VILLAGE OF ORLAND PARK

2040 TRANSPORTATION PLAN

OCTOBER 2013

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ACKNOWLEDGEMENTS

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Chapter 1
INTRODUCTION

The Village of Orland Park has experienced a rapid population growth over the past decade. It has grown approximately 11 percent in the past ten years to 56,800 residents. It is expected to grow another 25 percent to about 70,000 residents in the next few decades. Significant transportation improvements will be needed to meet the demands of the growing community and a comprehensive plan is required to tackle those needs.

Orland Park's Comprehensive Plan states that over the next two to three decades, "the Village will work to develop and implement a dynamic and interconnected transportation system that creates a unique community identity, continues to increase access for all modes of transportation, mitigates congestion, and promotes safety." The purpose of the **Orland Park 2040 Transportation Plan** is to assist in that development. This Plan will

- Create a useful, implementation-based document that will prioritize and guide transportation policy decision-making
- Set the future groundwork for mobility improvements throughout the Village.
- Educate the residents of Orland Park on transportation issues.

CHICAGO METRO REGION

PROJECT OVERVIEW

This Transportation Plan serves as an Appendix to the Village's 2013 Comprehensive Plan as it is based on the principles, recommendations, visions and goals established in the Mobility & Access section. It is based on a 27 year planning horizon to the Year 2040 in order to correspond with GO TO 2040, Chicago Metropolitan Agency for Planning's (CMAP) comprehensive regional plan that encompasses Metropolitan Chicago's seven counties and 284 communities including Orland Park. The Plan begins with an analysis of existing and future conditions of the entire Village transportation system. It concludes with over 150 prioritized improvement recommedations and associated cost estimates, as well as specific guidelines to be applied to Orland Park's network. Exhibit 1 references the context of the study area.

IMPETUS FOR A TRANSPORTATION PLAN

The Village of Orland Park, while working on the Comprehensive Plan, identified the need for a more in-depth study of its transportation system as it was determined that traffic and transportation issues are at the "top of the list" when it comes to residents' concerns.

» Transportation issues are seen as the second biggest obstacle for the Village to overcome in the next 5-10 years.

» Approximately 62 percent of survey respondents identified transportation as the desired target for any additional tax revenue generated.

» Related to transportation, Orland Park residents are most concerned with traffic congestion, traffic flow, pedestrian and bicycle safety and access, connections, road maintenance, speeding, landscaping, and appearance.

» Over one third of all survey respondents identified transportation as the top improvement needed in the Village.

» The three transportation characteristics receiving the least positive ratings in the Village were traffic flow on major streets, ease of car travel, and ease of bus travel within the Village.

» Residents rate "ease of car travel" and "traffic flow on major streets" in Orland Park significantly below national survey benchmarks.

» Mean travel time to work for Orland Park residents is 35 minutes for those working within Orland Park, as well as outside Orland Park.

» Residents rate rail travel and availability of paths and trails significantly above national survey benchmarks.

Sources:
Economic Development and Marketing Survey, Village of Orland Park, 2007
Comprehensive Plan Survey, Village of Orland Park, 2010
The National Citizen Survey, Village of Orland Park, 2012
U.S. Census Bureau, Orland Park Village, Census 2000 Summary File

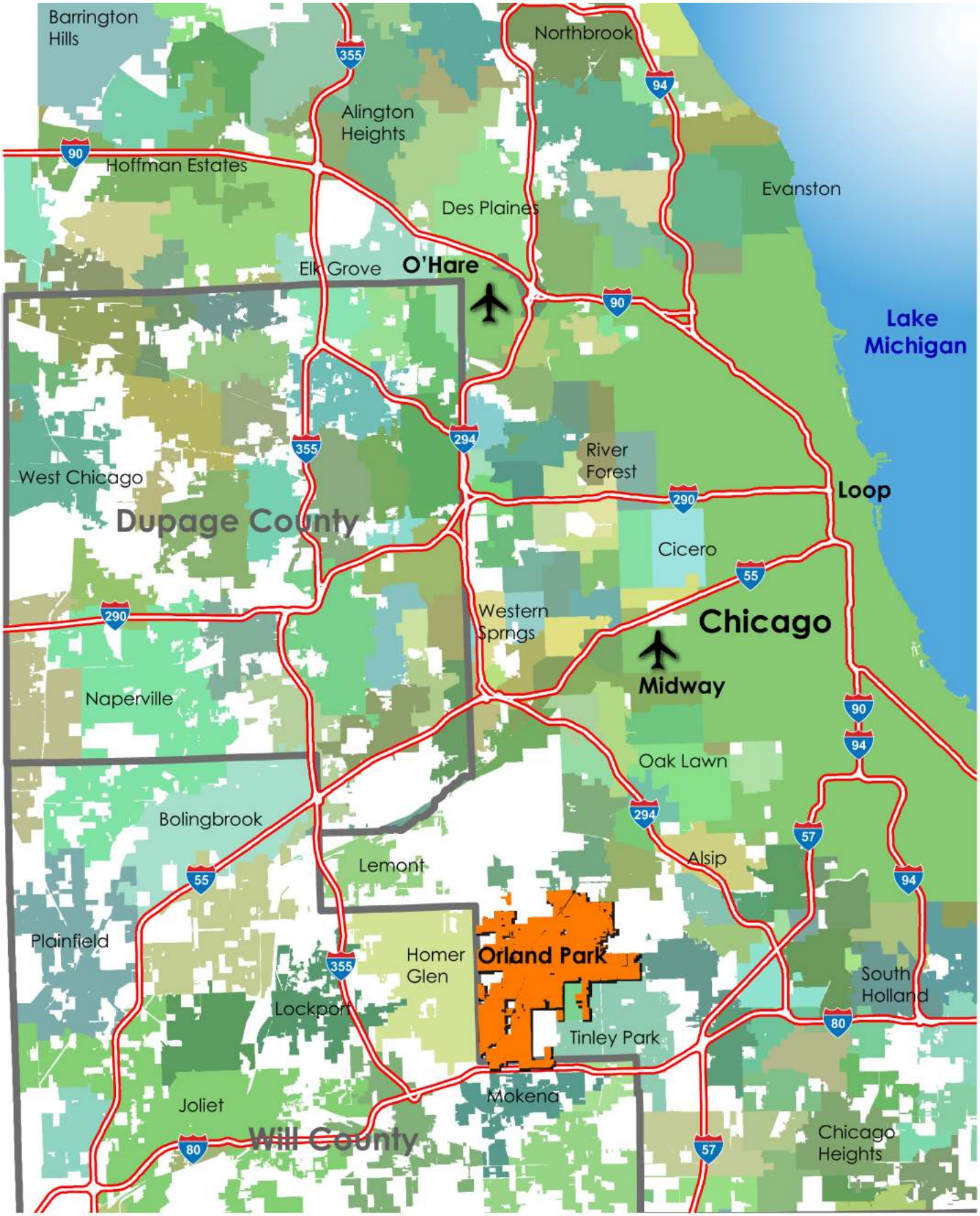


Exhibit 1
Context Map

GOALS & OBJECTIVES

The following Goals and Objectives were developed for the Village's transportation system as part of the Mobility & Access section of the 2013 Comprehensive Plan. As the foundation for its development, this Transportation Plan uses the these Goals and Objectives, as well as the action Items, from the Comprehensive Plan.

Goal 1ACCOMMODATE

The Orland Park transportation network will accommodate all users, including but not limited to, vehicles, trucks, pedestrians, bicycles and transit.

Objectives:

1.1. A connected and well planned road network will provide efficient and safe trave for vehicles.

1.2. Mass transit in Orland Park will provide a true alternative to driving to meet the needs of residents, visitors and employees.

1.3. Pedestrians will enjoy safe access to all publicly accessible spaces as well as key destinations like transit stations, shopping areas and employment centers.

1.4. Orland Park residents will be able to reach any destination within the Village via a connected bikeway system.

Goal 2 INTEGRATE

The transportation network will integrate with the community in a manner that supports adjacent land uses, helps define community character, and protects natural features.

Objectives:

2.1. Transportation planning will be built upon a collaborative and multi-disciplinary approach.

2.2. Transportation planning will include a regional approach.

2.3. The transportation network will include contextual zones that relate to adjacent land uses, enhance the quality of life and define community character throughout the Village.

2.4. A comprehensive wayfinding program will provide clear direction and guidance to all modes of travel in Orland Park.

Goal 3 MITIGATE CONGESTION

Mitigate traffic congestion to maximize access and mobility within and through the Village.

Objectives:

3.1. Areas of significant congestion will be targeted for priority improvements.

3.2. Orland Park will identify and prioritize specific areas for roadway improvements and expansions in the Village.

3.3. Orland Park travelers will be able to reduce automobile trips through trip consolidations, ridesharing, and alternative transportation modes.

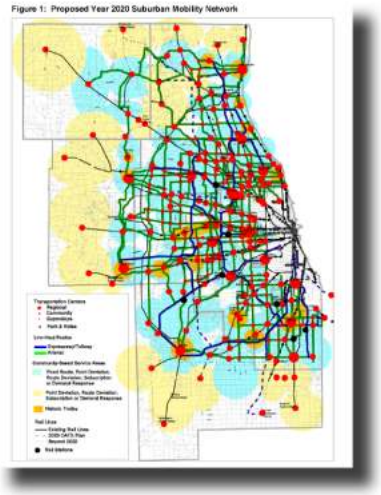
Goal 4 SAFETY

Maximize traffic safety within the transportation network.

Objectives:

4.1. The Orland Park transportation network will provide safe access within and around the Village.

4.2. Orland Park will provide equal accessibility for all users by utilizing principles of Universal Design, the Illinois Accessibility Code and the Americans with Disabilities Act (ADA) Standards for Accessible Design.



REVIEW OF PAST STUDIES & PLANNING EFFORTS

Over the past five years, Orland Park has participated in a number of specific transportation projects including corridor studies, the IDOT LaGrange Road widening project, and drafting of the Mobility & Access section of the Comprehensive Plan which entailed a detailed internal review of the existing conditions of Orland Park's transportation network.

Considering these and many other past studies and plans, this Transportation Plan also references other planning documents (shown below) and information in an effort to achieve a complete vision for the Village.

Roadway

- LaGrange Road
- Wolf Road
- 143rd Street
- 159th Street
- Various Intersection Design Studies
- Illinois Transportation Plan

Trail & Bike

- Southwest Conference of Mayors, 2012 Bicycle Plan
- South Suburban Bicycle Plan 2008
- Cal Sag Trail
- Village of Orland Park Bikeway Map

Corridor Studies

- I-80 Corridor Study
- Harlem Avenue Corridor Plan
- LaGrange Road Corridor Plan
- 159th Street Corridor Plan

Transit

- Metra Connects, "STAR" Line
- Pace 2020 Vision Plan
- Regional Transportation Authority – Mapping and Statistics
- Comprehensive Plans
- CMAP GO TO 2040 Plan
- Village of Orland Park 2013 Comprehensive Plan DRAFT
- 1997 Comprehensive Plan

Development

- Village of Orland Park Strategic Economic Plan
- Triangle Development Plan
- Various Village Subarea Plans

Rail

- Illinois Freight Mobility Plan
- Illinois Rail Plan

EXISTING CONDITIONS REPORT

The first step of the Transportation Plan was an existing conditions assessment that provided essential insight into community character, transportaion system conditions, and issues and needs. The analysis relied on the Village's Access & Mobility section of the Comprehensive Plan, staff direction, field reconnaissance, previous work in the Village, professional expertise and past plans and information. A complete Existing Conditions Report was prepared and distributed for discussion. The findings are in large part a base for this analysis and final report.

Village of Orland Park

Chapter 2

TRANSPORTATION SYSTEM PROFILE

This section establishes the baseline of current conditions in the Village to give the reader context. It includes maps and exhibits to provide a synthesis of the transportation system and give an organizational framework to the proceding recommendations.

Orland Park's transportation system is an integrated network of facilities that works as a whole to help move people and goods. It has played a key role in shaping its character and development and will continue to do so in the future. The Village is situated within a robust transportation network consisting of transit service, regional and local roads, bikeways, and pedestrian facilities. Vehicles have traditionally dominated the Orland Park transportation system, which also serves freight, public transit commuters, pedestrians, and bicyclists.

The Village, located approximately 25 miles southwest of downtown Chicago, provides excellent regional access, boasting easy access to the interstate system via a roadway network hierarchy from local roadways to major arterial thoroughfares connecting to east-west Interstate 80, the recently completed Interstate 355 tollway extension, Interstate 294 tollway, and Interstate 57. US 45 (LaGrange Road), is the main thoroughfare through the heart of Orland Park, connecting to Interstate 55 and Interstate 80.

Orland Park is served by three commuter train stations, via the Metra Southwest Service line. Additional trains on the Rock Island line are available in nearby Tinley Park and Mokena. Orland Park is served by Chicago Midway Airport and O'Hare International Airport. Pace operates four fixed route bus services through Orland Park connecting to major county destinations and the transportation hub at Midway Airport. Another option includes a Pace Park and Ride provided by the Orland Township and Public Works. A community trails and bikeway system is in place to connect residents with the transit system and other community and regional destinations.

ROAD JURISDICTION

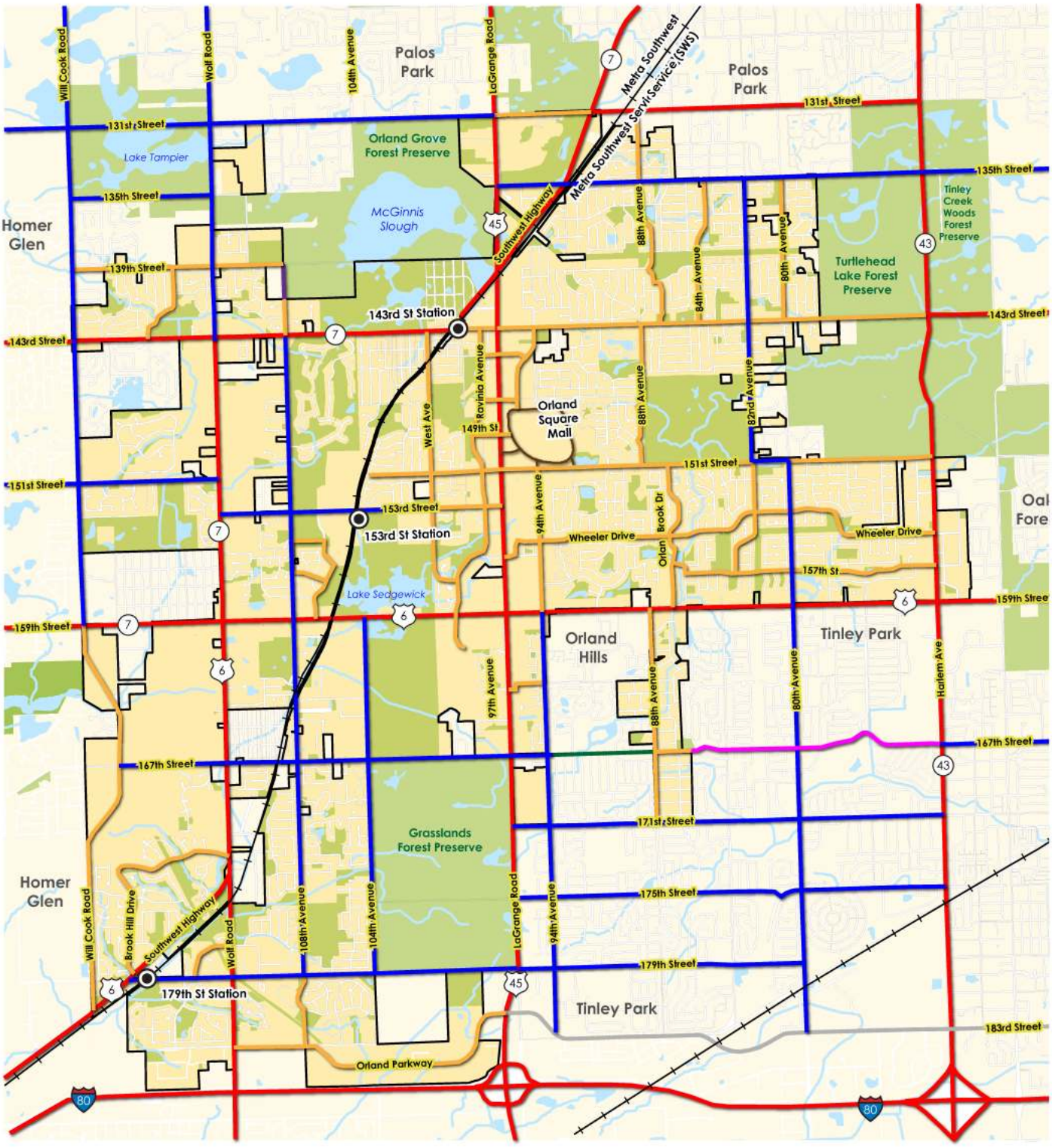
Orland Park is served by a system of roadways under the jurisdiction of the State of Illinois (IDOT), Cook County, Orland Township, and the Village of Orland Park. With several roads or road segments outside of the Village's jurisdiction, its ability to make improvements, control access, or unify roadway character is a challenge and requires cooperation and coordination between these entities. Traffic control devices, an important component of public safety and efficient traffic movement, will also require cooperation and coordination due to the fact that the Village only maintains traffic signals on their own roadways. Maintenance and improvements to Harlem Avenue, LaGrange Road, Wolf Road, Southwest Highway, 143rd Street, and 159th Street fall under the jurisdiction of IDOT. Additional roads such as 80th Avenue, 82nd Avenue, a large part of 94th Avenue, 104th Avenue, 108th Avenue, 167th Street, and 179th Street are among those under the jurisdiction of Cook County Highway Department.

The Village engages in constant contact with these agencies, as well as Palos and Orland Townships and neighboring communities, to ensure that roadway improvements are made that promote efficient and effective vehicular, bicycle, and pedestrian circulation, and are aligned with the Village's plan for a balanced transportation system. Exhibit 2 illustrates the governing jurisdictions of the Village's roadway network.

EXISTING TRAFFIC

The traffic demand of the area was obtained from a number of sources including the Illinois Department of Transportation (IDOT). The average daily traffic (ADT) on roadways throughout Orland Park is shown in Exhibit 3. These ADTs were collected in 2009-2012 by IDOT and Orland Park. The major travel corridors within the Village include LaGrange Road (US 45), Harlem Avenue (IL 43), and 159th Street (US 6), all carrying 30,000 vehicles or more per day.

Truck traffic also has a significant impact on Orland Park's transportation network. LaGrange Road, Harlem Avenue, 143rd Street, and 159th Street are all IDOT Class II truck routes. LaGrange Road is the dominant corridor, carrying over 2,000 trucks per day.



MAP LEGEND

- Creeks
- Water Bodies
- Open Space
- Village Boundary

Road Jurisdictions

- Illinois Department of Transportation
- Cook County Highway Department
- Village of Orland Park
- Township
- Village of Orland Hills
- Village of Tinley Park
- Major Private Street

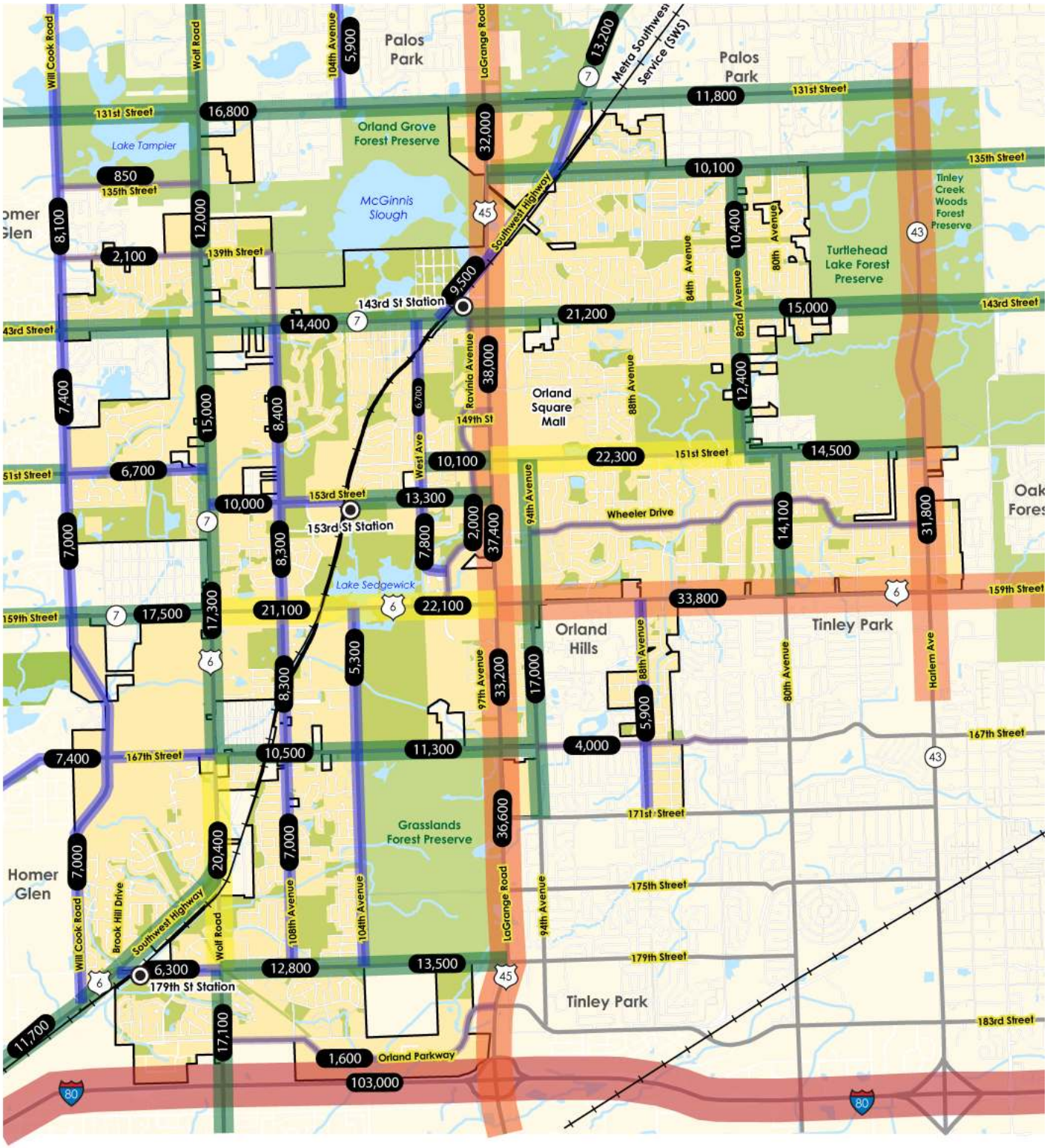
North

0

1 inch = 1 M

Exhibit 2

Orland Park Roadway Jurisdiction



MAP LEGEND

- Creeks
- Water Bodies
- Open Space
- Village Boundary

Traffic Volume (Vehicles per Day)

- X,XXX Daily Volumes
- 0 - 5000 Vehicles
- 5001 - 10,000 Vehicles
- 10,001 - 20,000 Vehicles
- 20,001 - 30,000 Vehicles
- 30,001 - 40,000 Vehicles
- 40,001+ Vehicles

Source: IDOT 2009-2012 Traffic Data

North

0

1 inch = 1 M

Exhibit 3

Existing Average Daily Traffic

FUTURE TRAVEL DEMAND

A key step in the Plan was to forecast future traffic demands based on projected growth in population and employment. The locations within Orland Park where there is expected to be significant growth resulting from land use changes and development were determined by discussions with Village staff. Year 2040 traffic forecasts were requested from the Chicago Metropolitan Agency for Planning (CMAP) in conjunction with their GO TO 2040 Comprehensive Plan. CMAP traffic projections are based on existing ADT data, along with results from the March 2012 CMAP Travel Demand Analysis. This model uses 2040 socioeconomic projections and assumes the implementation of the GO TO 2040 plan. The following are planning factors based on specific growth information within the Village.

- The Village is projected to ultimately grow in population approximately 25 percent from 56,800 to about 70,000 by 2040. It has the potential to accommodate over 5,000 traditional residential units in the southwestern part of the community and both the 143rd and 153rd Street Metra stations have the potential for additional transit-oriented multi-family units.
- The I-80 Corridor is the Village's primary opportunity for large-scale office employment and it has the potential to accommodate approximately 2,500,000 square feet of office development.
- The Wolf Road Corridor has the potential for approximately 1,000,000 square feet of small-scale office.
- Retail development in the Village will be focused along the LaGrange Road, 159th Street and the Harlem Avenue corridors. However, most development will be infill or higher density redevelopment.

Exhibit 4 shows the projected 2040 ADT volumes provided by CMAP.

PERFORMANCE ANALYSIS

Performance measures were established to evaluate the ability of the roadway network and its components within the Village of Orland Park now and in the future. A detailed technical evaluation was used to determine system conditions for both the existing and 2040 conditions. Two primary criteria were used to analyze the performance of the system and are discussed below.

- Congestion
- Traffic Safety

Congestion

Congestion is identified in terms of Level of Service (LOS). Average delay and speed, as well as other more minor factors, are key components used in determining the LOS for a roadway. The various stages of LOS are as follows:

- Design Standard (LOS C)
- Moderate Congestion (LOS D)
- Severe Congestion (LOS E)
- Extreme Congestion (LOS F)

Level of Service for roadway links in Orland Park was determined using a method prepared by the Florida Department of Transportation (and allowed for use by IDOT) in conjunction with the Highway Capacity Manual.

Existing Conditions

Congestion on the existing roadway network based on 2009-2012 ADTs and is shown in Exhibit 5.

Year 2040 Conditions

Congestion for future Year 2040 roadway conditions, based on projected ADT is depicted in Exhibit 6. The LOS was determined based on the process previously discussed using the projected future traffic volumes from CMAP and planned roadway improvements.

The main locations of extreme congestion include

- LaGrange Road from Southwest Highway to 151st Street
- 159th Street from Wolf Road to LaGrange Road.
- 151st from LaGrange Road to 82nd Avenue
- 82nd Avenue from 143rd Street to 151st Street

Most of these locations will undergo roadway widening and/or addition of turn lanes to accomodate projected traffic demands.

Other key findings from the LOS analysis include:

- LaGrange Road is projected to have a significant increase in traffic demand on top of already high ADTs. Though the traffic model prediction may be realistically unreachable, LaGrange Road is planned to be built out to a maximum capacity of an urban arterial (six travel lanes with turn lanes).
- The analysis makes clear that there is a north-south capacity deficiency throughout the Village. The widening of Wolf Road will increase capacity but congestion will persist along LaGrange Road unless another through alternate is introduced to the system such as a new I-80 interchange at Wolf.
- Approximately 85-95 percent of traffic on Orland Park's critical corridors is considered through traffic with origins and destinations outside of the Village (Source: CMAP). Accordingly, it can be expected that as many as 9 out of 10 peak hour motorists on LaGrange Road may traverse the Village without stopping at any shopping venues along the corridor.

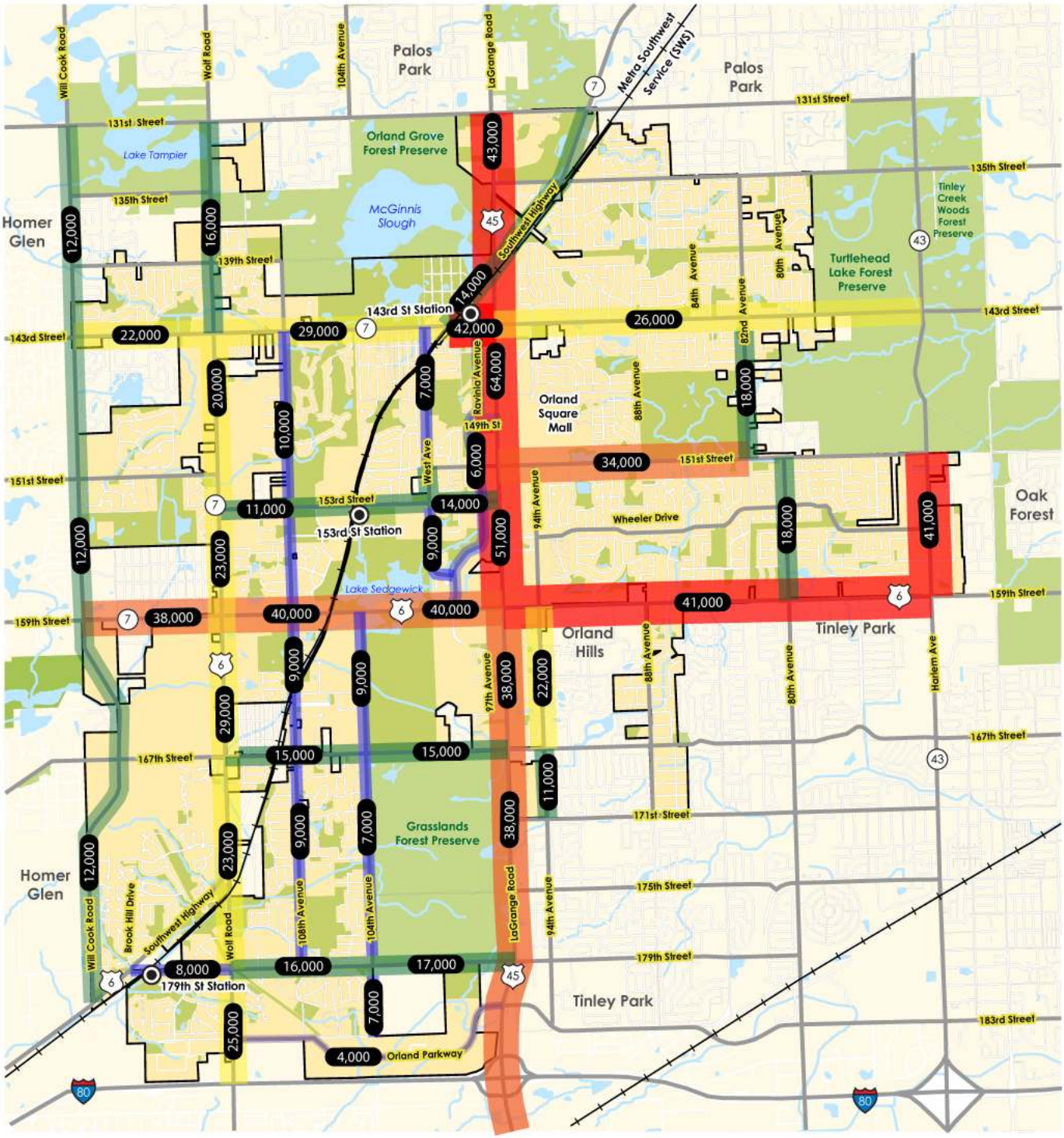
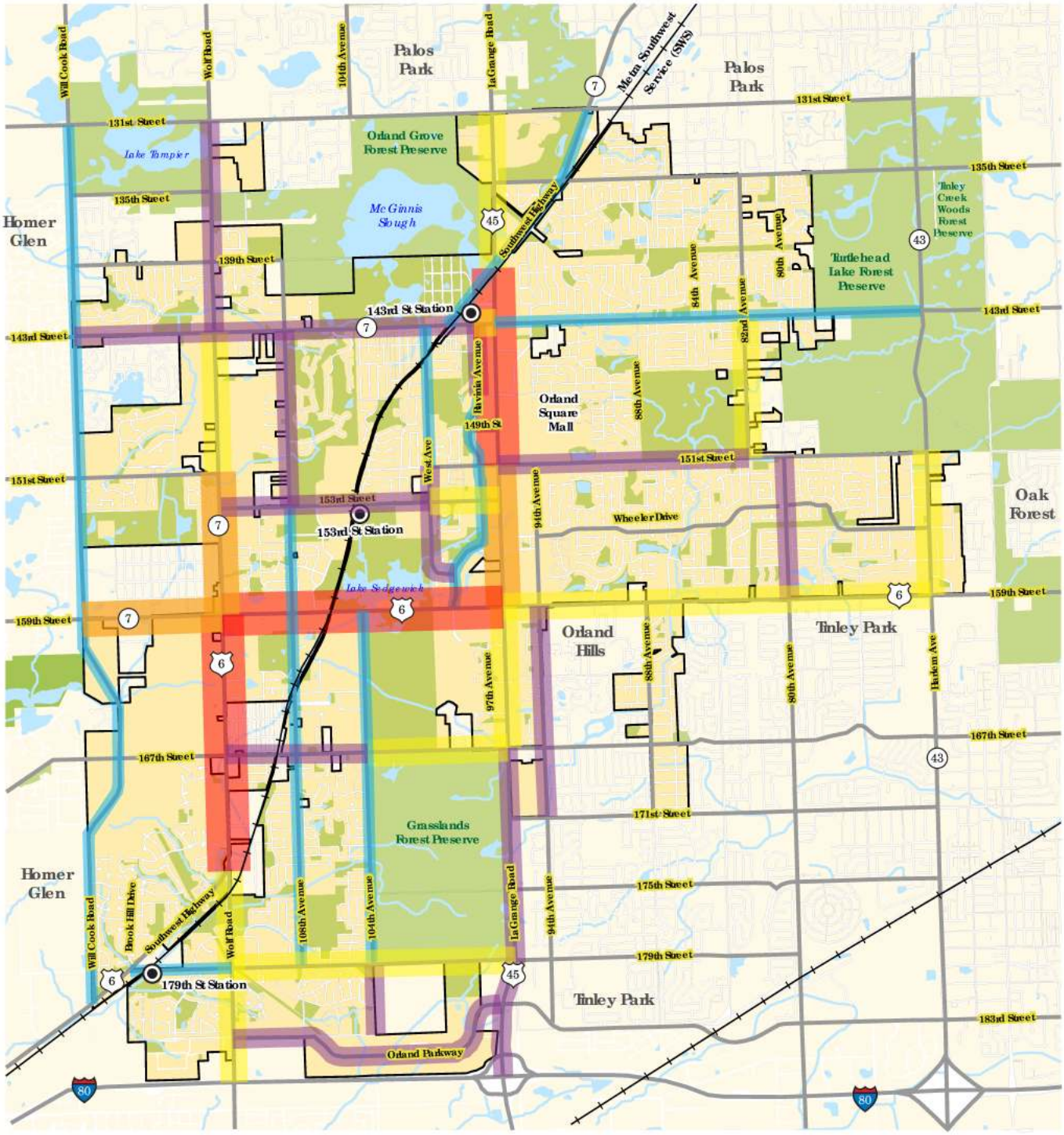


Exhibit 4

Projected 2040 Daily Traffic



MAP LEGEND

- Creeks
- Water Bodies
- Open Space
- Village Boundary

Existing Link Level of Service

- LOSA
- LOSB
- LOSC
- LOSD
- LOSE
- LOSF

Source: Highway Capacity Manual

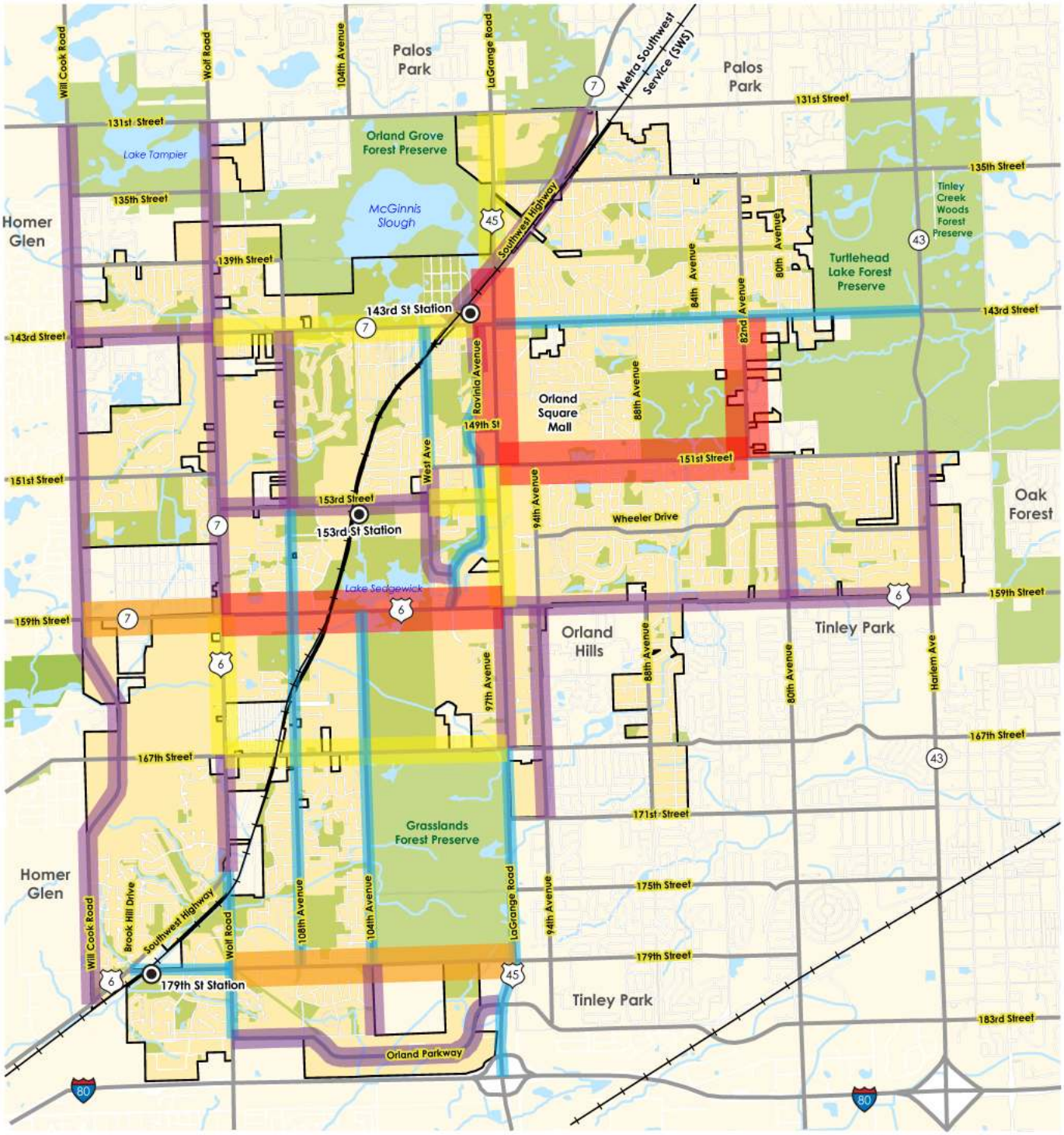
North

0 1

1 inch = 1 Mile

Exhibit 5

Existing Link Level of Service



Source: Highway Capacity Manual

MAP LEGEND

- Creeks
- Water Bodies
- Open Space
- Village Boundary

2040 Link Level of Service

- LOS A
- LOS B
- LOS C
- LOS D
- LOS E
- LOS F

North

0 1

1 inch = 1 Mile

Exhibit 6

2040 Link Level of Service

Traffic Safety Measures

Traffic safety is an important part of transportation performance. Safety is often discussed in general terms. However, for purposes of this report, safety will be looked at in a very quantitative manner providing a more useful measure of performance. Roadway safety is best described by not only crash data or occurrences, but also the severity of the crashes that occur at a location.

IDOT classifies intersections and segments of roadways with the most severe safety needs as "5% intersections or segments." These 5% locations are determined based on the number of accidents, as well as the cost. The cost of an accident is measured by the actual monetary cost of damages (severity of the crash), as well as the "cost" of injuries or loss of lives if applicable.

The Village of Orland Park also uses their own classification system for crashes. Locations of concern are labeled as High Accident Locations (HAL). Both of these methods of classification were looked at for the safety analysis of the roadways in Orland Park.

Safety measures were determined based on accident data received from IDOT. The Existing Conditions Report provided a general table of accident frequency at intersections that were determined as High Accident Locations (HAL) by the Village, or classified as a 5% location or segment by IDOT.

The findings from the reports provided by IDOT follow:

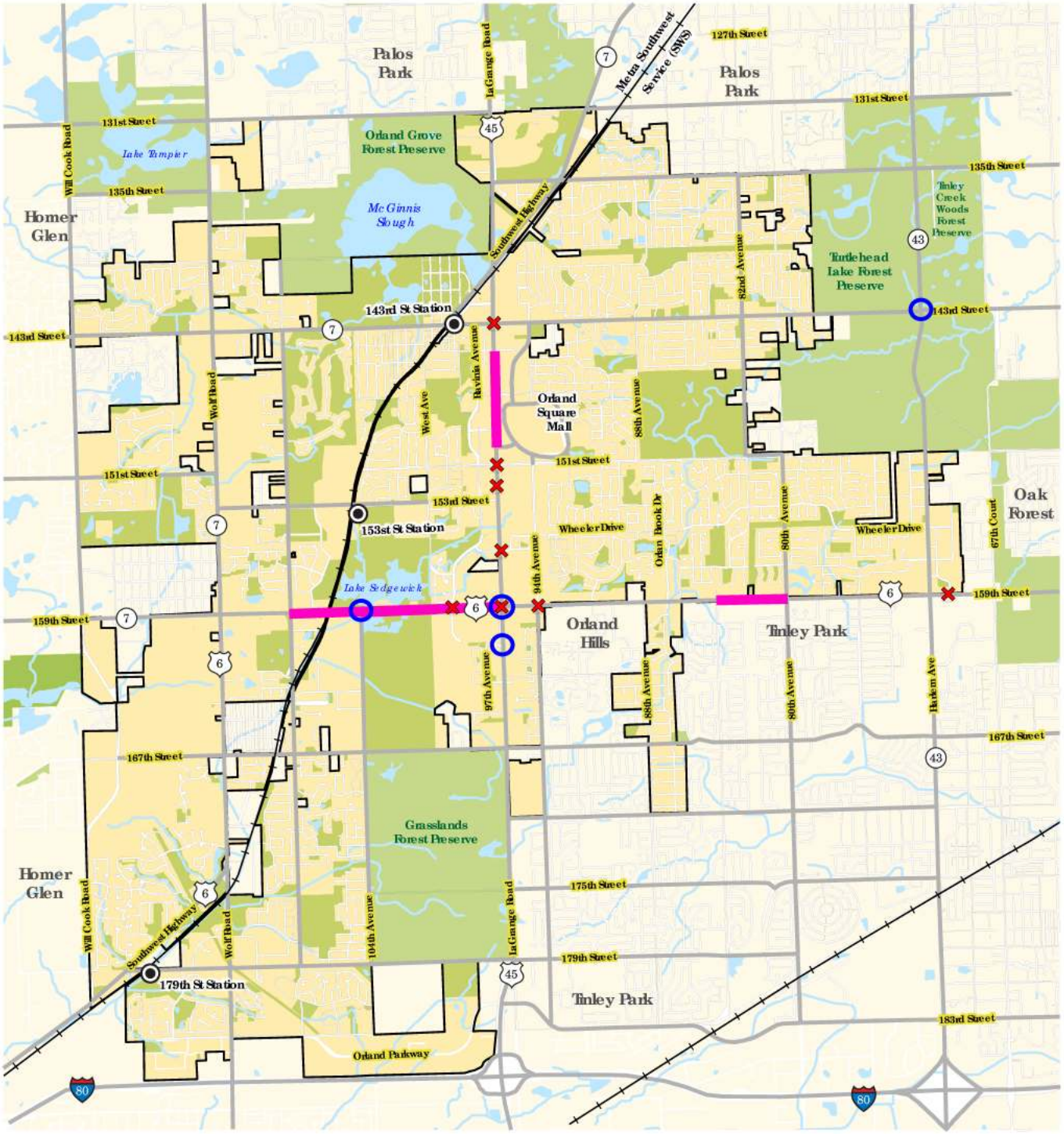
- 51% of the crashes that occurred were rear end crashes
- The average ratio of daytime : nighttime crashes is 1.25
- 74% of all crashes occurred on dry pavement
- A total of 35 people were injured as a result of these crashes

Exhibit 7 illustrates the intersections designated as HAL by the Village, and the 5% intersections and segments designated by IDOT.

An important part of this Transportation Plan is to improve overall roadway operations while improving safety throughout. The Highway Safety Manual (HSM) is the source that presents various alternatives for different types of intersections and segments that can improve the overall safety of the location.

Since the repetition of a type of crash in the same location often reflects a potential safety issue, the type and severity of crashes was evaluated when determining recommended improvements. Some potential countermeasures that were evaluated include converting a signalized intersection into a modern roundabout; converting stop control to signal control; converting stop control to a modern roundabout; and the addition of any necessary turn lanes. The list below highlights the most frequent crash type at each location and suggested geometric intersection improvements to improve safety. These recommendations are included in the Roadway Plan section of this report. Most locations, however, fall along either LaGrange Road or 159th Street, which are both part of major roadway improvement projects.

- 159th Street @ 71st Court - High number of rear end crashes could be addressed with separate turn lanes.
- 159th Street @ 94th Avenue - High number of turning accidents could be addressed with signal phasing modifications.
- LaGrange Road @ 143rd Street - High number of read end accidents may be addressed by the planned additonal lanes and updated roadway lighting.
- LaGrange Road @151st Street - Rear end and turning crashes are frequent at this intersection. Adding lanes, modifying the left-turn phase to protected only, and updating roadway lighting will address these crash types.
- LaGrange Road @ 152nd Street - Additional planned lanes on LaGrange Road will help address turning crashes.
- LaGrange Road @ 158th Place - High number of rear end accidents may be addressed by the planned additional lanes.
- LaGrange Road @ 159th Street - The planned additional lanes will also help address the high number of rear end crashes at this location.



MAP LEGEND

- Creeks
- Water Bodies
- Open Space
- Village Boundary
- High Accident Location (HAL)
- 5% Accident Intersection in 2009, 2010, or 2011
- 5% Accident Segment in 2009, 2010, or 2011

North

0 1

1 inch = 1 Mile

Exhibit 7

Accident Location Analysis

COMMUTER/TRANSIT CHARACTERISTICS

Ease of rail travel in Orland Park was given the most favorable rating of seven listed aspects of mobility, followed by the availability of paths and walking trails, according to the National Citizen Survey, Village of Orland Park, 2012. The following section describes the Metra and Pace services and facilities available within the Village.

Metra Service

Orland Park is directly served by the Southwest Service Metra commuter line. This commuter line boasts ridership between 205,000 and 220,000 rides a month which has increased 65-70 percent over the past decade. It serves southwestern Cook and northeastern Will Counties, originating in downtown Chicago at Union Station and terminating in Manhattan, a distance of 41 miles. Orland Park Metra rail commuters average a travel time of less than one hour to Chicago's Union Station. Weekend service was recently added, providing three trains each way on Saturdays.

There are three Metra stations on the Southwest Service line within Village limits: 143rd Street, 153rd Street, and 179th Street. All three stations were updated between 2002 and 2012. The 179th Street station is the last of the inbound stations in the "F" fare zone with 153rd Street station being the first of the inbound stations in the "E" fare zone. Per Metra's counts conducted in 2006, there were 1,267 weekday boardings between the three Orland Park stations, with the 153rd Street station having the second highest number of boardings along the line behind Oak Lawn. Of the weekday boardings in Orland Park, virtually all riders were traveling in the traditional commute direction inbound towards the City of Chicago. Exhibit 8 summarizes all Metra data.

Station Access

Commuters access all three Orland Park stations predominantly by driving and parking with approximately 78 percent of riders overall driving alone, as shown in Exhibit 9. This is a much higher percent than Metra's system wide 54 percent. About 95 percent of Orland Park Metra riders utilize a vehicle in some form to access the stations including driving alone, carpooling, and getting dropped off. Less than 5 percent of commuters in the Village walk from the surrounding residential neighborhoods and essentially none utilize Pace. This is attributed to the fact that Metra parking is plentiful, neighboring residential is isolated and Pace transfer opportunities are limited.

Since access to the stations is overall so heavily vehicular dependant, improved station access for all modes of travel must be considered in future planning including connecting transit service, bicycles, and pedestrians. Streetscape, improved sidewalks and crossings, and bike facilities help to make walking and biking to the station safer and more enjoyable. Land use is also a key consideration that the Village has studied, particularly in relation to the 143rd Street station and the adjacent downtown redevelopment site. The Village has recently updated its zoning ordinance to include transit-supportive regulations. Accordingly, the 143rd Street station area is being developed as a transit-oriented development that integrates land use and transit to create a compact and walkable mixed-use community including housing, shops, and offices.

Rail Freight Interference

Metra leases the southern portion of the Southwest service line from Norfolk Southern Railway which operates rail freight on the line through an area just south of Chicago. As a result, commuter trains on the Southwest Service line experience some delays caused by freight train interference. The line's on-time performance is currently about 95 percent. Metra's system on-time performance falls slightly above 95 percent. Reportedly, Metra's Rock Island Line, which is located just east of Orland Park serving Midlothian, Oak Forest, Tinley Park and Mokena, is readily utilized by Orland Park residents for faster, more frequent and reliable service. While the Rock Island Line does provide more frequent service than the Southwest Line, its on-time performance is also currently 95 percent.

Exhibit 8
Metra Southwest Service Station Information

Station	Fare Zone	Milepost	Weekday Boarding (2006)	Parking Capacity (2001)	Parking Utilization (2011)
Palos Heights	D	19.2	281	502	
Palos Park	E	20.3	387	342	
143rd Street	E	23.6	234	540	74%
153rd Street	E	25.2	715	1373	35%
179th Street	F	28.9	209	319	42%
Laraway Road	H	35.8	11	288	
Manhattan	I	40.8	22	250	

Mode	143rd Street Station	153rd Street Station	179th Street Station	Overall Metra System
Walk	9%	2%	8%	21%
Drive Alone	65%	85%	70%	54%
Dropped Off	20%	8%	17%	14%
Carpool	4%	5%	4%	4%
Bus/Transit	0%	0%	0%	5%
Bike	1%	0%	0%	1%
Taxi	0%	0%	0%	1%
Other	1%	0%	1%	1%
Total	100%	100%	100%	100%

Source: rtams.org

Pace

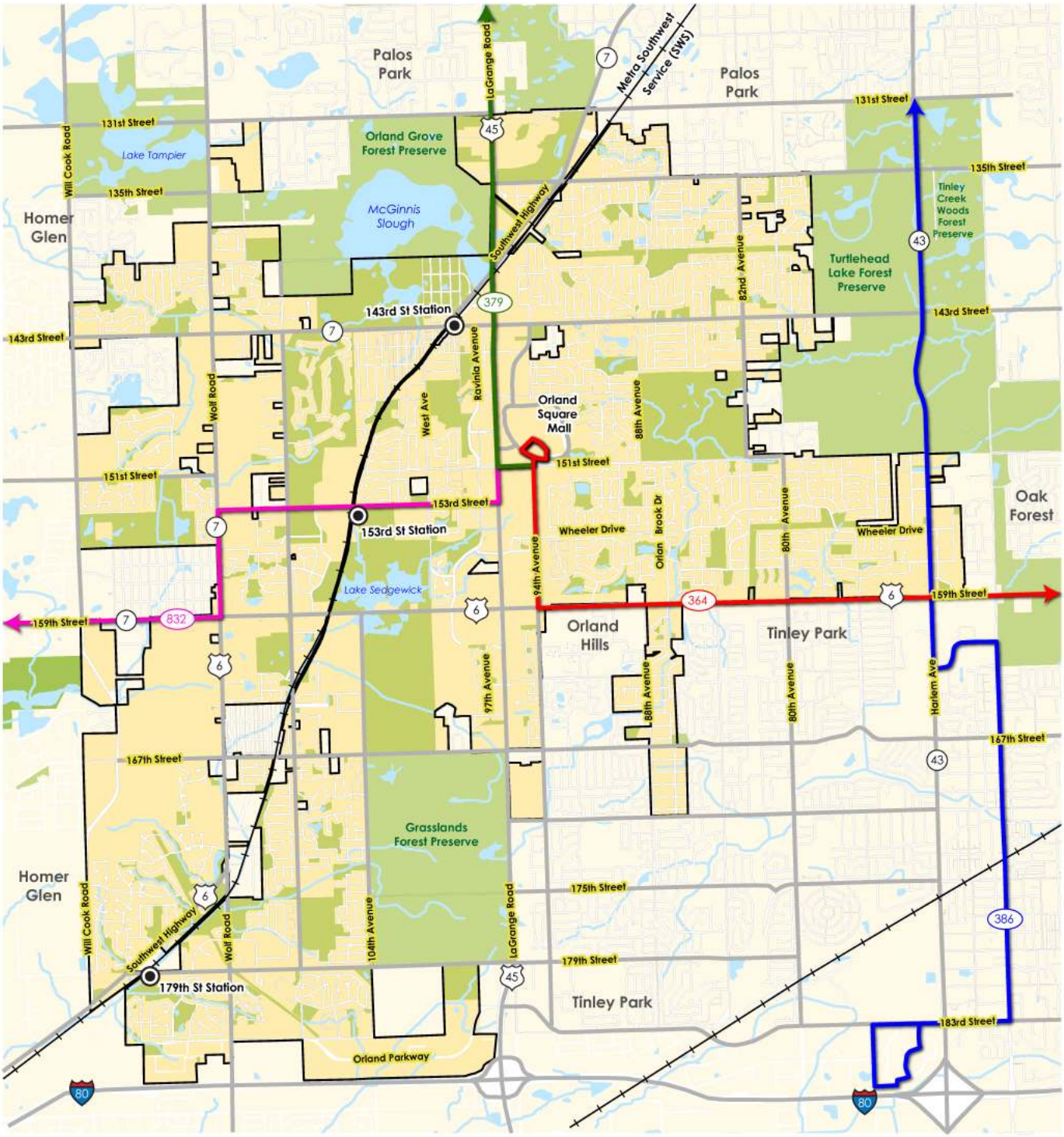
Orland Park is also serviced by four Pace bus routes including 364, 379, 386 and 832. Exhibit 10 below is an excerpt from the Pace bus schedule summarizing Pace fixed route service through the Village. Exhibit 11 maps the Pace routes.

Exhibit 10
Pace Fixed Route Service in Orland Park

Route Number	Name	Description	Weekday Ridership (2012)
364	159th Street	Route generally operates along 159th Street between Hammond Transit Center and Orland Square Mall. It serves River Oaks Shopping Center and various smaller centers as well as hospitals and South Suburban College. Weekend service operates between Orland Square Mall and Hegewisch station. The route serves posted stops only along the entire route.	3,049
379	Midway-Orland Square	Route connects Midway Airport and Orland Square Mall via 79th Street, 88th Avenue, 111th Street and LaGrange Road. Route serves Midway Airport, Ford City Shopping Center, St. Laurence and Queen of Peace High Schools, Moraine Valley College, Metra Southwest Line at 143rd Street Station and Orland Square. Connects with other CTA bus routes and the CTA Orange Line at Midway. Buses serve posted stops only between Midway and Ford City.	1,892
386	South Harlem	Route provides the primary N-S trunk of Pace's southwest service, providing service from Midway Airport CTA Orange Line Station to the DeVry University and the North Creek Business Center along the major commercial/industrial Harlem Avenue corridor. Also serves Toyota Park, the 5th Municipal District Courthouse, Metra Southwest Line and Metra Rock Island Line. Toyota Park Express trips provide direct service to Toyota Park from the Midway Orange Line Station for events. Buses serve posted stops only between Midway and 63rd/Harlem.	1,372
832	Joliet-Orland Square	Route connects downtown Joliet and the Metra Station with Orland Square Mall. Serves Statesville Prison, Will County Courthouse, Orland Square Mall, the 153rd Street Metra Station, Lockport and Homer Glen.	190

Expanded Bus Service

As mentioned, a negligible amount of Orland Park's Metra riders access the stations via Pace. In comparison, about 5 percent of Metra riders system wide access their stations via Pace. Route 379 serves the LaGrange Road corridor through the north part of Orland Park and connects with the 143rd Street Station. Route 832 serves the west side of Orland Park along 153rd Street and connects with the 153rd Street Station. Since Pace is currently a relatively ineffective access mode to the station, there is a clear opportunity for improved ridership that must be considered for planning the transportation system.



MAP LEGEND

- Creeks
- Water Bodies
- Open Space
- Village Boundary
- 364 Pace Bus Route 364
- 379 Pace Bus Route 379
- 386 Pace Bus Route 386
- 832 Pace Bus Route 832

North

0 1

1 inch = 1 Mile

Exhibit 11

Pace Fixed Route Service

Paratransit

Unlike fixed-route service, in which buses travel the same route in a regular pattern and pick up any waiting passengers, paratransit vehicles make only pre-arranged trips for riders who are eligible for the particular service. Pace provides a Dial-a-Ride service in Orland Park which is available to the general public and requires a reservation one day in advance. The service is funded by passenger fares and a Pace grant through the Regional Transportation Authority (RTA). It is operated by Orland Park Public Works Monday through Friday 8:00 A.M. to 4:00 P.M. Orland Township also provides a curb to curb service for its resident seniors.

Vanpool Programs

Pace also administers a vanpool program, where small groups of people pay a fee for van transport to and from work. Vanpools are an option in areas that do not have the density to support fixed bus route service, which is the case in some of Orland Park's outlying areas. Other vanpool options include Metra Feeders that connect stations with places of employment and employer shuttles that connect transportation centers/ bus stops with places of employment. Pace provides an online program that connects and matches commuters who are interested in carpooling or vanpooling (www.pacerideshare.com).

Future Plans

Pace's Vision 2020 Plan includes plans for a South Suburban Bus Rapid Transit (BRT) project to create BRT corridors along 159th Street between Hammond, IN and Orland Park. The project would implement Traffic Signal Priority (TSP) along the 159th Street corridor as part of a network of TSP routes throughout the Chicago suburban area. The Harlem Avenue Corridor Plan proposes a possible Arterial Rapid Transit (ART) station near 159th Street.

PATHS, BIKEWAYS, & PEDESTRIAN FACILITIES

The Village's existing bike facilites are shown on the Bikeway Map in Exhibit 12. The multi-use path facilites follow open space areas. The Village has also identified sidewalk connectors that link the network with neighborhoods. Used mostly by recreational users, the Village's system is currently made up of 25 miles of multi-use paths. The Village has plans for another 20 miles of multi-use path. Multi-use paths accomodate cyclists, but also pedestrians and other multimodal users. Currently, about nine additional miles of sidewalk serve as connections in the Village bikeway network, though sidewalk design is typically intended for a primarily pedestrian user.

The existing bikeway system connects on the east to the Tinley Creek Forest Preserve trail system and on the northeast to the Palos Heights/Lake Katherine trail system. Local and regional plans indicate those trail systems will connect to the proposed 26-mile Calumet Sag Trail. Signalized intersections and grade-separated crossings, such as the pedestrian/bicycle bridge recently constructed over La Grange Road, provide key crosssing for the system as they are the safest locations to cross traffic. The Village maintains an inventory of key crossing locations.

Sidewalks are provided along most local streets in Orland Park and are generally 5-6 feet wide. However, the sidewalk network still remains undeveloped along some rural corridors and in commerical areas originally developed as automobile centric. The Village operates a Sidewalk Gap Program and requires all new development to, not only install sidewalks, but also provide on-site pedestrian connections.

Exhibit 12

Existing Multi-Use Path Facilities

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Chapter 3

RECOMMENDED ROADWAY PLAN

The following Rocommended Roadway Plan provides a plan to maintain and improve the existing transportation system while reducing auto trips and increasing active transportation. It focuses on the roadway elements that are within the traveled way and specifically describes recommendations to improve traffic flow, network continuity, and the Village's classification system.

FUNCTIONAL CLASSIFICATION

Within the Village, a hierarchy of roadways exist which creates a very efficient internal system of circulation and access. The Village uses a functional classification system with five roadway categories: Major Arterial, Minor Arterial, Major Collector, Minor Collector and Local Streets. As part of this planning effort, the existing system was reviewed with respect to traffic volumes, roadway design and function, spacing, continuity, access and intersection controls, appropriate bike and pedestrian facilities, and potential future interchanges.

The characteristics of the facilities within each roadway classification are summarized in Exhibit 13. Specific information about particular facilities can be found in the Design Guidelines section of this memo and subsequent memos.

Recommended Changes

Recommended roadway changes to the Village's classification system are listed below.

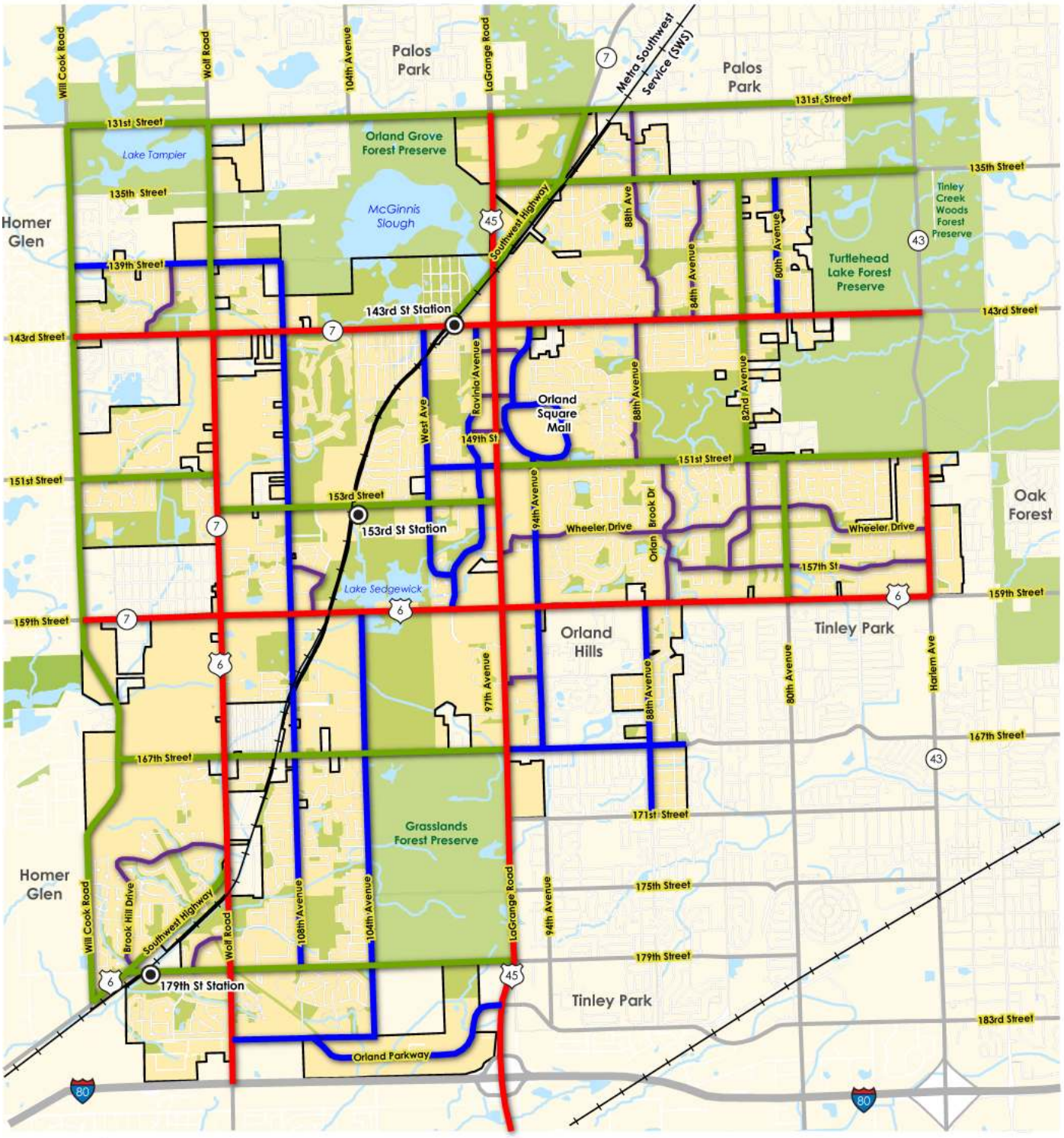
» **Wolf Road (IDOT)** Considering future widening and the potential for a Wolf Road interchange at I-80, Wolf Road should be reclassified from a Minor Arterial to a Major Arterial.

» **Orland Parkway (Village)** Since Orland Parkway has limited continuity, it should be reclassified from a Major Arterial to a Major Collector.

The recommended roadway functional classification map for the Village of Orland Park is shown in Exhibit 14.

	Major Arterial	Minor Arterial	Major Collector	Minor Collector	Local
Continuity	Continuous, Links to other cities / interstate system	Continuous through Village. May connect to other cities.	Not always continuous. Connects Local roadways to Arterials	Not always continuous. Connects Local roadways to Arterials	Not continuous. Limited connection to Arterials
Desired Spacing	2 miles	½ - 1 mile	¼ - ¾ mile	¼ - ½ mile	Block (250-1,000feet)
Traffic Volume	Projected 20,000 ADT min	Projected 10,000 - 20,000 ADT	5,000 ADT min	1,000 ADT min	No minimum ADT
IDOT Functional Classification	SRA/Principal Arterial or Minor Arterial	Minor Arterial or Major/Urban Collector	Major/Urban Collector or Minor Collector or Local	Minor Collector or Local	Local
Design Vehicles	WB-65	WB-50 Larger vehicles with encroachment	Bus & Emergency Vehicles Larger Vehicles with encroachment	Bus & Emergency Vehicles Larger Vehicles with encroachment	Bus & Emergency Vehicles Larger Vehicles with encroachment
Optimal Right-Of-Way	110 feet min	80-110 feet	66-100 feet	60 feet minimum	60 feet minimum
Street Cross-Section	4 to 6 through travel lanes with center lane or median	3 to 5-lane section with center lane or median	2 or 4 travel lanes with turn lanes at intersections	2 travel lanes possibly with turn lanes at intersections	2 travel lanes
Travel Lane Width	11-12′	11-12′	10-12′	10′ min unless shared with bikes	10′ min unless shared with bikes
Access Control	Occasional or Shared Access	Occasional or Shared Access Preferred	Direct land access & Local intersections	Direct land access & Local intersections	Direct land access
Traffic Control	Traffic signals at major intersections & developments	Traffic signals at equal or larger streets & developments	STOP control or traffic signal at Arterials & other Collectors; Roundabouts at select Collectors	STOP control or traffic signal at Arterials and other Collectors; Roundabouts at select Collectors	STOP control at Arterials and Collectors
Speed Limit	35-45 mph	30-35 mph	25-30 mph	25-30 mph	25 mph
Parking Regulations	No parking	No parking	Occasional parking	Some restrictions	No restrictions
Pedestrian Facilities	Provide Sidewalk & Multi-use Path	Provide Sidewalk / consider Multi-use Path	Provide Sidewalks / consider Multi-use Path	Provide Sidewalks	Provide Sidewalks
Bikeway Treatment	Multi-use Path or alternate corridor	Multi-use Path and/or Bike Lanes	Multi-use Path with infrequent driveways or Bike Lanes	Bike Lanes or Shared Lanes	Shared Lanes or Bike Boulevard
Examples	LaGrange Road 143rd Street 159th Street Wolf Road	Will Cook Road 82nd Avenue 108th Avenue	Orland Parkway 94th Avenue Ravinia Avenue	147th Street Wheeler Drive 88th Avenue	All streets not otherwise classified

Exhibit 13
Orland Park Functional Classification Matrix



MAP LEGEND

- Creeks
- Water Bodies
- Open Space
- Village Boundary

Functional Classifications

- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Major Roads outside of Orland Park

North

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1 inch = 1 Mile

Exhibit 14

Orland Park Functional Classification Matrix

A narrative description and image examples of the functional roadway catogories follows.

LaGrange Road

Major Arterials

High volume roadways that carry the major portion of daily trips to centers of activity in the community and region. Major arterials place a greater emphasis on mobility rather than access to land and include fully and partially controlled access. They are built to accommodate the highest traffic volume and longest travel routes. A major arterial serves major through movements between important centers of activities in a metropolitan area, and a substantial portion of trips entering and leaving the area. It also connects Interstates with major traffic generators. The major arterials serving the Village are Harlem Avenue, La Grange Road, Wolf Road, 159th Street, 143rd Street and 183rd Street/Orland Parkway. Most of the arterials are under the jurisdiction of the Illinois Department of Transportation (IDOT) and corridor features are subject to IDOT approvals.

80th Avenue

Minor Arterials

Streets that connect and augment the major arterial system. Although its main function is still traffic mobility, a minor arterial performs this function at a somewhat lower level and places more emphasis on land access than a major arterial does. A system of minor arterials serves trips of moderate length and distributes travel to geographical areas smaller than those served by a major arterial. The east-west minor arterials serving the Village are 131st Street, 135th Street, 167th Street, 151st Street, 153rd Street, and 179th Street. The north-south minor arterials serving the Village are a segment of 80th Avenue, 82nd Avenue, segments of Wolf Road, Will-Cook Road, as well as Southwest Highway which is a northeast-southwest diagonal roadway.

Major Collectors

Major Collectors connect local streets to arterials to create a network of traffic movement. They distribute trips from and channel trips to arterials. Major collector streets provide for both access and circulation within residential, commercial, and industrial areas. Their access function is more important than that of arterials, but still provides travel mobility. Unlike arterials, their operation is not always dominated by traffic signals. Major Collectors in Orland Park include 108th Avenue, 104th Avenue, West Avenue, Ravinia Avenue, 94th Avenue, John Humphrey Drive, a segment of 88th Avenue, a segment of 80th Avenue, 139th Street, a segment of 151st Street and a segment of 167th Street. Major Collectors located within the Village limits are either the responsibility of the Village or planned together with Cook County Highway Department or adjacent communities.

94th Avenue

Minor Collectors

Minor Collectors prioritize access to property over mobility and are more locally-oriented than Major Collectors. These roadways provide access and circulation within residential neighborhoods and are often continuous through the neighborhood or subdivision. Examples of minor collector roadways include Wheeler Drive, 88th Avenue, 84th Avenue, 147th Street, and Brook Hill Drive, among many others. Minor Collectors are typically under the jurisdiction of the Village.

Wheeler Drive

Local Streets

The local street system is made up of all streets not belonging to one of the above-mentioned roadway classes. Local streets are generally shorter than other roadway types and have frequent controlled intersections. Compared to other roadway types, local streets are narrower with slower speeds through areas such as residential neighborhoods. Local streets provide direct access to properties and accommodate shorter trips to adjoining collector or arterial streets. Through traffic movement is discouraged on local streets. Local roads are typically public Village roads. Some are private roads constructed by developers and maintained by private property owners.

ROADWAY NETWORK IMPROVEMENTS

The following sections discuss roadway improvements that will address existing and projected system continuity deficiencies, capacity constraints, geometric improvements and traffic control needs. The recommended system improvements are shown mapped in Exhibit 15.

New I-80 Interchange

Analyses indicate additional north-south capacity is needed now and in the future to meet travel demand. LaGrange Road is the only north-south Major Arterial connecting with I-80 creating a heavy burden on its capacity. The recommended widening of Wolf Road will increase capacity but congestion will persist along LaGrange Road unless another through alternate is introduced to the system. Opening a Wolf Road/I-80 interchange is recommended as it would provide an alternate for north-south travel as well as reduce east-west travel demand west of LaGrange Road. After widening, Wolf Road can function as a Major Arterial. This improvement should be considered high priority though it will be a long-term project that will require significant inter-agency coordination, cooperation and funding.

Intersection Control

Based on projected traffic volumes, accident analyses and other factors, the following intersections are anticipated to require intersection control modifications. Traffic volumes at these intersections should be periodically reviewed. Traffic signals and all-way stop sign control should be installed when warranted based on MUTCD guidelines. Signals located along existing signal corridors should be interconnected into the system to maximize vehicle progression and efficiency.

Roundabouts as intersection control were also considered. Roundabouts should be used as a traffic control option along with stop signs and traffic signals. Roundabout planning considerations and design guidelines that were reviewed are discussed later in the memo. Generally, it was determined that single lane roundabouts are the most appropriate application in Orland Park initially. Locations were identified that make the most impact from a place making perspective that also meet traffic volume, roadway function and other criteria. However, it should be noted that each location needs to be analyzed further for Level of Service, costs and right-of-way.

Roundabout

» Ravinia Avenue & 147th Street

» Ravinia Avenue & 149th Street

» Ravinia Avenue & 153rd Street

» Ravinia Avenue & West Avenue

» West Avenue & 151st Street

» Wheeler Drive & Orlan Brook

» Wheeler Drive & 82nd Avenue

Traffic Signal Upgrade/Timing Modification

» 143rd Street & Southwest Highway/ Union Street

» 143rd Street & West Avenue

» 143rd Street & Will Cook Road*

» 151st Street & 88th Avenue

» 151st Street & LaGrange Road*

» 159th Street & 94th Avenue

New Traffic Signal

» 151st Street & Catalina Drive

» 159th Street & 104th Avenue*

» LaGrange Road & 154th Place*

» LaGrange Road & 161st Street

» 94th Avenue & 163rd Street/ Meadowview

*Part of an on-going project

Geometric Intersection Improvements

Key intersection "hot spots" were evaluated based on ADT, accident data and visual observations to determine if intersection geometry modifications would improve service and safety. The following geometric modifications are recommended and include the addition of turn lanes, increasing storage capacity, etc.

131st Street

» Right-turn lanes on 131st Street at Southwest Highway

» Westbound right-turn lane at 104th Avenue

» Right-turn lanes at Wolf Road; part of the Wolf Road widening project or sooner if problematic

» Widen for center left-turn lane due to several offset drives and streets

135th Street

» Eastbound right-turn lane at 82nd Avenue

Southwest Highway

» Right-turn lanes on Southwest Highway approaches at 135th Street

» Increase right-turn storage on Southwest Highway at Wolf Road intersection; part of Wolf Road widening project or sooner

143rd Street

The following improvements were identified as short-term improvements to increase capacity of 143rd Street if desired prior to the 143rd Street widening project which is currently being studied in Phase I.

» Right-turn lanes on 143rd Street at 108th Avenue

» Right-turn lanes needed on all approaches at Wolf Road

147th Street

» Modify east-west lane balance at intersection with LaGrange Road; part of LaGrange Road widening project

153rd Street

» Right-turn lanes needed on the 108th Avenue approaches

» Restripe section from West Avenue to LaGrange Road for on-street bike lanes

159th Street

» Left-turn lanes on 71st Court at 159th Street intersection

» Modify north-south lane balance on 91st Avenue/ Parkhill Drive at 159th Street intersection

179th Street

» Southbound right-turn lane on 104th Avenue at 179th Street intersection

Harlem Avenue

» Eastbound dual left-turn lanes on 151st Street*

» Southbound right-turn lane at 151st Street*

82nd Avenue

» Widen to accommodate left-turn lanes at intersections

» Consider urban pavement section

» Northbound right-turn lane on 82nd Avenue at 143rd Street

» Southbound right-turn lane on 82nd Avenue at 151st Street

Ravinia Avenue

» Intersection with West Avenue identified as roundabout location in the long term

» Short-term improvement option includes striping northbound left-turn lane at West Avenue

» Study volumes/capacity further

Roadway Widening

The previous performance analysis step of this study indicated that improving intersection controls and geometrics would yield traffic benefits, in many cases, however, widening of some existing roadways is or will be needed to manage projected traffic demands. A list of these recommended locations is below. It is assumed that all intersection control improvements along the corridor will be included unless noted above.

» 131st Street should be widened to three lanes to accommodate a center left-turn lane for the abundance of offset driveways and streets

» 143rd Street will be widened to four lanes with a center landscaped median from Southwest Highway to Will Cook Road. Right-of-way is generally acquired and the Village is in the process of completing the Phase I study of the corridor. A Multi-use Path will be provided on one side of the roadway and sidewalk on the other.

» 153rd Street will be widened to five lanes from LaGrange Road to West Avenue and from 18th Avenue to Wolf Road.

» 159th Street will be widened to four lanes with a landscaped median from Ravinia Avenue to Will Cook Road. A Multi-use Path will be provided along the roadway.

» 179th Street will be widened to three lanes between LaGrange Road and 104th Avenue as development occurs on the south side of the street.

» LaGrange Road will be widened in phases between 131st Street and 179th Street. A third lane will be added in each direction as well as necessary intersection improvements. The additional lanes will help improve safety at high accident intersections.

» 82nd Avenue needs to be widened from 143rd Street to 151st Street to provide left-turn lanes at intersections. It is recommended that curb and gutter be constructed along 82nd Avenue to make it an urban section.

» 94th Avenue will be widened to five lanes from Hunter Drive to 167th Street.

» Ravinia Avenue will be striped within the existing pavement wideth or widened to be three lanes from 143rd Street to 159th Street.

» 104th Avenue should be widened to a three lane section from 167th Street to 183rd Street.

» 108th Avenue should be widened to a three lane section from 159th Street to approximately 167th Place. This project is spurred by historic flooding which will be mitigated by elevating the roadway south of 159th Street.

» Wolf Road will be widened from 143rd Street to I-80 to provide four travel lanes and a landscaped median. A multi-use path will be provided on one side and sidewalk on the other.

New Roads/Realignments

A basic requirement for optimal traffic and pedestrian flow is the completion of the roadway and pedestrian network. For the most part, the eastern portion of the village is complete with an integrated system defined by older and more developed neighborhoods and commercial areas. However, one key realignment is suggested on the eastern side of the Village is related to the creation of a continuous connection between John Humphrey Drive and 94th Avenue south of the Mall.

John Humphrey Drive

» Realign John Humphrey Drive to function as an extension of 94th Avenue

» Helps to relieve traffic burden of LaGrange Road by extending the local alternate route

» Boulevard section will provide controlled access and upgrades in streetscape

» Potential to relocate roadway further east to increase traffic queue storage at signals on LaGrange Road

» Create new outlots for office uses to bring daytime population to area

» Modifications to Mall parking fields would be required

Additionally, one of the focus areas of the plan covered in Section 6 is the historic downtown in the vicinity of 143rd Street and Southwest Highway, where recommendations are provided for two scenarios: Min and Max scenarios. The following summarizes those scenarios.

Downtown 143rd Street/Southwest Highway

» Coordinate with Village consultant on Phase 1 of 143rd Street

» Recommendations presented as Min and Max ranging from short-term and low-cost to long-term

» Min – Maintain Southwest Highway Alignment

- Traffic signal upgrades and modifications at Union Street, Southwest Highway and West Avenue
- Signal timing optimization with West Avenue
- Pedestrian crossing enhancements at tracks and along 143rd Street intersections

» Max – Alignment A

- Realign Southwest Highway as shown as Alignment A in Exhibit 3
- Close existing leg of Southwest Highway and eliminate one of two closely spaced signals

John Humphrey Drive Realignment Concept

Southwest Highway Max Realignment Concept

In the western portion of the village, primarily along the Wolf Road corridor, there are several recommendations to complete the grid with Collector streets. With some exceptions, connections are suggested based on standard collector spacing of ¼ - ½ mile.

Ravinia Avenue

» Ravinia Avenue will be extended south/east as 161st Street to intersect LaGrange Road as four-lane boulevard section

» The extensions will create a continuous north-south Collector that serves as an important local alternate to LaGrange Road

156th Street

» Extend 156th Street west of LaGrange Road to Ravinia Avenue

» Previously planned project

104th Avenue

» Extend 104th Street or reconfigure Emilie Lane south of 183rd Street to make a north-south Collector connection to Orland Parkway

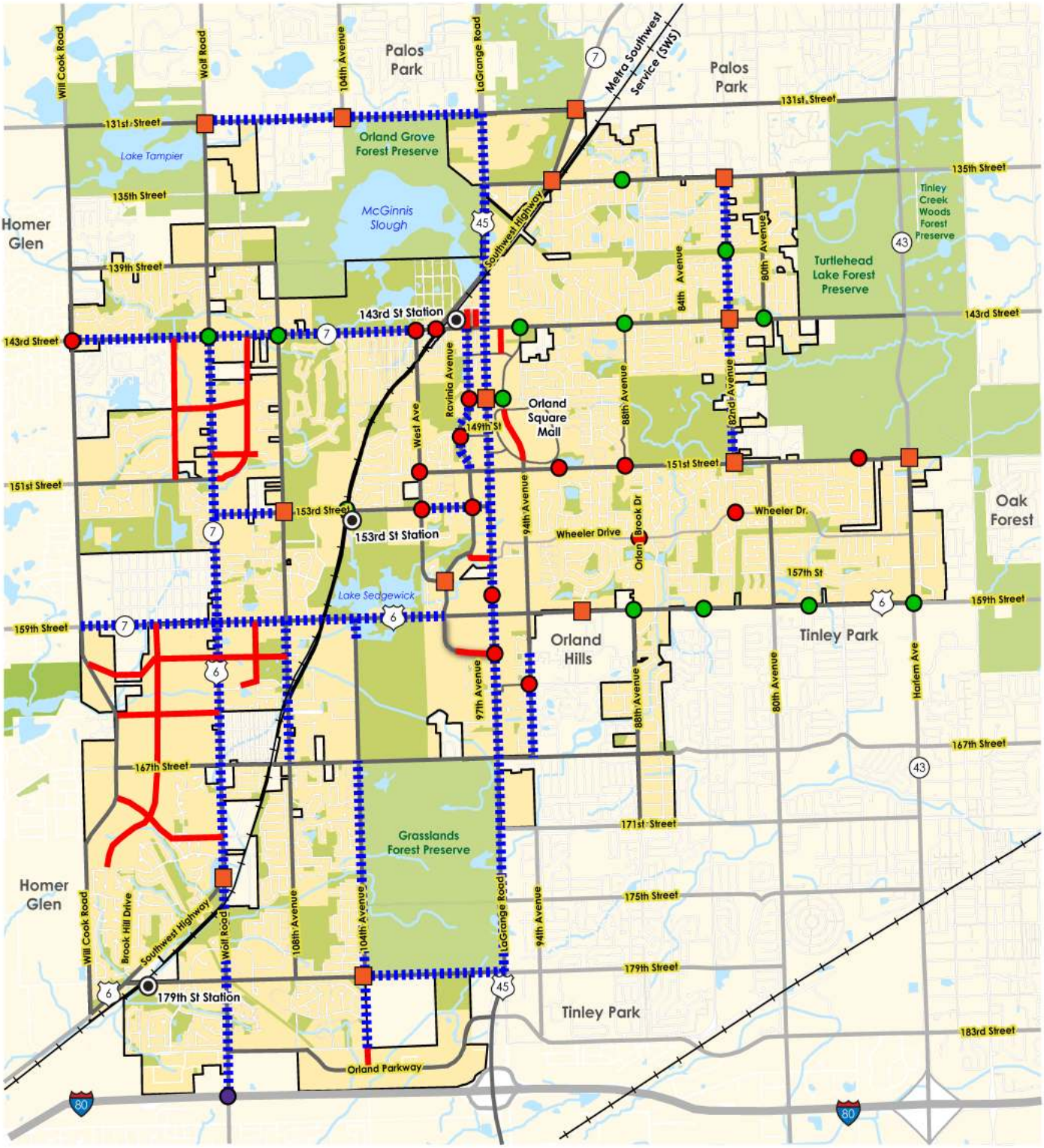
» Important local north-south connection to bypass LaGrange Road and Wolf Road Arterials

Wolf Road Corridor Collector System

» Minor Collector streets are suggested to complete a modified grid network

» Provision of the proposed Collectors would improve performance on Arterials as development is built

» See Exhibit 15 for general locations



MAP LEGEND

- Creeks
- Water Bodies
- Open Space
- Village Boundary
- Intersection Control
- Geometric Improvement
- Roadway Widening
- New Road/Extension
- New Interchange
- Misc./Further Study Required

North

0 1

1 inch = 1 Mile

Exhibit 15

Roadway Improvement Plan

ANNUAL TRAFFIC COUNT PROGRAM

Traffic counts should be done throughout the village every two years at key locations to identify changes in transportation patterns, determine traffic growth trends, and ensure projections are adequate. The Village should set up a program to alternate locations systematically to best gage volume changes. This could be accomplished by generally dividing the Village into three sections and alternating counts within those sections. It is recommended that camera counts be conducted at approximately 10 intersection locations for one 24-hour period in order to obtain turning movement counts as well as Average Daily Traffic (ADT) on each intersection approach. Data collected should include ADT by approach, Average Daily Truck Traffic (ADTT) by approach, peak hour turning movements, bikes and pedestrians. A sample five-year count program was developed keeping in mind the following items:

- Key traffic/ped hot spots and areas identified to be studied further in this Plan
- Potential roundabout locations
- Signalized locations adjacent to potential roundabouts (for modeling)
- Intended primarily for Village roadways and intersections
- IDOT & most Cook County ADT published every 2-3 years: http://www.dot.state.il.us/adttravelstats.html

Sample five-year count program:

Year 1 – Northeast Section

1. Southwest Hwy & 131st St
2. Southwest Hwy & 135th St
3. 82nd Ave & 135th St
4. 82nd Ave & 143rd St
5. 151st St & Catalina Dr
6. 151st St & 82nd Ave
7. 151st St & 88th Ave
8. Wheeler & Orlan Brook
9. Wheeler & 94th Ave
10. 159th St & 78th Ave

Year 3 – Northwest/Orland Sq Section

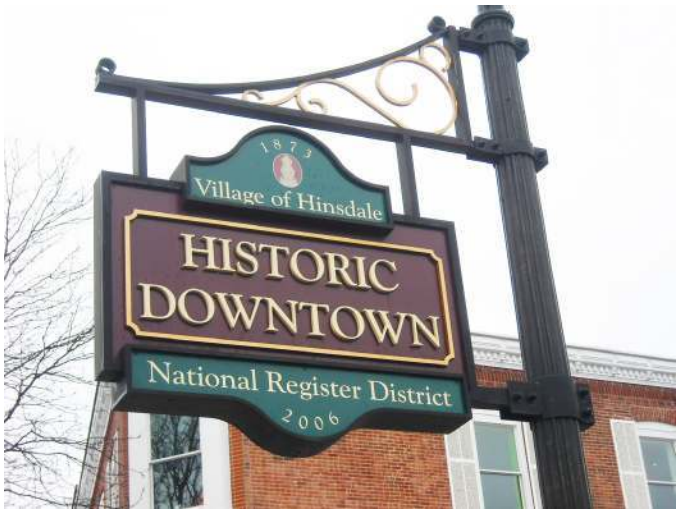
1. J. Humphrey & 147th St
2. J. Humphrey & Orland Sq
3. LaGrange Rd & 147th St
4. 151st St & Regent Dr
5. 151st St & 94th Ave
6. Ravinia & 147th St
7. Ravinia & 149th St
8. Ravinia Ave & 153rd St
9. 153rd St and LaGrange Rd
10. 151st St & West Ave

Year 5 – Southwest Section

11. 94th Avenue & 163rd Street
12. Orland Pkwy & LaGrange Rd
13. Orland Pkwy & 183rd St
14. Southwest Hwy & Wolf Rd
15. Southwest Hwy & Will Cook Rd
16. Brook Hill Dr
17. 153rd St & 108th Ave
18. 167th St & Will Cook Rd
19. 179th St & 104th Ave
20. 108th Ave & Jillian

WAYFINDING

Wayfinding signs throughout the community are important to direct motorists, pedestrians, and cyclists to key community destinations and shopping districts, promote community amenities, and contribute to establishing the community's identity. Existing gateway and monument signs are positive enhancements for the Village. The Village should continue the signage efforts towards a comprehensive wayfinding signage program for the community. Coordinated and legible wayfinding signs should direct residents and visitors to key destinations such as shopping districts, parks and open spaces, and civic uses. Priority locations include Centennial Park, Old Orland and all three Metra stations, particularly the 153rd Street station. A concept signage family was prepared that builds on the Village's existing gateway signs. It is shown in Exhibit 16.



Village of Orland Park

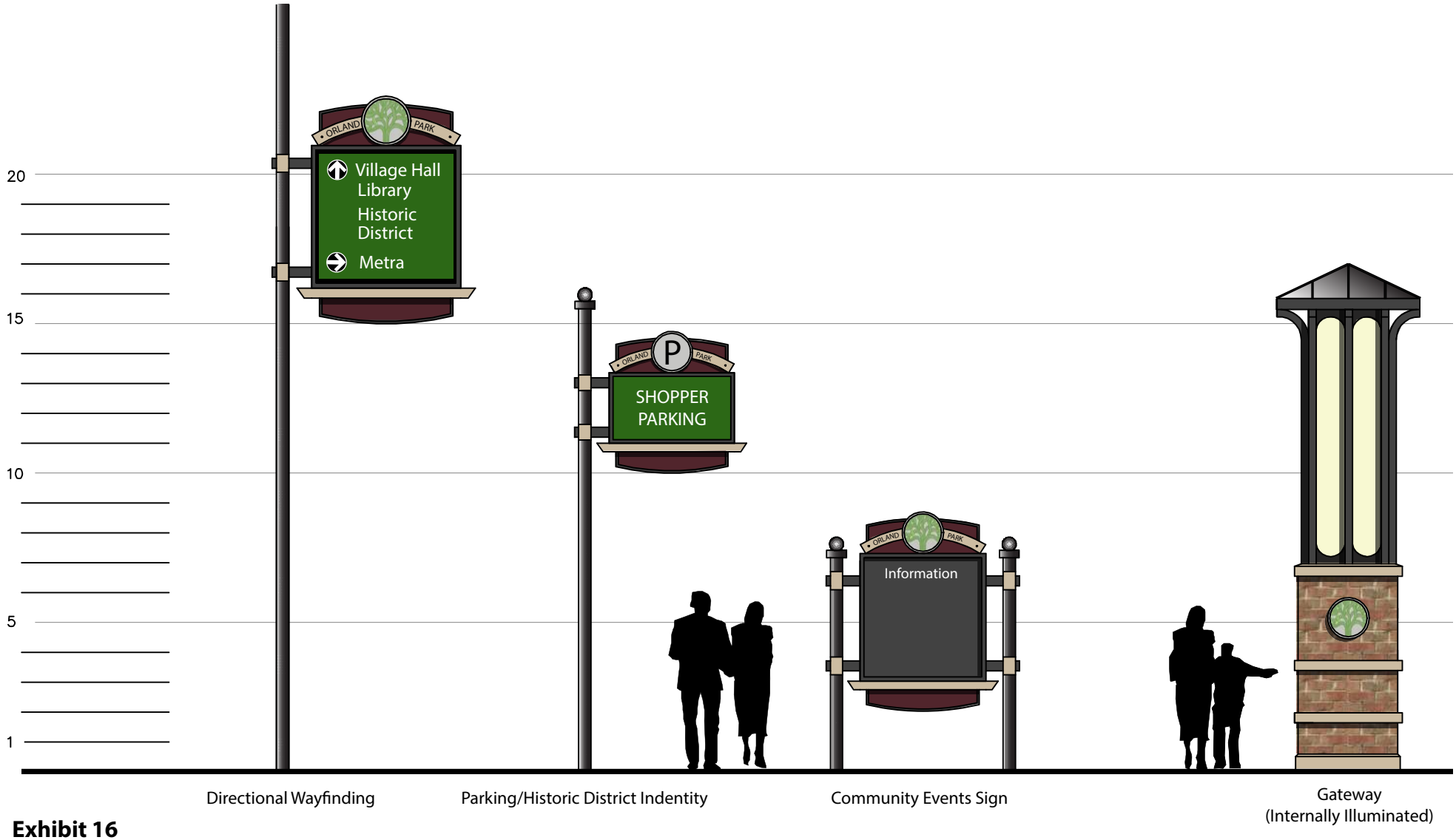


Exhibit 16
Signage/Wayfinding Family

ROADWAY DESIGN GUIDELINES

The following section covers the following design guidelines or planning considerations:

- Roundabouts
- Medians
- Traffic Calming
- Access Drives
- Intersection Improvements
- Intersection Design
- Intelligent Transportation Systems

Roundabouts

Orland Park is considering the installation of roundabouts at various locations in the Village. Roundabouts often offer many benefits to traditional intersections and traffic control and are a viable option for control at many intersections. However, like stop sign or traffic signal control, roundabouts are not appropriate at every location. The following provides a guideline overview for the selection and planning of roundabouts. More detailed information can be found in the Federal Highway Administration's Roundabouts: An informational Guide (FHWA Guide) and the Kansas Roundabout Guide. Primarily, this information is intended toward the construction of roundabouts on Orland Park's roadways. Roundabouts on IDOT and Cook County roads would need to be approved by those agencies and follow their requirements. Roundabouts should be considered during Phase I engineering projects on roadways outside of the Village's jurisdiction.

Benefits

Roundabouts are at times a safer alternative to other traffic control as they force traffic to slow down and yield to traffic already circulating in the intersection. According to studies by the Federal Highway Administration, roundabouts are safer and easier to maneuver than signalized intersections as it eliminates collisions caused by drivers running red lights. The types and severity of crashes that occur in roundabouts are less due to decreased conflict points. With slower speeds and areas of refuge, roundabouts provide a safer and more pleasant pedestrian crossing. In addition, delays are almost always less than at traffic signals or all-way stop controlled intersections. While roundabouts may need more right-of-way at intersection corners, overall space requirements are typically less than traditional intersections since turn lanes, lane tapers and corridor roadway widening are not needed. Roundabouts present gateway and aesthetic opportunities that create an attractive roadway character while calming traffic with speed reduction. Furthermore, roundabouts have much lower maintenance costs as they do not incur equipment and electricity costs.

Roundabouts are common in Europe and are gradually being accepted in the US. They have become popular in many surrounding states within the Midwest, such as Wisconsin and Indiana. There were an estimated 2,000 roundabouts nationwide by early 2011, with fewer than 50 in Illinois.

Location Selection

Roundabouts should be considered and are often an advantageous traffic control measure at locations with the following conditions:

- Historical speeding issues
- Historical safety problems/frequent crashes
- Relatively balanced traffic volumes
- High percentage of turning movements
- High traffic volumes at peak hours but low volumes at other times
- Speed environment of the roadway changes
- Frequent U-turns
- Traffic calming desired
- Existing 2-way stop controlled intersections with high minor street delays but volumes do not meet signal warrants
- Gateway or entry point to campus or neighborhood
- Community enhancement feature desired
- Land-use transition (i.e. residential to commercial)

The table below in Exhibit 17 provides guidance for the selection of roundabouts for various roadway characteristics. The recommendations in the table above are generally consistent with the FHWA Guide, although the inscribed diameter is larger to apply to local conditions. Overall, double-lane roundabouts should be used with caution in Orland Park since drivers are not yet familiar with operations. Generally, the right-of-way needed for the roundabout should provide at least 10 feet around the outside of the inscribed circle diameter (20 feet total) to allow for sidewalks and buffer space.

Exhibit 17 Roundabout Design Characteristics

Parameter	Minimum Roundabout	Compact Roundabout	Single-Lane Roundabout	Double-Lane Roundabout
Functional Class	Minor Collector Local Street	Minor Collector Local Street	Arterial Collector Local Street	Arterial Major Collector
Maximum Entry Speed (mph)	15	15	20	25
Design Vehicle	Bus and SU (drive over apron)	Bus and SU	WB-50	WB-65
Maximum number of entering lanes	1	1	1	2
Inscribed Diameter	50-90’	100-120’	120-150’	150-220’
Typical Daily Service Volume (veh/day)	10,000	15,000	20,000	40,000

Planning Considerations

Planners and designers should also consider the following when selecting and designing roundabouts:

- Intersections where roundabouts may not be appropriate include those in close proximity to signalized intersections with queue spill back, those along coordinated signal systems, those with large volumes on the major street and very low volumes on the minor street, and those with physical complications such as grade differentials and railroad tracks.
- Understand the types of vehicles that will be using the roundabout because the design vehicle is essential in determining the appropriate roundabout diameter. Accommodate the largest motorized vehicle likely to use the intersection in order to avoid premature wear and tear.
- It may be helpful to start small when introducing roundabouts to the community to acclimate drivers in navigating a roundabout. Single lane roundabouts will be more easily understood than multilane roundabouts.
- Start the planning process by sketching over aerial imagery to understand implications quickly and alter design concepts appropriately.
- The roundabout design should consider both auto and non-auto users. All roundabouts shall accommodate pedestrian across all legs. Use care to not over-design the intersection for design vehicles that will not likely use the roundabout or under design to stay within the existing right-of-way.
- Installing roundabouts may require significant effort to inform the public and get them comfortable with the proper way to use them.

Roundabout Location Guide

The following intersections are suggested as locations where roundabouts will make the most impact based appropriate traffic volumes, right-of-way implications, roadway jurisdiction, or desired character. However, it should be noted that each location needs to be analyzed further for Level of Service, costs and right-of-way.

- Ravinia Avenue and 147th Street
- Ravinia Avenue and 149th Street
- Ravinia Avenue and 153rd Street
- Ravinia Avenue and West Avenue
- West Avenue and 151st Street
- Wheeler Drive and Orlan Brook
- Wheeler Drive and 82nd Avenue

Village of Orland Park

Medians

Medians vary in width and purpose and can be raised with curbs or painted on the pavement. Medians can be used for access management, accommodation of turn lanes, pedestrian refuge, landscaping, lighting and utilities. A landscaped median can serve as a gateway feature with lighting, tree canopy and urban design features. Wide medians serve as pedestrian refuge for long crossing widths. Operational and safety benefits of medians including providing turning storage, enforcement of turn restrictions, reduction of conflicts, and reduction of head-on collisions. Median can also be designed to provide bioswales to retain and improve the quality of stormwater runoff. Landscaping and trees in the median are strongly encouraged in context sensitive design for aesthetics, shade and stormwater purposes. Medians as an access management strategy should continue to be applied in the Village to improve safety and multimodal operations. In order to minimize land use impacts, U-turns should be allowed and considered in the design.

Traffic Calming

Traffic calming involves the installation of physical measures on the roadway to reduce traffic speeds in the interest of safety and livability. Neighborhood traffic calming could also include changes in street elements and alignments to discourage cut-through traffic and control volumes on local streets. It is important to recognize the difference in objectives when determining appropriate traffic calming techniques. The function of the street is important since Arterials and Collectors are designated to handle higher volumes of traffic and, in doing so, minimize cut-through traffic on local and residential streets.

Examples of traffic calming techniques that may be appropriate for the Village's Collector and Local streets include narrow streets and lane widths to lower speeds, landscaped curb bump outs and refuge islands to reduce crossing distances and on-street parking to provide a pedestrian barrier and narrow the roadway. Some measures that are specifically appropriate for local, low speed streets where large vehicle traffic is not a concern include speed humps, raised crosswalks, traffic circles and frequent intersection traffic control. Examples of traffic calming techniques appropriate for most roadway types include reduced lane widths, street trees, textured or otherwise enhanced crosswalks and pedestrian refuge islands, especially across roadways with landscaped medians.

Driveways & Cross Access

Many commercial driveways in the Village are oversized and redundant. Wherever possible, curb cuts and driveways should be consolidated, shared and generally minimized along commercial corridors. Internal cross access should be provided wherever possible between commercial properties, connecting adjacent parking areas either in the front or rear of the buildings. A policy of internal cross access should be a requirement of all new development and incentives should be considered for existing developments to consolidate or close driveways where practical.

Design of the access drives is also important in establishing a complete pedestrian network on both sides of the street. Appearance of the sidewalk and level elevation should be maintained across the driveway to indicate that the pedestrian is given priority. Pedestrian refuge medians should be considered for wider driveways that require more than two lanes. The Village should work with area businesses to consolidate curb cuts and require access design to give priority to the pedestrian crossing/sidewalk.

Intersection Improvements

Many times the need to widen a roadway from two lanes to four or more lanes is driven by capacity constraints at major intersections. Often, key intersection improvements could allow the corridor to operate more efficiently without the high costs of widening the roadway along the entire corridor. This includes the addition of strategic turn lanes or traffic signal timing and phasing modifications. The following provides basic turn lane guidelines to determine the need for intersection capacity improvements at signalized intersections. More detailed guidelines can be found in Chapter 36 of IDOT's Bureau of Design and Environment.

Basic Volume Criteria for Turn Lanes:

» Single Left-Turn Lane needed when >75 vph turning left

» Dual left-turn lane needed when >300 vph turning left

» Right-turn lane needed when >150 vph turning right and >300 vph per lane on mainline

Intersection Design

Signalized intersections along the arterials and some collector streets will accommodate, not only large vehicles such as buses and trucks, but also pedestrian and bicycle crossings since signalized intersection are they safest place to cross. Design features should be implemented where possible to improve safety with slower turning speeds and shortened pedestrian crossing distances. Elements to consider include minimized curb radii, narrow travel lanes, high-visibility crosswalks, pedestrian signal heads with countdown timers, raised right-turn lanes (shown at right), and pedestrian refuge medians. Orland Park has utilized some of these features, particularly within the LaGrange Road streetscape. The Village should continue to work with other governing agencies to make sure intersection design is as pedestrian friendly as possible outside of its jurisdiction. Roadway crossings should perform as gateways, rather than barriers, throughout the community. At major roadway intersections, opportunities exist to promote pedestrian use and safety, including enhanced pavements and count down timers.

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Intelligent Transportation Systems

Effectively managing traffic and improving travel does not only mean adding lanes and bridges, but using existing roads more efficiently. Many of the traffic signals along the major arterial corridors are on an interconnect system that allows the signals to be timed together to help facilitate efficiency in the traffic flow. During peak periods, real-time phasing adjustments could further minimize impacts. The system is also connected to emergency "pre-emption" equipment and adjusts accordingly when emergency vehicles prompt the signals along a corridor. Intelligent Traffic Systems (ITS) such as this offer many possibilities to the Village to use technology to maximize the capacity of existing infrastructure to improve traffic flow, decrease delays, improve communication for emergency vehicles and transit users and give riders up-to-the-minute system information for a relatively low cost. The Village should expand its use of "intelligent" systems where possible and work with other jurisdictional agencies to enhance corridors outside the Village's jurisdiction. Additionally, other technologies should be explored such as Traffic Signal Prioritization (TSP) for transit which will be the foundation of the potential bus rapid transit line along 159th Street. The Chicago region has several examples of ITS, such as the Chicago Transit Authority's bus and train trackers, Lake County's PASSAGE, and the Illinois Tollway's I-PASS electronic tolling system.

Streetscape

Existing streetscape elements are positive enhancements for the Village. The Village is encouraged to continue to promote streetscape enhancements throughout the community as budgets permit. Particularly in the Historic Downtown, opportunities exist for streetscape enhancements such as decorative paving, signage, plantings and public plazas.

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Chapter 4

PEDESTRIAN ACCESS & TRANSIT PLAN

The pedestrian experience is a critical part of the future economic success of Orland Park. Its streets should help to make people want to live, work and play here. Providing a walkable, transit-friendly community is vital in attracting and maintaining a healthy population. This Pedestrian Access and Transit Plan identifies tools and actions to improve the pedestrian experience, safety and connectivity, and enhance access to transit.

PEDESTRIAN SAFETY TOOLS

The following section discusses items that are, or should be, included in the Village's toolbox that improve pedestrian access and safety. A summary table is provided in Exhibit 18.

- Marked crosswalks
- In-road signs
- Rectangular Rapid Flash Beacon
- Pedestrian refuge islands
- Pedestrian countdown timers
- Leading pedestrian intervals
- Roundabouts
- Narrow streets & curb extensions
- Speed signs

Marked Crosswalks

Marked crosswalks delineate where pedestrians may cross the street, providing drivers information on where to expect people. They should be installed at all signalized and stop controlled intersections, as well as new roundabouts, where sidewalks are located. At uncontrolled intersections, a marked crosswalk can be used in combination with other pedestrian safety treatments included in this section such as signage or pedestrian refuge islands. High-visibility continental ("zebra") style crosswalks are the preferred default type. Decorative or textured surfaces are also appropriate.

Rectangular Rapid Flash Beacon

Rectangular Rapid Flash Beacons (RRFB) are pedestrian activated rapidly flashing yellow lights assembled with the standard pedestrian crossing signs that warn drivers that a pedestrian is in the crosswalk. They are used at uncontrolled or midblock crossings if pedestrian activity is high and there are few gaps in the traffic stream or the roadway is excessively wide. If pedestrian volumes are high enough, a traffic signal or hybrid beacon signal may be warranted (discussed later).

In-Road Signs

In-road "State Law Stop for Pedestrians in Crosswalk" signs remind drivers that State law mandates that drivers must stop for all pedestrian within a crosswalk. These signs are an effective low-cost tool for use at uncontrolled or midblock marked crossings where it is difficult for pedestrians to cross.

Pedestrian Refuge Island

Refuge islands provide pedestrians a refuge area within intersections and midblock crossings. Short crosswalks help pedestrians cross streets more safely, and with less exposure to traffic. Median refuge islands should be used at crossings of multilane roadways or where crossing time could be inadequate for some pedestrians. Refuge median islands should be at least 6 feet wide and 20 feet long. If the refuge island is expected to be used frequently by bicycles, the minimum width is 8 feet.

In some instances where a channelized right-turn lane is necessary for high volumes or large vehicles, a pedestrian refuge island is appropriate to allow pedestrians to cross fewer lanes at a time, reduce overall crossing distances and improve access to push buttons.

Narrow Streets & Curb Extensions

Excessively wide streets create barriers for pedestrians and transit connections, as well as encouraging higher vehicular speeds. Narrow streets on the other hand can help to increase the level of pedestrian activity that supports economic and community health. Narrowing can occur at select locations or over an entire corridor and can be achieved with reduced lane widths, fewer travel lanes, or physically narrowing the roadway. Lane widths are recommended in the Functional Classification Matrix.

Landscaped curb extensions (or bump-outs) and on-street parking work to visually narrow the roadway. Curb extensions extend the curb into the street effectively reducing the width of the street at that particular location. They are used at intersections and midblock to frame the width of a parking lane, bus stop or loading zone. Curb extensions improve pedestrian visibility and reduce crossing distances, as well as visually and physically narrowing the traveled way. They are used only where there is on-street parking or loading and the distance between curbs is greater than what is needed for vehicular traffic. They have been effectively used in the Downtown/143rd Street Station area. Application is most appropriate on Collector and local streets with on-street parking where traffic calming is desired such as Wheeler Drive or in the Old Orland area.

Traffic Signal

Standard traffic signals are intended for application where traffic volumes are so heavy that pedestrians have excessive issues crossing the major street. Need for a traffic control signal must be warranted based on either traffic volumes or pedestrian volumes per the Manual on Uniform Traffic Control Devices (MUTCD).

Pedestrian Countdown Timers

Countdown timing signals are used in conjunction with typical pedestrian signal heads to provide information to the pedestrian on the time remaining to safely cross the intersection. Time indicators should be included at all new and updated signalized intersections with crosswalks. Consideration should be given to retrofitting existing signals at appropriate locations frequented by children, seniors and people with disabilities, or other high priority areas.

Leading Pedestrian Interval

A Leading Pedestrian Interval (LPI) is a traffic signal timing at signalized intersections that releases the pedestrians approximately three seconds in advance of the green traffic light. It allows pedestrians to start crossing the street before right turning vehicles can conflict with the parallel crosswalk. It is most appropriate where there is a significant number of right turning vehicles, such as at a T-intersection, or locations in close proximity to a school or park.

Roundabouts

One of the purposes of a roundabout is to provide free-flow traffic capacity to an intersection while enhancing pedestrian safety with reduced speeds. With slower speeds and areas of refuge, roundabouts provide a safer and more pleasant pedestrian crossing. Consideration, however, should be given to the volumes of pedestrians at an intersection and if the roundabout significantly alters the direct pedestrian route. Pedestrian crossings should be located at least 25 feet from the roundabout entry. Proper signing and pavement markings should be designed as per the MUTCD and FHWA Roundabouts: An Informational Guide.

Speed Signs

Signs that display passing vehicle speeds have been shown to increase speed limit compliance. Speed feedback signs should be used at locations where speeding violations are thought to occur frequently and where pedestrian activity is highest such as near schools and parks.

Exhibit 18 Pedestrian Safety Toolbox

Tool	*Characteristic*
Marked Crosswalk	• High-visibility continental style crosswalk markings • Subject to *MUTCD* requirements • Marking guidance FHWA-RD-01-075
Rectangle Rapid Flash Beacon (RRBC)	• Beacon flasher assembly with standard pedestrian crossing warning signs • Pedestrian activated • MUTCD interim approval
In-road Signage	• Regulatory signs placed in the street • Subject to *MUTCD* requirements
Refuge Island	• Pedestrian path within a raised median/island • Guidance: AASHTO *Green Book*, AASHTO *Ped Guide*, ITE *CSS Walkable Communities Manual*,
Roadway Narrowing	• Reduced lane widths and/or number of vehicle lanes • Guidance: FHWA *Ped Facilities Users Guide*, ITE *CSS Walkable Communities*
Curb Extension	• Width of curb at crosswalk increased by parking/loading lane • Guidance: AASHTO *Ped Guide*, ITE *CSS Walkable Communities*
Traffic Signal	• Standard traffic signal at intersection or midblock • Pedestrian activated • Subject to MUTCD requirements
Pedestrian Hybrid Beacon	• Combination flashing beacon and traffic signal at intersection or midblock • Pedestrian activated, dwells in dark mode • Subject to *MUTCD* requirements
Pedestrian Countdown Timers	• Displays time remaining for pedestrian phase • *MUTCD* guidance
Pedestrian Lead Interval (PLI)	• Gives three second head start to pedestrian prior to release of traffic • *MUTCD* guidance
Roundabout	• Alternative form of intersection control • Design guidance FHWA *Roundabout Guide* • Pavement markings subject to *MUTCD* requirements
Speed Sign	• Vehicle speed feedback signs

Notes:

MUTCD - Manual on Uniform Traffic Control Devices, 2009 Edition

AASHTO Green Book - A Policy on Geometric Design of Highways and Streets, 2011

FHWA Roundabout Guide - Roundabouts: An Informational Guide, 2000, Federal Highway Administration

AASHTO Ped Guide – Guide for the Planning, Design and Operation of Pedestrian Facilities, 2004, AASHTO

ITE CSS Walkable Communities – Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, 2006, Institute of Transportation Engineers

PEDESTRIAN IMPROVEMENT RECOMMENDATIONS

The following transportation policies, specifically related to walkability, are recommended to improve the safety and efficiency of pedestrian movements and access within the Village, expand the connectivity of a coordinated pedestrian network, and ensure that high quality public transit continues to serve Orland Park. The recommended system improvements are shown mapped in Exhibit 19. A complete listing of the projects is included in Section 7 within the Improvement Recommendation Matricecs.

Sidewalk Gaps

The Village has a number of gaps in its pedestrian network. The first step towards improving pedestrian access is identifying the sidewalk gaps, which are mapped in Exhibit 19 as well. The Village should continue its Sidewalk Gap Program to expand its sidewalk network and fill in existing gaps in the system. It should continue to prioritize sidewalk installation near schools, parks, churches, transit, commercial areas, neighborhood centers, and along arterial and collector roadways where sidewalk should be provided on both sides of the street. The map should be used to inform future transportation projects. The Village should ensure that residents can easily report gaps in the pedestrian network, including sidewalks in disrepair, perhaps even with a mobile device while the resident is experiencing that particular barrier. All new roads should have a sidewalk or multi-use path preferably on both sides of the streets. On-going maintenance should continue to be budgeted as part of the Village's Capital Improvement Plan.

High Priority Areas

Prioritizing pedestrian improvements around the key activity generators with the highest number of pedestrians will have the greatest potential to improve safety. Exhibit 19 also identifies a ¼ walking radius around high priority areas including schools, park entrances, commercial centers, neighborhood centers, Metra stations and Pace corridors. It is recommended that the Village prioritize pedestrian safety in these areas with efforts such as pedestrian safety tools and other traffic calming, speed enforcement and education. An inventory of pedestrian crossings within the high priority areas and an evaluation if additional pedestrian safety tools needed is recommended. This is becoming increasingly important in the discussion of Safe Routes to School as transportation budgets are cut and more children are encouraged or required to walk to school.

Signalized Intersection Enhancements

Signalized intersections along the Arterial and some Collector roadways will accommodate, not only large vehicles such as buses and trucks, but also pedestrian and bicycle crossings since signalized intersections are they safest places to cross. Design features should be implemented where possible to improve safety with slower turning speeds and shortened pedestrian crossing distances. Elements to consider include minimized curb radii, narrow travel lanes, marked high-visibility crosswalks, pedestrian signal heads with countdown timers, leading pedestrian intervals, raised right-turn lanes, and pedestrian refuge islands. The Village should also ensure that the pedestrian phases are adequate to accommodate a 3.5 feet per second walking speed, working with IDOT and Cook County where appropriate. The Village has utilized many of these features at recent intersection projects along the La Grange Road corridor, but should continue to work with other governing agencies to make sure intersection design is as pedestrian friendly as possible outside of its jurisdiction.

Uncontrolled Crossings

The Village should consider determining a marked crosswalk policy at uncontrolled and midblock crossing locations. A substantial amount of research has been conducted on crosswalk marking and best practices for installation. Village policy would indicate where a marked crosswalk is suitable and where marked crosswalks should be combined with other pedestrian safety tools such as signage, a refuge island, curb extensions, or RRFB. Guidance would be based on speed limit, roadway cross section and ADT. It is our recommendation that standard continental ("zebra") style crosswalks should be the Village's preferred default marking type.

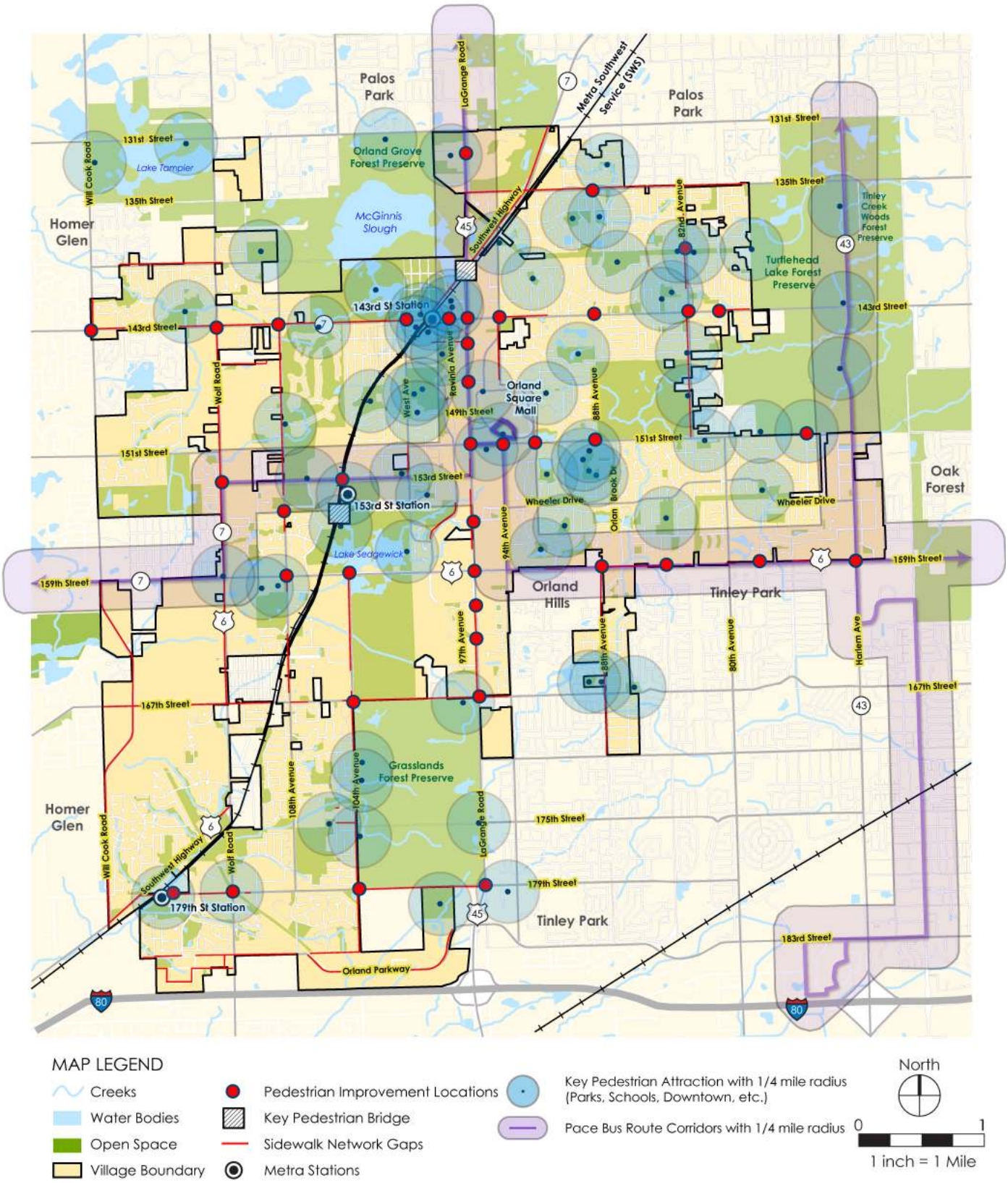

Exhibit 19

Pedestrian Access Improvement Plan

Access Drives & Cross Access

Many older commercial driveways in the Village are oversized and redundant. Wherever possible, curb cuts and driveways should be consolidated, shared and generally minimized along commercial corridors. Internal cross access should be provided wherever possible between commercial properties, connecting adjacent parking areas either in the front or rear of the buildings. Design of the access drives is also important. Radius returns should be limited based on need or design vehicle. Appearance of the sidewalk and level elevation should be maintained across the driveway to indicate that the pedestrian is given priority. Pedestrian refuge medians should be considered for wider driveways that require more than two lanes. The Village should work with area businesses to consolidate curb cuts and require access design to give priority to the pedestrian crossing/sidewalk. In some communities incentives have been given to businesses to close or consolidate driveways.

Pedestrian Experience on Arterials

With the exception of Old Orland and its newer downtown, Orland Park's commercial areas were generally developed to be automobile centric, often leaving the pedestrian experience hostile and uninviting. Furthermore, many of these corridors are not under the Village's jurisdiction so the Village is working hard to implement improvements that create a pleasant pedestrian experience along Arterial corridors including closing gaps in the sidewalk network, compact development, providing a physical separation from traffic, landscaping, minimizing access drives, and streetscape enhancements like benches, transit shelters, lighting, and wayfinding. All these elements are important parts of planning and designing major thoroughfares to be walkable. Recommended guidance for the development of improvement projects on major urban roadways can be found in the Institute of Transportation Engineers' (ITE) Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities.

Site Design

Walkability also includes site design elements which should always include on-site pedestrian facilites that connect the building entries with the public right-of-way and adjacent sites. Furthermore, parking at older commercial sites is predominantly surface parking located at the front of buildings. Many of these lots were built prior to Village regulations that require perimeter and internal landscaping. The Village should work with property owners to screen and improve parking fields at key pedestrian focus areas (i.e. Old Orland 143rd Street Frontage) with pedestrian-scale lighting, perimeter screening, fencing, and landscaped islands. The Village should also monitor parking demand and adjust minimum parking requirements or eliminate altogether to prevent retailers from oversupplying parking which creates large, unused parking fields and affects the decision to walk and bike. Consideration may be given to zoning code changes that would implement parking maximums instead of minimums for new development within a ¼ mile radius of transit access, especially the Metra stations

Network Connectivity

Some of the newer subdivisions in Orland Park were developed with excessively long blocks and minimal connectivity which results in fewer alternative routes for pedestrian and vehicle travel. This potentially increases vehicle speeds which is unfriendly to pedestrians. In some cases, the Arterials and Major Collectors become overly congested because of the limited network route options. Alternatively, a grid pattern, like the older development pattern occurring more on the eastern side of the Village, features more street intersections and shorter blocks, providing alternative routes for pedestrian and local vehicle travel. This also tends to slow traffic. New development plans should provide well-connected roadway networks with block lengths 600-700 feet, a balanced street hierarchy, and well-spaced Collectors.

Local Street Traffic Calming

Traffic calming involves the installation of physical measures on the roadway to reduce traffic speeds in the interest of pedestrian safety and livability. If the function of the roadway is a local, low speed street where large vehicle traffic is not a concern, speed humps, raised crosswalks, traffic circles and frequent intersection traffic control may be appropriate traffic calming measures to control volumes and speeds. These measures are not, however, appropriate for Arterial or Collectors that are designated to handle higher volumes of traffic and, in doing so, help to minimize cut-through traffic on local and residential streets. It is important to recognize the difference in objectives when determining appropriate traffic calming techniques.

Complete Streets Policy

A Complete Streets policy formalizes a community's intent to plan, design, operate, and maintain streets so they are safe for all users of all ages and abilities. It guides decision-makers throughout a development process to plan, design, engineer, and construct community streets to accommodate all anticipated users, including pedestrians, bicyclists, public transportation users and motorists. Complete Streets elements vary based on the surrounding context but may include separated sidewalks, bike facilities, accessibility improvements, pedestrian refuge islands, high visibility crosswalks, curb extensions and transit enhancements. The Village should adopt a Complete Streets policy to ensure new road projects and roadway repairs accommodate all users.

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TRANSIT SERVICE RECOMMENDATIONS

Every transit rider is a pedestrian at some point in their trip. As such, ridership is encouraged by improvements to the pedestrian network near transit service. The following transportation policies, specifically related to public transportation, are recommended to improve the access within the Village and ensure that high quality public transit continues to serve Orland Park as provided by three Metra stations on the Southwest service line and four Pace bus routes.

Metra Service

Orland Park residents have enjoyed the addition of Saturday service on the Southwest Line. However, only three inbound and three outbound trains run throughout the day to/from Chicago. On weekdays, 15 inbound and 15 outbound trains run throughout the day but no express service is offered. Both express and increased Saturday service would make Orland Park more accessible and attractive to regional residents and visitors. At least one weekday express train inbound in the morning and outbound in the evening would be beneficial.

Pace Route Restructuring & Service Coordination

Very few Metra riders take Pace to and from the Village's train stations. The Village should work with Pace to modify routes 379 and 832 to provide more direct connections to the 143rd Street and 153rd Street Metra stations, respectively. Currently, these routes do not circulate the station area, but remain on the Arterial roadway consequently providing an inconvenient connection. Specifically, an opportunity is missed to provide residents on the west side north of 159th Street a convenient connection to the 153rd Street station. Furthermore, the Village should work with Metra and Pace to coordinate scheduling to ensure that Pace bus service aligns with Metra train arrivals and departures. Village land use policies should be coordinated with Pace service plans to provide the greatest possible level of access to areas best served by bus transit.

Transit Facilities

Convenient and inviting transit facilities are an important component of the public transportation system as they enhance the customer experience and contribute to increased ridership. Facilities include sidewalks, bus shelters, bus pull-outs and turnarounds, benches, bike racks, and commuter parking. New technologies are also being tested and implemented such as real-time next-bus signs and digital announcement displays. The Village should coordinate with Pace to understand any requirements of new service models, like Bus Rapid Transit (BRT), such as unique facilities, rights-of-way, and technologies. If Pace bus routes are to stay on the Arterial mainlines, improved transit facilities are essential at Metra station connection points. Standards should be established that ensure sidewalk links are in place connecting to transit stops and that sidewalk installation in areas adjacent to transit access is considered a high priority area. The Village should include transit facilities in streetscape improvement projects and require consideration in private site design (i.e. Orland Square Mall as a transportation center with several Pace routes connections.)

Activity Generators

Commercial areas and employment centers are key activity generators that centralize a lot of potential transit riders. Increasing transit use in these areas would translate into reduced traffic congestions as fewer vehicular trips were generated. The Village should work closely with Pace to explore all possible ways to provide transit access from the 143rd Street and 153rd Street Metra stations to major commercial and employment centers, including fixed route restructuring and the Vanpool Incentive Program (VIP). It should work with local employers and businesses to identify locally-sponsored services that fill in gaps in the public transit service, including carpools and shuttles. The Village may consider undertaking a Comprehensive Transit Plan to identify major existing and future activity generators within the Village and ensure they are adequately served by Metra and Pace.

Transit Circulator

A shuttle or transit circulator has previously been discussed in Orland Park by Village officials. The Village should initiate a public outreach process to gauge the public's interest in a transit circulator that would allow for an alternative to personal automobile transportation throughout the City. Key focus areas for a circulator would be Metra stations, Downtown/Old Orland and retail destinations. It would allow shoppers to use remote parking at Metra lots on weekends thus allowing for shared parking and a reduction of parking requirements. Orland Park would benefit from a more connected feel as a result of a circulator that linked parking areas, retail destinations, and Metra stations, similar to intra community shuttle in other regional suburbs. The Village should further study the feasibility of a local circulator or shuttle system with service to key activity nodes.

Chapter 5

RECOMMENDED PATH & BIKEWAY PLANS

Orland Park's open space and bicycle network serves recreational bikers well throughout the community. The Village should continue to integrate bicyclists along roadway corridors and provide direct access to community destinations. Multi-use paths, directional signage and additional bike amenities will support further bike use throughout the community.

IMPORTANCE

According to the American Journal of Public Health, 89 percent of trips in urban areas are 1-2 miles in length and made by a car. Moreover, 66 percent of trips are less than one mile and made by car. At a peak of an obesity epidemic in this country, those trips should be taken by an active mode of transportation such as biking or walking. By providing a continuous bikeway network through the Village, bicycling becomes a viable alternate to driving. The AASHTO Bike Guide – the nationally accepted standard in bicycle facility design – says that "All highways, except those where bicyclists are legally prohibited, should be designed and constructed under the assumption that they will be used by cyclists. Therefore, bicyclists should be considered in all phases of transportation planning, new roadway design, roadway construction and capacity improvement projects, and transit projects."

It is important to understand that bicyclists are legal users of all roadways. Illinois Rules of the Road says:

- Bicyclists have the same rights and responsibilities as drivers of motor vehicles
- Cyclists are allowed to use public streets and highways, except controlled access freeways
- Motorists passing bicyclists must provide three feet minimum clearance
- Bicyclists ride as close to the right edge of the streets as practicable and they keep right except to overtake another bike, turn left, pass a right turning vehicle or right turn lane, avoid unsafe pavement.
- If the lane is too narrow to permit a vehicle to pass a bike, the bike may use the whole lane.

TYPES OF CYCLISTS

When identifying bicycle network improvements, it is important to understand that the system should meet the needs of many bicyclist types since preferences of bicyclists vary depending on the cyclist's skill level and the type of trip a rider wishes to take. Bicycle planners have conducted numerous studies to help develop profiles of the various bicycle user types and their respective needs. The research, which categorizes bicyclist user types onto three groups, is generally described in the updated American Association of State Highway and Transportation Officials' (AASHTO) Guide for the Development of Bicycle Facilities, referred to generally as the AASHTO Bike Guide. This document is one of the most commonly used reference materials for communities seeking to improve their bicycling environments.

Approximately 8 percent of Americans comprise a group of bicyclists who are 'Experienced and Confident'. These bicyclists are mostly comfortable riding on all types of bicycle facilities. Some will prefer low traffic streets or multi-use pathways when available. Others will ride anywhere on any roadway regardless of roadway conditions or weather and can ride faster than other user types. The more experienced members of this group prefer direct routes and will typically choose roadway connections – even if shared with vehicles – over separate bicycle facilities such as bicycle paths. The less experienced bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists including commuters, recreationalists, racers, and utilitarian bicyclists.

The majority of the American adult population is 'Casual and Less Confident' and represents bicyclists who typically only ride a bicycle on low traffic streets or bicycle paths under favorable conditions and weather. Some are infrequent or potential bicyclists that perceive significant barriers towards increased use of bicycling with regards to traffic and safety. These bicyclists may become more regular riders with encouragement, education, experience and engineering – more frequent and generous facilities for bicyclists. Other members of this group are those who bike nearly every day by necessity because they can't afford a car, are non-drivers (for multiple reasons) or live in areas not well served with transit.

Children cyclists are in a group by themselves. They have a wide range of skills and cognitive capabilities but are generally slower to recognize a dangerous situation which leads to increased accident risks, especially when crossing a street or other interactions with traffic.

Understanding of the types of cyclists leads to development of a diverse bikeway network serving both the confident and less confident as the best way to attract new people to bicycling for transportation, and to help encourage existing bicyclists to ride more often.

Bike Facility Definitions

Orland Park's bikeway system is recommended to be made up of several facility types classified as either on-street or off-street.

» On-street Bikeways

- Shared lanes
- Marked shared lanes
- Paved shoulders
- Bike lanes

» Off-street Bike Facilities, or Multi-use Paths

- Trail
- Sidepath

Bikeway - A general term for any street or path which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designed for the exclusive use of bicycles or are to be shared with other transportation modes.

Multi-use Path - This is a bikeway that is physically separated from motor vehicle traffic by open space or a barrier and is either within a roadway right-of-way or within an independent right-of-way. Multi-use paths are also commonly referred to as multi-use paths as they are used by cyclists, pedestrians, skaters, wheelchair users, joggers and other non-motorized users. Types of multi-use paths include trails and sidepaths (defined below.)

Trail – A multi-use path, either paved or unpaved, built within an independent right-of-way, or outside the boundaries of a roadway right-of-way. Trails may also traverse through campuses, along waterways, or share right-of-way with former and active railroads or utility easements.

Sidepath – A multi-use path located immediately adjacent and parallel to a roadway.

On-Street Bikeway – A bikeway that accommodates bike travel on the roadway with on-street bike facilities such as shared lanes, bike lanes, paved shoulders, or wide outside lanes.

Shared Roadway – A roadway that is open to both bicycle and vehicular travel.

Shared Lane – A lane of travel way that is open to both bicycle and vehicular travel.

Bike Lane – A portion of roadway that has been designated for exclusive or preferential use by bicyclists by pavement markings and, if used, signs.

Bike Route - A bikeway designated by the Village with a unique route designation or with Bike Route signs, along which bicycle guide signs may provide directional and distance information.

Sidewalk – The portion of a roadway right-of-way, beyond the curb or edge of roadway pavement, which is intended for use by pedestrians.

SELECTION OF RECOMMENDED FACILITIES

Whenever streets are constructed or reconstructed, appropriate provisions for bicyclists should be included. The best application of each facility type is determined based on experience, data, engineering judgment and budget constraints. It should also be considered that one of the most effective tools for encouraging bicycling is to provide a visible network of bikeways. Selection of an appropriate bikeway in the Village should be based on road function, traffic volumes, speed, expected users, roadway characteristics, driveways, topography, adjacent land uses and cost. Exhibit 20 outlines general considerations for each facility type in Orland Park. This table is intended for use on Village-owned roadways. Selection criteria for IDOT roadways should also be based on its bike facilities table found in the Bureau of Design & Environment Manual (BDE).

Exhibit 20 Considerations for Bike Facility Types

Facility Type	*Best Use*	*Traffic Speed Limits*	*Traffic Volume (ADT)*	*Roadway Classification*	*Notes*
Shared lanes (no special provisions)	Minor roads with low volumes	Varies	Generally <1,000	Neighborhood of local streets	• Alternative to busier streets • May be discontinuous
Shared lanes (wide outside lane	Major roads with space constraints	25+ mph	Generally >3,000	Arterials, Major Collectors	• 14' preferred dimension • Explore ways to provide marked shared lanes or bike lanes for less confident riders • Warning signs appropriate
Marked shared lanes	Space constrained roads where bicycle/vehicle speed differential is low	35 mph or less	Varies	Major & Minor Collectors	• Useful with on-street parking to keep bikes from door zone • Announces bikeway routes to all users to strengthen bikeway network • Wayfinding element
Paved shoulders	Rural highways that connect destinations	40-55 mph	Varies	Rural roadways	• 4' minimum • Rumble strips not recommended or wider shoulder
Bike lanes	Major roads providing direct access to major land uses or Collectors with slower speeds	25+ mph	Varies	Arterial, Major & Minor Collectors	• With & without parking • 5-6', generally one-way • MUTCD striping & symbol guidelines • Bicycle safe drainage grates
Shared use path (Trail - independent ROW)	Greenways, waterways, freeways, active or abandoned rail lines, utility ROW.	N/A	N/A	Separated path to supplement on-street bikeway network	• 10' minimum recommended • Minimize intersection/ driveway conflicts • May be short connection or long recreational trail
Shared use path (sidepath)	Adjacent to roadways with no or very few intersections or driveways & for short distances to provide bikeway connections	Higher speed roadways where cyclists may be discouraged from riding	Higher volume roadways where cyclists may be discouraged from riding	Separated path to supplement on-street bikeway network.	• Several operational issues • 5' minimum separation recommended • Not intended to substitute or replace on-street accommodations

Source: AASHTO's Guide for the Development of Bicycle Facilities, 4th Edition & National Association of City Transportation Officials' (NACTO) Urban Bikeway Design Guide

SIDEWALKS AND BICYCLING

Sidewalks should generally be considered unacceptable bikeway facilities. Sidewalks are intended for use by pedestrians only. They are typically 5-6 feet wide and do not provide adequate space for a cyclist to comfortably pass another cyclist or a pedestrian. Also, they often cross frequent driveways which creates a safety concern for faster moving cyclists. Based on a study by the University of Washington, "Accident Rates for Various Bicycle Facilities," the relative danger index of riding on sidewalks is four times greater than riding on a major roadway without bike lanes. Adding bike lanes makes riding on-street ten times safer than riding on the sidewalk. Although riding on sidewalks is not in violation of any Village ordinances, the use of sidewalks as designated bikeways is not considered in this Plan.

MULTI-USE PATH & BIKEWAY PLAN

The Orland Park multi-use path network focuses Centennial Park as the hub of a network connecting the Tinley Creek Forest Preserve on the northeast with the Orland Grove Forest Preserve on the northwest and the Orland Grasslands Forest Preserve to the south. The network links parks, Downtown, Old Orland, Metra stations, Village Center, the Humphrey Complex and the Orland Park Library. In order to minimize vehicular conflicts, the network's main "spine" follows open space areas forming a Green Belt through the community. The Village should continue to establish and expand its mutli-use path network as identified in the Orland Park Multi-Use Path Map shown in Exhibit 21.

It should also develop a Bike Plan that comprehensively identifies on-street routes and associated accomodations to expand the bikeway network even further. The map identifies possible on-street facilities that should be studied further. It establishes a secondary system that links the multi-use path network with neighborhoods utilizing on-street bikeways. It should also work with relevant agencies to secure grants and other funding to expand the Village's path network and increase regional connectivity. A review of the bikeway network revealed priority concerns yielding these key focus areas and recommendations:

» Identification of Primary Bikeways. The Village should identify a network of Primary Bikeways where, if at all possible, bike facilities should include off-street accommodations in order to provide service to both the confident and less confident riders. Additional bikeways, or secondary bikeways, will serve as connections to the Primary Bikeway network and will include multi-use paths and on-street facilities/signage. Exhibit 21 provides a suggested Primary Bikeway system.

» An east-west bikeway connection is needed across the LaGrange Road corridor near 159th Street. The Village should ensure that any future development in the area incorporate a bikeway connection to allow for a signalized crossing at LaGrange Road.

» Bike facility connections are lacking between neighborhoods on the western corridor of the Village and should be considered a priority in order to connect residents with their neighbors, schools and parks.

» Special consideration should be given to bike facilities on 143rd Street over the railroad tracks and connecting to the existing trail that links to the pedestrian/bicycle bridge recently constructed over LaGrange Road.

» Prioritization should be given to implementing bike facility connections to the Metra stations, Old Orland, Downtown and Orland Square Mall as they are key activity nodes within the Village.

» The traffic circulation and parking fields surrounding Orland Square Mall present a barrier to convenient bicycle access. Overall better direct connections are needed to Orland Square Mall from the east and west.

» In order to complete a greenway concept through the Village, priority should be given to constructing trail connections around the south side of Lake Sedgewick and south to the Grasslands Forest Preserve.

» Most on-street bikeways as designated are on low speed, local or residential streets and do not need any special provisions to adequately accommodate bikes except signage.

» Several circuitous on-street bikeways, such as 88th Avenue, should be signed because there are many turns and dead ends.

» To enhance the 153rd Street bikeway corridor, 153rd Street should be restriped with on-street bike lanes between La Grange Road and West Avenue.

» The Village should ensure that any future roadway projects on 131st Street and 135th Street include a minimum 4-foot paved shoulder for bike use.

» Any future roadway projects/realignments of John Humphrey Drive/Orland Square Drive should incorporate on-street bike facilities such as bike lanes. Further study is needed as John Humphrey Drive may be a good candidate for a road diet, reducing the four lane section to three lanes with bike lanes.

» Future roadway projects on 151st Street should contemplate an urban section with bike lanes.

» Any new roadway where an off-street bike facility (sidepath) is proposed should be designed with limited driveway conflicts. If frequent driveways are necessary, design of the roadway should contemplate on-street bike facilities instead as they are safer.

» The Village should explore other bike facility types for all bikeways identified as Sidewalks/Bikeway Connections as sidewalks should only be used as a bike facility for children and only if necessary. For example:

- Phase I engineering of 143rd Street should incorporate a multi-use path in locations outside of Downtown where bikes will need to share the roadway.
- 94th Avenue should be a designated on-street bikeway. The cross section should provide one 11-foot lane and one 14-foot outside lane marked as a shared lane (sharrow).
- West Avenue should also be designated an on-street bikeway provided the outside lane is 13-14 feet wide. Pavement markings may be used (sharrow).

A complete listing of projects is shown in Section 7 as part of the implementation plan.

Village of Orland Park

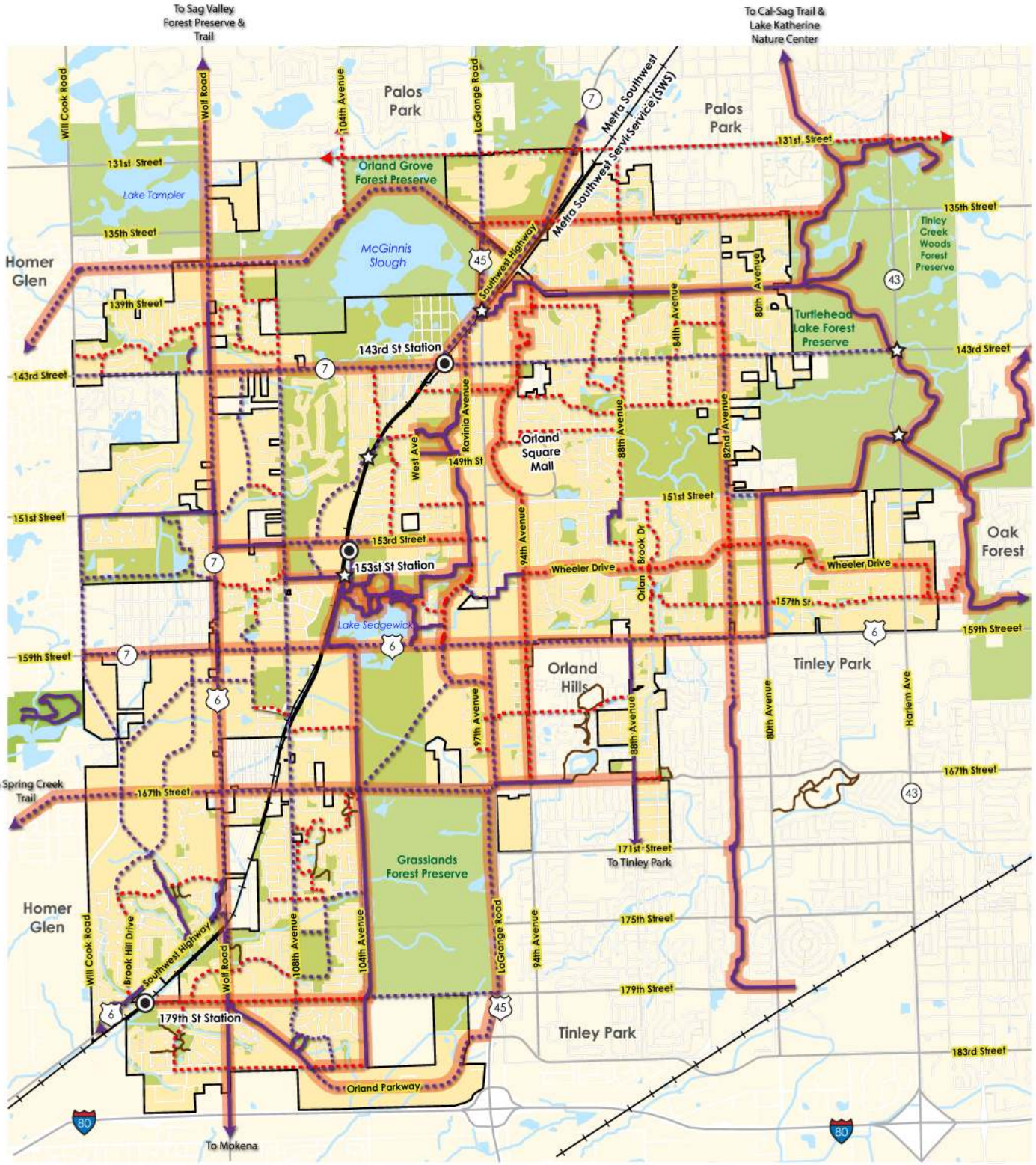


Exhibit 21
Multi-Use Path & Bikeway Plan

DESIGN GUIDELINES

Design Reference Material

The following is a list of references and sources utilized to develop design guidelines for Orland Park's Bikeway Plan. Many of these documents are available online and are a wealth of information and resources available to the public.

AASHTO Bike Guide
Guide for the Development of Bicycle Facilities, 2012
American Association of State Highway and Transportation Officials, Washington, DC.
www.transportation.org

AASHTO Green Book
Policy on Geometric Design of Streets and Highways, 2011
American Association of State Highway and Transportation Officials, Washington, DC.
www.transportation.org

MUTCD
Manual on Uniform Traffic Control Devices, 2009
Federal Highway Administration, Washington, DC.
http://mutcd.fhwa.dot.gov

NACTO Guide
Urban Bikeway Design Guide
National Association of City Transportation Officials, New York, NY
http://nacto.org

ITE CSS Manual
Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, 2006
Institute of Transportation Engineers
http://www.ite.org/css/

SCM Bicycle Plan, 2012
Southwest Conference of Mayors
Bicycle Parking Design Guidelines
http://www.bicyclinginfo.org

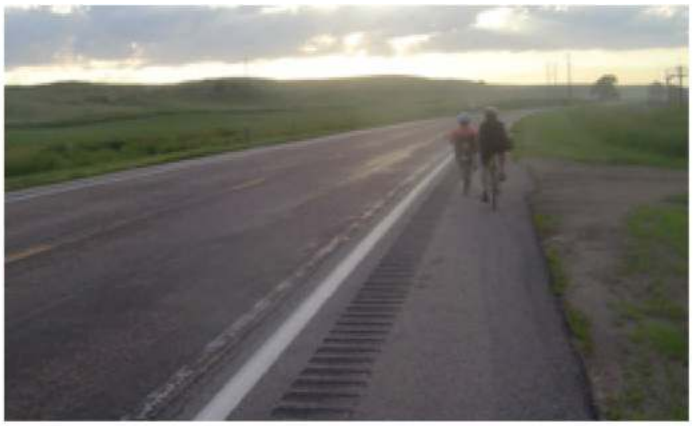
Bike Facility Engineering Design Guidelines
http://www.bicyclinginfo.org/engineering

Complete Street Sections

The concept of a 'complete street' is based on the principle that all streets should include basic amenities for all forms of transportation, not just vehicles. Bicyclists can be found on almost every type of roadway, from rural to local streets, and the majority of these roads have no special facilities designated for bicycling. Often, many roads have no need for special on-street bike facilities as long as an acceptable amount of space is provided for bicyclists and the pavement has an acceptable level of maintenance. Nonetheless, on-street bikeways are a critical part of the bicycling infrastructure and need to be maintained and operated so that bicyclists can use them safely and comfortably. Drainage grates, railroad tracks, potholes, utility covers, gravel, wet leaves, pavement joints and many other surface irregularities have a profound impact on bicyclists and can cause a fall and serious injury. The following are examples of on-street bike facilities.

Bike lane with cyclist symbol and arrow.

Wide outside lane with sharrows and "Share the Road" sign. Sidepath also provided for less experienced riders.

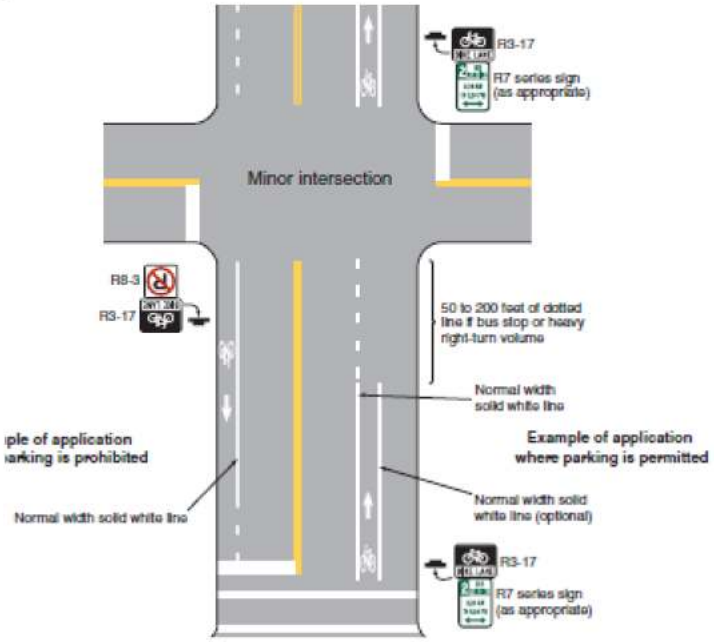


Pavement Markings

The MUTCD provides guidance for lane delineation, intersection treatments, and general application of pavement wording and symbols for on-street bicycle facilities and off-street paths.

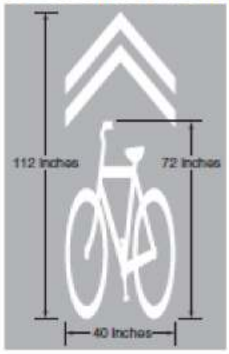
Bike Lanes

A bike lane is defined as a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of cyclists. Bicycle lane striping should follow standards from the AASHTO Bike Guide and the MUTCD. The MUTCD offers guidance on conventional bike lanes in Section 9C.04. In addition, the NACTO Bikeway Guide covers innovative bike lanes such as buffered lanes, contra-flow lanes, and left-side bike lanes. The NACTO Guide also provides guidance on cycle tracks which are bike lanes that have a physical barrier between the bike and vehicular traffic.



Sharrows

Figure 9C-9. Shared Lane Marking



Sharrows are shared lane markings used to indicate a shared lane for bicycles and vehicles. Among other benefits, sharrows reinforce the legality of bicycle traffic on the street, recommend proper positioning if used with on-street parking, and can offer directional guidance. The MUTCD outlines guidance for shared lane markings in section 9C.07. The NACTO Bikeway Guide expands on the many benefits of the marking and illustrates many useful applications.

Intersections

Intersections are one of the primary collision points for bicyclists. Generally, the larger the intersection, the more difficult it is for bicyclists to cross. Most intersections do not provide designated locations for bikes since bike lanes and other markings often end before intersections. The design of bike lanes at intersections is complicated by the need to accommodate numerous turning movements by both traffic and bicyclists, often with limited available space. The following should be considered when designing a bike friendly intersection:

- Bike lane stripes should not be extended through a pedestrian crosswalk or any street intersection. Dashed lines are optional at some uncontrolled intersections.
- Bike lanes at signalized or stop controlled intersection should end at the stop line or crosswalk, except dashed lines in some cases.
- Bike lanes shall be to the left of right-turn lanes or share the right-turn lane space. See the AASHTO Bike Guide for guidance.
- When bike lanes are marked for left turn movements, the bike lane stripe should be to the right of left turning vehicles.
- According to the AASHTO Bike Guide, bike lanes should be discontinued prior to a roundabout, and bike lanes markings are not to be marked on the circular roadway.

Innovative Treatments

There are a number of innovative bike facility designs to overcome particular barriers to bicycling or to solve a problem in a particular location. The NACTO Bikeway Guide is a great resource for innovative solutions to apply to unique urban streets.

- Colored bike lanes
- Contraflow bike lanes – In location where there is a strong demand for bicyclists to travel against the normal flow of traffic, or to travel in both directions on a one-way street, a contraflow bike lane may be used.
- Bike Boulevards - Bicycle boulevards are streets with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority using signs, pavement markings, and speed and volume management measures to discourage through trips by motor vehicles.
- Bike Box
- Bike Activated Detector Loops - Bicycle-activated loop detectors and camera detection make it easier and safer for cyclists to cross intersections.

Signs

Signage on designated bikeways that exist as part of the roadway network is an important part of the bike network. However, directional signs are most useful if they indicate to cyclists where they are being directed. BIKE ROUTE signs and arrows along streets with no indication to cyclists as to where they are being directed are usually ignored. Cyclists will usually ignore these signs if they send them out of direction as well. Wayfinding signs such as that shown to the right improve the clarity of travel direction while illustrating that destinations are only a short ride away.

Implementing a well-planned and attractive system of signing can greatly enhance bikeway facilities by signaling their presence and location to both motorists and existing or potential bicycle users. Effective signage can encourage more bicycling by leading people to Orland's bikeways, and by creating a safe and efficient transportation option for local residents and visitors. All bikeway signage should conform to the MUTCD.

Village of Orland Park

Multi-use Path

The Village's Bikeway Map identifies an extensive network of multi-use paths – trails and sidepaths - planned for the community, providing a network for recreation, commuting and access to major recreational destinations. The network expands the existing trail system in the Village and connects to on-street facilities. The paths are meant to be used by a wide variety of users including cyclists, pedestrians, joggers, in-line skaters, fitness walkers, and people with dogs or strollers. Multi-use paths are intended as an addition and complimentary to the roadway network since even the most extensive trail network cannot provide access to all origins and destinations in the Village.

Multi-use paths should be designed based on many of the same engineering principles that are applied to highways such as sight distance and stopping distance. Guidance on the design of multi-use paths is provided in the AASHTO Bike Guide. Ten feet is the recommended minimum width for two-way, multi-use paths on a separate right-of-way. Eight feet may be used where bicycle traffic expected to be low. One of the key elements of designing these multi-use paths is to safely integrate with vehicular traffic at crossing locations with warning signs both for vehicles and trail users. Criteria for crossing type, location and signage are also identified in the MUTCD.

There are a number of amenities that can be provided along multi-use paths to make them as inviting as possible to users.

- » Maps & signage
- » Pedestrian scale lighting
- » Benches
- » Water fountains
- » Bike racks
- » Art Installation

Bike Parking

A lack of convenient and secure bicycle parking is a leading factor preventing people from cycling to their destination. The Village should continue to provide public bicycle racks at key activity nodes such as parks, Metra stations, Downtown and other commercial areas. It should continually locate and strategically plan for additional areas of bike parking. On-street bike parking has become popular in many downtown districts since is can be easily located near building entries and sets a precedent that bikes have priority over vehicle parking. Not only should the Village provide public bike parking, it should establish a minimum bike parking requirement for all new commercial and institutional development.

Drainage Grates

Drainage grates typically occupy portions of roadways where bicycles frequently travel. Improper drainage grates create an unfriendly obstacle a cyclist must navigate around, often forcing entrance into a motor vehicle lane or even cause cyclists to crash in severe cases. Bicycle friendly drainage grates should be installed in all new roadway projects and problem grates should be identified and replaced.

COORDINATION

As previously mentioned, the Village currently has a Bikeway Map that identifies existing and future proposed on- and off-street bike facilities. The Village should continue to coordinate with Cook County Forest Preserve and adjacent communities to strategically plan for community bikeway projects that consider the surrounding areas as a whole network. IDOT is currently in the public outreach process of its first Bike Transportation Plan which is due out December 2013. The Southwest Conference of Mayors (SCM) completed publication of its 2012 Bicycle Plan which acts as a guide for planning and implementing bicycle facilities in the SCM service area including Orland Park.

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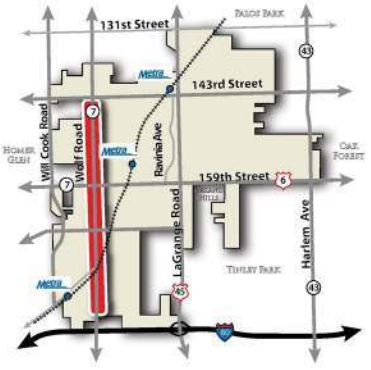
Chapter 6

PRIORITY CORRIDORS & FOCUS AREAS

The following section provides a Plan for three corridors or focus areas that were determined by Village staff and the consultnat team to be particularly important in their contribution to transportation network and community character. The following areas were identified as "Priority Corridors & Focus Areas" and are addressed in this section.

- Ravinia Avenue - Civic Campus
- 143rd Street - Crossroads of Downtown
- Wolf Road - Nature & Wildlife Corridor

Some other priority corridors include LaGrange Road and 159th Street. Both are critical transportation corridors that are currently in the final stages of design. The Village is currently coordinating with IDOT to include various enhancements and transportation features within the corridors.



RAVINIA AVENUE

Ravinia Avenue is located parallel to the west side of the Village's primary retail corridor, LaGrange Road. In contrast to the high traffic and dense land uses along LaGrange Road, Ravinia Avenue is a tree lined curvilinear street that primarily serves as the Village's civic campus. It is an important community corridor and local travel route that showcases civic character and is an inviting pedestrian environment. Since the corridor abuts the rear sides of LaGrange Road commercial areas, it provides a safer pedestrian access to some businesses. In some instances, landscape screening is provided. However, additional screening should be considered to promote the appearance of a green civic Ravinia Avenue corridor.

The natural areas along Ravinia Avenue, including those areas associated with Lake Sedgewick and Centennial Park, should be emphasized. This includes nature trails and hiking paths. A combination of on-street bike routes, off-street multi-use paths and sidewalks exist along this corridor. Where gaps exist, additional multi-use paths should be completed.

In order to calm traffic and place focus on the surrounding environment, Ravinia Avenue should provide a maximum of three travel lanes, a single lane in each direction plus a center turn lane. Ravinia Avenue will be extended from its south terminus to intersect LaGrange Road. ADT on Ravinia Avenue is projected to increase to 6,000 vpd in 2040 which is well below the threshold needed to warrant widening or making major improvements to capacity. From a traffic calming perspective, keeping the roadway narrow is more beneficial. Ravinia Avenue should remain a two to three-lane roadway and spare right-of-way (60-110') should be used to accommodate multimodal options (i.e. sidewalk and multi-use path) and community character instead. In the segment of Ravinia Avenue north of 151st Street, a linear park could highlight Orland Park's natural and cultural environment with bioswales and public art. A recommended cross sections of Ravinia Avenue is shown in Exhibit 22.

Ravinia Avenue is a prime candidate for roundabouts at select intersection locations including 147th Street, 149th Street, 153rd Street and West Avenue. Roundabouts will calm traffic while providing needed capacity at some of these intersections. They will also contribute an aesthetic quality to the corridor. The Village is encouraged to continue to promote roundabouts along Ravinia Avenue.

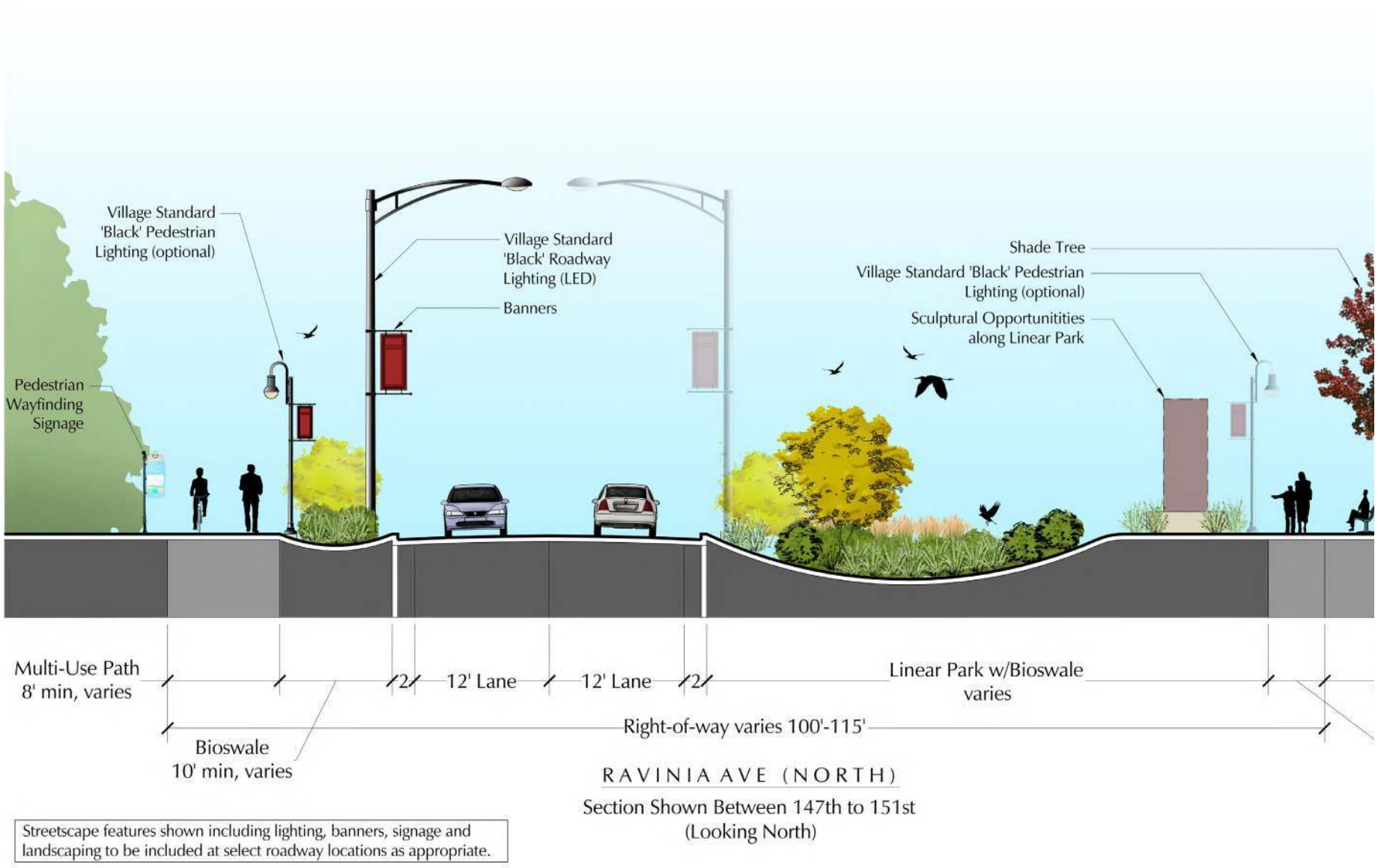


Exhibit 22
Ravinia Avenue Cross Section

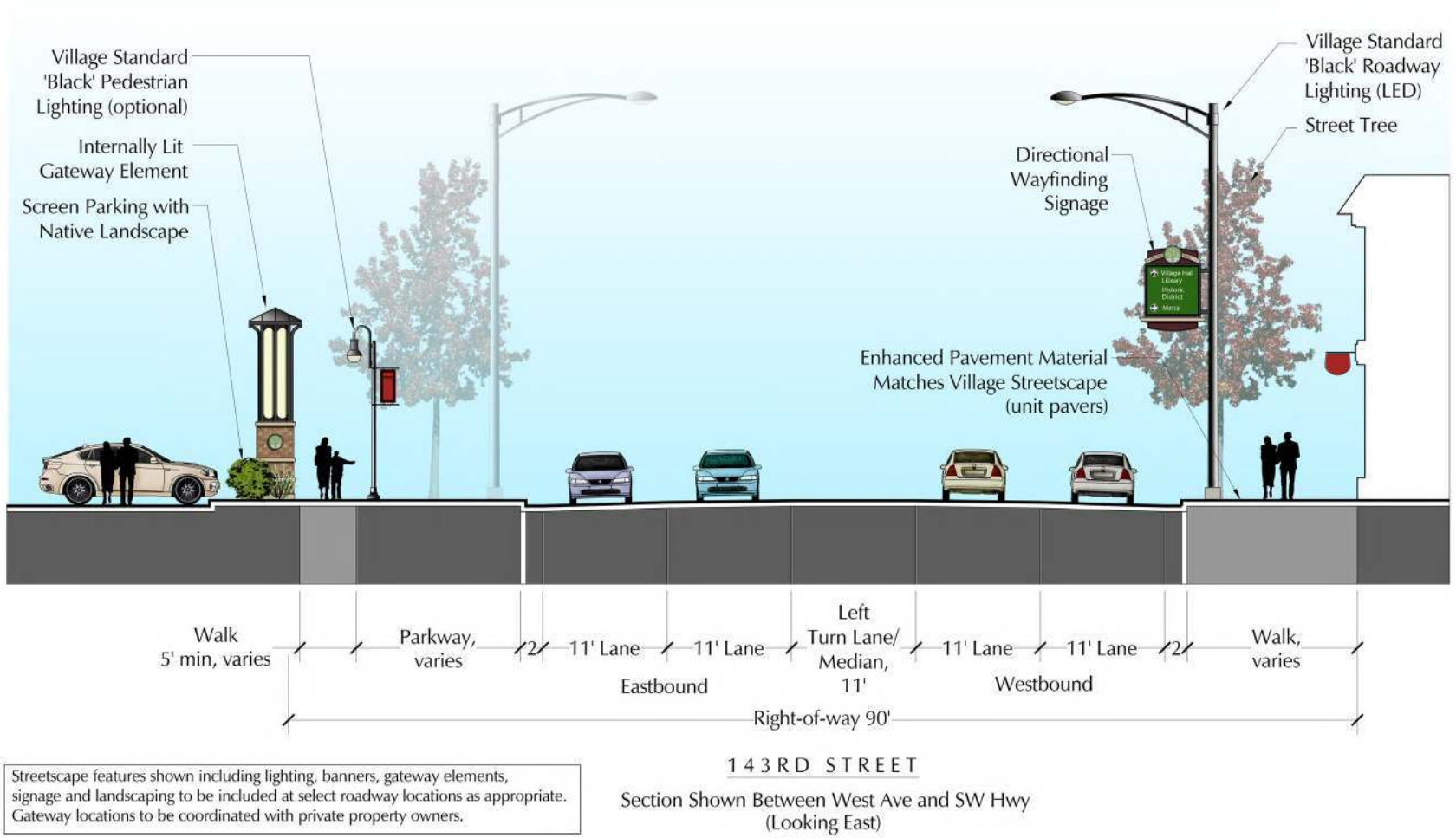


Exhibit 23
143rd Street Cross Section

143RD STREET

143rd Street varies in character from low density land uses and natural areas towards the west to high density commercial and residential towards the east. The corridor is a major east-west arterial that crosses the Old Orland Historic District, Downtown and the Metra Station and provides access to the LaGrange Road commercial corridor.

Cross Section

East of Southwest Highway, the roadway provides four travel lanes and a center turn lane with an urban section. West of Southwest Highway, two travel lanes are provided with a left-turn lane provided at higher volume intersections. The roadway will be widened to four lanes with a center landscaped median from Southwest Highway to Will Cook Road. The cross section concept to the left in Exhibit 23 illustrates how the roadway may look. A multi-use path will be provided on one side of the roadway and sidewalk on the other. Right-of-way is generally acquired and the Village is in the process of completing the Phase I study of the corridor.

Southwest Highway Alignment

The 143rd Street corridor contains all scales and types of development including the compact downtown core. The key focus area of the corridor is around the Downtown, Old Orland and Southwest Highway. In order to respect the scale and character of the community's historic core, improvements to 143rd Street should visually and functionally connect Old Orland with Downtown, including support for pedestrians and continuation of streetscape treatments.

As such, recommendations for the Downtown area are presented as a Min and Max scenario that ranges from immediate, low cost options to longer term roadway realignments. The following plans work to create redevelopment opportunities, contribute to the unique character of the area, improve traffic operations and pedestrian access, all the while improving the appearance and function of Downtown.

Min Plan

This plan would maintain the existing Southwest Highway alignment at 143rd Street. Traffic signal upgrades and modifications at Southwest Highway, Union Street, and West Avenue would help improve traffic flow in the area. The traffic signals would benefit from being optimized and interconnected as a signal system to promote progression along the corridor. Sidewalks, pedestrian crossing gates and ADA ramps are needed at the railroad tracks. Other pedestrian crossing intersection enhancements would improve pedestrian access to the area.

- Pro: Lower costs/no land acquisition
- Con: Undesirable intersection geometry is maintained

Max Plan

This plan would change the alignment of Southwest Highway to intersect 143rd Street at a more perpendicular angle aligned with Union Street. See image to the right. By closing the existing leg of Southwest Highway, one of two closely spaced signals is eliminated and the safety of the intersection is improved. This plan contemplates widening 143rd Street to a five-lane section as shown in the attached cross section.

- Pros: Improving intersection geometry and pedestrian connections
- Cons: Land acquisition, topography, and elimination of the developable parcel on Southwest Highway

Business Enhancements

Corridors and districts are most appealing when partnerships exist between municipalities and private property owners. The Village is encouraged to continue to work with the development community and private property owners towards promoting quality design within the Village. Given the new Triangle Development, the Historic Downtown is an opportunity to enhance the function and appearance of businesses, including façade enhancements, parking lot greening, business and wayfinding signage, and provisions for outdoor plaza spaces.

Village of Orland Park


Lakeshore
School
of Art
SCOPE
ART

WOLF ROAD

The Wolf Road corridor is mostly a rural, two-lane roadway section that traverses Forest Preserve areas influencing a natural rustic landscape. The corridor historically provided two travel lanes, shoulder and ditch within a typical rural 66-foot right-of-way. As development has occurred along the corridor, the right-of¬way and roadway has been widened to provide turn lanes and allow for future widening. Beyond the northern limits of the municipal boundary, Wolf Road terminates at Cook County Forest Preserve Property. Beyond the southern limits of the municipal boundary, Wolf Road continues south past I-80 towards Mokena.

Cross Section

Existing and future traffic volumes require that the roadway be widened to four travel lanes and auxiliary turn lanes be added. There are many undeveloped lots along this corridor. It is expected that most of the growth within Orland Park will occur within this corridor, further adding to the need for a wider roadway section. Since it is the Village's desire to maintain the rural character of the corridor, the section shown in Exhibit 25 is desired as it respects the existing setting, including tree preservation, native plant patterning, and sustainable practices. An existing sidepath is located along Wolf Road between 139th and 143rd. Beyond the existing sidepath, no sidewalks exist along Wolf Road. All future plans should include extending the existing sidepath north to the Sag Valley Forest Preserve and Trail System and south to the Homer Glen Spring creek Trail System and to Mokena onto the Old Plank Trail.

Roadway Plantings

Forest Preserve landscapes are memorable images throughout the community. The Village is encouraged to continue to incorporate landscape patterns and native species that are reflective of the Forest Preserves as appropriate along roadway corridors. Patterns include bold massings of native plant materials. Where appropriate, such as along Wolf Road and Ravinia Avenue, bioswales may be incorporated as drainage patterns and maintenance practices allow.

New I-80 Interchange

Analyses indicate additional north-south capacity is needed through Orland Park now and in the future to meet travel demand. The proposed widening of Wolf Road will increase capacity and reduce some of the burden on LaGrange Road, but congestion will persist along LaGrange Road unless another through alternate is introduced to the system.

Opening a Wolf Road/I-80 interchange would provide an alternate for north-south travel as well as reduce east-west travel demand west of LaGrange Road. In addition to changing overall traffic patterns, this would potentially create a significant western, north-south corridor through the village to promote residential and commercial development. Access to I-80 along this corridor would serve to strengthen the western side of the community. The Village should work with neighboring Mokena and IDOT to provide this important additional connection to the interstate system for Orland Park.

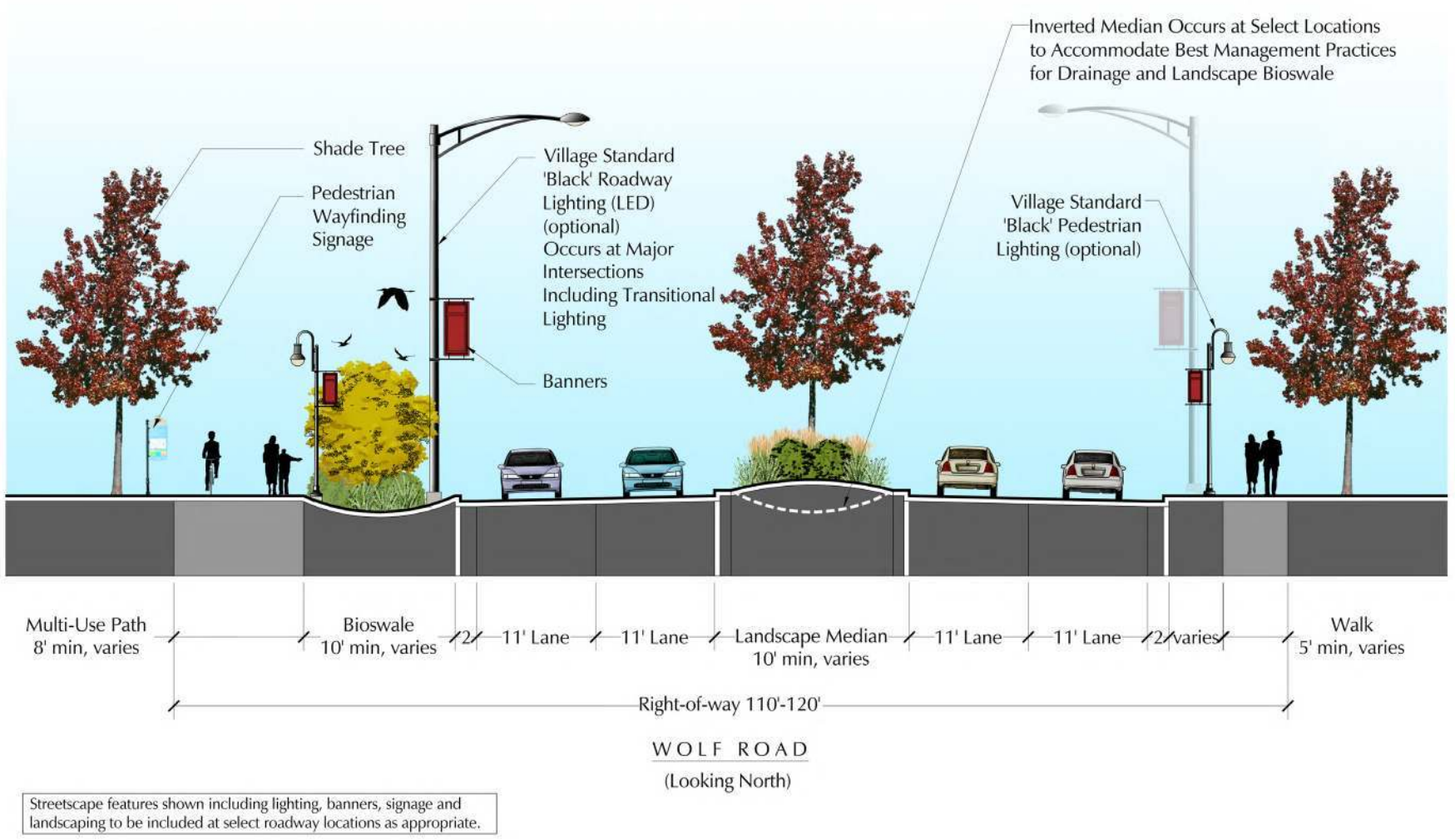


Exhibit 25
Wolf Road Cross Section

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Chapter 7

IMPLEMENTATION

The preceding sections of this report conclude Orland Park's 2040 Transportation Plan. The intent of this report is for it to be used as a living document towards on-going implementation of a safe and efficient multimodal transportation system that helps define the community's character.

Use of the Village's Capital Improvement Program (CIP) will be a key tool for implementing the Plan, as will other municipal revenue streams. Many projects will, however, require the Village to pursue financial assistance through one or several of a variety of sources. A compilation of potential funding sources is included in this section, as well as a complete listing of improvement recommendations and preliminary cost estimates for use to pursue that funding.

FUNDING

Possible funding sources are listed below. It is important to understand the timing of Utilizing funds from Federal or State programs, requires coordination with IDOT's local and Springfield offices of the Bureau of Local Roads and Streets (BLRS) and, in some cases, the Chicago Metropolitan Agency of Planning which is tasked with administrating the distribution of the engineering and construction dollars. Timing of grant applications is critical to writing a successful grant. Some helpful hints are provided below:

- Completion of Phase I Engineering is critical in a winning appliction. Preliminary engineering is necessary for an accurate cost estimate.
- Completion of Phase II helps
- Efforts involving multiple agencies get priority. CMAP recently specified that multijurisdictional planning and investment projects would be prioritized in their grant selection process.
- Tailor your application to the grant criteria
- Maintain a list of projects that the Village Administrator sees so that if they ever get a call about looking for projects to fund, it is at their fingertips.
- Engage consultants with specialized knowledge to assist in the grant application preparation, as required

Funding Sources

U.S./Illinois Department of Transportation

» Transportation Alternatives Program (TAP) *This is a new program under MAP-21 that consolidates many previously eligible activities under separately funded programs, including:*

- *Illinois Transportation Enhancement Program (ITEP)*
- *Safe Routes to School (SRTS)*
- *Recreational Trails Program (RTP)*

» Surface Transportation Program (STP)

» Congestion Mitigation and Air Quality Program (CMAQ)

Illinois Department of Natural Resources

» Open Space Lands Acquisition and Development (OSLAD)

» Land & Water Conservation Fund

» Illinois Bicycle Path Grant Program (IBPGP)

Illinois Department of Commerce and Economic Opportunity

» Tourism Attraction Development Grant Program (TAP)

» Community Development Assistance Program (CDAP)

U.S. Department of Housing and Urban Development

» Community Block Development Grant (CBDG)

Other

» Transportation Planning Capacity Building Program

» Transportation Investment Generating Economic Recovery (TIGER)

» Partnership for Sustainable Communities Grants

» Smart Growth Funding Resources

» National Endowment for the Arts, Our Town Wayfinding Grant

IMPROVEMENT RECOMMENDATION TABLES

As discussed through the Plan, specific projects were identified to address roadway improvements, pedestrian network disconnects, crossing deficiencies, bike facilities enhancements and transit strategies. The recommended system improvements are listed on the following pages in the Improvement Recommendation Matrices. The tables categorize the recommendations as:

» Intersection Control

» Geometric

» Roadway Widening

» New Road/Extension

» Miscellaneous

» Pedestrian Access, Sidewalks & Crossings

» Multi-use Paths & Bikeways

Prioritization

The matrices also classify the improvement recommendations as either High Priority or Low Priority. A ranking method was developed to prioritize these improvements and is summarized below:

High Priority Projects

» Short-term, lower-cost roadway projects

» Or roadway projects already in Phase 1

» Trail or bikeway projects that are part of the Village's Primary bikeway system

» Pedestrian access improvements within ¼ mile radius of a park, school, transit corridor or other key destination

» Pedestrian improvements or bike facilities related to a roadway project that is categorized as High Priority

» Locations requiring further study

» Roundabout locations along Ravinia Avenue as the startup program for public acceptance

» New interchange on I-80 at Wolf Road

Low Priority Projects

» Longer-term, high-cost roadway projects except those already initiated

» Trail or bikeway projects that are part of the Village's Secondary bikeway system

» Pedestrian access improvements not within ¼ mile radius of a park, school, transit corridor or other key destination

» Roundabout locations except those on Ravinia Avenue

Costs

As part of this implementation plan, planning level cost estimates were developed and are shown in the recommendation matrices in Exhibits 26 and 27. Unit cost assumptions are noted for applicable projects. Costs do not include any property acquisition or utility relocation.

The costs were totaled for all listed projects in each of the two catogories.

	High Priority Projects	***Low Priority Projects***
Cost Subtotal	$170,000,000	$76,000,000
25% Contingency	$42,500,000	$19,000,000
TOTAL	**$212,500,000**	**$95,000,000**

Exhibit 26 High Priority Improvement Recommendations

Type	Location	Description	Participants	Preliminary Cost Estimate	Notes
Intersection Control					
	143rd Street & Southwest Highway/ Union Street	Upgrade/modify traffic signal equipment	IDOT/VOP	$100,000	
	143rd Street & West Avenue	Modify signal timings	VOP	$10,000	
	143rd Street & Will Cook Road	Permanent traffic signal	Will County	n/a	under construction
	149th Street & Ravinia Avenue	Study/Construct roundabout	VOP	$1,000,000	
	151st Street & 88th Avenue	Upgrade traffic signal equipment & modify timings	VOP	$100,000	
	151st Street & West Avenue	Study/Construct roundabout	VOP	n/a	Part of 151st Street widening
	153rd Street & Ravinia Avenue	Construct roundabout	VOP	$1,000,000	
	159th Street & 94th Avenue	Traffic Signal phasing modifications	VOP	$100,000	
	159th Street & 104th Avenue	Signalization	VOP/IDOT		Part of IDOT 159th Street project
	John Humphrey & 147th Street	Study Further	VOP	$7,000	
	LaGrange Road & 154th Place	Signalization	IDOT/VOP	n/a	Part of LaGrange Road project
	LaGrange Road & 161st Street	Signalization	IDOT/VOP	$350,000	Potentially part of Ravinia south extension
	Ravinia Avenue & 147th Street	Construct roundabout	VOP	$200,000	
Geometric					
	143rd Street & 82nd Avenue	Add NB right-turn lane	VOP/CCHD	$200,000	
	143rd Street & 108th Avenue	Add EB/WB right-turn lanes	IDOT/CCHD	n/a	Part of 143rd Street project
	143rd Street & John Humphrey Drive	Study NB right-turn lane	VOP	$5,000	
	147th Street & LaGrange Road	EB/WB lane balance	VOP/IDOT	n/a	Part of LaGrange Road project
	151st Street & 82nd Avenue	Add SB right-turn lane	VOP/CCHD	$200,000	
	151st Street & Orland Sq/Regent Dr	NB/SB lane balance and signage	VOP	$50,000	
	159th Street & 71st Court	Stripe NB/SB turn lanes	VOP	$10,000	
	159th Street & 91st Avenue/Parkhill Drive	NB/SB lane balance	VOP	$50,000	
	179th Street & 104th Avenue	Add SB right-turn lane, modify radii	VOP/CCHD	$200,000	
	179th Street & Southwest Highway	Add appropriate turn lanes	IDOT	n/a	IDOT currently designing
	Harlem Avenue & 151st Street	Add SB right-turn lane	IDOT	$200,000	IDOT currently designing
Roadway Widening					
	143rd Street	Five lanes: Southwest Highway to Will-Cook Road	VOP/IDOT	$30,000,000	16,300 feet @ 2 lanes @ $1.5M per mile
	151st Street	Three lanes: Ravinia Avenue to West Avenue	VOP	$2,000,000	
	159th Street	Five lanes: Ravinia Avenue to Will Cook Road	IDOT	$30,000,000	IDOT currently designing

	LaGrange Road	Six lanes: 131st Street to 179th Street	IDOT	n/a	under construction
	Wolf Road	Five lanes: 143rd Street to I-80	VOP/IDOT	$51,000,000	Based on URS estimate
New Road/ Extension					
	143rd Street & 95th Avenue	Add 4th leg	Developer	n/a	under construction
	Jefferson Avenue	Extend N to intersect 142nd Street	VOP/ Developer	$300,000	Part of development
	156th Street	Extend W to intersect Ravinia Avenue	VOP	n/a	under construction
	Ravinia Avenue	Extend S/E to intersect LaGrange Road	VOP	$3,000,000	1200 feet @ 5 lane boulevard @ $1.0M per lane mile.
Miscellaneous					
	I-80 & Wolf Road	Add full access interchange	VOP/IDOT	$30,000,000	
	Village-wide	Annual traffic count program	VOP	$10,000	$10,000 every other year
	Village-wide	Gateway and Wayfinding signage shop drawing ready documents	VOP	$120,000	
Pedestrian Access, Sidewalk & Crossings					
	82nd Ave, south of Elizabeth Ave at trail crossing	Update bike crossing signage, remove midblock crossing location	CCHD/VOP	$10,000	
	94th Ave from Orland Square Dr to 151st St	Sidewalk connection to Mall	VOP	$35,000	900 feet @ $200K per lane mile
	Orland Square Mall	Generally improve sidewalk/pedestrian connections	VOP/Private	$100,000	
	131st St at Sandburg HS	Install ADA ramps, stripe continental crosswalks (3)	IDOT	n/a	Part of IDOT LaGrange Road project
	135th St at 88th Ave	Stripe continental crosswalks (4)	CCHD	$40,000	
	143rd Street, Southwest Highway to Will Cook Road	Install multi-use Path one side, sidewalk on the other	IDOT/VOP	n/a	Part of 143rd Street project
	143rd St at Wolf Rd	Add sidewalk, install pedestrian heads, stripe crosswalks (2)	IDOT/CCHD	n/a	Part of 143rd Street project
	143rd St at 108th Ave	Stripe continental crosswalks (2)	IDOT/CCHD	n/a	Part of 143rd Street project
	143rd St at West Ave	Add pedestrian countdown timers	IDOT/VOP	n/a	Part of 143rd Street project
	143rd St at 94th Ave	Stripe continental crosswalks (2)	IDOT/VOP	n/a	Part of 143rd Street project
	143rd St at 82nd Ave	Stripe continental crosswalks (2)	VOP/CCHD	$20,000	
	151st St at Catalina Dr	Study to determine if ped volumes warrant ped-actuated signal	VOP	$5,000	
	151st St at Regent Dr/Orland Square Dr	Install pedestrian signal heads and stripe crosswalks (2), generally improve sidewalk connections to the Mall - Signage	VOP/Private	$80,000	
	151st St at 94th Ave	Install pedestrian signal heads and stripe crosswalks (2)	VOP/Private	$40,000	

Exhibit 26 con't. High Priority Improvement Recommendations

	La Grange Rd at 167th St	Install ped signal heads, ADA ramps, colored stamped concrete crosswalks crosswalks (1)	IDOT	n/a	Part of IDOT LaGrange Road project
	La Grange Rd at 179th St	Install sidewalk, ped signal heads	IDOT	n/a	Part of IDOT LaGrange Road project
	La Grange Rd at Southmoor Dr	Update ped signals, colored stamped concrete crosswalk	IDOT	n/a	Part of IDOT LaGrange Road project
	Wolf Rd, 143rd Street to I-80	Install multi-use Path one side, sidewalk on the other	IDOT/VOP/ Developer	n/a	Do in segments as road projects are down or developments proposed
Multi-Use Paths					
	82nd Ave, south of Basswood Dr	Extend multi-path on east side of roadway	CCHD/VOP	$580,000	3800 feet @ $800,000 per lane mile
	82nd Ave, north of Uxbridge Rd	Extend multi-path on east side of roadway	CCHD/VOP	$670,000	4400 feet @ $800,000 per lane mile
	82nd Ave: 141st St to existing path	Multi-Use path	CCHD/VOP	$1,150,000	6000 feet @ $800,000 per lane mile
	82nd Ave: Forestview Dr to 151st St	Multi-Use path	CCHD/VOP	$170,000	1100 feet @ $800,000 per lane mile
	143rd St: Wolf Rd to West Ave	Multi-Use path on north side	IDOT/VOP	$1,200,000	8000 feet @ $800,000 per lane mile
	151st St, west of 82nd Ave	Extend multi-use path	VOP	$2,200,000	14,000 feet @ $800,000 per lane mile
	153rd St: West Ave to La Grange Rd	Convert 5' sidewalk to 8' multi-use path	VOP	$810,000	5300 feet @ $800,000 per lane mile
	153rd St: West Ave to 108th Ave	Multi-Use path	CCHD/VOP	$1,350,000	8700 Feet @ $800,000 per lane mile
	159th St: Will Cook Rd to Ravinia Ave	Multi-Use path	IDOT	$2,200,000	13,900 Feet @ $800,000 per lane mile
	167th St: Will Cook Rd to 104th Ave	Multi-Use path	CCHD/VOP	$1,400,000	9300 feet @ $800,000 per lane mile
	Orland Parkway: 183rd St (Wolf Road) to La Grange Rd	Multi-Use path	VOP	$1,900,000	12,300 feet @ $800,000 per lane mile
	La Grange Rd: 131st to Southwest Highway	Multi-Use path	IDOT	n/a	*Part of IDOT LaGrange Road project
	La Grange Rd: 159th St to 167th St	Multi-Use path	IDOT	n/a	*Part of IDOT LaGrange Road project
	La Grange Rd: 179th St to Orland Parkway	Multi-Use path	IDOT	n/a	*Part of IDOT LaGrange Road project
	Grasslands Forest Preserve, Interior path around the perimeter	Multi-Use path/Trail	FPDCC	n/a	Design with FPDCC
	NEQ 167th St & 104th Ave connecting to Ravinia Ave	Multi-Use path/Trail	VOP	$620,000	4100 feet @ $800,000 per lane mile
	Ravina Ave Extension, 159th St to La Grange Rd	Multi-Use path	VOP	$185,000	1200 feet $800,000 per lane mile
	179th St: Marley Creek to 179th St Metra Station	Widen south sidewalk to function as multi-use path connecting to station, improve crossing	IDOT/CCHD/ VOP	$245,000	1600 feet @ $800,000 per lane mile
	Stellwagon Farm Perimeter Path	Multi-Use path	VOP	$500,000	3200 feet @ $800,000 per lane mile

	La Grange Rd at 167th St	Install ped signal heads, ADA ramps, colored stamped concrete crosswalks crosswalks (1)	IDOT	n/a	Part of IDOT LaGrange Road project
	La Grange Rd at 179th St	Install sidewalk, ped signal heads	IDOT	n/a	Part of IDOT LaGrange Road project
	La Grange Rd at Southmoor Dr	Update ped signals, colored stamped concrete crosswalk	IDOT	n/a	Part of IDOT LaGrange Road project
	Wolf Rd, 143rd Street to I-80	Install multi-use Path one side, sidewalk on the other	IDOT/VOP/ Developer	n/a	Do in segments as road projects are down or developments proposed
Multi-Use Paths					
	82nd Ave, south of Basswood Dr	Extend multi-path on east side of roadway	CCHD/VOP	$580,000	3800 feet @ $800,000 per lane mile
	82nd Ave, north of Uxbridge Rd	Extend multi-path on east side of roadway	CCHD/VOP	$670,000	4400 feet @ $800,000 per lane mile
	82nd Ave: 141st St to existing path	Multi-Use path	CCHD/VOP	$1,150,000	6000 feet @ $800,000 per lane mile
	82nd Ave: Forestview Dr to 151st St	Multi-Use path	CCHD/VOP	$170,000	1100 feet @ $800,000 per lane mile
	143rd St: Wolf Rd to West Ave	Multi-Use path on north side	IDOT/VOP	$1,200,000	8000 feet @ $800,000 per lane mile
	151st St, west of 82nd Ave	Extend multi-use path	VOP	$2,200,000	14,000 feet @ $800,000 per lane mile
	153rd St: West Ave to La Grange Rd	Convert 5' sidewalk to 8' multi-use path	VOP	$810,000	5300 feet @ $800,000 per lane mile
	153rd St: West Ave to 108th Ave	Multi-Use path	CCHD/VOP	$1,350,000	8700 Feet @ $800,000 per lane mile
	159th St: Will Cook Rd to Ravinia Ave	Multi-Use path	IDOT	$2,200,000	13,900 Feet @ $800,000 per lane mile
	167th St: Will Cook Rd to 104th Ave	Multi-Use path	CCHD/VOP	$1,400,000	9300 feet @ $800,000 per lane mile
	Orland Parkway: 183rd St (Wolf Road) to La Grange Rd	Multi-Use path	VOP	$1,900,000	12,300 feet @ $800,000 per lane mile
	La Grange Rd: 131st to Southwest Highway	Multi-Use path	IDOT	n/a	*Part of IDOT LaGrange Road project
	La Grange Rd: 159th St to 167th St	Multi-Use path	IDOT	n/a	*Part of IDOT LaGrange Road project
	La Grange Rd: 179th St to Orland Parkway	Multi-Use path	IDOT	n/a	*Part of IDOT LaGrange Road project
	Grasslands Forest Preserve, Interior path around the perimeter	Multi-Use path/Trail	FPDCC	n/a	Design with FPDCC
	NEQ 167th St & 104th Ave connecting to Ravinia Ave	Multi-Use path/Trail	VOP	$620,000	4100 feet @ $800,000 per lane mile
	Ravina Ave Extension, 159th St to La Grange Rd	Multi-Use path	VOP	$185,000	1200 feet $800,000 per lane mile
	179th St: Marley Creek to 179th St Metra Station	Widen south sidewalk to function as multi-use path connecting to station, improve crossing	IDOT/CCHD/ VOP	$245,000	1600 feet @ $800,000 per lane mile
	Stellwagon Farm Perimeter Path	Multi-Use path	VOP	$500,000	3200 feet @ $800,000 per lane mile

Exhibit 27 Low Priority Improvement Recommendations

Type	Location	Description	Participants	Preliminary Cost Estimate	Notes
Intersection Control					
	151st Street & Catalina Drive	Signalization	VOP	$300,000	
	156th Street & Ravinia Avenue	Study further Signal/roundabout	VOP	$7,000	
	Wheeler Drive & Orlan Brook	Study/Construct roundabout	VOP	$1,000,000	
	Wheeler Drive & 82nd Avenue	Study/Construct roundabout	VOP	$1,000,000	
	94th Avenue & 163rd Street/ Meadowview	Signalization	CCHD/VOP	$300,000	
	Ravinia Avenue & West Avenue	Study/Construct roundabout	VOP	$1,000,000	
	Route 6 - Orland Woods	Study lane channelization	IDOT	$7,000	
Geometric					
	131st Street & Southwest Highway	Add EB/WB right-turn lanes	VOP/IDOT/ CCHD	$400,000	$200,000 each
	131st Street & 104th Avenue	Add WB right-turn lane	CCHD	$200,000	
	131st Street & Wolf Road	Add EB/WB right-turn lanes	CCHD	$400,000	
	135th Street & 82nd Avenue	Add EB right-turn lane	CCHD	$200,000	
	135th Street & Southwest Highway	Add NB/SB right-turn lanes	CCHD/IDOT	$400,000	$200,000 each
	153rd Street & 108th Avenue	Add NB/SB right-turn lanes	CCHD	$400,000	$200,000 each
	Southwest Highway & Wolf Road	Increase NEB right-turn storage	IDOT	$100,000	
	Ravinia Avenue & West Avenue	Add NB/SB left-turn lane	VOP	n/a	Striping being done to accommodate lanes
Roadway Widening					
	82nd Avenue	Three lanes: at intersections widen as urban section with C&G	CCHD	$2,100,000	11,100 feet @ 1 lane @ $1.0M per mile (cheaper, not entire re-construct or add lanes)
	94th Avenue	Five lanes: Hunter Drive to 167th	VOP	$4,600,000	3200 feet @ 5 lane @ $1.5M per mile
	104th Avenue	Three lanes: 179th to 183rd	VOP	$2,100,000	2500 feet @ 3 lane @ $1.5M per mile
	108th Avenue	Three lanes: 159th to 167th	CCHD	n/a	CCHD currently designing
	131st Street	Three lanes: Mill Road to Wolf Road	CCHD	$3,100,000	3600 feet @ 3 lane @ $1.5M per mile
	153rd Street	Five lanes: LaGrange to West & 108th to Wolf	VOP	$7,400,000	5200 feet @ 5 lane @ $1.5M per mile
	179th Street	Three lanes: LaGrange to 104th	VOP	$4,500,000	5300 feet @ 3 lane @ $1.5M per mile
	Ravinia Avenue	Three lanes: 143rd to 151st	VOP	$4,700,000	5500 feet @ 3 lane @ $1.5M per mile
New Road/ Extension					
	John Humphrey Drive	Extend through Mall to function as a through route aligned with 94th Avenue at 151st Street	VOP/Private	$840,000	2200 feet @ 2 lanes @ $1.0M per lane mile.
	Southwest Highway - Downtown	Realign Southwest Highway to intersect Union Street at 143rd Street or	VOP/IDOT	n/a	Part of the 143rd Street Study

	104th Avenue	Extend S to Orland Parkway	VOP	$510,000	800 feet @ 2 lanes @ $1.0M per lane mile. Left Turn Lane on Orland Pkwy @ $200,000.
	Between 108th Avenue & Wolf Road S from 143rd Street	New N-S road	VOP/ Developer	$2,700,000	6800 Feet @ 2 lanes @ $1.0M per lane mile. LT lane on Wolf and extension @ $50,000 each.
	West of Wolf Road S from 143rd Street	New N-S road	VOP/ Developer	$2,200,000	5300 Feet @ 2 lanes @ $1.0M per lane mile. LT lane at 151st Street and new road @ $100,000 each.
	Hancock Street	Extend W to Will Cook Road	VOP/ Developer	$2,400,000	3900 Feet @ 2 lanes @ $1.0M per lane mile. LT lanes on Will-Cook and NB Wolf @ $300,000 each.
	Anthony Drive	Extend W to Karen Drive	VOP/ Developer	$265,000	700 feet @ 2 lanes @ $1.0M per lane mile.
	Kingsport Road	Extend N to 159th Street	VOP/ Developer	$1,100,000	2400 feet @ 2 lanes @ $1.0M per lane mile. WB and NB LT lanes @ 159th Street @ $50,000 each,
	161st Street	Extend W past Wolf Road connecting to Will Cook Road	VOP/ Developer	$1,800,000	4500 feet @ 2 lanes @ $1.M per lane mile. LT lanes at Wolf and Will-Cook @ $50,000 each.
	171st Street	Extend E-W between Wolf Road & Will Cook Road	VOP/ Developer	$2,500,000	5100 feet @ 2 lanes @ $1.0M pre lanemile. Traffic signal & LT lanes on Wolf @ $600,000
	Brookgate Drive	Extend N to 159th Street	VOP/ Developer	$4,900,000	9600 feet @ 2 lanes @ $1.0M per lane mile. LT lanes all approaches @ 167th Street & 159th Street @ $600,000 per intersection.
Pedestrian Access, Sidewalk & Crossings					
	143rd St at 88th Ave	Stripe continental crosswalks (2), study further for additional marked crosswalk and/or ped safety tools	IDOT/VOP	$20,000	
	143rd St at 80th Ave	Stripe continental crosswalks (2), study further for additional marked crosswalk and/or ped safety tools	IDOT/VOP	$20,000	
	143rd St at Will Cook Rd	Install pedestrian signal heads and stripe crosswalks (2)	Will County	n/a	under construction
	179th St at Wolf Rd	Crosswalks and ped signal heads	IDOT/CCHD	$60,000	
	179th St at 104th Ave	Study intersection further for ped safety tools (i.e. ADA, ped signal heads, marked crosswalks)	CCHD/VOP	$5,000	

Exhibit 27 con't. Low Priority Improvement Recommendations

Type	Location	Description	Participants	Preliminary Cost Estimate	Notes
Multi-Use Paths					
	94th Ave: 143rd St to 167th St	Restripe roadway to include wide outside marked shared lane	VOP/CCHD/ Orland Hills	$60,000	15,800 feet @ $20,000 per lane mile
	131st St: La Grange Rd to Harlem Ave	Pave shoulders	CCHD/VOP	$2,400,000	15,800 feet @ $800,000 per lane mile (total 1 lane)
	135th St: La Grange Rd to Harlem Ave	Pave shoulders	CCDH/VOP	$2,400,000	15,800 feet @ $800,000 per lane mile (total 1 lane)
	143rd St: 94th Ave to Harlem Ave	Multi-Use path on north side	VOP	$2,300,000	14,900 feet @ $800,000 per lane mile
	John Humphrey Dr/ Orland Sq Dr: 143rd St to 151st St	Further study, possible road diet with bike lanes	VOP	$40,000	
	West Ave: 147th St to Ravinia Ave	Restripe roadway to include wide outside lane with/without sharrows	VOP	$27,000	7100 feet @ $20,000 per lane mile
	Orland Grove Forest Preserve/McGinnis Slough, RR tracks to Will Cook Rd	Trail on independent ROW	FPDCC/VOP	$3,100,000	20,000 feet @ $800,000 per lane mile
	Southwest Highway: 131st St to 143rd St	Multi-Use path or paved shoulder	IDOT/VOP	$1,550,000	10,000 feet @ $800,000 per lane mile
	Brook Hill Dr Extension: 159th St to Brook Hill Dr	Multi-Use path and/or on-street	VOP	$1,300,000	assume sidepath. 8200 feet @ $800,000 per lane mile
	Arbor Lake, Wolf Rd to Will Cook Rd/151st St	Trail on independent ROW	VOP/Private	$1,150,000	7400 feet @ $800,000 per lane mile
	North & West of Swallow Ridge Subdivision between 104th Ave & 108th Ave	Multi-Use path	VOP/Private	$750,000	4900 feet @ $800,000 per lane mile
	Brown Park Trail Extension from underpass to 153rd St	Multi-Use path/trail	VOP	$550,000	3600 feet @ $800,000 per lane mile
	88th Ave Corridor Bikeway, Wheeler Dr to 131st St	Signage	VOP	$10,000	
	Long Run Creek On-street Bikeway between 108th Ave & Will Cook Rd	Signage	VOP	$10,000	
	149th St: Ravinia Ave to John Humphrey Dr	Restripe roadway to include marked shared lanes	VOP	$57,000	1500 feet @ $20,000 per lane mile
	New N-S residential Collector between 143rd St & Crystal Springs Ct	Multi-Use path	VOP/Private	$805,000	5300 feet @ $800,000 per lane mile
	Crystal Springs Ct Extension, terminus to Wolf Rd	Multi-Use path	VOP/Private	$275,000	1800 feet @ $800,000 per lane mile

	Will Cook Rd: South of 151st St to south of 167th St	Multi-Use path	CCHD/VOP	$1,550,000	10,800 feet @ $800,000 per lane mile
	Will Cook Rd Connection to Brook Hill Dr Extension	Multi-Use path	VOP/Private	$1,850,000	12,200 feet @ $800,000 per lane mile
	108th Ave: 143rd St to 179th St	Multi-Use path	CCHD/VOP	n/a	Being designed by CCHD
	Eagle Ridge Dr: 179th St to John Charles Dr	Multi-Use path	VOP/Private	$335,000	2200 feet @ $800,000 per lane mile
	John Charles Dr: Eagle Ridge Dr to 183rd St	Multi-Use path	VOP/Private	$335,000	2200 feet @ $800,000 per lane mile
	Westwind Subdivision, North of subdivision along RR tracks	Multi-Use path	VOP/Private	$700,000	4600 feet @ $800,000 per lane mile
	Deer Pointe Estates, 104th Ave/167th St to 108th St	Bike route signage	VOP/Private	$10,000	
	Somerglen Subdivision, Glenlake Dr to Anthony Dr	Multi-Use path	VOP/Private	$490,000	3200 feet @ $800,000 per lane mile