue east along Feltes Road. At the intersection of Feltes and Pine Creek Drive (S), the trail could take one of two routes, depending on a possible connection to the Illinois Prairie Path, through Aurora. If no IPP connection is possible, then the trail should use Pine Creek to an existing neighborhood east-west trail. If the trail becomes more regional, then it should continue along the old Feltes right-of-way to Mitchell Road, providing a buffer from the future development directly south.

Aurora or the Fox Valley Park District may have interest in continuing the trail (T) towards either the Illinois Prairie Path's Batavia Spur or Aurora Branch. It is recommended that North Aurora work cooperatively with these agencies on this project. Such a connection would dramatically increase the regional significance of the ComEd trail, creating the best east-west trail from DuPage County's trail system to future Kane County trails to the west. The Batavia Spur can be linked through mostly undeveloped land, although sidepaths along Corporate Drive may be used to take advantage of intersections with Church and Farnsworth Roads. An existing NICOR easement might be used.

Development of this whole trail would require partners including Fox Valley Park District, Kane County Forest Preserve District, Kane County Department of Transportation, Illinois Department of Transportation, and ComEd. The trail is recommended to be paved, especially from Orchard Road to Illinois 25. A 10-foot width is recommended to adhere to AASHTO and to accommodate ComEd service vehicles without crumbling the edges. The phasing of the project should be opportunistic, when possible:

- The Randall Road/Ice Cream Drive intersection work will enable the segment from Orchard Gateway to Willow Way to be constructed first.
- Reconstruction of Illinois 31 should include the recommended trail bridge as part of the project, helping to reduce the local share. IDOT design policy allows for this.

- Development of the trailhead should include the west and east bridges to the island. Afterwards, the segment east to Chesterfield should be constructed.
- Development of the parcels between the river and the Airport Road/Illinois 31 intersection will likely precede Illinois 31 reconstruction. If so, then this development should include access from the intersection to the Fox River Trail (Y). This link, along with a trail along the old Burlington Northern right-of-way (U, next section) and the existing Airport Road sidewalk, allows a ComEd to Fox River Trail connection until the long-range solution is complete.

Abandoned Burlington Northern Right-of-way trail

High priority, short-range, medium cost

The abandoned railroad right-of-way extends from Airport Road north through the village. Just north of Airport Road, it has been absorbed by an access road for a multi-unit industrial development. It is recommended to construct a paved, 10-foot wide, 0.3-mile trail from John Street to the northern end of the industrial driveway (U). The link, already used informally, would safely connect the west side of North Aurora with its industrial areas and possibly the Fox River Trail (Y). A lower priority extension of this trail could connect with a short bike/ped path over the right-of-way at State Street. A possible partner MIGHT include the Fox Valley Park District, especially if Erickson Mini-Park is expanded.

Currently, the railroad uses the right-of-way to a point just north of its bridge over the tollway. It is recommended to continue negotiations for purchase or use of this bridge for a trail connecting to the Smoke Tree Plaza area (V). Once over the tollway, the trail could leave the railroad right-of-way, paralleling it on the east to the road. Again, this segment is already used informally.

Miscellaneous Trail Links

(W) – A short sidewalk link is recommended from the Oak Street north sidewalk to the southeast corner of the adjacent strip mall, where a bicycle rack is also recommended. This is preferable to the main strip mall parking lot entrance, nearby to the west. Medium priority, short-range, low cost.

(X) – Another short sidewalk link access and bicycle rack is recommended between the Oak Street south sidewalk and the strip mall south of Oak Street. This could easily go in back of the car wash, to the northeast corner of the strip mall. Medium priority, short-range, low cost.

(Y) – As mentioned previously, when the parcels between the river and the Airport Road/Illinois 31 intersection are developed, a short trail or access to the Fox River Trail is recommended. High priority, short-range, low cost.

(Z) – A connection from Lovedale Lane to the Fox River Trail is very desirable, especially with the nearby commercial development and signalized intersection at Illinois 31. The availability of this right-of-way, and opposition to its use, are in question. An alternative is to use a link to Sullivan Road, Offutt Lane, and Lovedale Lane, possibly with signage at the trail. High priority, medium-range, low cost.

(AA) – Pedestrian and bicycle access from the near northeast neighborhoods to downtown and the Fox River Trail East is severely lacking. A trail link from either Dee Road or Briar Lane to the Fox River Trail is recommended. Dee Road makes more sense geographically, but difficulty in implementing

sidewalks along Dee Road may necessitate the use of Briar Lane. Given the cost, the moderate traffic conditions of Illinois 25, and the right-of-way and engineering challenges, at-grade crossings of Illinois 25 and the railroad are recommended instead of a bridge or tunnel. AASHTO standards, including trail crossing signage and highly visible crosswalks, should be followed. A parallel descent to the railroad is needed, along with a new railroad crossing, grading of the berm immediately west of the tracks, and a slight descent to the trail through Fox Valley Park District land. Jeff Palmquist of FVPD has expressed preliminary interest in the trail, and would likely request his board to allow this connection by North Aurora. Highest priority, short-range, medium cost.

(BB) – It is recommended to either extend Hill Avenue to Ridge Road, or to construct a short trail segment there. Low priority, medium-range, low cost.

(CC) – It is also recommended to construct a short trail link between Ridge Road and Long Avenue at Laurel Drive. This link provides an alternative to the busier Banbury Road area, especially for school children traveling from the new Ridge Road townhomes to Schneider School. Currently a homeowner is using part of this right-of-way. High priority, medium-range, low-cost.

(DD) – It is recommended to construct a sidewalk or trail from April Lane/Court, through the reserved right-of-way easement, to the school property and park area. Again, this is part of an alternative route for school children going to Schneider School. It is recommended to build (at least) the segment on the narrow easement immediately, before home construction on April Court proceeds. High priority, short-range, low-cost.

(HH) – It is recommended to construct a sidepath along the west side of Mitchell Road from the new strip mall at Butterfield Road south to the new Chesterfield park on the east end of that subdivision. This sidepath should connect with the subdivision trail ending in that park. A link connecting the sidepath to the southeast part of the stripmall is recommended, with a bicycle rack there. Medium priority, medium-range, medium cost.

Illinois 25 trail

Low priority, long-range, high cost

The Fox River Trail East ends at State Street. South of State Street, homes and an industrial area prevent a riverside trail. While not a Fox Valley Park District priority at this time, an extension to the Fox River Trail East could be diverted to the land between the railroad and Illinois 25, from State Street to Clearwater Drive (GG). South of Grant Street, the trail would have to be brought closer to Illinois 25 because of a sloping elevation.

It is recommended to take opportunistic steps to preserve this possible trail corridor. If the Sperry industrial area becomes available, an access from the existing trail to the present Illinois 56 railroad crossing should be established (EE). If the Illinois 25/56 intersection is moved south, with an Illinois 56 underpass of the railroad, then the tunnel should be built to allow a trail crossing overhead (FF) just east of the tracks. (Assumed is that the present railroad crossing of Illinois 56 would become available for a trail crossing.) Construction of a Com Ed trail at Grant Street would increase the priority of the trail, from Grant Street to State Street. Possible partners: Illinois Department of Transportation, Fox Valley Park District.

Arterial and Collector Road Recommendations

Methodology

The following section looks at current bicycling conditions and needs for each major road in the Village's planning area. Depending on these factors, priority is given for any recommended improvements, and specific facility types are suggested.

Some improvements can be opportunistic – to be done when the road is being expanded or redesigned anyway. This significantly reduces costs. Higher-priority projects should be more proactive, part of a dedicated capital improvement program. These include roads:

- Scoring red or black bicycle suitability ratings for both the roadway and the sidewalk/sidepath, if it exists;
- Providing unique access (no alternatives) to significant destinations or Village areas.

The recommended facility type generally depends on factors including:

- Available right-of-way and cost;
- Whether there is a demand by pedestrians or Class B (and even C) bicyclists – a function of the destinations served and alternative routes;
- Best potential sidepath suitability score;
- Roadway suitability score.

When there is enough pedestrian or Class B bicyclist demand, sidepaths will be recommended for cases with a medium/high sidepath suitability and low/poor roadway suitability. The accompanying on-road facility should be either wide outside lanes or paved shoulders/bike lanes, depending on available right-of-way. For low Class B demand and/or unsuitable sidepath corridors, sidepaths will not be recommended for bicycles. Available right-of-way (or acquisition cost) again makes the determination between wide outside lanes or paved shoulders/bike lanes. For medium roadway suitability, wide outside lanes are sufficient. For high roadway suitability, no special bike facilities are needed.

Specific Road Recommendations

Butterfield Road is the most important road on the east side, so its sidewalk gaps and poor bicycle suitability present significant barriers to pedestrians and bicyclists. Recent, localized road modifications have added medium-width paved shoulders.

Highest Priority – Build 6-7 ft. sidewalks to close gaps on the north side, and create highly visible crosswalks, especially at Illinois 25, Woodland Lakes, and Pine Creek Drive. Include ped signals as part of the Illinois 25/56 project. Medium Priority – Build 6-7 ft. sidewalks on the south side, where missing from Uncle Pat's to Mitchell Road. Opportunistic – Most of the Butterfield right-of-way is very wide, allowing for 5' to 8' paved shoulders if an expansion to four lanes is done. Include a raised pedestrian median between the apartment complex and new strip mall near Laurel Drive.

Hart/Mitchell Road has recently become more important with a new stoplight and strip mall at Butterfield. The road has low to poor roadway suitability and no sidewalks. Much of Hart Road is presently outside of North Aurora.

Medium Priority – Build an 8 ft paved sidepath along Mitchell from the new strip mall to the entrance to Chesterfield, connecting with the subdivision trail. If the old Feltes Road right-of-way is used for an east extension of the ComEd trail, then extend the sidepath to it. Opportunistic – As development occurs along the road, build 6 ft. sidewalks. If the road is reconstructed, add wide outside lanes or 5 ft. paved shoulders, depending on right-of-way.

Banbury Road mixes Schneider School traffic with traffic traveling to the northeast side, and from westbound Illinois 56 to northbound Illinois 25. Roadway suitability for bicycling is high to medium, but student pedestrian issues are important.

High Priority – Improve crosswalk visibility at the intersections near the school. Sidewalks need to be completed between Oberweis and Sharon. Add flashing yellow lights on the school zone warning signs north and south of Schneider. Medium Priority – Finish the sidewalk on the east side between Oak Crest and Oberweis. Low Priority – Finish the two east side sidewalk gaps between Sharon and Butterfield. Opportunistic – Where paved shoulder/turn lanes are missing between Sharon and Thornecrest, add 2 ft. of paved width.

Illinois 25 has low to poor roadway suitability and no sidewalks. The Fox River Trail parallels Illinois 25 north of Butterfield, but trail access is lacking. The near northeast side is severely lacking good bicycle and pedestrian access to downtown. Grant Street is a medium suitability road paralleling Illinois 25 south of Butterfield, but destinations along 25 are inaccessible from Grant Street.

Highest Priority – Build a short trail link between either Dee or Briar and the river trail. At-grade crossings of the railroad and Illinois 25 are appropriate. High Priority – Build sidewalks on the east side from Butterfield to Dee (or Briar). Medium Priority – Build sidewalks on the east side from Dee to Ridge. Low Priority – Build a paved sidepath between 25 and the railroad tracks from Butterfield to Grant, further if the Park District wants to continue an east river trail south into Aurora. Opportunistic – Reconstruction of 25 should include 4-5 ft. paved shoulders between Briar and Grant, 5-8' paved shoulders between Grant and Mettel.

Illinois 31 is paralleled by the Fox River Trail, but many residences and businesses can not be accessed from the trail. Roadway suitability is low to poor. Sidewalks with low suitability exist between John and Elm on the east side, and between Oak and State on the west side. South of State, parking for the many businesses blurs the space for pedestrians. (Since major roadwork is already in the planning stages, "opportunistic" improvements will be given priorities.)

High Priority – Teska's plan for the corridor reconstruction includes sidewalks, which are necessary for pedestrians. However, the abundance of residential and commercial driveways makes these sidewalks unsuitable for most bicycle travel – especially south of Oak. Five-foot bicycle lanes would be ideal here, but already there is a severe lack of right-of-way. Wide outside curb lanes are recommended, with a lane configuration of 11&13 ft. or 12&14 ft. Addition of a trail bridge at the ComEd right-of-way is recommended during road reconstruction. Pedestrian-activation is needed at the stoplights, especially at Airport Road and Lovedale Lane. Medium Priority – Construct 6 ft. sidewalks where missing north of Oak Street.

Sullivan Road has low roadway suitability and no sidewalks, west of Illinois 31. It provides unique access to many destinations to the west. East of 31, it is a minor connector street, with some unofficial accesses to the Fox River Trail. However, Aurora is planning to build a bridge there.

Medium Priority (with Aurora) – Build sidewalks west of 31. Opportunistic – Ensure that the bridge project positively affects the trail, with a grade separation and access from the trail to sidewalks and wide outside lanes along Sullivan.

Airport Road has medium roadway suitability and sidewalks only from Illinois 31 to the old railroad right-of-way. The road serves many industrial locations. Access to this area is now difficult, but a short trail connection between 31 and the Fox River Trail is possible.

High Priority – Improve the Airport Road and Illinois 31 intersection for a trail crossing on its north face. Include pedestrian activation and highly visible crosswalks. Medium Priority – Build 6-7 ft. sidewalks on the north side of Airport from the old railroad right-of-way to Alder. Opportunistic – Wider outside lanes (1 or 2 ft. more) are recommended with any roadwork.

State Street between Illinois 25 and 31 is the only river crossing in town and thus a vital corridor. Sidewalks are heavily used by cyclists and pedestrians, especially on the north side of the bridge, between the trails on each side of the river. Suitable paved shoulders exist on the bridge and east to Grant. West of the bridge, the road has three lanes and a low suitability for bicycles. Shoulders exist on the north side (only), but they are interrupted by pedestrian curb bulbs. Bicyclists and pedestrians crossing the State/31 intersection – especially the east and north faces – must contend with a very high volume of turning traffic. This is the primary crossing of 31 through town – a hazard for all non-motorized travel to the west.

Highest Priority – Create high visibility zebra-style crosswalks at the State/31 intersection and other intersections between 31 and Grant. Consider moving the north face crossing of State/31 closer to State. Consider adding a pedestrian-only phase to the stoplight timing, with ped-activation. Also, taper the sidewalk bend just east of the bridge, as described in Spot Improvement #6. High Priority – Paint crosswalks at the State/Adams intersection and the Willow Way crossing at the trail link extension of State. This is a significant east-west non-motorized route, an alternative to Oak Street. Opportunistic – Physical constraints may prevent this, but consider adding 4-5 ft. bike lanes if State is ever reconstructed from the bridge to 31 – especially if a separate pedestrian signal phase is ruled out at State/31. Make sure to follow AASHTO's recommendations on lane striping as State approaches 31, to reduce conflict with right-turning traffic.

Oak Street is North Aurora's main arterial on the west side. Oak has low roadway suitability east of Randall. Sidewalks on this stretch have low to poor suitability for bicycles, mostly due to gaps and unmarked crosswalks. East of Cypress, Oak's frontage road and State provide alternatives for east-west travel, but accessing Timber Oaks, the new library site, and other destinations is a problem. West of Randall, Oak has suitable paved shoulders except on the far west, and eastbound approaching Randall. Finishing sidewalk gaps and creating visible crosswalks would result in highly suitable sidepaths. The eastbound gap near Randall is a problem, and the intersection needs crosswalks.

Highest Priority – Build 6-7 ft. sidewalks at the gaps on the north side near Juniper, Acorn, and east of Randall. Build a 6-8 ft. sidewalk to close the south side gap between Hidden Creek and Randall. Create highly visible zebra-style crosswalks at all intersections – including retail entrances near Randall. High Priority – Build missing sidewalk gaps between Juniper and Illinois 31, possibly as part of the upcoming Oak Street continuous-left turn lane project. Build

a 6-8 ft. sidewalk from the Hidden Creek subdivision to White Oak. Add pedestrian signals to the Oak/Randall stoplights. Add paved shoulder at the short, eastbound gap approaching Randall. Medium Priority – Build a 6-8 ft. sidewalk on the north side west from Randall to the existing sidewalk. Opportunistic – Maintain the paved shoulders if Oak is expanded. When Oak is re-routed to meet Tanner, include paved shoulders and sidewalks, like the current cross-section at White Oak. Add wide curb lanes or paved shoulders during the left-turn lane project east of Randall.

Mooseheart Road has low roadway suitability except for suitable paved shoulders just east of Randall. There are no sidewalks and few destinations. There is an interesting potential to connect the Fox River Trail and Randall/Orchard via Mooseheart Road. Most of the road is currently outside Village limits.

Opportunistic – If Mooseheart is reconstructed and the adjacent land is developed, a continuation of the paved shoulders would be appropriate, and sidewalks should be added.

Randall Road has suitable paved shoulders – except for rumble strips near Randall – from the Courtyard Apartments to the north. South of that, the road has poor suitability. Sidewalks exist only near new development at the southeast corner of Oak/Randall.

Highest Priority – Include pedestrian signals with ped-activation and possibly a pedestrian-only phase with the upcoming Randall/Ice Cream drive intersection reconfiguration. This will serve the future ComEd trail, recommended to cross at the north face of the intersection. Medium Priority – Finish the east side sidewalk – with highly visible crosswalks – from Oak to Ice Cream Drive. Low Priority – Remove rumble strips near the Oak/Randall intersection. Opportunistic – Maintain paved shoulders during any expansion. If Randall is expanded over the tollway, add 8 ft. paved shoulders on the ample right-of-way.

Orchard Road has suitable paved shoulders over its entire length. Currently, no sidewalk/sidepath exists. These are not a priority until development, likely commercial, occurs along Orchard.

High Priority – Create highly visible crosswalks at White Oak, adding a pedestrian signal and activation. Opportunistic – When a stoplight is added at Orchard Gateway, include highly visible crosswalks, ped signal and activation, and possibly a raised median refuge, especially on the intersection's north face. This will serve the future ComEd trail, recommended to cross at the north face of the intersection. Include crosswalks, ped signal and activation at each future stoplight. Preserve the paved shoulder, including the shoulders at intersection approaches.

Deerpath Road has low roadway suitability south of Oak, poor suitability north of Oak, and no sidewalks. Alternative routes include Orchard's shoulders to the south and White Oak/Hickory to the north.

Opportunistic – Paved sidepaths would have a high suitability here. A possible tollway bridge reconstruction project should accommodate the future "Mid-County Trail" with paved shoulders, at least, and possibly barrier walls.

Tanner Road has low roadway suitability due to traffic speed and moderate volume. Tanner becomes more important with the upcoming Neumann homes development and re-routing of Oak to meet Tanner.

Opportunistic – A cross section similar to Oak Street (west of Randall) is recommended as the ideal solution, especially with available right-of-way.

Orchard Gateway (new) – Both this road and the proposed ComEd trail will connect the auto mall to the Randall Road/Ice Cream Drive intersection.

Opportunistic – Sidewalks and possibly a 13' outside curb lane would be sufficient to access local destinations along this road.

Funding Opportunities

There are currently three major funding sources for the construction of bicycle and pedestrian facilities. Other funding sources are possible for both pedestrian and bicycle improvements[7].

Illinois Transportation Enhancement Program (ITEP)

This program provides grants to public agencies for projects that serve a transportation need. "Provision of facilities for bicycles and pedestrians" is one of ten broad categories eligible for the 80% federal contribution and 20% local match. The Illinois Department of Transportation administers this program, which has recently averaged $20 million annually – over half typically going to bike/ped projects. State and federal guidelines must be followed during design and construction. Many communities have had difficulties in meeting these standards, and long approval delays have been common. The program has already allocated funds through Fiscal Year 2003. Continuation of the program after that time is dependent on reauthorization of the TEA-21 federal transportation bill.

Congestion Mitigation and Air Quality (CMAQ)

This program is another 80% federally-funded program as part of TEA-21, but funds are still available for annual funding cycles. The program is administered through IDOT with the Chicago Area Transportation Study (CATS) performing technical analysis. It provides grants to agencies for projects that will lead to quantifiable reductions in auto emissions and/or traffic congestion. Like ITEP, bike/ped projects compete with other categories. In addition to trails and bike lanes, a bike rack program is currently being funded regionally, through CMAQ.

Illinois Bicycle Path Grant Program

This program, funded by the Illinois Department of Natural Resources, provides grants to agencies for off-road bicycle trail construction and right-of-way acquisition costs. Annual funding has averaged $3-4 million, with a proposal deadline of March 1. The state reimburses 50% of engineering and construction costs, up to a state share maximum of $200,000. Because of the popularity of the program, IDNR has been restricting their project approvals to those projects that would extend or complete missing links in a major off-road bicycle path. The required design standards and approval process are considerably simpler than the federal programs.

Other Sources

There are other options available for funding projects with bicycle and pedestrian components. Kane County Council of Mayors administers the federal Surface Transportation Program for road construction costs, and the Traffic Control Measure program for traffic signals and safety items. The state-allocated Motor Fuel Tax funds can be used for pavement striping or repairs and standard MUTCD signage. Also, there are developer contributions, riverboat funds, Congressional discretionary spending, and partnerships with other agencies, including the Fox Valley Park District and the Kane County Forest Preserve District. Finally, Village general funds can finance portions of the program, including local matches for the grants listed above. An annual bike/ped capital improvement budget is recommended to implement this plan using its suggested priorities.

Questions for review of roadwork and developments

The following lists of questions summarize many of the points of this plan, and can be used as a guide to ensure that new development and roadwork encourage non-motorized transportation.

Residential Developments

- Are sidewalks with curb cuts included, according to Village ordinance?
- Are high visibility crosswalks being added at arterial and collector intersections, or near schools? Are simpler, parallel line crosswalks appropriate at any other intersections?
- Would neighborhood trails provide a desired enhancement for the development? If sidepaths or trails are to be included, have they and their intersections been designed according to AASHTO? Have techniques been used to minimize the sidepath suitability score?
- Are there opportunities for cut-throughs for bikes and pedestrians, to shorten distances to roads inside or outside the subdivision? Have right-of-ways been preserved for these?
- Will the development be isolated (to biking and walking) from other parts of town, because of an unsuitable arterial/collector road lacking alternatives? If so, can funds from the land/cash ordinance be used to finance an improvement?
- For multi-family or apartment developments, will some amount of bike parking be provided?

Commercial Developments

- Are sidewalks with curb cuts included, according to Village ordinance? Are the commercial driveways' intersections with the sidewalks designed to give the clear message that pedestrians (or bicyclists in some cases) have the right-of-way and may potentially be crossing?
- Is there adequate bike parking near the entrances? Is it easy for bicyclists and pedestrians to get from the road or sidewalk, through the parking lot, to the entrances?
- Are nearby roads' suitability, paved shoulders, pedestrian crossings, or other features being worsened as a result of the development? Can design improvements be made?

Road Projects

- For arterial and collector roads listed in this plan, have the specific recommendations been considered? Has the AASHTO guide been followed? Are rumble strips omitted?
- Especially for roads with no nearby alternatives or providing unique access to destinations, does the design optimize the roadway and (where applicable) sidepath suitability scores?
- Are intersections and traffic signals designed to accommodate bicycle and pedestrian traffic? Do pedestrian curb bulbs pinch space used by bicyclists, forcing them into the travel lane? Are there pedestrian signals and activation, with adequate crossing time?
- For projects sponsored by an agency with bicycle and pedestrian accommodation policies – like IDOT – have recommendations from this plan been used to justify bike and pedestrian components of that agency's design?

Appendix A – Road Suitability for Bicycles

The following chart rates a road's suitability for bicycle travel[12]. In addition to rating existing roads, it can be used as a planning tool during the design of road projects. Developed by the Chicagoland Bicycle Federation (CBF) for its regional bicycle map, the CBF measure closely resembles other national measures of road suitability. It is based on three variables:

1. **Traffic speed –** measured by the posted speed limit.
2. **Traffic volume** – measured by ADT (Average Daily Traffic) per lane.
3. **Width of outside lane** – measured by the lane width, plus any paved shoulder width (free of rumble strips) under 4 feet. Roads with paved shoulders with width of 4 feet or more are specially marked on this plan's maps.

The chart details three levels of suitability. The colors are related to suitability level by:

Color	Suitability
Green	High suitability
Yellow	Medium suitability
Red	Lower suitability
Black	Not recommended (poor)

Roadway Suitability for Bicycle Travel

	Very Low ADT/lane (under 500)	**Low ADT/lane (500-1250)**	**Medium ADT/lane (1250-5000)**	**High ADT/lane (above 5000)**
30 mph & under Speed Limit	All widths = green	All widths = green	12' or more = green <12' = yellow	12' or more = yellow <12' = red
35 - 40 mph Speed Limit	All widths = green	12' or more = green <12' = yellow	12' or more = yellow <12' = red	12' or more = red <12' = Not recommended
45 - 50 mph Speed Limit	12' or more = green <12' = yellow	14' or more = green 12-13' = yellow <12' = red	14' or more = yellow 13' = red <13' = Not recommended	14' or more = red <14' = Not recommended
55 mph Speed Limit	12' or more = green <12' = yellow	14' or more = green 12-13' = yellow <12' = red	14' or more = red <14' = Not recommended	Not recommended, without paved shoulders

Any paved shoulder width less than 4 feet is added to the lane width. Roads with paved shoulders with width of 4 feet or more are specially marked.

Appendix B – Sidepath Suitability Algorithm

The following algorithm rates the suitability of a sidewalk or sidepath as a bicycle facility. (A sidepath is a trail parallel to, but separated from, a roadway) In addition to rating existing sidepaths, it can be used to plan safety improvements for new or existing sidepaths. At present, no such nationally-accepted suitability index exists. This algorithm was developed using design issues described in the AASHTO Guide for the Development of Bicycle Facilities.

The factors considered are: intersection traffic, continuity, curb cuts, pedestrian use, crosswalks, and path/road separation at intersections. For a particular segment, add the following terms:

1) Intersection Traffic Score. The volume and speed of motor vehicular traffic – especially turning traffic – directly affect the risk of collision. Determine the intersection traffic score *X* from the following:
   *X = [R+(2*A)+(4*B)] / M * [Spd*Vol];*

   Where:
   R = Number of residential intersections (driveways) on the segment,
   A = Number of minor commercial intersections and streets (<1000 ADT),
   B = Number of major commercial intersections and streets (>1000 ADT),
   M = Length of segment in miles
   Spd = Speed limit factor, for the parallel street: 0-30 mph = 1, 35-40 mph = 2, 45+ mph = 3.
   Vol = Traffic volume factor, parallel street: <2,000 ADT = 1; 2,000-10,000 = 2; >10,000 = 3.

   Add the following number of points for the intersection traffic score *X*.

X	**Points**
0	0
1-40	1
41-80	2
81-120	3
121-160	4
161-200	5
201-240	6
>240	7

2) Continuity. Discontinuities (major gaps, or sidepath ends) may force cyclists to ride through grass, etc., and enter the roadway awkwardly. Cyclists will often avoid sidepaths with these gaps. Add **4 points** if major discontinuities exist.

3) Curb cuts. Uncut curbs compromise cyclist movement and attention at intersections. Add **3 points** if any intersections are lacking curb cuts.

4) Pedestrian use. Sidewalks and sidepaths are used by both bicyclists and pedestrians. Insufficient width increases user conflict. (However, extra width encourages higher cyclist speeds – which becomes a problem at incorrectly-designed intersections.) Add points according to the following chart:

Low (rare) ped use	Medium (sometimes) ped use	High (often) ped use
<= 5' - **1 point**	<=5' - **2 points**	<=5' - **4 points**
> 5' - **0 points**	6-7' - **1 point**	6-7' - **2 points**
	>=8' - **0 points**	>=8' - **1 point**

5) Crosswalks. Visible crosswalks can help make motorists more aware of non-motorized traffic. Sometimes two parallel painted stripes are sufficient. At busier intersections, "ladder" or "zebra"crosswalks and other techniques enhance visibility. Add **2 points** if there are no crosswalks. Add **1 point** if there are some crosswalk markings, but more visibility is warranted for that intersection type. Add **0 points** for appropriately marked crossings. Take the worst-case crossing for the segment.

6) Intersection sidepath/road separation. AASHTO recommends that sidepaths be brought closer to the parallel road at intersections, so motorists more easily see and consider bicyclists during their approaches. The vehicular stop line should be in back of the sidepath crossing – cyclists must not weave through stopped traffic when crossing. Add **5 points** if the crossing goes through stopped traffic. Add **3 points** if the crossing is not brought "close enough" to the parallel road. Add **1 point** when the crossing is brought close to the road. (Paved shoulders and bike lane crossings – 0 points.) Again, take the worst-case crossing for the segment.

Add together all the points for the sidepath suitability score. Ranges of suitability are:

Suitability Score	Suitability	Color on Map
<= 7	High suitability	Green
8-9	Medium suitability	Yellow
10-11	Low suitability	Red
>= 12	Not suitable (poor)	Black

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